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2 February 2017

Don Goodrich
U.S. EPA, Region 8
1595 Wynkoop St
Denver, CO 80202

RE: Bonita Peak DV Case 46282
TDD 0004/1612-06

Dear Mr. Goodrich:

Please find attached the data validation report for Case 46282 for the Bonita Peak site. This report has been prepared by START chemists in accordance with TDD 1612-06.

If you have any questions or require additional information, please contact me by phone at 303-729-6124 or by email at natalie.quiet@westonsolutions.com.

Very truly yours,

WESTON SOLUTIONS, INC.

Natalie Quiet
Project Manager

Enclosures: Data Validation Report

DCN: W0436.4B.01243

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1F86

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1F86
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 4
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1F86	6100154-01	Sediment	09/30/2016 14:30:00	Hg, ICP-AES, ICP-MS
MH1F87	6100154-02	Soil	09/30/2016 14:30:00	Hg, ICP-AES, ICP-MS
MH1F88	6100154-03	Sediment	09/30/2016 15:15:00	Hg, ICP-AES, ICP-MS
MH1F89	6100154-04	Soil	09/30/2016 15:15:00	Hg, ICP-AES, ICP-MS
MH1F90	6100154-05	Sediment	09/30/2016 13:15:00	Hg, ICP-AES, ICP-MS
MH1F91	6100154-06	Soil	09/30/2016 13:15:00	Hg, ICP-AES, ICP-MS
MH1F92	6100154-07	Sediment	09/30/2016 13:30:00	Hg, ICP-AES, ICP-MS
MH1F93	6100154-08	Soil	09/30/2016 13:30:00	Hg, ICP-AES, ICP-MS
MH1F94	6100154-09	Sediment	09/30/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1F95	6100154-10	Soil	09/30/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1F96	6100154-11	Sediment	09/30/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1F97	6100154-12	Soil	09/30/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1F98	6100154-13	Sediment	09/29/2016 16:35:00	Hg, ICP-AES, ICP-MS
MH1F99	6100154-14	Soil	09/29/2016 16:35:00	Hg, ICP-AES, ICP-MS
MH1G01	6100154-15	Sediment	09/30/2016 09:00:00	Hg, ICP-AES, ICP-MS
MH1G02	6100154-16	Soil	09/30/2016 09:00:00	Hg, ICP-AES, ICP-MS
MH1G03	6100154-17	Sediment	09/30/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1G04	6100154-18	Soil	09/30/2016 10:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in the by laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/16/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the remaining metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method and Calibration Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Associated detected results greater than the RL and <10x the MB concentration were qualified as estimated with high potential bias (J+).

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
molybdenum	0.47 J, 0.25 J, 0.36 J, and 0.49 J	All samples with the exception of MH1F89, MH1F95, and MH1F99
silver	0.061 J	MH1F88, MH1F89, MH1F90, MH1F92, MH1F93, MH1F94, MH1F99, MH1G01, MH1G03, and MH1G04

- Interference Check Samples (ICSA/B): ICSA/B results were evaluated at the Stage 4 validation. The laboratory analyzed and reported ICS results at the required frequency for ICP and ICP/MS. The ICS consists of two solutions: Solution A and Solution AB. Solution A consists of the interferents, and Solution AB consists of the analytes mixed with the interferents. Results for the analysis of ICS Solution must fall within the control limits of ± 20% or ±CRQL (whichever is greater) of the true value for the analytes and interferents included in the solution. If results that are ≥ MDL are observed for analytes that are not present in the ICS solution, the possibility of false positives exists. If negative results are observed for analytes that are not present in the ICS solution, and their absolute value is ≥ MDL, the possibility of false negatives in the samples exists. In general, ICP and ICP/MS sample

data can be accepted if the concentrations of aluminum, calcium, iron, and magnesium in the sample are found to be less than or equal to their respective concentrations in the ICS. Iron was detected in all samples at levels greater than the ICS solution. As iron was the only interferenct present in the site samples at a concentration similar to the ICSA solution and as the concentration of beryllium in the ISCA was similar to the ICV concentration, no qualifications were required.

- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1F87. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All sample detects for the affected analytes were qualified as estimated (J) and the non-detects were qualified as estimated (UJ).

Analyte	Duplicate Sample Result RPD or ±RL	Qualified Samples
barium	40%	All soil samples in the SDG. The sediment matrix samples are not qualified.
cobalt, nickel, silver, and vanadium	±RL	

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1F87. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. Post-digestion spikes were performed and were outside control limits for the affected analytes. Affected sample results were qualified (J/J-/UJ) and rejected as unusable (R).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony barium cadmium	31% / 52% 68% / 74% 40% / 53%	All soil samples (J-)
molybdenum	57% / 167%	All soil samples (J / UJ)
silver	22% / 57%	All soil samples (J / R) All silver soil sample results previously qualified as non-detect due to associated blanks were rejected as unusable (R).

- Post Digestion Spike: Post digestion spike analyses were assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analysis was performed on soil sample MH1F87. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
barium cadmium cobalt nickel	23% 63% 13% 33%	All soil samples (J)
silver	60%	MH1F87, MH1F91, MH1F95, MH1F97, MH1G02 All silver soil sample non-detects were rejected as unusable (R), and were not qualified for the serial dilution result.

- Internal Standards: Intensities for all site sample ICP-MS internal standards were within 60-125% relative intensity (%RI) of the response in the calibration blank for reported target analytes except as noted in the table below. All %RI infractions were >125%. In all cases, samples with %RI infractions were reanalyzed at a 2x dilution. When the diluted analyses passed internal standard criteria, results were reported from the dilution. When the diluted analyses had %RI infractions, results were reported from the initial analysis. All associated sample result detects were qualified as estimated (J), and associated sample result non-detects were qualified as estimated (UJ).

Internal standard	Affected analytes	Qualified samples
indium-115	antimony, barium, cadmium, cobalt, molybdenum, nickel, silver	MH1F86, MH1F87

- Sample Result Verification: Analyte quantification was verified at a Stage 4 validation. No problems were identified. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with “D” by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1F86

Analysis Method Hg

Lab Sample Name: 6100154-01 **Sample No:** MH1F86 **Sample Date:** 09/30/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.068	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100154-02 **Sample No:** MH1F87 **Sample Date:** 09/30/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.67	0.14	0.0045	mg/kg			

Lab Sample Name: 6100154-03 **Sample No:** MH1F88 **Sample Date:** 09/30/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.11	0.0036	mg/kg	U	U	

Lab Sample Name: 6100154-04 **Sample No:** MH1F89 **Sample Date:** 09/30/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.030	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100154-05 **Sample No:** MH1F90 **Sample Date:** 09/30/2016 13:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0039	mg/kg	U	U	

Lab Sample Name: 6100154-06 **Sample No:** MH1F91 **Sample Date:** 09/30/2016 13:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.29	0.14	0.0045	mg/kg			

Lab Sample Name: 6100154-07 **Sample No:** MH1F92 **Sample Date:** 09/30/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.11	0.0037	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100154-08 **Sample No:** MH1F93 **Sample Date:** 09/30/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.45	0.17	0.0055	mg/kg			

Lab Sample Name: 6100154-09 **Sample No:** MH1F94 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0038	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100154-10 **Sample No:** MH1F95 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.030	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100154-11 **Sample No:** MH1F96 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.32	0.13	0.0041	mg/kg			

Lab Sample Name: 6100154-12 **Sample No:** MH1F97 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.037	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100154-13 **Sample No:** MH1F98 **Sample Date:** 09/29/2016 16:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.039	0.15	0.0047	mg/kg	J	J	

Lab Sample Name: 6100154-14 **Sample No:** MH1F99 **Sample Date:** 09/29/2016 16:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.075	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100154-15 **Sample No:** MH1G01 **Sample Date:** 09/30/2016 09:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.043	0.13	0.0043	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100154-16 **Sample No:** MH1G02 **Sample Date:** 09/30/2016 09:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.035	0.14	0.0043	mg/kg	J	J	

Lab Sample Name: 6100154-17 **Sample No:** MH1G03 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.033	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100154-18 **Sample No:** MH1G04 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.050	0.12	0.0037	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100154-01 **Sample No:** MH1F86 **Sample Date:** 09/30/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7380	24.5	1.7	mg/kg	*		
Arsenic	7440-38-2	147	1.2	0.13	mg/kg	*		
Calcium	7440-70-2	1730	612	3.4	mg/kg	*		
Copper	7440-50-8	178	3.1	0.050	mg/kg			
Iron	7439-89-6	35600	12.2	0.61	mg/kg	*		
Lead	7439-92-1	1220	1.2	0.16	mg/kg			
Magnesium	7439-95-4	2320	612	2.4	mg/kg			
Manganese	7439-96-5	1350	1.8	0.027	mg/kg			
Zinc	7440-66-6	803	7.3	0.060	mg/kg	*		

Lab Sample Name: 6100154-02 **Sample No:** MH1F87 **Sample Date:** 09/30/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11000	27.9	2.0	mg/kg	*	J	A
Arsenic	7440-38-2	135	1.4	0.15	mg/kg	*	J	A
Calcium	7440-70-2	2470	697	3.9	mg/kg	*		
Copper	7440-50-8	139	3.5	0.057	mg/kg			
Iron	7439-89-6	38400	13.9	0.70	mg/kg	*	J	A
Lead	7439-92-1	1960	1.4	0.18	mg/kg			
Magnesium	7439-95-4	3230	697	2.8	mg/kg			
Manganese	7439-96-5	258	2.1	0.031	mg/kg			

Zinc		7440-66-6	1880	8.4	0.068	mg/kg	*	J	A

Lab Sample Name: 6100154-03 **Sample No:** MH1F88 **Sample Date:** 09/30/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7370	22.7	1.6	mg/kg	*		
Arsenic	7440-38-2	10.0	1.1	0.13	mg/kg	*		
Calcium	7440-70-2	2880	568	3.2	mg/kg	*		
Copper	7440-50-8	15.7	2.8	0.047	mg/kg			
Iron	7439-89-6	16200	11.4	0.57	mg/kg	*		
Lead	7439-92-1	329	1.1	0.15	mg/kg			
Magnesium	7439-95-4	3930	568	2.3	mg/kg			
Manganese	7439-96-5	1720	1.7	0.025	mg/kg			
Zinc	7440-66-6	431	6.8	0.056	mg/kg	*		

Lab Sample Name: 6100154-04 **Sample No:** MH1F89 **Sample Date:** 09/30/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7300	30.7	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	12.0	1.5	0.17	mg/kg	*	J	A
Calcium	7440-70-2	3790	767	4.3	mg/kg	*		
Copper	7440-50-8	28.4	3.8	0.063	mg/kg			
Iron	7439-89-6	39300	15.3	0.77	mg/kg	*	J	A
Lead	7439-92-1	220	1.5	0.20	mg/kg			
Magnesium	7439-95-4	2430	767	3.1	mg/kg			
Manganese	7439-96-5	505	2.3	0.034	mg/kg			
Zinc	7440-66-6	238	9.2	0.075	mg/kg	*	J	A

Lab Sample Name: 6100154-05 **Sample No:** MH1F90 **Sample Date:** 09/30/2016 13:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12900	24.3	1.7	mg/kg	*		
Arsenic	7440-38-2	17.2	1.2	0.13	mg/kg	*		
Calcium	7440-70-2	2130	607	3.4	mg/kg	*		
Copper	7440-50-8	60.5	3.0	0.050	mg/kg			
Iron	7439-89-6	55600	24.3	1.2	mg/kg	D*		
Lead	7439-92-1	194	1.2	0.16	mg/kg			
Magnesium	7439-95-4	7560	607	2.4	mg/kg			
Manganese	7439-96-5	3070	1.8	0.027	mg/kg			
Zinc	7440-66-6	542	7.3	0.059	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100154-06 **Sample No:** MH1F91 **Sample Date:** 09/30/2016 13:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14000	28.0	2.0	mg/kg	*	J	A
Arsenic	7440-38-2	229	1.4	0.15	mg/kg	*	J	A
Calcium	7440-70-2	2140	700	3.9	mg/kg	*		
Copper	7440-50-8	612	3.5	0.057	mg/kg			
Iron	7439-89-6	44400	14.0	0.70	mg/kg	*	J	A
Lead	7439-92-1	968	1.4	0.18	mg/kg			
Magnesium	7439-95-4	4700	700	2.8	mg/kg			
Manganese	7439-96-5	2680	4.2	0.062	mg/kg	D		
Zinc	7440-66-6	880	8.4	0.069	mg/kg	*	J	A

Lab Sample Name: 6100154-07 **Sample No:** MH1F92 **Sample Date:** 09/30/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6860	22.9	1.6	mg/kg	*		
Arsenic	7440-38-2	92.7	1.1	0.13	mg/kg	*		
Calcium	7440-70-2	2040	574	3.2	mg/kg	*		
Copper	7440-50-8	168	2.9	0.047	mg/kg			
Iron	7439-89-6	34100	11.5	0.57	mg/kg	*		
Lead	7439-92-1	761	1.1	0.15	mg/kg			
Magnesium	7439-95-4	2410	574	2.3	mg/kg			
Manganese	7439-96-5	1020	1.7	0.025	mg/kg			
Zinc	7440-66-6	5900	34.4	0.28	mg/kg	D*		

Lab Sample Name: 6100154-08 **Sample No:** MH1F93 **Sample Date:** 09/30/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14800	34.2	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	831	3.4	0.38	mg/kg	D*	J	A
Calcium	7440-70-2	1970	855	4.8	mg/kg	*		
Copper	7440-50-8	967	4.3	0.070	mg/kg			
Iron	7439-89-6	85000	34.2	1.7	mg/kg	D*	J	A
Lead	7439-92-1	1350	1.7	0.22	mg/kg			
Magnesium	7439-95-4	3480	855	3.4	mg/kg			
Manganese	7439-96-5	1070	2.6	0.038	mg/kg			
Zinc	7440-66-6	1320	10.3	0.084	mg/kg	*	J	A

Analysis Method ICP_AES

Lab Sample Name: 6100154-09 **Sample No:** MH1F94 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5050	21.1	1.5	mg/kg	*		
Arsenic	7440-38-2	8.3	1.1	0.12	mg/kg	*		
Calcium	7440-70-2	4910	529	3.0	mg/kg	*		
Copper	7440-50-8	19.0	2.6	0.043	mg/kg			
Iron	7439-89-6	17700	10.6	0.53	mg/kg	*		
Lead	7439-92-1	47.5	1.1	0.14	mg/kg			
Magnesium	7439-95-4	2220	529	2.1	mg/kg			
Manganese	7439-96-5	948	1.6	0.023	mg/kg			
Zinc	7440-66-6	212	6.3	0.052	mg/kg	*		

Lab Sample Name: 6100154-10 **Sample No:** MH1F95 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11000	24.3	1.7	mg/kg	*	J	A
Arsenic	7440-38-2	26.4	1.2	0.13	mg/kg	*	J	A
Calcium	7440-70-2	2620	607	3.4	mg/kg	*		
Copper	7440-50-8	63.3	3.0	0.050	mg/kg			
Iron	7439-89-6	40100	12.1	0.61	mg/kg	*	J	A
Lead	7439-92-1	271	1.2	0.16	mg/kg			
Magnesium	7439-95-4	4200	607	2.4	mg/kg			
Manganese	7439-96-5	1710	1.8	0.027	mg/kg			
Zinc	7440-66-6	361	7.3	0.060	mg/kg	*	J	A

Lab Sample Name: 6100154-11 **Sample No:** MH1F96 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10300	25.5	1.8	mg/kg	*		
Arsenic	7440-38-2	54.3	1.3	0.14	mg/kg	*		
Calcium	7440-70-2	2290	637	3.6	mg/kg	*		
Copper	7440-50-8	97.1	3.2	0.052	mg/kg			
Iron	7439-89-6	34000	12.7	0.64	mg/kg	*		
Lead	7439-92-1	565	1.3	0.17	mg/kg			
Magnesium	7439-95-4	5190	637	2.5	mg/kg			
Manganese	7439-96-5	1490	1.9	0.028	mg/kg			
Zinc	7440-66-6	2920	22.9	0.19	mg/kg	D*		

Analysis Method ICP_AES

Lab Sample Name: 6100154-12 **Sample No:** MH1F97 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14100	30.8	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	31.3	1.5	0.17	mg/kg	*	J	A
Calcium	7440-70-2	2810	771	4.3	mg/kg	*		
Copper	7440-50-8	56.1	3.9	0.063	mg/kg			
Iron	7439-89-6	51800	15.4	0.77	mg/kg	*	J	A
Lead	7439-92-1	222	1.5	0.20	mg/kg			
Magnesium	7439-95-4	7510	771	3.1	mg/kg			
Manganese	7439-96-5	2330	2.3	0.034	mg/kg			
Zinc	7440-66-6	356	9.2	0.076	mg/kg	*	J	A

Lab Sample Name: 6100154-13 **Sample No:** MH1F98 **Sample Date:** 09/29/2016 16:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12900	29.1	2.0	mg/kg	*		
Arsenic	7440-38-2	25.6	1.5	0.16	mg/kg	*		
Calcium	7440-70-2	886	727	4.1	mg/kg	*		
Copper	7440-50-8	27.5	3.6	0.060	mg/kg			
Iron	7439-89-6	39700	14.5	0.73	mg/kg	*		
Lead	7439-92-1	115	1.5	0.19	mg/kg			
Magnesium	7439-95-4	3750	727	2.9	mg/kg			
Manganese	7439-96-5	535	2.2	0.032	mg/kg			
Zinc	7440-66-6	102	8.7	0.071	mg/kg	*		

Lab Sample Name: 6100154-14 **Sample No:** MH1F99 **Sample Date:** 09/29/2016 16:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15700	24.7	1.7	mg/kg	*	J	A
Arsenic	7440-38-2	16.4	1.2	0.14	mg/kg	*	J	A
Calcium	7440-70-2	3240	618	3.5	mg/kg	*		
Copper	7440-50-8	56.3	3.1	0.051	mg/kg			
Iron	7439-89-6	40900	12.4	0.62	mg/kg	*	J	A
Lead	7439-92-1	241	1.2	0.16	mg/kg			
Magnesium	7439-95-4	6170	618	2.5	mg/kg			
Manganese	7439-96-5	3520	5.6	0.082	mg/kg	D		
Zinc	7440-66-6	446	7.4	0.061	mg/kg	*	J	A

Analysis Method ICP_AES

Lab Sample Name: 6100154-15 **Sample No:** MH1G01 **Sample Date:** 09/30/2016 09:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9870	26.6	1.9	mg/kg	*		
Arsenic	7440-38-2	49.5	1.3	0.15	mg/kg	*		
Calcium	7440-70-2	622	666	3.7	mg/kg	J*	J	
Copper	7440-50-8	31.0	3.3	0.055	mg/kg			
Iron	7439-89-6	41100	13.3	0.67	mg/kg	*		
Lead	7439-92-1	51.4	1.3	0.17	mg/kg			
Magnesium	7439-95-4	1720	666	2.7	mg/kg			
Manganese	7439-96-5	474	2.0	0.029	mg/kg			
Zinc	7440-66-6	71.9	8.0	0.065	mg/kg	*		

Lab Sample Name: 6100154-16 **Sample No:** MH1G02 **Sample Date:** 09/30/2016 09:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9880	27.0	1.9	mg/kg	*	J	A
Arsenic	7440-38-2	36.8	1.4	0.15	mg/kg	*	J	A
Calcium	7440-70-2	3360	676	3.8	mg/kg	*		
Copper	7440-50-8	24.5	3.4	0.055	mg/kg			
Iron	7439-89-6	32300	13.5	0.68	mg/kg	*	J	A
Lead	7439-92-1	62.5	1.4	0.18	mg/kg			
Magnesium	7439-95-4	2210	676	2.7	mg/kg			
Manganese	7439-96-5	764	2.0	0.030	mg/kg			
Zinc	7440-66-6	88.3	8.1	0.066	mg/kg	*	J	A

Lab Sample Name: 6100154-17 **Sample No:** MH1G03 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12100	23.1	1.6	mg/kg	*		
Arsenic	7440-38-2	60.1	1.2	0.13	mg/kg	*		
Calcium	7440-70-2	718	578	3.2	mg/kg	*		
Copper	7440-50-8	40.7	2.9	0.047	mg/kg			
Iron	7439-89-6	40000	11.6	0.58	mg/kg	*		
Lead	7439-92-1	126	1.2	0.15	mg/kg			
Magnesium	7439-95-4	3340	578	2.3	mg/kg			
Manganese	7439-96-5	662	1.7	0.025	mg/kg			
Zinc	7440-66-6	184	6.9	0.057	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100154-18 **Sample No:** MH1G04 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8260	23.4	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	34.5	1.2	0.13	mg/kg	*	J	A
Calcium	7440-70-2	444	584	3.3	mg/kg	J*	J	
Copper	7440-50-8	15.9	2.9	0.048	mg/kg			
Iron	7439-89-6	27400	11.7	0.58	mg/kg	*	J	A
Lead	7439-92-1	48.1	1.2	0.15	mg/kg			
Magnesium	7439-95-4	1030	584	2.3	mg/kg			
Manganese	7439-96-5	251	1.8	0.026	mg/kg			
Zinc	7440-66-6	55.6	7.0	0.057	mg/kg	*	J	A

Analysis Method ICP_MS

Lab Sample Name: 6100154-01 **Sample No:** MH1F86 **Sample Date:** 09/30/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.84	1.2	0.037	mg/kg	J*	J	*III
Barium	7440-39-3	64.2	6.1	0.054	mg/kg	*	J	*III
Beryllium	7440-41-7	0.44	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	7.6	0.61	0.051	mg/kg	*	J	*III
Chromium	7440-47-3	1.7	1.2	0.10	mg/kg			
Cobalt	7440-48-4	13.0	0.61	0.037	mg/kg	*	J	*III
Molybdenum	7439-98-7	2.4	2.4	0.055	mg/kg	J*	UJ	B,*III
Nickel	7440-02-0	5.3	0.61	0.055	mg/kg	*	J	*III
Selenium	7782-49-2	1.1	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	0.95	0.61	0.033	mg/kg	*	J	*III
Thallium	7440-28-0	0.27	0.61	0.047	mg/kg	J	J	
Vanadium	7440-62-2	11.2	3.1	0.10	mg/kg	*		

Lab Sample Name: 6100154-02 **Sample No:** MH1F87 **Sample Date:** 09/30/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	1.4	0.042	mg/kg	*	J-	Q,*III
Barium	7440-39-3	65.4	7.0	0.061	mg/kg	*	J-	Q,E,A,*III
Beryllium	7440-41-7	0.75	0.70	0.056	mg/kg			
Cadmium	7440-43-9	3.7	0.70	0.059	mg/kg	*	J-	Q,A,*III
Chromium	7440-47-3	4.6	1.4	0.11	mg/kg			
Cobalt	7440-48-4	3.2	0.70	0.042	mg/kg	*	J	E,A,*III
Molybdenum	7439-98-7	2.8	2.8	0.063	mg/kg	J*	UJ	B,Q,*III

Analysis Method ICP_MS

Nickel	7440-02-0	2.8	0.70	0.063	mg/kg	*	J	E,A,*III
Selenium	7782-49-2	2.1	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	4.7	0.70	0.038	mg/kg	*	J-	Q,E,A,*III
Thallium	7440-28-0	0.21	0.70	0.053	mg/kg	J	J	
Vanadium	7440-62-2	16.7	3.5	0.11	mg/kg	*	J	E

Lab Sample Name: 6100154-03 **Sample No:** MH1F88 **Sample Date:** 09/30/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.49	1.1	0.034	mg/kg	J*	J	
Barium	7440-39-3	62.1	5.7	0.050	mg/kg	*		
Beryllium	7440-41-7	0.57	0.57	0.045	mg/kg			
Cadmium	7440-43-9	2.3	0.57	0.048	mg/kg	*		
Chromium	7440-47-3	0.87	1.1	0.093	mg/kg	J	J	
Cobalt	7440-48-4	9.9	0.57	0.034	mg/kg	*		
Molybdenum	7439-98-7	2.3	2.3	0.051	mg/kg	J*	U	B
Nickel	7440-02-0	2.7	0.57	0.051	mg/kg	*		
Selenium	7782-49-2	1.2	2.8	0.077	mg/kg	J	J	
Silver	7440-22-4	0.57	0.57	0.031	mg/kg	J*	U	B
Thallium	7440-28-0	0.048	0.57	0.043	mg/kg	J	J	
Vanadium	7440-62-2	7.2	2.8	0.093	mg/kg	*		

Lab Sample Name: 6100154-04 **Sample No:** MH1F89 **Sample Date:** 09/30/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.5	0.046	mg/kg	*	J-	Q
Barium	7440-39-3	342	7.7	0.068	mg/kg	*	J-	Q,E,A
Beryllium	7440-41-7	0.30	0.77	0.061	mg/kg	J	J	
Cadmium	7440-43-9	1.2	0.77	0.064	mg/kg	*	J-	Q,A
Chromium	7440-47-3	4.0	1.5	0.13	mg/kg			
Cobalt	7440-48-4	3.7	0.77	0.046	mg/kg	*	J	E,A
Molybdenum	7439-98-7	5.8	3.1	0.069	mg/kg	*	J	Q
Nickel	7440-02-0	2.4	0.77	0.069	mg/kg	*	J	E,A
Selenium	7782-49-2	2.0	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	0.77	0.77	0.041	mg/kg	J*	R	B,Q
Thallium	7440-28-0	0.13	0.77	0.058	mg/kg	J	J	
Vanadium	7440-62-2	14.2	3.8	0.13	mg/kg	*	J	E

Lab Sample Name: 6100154-05 **Sample No:** MH1F90 **Sample Date:** 09/30/2016 13:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.61	1.2	0.036	mg/kg	J*	J	

Analysis Method ICP_MS

Barium	7440-39-3	63.4	6.1	0.053	mg/kg	*		
Beryllium	7440-41-7	0.68	0.61	0.049	mg/kg			
Cadmium	7440-43-9	1.5	0.61	0.051	mg/kg	*		
Chromium	7440-47-3	4.4	1.2	0.10	mg/kg			
Cobalt	7440-48-4	12.4	0.61	0.036	mg/kg	*		
Molybdenum	7439-98-7	2.4	2.4	0.055	mg/kg	J*	U	B
Nickel	7440-02-0	2.8	0.61	0.055	mg/kg	*		
Selenium	7782-49-2	1.7	3.0	0.083	mg/kg	J	J	
Silver	7440-22-4	0.61	0.61	0.033	mg/kg	J*	U	B
Thallium	7440-28-0	0.076	0.61	0.046	mg/kg	J	J	
Vanadium	7440-62-2	22.4	3.0	0.10	mg/kg	*		

Lab Sample Name: 6100154-06 **Sample No:** MH1F91 **Sample Date:** 09/30/2016 13:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.9	2.8	0.084	mg/kg	JD*	J-	Q
Barium	7440-39-3	94.5	14.0	0.12	mg/kg	D*	J-	Q,E,A
Beryllium	7440-41-7	0.85	0.70	0.056	mg/kg			
Cadmium	7440-43-9	2.1	1.4	0.12	mg/kg	D*	J-	Q,A
Chromium	7440-47-3	4.6	1.4	0.11	mg/kg			
Cobalt	7440-48-4	45.7	1.4	0.084	mg/kg	D*	J	E,A
Molybdenum	7439-98-7	5.6	5.6	0.13	mg/kg	JD*	UJ	B,Q
Nickel	7440-02-0	3.9	1.4	0.13	mg/kg	D*	J	E,A
Selenium	7782-49-2	2.5	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	2.4	1.4	0.076	mg/kg	D*	J-	Q,E,A
Thallium	7440-28-0	0.28	0.70	0.053	mg/kg	J	J	
Vanadium	7440-62-2	22.2	3.5	0.11	mg/kg	*	J	E

Lab Sample Name: 6100154-07 **Sample No:** MH1F92 **Sample Date:** 09/30/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.61	1.1	0.034	mg/kg	J*	J	
Barium	7440-39-3	25.7	5.7	0.050	mg/kg	*		
Beryllium	7440-41-7	0.37	0.57	0.046	mg/kg	J	J	
Cadmium	7440-43-9	3.3	0.57	0.048	mg/kg	*		
Chromium	7440-47-3	1.3	1.1	0.094	mg/kg			
Cobalt	7440-48-4	6.1	0.57	0.034	mg/kg	*		
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J*	U	B
Nickel	7440-02-0	2.2	0.57	0.052	mg/kg	*		
Selenium	7782-49-2	0.70	2.9	0.078	mg/kg	J	J	
Silver	7440-22-4	0.57	0.57	0.031	mg/kg	J*	U	B
Thallium	7440-28-0	0.15	0.57	0.044	mg/kg	J	J	

Vanadium	7440-62-2	7.3	2.9	0.094	mg/kg	*		

Lab Sample Name: 6100154-08 **Sample No:** MH1F93 **Sample Date:** 09/30/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.59	3.4	0.10	mg/kg	JD*	J-	Q
Barium	7440-39-3	59.5	17.1	0.15	mg/kg	D*	J-	Q,E,A
Beryllium	7440-41-7	0.74	0.86	0.068	mg/kg	J	J	
Cadmium	7440-43-9	1.5	1.7	0.14	mg/kg	JD*	J-	Q,A
Chromium	7440-47-3	7.4	1.7	0.14	mg/kg			
Cobalt	7440-48-4	11.8	1.7	0.10	mg/kg	D*	J	E,A
Molybdenum	7439-98-7	6.8	6.8	0.15	mg/kg	JD*	UJ	B,Q
Nickel	7440-02-0	5.7	1.7	0.15	mg/kg	D*	J	E,A
Selenium	7782-49-2	2.6	4.3	0.12	mg/kg	J	J	
Silver	7440-22-4	1.7	1.7	0.092	mg/kg	JD*	R	B,Q
Thallium	7440-28-0	0.36	0.86	0.065	mg/kg	J	J	
Vanadium	7440-62-2	23.2	4.3	0.14	mg/kg	*	J	E

Lab Sample Name: 6100154-09 **Sample No:** MH1F94 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.35	1.1	0.032	mg/kg	J*	J	
Barium	7440-39-3	37.5	5.3	0.047	mg/kg	*		
Beryllium	7440-41-7	0.22	0.53	0.042	mg/kg	J	J	
Cadmium	7440-43-9	0.89	0.53	0.044	mg/kg	*		
Chromium	7440-47-3	1.9	1.1	0.087	mg/kg			
Cobalt	7440-48-4	7.2	0.53	0.032	mg/kg	*		
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	J*	U	B
Nickel	7440-02-0	3.5	0.53	0.048	mg/kg	*		
Selenium	7782-49-2	0.92	2.6	0.072	mg/kg	J	J	
Silver	7440-22-4	0.53	0.53	0.029	mg/kg	J*	U	B
Thallium	7440-28-0	0.045	0.53	0.040	mg/kg	J	J	
Vanadium	7440-62-2	5.1	2.6	0.087	mg/kg	*		

Lab Sample Name: 6100154-10 **Sample No:** MH1F95 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	*	J-	Q
Barium	7440-39-3	127	6.1	0.053	mg/kg	*	J-	Q,E,A
Beryllium	7440-41-7	0.34	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	1.0	0.61	0.051	mg/kg	*	J-	Q,A
Chromium	7440-47-3	3.5	1.2	0.10	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	10.2	0.61	0.036	mg/kg	*	J	E,A
Molybdenum	7439-98-7	2.5	2.4	0.055	mg/kg	*	J	Q
Nickel	7440-02-0	4.5	0.61	0.055	mg/kg	*	J	E,A
Selenium	7782-49-2	1.4	3.0	0.083	mg/kg	J	J	
Silver	7440-22-4	1.2	0.61	0.033	mg/kg	*	J-	Q,E,A
Thallium	7440-28-0	0.092	0.61	0.046	mg/kg	J	J	
Vanadium	7440-62-2	12.8	3.0	0.10	mg/kg	*	J	E

Lab Sample Name: 6100154-11 **Sample No:** MH1F96 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.75	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	63.8	6.4	0.056	mg/kg	*		
Beryllium	7440-41-7	0.64	0.64	0.051	mg/kg			
Cadmium	7440-43-9	11.9	0.64	0.053	mg/kg	*		
Chromium	7440-47-3	3.9	1.3	0.10	mg/kg			
Cobalt	7440-48-4	18.9	0.64	0.038	mg/kg	*		
Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J*	U	B
Nickel	7440-02-0	4.8	0.64	0.057	mg/kg	*		
Selenium	7782-49-2	1.2	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	1.2	0.64	0.034	mg/kg	*		
Thallium	7440-28-0	0.18	0.64	0.048	mg/kg	J	J	
Vanadium	7440-62-2	22.2	3.2	0.10	mg/kg	*		

Lab Sample Name: 6100154-12 **Sample No:** MH1F97 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.5	0.046	mg/kg	J*	J-	Q
Barium	7440-39-3	90.6	7.7	0.068	mg/kg	*	J-	Q,E,A
Beryllium	7440-41-7	0.51	0.77	0.062	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.77	0.065	mg/kg	*	J-	Q,A
Chromium	7440-47-3	5.2	1.5	0.13	mg/kg			
Cobalt	7440-48-4	11.6	0.77	0.046	mg/kg	*	J	E,A
Molybdenum	7439-98-7	3.1	3.1	0.069	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	3.9	0.77	0.069	mg/kg	*	J	E,A
Selenium	7782-49-2	2.0	3.9	0.10	mg/kg	J	J	
Silver	7440-22-4	1.5	0.77	0.042	mg/kg	*	J-	Q,E,A
Thallium	7440-28-0	0.12	0.77	0.059	mg/kg	J	J	
Vanadium	7440-62-2	23.9	3.9	0.13	mg/kg	*	J	E

Analysis Method ICP_MS

Lab Sample Name: 6100154-13 **Sample No:** MH1F98 **Sample Date:** 09/29/2016 16:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.0	1.5	0.044	mg/kg	J*	J	
Barium	7440-39-3	156	7.3	0.064	mg/kg	*		
Beryllium	7440-41-7	0.34	0.73	0.058	mg/kg	J	J	
Cadmium	7440-43-9	0.32	0.73	0.061	mg/kg	J*	J	
Chromium	7440-47-3	4.1	1.5	0.12	mg/kg			
Cobalt	7440-48-4	6.9	0.73	0.044	mg/kg	*		
Molybdenum	7439-98-7	2.9	2.9	0.065	mg/kg	J*	U	B
Nickel	7440-02-0	3.6	0.73	0.065	mg/kg	*		
Selenium	7782-49-2	2.1	3.6	0.099	mg/kg	J	J	
Silver	7440-22-4	0.95	0.73	0.039	mg/kg	*		
Thallium	7440-28-0	0.20	0.73	0.055	mg/kg	J	J	
Vanadium	7440-62-2	23.7	3.6	0.12	mg/kg	*		

Lab Sample Name: 6100154-14 **Sample No:** MH1F99 **Sample Date:** 09/29/2016 16:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.74	1.2	0.037	mg/kg	J*	J-	Q
Barium	7440-39-3	170	6.2	0.054	mg/kg	*	J-	Q,E,A
Beryllium	7440-41-7	0.59	0.62	0.049	mg/kg	J	J	
Cadmium	7440-43-9	1.9	0.62	0.052	mg/kg	*	J-	Q,A
Chromium	7440-47-3	10.5	1.2	0.10	mg/kg			
Cobalt	7440-48-4	19.1	0.62	0.037	mg/kg	*	J	E,A
Molybdenum	7439-98-7	2.9	2.5	0.056	mg/kg	*	J	Q
Nickel	7440-02-0	12.3	0.62	0.056	mg/kg	*	J	E,A
Selenium	7782-49-2	2.1	3.1	0.084	mg/kg	J	J	
Silver	7440-22-4	0.62	0.62	0.033	mg/kg	J*	R	B,Q
Thallium	7440-28-0	0.13	0.62	0.047	mg/kg	J	J	
Vanadium	7440-62-2	25.9	3.1	0.10	mg/kg	*	J	E

Lab Sample Name: 6100154-15 **Sample No:** MH1G01 **Sample Date:** 09/30/2016 09:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.39	1.3	0.040	mg/kg	J*	J	
Barium	7440-39-3	66.9	6.7	0.059	mg/kg	*		
Beryllium	7440-41-7	0.33	0.67	0.053	mg/kg	J	J	
Cadmium	7440-43-9	0.13	0.67	0.056	mg/kg	J*	J	
Chromium	7440-47-3	1.9	1.3	0.11	mg/kg			
Cobalt	7440-48-4	6.6	0.67	0.040	mg/kg	*		

Analysis Method ICP_MS

Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J*	U	B
Nickel	7440-02-0	3.3	0.67	0.060	mg/kg	*		
Selenium	7782-49-2	0.95	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J*	U	B
Thallium	7440-28-0	0.14	0.67	0.051	mg/kg	J	J	
Vanadium	7440-62-2	14.1	3.3	0.11	mg/kg	*		

Lab Sample Name: 6100154-16 **Sample No:** MH1G02 **Sample Date:** 09/30/2016 09:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.4	0.041	mg/kg	J*	J-	Q
Barium	7440-39-3	161	6.8	0.059	mg/kg	*	J-	Q,E,A
Beryllium	7440-41-7	0.55	0.68	0.054	mg/kg	J	J	
Cadmium	7440-43-9	0.47	0.68	0.057	mg/kg	J*	J-	Q,A
Chromium	7440-47-3	3.4	1.4	0.11	mg/kg			
Cobalt	7440-48-4	14.3	0.68	0.041	mg/kg	*	J	E,A
Molybdenum	7439-98-7	2.7	2.7	0.061	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	7.7	0.68	0.061	mg/kg	*	J	E,A
Selenium	7782-49-2	1.6	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	1.0	0.68	0.036	mg/kg	*	J-	Q,E,A
Thallium	7440-28-0	0.16	0.68	0.051	mg/kg	J	J	
Vanadium	7440-62-2	22.8	3.4	0.11	mg/kg	*	J	E

Lab Sample Name: 6100154-17 **Sample No:** MH1G03 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.50	1.2	0.035	mg/kg	J*	J	
Barium	7440-39-3	137	5.8	0.051	mg/kg	*		
Beryllium	7440-41-7	0.50	0.58	0.046	mg/kg	J	J	
Cadmium	7440-43-9	0.70	0.58	0.049	mg/kg	*		
Chromium	7440-47-3	4.0	1.2	0.095	mg/kg			
Cobalt	7440-48-4	13.1	0.58	0.035	mg/kg	*		
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J*	U	B
Nickel	7440-02-0	4.6	0.58	0.052	mg/kg	*		
Selenium	7782-49-2	1.5	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	0.58	0.58	0.031	mg/kg	J*	U	B
Thallium	7440-28-0	0.22	0.58	0.044	mg/kg	J	J	
Vanadium	7440-62-2	21.8	2.9	0.095	mg/kg	*		

Lab Sample Name: 6100154-18 **Sample No:** MH1G04 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	0.11	1.2	0.035	mg/kg	J*	**J-**	**Q**
Barium	7440-39-3	103	5.8	0.051	mg/kg	*	**J-**	**Q,E,A**
Beryllium	7440-41-7	0.17	0.58	0.047	mg/kg	J	**J**	
Cadmium	7440-43-9	0.059	0.58	0.049	mg/kg	J*	**J-**	**Q,A**
Chromium	7440-47-3	1.1	1.2	0.096	mg/kg	J	**J**	
Cobalt	7440-48-4	4.8	0.58	0.035	mg/kg	*	**J**	**E,A**
Molybdenum	7439-98-7	2.3	2.3	0.053	mg/kg	J*	**UJ**	**B,Q**
Nickel	7440-02-0	1.8	0.58	0.053	mg/kg	*	**J**	**E,A**
Selenium	7782-49-2	1.0	2.9	0.079	mg/kg	J	**J**	
Silver	7440-22-4	0.58	0.58	0.032	mg/kg	J*	**R**	**B,Q**
Thallium	7440-28-0	0.17	0.58	0.044	mg/kg	J	**J**	
Vanadium	7440-62-2	10.1	2.9	0.096	mg/kg	*	**J**	**E**

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1G05

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1G05
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1G05	6100155-01	Sediment	09/30/2016 10:15:00	Hg, ICP-AES, ICP-MS
MH1G06	6100155-02	Soil	09/30/2016 10:15:00	Hg, ICP-AES, ICP-MS
MH1G07	6100155-03	Sediment	09/30/2016 10:15:00	Hg, ICP-AES, ICP-MS
MH1G08	6100155-04	Soil	09/30/2016 10:15:00	Hg, ICP-AES, ICP-MS
MH1G09	6100155-05	Sediment	09/30/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1G10	6100155-06	Soil	09/30/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1G11	6100155-07	Sediment	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1G12	6100155-08	Soil	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1G13	6100155-09	Sediment	09/29/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G14	6100155-10	Soil	09/29/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G15	6100155-11	Sediment	09/28/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1G16	6100155-12	Soil	09/28/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1G17	6100155-13	Sediment	09/28/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G18	6100155-14	Soil	09/28/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G19	6100155-15	Sediment	09/28/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1G20	6100155-16	Soil	09/28/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1G21	6100155-17	Sediment	09/28/2016 17:15:00	Hg, ICP-AES, ICP-MS
MH1G22	6100155-18	Soil	09/28/2016 17:15:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/18/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the remaining metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method and Calibration Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
cadmium	0.074 J	MH1G05, MH1G06, MH1G12, MH1G16, MH1G21, MH1G22
molybdenum	0.25 J, 0.39 J, 0.38 J	MH1G07, MH1G08, MH1G09, MH1G10, MH1G11, MH1G12, MH1G13, MH1G14, MH1G15, MH1G16, MH1G17, MH1G19, MH1G20, MH1G22
silver	0.061 J (ICB), 0.0070 J, 0.011 J, 0.0061 J	MH1G07, MH1G11, MH1G12, MH1G13, MH1G14, MH1G15, MH1G16, MH1G20, MH1G21, MH1G22
thallium	0.064 J	All samples except MH1G20, MH1G21 and MH1G22

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1G06. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J) and the non-detects were qualified as estimated (UJ).

Analyte	Duplicate Sample Result	Qualified Samples
cobalt copper zinc	26% 25% 90%	All soil samples in the SDG. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1G06. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. Post-digestion spikes were performed and were within acceptance limits for the affected analytes. Affected sample results were qualified (J) for antimony and barium and estimated with a positive bias (J+) for the mercury results.

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony	38% / 77%	All soil samples
barium	511% / 98%	All soil samples
mercury	216% / NA	All soil samples

- Post Digestion Spike: Post digestion spike analyses were performed for antimony and barium and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analysis was performed on soil sample MH1G06. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
antimony	14%	All soil samples (J/UJ)
arsenic	12%	
calcium	18%	
copper	23%	
zinc	63%	

- Internal Standards: Intensities for all site sample ICP-MS internal standards were within 60-125% relative intensity (%RI) of the response in the calibration blank for reported target analytes except as noted in the table below. All %RI infractions were >125%. In all cases, samples with %RI infractions were reanalyzed at a 2x dilution. When the diluted analyses passed internal standard criteria, results were reported from the dilution. When the diluted analyses had %RI infractions, results were reported from the initial analysis. All associated sample result detects were qualified as estimated (J), and associated sample result non-detects were qualified as estimated (UJ).

Internal standard	Affected analytes	Qualified samples
rhodium-103	chromium, selenium, vanadium	MH1G07

- Sample Result Verification: Analyte quantification is not performed at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1G05

Analysis Method Hg

Lab Sample Name: 6100155-01 **Sample No:** MH1G05 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.66	0.14	0.0045	mg/kg	*		

Lab Sample Name: 6100155-02 **Sample No:** MH1G06 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	1.2	0.37	0.012	mg/kg	D*	J+	Q

Lab Sample Name: 6100155-03 **Sample No:** MH1G07 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.26	0.26	0.0085	mg/kg	U*	U	

Lab Sample Name: 6100155-04 **Sample No:** MH1G08 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.067	0.12	0.0037	mg/kg	J*	J+	Q

Lab Sample Name: 6100155-05 **Sample No:** MH1G09 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.030	0.13	0.0041	mg/kg	J*	J	

Lab Sample Name: 6100155-06 **Sample No:** MH1G10 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.078	0.12	0.0038	mg/kg	J*	J+	Q

Lab Sample Name: 6100155-07 **Sample No:** MH1G11 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0042	mg/kg	*		

Analysis Method Hg

Lab Sample Name: 6100155-08 **Sample No:** MH1G12 **Sample Date:** 09/29/2016 17:30:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.051	0.12	0.0037	mg/kg	J*	J+	Q

Lab Sample Name: 6100155-09 **Sample No:** MH1G13 **Sample Date:** 09/29/2016 17:00:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.096	0.13	0.0042	mg/kg	J*	J	

Lab Sample Name: 6100155-10 **Sample No:** MH1G14 **Sample Date:** 09/29/2016 17:00:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.15	0.23	0.0075	mg/kg	J*	J+	Q

Lab Sample Name: 6100155-11 **Sample No:** MH1G15 **Sample Date:** 09/28/2016 16:30:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.20	0.17	0.0056	mg/kg	*		

Lab Sample Name: 6100155-12 **Sample No:** MH1G16 **Sample Date:** 09/28/2016 16:30:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0044	0.11	0.0034	mg/kg	J*	J+	Q

Lab Sample Name: 6100155-13 **Sample No:** MH1G17 **Sample Date:** 09/28/2016 17:00:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.22	0.13	0.0042	mg/kg	*		

Lab Sample Name: 6100155-14 **Sample No:** MH1G18 **Sample Date:** 09/28/2016 17:00:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.011	0.11	0.0035	mg/kg	J*	J+	Q

Lab Sample Name: 6100155-15 **Sample No:** MH1G19 **Sample Date:** 09/28/2016 15:00:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.026	0.13	0.0040	mg/kg	J*	J	

Analysis Method Hg

Lab Sample Name: 6100155-16 **Sample No:** MH1G20 **Sample Date:** 09/28/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.029	0.13	0.0041	mg/kg	J*	J+	Q

Lab Sample Name: 6100155-17 **Sample No:** MH1G21 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0069	0.12	0.0039	mg/kg	J*	J	

Lab Sample Name: 6100155-18 **Sample No:** MH1G22 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.068	0.25	0.0081	mg/kg	J*	J+	Q

Analysis Method ICP_AES

Lab Sample Name: 6100155-01 **Sample No:** MH1G05 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6850	28.1	2.0	mg/kg			
Arsenic	7440-38-2	62.6	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	657	703	3.9	mg/kg	J*	J	
Copper	7440-50-8	52.8	3.5	0.058	mg/kg	*		
Iron	7439-89-6	38500	14.1	0.70	mg/kg			
Lead	7439-92-1	2950	1.4	0.18	mg/kg			
Magnesium	7439-95-4	2260	703	2.8	mg/kg			
Manganese	7439-96-5	299	2.1	0.031	mg/kg			
Zinc	7440-66-6	228	8.4	0.069	mg/kg	*		

Lab Sample Name: 6100155-02 **Sample No:** MH1G06 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	24.8	1.7	mg/kg			
Arsenic	7440-38-2	103	1.2	0.14	mg/kg	*	J	A
Calcium	7440-70-2	1280	619	3.5	mg/kg	*	J	A
Copper	7440-50-8	99.2	3.1	0.051	mg/kg	*	J	E,A
Iron	7439-89-6	56200	24.8	1.2	mg/kg	D		
Lead	7439-92-1	3370	2.5	0.32	mg/kg	D		
Magnesium	7439-95-4	3730	619	2.5	mg/kg			
Manganese	7439-96-5	456	1.9	0.027	mg/kg			

Analysis Method ICP_AES

Zinc		7440-66-6	763	7.4	0.061	mg/kg	*	J	E,A

Lab Sample Name: 6100155-03 **Sample No:** MH1G07 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	37200	52.8	3.7	mg/kg			
Arsenic	7440-38-2	113	2.6	0.29	mg/kg	*		
Calcium	7440-70-2	2940	1320	7.4	mg/kg	*		
Copper	7440-50-8	140	6.6	0.11	mg/kg	*		
Iron	7439-89-6	109000	52.8	2.6	mg/kg	D		
Lead	7439-92-1	1340	2.6	0.34	mg/kg			
Magnesium	7439-95-4	16100	1320	5.3	mg/kg			
Manganese	7439-96-5	5390	7.9	0.12	mg/kg	D		
Zinc	7440-66-6	892	15.8	0.13	mg/kg	*		

Lab Sample Name: 6100155-04 **Sample No:** MH1G08 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6960	23.3	1.6	mg/kg			
Arsenic	7440-38-2	39.6	1.2	0.13	mg/kg	*	J	A
Calcium	7440-70-2	679	583	3.3	mg/kg	*	J	A
Copper	7440-50-8	28.8	2.9	0.048	mg/kg	*	J	E,A
Iron	7439-89-6	48500	23.3	1.2	mg/kg	D		
Lead	7439-92-1	405	1.2	0.15	mg/kg			
Magnesium	7439-95-4	3260	583	2.3	mg/kg			
Manganese	7439-96-5	1750	1.7	0.026	mg/kg			
Zinc	7440-66-6	314	7.0	0.057	mg/kg	*	J	E,A

Lab Sample Name: 6100155-05 **Sample No:** MH1G09 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7520	25.8	1.8	mg/kg			
Arsenic	7440-38-2	65.9	1.3	0.14	mg/kg	*		
Calcium	7440-70-2	2200	644	3.6	mg/kg	*		
Copper	7440-50-8	107	3.2	0.053	mg/kg	*		
Iron	7439-89-6	27600	12.9	0.64	mg/kg			
Lead	7439-92-1	459	1.3	0.17	mg/kg			
Magnesium	7439-95-4	3450	644	2.6	mg/kg			
Manganese	7439-96-5	1170	1.9	0.028	mg/kg			
Zinc	7440-66-6	650	7.7	0.063	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100155-06 **Sample No:** MH1G10 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	23.9	1.7	mg/kg			
Arsenic	7440-38-2	70.9	1.2	0.13	mg/kg	*	J	A
Calcium	7440-70-2	1630	598	3.4	mg/kg	*	J	A
Copper	7440-50-8	127	3.0	0.049	mg/kg	*	J	E,A
Iron	7439-89-6	63800	35.9	1.8	mg/kg	D		
Lead	7439-92-1	1040	1.2	0.16	mg/kg			
Magnesium	7439-95-4	5070	598	2.4	mg/kg			
Manganese	7439-96-5	1060	1.8	0.026	mg/kg			
Zinc	7440-66-6	347	7.2	0.059	mg/kg	*	J	E,A

Lab Sample Name: 6100155-07 **Sample No:** MH1G11 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	26.0	1.8	mg/kg			
Arsenic	7440-38-2	109	1.3	0.14	mg/kg	*		
Calcium	7440-70-2	2100	649	3.6	mg/kg	*		
Copper	7440-50-8	163	3.2	0.053	mg/kg	*		
Iron	7439-89-6	36900	13.0	0.65	mg/kg			
Lead	7439-92-1	735	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4950	649	2.6	mg/kg			
Manganese	7439-96-5	1600	1.9	0.029	mg/kg			
Zinc	7440-66-6	1150	7.8	0.064	mg/kg	*		

Lab Sample Name: 6100155-08 **Sample No:** MH1G12 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13900	23.1	1.6	mg/kg			
Arsenic	7440-38-2	24.1	1.2	0.13	mg/kg	*	J	A
Calcium	7440-70-2	2870	578	3.2	mg/kg	*	J	A
Copper	7440-50-8	29.0	2.9	0.047	mg/kg	*	J	E,A
Iron	7439-89-6	51200	23.1	1.2	mg/kg	D		
Lead	7439-92-1	74.2	1.2	0.15	mg/kg			
Magnesium	7439-95-4	4080	578	2.3	mg/kg			
Manganese	7439-96-5	702	1.7	0.025	mg/kg			
Zinc	7440-66-6	103	6.9	0.057	mg/kg	*	J	E,A

Analysis Method ICP_AES

Lab Sample Name: 6100155-09 **Sample No:** MH1G13 **Sample Date:** 09/29/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8670	26.3	1.8	mg/kg			
Arsenic	7440-38-2	60.6	1.3	0.14	mg/kg	*		
Calcium	7440-70-2	1930	657	3.7	mg/kg	*		
Copper	7440-50-8	148	3.3	0.054	mg/kg	*		
Iron	7439-89-6	30400	13.1	0.66	mg/kg			
Lead	7439-92-1	556	1.3	0.17	mg/kg			
Magnesium	7439-95-4	3780	657	2.6	mg/kg			
Manganese	7439-96-5	3540	5.9	0.087	mg/kg	D		
Zinc	7440-66-6	1090	7.9	0.064	mg/kg	*		

Lab Sample Name: 6100155-10 **Sample No:** MH1G14 **Sample Date:** 09/29/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12800	46.8	3.3	mg/kg			
Arsenic	7440-38-2	26.7	2.3	0.26	mg/kg	*	J	A
Calcium	7440-70-2	15600	1170	6.5	mg/kg	*	J	A
Copper	7440-50-8	60.5	5.8	0.096	mg/kg	*	J	E,A
Iron	7439-89-6	31900	23.4	1.2	mg/kg			
Lead	7439-92-1	709	2.3	0.30	mg/kg			
Magnesium	7439-95-4	3490	1170	4.7	mg/kg			
Manganese	7439-96-5	8120	10.5	0.15	mg/kg	D		
Zinc	7440-66-6	577	14.0	0.11	mg/kg	*	J	E,A

Lab Sample Name: 6100155-11 **Sample No:** MH1G15 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8330	34.7	2.4	mg/kg			
Arsenic	7440-38-2	11.8	1.7	0.19	mg/kg	*		
Calcium	7440-70-2	184	867	4.9	mg/kg	J*	J	
Copper	7440-50-8	19.2	4.3	0.071	mg/kg	*		
Iron	7439-89-6	58500	17.3	0.87	mg/kg			
Lead	7439-92-1	25.5	1.7	0.23	mg/kg			
Magnesium	7439-95-4	1350	867	3.5	mg/kg			
Manganese	7439-96-5	71.2	2.6	0.038	mg/kg			
Zinc	7440-66-6	16.4	10.4	0.085	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100155-12 **Sample No:** MH1G16 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10500	21.5	1.5	mg/kg			
Arsenic	7440-38-2	10.6	1.1	0.12	mg/kg	*	J	A
Calcium	7440-70-2	421	537	3.0	mg/kg	J*	J	A
Copper	7440-50-8	14.0	2.7	0.044	mg/kg	*	J	E,A
Iron	7439-89-6	32100	10.7	0.54	mg/kg			
Lead	7439-92-1	118	1.1	0.14	mg/kg			
Magnesium	7439-95-4	3660	537	2.1	mg/kg			
Manganese	7439-96-5	247	1.6	0.024	mg/kg			
Zinc	7440-66-6	63.6	6.4	0.053	mg/kg	*	J	E,A

Lab Sample Name: 6100155-13 **Sample No:** MH1G17 **Sample Date:** 09/28/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	26.5	1.9	mg/kg			
Arsenic	7440-38-2	97.0	1.3	0.15	mg/kg	*		
Calcium	7440-70-2	2000	663	3.7	mg/kg	*		
Copper	7440-50-8	155	3.3	0.054	mg/kg	*		
Iron	7439-89-6	36500	13.3	0.66	mg/kg			
Lead	7439-92-1	679	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4270	663	2.7	mg/kg			
Manganese	7439-96-5	2500	4.0	0.058	mg/kg	D		
Zinc	7440-66-6	1660	8.0	0.065	mg/kg	*		

Lab Sample Name: 6100155-14 **Sample No:** MH1G18 **Sample Date:** 09/28/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11900	22.2	1.6	mg/kg			
Arsenic	7440-38-2	17.4	1.1	0.12	mg/kg	*	J	A
Calcium	7440-70-2	1010	554	3.1	mg/kg	*	J	A
Copper	7440-50-8	41.1	2.8	0.045	mg/kg	*	J	E,A
Iron	7439-89-6	37500	11.1	0.55	mg/kg			
Lead	7439-92-1	157	1.1	0.14	mg/kg			
Magnesium	7439-95-4	4790	554	2.2	mg/kg			
Manganese	7439-96-5	890	1.7	0.024	mg/kg			
Zinc	7440-66-6	145	6.6	0.054	mg/kg	*	J	E,A

Analysis Method ICP_AES

Lab Sample Name: 6100155-15 **Sample No:** MH1G19 **Sample Date:** 09/28/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8580	25.3	1.8	mg/kg			
Arsenic	7440-38-2	48.0	1.3	0.14	mg/kg	*		
Calcium	7440-70-2	1150	632	3.5	mg/kg	*		
Copper	7440-50-8	60.6	3.2	0.052	mg/kg	*		
Iron	7439-89-6	32600	12.6	0.63	mg/kg			
Lead	7439-92-1	173	1.3	0.16	mg/kg			
Magnesium	7439-95-4	3890	632	2.5	mg/kg			
Manganese	7439-96-5	1190	1.9	0.028	mg/kg			
Zinc	7440-66-6	296	7.6	0.062	mg/kg	*		

Lab Sample Name: 6100155-16 **Sample No:** MH1G20 **Sample Date:** 09/28/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5190	25.3	1.8	mg/kg			
Arsenic	7440-38-2	1.3	1.3	0.14	mg/kg	U*	UJ	A
Calcium	7440-70-2	316	633	3.5	mg/kg	J*	J	A
Copper	7440-50-8	3.2	3.2	0.052	mg/kg	U*	UJ	E,A
Iron	7439-89-6	317000	127	6.3	mg/kg	D		
Lead	7439-92-1	0.92	1.3	0.16	mg/kg	J	J	
Magnesium	7439-95-4	534	633	2.5	mg/kg	J	J	
Manganese	7439-96-5	85.1	1.9	0.028	mg/kg			
Zinc	7440-66-6	51.9	7.6	0.062	mg/kg	*	J	E,A

Lab Sample Name: 6100155-17 **Sample No:** MH1G21 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12400	24.5	1.7	mg/kg			
Arsenic	7440-38-2	4.3	1.2	0.13	mg/kg	*		
Calcium	7440-70-2	1050	613	3.4	mg/kg	*		
Copper	7440-50-8	4.3	3.1	0.050	mg/kg	*		
Iron	7439-89-6	85400	49.0	2.5	mg/kg	D		
Lead	7439-92-1	61.0	1.2	0.16	mg/kg			
Magnesium	7439-95-4	6570	613	2.5	mg/kg			
Manganese	7439-96-5	757	1.8	0.027	mg/kg			
Zinc	7440-66-6	74.9	7.4	0.060	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100155-18 **Sample No:** MH1G22 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	23900	50.6	3.5	mg/kg			
Arsenic	7440-38-2	9.2	2.5	0.28	mg/kg	*	J	A
Calcium	7440-70-2	5170	1260	7.1	mg/kg	*	J	A
Copper	7440-50-8	10.4	6.3	0.10	mg/kg	*	J	E,A
Iron	7439-89-6	70700	25.3	1.3	mg/kg			
Lead	7439-92-1	44.3	2.5	0.33	mg/kg			
Magnesium	7439-95-4	4430	1260	5.1	mg/kg			
Manganese	7439-96-5	1480	3.8	0.056	mg/kg			
Zinc	7440-66-6	234	15.2	0.12	mg/kg	*	J	E,A

Analysis Method ICP_MS

Lab Sample Name: 6100155-01 **Sample No:** MH1G05 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.6	1.4	0.042	mg/kg	*		
Barium	7440-39-3	49.0	7.0	0.062	mg/kg	*		
Beryllium	7440-41-7	0.085	0.70	0.056	mg/kg	J	J	
Cadmium	7440-43-9	0.70	0.70	0.059	mg/kg	J	U	B
Chromium	7440-47-3	2.9	1.4	0.12	mg/kg			
Cobalt	7440-48-4	1.1	0.70	0.042	mg/kg	*		
Molybdenum	7439-98-7	4.9	2.8	0.063	mg/kg			
Nickel	7440-02-0	1.2	0.70	0.063	mg/kg			
Selenium	7782-49-2	1.8	3.5	0.096	mg/kg	J	J	
Silver	7440-22-4	19.4	0.70	0.038	mg/kg			
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	10.2	3.5	0.12	mg/kg			

Lab Sample Name: 6100155-02 **Sample No:** MH1G06 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.5	1.2	0.037	mg/kg	*	J	Q,A
Barium	7440-39-3	64.8	6.2	0.054	mg/kg	*	J	Q
Beryllium	7440-41-7	0.12	0.62	0.050	mg/kg	J	J	
Cadmium	7440-43-9	0.62	0.62	0.052	mg/kg	J	U	B
Chromium	7440-47-3	2.9	1.2	0.10	mg/kg			
Cobalt	7440-48-4	3.3	0.62	0.037	mg/kg	*	J	E
Molybdenum	7439-98-7	3.8	2.5	0.056	mg/kg			

Nickel	7440-02-0	2.6	0.62	0.056	mg/kg			
Selenium	7782-49-2	2.0	3.1	0.084	mg/kg	J	J	
Silver	7440-22-4	18.2	0.62	0.033	mg/kg			
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	18.6	3.1	0.10	mg/kg			

Lab Sample Name: 6100155-03 **Sample No:** MH1G07 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	2.6	0.079	mg/kg	J*	J	
Barium	7440-39-3	101	13.2	0.12	mg/kg	*		
Beryllium	7440-41-7	0.54	1.3	0.11	mg/kg	J	J	
Cadmium	7440-43-9	1.7	1.3	0.11	mg/kg			
Chromium	7440-47-3	9.9	2.6	0.22	mg/kg		J	*III
Cobalt	7440-48-4	17.2	1.3	0.079	mg/kg	*		
Molybdenum	7439-98-7	5.3	5.3	0.12	mg/kg	J	U	B
Nickel	7440-02-0	10.8	1.3	0.12	mg/kg			
Selenium	7782-49-2	1.6	6.6	0.18	mg/kg	J	J	*III
Silver	7440-22-4	1.3	1.3	0.071	mg/kg	J	U	B
Thallium	7440-28-0	1.3	1.3	0.10	mg/kg	J	U	B
Vanadium	7440-62-2	23.2	6.6	0.22	mg/kg		J	*III

Lab Sample Name: 6100155-04 **Sample No:** MH1G08 **Sample Date:** 09/30/2016 10:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.2	0.035	mg/kg	*	J	Q,A
Barium	7440-39-3	127	5.8	0.051	mg/kg	*	J	Q
Beryllium	7440-41-7	0.52	0.58	0.047	mg/kg	J	J	
Cadmium	7440-43-9	1.1	0.58	0.049	mg/kg			
Chromium	7440-47-3	10.5	2.3	0.19	mg/kg	D		
Cobalt	7440-48-4	15.6	0.58	0.035	mg/kg	*	J	E
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J	U	B
Nickel	7440-02-0	8.9	0.58	0.052	mg/kg			
Selenium	7782-49-2	1.8	5.8	0.16	mg/kg	JD	J	
Silver	7440-22-4	2.8	0.58	0.031	mg/kg			
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	27.1	5.8	0.19	mg/kg	D		

Lab Sample Name: 6100155-05 **Sample No:** MH1G09 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.58	2.6	0.077	mg/kg	JD*	J	

Analysis Method ICP_MS

Barium	7440-39-3	32.8	12.9	0.11	mg/kg	D*		
Beryllium	7440-41-7	0.57	0.64	0.052	mg/kg	J	J	
Cadmium	7440-43-9	2.5	1.3	0.11	mg/kg	D		
Chromium	7440-47-3	1.8	2.6	0.21	mg/kg	JD	J	
Cobalt	7440-48-4	7.6	1.3	0.077	mg/kg	D*		
Molybdenum	7439-98-7	5.2	5.2	0.12	mg/kg	JD	U	B
Nickel	7440-02-0	4.1	1.3	0.12	mg/kg	D		
Selenium	7782-49-2	1.0	6.4	0.18	mg/kg	JD	J	
Silver	7440-22-4	1.3	1.3	0.070	mg/kg	JD	U	B
Thallium	7440-28-0	0.64	0.64	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	13.4	6.4	0.21	mg/kg	D		

Lab Sample Name: 6100155-06 **Sample No:** MH1G10 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.85	1.2	0.036	mg/kg	J*	J	Q,A
Barium	7440-39-3	79.5	6.0	0.053	mg/kg	*	J	Q
Beryllium	7440-41-7	0.23	0.60	0.048	mg/kg	J	J	
Cadmium	7440-43-9	0.74	0.60	0.050	mg/kg			
Chromium	7440-47-3	12.0	1.2	0.098	mg/kg			
Cobalt	7440-48-4	5.0	0.60	0.036	mg/kg	*	J	E
Molybdenum	7439-98-7	2.4	2.4	0.054	mg/kg	J	U	B
Nickel	7440-02-0	3.7	0.60	0.054	mg/kg			
Selenium	7782-49-2	1.2	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	2.5	0.60	0.032	mg/kg			
Thallium	7440-28-0	0.60	0.60	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	21.2	3.0	0.098	mg/kg			

Lab Sample Name: 6100155-07 **Sample No:** MH1G11 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.70	1.3	0.039	mg/kg	J*	J	
Barium	7440-39-3	46.4	6.5	0.057	mg/kg	*		
Beryllium	7440-41-7	0.52	0.65	0.052	mg/kg	J	J	
Cadmium	7440-43-9	2.3	0.65	0.055	mg/kg			
Chromium	7440-47-3	2.6	1.3	0.11	mg/kg			
Cobalt	7440-48-4	12.6	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	2.6	2.6	0.058	mg/kg	J	U	B
Nickel	7440-02-0	3.2	0.65	0.058	mg/kg			
Selenium	7782-49-2	1.2	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	0.65	0.65	0.035	mg/kg	J	U	B
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B

Analysis Method ICP_MS

Vanadium	7440-62-2	13.9	3.2	0.11	mg/kg			

Lab Sample Name: 6100155-08 **Sample No:** MH1G12 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.50	1.2	0.035	mg/kg	J*	J	Q,A
Barium	7440-39-3	177	5.8	0.051	mg/kg	*	J	Q
Beryllium	7440-41-7	0.50	0.58	0.046	mg/kg	J	J	
Cadmium	7440-43-9	0.58	0.58	0.049	mg/kg	J	U	B
Chromium	7440-47-3	4.3	1.2	0.095	mg/kg			
Cobalt	7440-48-4	9.4	0.58	0.035	mg/kg	*	J	E
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J	U	B
Nickel	7440-02-0	4.1	0.58	0.052	mg/kg			
Selenium	7782-49-2	1.5	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	0.58	0.58	0.031	mg/kg	J	U	B
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	26.6	2.9	0.095	mg/kg			

Lab Sample Name: 6100155-09 **Sample No:** MH1G13 **Sample Date:** 09/29/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.97	1.3	0.039	mg/kg	J*	J	
Barium	7440-39-3	38.6	6.6	0.058	mg/kg	*		
Beryllium	7440-41-7	0.49	0.66	0.053	mg/kg	J	J	
Cadmium	7440-43-9	1.4	0.66	0.055	mg/kg			
Chromium	7440-47-3	2.4	1.3	0.11	mg/kg			
Cobalt	7440-48-4	17.9	0.66	0.039	mg/kg	*		
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J	U	B
Nickel	7440-02-0	4.7	0.66	0.059	mg/kg			
Selenium	7782-49-2	1.5	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	0.66	0.66	0.035	mg/kg	J	U	B
Thallium	7440-28-0	0.66	0.66	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	18.3	3.3	0.11	mg/kg			

Lab Sample Name: 6100155-10 **Sample No:** MH1G14 **Sample Date:** 09/29/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.82	2.3	0.070	mg/kg	J*	J	Q,A
Barium	7440-39-3	227	11.7	0.10	mg/kg	*	J	Q
Beryllium	7440-41-7	0.45	1.2	0.094	mg/kg	J	J	
Cadmium	7440-43-9	2.3	1.2	0.098	mg/kg			
Chromium	7440-47-3	4.0	2.3	0.19	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	9.1	1.2	0.070	mg/kg	*	J	E
Molybdenum	7439-98-7	4.7	4.7	0.11	mg/kg	J	U	B
Nickel	7440-02-0	5.8	1.2	0.11	mg/kg			
Selenium	7782-49-2	1.5	5.8	0.16	mg/kg	J	J	
Silver	7440-22-4	1.2	1.2	0.063	mg/kg	J	U	B
Thallium	7440-28-0	1.2	1.2	0.089	mg/kg	J	U	B
Vanadium	7440-62-2	15.3	5.8	0.19	mg/kg			

Lab Sample Name: 6100155-11 **Sample No:** MH1G15 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.47	1.7	0.052	mg/kg	J*	J	
Barium	7440-39-3	153	8.7	0.076	mg/kg	*		
Beryllium	7440-41-7	0.095	0.87	0.069	mg/kg	J	J	
Cadmium	7440-43-9	0.87	0.87	0.073	mg/kg	U	U	
Chromium	7440-47-3	3.1	3.5	0.28	mg/kg	JD	J	
Cobalt	7440-48-4	2.5	0.87	0.052	mg/kg	*		
Molybdenum	7439-98-7	3.5	3.5	0.078	mg/kg	J	U	B
Nickel	7440-02-0	1.7	0.87	0.078	mg/kg			
Selenium	7782-49-2	3.0	8.7	0.24	mg/kg	JD	J	
Silver	7440-22-4	0.87	0.87	0.047	mg/kg	J	U	B
Thallium	7440-28-0	0.87	0.87	0.066	mg/kg	J	U	B
Vanadium	7440-62-2	23.2	8.7	0.28	mg/kg	D		

Lab Sample Name: 6100155-12 **Sample No:** MH1G16 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.49	1.1	0.032	mg/kg	J*	J	Q,A
Barium	7440-39-3	124	5.4	0.047	mg/kg	*	J	Q
Beryllium	7440-41-7	0.18	0.54	0.043	mg/kg	J	J	
Cadmium	7440-43-9	0.54	0.54	0.045	mg/kg	J	U	B
Chromium	7440-47-3	1.7	1.1	0.088	mg/kg			
Cobalt	7440-48-4	1.2	0.54	0.032	mg/kg	*	J	E
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	J	U	B
Nickel	7440-02-0	0.86	0.54	0.048	mg/kg			
Selenium	7782-49-2	1.9	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	0.54	0.54	0.029	mg/kg	J	U	B
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	14.1	2.7	0.088	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100155-13 **Sample No:** MH1G17 **Sample Date:** 09/28/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.78	1.3	0.040	mg/kg	J*	J	
Barium	7440-39-3	50.4	6.6	0.058	mg/kg	*		
Beryllium	7440-41-7	0.63	0.66	0.053	mg/kg	J	J	
Cadmium	7440-43-9	4.0	0.66	0.056	mg/kg			
Chromium	7440-47-3	2.5	1.3	0.11	mg/kg			
Cobalt	7440-48-4	12.0	0.66	0.040	mg/kg	*		
Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J	U	B
Nickel	7440-02-0	4.2	0.66	0.060	mg/kg			
Selenium	7782-49-2	1.5	3.3	0.090	mg/kg	J	J	
Silver	7440-22-4	1.1	0.66	0.036	mg/kg			
Thallium	7440-28-0	0.66	0.66	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	15.9	3.3	0.11	mg/kg			

Lab Sample Name: 6100155-14 **Sample No:** MH1G18 **Sample Date:** 09/28/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.033	mg/kg	*	J	Q,A
Barium	7440-39-3	76.9	5.5	0.049	mg/kg	*	J	Q
Beryllium	7440-41-7	0.22	0.55	0.044	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.55	0.047	mg/kg			
Chromium	7440-47-3	2.7	1.1	0.091	mg/kg			
Cobalt	7440-48-4	5.9	0.55	0.033	mg/kg	*	J	E
Molybdenum	7439-98-7	2.3	2.2	0.050	mg/kg			
Nickel	7440-02-0	2.5	0.55	0.050	mg/kg			
Selenium	7782-49-2	1.6	2.8	0.075	mg/kg	J	J	
Silver	7440-22-4	0.97	0.55	0.030	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	17.3	2.8	0.091	mg/kg			

Lab Sample Name: 6100155-15 **Sample No:** MH1G19 **Sample Date:** 09/28/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.88	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	45.4	6.3	0.056	mg/kg	*		
Beryllium	7440-41-7	0.33	0.63	0.051	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.63	0.053	mg/kg			
Chromium	7440-47-3	2.2	1.3	0.10	mg/kg			
Cobalt	7440-48-4	13.5	0.63	0.038	mg/kg	*		

Analysis Method ICP_MS

Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J	U	B
Nickel	7440-02-0	3.3	0.63	0.057	mg/kg			
Selenium	7782-49-2	1.4	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	0.80	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	15.3	3.2	0.10	mg/kg			

Lab Sample Name: 6100155-16 **Sample No:** MH1G20 **Sample Date:** 09/28/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.13	1.3	0.038	mg/kg	J*	J	Q,A
Barium	7440-39-3	10.7	6.3	0.056	mg/kg	*	J	Q
Beryllium	7440-41-7	0.097	0.63	0.051	mg/kg	J	J	
Cadmium	7440-43-9	0.63	0.63	0.053	mg/kg	U	U	
Chromium	7440-47-3	1.6	1.3	0.10	mg/kg			
Cobalt	7440-48-4	0.71	0.63	0.038	mg/kg	*	J	E
Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J	U	B
Nickel	7440-02-0	0.59	0.63	0.057	mg/kg	J	J	
Selenium	7782-49-2	0.50	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	0.63	0.63	0.034	mg/kg	J	U	B
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	U	U	
Vanadium	7440-62-2	8.2	3.2	0.10	mg/kg			

Lab Sample Name: 6100155-17 **Sample No:** MH1G21 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.47	1.2	0.037	mg/kg	J*	J	
Barium	7440-39-3	91.9	6.1	0.054	mg/kg	*		
Beryllium	7440-41-7	0.25	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	0.61	0.61	0.051	mg/kg	J	U	B
Chromium	7440-47-3	1.6	1.2	0.10	mg/kg			
Cobalt	7440-48-4	5.5	0.61	0.037	mg/kg	*		
Molybdenum	7439-98-7	2.5	2.5	0.055	mg/kg			
Nickel	7440-02-0	1.4	0.61	0.055	mg/kg			
Selenium	7782-49-2	3.2	3.1	0.083	mg/kg			
Silver	7440-22-4	0.61	0.61	0.033	mg/kg	J	U	B
Thallium	7440-28-0	0.61	0.61	0.047	mg/kg	U	U	
Vanadium	7440-62-2	17.3	3.1	0.10	mg/kg			

Lab Sample Name: 6100155-18 **Sample No:** MH1G22 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	0.63	2.5	0.076	mg/kg	J*	**J**	**Q,A**
Barium	7440-39-3	225	12.6	0.11	mg/kg	*	**J**	**Q**
Beryllium	7440-41-7	1.3	1.3	0.10	mg/kg			
Cadmium	7440-43-9	1.3	1.3	0.11	mg/kg	J	**U**	**B**
Chromium	7440-47-3	4.1	2.5	0.21	mg/kg			
Cobalt	7440-48-4	36.9	1.3	0.076	mg/kg	*	**J**	**E**
Molybdenum	7439-98-7	5.1	5.1	0.11	mg/kg	J	**U**	**B**
Nickel	7440-02-0	9.9	1.3	0.11	mg/kg			
Selenium	7782-49-2	5.5	6.3	0.17	mg/kg	J	**J**	
Silver	7440-22-4	1.3	1.3	0.068	mg/kg	J	**U**	**B**
Thallium	7440-28-0	1.3	1.3	0.096	mg/kg	U	**U**	
Vanadium	7440-62-2	25.0	6.3	0.21	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1G23

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1G23
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1G23	6100156-01	Sediment	09/29/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1G24	6100156-02	Soil	09/29/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1G25	6100156-03	Sediment	09/29/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1G26	6100156-04	Soil	09/29/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1G27	6100156-05	Sediment	09/29/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1G28	6100156-06	Soil	09/29/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1G29	6100156-07	Sediment	09/29/2016 12:25:00	Hg, ICP-AES, ICP-MS
MH1G30	6100156-08	Soil	09/29/2016 12:25:00	Hg, ICP-AES, ICP-MS
MH1G31	6100156-09	Sediment	09/29/2016 09:30:00	Hg, ICP-AES, ICP-MS
MH1G32	6100156-10	Soil	09/29/2016 09:30:00	Hg, ICP-AES, ICP-MS
MH1G33	6100156-11	Sediment	09/29/2016 09:05:00	Hg, ICP-AES, ICP-MS
MH1G34	6100156-12	Soil	09/29/2016 09:05:00	Hg, ICP-AES, ICP-MS
MH1G35	6100156-13	Sediment	09/29/2016 15:30:00	Hg, ICP-AES, ICP-MS
MH1G36	6100156-14	Soil	09/29/2016 15:30:00	Hg, ICP-AES, ICP-MS
MH1G37	6100156-15	Sediment	09/29/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1G38	6100156-16	Soil	09/29/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1G39	6100156-17	Sediment	09/29/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1G40	6100156-18	Soil	09/29/2016 15:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/18/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
cadmium	0.049 J	MH1G35, MH1G36,MH1G38, MH1G39
cobalt	0.023 J (ICB), 0.027 J, 0.029 J, 0.037 J	MH1G23
molybdenum	0.38 J, 0.38 J, 0.43 J	MH1G23, MH1G26, MH1G32, MH1G33, MH1G40
silver	0.061 J (ICB), 0.0061 J, 0.0067 J, 0.0062 J	All samples with the exception of MH1G23, MH1G26, MH1G36

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1G28. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL

when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
barium vanadium	30% 32%	All soil samples in the SDG. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1G28. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. Post-digestion spikes were performed and were within acceptance limits for the affected analytes except for molybdenum which had a low post-digestion spike recovery. Affected sample results were qualified (J/J-/UJ).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony beryllium cadmium cobalt molybdenum nickel thallium	55% / 97% 67% / 91% 72% / 99% 73% / 102% 71% / 62% 71% / 112% 68% / 89%	All soil samples

- Post Digestion Spike: Post digestion spike analyses were performed and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analysis was performed on soil sample MH1G28. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
aluminum magnesium	13% 17%	All soil samples (J)

- Internal Standards: Intensities for all site sample ICP-MS internal standards were within 60-125% relative intensity (%RI) of the response in the calibration blank for reported target analytes except as noted in the table below. The rhodium-103 %RI infraction was >125%. The sample with the %RI infractions was not reanalyzed at a 2x dilution. All associated sample result detects were qualified as estimated (J).

Internal standard	Affected analytes	Qualified samples
rhodium-103	chromium, selenium, vanadium	MH1G40

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: Samples MH1G75 and MH1G39 and samples MH1G76 and MH1G40 were identified as field duplicates. RPD were within the limits of ≤50% or ±RL with the exception of arsenic and copper in MH1G75 and MH1G39. These elements were qualified as estimated (UJ for nondetects and J for detects) in the pair.

Validated Sample Result Forms MH1G23

Analysis Method Hg

Lab Sample Name: 6100156-01 **Sample No:** MH1G23 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.011	0.30	0.0097	mg/kg	J	J	

Lab Sample Name: 6100156-02 **Sample No:** MH1G24 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.035	0.16	0.0051	mg/kg	J	J	

Lab Sample Name: 6100156-03 **Sample No:** MH1G25 **Sample Date:** 09/29/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.016	0.15	0.0047	mg/kg	J	J	

Lab Sample Name: 6100156-04 **Sample No:** MH1G26 **Sample Date:** 09/29/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.080	0.20	0.0064	mg/kg	J	J	

Lab Sample Name: 6100156-05 **Sample No:** MH1G27 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0088	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100156-06 **Sample No:** MH1G28 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.014	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100156-07 **Sample No:** MH1G29 **Sample Date:** 09/29/2016 12:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0091	0.24	0.0077	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100156-08 **Sample No:** MH1G30 **Sample Date:** 09/29/2016 12:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.039	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100156-09 **Sample No:** MH1G31 **Sample Date:** 09/29/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.16	0.0050	mg/kg	J	J	

Lab Sample Name: 6100156-10 **Sample No:** MH1G32 **Sample Date:** 09/29/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.054	0.16	0.0050	mg/kg	J	J	

Lab Sample Name: 6100156-11 **Sample No:** MH1G33 **Sample Date:** 09/29/2016 09:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.22	0.22	0.0071	mg/kg	U	U	

Lab Sample Name: 6100156-12 **Sample No:** MH1G34 **Sample Date:** 09/29/2016 09:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.026	0.14	0.0046	mg/kg	J	J	

Lab Sample Name: 6100156-13 **Sample No:** MH1G35 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0076	0.16	0.0052	mg/kg	J	J	

Lab Sample Name: 6100156-14 **Sample No:** MH1G36 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.029	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100156-15 **Sample No:** MH1G37 **Sample Date:** 09/29/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.15	0.15	0.0048	mg/kg	U	U	

Analysis Method Hg

Lab Sample Name: 6100156-16 **Sample No:** MH1G38 **Sample Date:** 09/29/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.065	0.16	0.0051	mg/kg	J	J	

Lab Sample Name: 6100156-17 **Sample No:** MH1G39 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0080	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100156-18 **Sample No:** MH1G40 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.017	0.12	0.0040	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100156-01 **Sample No:** MH1G23 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14200	60.6	4.2	mg/kg	*		
Arsenic	7440-38-2	3.0	3.0	0.33	mg/kg	U	U	
Calcium	7440-70-2	1170	1510	8.5	mg/kg	J*	J	
Copper	7440-50-8	7.6	7.6	0.12	mg/kg	U	U	
Iron	7439-89-6	599000	303	15.1	mg/kg	D		
Lead	7439-92-1	3.0	3.0	0.39	mg/kg	U	U	
Magnesium	7439-95-4	210	1510	6.1	mg/kg	J*	J	
Manganese	7439-96-5	26.1	4.5	0.067	mg/kg			
Zinc	7440-66-6	44.5	18.2	0.15	mg/kg			

Lab Sample Name: 6100156-02 **Sample No:** MH1G24 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19800	31.7	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	3.6	1.6	0.17	mg/kg			
Calcium	7440-70-2	1760	793	4.4	mg/kg	*		
Copper	7440-50-8	5.0	4.0	0.065	mg/kg			
Iron	7439-89-6	118000	63.5	3.2	mg/kg	D		
Lead	7439-92-1	113	1.6	0.21	mg/kg			
Magnesium	7439-95-4	4560	793	3.2	mg/kg	*	J	A
Manganese	7439-96-5	5780	9.5	0.14	mg/kg	D		

Zinc		7440-66-6	430	9.5	0.078	mg/kg			

Lab Sample Name: 6100156-03 **Sample No:** MH1G25 **Sample Date:** 09/29/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19900	29.4	2.1	mg/kg	*		
Arsenic	7440-38-2	7.8	1.5	0.16	mg/kg			
Calcium	7440-70-2	2340	734	4.1	mg/kg	*		
Copper	7440-50-8	9.5	3.7	0.060	mg/kg			
Iron	7439-89-6	90700	58.7	2.9	mg/kg	D		
Lead	7439-92-1	168	1.5	0.19	mg/kg			
Magnesium	7439-95-4	7090	734	2.9	mg/kg	*		
Manganese	7439-96-5	5270	8.8	0.13	mg/kg	D		
Zinc	7440-66-6	490	8.8	0.072	mg/kg			

Lab Sample Name: 6100156-04 **Sample No:** MH1G26 **Sample Date:** 09/29/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18800	39.8	2.8	mg/kg	*	J	A
Arsenic	7440-38-2	4.9	2.0	0.22	mg/kg			
Calcium	7440-70-2	3840	996	5.6	mg/kg	*		
Copper	7440-50-8	11.5	5.0	0.082	mg/kg			
Iron	7439-89-6	60200	19.9	1.0	mg/kg			
Lead	7439-92-1	78.8	2.0	0.26	mg/kg			
Magnesium	7439-95-4	4400	996	4.0	mg/kg	*	J	A
Manganese	7439-96-5	2230	3.0	0.044	mg/kg			
Zinc	7440-66-6	133	12.0	0.098	mg/kg			

Lab Sample Name: 6100156-05 **Sample No:** MH1G27 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15400	27.3	1.9	mg/kg	*		
Arsenic	7440-38-2	7.5	1.4	0.15	mg/kg			
Calcium	7440-70-2	1650	682	3.8	mg/kg	*		
Copper	7440-50-8	10.1	3.4	0.056	mg/kg			
Iron	7439-89-6	69100	40.9	2.0	mg/kg	D		
Lead	7439-92-1	70.3	1.4	0.18	mg/kg			
Magnesium	7439-95-4	6150	682	2.7	mg/kg	*		
Manganese	7439-96-5	1910	2.0	0.030	mg/kg			
Zinc	7440-66-6	192	8.2	0.067	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100156-06 **Sample No:** MH1G28 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16600	25.4	1.8	mg/kg	*	J	A
Arsenic	7440-38-2	11.6	1.3	0.14	mg/kg			
Calcium	7440-70-2	1630	634	3.6	mg/kg	*		
Copper	7440-50-8	11.4	3.2	0.052	mg/kg			
Iron	7439-89-6	75200	38.0	1.9	mg/kg	D		
Lead	7439-92-1	75.5	1.3	0.16	mg/kg			
Magnesium	7439-95-4	6000	634	2.5	mg/kg	*	J	A
Manganese	7439-96-5	2810	5.7	0.084	mg/kg	D		
Zinc	7440-66-6	188	7.6	0.062	mg/kg			

Lab Sample Name: 6100156-07 **Sample No:** MH1G29 **Sample Date:** 09/29/2016 12:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	34500	48.1	3.4	mg/kg	*		
Arsenic	7440-38-2	6.1	2.4	0.26	mg/kg			
Calcium	7440-70-2	2330	1200	6.7	mg/kg	*		
Copper	7440-50-8	9.3	6.0	0.099	mg/kg			
Iron	7439-89-6	65600	24.0	1.2	mg/kg			
Lead	7439-92-1	77.7	2.4	0.31	mg/kg			
Magnesium	7439-95-4	5040	1200	4.8	mg/kg	*		
Manganese	7439-96-5	4860	10.8	0.16	mg/kg	D		
Zinc	7440-66-6	363	14.4	0.12	mg/kg			

Lab Sample Name: 6100156-08 **Sample No:** MH1G30 **Sample Date:** 09/29/2016 12:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	22200	27.5	1.9	mg/kg	*	J	A
Arsenic	7440-38-2	10.1	1.4	0.15	mg/kg			
Calcium	7440-70-2	2140	688	3.9	mg/kg	*		
Copper	7440-50-8	19.5	3.4	0.056	mg/kg			
Iron	7439-89-6	55900	41.3	2.1	mg/kg	D		
Lead	7439-92-1	174	1.4	0.18	mg/kg			
Magnesium	7439-95-4	8010	688	2.8	mg/kg	*	J	A
Manganese	7439-96-5	1350	2.1	0.030	mg/kg			
Zinc	7440-66-6	138	8.3	0.067	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100156-09 **Sample No:** MH1G31 **Sample Date:** 09/29/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18900	31.5	2.2	mg/kg	*		
Arsenic	7440-38-2	10.9	1.6	0.17	mg/kg			
Calcium	7440-70-2	2840	787	4.4	mg/kg	*		
Copper	7440-50-8	11.6	3.9	0.065	mg/kg			
Iron	7439-89-6	90000	62.9	3.1	mg/kg	D		
Lead	7439-92-1	133	1.6	0.20	mg/kg			
Magnesium	7439-95-4	5490	787	3.1	mg/kg	*		
Manganese	7439-96-5	8600	9.4	0.14	mg/kg	D		
Zinc	7440-66-6	486	9.4	0.077	mg/kg			

Lab Sample Name: 6100156-10 **Sample No:** MH1G32 **Sample Date:** 09/29/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	24400	31.4	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	6.8	1.6	0.17	mg/kg			
Calcium	7440-70-2	1340	784	4.4	mg/kg	*		
Copper	7440-50-8	9.7	3.9	0.064	mg/kg			
Iron	7439-89-6	50700	15.7	0.78	mg/kg			
Lead	7439-92-1	103	1.6	0.20	mg/kg			
Magnesium	7439-95-4	4700	784	3.1	mg/kg	*	J	A
Manganese	7439-96-5	936	2.4	0.035	mg/kg			
Zinc	7440-66-6	124	9.4	0.077	mg/kg			

Lab Sample Name: 6100156-11 **Sample No:** MH1G33 **Sample Date:** 09/29/2016 09:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	21500	44.4	3.1	mg/kg	*		
Arsenic	7440-38-2	2.2	2.2	0.24	mg/kg	U	U	
Calcium	7440-70-2	994	1110	6.2	mg/kg	J*	J	
Copper	7440-50-8	5.6	5.6	0.091	mg/kg	U	U	
Iron	7439-89-6	153000	88.9	4.4	mg/kg	D		
Lead	7439-92-1	34.7	2.2	0.29	mg/kg			
Magnesium	7439-95-4	3500	1110	4.4	mg/kg	*		
Manganese	7439-96-5	641	3.3	0.049	mg/kg			
Zinc	7440-66-6	92.5	13.3	0.11	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100156-12 **Sample No:** MH1G34 **Sample Date:** 09/29/2016 09:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	21200	28.8	2.0	mg/kg	*	J	A
Arsenic	7440-38-2	12.9	1.4	0.16	mg/kg			
Calcium	7440-70-2	1940	720	4.0	mg/kg	*		
Copper	7440-50-8	11.6	3.6	0.059	mg/kg			
Iron	7439-89-6	99200	57.6	2.9	mg/kg	D		
Lead	7439-92-1	158	1.4	0.19	mg/kg			
Magnesium	7439-95-4	6000	720	2.9	mg/kg	*	J	A
Manganese	7439-96-5	4200	8.6	0.13	mg/kg	D		
Zinc	7440-66-6	336	8.6	0.071	mg/kg			

Lab Sample Name: 6100156-13 **Sample No:** MH1G35 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17600	32.7	2.3	mg/kg	*		
Arsenic	7440-38-2	12.9	1.6	0.18	mg/kg			
Calcium	7440-70-2	1940	819	4.6	mg/kg	*		
Copper	7440-50-8	5.9	4.1	0.067	mg/kg			
Iron	7439-89-6	108000	65.5	3.3	mg/kg	D		
Lead	7439-92-1	137	1.6	0.21	mg/kg			
Magnesium	7439-95-4	5470	819	3.3	mg/kg	*		
Manganese	7439-96-5	1970	2.5	0.036	mg/kg			
Zinc	7440-66-6	209	9.8	0.080	mg/kg			

Lab Sample Name: 6100156-14 **Sample No:** MH1G36 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8300	23.2	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	26.4	1.2	0.13	mg/kg			
Calcium	7440-70-2	2200	580	3.2	mg/kg	*		
Copper	7440-50-8	15.1	2.9	0.048	mg/kg			
Iron	7439-89-6	37700	11.6	0.58	mg/kg			
Lead	7439-92-1	112	1.2	0.15	mg/kg			
Magnesium	7439-95-4	3450	580	2.3	mg/kg	*	J	A
Manganese	7439-96-5	968	1.7	0.026	mg/kg			
Zinc	7440-66-6	101	7.0	0.057	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100156-15 **Sample No:** MH1G37 **Sample Date:** 09/29/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15400	29.7	2.1	mg/kg	*		
Arsenic	7440-38-2	1.5	1.5	0.16	mg/kg	U	U	
Calcium	7440-70-2	725	744	4.2	mg/kg	J*	J	
Copper	7440-50-8	17.0	3.7	0.061	mg/kg			
Iron	7439-89-6	200000	149	7.4	mg/kg	D		
Lead	7439-92-1	24.3	1.5	0.19	mg/kg			
Magnesium	7439-95-4	6970	744	3.0	mg/kg	*		
Manganese	7439-96-5	691	2.2	0.033	mg/kg			
Zinc	7440-66-6	64.0	8.9	0.073	mg/kg			

Lab Sample Name: 6100156-16 **Sample No:** MH1G38 **Sample Date:** 09/29/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19100	32.0	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	8.4	1.6	0.18	mg/kg			
Calcium	7440-70-2	2720	801	4.5	mg/kg	*		
Copper	7440-50-8	24.0	4.0	0.066	mg/kg			
Iron	7439-89-6	44600	16.0	0.80	mg/kg			
Lead	7439-92-1	81.2	1.6	0.21	mg/kg			
Magnesium	7439-95-4	5750	801	3.2	mg/kg	*	J	A
Manganese	7439-96-5	461	2.4	0.035	mg/kg			
Zinc	7440-66-6	75.0	9.6	0.079	mg/kg			

Lab Sample Name: 6100156-17 **Sample No:** MH1G39 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16300	30.3	2.1	mg/kg	*		
Arsenic	7440-38-2	4.3	1.5	0.17	mg/kg		J	F1
Calcium	7440-70-2	1120	758	4.2	mg/kg	*		
Copper	7440-50-8	13.5	3.8	0.062	mg/kg		J	F1
Iron	7439-89-6	170000	121	6.1	mg/kg	D		
Lead	7439-92-1	110	1.5	0.20	mg/kg			
Magnesium	7439-95-4	6180	758	3.0	mg/kg	*		
Manganese	7439-96-5	870	2.3	0.033	mg/kg			
Zinc	7440-66-6	106	9.1	0.074	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100156-18 **Sample No:** MH1G40 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10300	24.9	1.7	mg/kg	*	J	A
Arsenic	7440-38-2	25.8	1.2	0.14	mg/kg			
Calcium	7440-70-2	2640	623	3.5	mg/kg	*		
Copper	7440-50-8	12.3	3.1	0.051	mg/kg			
Iron	7439-89-6	25900	12.5	0.62	mg/kg			
Lead	7439-92-1	161	1.2	0.16	mg/kg			
Magnesium	7439-95-4	3800	623	2.5	mg/kg	*	J	A
Manganese	7439-96-5	1660	1.9	0.027	mg/kg			
Zinc	7440-66-6	198	7.5	0.061	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100156-01 **Sample No:** MH1G23 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.11	3.0	0.091	mg/kg	J*	J	
Barium	7440-39-3	1.9	15.1	0.13	mg/kg	J*	J	
Beryllium	7440-41-7	0.45	1.5	0.12	mg/kg	J*	J	
Cadmium	7440-43-9	1.5	1.5	0.13	mg/kg	U*	U	
Chromium	7440-47-3	0.86	3.0	0.25	mg/kg	J	J	
Cobalt	7440-48-4	1.5	1.5	0.091	mg/kg	J*	U	B
Molybdenum	7439-98-7	6.1	6.1	0.14	mg/kg	J*	U	B
Nickel	7440-02-0	1.5	1.5	0.14	mg/kg	U*	U	
Selenium	7782-49-2	0.39	7.6	0.21	mg/kg	J	J	
Silver	7440-22-4	1.5	1.5	0.082	mg/kg	U	U	
Thallium	7440-28-0	1.5	1.5	0.12	mg/kg	U*	U	
Vanadium	7440-62-2	91.2	7.6	0.25	mg/kg	*		

Lab Sample Name: 6100156-02 **Sample No:** MH1G24 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.60	1.6	0.048	mg/kg	J*	J	Q
Barium	7440-39-3	97.5	7.9	0.070	mg/kg	*	J	E
Beryllium	7440-41-7	1.4	0.79	0.063	mg/kg	*	J	Q
Cadmium	7440-43-9	3.0	0.79	0.067	mg/kg	*	J	Q
Chromium	7440-47-3	3.1	1.6	0.13	mg/kg			
Cobalt	7440-48-4	69.8	0.79	0.048	mg/kg	*	J	Q
Molybdenum	7439-98-7	6.0	3.2	0.071	mg/kg	*	J-	Q

Nickel	7440-02-0	7.2	0.79	0.071	mg/kg	*	J	Q
Selenium	7782-49-2	7.0	4.0	0.11	mg/kg			
Silver	7440-22-4	0.79	0.79	0.043	mg/kg	J	U	B
Thallium	7440-28-0	0.087	0.79	0.060	mg/kg	J*	J	Q
Vanadium	7440-62-2	29.7	4.0	0.13	mg/kg	*	J	E

Lab Sample Name: 6100156-03 **Sample No:** MH1G25 **Sample Date:** 09/29/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.26	1.5	0.044	mg/kg	J*	J	
Barium	7440-39-3	67.5	7.3	0.065	mg/kg	*		
Beryllium	7440-41-7	0.77	0.73	0.059	mg/kg	*		
Cadmium	7440-43-9	1.9	0.73	0.062	mg/kg	*		
Chromium	7440-47-3	2.7	1.5	0.12	mg/kg			
Cobalt	7440-48-4	46.4	0.73	0.044	mg/kg	*		
Molybdenum	7439-98-7	4.4	2.9	0.066	mg/kg	*		
Nickel	7440-02-0	4.8	0.73	0.066	mg/kg	*		
Selenium	7782-49-2	3.4	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	0.73	0.73	0.040	mg/kg	J	U	B
Thallium	7440-28-0	0.062	0.73	0.056	mg/kg	J*	J	
Vanadium	7440-62-2	24.3	3.7	0.12	mg/kg	*		

Lab Sample Name: 6100156-04 **Sample No:** MH1G26 **Sample Date:** 09/29/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.45	2.0	0.060	mg/kg	J*	J	Q
Barium	7440-39-3	103	10.0	0.088	mg/kg	*	J	E
Beryllium	7440-41-7	0.31	1.0	0.080	mg/kg	J*	J	Q
Cadmium	7440-43-9	0.63	1.0	0.084	mg/kg	J*	J	Q
Chromium	7440-47-3	3.5	2.0	0.16	mg/kg			
Cobalt	7440-48-4	14.9	1.0	0.060	mg/kg	*	J	Q
Molybdenum	7439-98-7	4	4.0	0.090	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	3.2	1.0	0.090	mg/kg	*	J	Q
Selenium	7782-49-2	4.1	5.0	0.14	mg/kg	J	J	
Silver	7440-22-4	1.2	1.0	0.054	mg/kg			
Thallium	7440-28-0	0.093	1.0	0.076	mg/kg	J*	J	Q
Vanadium	7440-62-2	25.4	5.0	0.16	mg/kg	*	J	E

Lab Sample Name: 6100156-05 **Sample No:** MH1G27 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.30	1.4	0.041	mg/kg	J*	J	

Barium	7440-39-3	83.2	6.8	0.060	mg/kg	*		
Beryllium	7440-41-7	0.56	0.68	0.055	mg/kg	J*	J	
Cadmium	7440-43-9	0.36	0.68	0.057	mg/kg	J*	J	
Chromium	7440-47-3	1.6	1.4	0.11	mg/kg			
Cobalt	7440-48-4	27.7	0.68	0.041	mg/kg	*		
Molybdenum	7439-98-7	3.1	2.7	0.061	mg/kg	*		
Nickel	7440-02-0	3.4	0.68	0.061	mg/kg	*		
Selenium	7782-49-2	3.0	3.4	0.093	mg/kg	J	J	
Silver	7440-22-4	0.68	0.68	0.037	mg/kg	J	U	B
Thallium	7440-28-0	0.68	0.68	0.052	mg/kg	U*	U	
Vanadium	7440-62-2	16.8	3.4	0.11	mg/kg	*		

Lab Sample Name: 6100156-06 **Sample No:** MH1G28 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.35	1.3	0.038	mg/kg	J*	J	Q
Barium	7440-39-3	111	6.3	0.056	mg/kg	*	J	E
Beryllium	7440-41-7	0.64	0.63	0.051	mg/kg	*	J	Q
Cadmium	7440-43-9	0.44	0.63	0.053	mg/kg	J*	J	Q
Chromium	7440-47-3	2.4	1.3	0.10	mg/kg			
Cobalt	7440-48-4	31.0	0.63	0.038	mg/kg	*	J	Q
Molybdenum	7439-98-7	3.6	2.5	0.057	mg/kg	*	J-	Q
Nickel	7440-02-0	3.5	0.63	0.057	mg/kg	*	J	Q
Selenium	7782-49-2	3.4	3.2	0.086	mg/kg			
Silver	7440-22-4	0.63	0.63	0.034	mg/kg	J	U	B
Thallium	7440-28-0	0.068	0.63	0.048	mg/kg	J*	J	Q
Vanadium	7440-62-2	20.7	3.2	0.10	mg/kg	*	J	E

Lab Sample Name: 6100156-07 **Sample No:** MH1G29 **Sample Date:** 09/29/2016 12:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.52	2.4	0.072	mg/kg	J*	J	
Barium	7440-39-3	77.7	12.0	0.11	mg/kg	*		
Beryllium	7440-41-7	1.6	1.2	0.096	mg/kg	*		
Cadmium	7440-43-9	2.2	1.2	0.10	mg/kg	*		
Chromium	7440-47-3	2.7	2.4	0.20	mg/kg			
Cobalt	7440-48-4	63.0	1.2	0.072	mg/kg	*		
Molybdenum	7439-98-7	5.9	4.8	0.11	mg/kg	*		
Nickel	7440-02-0	5.6	1.2	0.11	mg/kg	*		
Selenium	7782-49-2	6.4	6.0	0.16	mg/kg			
Silver	7440-22-4	1.2	1.2	0.065	mg/kg	J	U	B
Thallium	7440-28-0	1.2	1.2	0.091	mg/kg	U*	U	

Vanadium	7440-62-2	24.4	6.0	0.20	mg/kg	*		

Lab Sample Name: 6100156-08 **Sample No:** MH1G30 **Sample Date:** 09/29/2016 12:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.45	1.4	0.041	mg/kg	J*	J	Q
Barium	7440-39-3	109	6.9	0.061	mg/kg	*	J	E
Beryllium	7440-41-7	0.39	0.69	0.055	mg/kg	J*	J	Q
Cadmium	7440-43-9	0.55	0.69	0.058	mg/kg	J*	J	Q
Chromium	7440-47-3	4.2	1.4	0.11	mg/kg			
Cobalt	7440-48-4	19.0	0.69	0.041	mg/kg	*	J	Q
Molybdenum	7439-98-7	2.9	2.8	0.062	mg/kg	*	J-	Q
Nickel	7440-02-0	3.0	0.69	0.062	mg/kg	*	J	Q
Selenium	7782-49-2	2.7	3.4	0.094	mg/kg	J	J	
Silver	7440-22-4	0.69	0.69	0.037	mg/kg	J	U	B
Thallium	7440-28-0	0.10	0.69	0.052	mg/kg	J*	J	Q
Vanadium	7440-62-2	29.9	3.4	0.11	mg/kg	*	J	E

Lab Sample Name: 6100156-09 **Sample No:** MH1G31 **Sample Date:** 09/29/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.46	1.6	0.047	mg/kg	J*	J	
Barium	7440-39-3	104	7.9	0.069	mg/kg	*		
Beryllium	7440-41-7	0.93	0.79	0.063	mg/kg	*		
Cadmium	7440-43-9	2.1	0.79	0.066	mg/kg	*		
Chromium	7440-47-3	2.8	1.6	0.13	mg/kg			
Cobalt	7440-48-4	60.0	0.79	0.047	mg/kg	*		
Molybdenum	7439-98-7	5.9	3.1	0.071	mg/kg	*		
Nickel	7440-02-0	6.1	0.79	0.071	mg/kg	*		
Selenium	7782-49-2	4.3	3.9	0.11	mg/kg			
Silver	7440-22-4	0.79	0.79	0.042	mg/kg	J	U	B
Thallium	7440-28-0	0.078	0.79	0.060	mg/kg	J*	J	
Vanadium	7440-62-2	26.5	3.9	0.13	mg/kg	*		

Lab Sample Name: 6100156-10 **Sample No:** MH1G32 **Sample Date:** 09/29/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.47	1.6	0.047	mg/kg	J*	J	Q
Barium	7440-39-3	82.5	7.8	0.069	mg/kg	*	J	E
Beryllium	7440-41-7	0.96	0.78	0.063	mg/kg	*	J	Q
Cadmium	7440-43-9	0.20	0.78	0.066	mg/kg	J*	J	Q
Chromium	7440-47-3	5.0	1.6	0.13	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	11.2	0.78	0.047	mg/kg	*	J	Q
Molybdenum	7439-98-7	3.1	3.1	0.071	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	3.6	0.78	0.071	mg/kg	*	J	Q
Selenium	7782-49-2	4.0	3.9	0.11	mg/kg			
Silver	7440-22-4	0.78	0.78	0.042	mg/kg	J	U	B
Thallium	7440-28-0	0.087	0.78	0.060	mg/kg	J*	J	Q
Vanadium	7440-62-2	39.1	3.9	0.13	mg/kg	*	J	E

Lab Sample Name: 6100156-11 **Sample No:** MH1G33 **Sample Date:** 09/29/2016 09:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.31	2.2	0.067	mg/kg	J*	J	
Barium	7440-39-3	33.7	11.1	0.098	mg/kg	*		
Beryllium	7440-41-7	0.48	1.1	0.089	mg/kg	J*	J	
Cadmium	7440-43-9	1.1	1.1	0.093	mg/kg	U*	U	
Chromium	7440-47-3	1.3	2.2	0.18	mg/kg	J	J	
Cobalt	7440-48-4	6.0	1.1	0.067	mg/kg	*		
Molybdenum	7439-98-7	4.4	4.4	0.10	mg/kg	J*	U	B
Nickel	7440-02-0	0.65	1.1	0.10	mg/kg	J*	J	
Selenium	7782-49-2	1.6	5.6	0.15	mg/kg	J	J	
Silver	7440-22-4	1.1	1.1	0.060	mg/kg	J	U	B
Thallium	7440-28-0	1.1	1.1	0.084	mg/kg	U*	U	
Vanadium	7440-62-2	20.3	5.6	0.18	mg/kg	*		

Lab Sample Name: 6100156-12 **Sample No:** MH1G34 **Sample Date:** 09/29/2016 09:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.62	1.4	0.043	mg/kg	J*	J	Q
Barium	7440-39-3	131	7.2	0.063	mg/kg	*	J	E
Beryllium	7440-41-7	0.85	0.72	0.058	mg/kg	*	J	Q
Cadmium	7440-43-9	1.1	0.72	0.060	mg/kg	*	J	Q
Chromium	7440-47-3	3.1	1.4	0.12	mg/kg			
Cobalt	7440-48-4	45.8	0.72	0.043	mg/kg	*	J	Q
Molybdenum	7439-98-7	5.4	2.9	0.065	mg/kg	*	J-	Q
Nickel	7440-02-0	5.2	0.72	0.065	mg/kg	*	J	Q
Selenium	7782-49-2	4.9	3.6	0.098	mg/kg			
Silver	7440-22-4	0.72	0.72	0.039	mg/kg	J	U	B
Thallium	7440-28-0	0.082	0.72	0.055	mg/kg	J*	J	Q
Vanadium	7440-62-2	29.4	3.6	0.12	mg/kg	*	J	E

Analysis Method ICP_MS

Lab Sample Name: 6100156-13 **Sample No:** MH1G35 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.56	1.6	0.049	mg/kg	J*	J	
Barium	7440-39-3	69.3	8.2	0.072	mg/kg	*		
Beryllium	7440-41-7	0.80	0.82	0.065	mg/kg	J*	J	
Cadmium	7440-43-9	0.82	0.82	0.069	mg/kg	J*	U	B
Chromium	7440-47-3	2.3	1.6	0.13	mg/kg			
Cobalt	7440-48-4	28.5	0.82	0.049	mg/kg	*		
Molybdenum	7439-98-7	3.9	3.3	0.074	mg/kg	*		
Nickel	7440-02-0	2.3	0.82	0.074	mg/kg	*		
Selenium	7782-49-2	3.1	4.1	0.11	mg/kg	J	J	
Silver	7440-22-4	0.82	0.82	0.044	mg/kg	J	U	B
Thallium	7440-28-0	0.82	0.82	0.062	mg/kg	U*	U	
Vanadium	7440-62-2	25.8	4.1	0.13	mg/kg	*		

Lab Sample Name: 6100156-14 **Sample No:** MH1G36 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.2	0.035	mg/kg	J*	J	Q
Barium	7440-39-3	90.9	5.8	0.051	mg/kg	*	J	E
Beryllium	7440-41-7	0.20	0.58	0.046	mg/kg	J*	J	Q
Cadmium	7440-43-9	0.58	0.58	0.049	mg/kg	J*	UJ	B,Q
Chromium	7440-47-3	1.8	1.2	0.095	mg/kg			
Cobalt	7440-48-4	6.3	0.58	0.035	mg/kg	*	J	Q
Molybdenum	7439-98-7	18.8	2.3	0.052	mg/kg	*	J-	Q
Nickel	7440-02-0	1.8	0.58	0.052	mg/kg	*	J	Q
Selenium	7782-49-2	2.1	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	0.82	0.58	0.031	mg/kg			
Thallium	7440-28-0	0.097	0.58	0.044	mg/kg	J*	J	Q
Vanadium	7440-62-2	10.3	2.9	0.095	mg/kg	*	J	E

Lab Sample Name: 6100156-15 **Sample No:** MH1G37 **Sample Date:** 09/29/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.069	1.5	0.045	mg/kg	J*	J	
Barium	7440-39-3	37.6	7.4	0.065	mg/kg	*		
Beryllium	7440-41-7	0.093	0.74	0.059	mg/kg	J*	J	
Cadmium	7440-43-9	0.74	0.74	0.062	mg/kg	U*	U	
Chromium	7440-47-3	2.2	1.5	0.12	mg/kg			
Cobalt	7440-48-4	7.3	0.74	0.045	mg/kg	*		

Molybdenum	7439-98-7	6.2	3.0	0.067	mg/kg	*		
Nickel	7440-02-0	0.59	0.74	0.067	mg/kg	J*	J	
Selenium	7782-49-2	1.6	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	0.74	0.74	0.040	mg/kg	J	U	B
Thallium	7440-28-0	0.096	0.74	0.057	mg/kg	J*	J	
Vanadium	7440-62-2	70.4	3.7	0.12	mg/kg	*		

Lab Sample Name: 6100156-16 **Sample No:** MH1G38 **Sample Date:** 09/29/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.65	1.6	0.048	mg/kg	J*	J	Q
Barium	7440-39-3	182	8.0	0.071	mg/kg	*	J	E
Beryllium	7440-41-7	0.22	0.80	0.064	mg/kg	J*	J	Q
Cadmium	7440-43-9	0.80	0.80	0.067	mg/kg	J*	UJ	B,Q
Chromium	7440-47-3	4.6	1.6	0.13	mg/kg			
Cobalt	7440-48-4	3.3	0.80	0.048	mg/kg	*	J	Q
Molybdenum	7439-98-7	6.6	3.2	0.072	mg/kg	*	J-	Q
Nickel	7440-02-0	3.3	0.80	0.072	mg/kg	*	J	Q
Selenium	7782-49-2	3.5	4.0	0.11	mg/kg	J	J	
Silver	7440-22-4	0.80	0.80	0.043	mg/kg	J	U	B
Thallium	7440-28-0	0.28	0.80	0.061	mg/kg	J*	J	Q
Vanadium	7440-62-2	34.8	4.0	0.13	mg/kg	*	J	E

Lab Sample Name: 6100156-17 **Sample No:** MH1G39 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.36	1.5	0.045	mg/kg	J*	J	
Barium	7440-39-3	65.3	7.6	0.067	mg/kg	*		
Beryllium	7440-41-7	0.34	0.76	0.061	mg/kg	J*	J	
Cadmium	7440-43-9	0.76	0.76	0.064	mg/kg	J*	U	B
Chromium	7440-47-3	2.8	1.5	0.12	mg/kg			
Cobalt	7440-48-4	10.3	0.76	0.045	mg/kg	*		
Molybdenum	7439-98-7	8.3	3.0	0.068	mg/kg	*		
Nickel	7440-02-0	1.3	0.76	0.068	mg/kg	*		
Selenium	7782-49-2	3.1	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	0.76	0.76	0.041	mg/kg	J	U	B
Thallium	7440-28-0	0.12	0.76	0.058	mg/kg	J*	J	
Vanadium	7440-62-2	59.8	3.8	0.12	mg/kg	*		

Lab Sample Name: 6100156-18 **Sample No:** MH1G40 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	0.83	1.2	0.037	mg/kg	J*	**J**	**Q**
Barium	7440-39-3	102	6.2	0.055	mg/kg	*	**J**	**E**
Beryllium	7440-41-7	0.34	0.62	0.050	mg/kg	J*	**J**	**Q**
Cadmium	7440-43-9	0.63	0.62	0.052	mg/kg	*	**J**	**Q**
Chromium	7440-47-3	1.9	1.2	0.10	mg/kg		**J**	***III**
Cobalt	7440-48-4	8.1	0.62	0.037	mg/kg	*	**J**	**Q**
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J*	**UJ**	**B,Q**
Nickel	7440-02-0	2.2	0.62	0.056	mg/kg	*	**J**	**Q**
Selenium	7782-49-2	1.4	3.1	0.085	mg/kg	J	**J**	***III**
Silver	7440-22-4	0.62	0.62	0.034	mg/kg	J	**U**	**B**
Thallium	7440-28-0	0.093	0.62	0.047	mg/kg	J*	**J**	**Q**
Vanadium	7440-62-2	9.8	3.1	0.10	mg/kg	*	**J**	**E, *III**

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1G41

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1G41
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1G41	6100159-01	Sediment	09/29/2016 15:25:00	Hg, ICP-AES, ICP-MS
MH1G42	6100159-02	Soil	09/29/2016 15:25:00	Hg, ICP-AES, ICP-MS
MH1G43	6100159-03	Sediment	09/28/2016 14:05:00	Hg, ICP-AES, ICP-MS
MH1G44	6100159-04	Soil	09/28/2016 14:05:00	Hg, ICP-AES, ICP-MS
MH1G45	6100159-05	Sediment	09/27/2016 18:00:00	Hg, ICP-AES, ICP-MS
MH1G46	6100159-06	Soil	09/27/2016 18:00:00	Hg, ICP-AES, ICP-MS
MH1G47	6100159-07	Soil	09/27/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1G48	6100159-08	Sediment	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G49	6100159-09	Soil	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G50	6100159-10	Sediment	09/28/2016 09:45:00	Hg, ICP-AES, ICP-MS
MH1G51	6100159-11	Soil	09/28/2016 09:45:00	Hg, ICP-AES, ICP-MS
MH1G52	6100159-12	Sediment	09/28/2016 09:35:00	Hg, ICP-AES, ICP-MS
MH1G53	6100159-13	Soil	09/28/2016 09:35:00	Hg, ICP-AES, ICP-MS
MH1G54	6100159-14	Sediment	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G55	6100159-15	Soil	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1G56	6100159-16	Sediment	09/27/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1G57	6100159-17	Soil	09/27/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1G58	6100159-18	Sediment	09/28/2016 14:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/19/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 2340B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
thallium	0.058 J (ICB), 0.061 J, 0.058 J	All samples with the exception of MH1G45
molybdenum	0.27 J, 0.29 J, 0.25J	MH1G46, MH1G49, MH1G51, MH1G53, MH1G55, MH1G50, MH1G52, MH1G54
silver	0.029 J (ICB)	All samples with the exception of MH1G47, MH1G55, MH1G50, MH1G52

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1G46. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL

when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
barium chromium cobalt nickel vanadium	22% 28% 21% 22% 24%	All soil samples in the SDG. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1G46. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%.
- Post Digestion Spike: Post digestion spike analyses were not reported.
- Serial Dilution: Serial dilution analysis was performed on soil sample MH1G46. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.
-

Analyte	Serial Dilution %D	Qualified Samples
calcium iron manganese	11% 11% 11%	All soil samples (J)

- Internal Standards: Intensities for all site sample ICP-MS internal standards were within 60-125% relative intensity (%RI) of the response in the calibration blank for reported target analytes except as noted in the table below. The indium-115 %RI infraction was >125%. The sample with the %RI infractions was not reanalyzed at a 2x dilution. All associated sample result detects were qualified as estimated (J) and associated non-detects were qualified as estimated (UJ).

Internal standard	Affected analytes	Qualified samples
indium-115	cadmium, cobalt, molybdenum, nickel, silver	MH1G57

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Non-detects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1G41

Analysis Method Hg

Lab Sample Name: 6100159-01 **Sample No:** MH1G41 **Sample Date:** 09/29/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0084	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100159-02 **Sample No:** MH1G42 **Sample Date:** 09/29/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.015	0.15	0.0048	mg/kg	J	J	

Lab Sample Name: 6100159-03 **Sample No:** MH1G43 **Sample Date:** 09/28/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0044	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100159-04 **Sample No:** MH1G44 **Sample Date:** 09/28/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.077	0.22	0.0070	mg/kg	J	J	

Lab Sample Name: 6100159-05 **Sample No:** MH1G45 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0043	mg/kg	U	U	

Lab Sample Name: 6100159-06 **Sample No:** MH1G46 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.026	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100159-07 **Sample No:** MH1G47 **Sample Date:** 09/27/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.039	0.11	0.0035	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100159-08 **Sample No:** MH1G48 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.14	0.0045	mg/kg	U	U	

Lab Sample Name: 6100159-09 **Sample No:** MH1G49 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.039	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100159-10 **Sample No:** MH1G50 **Sample Date:** 09/28/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0042	mg/kg	U	U	

Lab Sample Name: 6100159-11 **Sample No:** MH1G51 **Sample Date:** 09/28/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0063	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100159-12 **Sample No:** MH1G52 **Sample Date:** 09/28/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.021	0.16	0.0051	mg/kg	J	J	

Lab Sample Name: 6100159-13 **Sample No:** MH1G53 **Sample Date:** 09/28/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.011	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100159-14 **Sample No:** MH1G54 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.085	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100159-15 **Sample No:** MH1G55 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.23	0.20	0.0065	mg/kg			

Analysis Method Hg

Lab Sample Name: 6100159-16 **Sample No:** MH1G56 **Sample Date:** 09/27/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.058	0.14	0.0043	mg/kg	J	J	

Lab Sample Name: 6100159-17 **Sample No:** MH1G57 **Sample Date:** 09/27/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.021	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100159-18 **Sample No:** MH1G58 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0057	0.14	0.0044	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100159-01 **Sample No:** MH1G41 **Sample Date:** 09/29/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12600	25.9	1.8	mg/kg			
Arsenic	7440-38-2	16.9	1.3	0.14	mg/kg			
Calcium	7440-70-2	1640	647	3.6	mg/kg	*		
Copper	7440-50-8	12.8	3.2	0.053	mg/kg			
Iron	7439-89-6	87300	38.8	1.9	mg/kg	D*		
Lead	7439-92-1	67.2	1.3	0.17	mg/kg			
Magnesium	7439-95-4	5100	647	2.6	mg/kg			
Manganese	7439-96-5	678	1.9	0.028	mg/kg	*		
Zinc	7440-66-6	121	7.8	0.063	mg/kg			

Lab Sample Name: 6100159-02 **Sample No:** MH1G42 **Sample Date:** 09/29/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15600	30.1	2.1	mg/kg			
Arsenic	7440-38-2	7.1	1.5	0.17	mg/kg			
Calcium	7440-70-2	2010	754	4.2	mg/kg	*	J	A
Copper	7440-50-8	13.2	3.8	0.062	mg/kg			
Iron	7439-89-6	104000	45.2	2.3	mg/kg	D*	J	A
Lead	7439-92-1	114	1.5	0.20	mg/kg			
Magnesium	7439-95-4	4660	754	3.0	mg/kg			
Manganese	7439-96-5	1200	2.3	0.033	mg/kg	*	J	A

Zinc		7440-66-6	126	9.0	0.074	mg/kg			

Lab Sample Name: 6100159-03 **Sample No:** MH1G43 **Sample Date:** 09/28/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11000	25.5	1.8	mg/kg			
Arsenic	7440-38-2	7.0	1.3	0.14	mg/kg			
Calcium	7440-70-2	1590	639	3.6	mg/kg	*		
Copper	7440-50-8	9.1	3.2	0.052	mg/kg			
Iron	7439-89-6	61700	25.5	1.3	mg/kg	D*		
Lead	7439-92-1	40.6	1.3	0.17	mg/kg			
Magnesium	7439-95-4	5740	639	2.6	mg/kg			
Manganese	7439-96-5	532	1.9	0.028	mg/kg	*		
Zinc	7440-66-6	93.8	7.7	0.063	mg/kg			

Lab Sample Name: 6100159-04 **Sample No:** MH1G44 **Sample Date:** 09/28/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13900	43.7	3.1	mg/kg			
Arsenic	7440-38-2	17.3	2.2	0.24	mg/kg			
Calcium	7440-70-2	1750	1090	6.1	mg/kg	*	J	A
Copper	7440-50-8	21.2	5.5	0.090	mg/kg			
Iron	7439-89-6	58700	21.9	1.1	mg/kg	*	J	A
Lead	7439-92-1	128	2.2	0.28	mg/kg			
Magnesium	7439-95-4	3640	1090	4.4	mg/kg			
Manganese	7439-96-5	608	3.3	0.048	mg/kg	*	J	A
Zinc	7440-66-6	119	13.1	0.11	mg/kg			

Lab Sample Name: 6100159-05 **Sample No:** MH1G45 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8490	26.8	1.9	mg/kg			
Arsenic	7440-38-2	5.1	1.3	0.15	mg/kg			
Calcium	7440-70-2	4730	669	3.7	mg/kg	*		
Copper	7440-50-8	18.1	3.3	0.055	mg/kg			
Iron	7439-89-6	18500	13.4	0.67	mg/kg	*		
Lead	7439-92-1	9.4	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4500	669	2.7	mg/kg			
Manganese	7439-96-5	631	2.0	0.029	mg/kg	*		
Zinc	7440-66-6	109	8.0	0.066	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100159-06 **Sample No:** MH1G46 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14600	26.0	1.8	mg/kg			
Arsenic	7440-38-2	4.0	1.3	0.14	mg/kg			
Calcium	7440-70-2	4920	651	3.6	mg/kg	*	J	A
Copper	7440-50-8	13.9	3.3	0.053	mg/kg			
Iron	7439-89-6	23700	13.0	0.65	mg/kg	*	J	A
Lead	7439-92-1	19.0	1.3	0.17	mg/kg			
Magnesium	7439-95-4	5620	651	2.6	mg/kg			
Manganese	7439-96-5	380	2.0	0.029	mg/kg	*	J	A
Zinc	7440-66-6	88.7	7.8	0.064	mg/kg			

Lab Sample Name: 6100159-07 **Sample No:** MH1G47 **Sample Date:** 09/27/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	21300	22.0	1.5	mg/kg			
Arsenic	7440-38-2	8.9	1.1	0.12	mg/kg			
Calcium	7440-70-2	5220	550	3.1	mg/kg	*	J	A
Copper	7440-50-8	197	2.8	0.045	mg/kg			
Iron	7439-89-6	31300	11.0	0.55	mg/kg	*	J	A
Lead	7439-92-1	349	1.1	0.14	mg/kg			
Magnesium	7439-95-4	6480	550	2.2	mg/kg			
Manganese	7439-96-5	6020	8.2	0.12	mg/kg	D*	J	A
Zinc	7440-66-6	4120	33.0	0.27	mg/kg	D		

Lab Sample Name: 6100159-08 **Sample No:** MH1G48 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12900	28.2	2.0	mg/kg			
Arsenic	7440-38-2	5.8	1.4	0.16	mg/kg			
Calcium	7440-70-2	3640	706	4.0	mg/kg	*		
Copper	7440-50-8	46.5	3.5	0.058	mg/kg			
Iron	7439-89-6	19700	14.1	0.71	mg/kg	*		
Lead	7439-92-1	36.1	1.4	0.18	mg/kg			
Magnesium	7439-95-4	4350	706	2.8	mg/kg			
Manganese	7439-96-5	559	2.1	0.031	mg/kg	*		
Zinc	7440-66-6	402	8.5	0.069	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100159-09 **Sample No:** MH1G49 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18200	26.9	1.9	mg/kg			
Arsenic	7440-38-2	27.9	1.3	0.15	mg/kg			
Calcium	7440-70-2	12800	672	3.8	mg/kg	*	J	A
Copper	7440-50-8	12.0	3.4	0.055	mg/kg			
Iron	7439-89-6	17300	13.4	0.67	mg/kg	*	J	A
Lead	7439-92-1	55.3	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4060	672	2.7	mg/kg			
Manganese	7439-96-5	709	2.0	0.030	mg/kg	*	J	A
Zinc	7440-66-6	174	8.1	0.066	mg/kg			

Lab Sample Name: 6100159-10 **Sample No:** MH1G50 **Sample Date:** 09/28/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9840	26.1	1.8	mg/kg			
Arsenic	7440-38-2	29.2	1.3	0.14	mg/kg			
Calcium	7440-70-2	5580	651	3.6	mg/kg	*		
Copper	7440-50-8	11.6	3.3	0.053	mg/kg			
Iron	7439-89-6	19800	13.0	0.65	mg/kg	*		
Lead	7439-92-1	420	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4850	651	2.6	mg/kg			
Manganese	7439-96-5	2600	3.9	0.057	mg/kg	D*		
Zinc	7440-66-6	422	7.8	0.064	mg/kg			

Lab Sample Name: 6100159-11 **Sample No:** MH1G51 **Sample Date:** 09/28/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12400	23.6	1.7	mg/kg			
Arsenic	7440-38-2	7.0	1.2	0.13	mg/kg			
Calcium	7440-70-2	3630	591	3.3	mg/kg	*	J	A
Copper	7440-50-8	9.3	3.0	0.048	mg/kg			
Iron	7439-89-6	21300	11.8	0.59	mg/kg	*	J	A
Lead	7439-92-1	133	1.2	0.15	mg/kg			
Magnesium	7439-95-4	6260	591	2.4	mg/kg			
Manganese	7439-96-5	966	1.8	0.026	mg/kg	*	J	A
Zinc	7440-66-6	79.1	7.1	0.058	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100159-12 **Sample No:** MH1G52 **Sample Date:** 09/28/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14200	31.6	2.2	mg/kg			
Arsenic	7440-38-2	20.6	1.6	0.17	mg/kg			
Calcium	7440-70-2	6070	789	4.4	mg/kg	*		
Copper	7440-50-8	20.5	3.9	0.065	mg/kg			
Iron	7439-89-6	26200	15.8	0.79	mg/kg	*		
Lead	7439-92-1	269	1.6	0.21	mg/kg			
Magnesium	7439-95-4	6110	789	3.2	mg/kg			
Manganese	7439-96-5	1910	2.4	0.035	mg/kg	*		
Zinc	7440-66-6	614	9.5	0.077	mg/kg			

Lab Sample Name: 6100159-13 **Sample No:** MH1G53 **Sample Date:** 09/28/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9460	21.2	1.5	mg/kg			
Arsenic	7440-38-2	12.2	1.1	0.12	mg/kg			
Calcium	7440-70-2	4690	530	3.0	mg/kg	*	J	A
Copper	7440-50-8	11.7	2.7	0.043	mg/kg			
Iron	7439-89-6	19200	10.6	0.53	mg/kg	*	J	A
Lead	7439-92-1	144	1.1	0.14	mg/kg			
Magnesium	7439-95-4	5840	530	2.1	mg/kg			
Manganese	7439-96-5	1040	1.6	0.023	mg/kg	*	J	A
Zinc	7440-66-6	278	6.4	0.052	mg/kg			

Lab Sample Name: 6100159-14 **Sample No:** MH1G54 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12000	26.8	1.9	mg/kg			
Arsenic	7440-38-2	14.5	1.3	0.15	mg/kg			
Calcium	7440-70-2	4640	669	3.7	mg/kg	*		
Copper	7440-50-8	18.9	3.3	0.055	mg/kg			
Iron	7439-89-6	28000	13.4	0.67	mg/kg	*		
Lead	7439-92-1	106	1.3	0.17	mg/kg			
Magnesium	7439-95-4	5670	669	2.7	mg/kg			
Manganese	7439-96-5	1380	2.0	0.029	mg/kg	*		
Zinc	7440-66-6	386	8.0	0.066	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100159-15 **Sample No:** MH1G55 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10100	40.5	2.8	mg/kg			
Arsenic	7440-38-2	23.0	2.0	0.22	mg/kg			
Calcium	7440-70-2	2320	1010	5.7	mg/kg	*	J	A
Copper	7440-50-8	4.5	5.1	0.083	mg/kg	J	J	
Iron	7439-89-6	167000	60.7	3.0	mg/kg	D*	J	A
Lead	7439-92-1	72.2	2.0	0.26	mg/kg			
Magnesium	7439-95-4	2850	1010	4.0	mg/kg			
Manganese	7439-96-5	286	3.0	0.045	mg/kg	*	J	A
Zinc	7440-66-6	94.1	12.1	0.099	mg/kg			

Lab Sample Name: 6100159-16 **Sample No:** MH1G56 **Sample Date:** 09/27/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10600	27.1	1.9	mg/kg			
Arsenic	7440-38-2	62.9	1.4	0.15	mg/kg			
Calcium	7440-70-2	1370	676	3.8	mg/kg	*		
Copper	7440-50-8	68.9	3.4	0.055	mg/kg			
Iron	7439-89-6	62700	40.6	2.0	mg/kg	D*		
Lead	7439-92-1	283	1.4	0.18	mg/kg			
Magnesium	7439-95-4	4050	676	2.7	mg/kg			
Manganese	7439-96-5	818	2.0	0.030	mg/kg	*		
Zinc	7440-66-6	1440	8.1	0.066	mg/kg			

Lab Sample Name: 6100159-17 **Sample No:** MH1G57 **Sample Date:** 09/27/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12300	22.1	1.5	mg/kg			
Arsenic	7440-38-2	27.0	1.1	0.12	mg/kg			
Calcium	7440-70-2	983	552	3.1	mg/kg	*	J	A
Copper	7440-50-8	46.8	2.8	0.045	mg/kg			
Iron	7439-89-6	54900	33.1	1.7	mg/kg	D*	J	A
Lead	7439-92-1	270	1.1	0.14	mg/kg			
Magnesium	7439-95-4	4270	552	2.2	mg/kg			
Manganese	7439-96-5	705	1.7	0.024	mg/kg	*	J	A
Zinc	7440-66-6	288	6.6	0.054	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100159-18 **Sample No:** MH1G58 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10200	27.3	1.9	mg/kg			
Arsenic	7440-38-2	34.9	1.4	0.15	mg/kg			
Calcium	7440-70-2	1820	681	3.8	mg/kg	*		
Copper	7440-50-8	84.0	3.4	0.056	mg/kg			
Iron	7439-89-6	46900	13.6	0.68	mg/kg	*		
Lead	7439-92-1	300	1.4	0.18	mg/kg			
Magnesium	7439-95-4	4170	681	2.7	mg/kg			
Manganese	7439-96-5	823	2.0	0.030	mg/kg	*		
Zinc	7440-66-6	748	8.2	0.067	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100159-01 **Sample No:** MH1G41 **Sample Date:** 09/29/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.43	1.3	0.039	mg/kg	J	J	
Barium	7440-39-3	30.3	6.5	0.057	mg/kg	*		
Beryllium	7440-41-7	0.19	0.65	0.052	mg/kg	J	J	
Cadmium	7440-43-9	0.18	0.65	0.054	mg/kg	J	J	
Chromium	7440-47-3	1.6	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	4.9	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	4.9	2.6	0.058	mg/kg			
Nickel	7440-02-0	1.1	0.65	0.058	mg/kg	*		
Selenium	7782-49-2	1.5	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	0.65	0.65	0.035	mg/kg	J	U	B
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	23.5	3.2	0.11	mg/kg	*		

Lab Sample Name: 6100159-02 **Sample No:** MH1G42 **Sample Date:** 09/29/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.41	1.5	0.045	mg/kg	J	J	
Barium	7440-39-3	72.0	7.5	0.066	mg/kg	*	J	E
Beryllium	7440-41-7	0.33	0.75	0.060	mg/kg	J	J	
Cadmium	7440-43-9	0.22	0.75	0.063	mg/kg	J	J	
Chromium	7440-47-3	2.4	1.5	0.12	mg/kg	*	J	E
Cobalt	7440-48-4	12.4	0.75	0.045	mg/kg	*	J	E
Molybdenum	7439-98-7	6.1	3.0	0.068	mg/kg			

Nickel	7440-02-0	1.6	0.75	0.068	mg/kg	*	J	E
Selenium	7782-49-2	2.6	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	0.75	0.75	0.041	mg/kg	J	U	B
Thallium	7440-28-0	0.75	0.75	0.057	mg/kg	J	U	B
Vanadium	7440-62-2	44.3	3.8	0.12	mg/kg	*	J	E

Lab Sample Name: 6100159-03 **Sample No:** MH1G43 **Sample Date:** 09/28/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.21	1.3	0.038	mg/kg	J	J	
Barium	7440-39-3	27.9	6.4	0.056	mg/kg	*		
Beryllium	7440-41-7	0.16	0.64	0.051	mg/kg	J	J	
Cadmium	7440-43-9	0.16	0.64	0.054	mg/kg	J	J	
Chromium	7440-47-3	1.2	1.3	0.10	mg/kg	J*	J	
Cobalt	7440-48-4	3.4	0.64	0.038	mg/kg	*		
Molybdenum	7439-98-7	5.1	2.6	0.057	mg/kg			
Nickel	7440-02-0	0.90	0.64	0.057	mg/kg	*		
Selenium	7782-49-2	1.5	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	0.64	0.64	0.034	mg/kg	J	U	B
Thallium	7440-28-0	0.64	0.64	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	20.8	3.2	0.10	mg/kg	*		

Lab Sample Name: 6100159-04 **Sample No:** MH1G44 **Sample Date:** 09/28/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.89	2.2	0.066	mg/kg	J	J	
Barium	7440-39-3	42.4	10.9	0.096	mg/kg	*	J	E
Beryllium	7440-41-7	0.20	1.1	0.087	mg/kg	J	J	
Cadmium	7440-43-9	0.22	1.1	0.092	mg/kg	J	J	
Chromium	7440-47-3	1.6	2.2	0.18	mg/kg	J*	J	E
Cobalt	7440-48-4	5.1	1.1	0.066	mg/kg	*	J	E
Molybdenum	7439-98-7	5.8	4.4	0.098	mg/kg			
Nickel	7440-02-0	1.6	1.1	0.098	mg/kg	*	J	E
Selenium	7782-49-2	3.9	5.5	0.15	mg/kg	J	J	
Silver	7440-22-4	1.1	1.1	0.059	mg/kg	J	U	B
Thallium	7440-28-0	1.1	1.1	0.083	mg/kg	J	U	B
Vanadium	7440-62-2	12.7	5.5	0.18	mg/kg	*	J	E

Lab Sample Name: 6100159-05 **Sample No:** MH1G45 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.081	1.3	0.040	mg/kg	J	J	

Analysis Method ICP_MS

Barium	7440-39-3	42.3	6.7	0.059	mg/kg	*		
Beryllium	7440-41-7	0.34	0.67	0.054	mg/kg	J	J	
Cadmium	7440-43-9	0.23	0.67	0.056	mg/kg	J	J	
Chromium	7440-47-3	3.1	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	15.4	0.67	0.040	mg/kg	*		
Molybdenum	7439-98-7	3.0	2.7	0.060	mg/kg			
Nickel	7440-02-0	11.9	0.67	0.060	mg/kg	*		
Selenium	7782-49-2	1.6	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J	U	B
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	U	U	
Vanadium	7440-62-2	15.7	3.3	0.11	mg/kg	*		

Lab Sample Name: 6100159-06 **Sample No:** MH1G46 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.13	1.3	0.039	mg/kg	J	J	
Barium	7440-39-3	76.7	6.5	0.057	mg/kg	*	J	E
Beryllium	7440-41-7	0.30	0.65	0.052	mg/kg	J	J	
Cadmium	7440-43-9	0.21	0.65	0.055	mg/kg	J	J	
Chromium	7440-47-3	5.9	1.3	0.11	mg/kg	*	J	E
Cobalt	7440-48-4	5.8	0.65	0.039	mg/kg	*	J	E
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J	U	B
Nickel	7440-02-0	7.1	0.65	0.059	mg/kg	*	J	E
Selenium	7782-49-2	1.2	3.3	0.088	mg/kg	J	J	
Silver	7440-22-4	0.65	0.65	0.035	mg/kg	J	U	B
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	26.1	3.3	0.11	mg/kg	*	J	E

Lab Sample Name: 6100159-07 **Sample No:** MH1G47 **Sample Date:** 09/27/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.85	1.1	0.033	mg/kg	J	J	
Barium	7440-39-3	93.8	5.5	0.048	mg/kg	*	J	E
Beryllium	7440-41-7	0.79	0.55	0.044	mg/kg			
Cadmium	7440-43-9	21.1	0.55	0.046	mg/kg			
Chromium	7440-47-3	5.4	1.1	0.090	mg/kg	*	J	E
Cobalt	7440-48-4	11.1	0.55	0.033	mg/kg	*	J	E
Molybdenum	7439-98-7	2.5	2.2	0.050	mg/kg			
Nickel	7440-02-0	10.2	0.55	0.050	mg/kg	*	J	E
Selenium	7782-49-2	1.5	2.8	0.075	mg/kg	J	J	
Silver	7440-22-4	1.6	0.55	0.030	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B

Analysis Method ICP_MS

Vanadium	7440-62-2	22.5	2.8	0.090	mg/kg	*	J	E

Lab Sample Name: 6100159-08 **Sample No:** MH1G48 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.22	1.4	0.042	mg/kg	J	J	
Barium	7440-39-3	59.3	7.1	0.062	mg/kg	*		
Beryllium	7440-41-7	0.94	0.71	0.056	mg/kg			
Cadmium	7440-43-9	2.1	0.71	0.059	mg/kg			
Chromium	7440-47-3	4.9	1.4	0.12	mg/kg	*		
Cobalt	7440-48-4	14.7	0.71	0.042	mg/kg	*		
Molybdenum	7439-98-7	3.5	2.8	0.064	mg/kg			
Nickel	7440-02-0	14.0	0.71	0.064	mg/kg	*		
Selenium	7782-49-2	2.7	3.5	0.096	mg/kg	J	J	
Silver	7440-22-4	0.71	0.71	0.038	mg/kg	J	U	B
Thallium	7440-28-0	0.71	0.71	0.054	mg/kg	J	U	B
Vanadium	7440-62-2	28.2	3.5	0.12	mg/kg	*		

Lab Sample Name: 6100159-09 **Sample No:** MH1G49 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.31	1.3	0.040	mg/kg	J	J	
Barium	7440-39-3	141	6.7	0.059	mg/kg	*	J	E
Beryllium	7440-41-7	0.47	0.67	0.054	mg/kg	J	J	
Cadmium	7440-43-9	1.1	0.67	0.056	mg/kg			
Chromium	7440-47-3	6.7	1.3	0.11	mg/kg	*	J	E
Cobalt	7440-48-4	5.8	0.67	0.040	mg/kg	*	J	E
Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J	U	B
Nickel	7440-02-0	5.5	0.67	0.060	mg/kg	*	J	E
Selenium	7782-49-2	0.96	3.4	0.091	mg/kg	J	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J	U	B
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	23.1	3.4	0.11	mg/kg	*	J	E

Lab Sample Name: 6100159-10 **Sample No:** MH1G50 **Sample Date:** 09/28/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.48	1.3	0.039	mg/kg	J	J	
Barium	7440-39-3	73.7	6.5	0.057	mg/kg	*		
Beryllium	7440-41-7	1.1	0.65	0.052	mg/kg			
Cadmium	7440-43-9	2.0	0.65	0.055	mg/kg			
Chromium	7440-47-3	1.4	1.3	0.11	mg/kg	*		

Analysis Method ICP_MS

Cobalt	7440-48-4	11.1	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J	U	B
Nickel	7440-02-0	5.0	0.65	0.059	mg/kg	*		
Selenium	7782-49-2	3.4	3.3	0.089	mg/kg			
Silver	7440-22-4	0.84	0.65	0.035	mg/kg			
Thallium	7440-28-0	0.65	0.65	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	6.5	3.3	0.11	mg/kg	*		

Lab Sample Name: 6100159-11 **Sample No:** MH1G51 **Sample Date:** 09/28/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.13	1.2	0.035	mg/kg	J	J	
Barium	7440-39-3	80.4	5.9	0.052	mg/kg	*	J	E
Beryllium	7440-41-7	0.33	0.59	0.047	mg/kg	J	J	
Cadmium	7440-43-9	0.20	0.59	0.050	mg/kg	J	J	
Chromium	7440-47-3	4.0	1.2	0.097	mg/kg	*	J	E
Cobalt	7440-48-4	5.2	0.59	0.035	mg/kg	*	J	E
Molybdenum	7439-98-7	2.4	2.4	0.053	mg/kg	J	U	B
Nickel	7440-02-0	5.5	0.59	0.053	mg/kg	*	J	E
Selenium	7782-49-2	0.98	3.0	0.080	mg/kg	J	J	
Silver	7440-22-4	0.59	0.59	0.032	mg/kg	J	U	B
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	10.1	3.0	0.097	mg/kg	*	J	E

Lab Sample Name: 6100159-12 **Sample No:** MH1G52 **Sample Date:** 09/28/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.64	1.6	0.047	mg/kg	J	J	
Barium	7440-39-3	83.3	7.9	0.069	mg/kg	*		
Beryllium	7440-41-7	1.0	0.79	0.063	mg/kg			
Cadmium	7440-43-9	2.5	0.79	0.066	mg/kg			
Chromium	7440-47-3	3.0	1.6	0.13	mg/kg	*		
Cobalt	7440-48-4	21.7	0.79	0.047	mg/kg	*		
Molybdenum	7439-98-7	3.2	3.2	0.071	mg/kg	J	U	B
Nickel	7440-02-0	18.7	0.79	0.071	mg/kg	*		
Selenium	7782-49-2	2.6	3.9	0.11	mg/kg	J	J	
Silver	7440-22-4	1.1	0.79	0.043	mg/kg			
Thallium	7440-28-0	0.79	0.79	0.060	mg/kg	J	U	B
Vanadium	7440-62-2	12.7	3.9	0.13	mg/kg	*		

Analysis Method ICP_MS

Lab Sample Name: 6100159-13 **Sample No:** MH1G53 **Sample Date:** 09/28/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.27	1.1	0.032	mg/kg	J	J	
Barium	7440-39-3	92.2	5.3	0.047	mg/kg	*	J	E
Beryllium	7440-41-7	0.33	0.53	0.042	mg/kg	J	J	
Cadmium	7440-43-9	1.2	0.53	0.045	mg/kg			
Chromium	7440-47-3	2.2	1.1	0.087	mg/kg	*	J	E
Cobalt	7440-48-4	6.9	0.53	0.032	mg/kg	*	J	E
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	J	U	B
Nickel	7440-02-0	6.1	0.53	0.048	mg/kg	*	J	E
Selenium	7782-49-2	1.1	2.7	0.072	mg/kg	J	J	
Silver	7440-22-4	0.53	0.53	0.029	mg/kg	J	U	B
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	7.8	2.7	0.087	mg/kg	*	J	E

Lab Sample Name: 6100159-14 **Sample No:** MH1G54 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.31	1.3	0.040	mg/kg	J	J	
Barium	7440-39-3	57.4	6.7	0.059	mg/kg	*		
Beryllium	7440-41-7	0.61	0.67	0.054	mg/kg	J	J	
Cadmium	7440-43-9	1.0	0.67	0.056	mg/kg			
Chromium	7440-47-3	3.2	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	13.9	0.67	0.040	mg/kg	*		
Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J	U	B
Nickel	7440-02-0	11.6	0.67	0.060	mg/kg	*		
Selenium	7782-49-2	1.9	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J	U	B
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	11.4	3.3	0.11	mg/kg	*		

Lab Sample Name: 6100159-15 **Sample No:** MH1G55 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.71	2.0	0.061	mg/kg	J	J	
Barium	7440-39-3	53.2	10.1	0.089	mg/kg	*	J	E
Beryllium	7440-41-7	0.27	1.0	0.081	mg/kg	J	J	
Cadmium	7440-43-9	0.17	1.0	0.085	mg/kg	J	J	
Chromium	7440-47-3	4.5	2.0	0.17	mg/kg	*	J	E
Cobalt	7440-48-4	5.3	1.0	0.061	mg/kg	*	J	E

Analysis Method ICP_MS

Molybdenum	7439-98-7	4.0	4.0	0.091	mg/kg	J	U	B
Nickel	7440-02-0	4.5	1.0	0.091	mg/kg	*	J	E
Selenium	7782-49-2	1.7	5.1	0.14	mg/kg	J	J	
Silver	7440-22-4	1.0	1.0	0.055	mg/kg			
Thallium	7440-28-0	1.0	1.0	0.077	mg/kg	J	U	B
Vanadium	7440-62-2	54.7	5.1	0.17	mg/kg	*	J	E

Lab Sample Name: 6100159-16 **Sample No:** MH1G56 **Sample Date:** 09/27/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.97	1.4	0.041	mg/kg	J	J	
Barium	7440-39-3	47.1	6.8	0.060	mg/kg	*		
Beryllium	7440-41-7	0.36	0.68	0.054	mg/kg	J	J	
Cadmium	7440-43-9	1.1	0.68	0.057	mg/kg			
Chromium	7440-47-3	2.0	1.4	0.11	mg/kg	*		
Cobalt	7440-48-4	6.6	0.68	0.041	mg/kg	*		
Molybdenum	7439-98-7	3.9	2.7	0.061	mg/kg			
Nickel	7440-02-0	2.3	0.68	0.061	mg/kg	*		
Selenium	7782-49-2	1.9	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	0.68	0.68	0.037	mg/kg	J	U	B
Thallium	7440-28-0	0.68	0.68	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	17.1	3.4	0.11	mg/kg	*		

Lab Sample Name: 6100159-17 **Sample No:** MH1G57 **Sample Date:** 09/27/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.47	1.1	0.033	mg/kg	J	J	
Barium	7440-39-3	88.1	5.5	0.049	mg/kg	*	J	E
Beryllium	7440-41-7	0.24	0.55	0.044	mg/kg	J	J	
Cadmium	7440-43-9	0.44	0.55	0.046	mg/kg	J	J	*III
Chromium	7440-47-3	2.2	1.1	0.090	mg/kg	*	J	E
Cobalt	7440-48-4	6.6	0.55	0.033	mg/kg	*	J	E,*III
Molybdenum	7439-98-7	3.9	2.2	0.050	mg/kg		J	*III
Nickel	7440-02-0	1.4	0.55	0.050	mg/kg	*	J	E,*III
Selenium	7782-49-2	1.7	2.8	0.075	mg/kg	J	J	
Silver	7440-22-4	0.55	0.55	0.030	mg/kg	J	UJ	B,*III
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	16.6	2.8	0.090	mg/kg	*	J	E

Lab Sample Name: 6100159-18 **Sample No:** MH1G58 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	0.64	1.4	0.041	mg/kg	J	**J**	
Barium	7440-39-3	56.7	6.8	0.060	mg/kg	*		
Beryllium	7440-41-7	0.44	0.68	0.055	mg/kg	J	**J**	
Cadmium	7440-43-9	1.9	0.68	0.057	mg/kg			
Chromium	7440-47-3	2.4	1.4	0.11	mg/kg	*		
Cobalt	7440-48-4	10.2	0.68	0.041	mg/kg	*		
Molybdenum	7439-98-7	4.9	2.7	0.061	mg/kg			
Nickel	7440-02-0	3.2	0.68	0.061	mg/kg	*		
Selenium	7782-49-2	1.7	3.4	0.093	mg/kg	J	**J**	
Silver	7440-22-4	0.68	0.68	0.037	mg/kg	J	**U**	**B**
Thallium	7440-28-0	0.68	0.68	0.052	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	19.3	3.4	0.11	mg/kg	*		

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1G59

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1G59
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1G59	6100162-01	Soil	09/28/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1G60	6100162-02	Soil	09/28/2016 13:30:00	Hg, ICP-AES, ICP-MS
MH1G61	6100162-03	Sediment	09/27/2016 12:15:00	Hg, ICP-AES, ICP-MS
MH1G62	6100162-04	Soil	09/27/2016 12:15:00	Hg, ICP-AES, ICP-MS
MH1G63	6100162-05	Sediment	09/27/2016 14:30:00	Hg, ICP-AES, ICP-MS
MH1G64	6100162-06	Soil	09/27/2016 14:30:00	Hg, ICP-AES, ICP-MS
MH1G65	6100162-07	Sediment	09/27/2016 12:20:00	Hg, ICP-AES, ICP-MS
MH1G66	6100162-08	Soil	09/27/2016 12:20:00	Hg, ICP-AES, ICP-MS
MH1G67	6100162-09	Sediment	09/27/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1G68	6100162-10	Soil	09/27/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1G69	6100162-11	Sediment	09/27/2016 09:15:00	Hg, ICP-AES, ICP-MS
MH1G70	6100162-12	Soil	09/27/2016 09:15:00	Hg, ICP-AES, ICP-MS
MH1G71	6100162-13	Sediment	09/27/2016 09:30:00	Hg, ICP-AES, ICP-MS
MH1G72	6100162-14	Soil	09/27/2016 09:30:00	Hg, ICP-AES, ICP-MS
MH1G73	6100162-15	Sediment	09/28/2016 15:25:00	Hg, ICP-AES, ICP-MS
MH1G74	6100162-16	Soil	09/28/2016 15:25:00	Hg, ICP-AES, ICP-MS
MH1G75	6100162-17	Sediment	09/29/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1G76	6100162-18	Soil	09/29/2016 15:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/19/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Preparation blank concentration (mg/Kg)	Qualified Samples
copper		0.11 J	MH1G75
molybdenum	0.24 J, 0.23 J, 0.27J		MH1G59, MH1G64, MH1G68, MH1G76, MH1G61, MH1G63
silver	0.029 J (ICB)		All samples with the exception of MH1G62, MH1G70, MH1G72 and MH1G69
thallium	0.058 J (ICB), 0.080 J, 0.067 J, 0.061 J		All samples in the SDG
antimony	0.13 J, 0.18 J		MH1G69, MH1G71, MH1G67

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.

- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1G59. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
cobalt copper lead	24% 24% 33%	All soil samples in the SDG. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1G59. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. Post-digestion spikes were performed and were within acceptance limits for the affected analytes. Affected sample results were qualified as estimated (J).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony arsenic manganese	74% / 92% 144% / 98% 175% / 89%	All soil samples

- Post Digestion Spike: Post digestion spike analyses were performed and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1G59. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
copper lead zinc	19% 45% 14%	All soil samples (J)

- Internal Standards: Intensities for all site sample ICP-MS internal standards were within 60-125% relative intensity (%RI) of the response in the calibration blank for reported target analytes except as noted in the table below. All %RI infractions were >125%. In all cases, samples with %RI infractions were reanalyzed at a 2x dilution, with the exception of sample MH1G72. When the diluted analyses passed internal standard criteria, results were reported from the dilution. When the diluted analyses had %RI infractions, results were reported from the best analysis. All associated sample result detects were qualified as estimated (J), and associated sample result non-detects were qualified as estimated (UJ).

Internal standard	Affected analytes	Qualified samples
In-115	antimony, barium, cadmium, cobalt, molybdenum, nickel and silver	MH1G72
Sc-45, Tb-159 and Ho-165	antimony, barium, cadmium, cobalt, molybdenum, nickel, silver, and thallium	MH1G69

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: Samples MH1G75 and MH1G39 and samples MH1G76 and MH1G40 were identified as field duplicates. RPD were within the limits of ≤50% or ±RL with the exception of arsenic and copper in MH1G75 and MH1G39. These elements were qualified as estimated (UJ for nondetects and J for detects) in the pair.

Validated Sample Result Forms MH1G59

Analysis Method Hg

Lab Sample Name: 6100162-01 **Sample No:** MH1G59 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.030	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100162-02 **Sample No:** MH1G60 **Sample Date:** 09/28/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.024	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100162-03 **Sample No:** MH1G61 **Sample Date:** 09/27/2016 12:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100162-04 **Sample No:** MH1G62 **Sample Date:** 09/27/2016 12:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.086	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100162-05 **Sample No:** MH1G63 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0055	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100162-06 **Sample No:** MH1G64 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.010	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100162-07 **Sample No:** MH1G65 **Sample Date:** 09/27/2016 12:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.022	0.13	0.0042	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100162-08 **Sample No:** MH1G66 **Sample Date:** 09/27/2016 12:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.053	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100162-09 **Sample No:** MH1G67 **Sample Date:** 09/27/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.071	0.31	0.0099	mg/kg	J	J	

Lab Sample Name: 6100162-10 **Sample No:** MH1G68 **Sample Date:** 09/27/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.037	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100162-11 **Sample No:** MH1G69 **Sample Date:** 09/27/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.086	0.19	0.0060	mg/kg	JD	J	

Lab Sample Name: 6100162-12 **Sample No:** MH1G70 **Sample Date:** 09/27/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.37	0.15	0.0049	mg/kg			

Lab Sample Name: 6100162-13 **Sample No:** MH1G71 **Sample Date:** 09/27/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.045	0.19	0.0060	mg/kg	J	J	

Lab Sample Name: 6100162-14 **Sample No:** MH1G72 **Sample Date:** 09/27/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.22	0.13	0.0043	mg/kg			

Lab Sample Name: 6100162-15 **Sample No:** MH1G73 **Sample Date:** 09/28/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.019	0.14	0.0045	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100162-16 **Sample No:** MH1G74 **Sample Date:** 09/28/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0089	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100162-17 **Sample No:** MH1G75 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.16	0.16	0.0052	mg/kg	U	U	

Lab Sample Name: 6100162-18 **Sample No:** MH1G76 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.015	0.12	0.0039	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100162-01 **Sample No:** MH1G59 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12100	21.3	2.1	mg/kg			
Arsenic	7440-38-2	5.7	1.1	0.14	mg/kg	*	J	Q
Calcium	7440-70-2	1680	531	6.2	mg/kg	*		
Copper	7440-50-8	22.4	2.7	0.054	mg/kg	*	J	E,A
Iron	7439-89-6	35800	10.6	0.88	mg/kg			
Lead	7439-92-1	20.4	1.1	0.12	mg/kg	*	J	E,A
Magnesium	7439-95-4	2960	531	2.3	mg/kg			
Manganese	7439-96-5	192	1.6	0.065	mg/kg	*	J	Q
Zinc	7440-66-6	45.1	6.4	0.28	mg/kg	*	J	A

Lab Sample Name: 6100162-02 **Sample No:** MH1G60 **Sample Date:** 09/28/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11500	24.2	2.4	mg/kg			
Arsenic	7440-38-2	10.1	1.2	0.16	mg/kg	*	J	Q
Calcium	7440-70-2	2250	605	7.0	mg/kg	*		
Copper	7440-50-8	26.3	3.0	0.062	mg/kg	*	J	E,A
Iron	7439-89-6	22600	12.1	1.0	mg/kg			
Lead	7439-92-1	177	1.2	0.13	mg/kg	*	J	E,A
Magnesium	7439-95-4	3760	605	2.7	mg/kg			
Manganese	7439-96-5	434	1.8	0.074	mg/kg	*	J	Q

Zinc		7440-66-6	446	7.3	0.31	mg/kg	*	J	A

Lab Sample Name: 6100162-03 **Sample No:** MH1G61 **Sample Date:** 09/27/2016 12:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9520	25.1	2.5	mg/kg			
Arsenic	7440-38-2	31.6	1.3	0.16	mg/kg	*		
Calcium	7440-70-2	1700	626	7.3	mg/kg	*		
Copper	7440-50-8	62.6	3.1	0.064	mg/kg	*		
Iron	7439-89-6	39300	12.5	1.0	mg/kg			
Lead	7439-92-1	166	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	4020	626	2.8	mg/kg			
Manganese	7439-96-5	656	1.9	0.076	mg/kg	*		
Zinc	7440-66-6	403	7.5	0.33	mg/kg	*		

Lab Sample Name: 6100162-04 **Sample No:** MH1G62 **Sample Date:** 09/27/2016 12:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11200	27.2	2.7	mg/kg			
Arsenic	7440-38-2	45.4	1.4	0.18	mg/kg	*	J	Q
Calcium	7440-70-2	1920	680	7.9	mg/kg	*		
Copper	7440-50-8	72.0	3.4	0.069	mg/kg	*	J	E,A
Iron	7439-89-6	51300	27.2	2.3	mg/kg	D		
Lead	7439-92-1	295	1.4	0.15	mg/kg	*	J	E,A
Magnesium	7439-95-4	4310	680	3.0	mg/kg			
Manganese	7439-96-5	702	2.0	0.083	mg/kg	*	J	Q
Zinc	7440-66-6	484	8.2	0.35	mg/kg	*	J	A

Lab Sample Name: 6100162-05 **Sample No:** MH1G63 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9150	26.9	2.7	mg/kg			
Arsenic	7440-38-2	10.4	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	4250	673	7.8	mg/kg	*		
Copper	7440-50-8	21.2	3.4	0.069	mg/kg	*		
Iron	7439-89-6	20500	13.5	1.1	mg/kg			
Lead	7439-92-1	41.8	1.3	0.15	mg/kg	*		
Magnesium	7439-95-4	5490	673	3.0	mg/kg			
Manganese	7439-96-5	1270	2.0	0.082	mg/kg	*		
Zinc	7440-66-6	251	8.1	0.35	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100162-06 **Sample No:** MH1G64 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9330	22.1	2.2	mg/kg			
Arsenic	7440-38-2	12.4	1.1	0.14	mg/kg	*	J	Q
Calcium	7440-70-2	3750	553	6.4	mg/kg	*		
Copper	7440-50-8	23.9	2.8	0.056	mg/kg	*	J	E,A
Iron	7439-89-6	21400	11.1	0.92	mg/kg			
Lead	7439-92-1	31.4	1.1	0.12	mg/kg	*	J	E,A
Magnesium	7439-95-4	5230	553	2.4	mg/kg			
Manganese	7439-96-5	1060	1.7	0.067	mg/kg	*	J	Q
Zinc	7440-66-6	225	6.6	0.29	mg/kg	*	J	A

Lab Sample Name: 6100162-07 **Sample No:** MH1G65 **Sample Date:** 09/27/2016 12:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9960	26.0	2.6	mg/kg			
Arsenic	7440-38-2	28.3	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	2190	651	7.5	mg/kg	*		
Copper	7440-50-8	57.3	3.3	0.066	mg/kg	*		
Iron	7439-89-6	51200	39.0	3.2	mg/kg	D		
Lead	7439-92-1	151	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	4480	651	2.9	mg/kg			
Manganese	7439-96-5	545	2.0	0.079	mg/kg	*		
Zinc	7440-66-6	348	7.8	0.34	mg/kg	*		

Lab Sample Name: 6100162-08 **Sample No:** MH1G66 **Sample Date:** 09/27/2016 12:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9450	22.6	2.3	mg/kg			
Arsenic	7440-38-2	28.4	1.1	0.15	mg/kg	*	J	Q
Calcium	7440-70-2	2580	564	6.5	mg/kg	*		
Copper	7440-50-8	60.3	2.8	0.058	mg/kg	*	J	E,A
Iron	7439-89-6	52100	33.9	2.8	mg/kg	D		
Lead	7439-92-1	176	1.1	0.12	mg/kg	*	J	E,A
Magnesium	7439-95-4	4510	564	2.5	mg/kg			
Manganese	7439-96-5	706	1.7	0.069	mg/kg	*	J	Q
Zinc	7440-66-6	492	6.8	0.29	mg/kg	*	J	A

Analysis Method ICP_AES

Lab Sample Name: 6100162-09 **Sample No:** MH1G67 **Sample Date:** 09/27/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	38400	62.1	6.2	mg/kg			
Arsenic	7440-38-2	35.8	3.1	0.40	mg/kg	*		
Calcium	7440-70-2	2420	1550	18.0	mg/kg	*		
Copper	7440-50-8	180	7.8	0.16	mg/kg	*		
Iron	7439-89-6	88100	31.0	2.6	mg/kg			
Lead	7439-92-1	328	3.1	0.34	mg/kg	*		
Magnesium	7439-95-4	2910	1550	6.8	mg/kg			
Manganese	7439-96-5	2250	4.7	0.19	mg/kg	*		
Zinc	7440-66-6	900	18.6	0.81	mg/kg	*		

Lab Sample Name: 6100162-10 **Sample No:** MH1G68 **Sample Date:** 09/27/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17000	23.1	2.3	mg/kg			
Arsenic	7440-38-2	7.7	1.2	0.15	mg/kg	*	J	Q
Calcium	7440-70-2	1610	579	6.7	mg/kg	*		
Copper	7440-50-8	77.2	2.9	0.059	mg/kg	*	J	E,A
Iron	7439-89-6	132000	57.9	4.8	mg/kg	D		
Lead	7439-92-1	112	1.2	0.13	mg/kg	*	J	E,A
Magnesium	7439-95-4	4210	579	2.5	mg/kg			
Manganese	7439-96-5	350	1.7	0.071	mg/kg	*	J	Q
Zinc	7440-66-6	154	6.9	0.30	mg/kg	*	J	A

Lab Sample Name: 6100162-11 **Sample No:** MH1G69 **Sample Date:** 09/27/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	33600	19.0	1.9	mg/kg			
Arsenic	7440-38-2	53.1	0.95	0.12	mg/kg			
Calcium	7440-70-2	2830	475	5.5	mg/kg			
Copper	7440-50-8	161	2.4	0.048	mg/kg			
Iron	7439-89-6	62000	9.5	0.79	mg/kg			
Lead	7439-92-1	365	0.95	0.10	mg/kg			
Magnesium	7439-95-4	2900	475	2.1	mg/kg			
Manganese	7439-96-5	845	1.4	0.058	mg/kg			
Zinc	7440-66-6	1250	5.7	0.25	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100162-12 **Sample No:** MH1G70 **Sample Date:** 09/27/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17200	30.4	3.0	mg/kg			
Arsenic	7440-38-2	36.4	1.5	0.20	mg/kg	*	J	Q
Calcium	7440-70-2	3220	761	8.8	mg/kg	*		
Copper	7440-50-8	356	3.8	0.078	mg/kg	*	J	E,A
Iron	7439-89-6	41800	15.2	1.3	mg/kg			
Lead	7439-92-1	581	1.5	0.17	mg/kg	*	J	E,A
Magnesium	7439-95-4	5910	761	3.3	mg/kg			
Manganese	7439-96-5	2130	2.3	0.093	mg/kg	*	J	Q
Zinc	7440-66-6	486	9.1	0.40	mg/kg	*	J	A

Lab Sample Name: 6100162-13 **Sample No:** MH1G71 **Sample Date:** 09/27/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18500	37.7	3.8	mg/kg			
Arsenic	7440-38-2	37.9	1.9	0.25	mg/kg	*		
Calcium	7440-70-2	2730	943	10.9	mg/kg	*		
Copper	7440-50-8	102	4.7	0.096	mg/kg	*		
Iron	7439-89-6	60200	18.9	1.6	mg/kg			
Lead	7439-92-1	229	1.9	0.21	mg/kg	*		
Magnesium	7439-95-4	4170	943	4.1	mg/kg			
Manganese	7439-96-5	1110	2.8	0.12	mg/kg	*		
Zinc	7440-66-6	752	11.3	0.49	mg/kg	*		

Lab Sample Name: 6100162-14 **Sample No:** MH1G72 **Sample Date:** 09/27/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10700	26.7	2.7	mg/kg			
Arsenic	7440-38-2	39.1	1.3	0.17	mg/kg	*	J	Q
Calcium	7440-70-2	4250	668	7.8	mg/kg	*		
Copper	7440-50-8	125	3.3	0.068	mg/kg	*	J	E,A
Iron	7439-89-6	34500	13.4	1.1	mg/kg			
Lead	7439-92-1	673	1.3	0.15	mg/kg	*	J	E,A
Magnesium	7439-95-4	4220	668	2.9	mg/kg			
Manganese	7439-96-5	1860	2.0	0.082	mg/kg	*	J	Q
Zinc	7440-66-6	816	8.0	0.35	mg/kg	*	J	A

Analysis Method ICP_AES

Lab Sample Name: 6100162-15 **Sample No:** MH1G73 **Sample Date:** 09/28/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10500	28.3	2.8	mg/kg			
Arsenic	7440-38-2	0.92	1.4	0.18	mg/kg	J*	J	
Calcium	7440-70-2	1020	707	8.2	mg/kg	*		
Copper	7440-50-8	3.9	3.5	0.072	mg/kg	*		
Iron	7439-89-6	97700	56.6	4.7	mg/kg	D		
Lead	7439-92-1	64.5	1.4	0.16	mg/kg	*		
Magnesium	7439-95-4	4520	707	3.1	mg/kg			
Manganese	7439-96-5	518	2.1	0.086	mg/kg	*		
Zinc	7440-66-6	72.5	8.5	0.37	mg/kg	*		

Lab Sample Name: 6100162-16 **Sample No:** MH1G74 **Sample Date:** 09/28/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13100	27.5	2.8	mg/kg			
Arsenic	7440-38-2	13.0	1.4	0.18	mg/kg	*	J	Q
Calcium	7440-70-2	1220	688	8.0	mg/kg	*		
Copper	7440-50-8	12.6	3.4	0.070	mg/kg	*	J	E,A
Iron	7439-89-6	106000	55.1	4.6	mg/kg	D		
Lead	7439-92-1	101	1.4	0.15	mg/kg	*	J	E,A
Magnesium	7439-95-4	4610	688	3.0	mg/kg			
Manganese	7439-96-5	584	2.1	0.084	mg/kg	*	J	Q
Zinc	7440-66-6	117	8.3	0.36	mg/kg	*	J	A

Lab Sample Name: 6100162-17 **Sample No:** MH1G75 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15200	32.3	3.2	mg/kg			
Arsenic	7440-38-2	1.6	1.6	0.21	mg/kg	U*	UJ	F1
Calcium	7440-70-2	970	808	9.4	mg/kg	*		
Copper	7440-50-8	2.0	4.0	0.082	mg/kg	J*	UJ	B, F1
Iron	7439-89-6	214000	80.8	6.7	mg/kg	D		
Lead	7439-92-1	120	1.6	0.18	mg/kg	*		
Magnesium	7439-95-4	4980	808	3.6	mg/kg			
Manganese	7439-96-5	766	2.4	0.099	mg/kg	*		
Zinc	7440-66-6	85.1	9.7	0.42	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100162-18 **Sample No:** MH1G76 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9670	24.4	2.4	mg/kg			
Arsenic	7440-38-2	27.5	1.2	0.16	mg/kg	*	J	Q
Calcium	7440-70-2	2640	611	7.1	mg/kg	*		
Copper	7440-50-8	13.5	3.1	0.062	mg/kg	*	J	E,A
Iron	7439-89-6	25600	12.2	1.0	mg/kg			
Lead	7439-92-1	174	1.2	0.13	mg/kg	*	J	E,A
Magnesium	7439-95-4	3850	611	2.7	mg/kg			
Manganese	7439-96-5	1130	1.8	0.074	mg/kg	*	J	Q
Zinc	7440-66-6	163	7.3	0.32	mg/kg	*	J	A

Analysis Method ICP_MS

Lab Sample Name: 6100162-01 **Sample No:** MH1G59 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.34	1.1	0.032	mg/kg	J*	J	Q
Barium	7440-39-3	170	5.3	0.047	mg/kg			
Beryllium	7440-41-7	0.21	0.53	0.043	mg/kg	J	J	
Cadmium	7440-43-9	0.11	0.53	0.045	mg/kg	J	J	
Chromium	7440-47-3	2.6	1.1	0.087	mg/kg			
Cobalt	7440-48-4	2.3	0.53	0.032	mg/kg	*	J	E
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	J	U	B
Nickel	7440-02-0	1.5	0.53	0.048	mg/kg			
Selenium	7782-49-2	1.4	2.7	0.072	mg/kg	J	J	
Silver	7440-22-4	0.53	0.53	0.029	mg/kg	J	U	B
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	17.6	2.7	0.087	mg/kg			

Lab Sample Name: 6100162-02 **Sample No:** MH1G60 **Sample Date:** 09/28/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.74	1.2	0.036	mg/kg	J*	J	Q
Barium	7440-39-3	202	6.1	0.053	mg/kg			
Beryllium	7440-41-7	0.20	0.61	0.048	mg/kg	J	J	
Cadmium	7440-43-9	1.6	0.61	0.051	mg/kg			
Chromium	7440-47-3	3.5	1.2	0.099	mg/kg			
Cobalt	7440-48-4	2.2	0.61	0.036	mg/kg	*	J	E
Molybdenum	7439-98-7	5.6	2.4	0.054	mg/kg			

Nickel	7440-02-0	2.2	0.61	0.054	mg/kg			
Selenium	7782-49-2	1.6	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	0.61	0.61	0.033	mg/kg	J	U	B
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	13.9	3.0	0.099	mg/kg			

Lab Sample Name: 6100162-03 **Sample No:** MH1G61 **Sample Date:** 09/27/2016 12:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.55	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	43.5	6.3	0.055	mg/kg			
Beryllium	7440-41-7	0.29	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	0.49	0.63	0.053	mg/kg	J	J	
Chromium	7440-47-3	2.7	1.3	0.10	mg/kg			
Cobalt	7440-48-4	8.6	0.63	0.038	mg/kg	*		
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	3.2	0.63	0.056	mg/kg			
Selenium	7782-49-2	1.4	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	0.63	0.63	0.034	mg/kg	J	U	B
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	13.2	3.1	0.10	mg/kg			

Lab Sample Name: 6100162-04 **Sample No:** MH1G62 **Sample Date:** 09/27/2016 12:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.94	1.4	0.041	mg/kg	J*	J	Q
Barium	7440-39-3	63.1	6.8	0.060	mg/kg			
Beryllium	7440-41-7	0.47	0.68	0.054	mg/kg	J	J	
Cadmium	7440-43-9	1.0	0.68	0.057	mg/kg			
Chromium	7440-47-3	3.2	1.4	0.11	mg/kg			
Cobalt	7440-48-4	10.6	0.68	0.041	mg/kg	*	J	E
Molybdenum	7439-98-7	3.0	2.7	0.061	mg/kg			
Nickel	7440-02-0	4.2	0.68	0.061	mg/kg			
Selenium	7782-49-2	2.1	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	0.71	0.68	0.037	mg/kg			
Thallium	7440-28-0	0.68	0.68	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	21.4	3.4	0.11	mg/kg			

Lab Sample Name: 6100162-05 **Sample No:** MH1G63 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.26	1.3	0.040	mg/kg	J*	J	

Analysis Method ICP_MS

Barium	7440-39-3	68.0	6.7	0.059	mg/kg			
Beryllium	7440-41-7	0.61	0.67	0.054	mg/kg	J	J	
Cadmium	7440-43-9	0.69	0.67	0.057	mg/kg			
Chromium	7440-47-3	3.8	1.3	0.11	mg/kg			
Cobalt	7440-48-4	11.5	0.67	0.040	mg/kg	*		
Molybdenum	7439-98-7	2.7	2.7	0.061	mg/kg	J	U	B
Nickel	7440-02-0	7.2	0.67	0.061	mg/kg			
Selenium	7782-49-2	1.5	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J	U	B
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	17.2	3.4	0.11	mg/kg			

Lab Sample Name: 6100162-06 **Sample No:** MH1G64 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.32	1.1	0.033	mg/kg	J*	J	Q
Barium	7440-39-3	73.6	5.5	0.049	mg/kg			
Beryllium	7440-41-7	0.55	0.55	0.044	mg/kg			
Cadmium	7440-43-9	0.68	0.55	0.046	mg/kg			
Chromium	7440-47-3	3.7	1.1	0.091	mg/kg			
Cobalt	7440-48-4	10.8	0.55	0.033	mg/kg	*	J	E
Molybdenum	7439-98-7	2.2	2.2	0.050	mg/kg	J	U	B
Nickel	7440-02-0	6.8	0.55	0.050	mg/kg			
Selenium	7782-49-2	1.6	2.8	0.075	mg/kg	J	J	
Silver	7440-22-4	0.55	0.55	0.030	mg/kg	J	U	B
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	16.0	2.8	0.091	mg/kg			

Lab Sample Name: 6100162-07 **Sample No:** MH1G65 **Sample Date:** 09/27/2016 12:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.68	1.3	0.039	mg/kg	J*	J	
Barium	7440-39-3	38.7	6.5	0.057	mg/kg			
Beryllium	7440-41-7	0.30	0.65	0.052	mg/kg	J	J	
Cadmium	7440-43-9	0.73	0.65	0.055	mg/kg			
Chromium	7440-47-3	2.7	1.3	0.11	mg/kg			
Cobalt	7440-48-4	6.7	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	2.9	2.6	0.059	mg/kg			
Nickel	7440-02-0	3.2	0.65	0.059	mg/kg			
Selenium	7782-49-2	1.6	3.3	0.088	mg/kg	J	J	
Silver	7440-22-4	0.65	0.65	0.035	mg/kg	J	U	B
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B

Vanadium	7440-62-2	23.1	3.3	0.11	mg/kg			

Lab Sample Name: 6100162-08 **Sample No:** MH1G66 **Sample Date:** 09/27/2016 12:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.68	1.1	0.034	mg/kg	J*	J	Q
Barium	7440-39-3	64.1	5.6	0.050	mg/kg			
Beryllium	7440-41-7	0.27	0.56	0.045	mg/kg	J	J	
Cadmium	7440-43-9	0.67	0.56	0.047	mg/kg			
Chromium	7440-47-3	3.0	1.1	0.093	mg/kg			
Cobalt	7440-48-4	7.1	0.56	0.034	mg/kg	*	J	E
Molybdenum	7439-98-7	2.8	2.3	0.051	mg/kg			
Nickel	7440-02-0	3.2	0.56	0.051	mg/kg			
Selenium	7782-49-2	1.5	2.8	0.077	mg/kg	J	J	
Silver	7440-22-4	0.56	0.56	0.030	mg/kg	J	U	B
Thallium	7440-28-0	0.56	0.56	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	20.4	2.8	0.093	mg/kg			

Lab Sample Name: 6100162-09 **Sample No:** MH1G67 **Sample Date:** 09/27/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.2	6.2	0.19	mg/kg	JD*	U	B
Barium	7440-39-3	118	31.0	0.27	mg/kg	D		
Beryllium	7440-41-7	2.3	1.6	0.12	mg/kg			
Cadmium	7440-43-9	3.5	1.6	0.13	mg/kg			
Chromium	7440-47-3	4.1	3.1	0.25	mg/kg			
Cobalt	7440-48-4	52.3	1.6	0.093	mg/kg	*		
Molybdenum	7439-98-7	8.4	6.2	0.14	mg/kg			
Nickel	7440-02-0	11.7	1.6	0.14	mg/kg			
Selenium	7782-49-2	5.4	7.8	0.21	mg/kg	J	J	
Silver	7440-22-4	1.6	1.6	0.084	mg/kg	J	U	B
Thallium	7440-28-0	3.1	3.1	0.24	mg/kg	JD	U	B
Vanadium	7440-62-2	29.2	7.8	0.25	mg/kg			

Lab Sample Name: 6100162-10 **Sample No:** MH1G68 **Sample Date:** 09/27/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.8	1.2	0.035	mg/kg	*	J	Q
Barium	7440-39-3	143	5.8	0.051	mg/kg			
Beryllium	7440-41-7	0.34	0.58	0.046	mg/kg	J	J	
Cadmium	7440-43-9	0.47	0.58	0.049	mg/kg	J	J	
Chromium	7440-47-3	7.1	1.2	0.095	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	3.0	0.58	0.035	mg/kg	*	J	E
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J	U	B
Nickel	7440-02-0	2.5	0.58	0.052	mg/kg			
Selenium	7782-49-2	1.0	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	0.58	0.58	0.031	mg/kg	J	U	B
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	76.1	2.9	0.095	mg/kg			

Lab Sample Name: 6100162-11 **Sample No:** MH1G69 **Sample Date:** 09/27/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.9	1.9	0.056	mg/kg	JD	UJ	B,*III
Barium	7440-39-3	109	9.4	0.083	mg/kg	D	J	*III
Beryllium	7440-41-7	4.7	0.94	0.075	mg/kg	D		
Cadmium	7440-43-9	2.8	0.94	0.079	mg/kg	D	J	*III
Chromium	7440-47-3	7.8	0.94	0.077	mg/kg			
Cobalt	7440-48-4	28.0	0.94	0.056	mg/kg	D	J	*III
Molybdenum	7439-98-7	4.2	1.9	0.042	mg/kg		J	*III
Nickel	7440-02-0	9.8	0.94	0.085	mg/kg	D	J	*III
Selenium	7782-49-2	9.4	2.3	0.064	mg/kg			
Silver	7440-22-4	1.3	0.94	0.051	mg/kg	D	J	*III
Thallium	7440-28-0	0.47	0.47	0.036	mg/kg	J	UJ	B,*III
Vanadium	7440-62-2	45.3	2.3	0.077	mg/kg			

Lab Sample Name: 6100162-12 **Sample No:** MH1G70 **Sample Date:** 09/27/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	9.9	1.5	0.046	mg/kg	*	J	Q
Barium	7440-39-3	167	7.6	0.067	mg/kg			
Beryllium	7440-41-7	0.53	0.76	0.061	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.76	0.064	mg/kg			
Chromium	7440-47-3	7.7	1.5	0.12	mg/kg			
Cobalt	7440-48-4	9.4	0.76	0.046	mg/kg	*	J	E
Molybdenum	7439-98-7	3.6	3.0	0.068	mg/kg			
Nickel	7440-02-0	4.8	0.76	0.068	mg/kg			
Selenium	7782-49-2	3.0	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	2.2	0.76	0.041	mg/kg			
Thallium	7440-28-0	0.76	0.76	0.058	mg/kg	J	U	B
Vanadium	7440-62-2	29.7	3.8	0.12	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100162-13 **Sample No:** MH1G71 **Sample Date:** 09/27/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.8	3.8	0.11	mg/kg	JD*	U	B
Barium	7440-39-3	89.1	18.9	0.17	mg/kg	D		
Beryllium	7440-41-7	1.2	0.94	0.075	mg/kg			
Cadmium	7440-43-9	1.9	0.94	0.079	mg/kg			
Chromium	7440-47-3	3.9	1.9	0.15	mg/kg			
Cobalt	7440-48-4	20.3	0.94	0.057	mg/kg	*		
Molybdenum	7439-98-7	4.3	3.8	0.085	mg/kg			
Nickel	7440-02-0	7.7	0.94	0.085	mg/kg			
Selenium	7782-49-2	3.2	4.7	0.13	mg/kg	J	J	
Silver	7440-22-4	0.94	0.94	0.051	mg/kg	J	U	B
Thallium	7440-28-0	1.9	1.9	0.14	mg/kg	JD	U	B
Vanadium	7440-62-2	24.2	4.7	0.15	mg/kg			

Lab Sample Name: 6100162-14 **Sample No:** MH1G72 **Sample Date:** 09/27/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	9.0	1.3	0.040	mg/kg	*	J	Q,*III
Barium	7440-39-3	163	6.7	0.059	mg/kg		J	*III
Beryllium	7440-41-7	0.55	0.67	0.053	mg/kg	J	J	
Cadmium	7440-43-9	4.0	0.67	0.056	mg/kg		J	*III
Chromium	7440-47-3	4.7	1.3	0.11	mg/kg			
Cobalt	7440-48-4	12.5	0.67	0.040	mg/kg	*	J	E,*III
Molybdenum	7439-98-7	4.8	2.7	0.060	mg/kg		J	*III
Nickel	7440-02-0	6.1	0.67	0.060	mg/kg		J	*III
Selenium	7782-49-2	3.0	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	3.9	0.67	0.036	mg/kg		J	*III
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	23.4	3.3	0.11	mg/kg			

Lab Sample Name: 6100162-15 **Sample No:** MH1G73 **Sample Date:** 09/28/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.54	1.4	0.042	mg/kg	J*	J	
Barium	7440-39-3	38.3	7.1	0.062	mg/kg			
Beryllium	7440-41-7	0.25	0.71	0.057	mg/kg	J	J	
Cadmium	7440-43-9	0.17	0.71	0.059	mg/kg	J	J	
Chromium	7440-47-3	1.8	1.4	0.12	mg/kg			
Cobalt	7440-48-4	7.7	0.71	0.042	mg/kg	*		

Analysis Method ICP_MS

Molybdenum	7439-98-7	7.5	2.8	0.064	mg/kg			
Nickel	7440-02-0	1.1	0.71	0.064	mg/kg			
Selenium	7782-49-2	1.8	3.5	0.096	mg/kg	J	J	
Silver	7440-22-4	0.71	0.71	0.038	mg/kg	J	U	B
Thallium	7440-28-0	0.71	0.71	0.054	mg/kg	J	U	B
Vanadium	7440-62-2	44.1	3.5	0.12	mg/kg			

Lab Sample Name: 6100162-16 **Sample No:** MH1G74 **Sample Date:** 09/28/2016 15:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.79	1.4	0.041	mg/kg	J*	J	Q
Barium	7440-39-3	72.4	6.9	0.061	mg/kg			
Beryllium	7440-41-7	0.34	0.69	0.055	mg/kg	J	J	
Cadmium	7440-43-9	0.24	0.69	0.058	mg/kg	J	J	
Chromium	7440-47-3	3.1	1.4	0.11	mg/kg			
Cobalt	7440-48-4	6.4	0.69	0.041	mg/kg	*	J	E
Molybdenum	7439-98-7	6.5	2.8	0.062	mg/kg			
Nickel	7440-02-0	1.7	0.69	0.062	mg/kg			
Selenium	7782-49-2	3.7	3.4	0.094	mg/kg			
Silver	7440-22-4	0.69	0.69	0.037	mg/kg	J	U	B
Thallium	7440-28-0	0.69	0.69	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	46.0	3.4	0.11	mg/kg			

Lab Sample Name: 6100162-17 **Sample No:** MH1G75 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.47	1.6	0.048	mg/kg	J*	J	
Barium	7440-39-3	74.0	8.1	0.071	mg/kg			
Beryllium	7440-41-7	0.45	0.81	0.065	mg/kg	J	J	
Cadmium	7440-43-9	0.20	0.81	0.068	mg/kg	J	J	
Chromium	7440-47-3	3.1	1.6	0.13	mg/kg			
Cobalt	7440-48-4	14.2	0.81	0.048	mg/kg	*		
Molybdenum	7439-98-7	7.4	3.2	0.073	mg/kg			
Nickel	7440-02-0	1.8	0.81	0.073	mg/kg			
Selenium	7782-49-2	3.1	4.0	0.11	mg/kg	J	J	
Silver	7440-22-4	0.81	0.81	0.044	mg/kg	J	U	B
Thallium	7440-28-0	0.81	0.81	0.061	mg/kg	J	U	B
Vanadium	7440-62-2	58.2	4.0	0.13	mg/kg			

Lab Sample Name: 6100162-18 **Sample No:** MH1G76 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	0.85	1.2	0.037	mg/kg	J*	**J**	**Q**
Barium	7440-39-3	87.2	6.1	0.054	mg/kg			
Beryllium	7440-41-7	0.43	0.61	0.049	mg/kg	J	**J**	
Cadmium	7440-43-9	0.61	0.61	0.051	mg/kg			
Chromium	7440-47-3	1.7	1.2	0.10	mg/kg			
Cobalt	7440-48-4	6.6	0.61	0.037	mg/kg	*	**J**	**E**
Molybdenum	7439-98-7	2.4	2.4	0.055	mg/kg	J	**U**	**B**
Nickel	7440-02-0	2.0	0.61	0.055	mg/kg			
Selenium	7782-49-2	1.2	3.1	0.083	mg/kg	J	**J**	
Silver	7440-22-4	0.61	0.61	0.033	mg/kg	J	**U**	**B**
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	8.1	3.1	0.10	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1G77

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1G77
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1G77	6100163-01	Sediment	09/30/2016 10:45:00	Hg, ICP-AES, ICP-MS
MH1G78	6100163-02	Soil	09/30/2016 10:45:00	Hg, ICP-AES, ICP-MS
MH1G79	6100163-03	Sediment	09/28/2016 11:40:00	Hg, ICP-AES, ICP-MS
MH1G80	6100163-04	Soil	09/28/2016 11:40:00	Hg, ICP-AES, ICP-MS
MH1G81	6100163-05	Sediment	09/28/2016 12:10:00	Hg, ICP-AES, ICP-MS
MH1G82	6100163-06	Soil	09/28/2016 12:10:00	Hg, ICP-AES, ICP-MS
MH1G83	6100163-07	Sediment	09/28/2016 10:50:00	Hg, ICP-AES, ICP-MS
MH1G84	6100163-08	Soil	09/28/2016 10:50:00	Hg, ICP-AES, ICP-MS
MH1G85	6100163-09	Sediment	09/28/2016 12:35:00	Hg, ICP-AES, ICP-MS
MH1G86	6100163-10	Soil	09/28/2016 12:35:00	Hg, ICP-AES, ICP-MS
MH1G87	6100163-11	Sediment	09/27/2016 07:30:00	Hg, ICP-AES, ICP-MS
MH1G88	6100163-12	Soil	09/27/2016 07:30:00	Hg, ICP-AES, ICP-MS
MH1G89	6100163-13	Sediment	09/28/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1G90	6100163-14	Soil	09/28/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1G91	6100163-15	Sediment	09/28/2016 14:35:00	Hg, ICP-AES, ICP-MS
MH1G92	6100163-16	Soil	09/28/2016 14:35:00	Hg, ICP-AES, ICP-MS
MH1G93	6100163-17	Sediment	09/27/2016 17:05:00	Hg, ICP-AES, ICP-MS
MH1G94	6100163-18	Soil	09/27/2016 17:05:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/19/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Preparation blank concentration (mg/kg)	Qualified Samples
beryllium	0.12 J		MH1G77, MH1G78, MH1G79, MH1G80, MH1G81, MH1G82, MH1G86, MH1G92, MH1G93, MH1G94
cadmium	0.052 J (ICB), 0.072 J		MH1G77, MH1G78, MH1G86
molybdenum	0.43 J	0.046 J	MH1G82, MH1G85, MH1G87, MH1G88, MH1G91, MH1G93
thallium	0.12 J (ICB), 0.10 J, 0.11 J		All samples with the exception of MH1G83, MH1G84

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.

- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1G80. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
silver	26%	All soil samples in the SDG. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1G80. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. Post-digestion spikes were performed and were within acceptance limits for the affected analytes. Affected sample results were qualified as estimated (J).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
arsenic copper zinc antimony	240% / 114% 127% / 106% 145% / 110% 54% / 90%	All soil samples

- Post Digestion Spike: Post digestion spike analyses were performed and assessed as above with the associated matrix spike analyses.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1G80. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
arsenic lead nickel	14% 11% 14%	All soil samples (J)

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1G77

Analysis Method Hg

Lab Sample Name: 6100163-01 **Sample No:** MH1G77 **Sample Date:** 09/30/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.38	0.14	0.0045	mg/kg	*		

Lab Sample Name: 6100163-02 **Sample No:** MH1G78 **Sample Date:** 09/30/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.56	0.12	0.0037	mg/kg	*		

Lab Sample Name: 6100163-03 **Sample No:** MH1G79 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.17	0.0054	mg/kg	J*	J	

Lab Sample Name: 6100163-04 **Sample No:** MH1G80 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.31	0.13	0.0042	mg/kg	*		

Lab Sample Name: 6100163-05 **Sample No:** MH1G81 **Sample Date:** 09/28/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.079	0.15	0.0047	mg/kg	J*	J	

Lab Sample Name: 6100163-06 **Sample No:** MH1G82 **Sample Date:** 09/28/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.10	0.16	0.0051	mg/kg	J*	J	

Lab Sample Name: 6100163-07 **Sample No:** MH1G83 **Sample Date:** 09/28/2016 10:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.043	0.13	0.0043	mg/kg	J*	J	

Analysis Method Hg

Lab Sample Name: 6100163-08 **Sample No:** MH1G84 **Sample Date:** 09/28/2016 10:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.041	0.15	0.0049	mg/kg	J*	J	

Lab Sample Name: 6100163-09 **Sample No:** MH1G85 **Sample Date:** 09/28/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.026	0.14	0.0045	mg/kg	J*	J	

Lab Sample Name: 6100163-10 **Sample No:** MH1G86 **Sample Date:** 09/28/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.062	0.13	0.0041	mg/kg	J*	J	

Lab Sample Name: 6100163-11 **Sample No:** MH1G87 **Sample Date:** 09/27/2016 07:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.041	0.12	0.0040	mg/kg	J*	J	

Lab Sample Name: 6100163-12 **Sample No:** MH1G88 **Sample Date:** 09/27/2016 07:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.059	0.15	0.0047	mg/kg	J*	J	

Lab Sample Name: 6100163-13 **Sample No:** MH1G89 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.032	0.17	0.0054	mg/kg	J*	J	

Lab Sample Name: 6100163-14 **Sample No:** MH1G90 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.17	0.14	0.0044	mg/kg	*		

Lab Sample Name: 6100163-15 **Sample No:** MH1G91 **Sample Date:** 09/28/2016 14:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.018	0.13	0.0041	mg/kg	J*	J	

Analysis Method Hg

Lab Sample Name: 6100163-16 **Sample No:** MH1G92 **Sample Date:** 09/28/2016 14:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.069	0.13	0.0042	mg/kg	J*	J	

Lab Sample Name: 6100163-17 **Sample No:** MH1G93 **Sample Date:** 09/27/2016 17:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.010	0.12	0.0038	mg/kg	J*	J	

Lab Sample Name: 6100163-18 **Sample No:** MH1G94 **Sample Date:** 09/27/2016 17:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.12	0.0038	mg/kg	J*	J	

Analysis Method ICP_AES

Lab Sample Name: 6100163-01 **Sample No:** MH1G77 **Sample Date:** 09/30/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	3820	27.8	2.8	mg/kg			
Arsenic	7440-38-2	50.5	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	557	696	8.1	mg/kg	J	J	
Copper	7440-50-8	50.6	3.5	0.071	mg/kg	*		
Iron	7439-89-6	32300	13.9	1.2	mg/kg			
Lead	7439-92-1	1570	1.4	0.15	mg/kg	*		
Magnesium	7439-95-4	1480	696	3.1	mg/kg			
Manganese	7439-96-5	193	2.1	0.085	mg/kg			
Zinc	7440-66-6	282	8.3	0.36	mg/kg	*		

Lab Sample Name: 6100163-02 **Sample No:** MH1G78 **Sample Date:** 09/30/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6110	23.0	2.3	mg/kg			
Arsenic	7440-38-2	84.7	1.2	0.15	mg/kg	*	J	Q,A
Calcium	7440-70-2	1240	575	6.7	mg/kg			
Copper	7440-50-8	93.4	2.9	0.059	mg/kg	*	J	Q
Iron	7439-89-6	46200	11.5	0.95	mg/kg			
Lead	7439-92-1	10500	5.8	0.63	mg/kg	D*	J	A
Magnesium	7439-95-4	2780	575	2.5	mg/kg			
Manganese	7439-96-5	379	1.7	0.070	mg/kg			

Analysis Method ICP_AES

Zinc		7440-66-6	207	6.9	0.30	mg/kg	*	J	Q

Lab Sample Name: 6100163-03 **Sample No:** MH1G79 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	4310	34.0	3.4	mg/kg			
Arsenic	7440-38-2	458	1.7	0.22	mg/kg	*		
Calcium	7440-70-2	143	849	9.9	mg/kg	J	J	
Copper	7440-50-8	168	4.2	0.087	mg/kg	*		
Iron	7439-89-6	198000	84.9	7.0	mg/kg	D		
Lead	7439-92-1	612	1.7	0.19	mg/kg	*		
Magnesium	7439-95-4	1280	849	3.7	mg/kg			
Manganese	7439-96-5	2750	2.5	0.10	mg/kg			
Zinc	7440-66-6	333	10.2	0.44	mg/kg	*		

Lab Sample Name: 6100163-04 **Sample No:** MH1G80 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	26.1	2.6	mg/kg			
Arsenic	7440-38-2	41.4	1.3	0.17	mg/kg	*	J	Q,A
Calcium	7440-70-2	1010	652	7.6	mg/kg			
Copper	7440-50-8	191	3.3	0.067	mg/kg	*	J	Q
Iron	7439-89-6	32700	13.0	1.1	mg/kg			
Lead	7439-92-1	1150	1.3	0.14	mg/kg	*	J	A
Magnesium	7439-95-4	4650	652	2.9	mg/kg			
Manganese	7439-96-5	1560	2.0	0.080	mg/kg			
Zinc	7440-66-6	280	7.8	0.34	mg/kg	*	J	Q

Lab Sample Name: 6100163-05 **Sample No:** MH1G81 **Sample Date:** 09/28/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	4210	29.6	3.0	mg/kg			
Arsenic	7440-38-2	455	1.5	0.19	mg/kg	*		
Calcium	7440-70-2	312	740	8.6	mg/kg	J	J	
Copper	7440-50-8	202	3.7	0.076	mg/kg	*		
Iron	7439-89-6	59600	44.4	3.7	mg/kg	D		
Lead	7439-92-1	959	1.5	0.16	mg/kg	*		
Magnesium	7439-95-4	1600	740	3.3	mg/kg			
Manganese	7439-96-5	10700	2.2	0.090	mg/kg			
Zinc	7440-66-6	348	8.9	0.38	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100163-06 **Sample No:** MH1G82 **Sample Date:** 09/28/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	31.8	3.2	mg/kg			
Arsenic	7440-38-2	36.6	1.6	0.21	mg/kg	*	J	Q,A
Calcium	7440-70-2	1720	795	9.2	mg/kg			
Copper	7440-50-8	192	4.0	0.081	mg/kg	*	J	Q
Iron	7439-89-6	26000	15.9	1.3	mg/kg			
Lead	7439-92-1	1080	1.6	0.17	mg/kg	*	J	A
Magnesium	7439-95-4	3050	795	3.5	mg/kg			
Manganese	7439-96-5	2460	2.4	0.097	mg/kg			
Zinc	7440-66-6	737	9.5	0.41	mg/kg	*	J	Q

Lab Sample Name: 6100163-07 **Sample No:** MH1G83 **Sample Date:** 09/28/2016 10:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18700	26.9	2.7	mg/kg			
Arsenic	7440-38-2	386	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	290	672	7.8	mg/kg	J	J	
Copper	7440-50-8	1230	3.4	0.069	mg/kg	*		
Iron	7439-89-6	79600	269	22.3	mg/kg	D		
Lead	7439-92-1	2070	1.3	0.15	mg/kg	*		
Magnesium	7439-95-4	5350	672	3.0	mg/kg			
Manganese	7439-96-5	42300	40.3	1.6	mg/kg	D		
Zinc	7440-66-6	3770	161	7.0	mg/kg	D*		

Lab Sample Name: 6100163-08 **Sample No:** MH1G84 **Sample Date:** 09/28/2016 10:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	25300	30.4	3.0	mg/kg			
Arsenic	7440-38-2	36.3	1.5	0.20	mg/kg	*	J	Q,A
Calcium	7440-70-2	996	759	8.8	mg/kg			
Copper	7440-50-8	995	3.8	0.077	mg/kg	*	J	Q
Iron	7439-89-6	33600	15.2	1.3	mg/kg			
Lead	7439-92-1	1650	1.5	0.17	mg/kg	*	J	A
Magnesium	7439-95-4	6730	759	3.3	mg/kg			
Manganese	7439-96-5	35900	45.5	1.9	mg/kg	D		
Zinc	7440-66-6	5560	182	7.9	mg/kg	D*	J	Q

Analysis Method ICP_AES

Lab Sample Name: 6100163-09 **Sample No:** MH1G85 **Sample Date:** 09/28/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13400	28.2	2.8	mg/kg			
Arsenic	7440-38-2	27.1	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	1560	705	8.2	mg/kg			
Copper	7440-50-8	1200	3.5	0.072	mg/kg	*		
Iron	7439-89-6	32000	14.1	1.2	mg/kg			
Lead	7439-92-1	1400	1.4	0.16	mg/kg	*		
Magnesium	7439-95-4	5160	705	3.1	mg/kg			
Manganese	7439-96-5	5770	6.3	0.26	mg/kg	D		
Zinc	7440-66-6	2550	25.4	1.1	mg/kg	D*		

Lab Sample Name: 6100163-10 **Sample No:** MH1G86 **Sample Date:** 09/28/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12300	25.9	2.6	mg/kg			
Arsenic	7440-38-2	23.0	1.3	0.17	mg/kg	*	J	Q,A
Calcium	7440-70-2	1260	647	7.5	mg/kg			
Copper	7440-50-8	59.5	3.2	0.066	mg/kg	*	J	Q
Iron	7439-89-6	27200	12.9	1.1	mg/kg			
Lead	7439-92-1	462	1.3	0.14	mg/kg	*	J	A
Magnesium	7439-95-4	5070	647	2.8	mg/kg			
Manganese	7439-96-5	1670	1.9	0.079	mg/kg			
Zinc	7440-66-6	173	7.8	0.34	mg/kg	*	J	Q

Lab Sample Name: 6100163-11 **Sample No:** MH1G87 **Sample Date:** 09/27/2016 07:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13000	25.0	2.5	mg/kg			
Arsenic	7440-38-2	39.6	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	1390	625	7.2	mg/kg			
Copper	7440-50-8	710	3.1	0.064	mg/kg	*		
Iron	7439-89-6	34800	12.5	1.0	mg/kg			
Lead	7439-92-1	1240	1.2	0.14	mg/kg	*		
Magnesium	7439-95-4	5940	625	2.8	mg/kg			
Manganese	7439-96-5	5150	5.6	0.23	mg/kg	D		
Zinc	7440-66-6	1150	7.5	0.32	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100163-12 **Sample No:** MH1G88 **Sample Date:** 09/27/2016 07:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16800	29.3	2.9	mg/kg			
Arsenic	7440-38-2	41.3	1.5	0.19	mg/kg	*	J	Q,A
Calcium	7440-70-2	615	733	8.5	mg/kg	J	J	
Copper	7440-50-8	549	3.7	0.075	mg/kg	*	J	Q
Iron	7439-89-6	34000	14.7	1.2	mg/kg			
Lead	7439-92-1	896	1.5	0.16	mg/kg	*	J	A
Magnesium	7439-95-4	4750	733	3.2	mg/kg			
Manganese	7439-96-5	6960	8.8	0.36	mg/kg	D		
Zinc	7440-66-6	629	8.8	0.38	mg/kg	*	J	Q

Lab Sample Name: 6100163-13 **Sample No:** MH1G89 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11200	33.7	3.4	mg/kg			
Arsenic	7440-38-2	75.5	1.7	0.22	mg/kg	*		
Calcium	7440-70-2	2230	843	9.8	mg/kg			
Copper	7440-50-8	214	4.2	0.086	mg/kg	*		
Iron	7439-89-6	26700	16.9	1.4	mg/kg			
Lead	7439-92-1	2300	1.7	0.19	mg/kg	*		
Magnesium	7439-95-4	2850	843	3.7	mg/kg			
Manganese	7439-96-5	8490	10.1	0.41	mg/kg	D		
Zinc	7440-66-6	1430	10.1	0.44	mg/kg	*		

Lab Sample Name: 6100163-14 **Sample No:** MH1G90 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14400	27.8	2.8	mg/kg			
Arsenic	7440-38-2	32.2	1.4	0.18	mg/kg	*	J	Q,A
Calcium	7440-70-2	3780	695	8.1	mg/kg			
Copper	7440-50-8	74.1	3.5	0.071	mg/kg	*	J	Q
Iron	7439-89-6	23000	13.9	1.2	mg/kg			
Lead	7439-92-1	711	1.4	0.15	mg/kg	*	J	A
Magnesium	7439-95-4	3680	695	3.1	mg/kg			
Manganese	7439-96-5	2720	2.1	0.085	mg/kg			
Zinc	7440-66-6	811	8.3	0.36	mg/kg	*	J	Q

Analysis Method ICP_AES

Lab Sample Name: 6100163-15 **Sample No:** MH1G91 **Sample Date:** 09/28/2016 14:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	25.6	2.6	mg/kg			
Arsenic	7440-38-2	37.5	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	1280	640	7.4	mg/kg			
Copper	7440-50-8	178	3.2	0.065	mg/kg	*		
Iron	7439-89-6	20200	12.8	1.1	mg/kg			
Lead	7439-92-1	1230	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	3410	640	2.8	mg/kg			
Manganese	7439-96-5	8290	9.6	0.39	mg/kg	D		
Zinc	7440-66-6	1790	7.7	0.33	mg/kg	*		

Lab Sample Name: 6100163-16 **Sample No:** MH1G92 **Sample Date:** 09/28/2016 14:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13700	26.0	2.6	mg/kg			
Arsenic	7440-38-2	37.3	1.3	0.17	mg/kg	*	J	Q,A
Calcium	7440-70-2	2310	651	7.6	mg/kg			
Copper	7440-50-8	32.8	3.3	0.066	mg/kg	*	J	Q
Iron	7439-89-6	24400	13.0	1.1	mg/kg			
Lead	7439-92-1	467	1.3	0.14	mg/kg	*	J	A
Magnesium	7439-95-4	3710	651	2.9	mg/kg			
Manganese	7439-96-5	1700	2.0	0.079	mg/kg			
Zinc	7440-66-6	294	7.8	0.34	mg/kg	*	J	Q

Lab Sample Name: 6100163-17 **Sample No:** MH1G93 **Sample Date:** 09/27/2016 17:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8520	23.8	2.4	mg/kg			
Arsenic	7440-38-2	39.5	1.2	0.15	mg/kg	*		
Calcium	7440-70-2	1550	596	6.9	mg/kg			
Copper	7440-50-8	64.1	3.0	0.061	mg/kg	*		
Iron	7439-89-6	22300	11.9	0.99	mg/kg			
Lead	7439-92-1	245	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	4010	596	2.6	mg/kg			
Manganese	7439-96-5	1530	1.8	0.073	mg/kg			
Zinc	7440-66-6	233	7.2	0.31	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100163-18 **Sample No:** MH1G94 **Sample Date:** 09/27/2016 17:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7670	23.6	2.4	mg/kg			
Arsenic	7440-38-2	22.4	1.2	0.15	mg/kg	*	J	Q,A
Calcium	7440-70-2	1110	591	6.9	mg/kg			
Copper	7440-50-8	86.3	3.0	0.060	mg/kg	*	J	Q
Iron	7439-89-6	19900	11.8	0.98	mg/kg			
Lead	7439-92-1	287	1.2	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	4340	591	2.6	mg/kg			
Manganese	7439-96-5	3600	5.3	0.22	mg/kg	D		
Zinc	7440-66-6	349	7.1	0.31	mg/kg	*	J	Q

Analysis Method ICP_MS

Lab Sample Name: 6100163-01 **Sample No:** MH1G77 **Sample Date:** 09/30/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.7	1.4	0.042	mg/kg	*		
Barium	7440-39-3	34.5	7.0	0.061	mg/kg			
Beryllium	7440-41-7	0.70	0.70	0.056	mg/kg	J	U	B
Cadmium	7440-43-9	0.70	0.70	0.058	mg/kg	J	U	B
Chromium	7440-47-3	0.99	1.4	0.11	mg/kg	J	J	
Cobalt	7440-48-4	0.94	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	3.5	2.8	0.063	mg/kg			
Nickel	7440-02-0	0.80	0.70	0.063	mg/kg	*		
Selenium	7782-49-2	1.1	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	12.8	0.70	0.038	mg/kg	*		
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	6.3	3.5	0.11	mg/kg			

Lab Sample Name: 6100163-02 **Sample No:** MH1G78 **Sample Date:** 09/30/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.8	1.2	0.035	mg/kg	*	J	Q
Barium	7440-39-3	58.2	5.8	0.051	mg/kg			
Beryllium	7440-41-7	0.58	0.58	0.046	mg/kg	J	U	B
Cadmium	7440-43-9	0.58	0.58	0.048	mg/kg	J	U	B
Chromium	7440-47-3	1.7	1.2	0.094	mg/kg			
Cobalt	7440-48-4	1.7	0.58	0.035	mg/kg			
Molybdenum	7439-98-7	3.6	2.3	0.052	mg/kg			

Nickel	7440-02-0	1.4	0.58	0.052	mg/kg	*	J	A
Selenium	7782-49-2	1.1	2.9	0.078	mg/kg	J	J	
Silver	7440-22-4	24.6	0.58	0.031	mg/kg	*	J	E
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	11.8	2.9	0.094	mg/kg			

Lab Sample Name: 6100163-03 **Sample No:** MH1G79 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.5	1.7	0.051	mg/kg	*		
Barium	7440-39-3	41.6	8.5	0.075	mg/kg			
Beryllium	7440-41-7	0.85	0.85	0.068	mg/kg	J	U	B
Cadmium	7440-43-9	0.99	0.85	0.071	mg/kg			
Chromium	7440-47-3	4.6	1.7	0.14	mg/kg			
Cobalt	7440-48-4	2.0	0.85	0.051	mg/kg			
Molybdenum	7439-98-7	5.6	3.4	0.076	mg/kg			
Nickel	7440-02-0	1.1	0.85	0.076	mg/kg	*		
Selenium	7782-49-2	1.6	4.2	0.12	mg/kg	J	J	
Silver	7440-22-4	6.2	0.85	0.046	mg/kg	*		
Thallium	7440-28-0	0.85	0.85	0.065	mg/kg	J	U	B
Vanadium	7440-62-2	12.2	4.2	0.14	mg/kg			

Lab Sample Name: 6100163-04 **Sample No:** MH1G80 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.3	1.3	0.039	mg/kg	*	J	Q
Barium	7440-39-3	30.7	6.5	0.057	mg/kg			
Beryllium	7440-41-7	0.65	0.65	0.052	mg/kg	J	U	B
Cadmium	7440-43-9	0.91	0.65	0.055	mg/kg			
Chromium	7440-47-3	4.0	1.3	0.11	mg/kg			
Cobalt	7440-48-4	4.9	0.65	0.039	mg/kg			
Molybdenum	7439-98-7	4.8	2.6	0.059	mg/kg			
Nickel	7440-02-0	3.3	0.65	0.059	mg/kg	*	J	A
Selenium	7782-49-2	1.0	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	3.1	0.65	0.035	mg/kg	*	J	E
Thallium	7440-28-0	0.65	0.65	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	17.4	3.3	0.11	mg/kg			

Lab Sample Name: 6100163-05 **Sample No:** MH1G81 **Sample Date:** 09/28/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.3	1.5	0.044	mg/kg	*		

Analysis Method ICP_MS

Barium	7440-39-3	49.3	7.4	0.065	mg/kg			
Beryllium	7440-41-7	0.74	0.74	0.059	mg/kg	J	U	B
Cadmium	7440-43-9	1.3	0.74	0.062	mg/kg			
Chromium	7440-47-3	5.0	1.5	0.12	mg/kg			
Cobalt	7440-48-4	15.4	0.74	0.044	mg/kg			
Molybdenum	7439-98-7	8.8	3.0	0.067	mg/kg			
Nickel	7440-02-0	0.99	0.74	0.067	mg/kg	*		
Selenium	7782-49-2	2.2	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	6.9	0.74	0.040	mg/kg	*		
Thallium	7440-28-0	0.74	0.74	0.056	mg/kg	J	U	B
Vanadium	7440-62-2	15.7	3.7	0.12	mg/kg			

Lab Sample Name: 6100163-06 **Sample No:** MH1G82 **Sample Date:** 09/28/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.6	0.048	mg/kg	*	J	Q
Barium	7440-39-3	99.5	8.0	0.070	mg/kg			
Beryllium	7440-41-7	0.80	0.80	0.064	mg/kg	J	U	B
Cadmium	7440-43-9	3.9	0.80	0.067	mg/kg			
Chromium	7440-47-3	4.1	1.6	0.13	mg/kg			
Cobalt	7440-48-4	5.3	0.80	0.048	mg/kg			
Molybdenum	7439-98-7	3.2	3.2	0.072	mg/kg	J	U	B
Nickel	7440-02-0	4.1	0.80	0.072	mg/kg	*	J	A
Selenium	7782-49-2	1.1	4.0	0.11	mg/kg	J	J	
Silver	7440-22-4	2.9	0.80	0.043	mg/kg	*	J	E
Thallium	7440-28-0	0.80	0.80	0.060	mg/kg	J	U	B
Vanadium	7440-62-2	12.6	4.0	0.13	mg/kg			

Lab Sample Name: 6100163-07 **Sample No:** MH1G83 **Sample Date:** 09/28/2016 10:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.040	mg/kg	*		
Barium	7440-39-3	87.8	6.7	0.059	mg/kg			
Beryllium	7440-41-7	1.1	0.67	0.054	mg/kg			
Cadmium	7440-43-9	49.8	0.67	0.056	mg/kg			
Chromium	7440-47-3	4.5	1.3	0.11	mg/kg			
Cobalt	7440-48-4	46.4	0.67	0.040	mg/kg			
Molybdenum	7439-98-7	3.9	2.7	0.061	mg/kg			
Nickel	7440-02-0	16.3	0.67	0.061	mg/kg	*		
Selenium	7782-49-2	1.9	3.4	0.091	mg/kg	J	J	
Silver	7440-22-4	3.9	0.67	0.036	mg/kg	*		
Thallium	7440-28-0	1.1	0.67	0.051	mg/kg			

Vanadium	7440-62-2	14.5	3.4	0.11	mg/kg			

Lab Sample Name: 6100163-08 **Sample No:** MH1G84 **Sample Date:** 09/28/2016 10:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.5	0.046	mg/kg	J*	J	Q
Barium	7440-39-3	136	7.6	0.067	mg/kg			
Beryllium	7440-41-7	1.7	0.76	0.061	mg/kg			
Cadmium	7440-43-9	54.5	0.76	0.064	mg/kg			
Chromium	7440-47-3	6.6	1.5	0.12	mg/kg			
Cobalt	7440-48-4	39.5	0.76	0.046	mg/kg			
Molybdenum	7439-98-7	3.2	3.0	0.068	mg/kg			
Nickel	7440-02-0	19.0	0.76	0.068	mg/kg	*	J	A
Selenium	7782-49-2	3.3	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	3.4	0.76	0.041	mg/kg	*	J	E
Thallium	7440-28-0	1.0	0.76	0.058	mg/kg			
Vanadium	7440-62-2	19.8	3.8	0.12	mg/kg			

Lab Sample Name: 6100163-09 **Sample No:** MH1G85 **Sample Date:** 09/28/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.4	0.042	mg/kg	*		
Barium	7440-39-3	80.2	7.0	0.062	mg/kg			
Beryllium	7440-41-7	1.5	0.70	0.056	mg/kg			
Cadmium	7440-43-9	10.9	0.70	0.059	mg/kg			
Chromium	7440-47-3	5.8	1.4	0.12	mg/kg			
Cobalt	7440-48-4	14.7	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	2.8	2.8	0.063	mg/kg	J	U	B
Nickel	7440-02-0	10.4	0.70	0.063	mg/kg	*		
Selenium	7782-49-2	2.9	3.5	0.096	mg/kg	J	J	
Silver	7440-22-4	2.2	0.70	0.038	mg/kg	*		
Thallium	7440-28-0	0.70	0.70	0.054	mg/kg	J	U	B
Vanadium	7440-62-2	19.3	3.5	0.12	mg/kg			

Lab Sample Name: 6100163-10 **Sample No:** MH1G86 **Sample Date:** 09/28/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.37	1.3	0.039	mg/kg	J*	J	Q
Barium	7440-39-3	57.7	6.5	0.057	mg/kg			
Beryllium	7440-41-7	0.65	0.65	0.052	mg/kg	J	U	B
Cadmium	7440-43-9	0.65	0.65	0.054	mg/kg	J	U	B
Chromium	7440-47-3	5.8	1.3	0.11	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	10.2	0.65	0.039	mg/kg			
Molybdenum	7439-98-7	4.5	2.6	0.058	mg/kg			
Nickel	7440-02-0	4.9	0.65	0.058	mg/kg	*	J	A
Selenium	7782-49-2	1.0	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	1.2	0.65	0.035	mg/kg	*	J	E
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	16.9	3.2	0.11	mg/kg			

Lab Sample Name: 6100163-11 **Sample No:** MH1G87 **Sample Date:** 09/27/2016 07:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.69	1.2	0.038	mg/kg	J*	J	
Barium	7440-39-3	33.7	6.2	0.055	mg/kg			
Beryllium	7440-41-7	0.79	0.62	0.050	mg/kg			
Cadmium	7440-43-9	5.0	0.62	0.052	mg/kg			
Chromium	7440-47-3	3.7	1.2	0.10	mg/kg			
Cobalt	7440-48-4	10.5	0.62	0.038	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	6.8	0.62	0.056	mg/kg	*		
Selenium	7782-49-2	1.4	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	1.4	0.62	0.034	mg/kg	*		
Thallium	7440-28-0	0.62	0.62	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	13.9	3.1	0.10	mg/kg			

Lab Sample Name: 6100163-12 **Sample No:** MH1G88 **Sample Date:** 09/27/2016 07:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.96	1.5	0.044	mg/kg	J*	J	Q
Barium	7440-39-3	62.8	7.3	0.064	mg/kg			
Beryllium	7440-41-7	0.83	0.73	0.059	mg/kg			
Cadmium	7440-43-9	6.5	0.73	0.062	mg/kg			
Chromium	7440-47-3	5.5	1.5	0.12	mg/kg			
Cobalt	7440-48-4	19.5	0.73	0.044	mg/kg			
Molybdenum	7439-98-7	2.9	2.9	0.066	mg/kg	J	U	B
Nickel	7440-02-0	7.2	0.73	0.066	mg/kg	*	J	A
Selenium	7782-49-2	1.8	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	1.8	0.73	0.040	mg/kg	*	J	E
Thallium	7440-28-0	0.73	0.73	0.056	mg/kg	J	U	B
Vanadium	7440-62-2	18.1	3.7	0.12	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100163-13 **Sample No:** MH1G89 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	3.4	0.10	mg/kg	JD*	J	
Barium	7440-39-3	158	16.9	0.15	mg/kg	D		
Beryllium	7440-41-7	2.4	0.84	0.067	mg/kg			
Cadmium	7440-43-9	16.8	1.7	0.14	mg/kg	D		
Chromium	7440-47-3	1.8	1.7	0.14	mg/kg			
Cobalt	7440-48-4	23.8	1.7	0.10	mg/kg	D		
Molybdenum	7439-98-7	7.3	6.7	0.15	mg/kg	D		
Nickel	7440-02-0	21.4	1.7	0.15	mg/kg	D*		
Selenium	7782-49-2	5.3	4.2	0.11	mg/kg			
Silver	7440-22-4	2.9	1.7	0.091	mg/kg	D*		
Thallium	7440-28-0	1.7	1.7	0.13	mg/kg	JD	U	B
Vanadium	7440-62-2	7.0	4.2	0.14	mg/kg			

Lab Sample Name: 6100163-14 **Sample No:** MH1G90 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	*	J	Q
Barium	7440-39-3	229	7.0	0.061	mg/kg			
Beryllium	7440-41-7	1.2	0.70	0.056	mg/kg			
Cadmium	7440-43-9	8.4	0.70	0.058	mg/kg			
Chromium	7440-47-3	3.7	1.4	0.11	mg/kg			
Cobalt	7440-48-4	16.6	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	17.3	2.8	0.063	mg/kg			
Nickel	7440-02-0	7.1	0.70	0.063	mg/kg	*	J	A
Selenium	7782-49-2	1.9	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	2.8	0.70	0.038	mg/kg	*	J	E
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	12.0	3.5	0.11	mg/kg			

Lab Sample Name: 6100163-15 **Sample No:** MH1G91 **Sample Date:** 09/28/2016 14:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	2.6	0.077	mg/kg	JD*	J	
Barium	7440-39-3	133	12.8	0.11	mg/kg	D		
Beryllium	7440-41-7	2.4	0.64	0.051	mg/kg			
Cadmium	7440-43-9	13.9	1.3	0.11	mg/kg	D		
Chromium	7440-47-3	3.0	1.3	0.11	mg/kg			
Cobalt	7440-48-4	25.2	1.3	0.077	mg/kg	D		

Analysis Method ICP_MS

Molybdenum	7439-98-7	5.1	5.1	0.12	mg/kg	JD	U	B
Nickel	7440-02-0	20.7	1.3	0.12	mg/kg	D*		
Selenium	7782-49-2	4.0	3.2	0.087	mg/kg			
Silver	7440-22-4	5.0	1.3	0.069	mg/kg	D*		
Thallium	7440-28-0	1.3	1.3	0.097	mg/kg	JD	U	B
Vanadium	7440-62-2	8.7	3.2	0.11	mg/kg			

Lab Sample Name: 6100163-16 **Sample No:** MH1G92 **Sample Date:** 09/28/2016 14:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.69	1.3	0.039	mg/kg	J*	J	Q
Barium	7440-39-3	73.6	6.5	0.057	mg/kg			
Beryllium	7440-41-7	0.65	0.65	0.052	mg/kg	J	U	B
Cadmium	7440-43-9	1.3	0.65	0.055	mg/kg			
Chromium	7440-47-3	2.8	1.3	0.11	mg/kg			
Cobalt	7440-48-4	8.7	0.65	0.039	mg/kg			
Molybdenum	7439-98-7	5.7	2.6	0.059	mg/kg			
Nickel	7440-02-0	3.6	0.65	0.059	mg/kg	*	J	A
Selenium	7782-49-2	1.0	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	0.89	0.65	0.035	mg/kg	*	J	E
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	10.0	3.3	0.11	mg/kg			

Lab Sample Name: 6100163-17 **Sample No:** MH1G93 **Sample Date:** 09/27/2016 17:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.79	1.2	0.036	mg/kg	J*	J	
Barium	7440-39-3	48.3	6.0	0.052	mg/kg			
Beryllium	7440-41-7	0.60	0.60	0.048	mg/kg	J	U	B
Cadmium	7440-43-9	0.78	0.60	0.050	mg/kg			
Chromium	7440-47-3	2.7	1.2	0.098	mg/kg			
Cobalt	7440-48-4	5.3	0.60	0.036	mg/kg			
Molybdenum	7439-98-7	2.4	2.4	0.054	mg/kg	J	U	B
Nickel	7440-02-0	2.9	0.60	0.054	mg/kg	*		
Selenium	7782-49-2	1.2	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	1.6	0.60	0.032	mg/kg	*		
Thallium	7440-28-0	0.60	0.60	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	10.8	3.0	0.098	mg/kg			

Lab Sample Name: 6100163-18 **Sample No:** MH1G94 **Sample Date:** 09/27/2016 17:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	1.6	1.2	0.035	mg/kg	*	**J**	**Q**
Barium	7440-39-3	74.4	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.047	mg/kg	J	**U**	**B**
Cadmium	7440-43-9	3.4	0.59	0.050	mg/kg			
Chromium	7440-47-3	3.9	1.2	0.097	mg/kg			
Cobalt	7440-48-4	8.0	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	2.9	2.4	0.053	mg/kg			
Nickel	7440-02-0	4.5	0.59	0.053	mg/kg	*	**J**	**A**
Selenium	7782-49-2	1.2	3.0	0.080	mg/kg	J	**J**	
Silver	7440-22-4	1.7	0.59	0.032	mg/kg	*	**J**	**E**
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	12.7	3.0	0.097	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1G95

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1G95
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 4
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1G95	6100164-01	Sediment	09/27/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1G96	6100164-02	Soil	09/27/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1G97	6100164-03	Sediment	09/27/2016 14:30:00	Hg, ICP-AES, ICP-MS
MH1G98	6100164-04	Soil	09/27/2016 14:30:00	Hg, ICP-AES, ICP-MS
MH1G99	6100164-05	Sediment	09/28/2016 08:45:00	Hg, ICP-AES, ICP-MS
MH1H01	6100164-06	Soil	09/28/2016 08:45:00	Hg, ICP-AES, ICP-MS
MH1H02	6100164-07	Sediment	09/27/2016 12:55:00	Hg, ICP-AES, ICP-MS
MH1H03	6100164-08	Soil	09/27/2016 12:55:00	Hg, ICP-AES, ICP-MS
MH1H04	6100164-09	Sediment	09/27/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1H05	6100164-10	Soil	09/27/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1H06	6100164-11	Sediment	09/27/2016 12:05:00	Hg, ICP-AES, ICP-MS
MH1H07	6100164-12	Soil	09/27/2016 12:05:00	Hg, ICP-AES, ICP-MS
MH1H08	6100164-13	Sediment	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1H09	6100164-14	Soil	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1H10	6100164-15	Sediment	09/27/2016 09:55:00	Hg, ICP-AES, ICP-MS
MH1H11	6100164-16	Soil	09/27/2016 09:55:00	Hg, ICP-AES, ICP-MS
MH1H12	6100164-17	Sediment	09/30/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1H13	6100164-18	Soil	09/30/2016 16:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in the by laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/23/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration method calibration criteria were met. A blank and at least five calibration standards were used to establish each analytical curve. At least one of these standards was at or below the contract required quantitation limit (CRQL). The curve correlation coefficients were ≥ 0.995. The percent differences calculated for all of the non-zero standards was within ±30% of the true value of the standard. The y-intercept of the curves were less than the CRQL.
- Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. Reporting limit check standards were not analyzed.
- Method and Calibration Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U).

Analyte	ICB/CCB blank concentrations (µg/L)	Method blank concentrations (mg/kg)	Qualified Samples
thallium	0.067 J, 0.073 J		All samples except MH1H01, MH1H06
barium	0.064 J, 0.084 J		MH1H01
cobalt	0.015 J (ICB), 0.029 J, 0.038 J, 0.050 J		MH1H01
molybdenum	0.31 J, 0.37 J		MH1H01, MH1H02, MH1H08, MH1H12, MH1H13
nickel		0.093 J	MH1H01
silver	0.017 J, 0.0068 J, 0.0095 J		MH1H01
beryllium	0.12 J		MH1H06, MH1H07,

Analyte	ICB/CCB blank concentrations (µg/L)	Method blank concentrations (mg/kg)	Qualified Samples
			MH1H08, MH1H09, MH1H13
cadmium	0.068 J		MH1H08

- Interference Check Samples (ICSA/B): ICSA/B results were evaluated at the Stage 4 validation. The laboratory analyzed and reported ICS results at the required frequency for ICP and ICP/MS. The ICS consists of two solutions: Solution A and Solution AB. Solution A consists of the interferents, and Solution AB consists of the analytes mixed with the interferents. Results for the analysis of ICS Solution must fall within the control limits of ± 20% or ±CRQL (whichever is greater) of the true value for the analytes and interferents included in the solution. If results that are ≥ MDL are observed for analytes that are not present in the ICS solution, the possibility of false positives exists. If negative results are observed for analytes that are not present in the ICS solution, and their absolute value is ≥ MDL, the possibility of false negatives in the samples exists. In general, ICP and ICP/MS sample data can be accepted if the concentrations of aluminum, calcium, iron, and magnesium in the sample are found to be less than or equal to their respective concentrations in the ICS. Iron was detected in all samples at levels greater than the ICS solution. Sample beryllium detects ≤ 10 times the ICSA result are qualified as estimated with a high bias (J+) and vanadium detects ≤ 10 times the ICSA absolute value were qualified as estimated with a low bias (J-) as noted in the table below.

Analyte	ICSA Result (µg/L)	Qualified Samples
beryllium	0.33	MH1G95, MH1G97, MH1G98, MH1G99, MH1H01, MH1H03, MH1H04, MH1H05, MH1H10, MH1H11, MH1H12
vanadium	-0.61	MH1H01

- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1G96. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL.
- Matrix Spike: Matrix spike analyses were performed on soil sample MH1G96. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. A post-digestion spike was performed and was within acceptance limits for the affected analytes. Associated soil sample detects were qualified as estimated (J).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony cadmium	54% / 98% 59% / 96%	All soil samples. The sediment matrix samples were not qualified.

- Post Digestion Spike: Post digestion spike analyses were performed and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1G96. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
aluminum iron magnesium chromium vanadium	11% 14% 13% 19% 16%	All soil samples (J)

- Internal Standards: Intensities for all site sample ICP-MS internal standards were within 60-125% relative intensity (%RI) of the response in the calibration blank for reported target analytes except as noted in the table below. All %RI infractions were >125%. In all cases, samples with %RI infractions were reanalyzed at a 2x dilution. When the diluted analyses passed internal standard criteria, results were reported from the dilution. When the diluted analyses had %RI infractions, results were reported from the initial analysis. All associated sample result detects were qualified as estimated (J), and associated sample result non-detects were qualified as estimated (UJ).

Internal standard	Affected analytes	Qualified samples
scandium-45	antimony, barium, beryllium, cadmium, cobalt, molybdenum, nickel, silver	MH1G97, MH1G98, MH1G99, MH1H02, MH1H03, MH1H04, MH1H05, MH1H09, MH1H11, MH1H12, MH1H13, MH1H10

- Sample Result Verification: Analyte quantification was verified at the Stage 4 validation. No problems were identified. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with “D” by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: Samples MH1J22/MH1H08, MH1J23/MH1H09, MH1J26/MH1H12 and MH1J27/MH1H13 were identified as field duplicate pairs. RPD were within the limits of ≤50% or ±RL for all analytes except arsenic (52%), iron (76%) and zinc (59%) in pair MH1J22/MH1H08, vanadium and chromium in pair MH1J23/MH1H09, and chromium (66%) in pair MH1J26/MH1H12. These elements were qualified as estimated in the duplicate pairs.

Validated Sample Result Forms MH1G95

Analysis Method Hg

Lab Sample Name: 6100164-01 **Sample No:** MH1G95 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0039	mg/kg	U	U	

Lab Sample Name: 6100164-02 **Sample No:** MH1G96 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.034	0.14	0.0045	mg/kg	J	J	

Lab Sample Name: 6100164-03 **Sample No:** MH1G97 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100164-04 **Sample No:** MH1G98 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.038	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100164-05 **Sample No:** MH1G99 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0042	mg/kg	U	U	

Lab Sample Name: 6100164-06 **Sample No:** MH1H01 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100164-07 **Sample No:** MH1H02 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.036	0.18	0.0057	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100164-08 **Sample No:** MH1H03 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.020	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100164-09 **Sample No:** MH1H04 **Sample Date:** 09/27/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0053	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100164-10 **Sample No:** MH1H05 **Sample Date:** 09/27/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.055	0.14	0.0045	mg/kg	J	J	

Lab Sample Name: 6100164-11 **Sample No:** MH1H06 **Sample Date:** 09/27/2016 12:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.031	0.16	0.0051	mg/kg	J	J	

Lab Sample Name: 6100164-12 **Sample No:** MH1H07 **Sample Date:** 09/27/2016 12:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.049	0.14	0.0046	mg/kg	J	J	

Lab Sample Name: 6100164-13 **Sample No:** MH1H08 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	1.1	0.24	0.0077	mg/kg			

Lab Sample Name: 6100164-14 **Sample No:** MH1H09 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.11	0.0036	mg/kg			

Lab Sample Name: 6100164-15 **Sample No:** MH1H10 **Sample Date:** 09/27/2016 09:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0042	0.12	0.0040	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100164-16 **Sample No:** MH1H11 **Sample Date:** 09/27/2016 09:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.022	0.17	0.0053	mg/kg	J	J	

Lab Sample Name: 6100164-17 **Sample No:** MH1H12 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.30	0.30	0.0095	mg/kg	U	U	

Lab Sample Name: 6100164-18 **Sample No:** MH1H13 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.011	0.11	0.0037	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100164-01 **Sample No:** MH1G95 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9570	24.5	1.7	mg/kg	*		
Arsenic	7440-38-2	38.2	1.2	0.13	mg/kg			
Calcium	7440-70-2	1260	611	3.4	mg/kg	*		
Copper	7440-50-8	128	3.1	0.050	mg/kg			
Iron	7439-89-6	21300	12.2	0.61	mg/kg	*		
Lead	7439-92-1	249	1.2	0.16	mg/kg			
Magnesium	7439-95-4	4150	611	2.4	mg/kg	*		
Manganese	7439-96-5	1750	1.8	0.027	mg/kg			
Zinc	7440-66-6	355	7.3	0.060	mg/kg			

Lab Sample Name: 6100164-02 **Sample No:** MH1G96 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	20400	28.2	2.0	mg/kg	*	J	A
Arsenic	7440-38-2	31.3	1.4	0.15	mg/kg			
Calcium	7440-70-2	2670	704	3.9	mg/kg	*		
Copper	7440-50-8	307	3.5	0.058	mg/kg			
Iron	7439-89-6	32300	14.1	0.70	mg/kg	*	J	A
Lead	7439-92-1	812	1.4	0.18	mg/kg			
Magnesium	7439-95-4	5260	704	2.8	mg/kg	*	J	A
Manganese	7439-96-5	15500	16.9	0.25	mg/kg	D		

Zinc		7440-66-6	1410	8.4	0.069	mg/kg			

Lab Sample Name: 6100164-03 **Sample No:** MH1G97 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9910	23.5	1.6	mg/kg	*		
Arsenic	7440-38-2	39.1	1.2	0.13	mg/kg			
Calcium	7440-70-2	1380	589	3.3	mg/kg	*		
Copper	7440-50-8	131	2.9	0.048	mg/kg			
Iron	7439-89-6	25000	11.8	0.59	mg/kg	*		
Lead	7439-92-1	326	1.2	0.15	mg/kg			
Magnesium	7439-95-4	5020	589	2.4	mg/kg	*		
Manganese	7439-96-5	3610	5.3	0.078	mg/kg	D		
Zinc	7440-66-6	471	7.1	0.058	mg/kg			

Lab Sample Name: 6100164-04 **Sample No:** MH1G98 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13000	25.2	1.8	mg/kg	*	J	A
Arsenic	7440-38-2	50.5	1.3	0.14	mg/kg			
Calcium	7440-70-2	1660	631	3.5	mg/kg	*		
Copper	7440-50-8	241	3.2	0.052	mg/kg			
Iron	7439-89-6	39400	12.6	0.63	mg/kg	*	J	A
Lead	7439-92-1	711	1.3	0.16	mg/kg			
Magnesium	7439-95-4	6850	631	2.5	mg/kg	*	J	A
Manganese	7439-96-5	4130	5.7	0.083	mg/kg	D		
Zinc	7440-66-6	642	7.6	0.062	mg/kg			

Lab Sample Name: 6100164-05 **Sample No:** MH1G99 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16100	26.2	1.8	mg/kg	*		
Arsenic	7440-38-2	31.2	1.3	0.14	mg/kg			
Calcium	7440-70-2	1900	654	3.7	mg/kg	*		
Copper	7440-50-8	251	3.3	0.054	mg/kg			
Iron	7439-89-6	36300	13.1	0.65	mg/kg	*		
Lead	7439-92-1	678	1.3	0.17	mg/kg			
Magnesium	7439-95-4	7950	654	2.6	mg/kg	*		
Manganese	7439-96-5	3530	5.9	0.086	mg/kg	D		
Zinc	7440-66-6	1050	7.8	0.064	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100164-06 **Sample No:** MH1H01 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13800	24.7	1.7	mg/kg	*	J	A
Arsenic	7440-38-2	32.8	1.2	0.14	mg/kg			
Calcium	7440-70-2	2010	617	3.5	mg/kg	*		
Copper	7440-50-8	161	3.1	0.051	mg/kg			
Iron	7439-89-6	37400	12.3	0.62	mg/kg	*	J	A
Lead	7439-92-1	572	1.2	0.16	mg/kg			
Magnesium	7439-95-4	8520	617	2.5	mg/kg	*	J	A
Manganese	7439-96-5	2740	3.7	0.054	mg/kg	D		
Zinc	7440-66-6	440	7.4	0.060	mg/kg			

Lab Sample Name: 6100164-07 **Sample No:** MH1H02 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	21700	35.4	2.5	mg/kg	*		
Arsenic	7440-38-2	60.0	1.8	0.19	mg/kg			
Calcium	7440-70-2	1450	884	5.0	mg/kg	*		
Copper	7440-50-8	513	4.4	0.073	mg/kg			
Iron	7439-89-6	40100	17.7	0.88	mg/kg	*		
Lead	7439-92-1	1310	1.8	0.23	mg/kg			
Magnesium	7439-95-4	5550	884	3.5	mg/kg	*		
Manganese	7439-96-5	4880	8.0	0.12	mg/kg	D		
Zinc	7440-66-6	1320	10.6	0.087	mg/kg			

Lab Sample Name: 6100164-08 **Sample No:** MH1H03 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15000	22.6	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	47.5	1.1	0.12	mg/kg			
Calcium	7440-70-2	1460	565	3.2	mg/kg	*		
Copper	7440-50-8	370	2.8	0.046	mg/kg			
Iron	7439-89-6	46900	33.9	1.7	mg/kg	D*	J	A
Lead	7439-92-1	819	1.1	0.15	mg/kg			
Magnesium	7439-95-4	6580	565	2.3	mg/kg	*	J	A
Manganese	7439-96-5	3640	5.1	0.075	mg/kg	D		
Zinc	7440-66-6	2490	20.3	0.17	mg/kg	D		

Analysis Method ICP_AES

Lab Sample Name: 6100164-09 **Sample No:** MH1H04 **Sample Date:** 09/27/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11000	25.5	1.8	mg/kg	*		
Arsenic	7440-38-2	51.0	1.3	0.14	mg/kg			
Calcium	7440-70-2	1430	637	3.6	mg/kg	*		
Copper	7440-50-8	132	3.2	0.052	mg/kg			
Iron	7439-89-6	26100	12.7	0.64	mg/kg	*		
Lead	7439-92-1	384	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4710	637	2.5	mg/kg	*		
Manganese	7439-96-5	2710	3.8	0.056	mg/kg	D		
Zinc	7440-66-6	419	7.6	0.062	mg/kg			

Lab Sample Name: 6100164-10 **Sample No:** MH1H05 **Sample Date:** 09/27/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15000	27.9	2.0	mg/kg	*	J	A
Arsenic	7440-38-2	28.4	1.4	0.15	mg/kg			
Calcium	7440-70-2	2060	697	3.9	mg/kg	*		
Copper	7440-50-8	131	3.5	0.057	mg/kg			
Iron	7439-89-6	36100	13.9	0.70	mg/kg	*	J	A
Lead	7439-92-1	930	1.4	0.18	mg/kg			
Magnesium	7439-95-4	4050	697	2.8	mg/kg	*	J	A
Manganese	7439-96-5	3910	6.3	0.092	mg/kg	D		
Zinc	7440-66-6	567	8.4	0.068	mg/kg			

Lab Sample Name: 6100164-11 **Sample No:** MH1H06 **Sample Date:** 09/27/2016 12:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10700	31.9	2.2	mg/kg	*		
Arsenic	7440-38-2	41.1	1.6	0.18	mg/kg			
Calcium	7440-70-2	1840	796	4.5	mg/kg	*		
Copper	7440-50-8	304	4.0	0.065	mg/kg			
Iron	7439-89-6	170000	159	8.0	mg/kg	D*		
Lead	7439-92-1	842	1.6	0.21	mg/kg			
Magnesium	7439-95-4	5190	796	3.2	mg/kg	*		
Manganese	7439-96-5	19800	23.9	0.35	mg/kg	D		
Zinc	7440-66-6	1030	9.6	0.078	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100164-12 **Sample No:** MH1H07 **Sample Date:** 09/27/2016 12:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12100	28.5	2.0	mg/kg	*	J	A
Arsenic	7440-38-2	54.3	1.4	0.16	mg/kg			
Calcium	7440-70-2	1320	713	4.0	mg/kg	*		
Copper	7440-50-8	235	3.6	0.058	mg/kg			
Iron	7439-89-6	66300	42.8	2.1	mg/kg	D*	J	A
Lead	7439-92-1	2140	1.4	0.19	mg/kg			
Magnesium	7439-95-4	5870	713	2.9	mg/kg	*	J	A
Manganese	7439-96-5	1250	2.1	0.031	mg/kg			
Zinc	7440-66-6	467	8.6	0.070	mg/kg			

Lab Sample Name: 6100164-13 **Sample No:** MH1H08 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13100	48.2	3.4	mg/kg	*		
Arsenic	7440-38-2	11.9	2.4	0.26	mg/kg		J	F1
Calcium	7440-70-2	1430	1200	6.7	mg/kg	*		
Copper	7440-50-8	152	6.0	0.099	mg/kg			
Iron	7439-89-6	176000	72.2	3.6	mg/kg	D*	J	F1
Lead	7439-92-1	931	2.4	0.31	mg/kg			
Magnesium	7439-95-4	3610	1200	4.8	mg/kg	*		
Manganese	7439-96-5	727	3.6	0.053	mg/kg			
Zinc	7440-66-6	458	14.4	0.12	mg/kg		J	F1

Lab Sample Name: 6100164-14 **Sample No:** MH1H09 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	22.5	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	22.9	1.1	0.12	mg/kg			
Calcium	7440-70-2	1310	562	3.1	mg/kg	*		
Copper	7440-50-8	104	2.8	0.046	mg/kg			
Iron	7439-89-6	43200	22.5	1.1	mg/kg	D*	J	A
Lead	7439-92-1	504	1.1	0.15	mg/kg			
Magnesium	7439-95-4	5220	562	2.2	mg/kg	*	J	A
Manganese	7439-96-5	2470	3.4	0.049	mg/kg	D		
Zinc	7440-66-6	349	6.7	0.055	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100164-15 **Sample No:** MH1H10 **Sample Date:** 09/27/2016 09:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12400	24.8	1.7	mg/kg	*		
Arsenic	7440-38-2	43.4	1.2	0.14	mg/kg			
Calcium	7440-70-2	1820	620	3.5	mg/kg	*		
Copper	7440-50-8	220	3.1	0.051	mg/kg			
Iron	7439-89-6	30700	12.4	0.62	mg/kg	*		
Lead	7439-92-1	2670	1.2	0.16	mg/kg			
Magnesium	7439-95-4	6890	620	2.5	mg/kg	*		
Manganese	7439-96-5	3590	3.7	0.055	mg/kg	D		
Zinc	7440-66-6	567	7.4	0.061	mg/kg			

Lab Sample Name: 6100164-16 **Sample No:** MH1H11 **Sample Date:** 09/27/2016 09:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17200	33.3	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	52.9	1.7	0.18	mg/kg			
Calcium	7440-70-2	1760	833	4.7	mg/kg	*		
Copper	7440-50-8	427	4.2	0.068	mg/kg			
Iron	7439-89-6	51700	16.7	0.83	mg/kg	*	J	A
Lead	7439-92-1	964	1.7	0.22	mg/kg			
Magnesium	7439-95-4	7040	833	3.3	mg/kg	*	J	A
Manganese	7439-96-5	3920	5.0	0.073	mg/kg	D		
Zinc	7440-66-6	737	10.0	0.082	mg/kg			

Lab Sample Name: 6100164-17 **Sample No:** MH1H12 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13700	59.2	4.1	mg/kg	*		
Arsenic	7440-38-2	20.5	3.0	0.33	mg/kg			
Calcium	7440-70-2	1390	1480	8.3	mg/kg	J*	J	
Copper	7440-50-8	372	7.4	0.12	mg/kg			
Iron	7439-89-6	40900	29.6	1.5	mg/kg	*		
Lead	7439-92-1	416	3.0	0.38	mg/kg			
Magnesium	7439-95-4	2360	1480	5.9	mg/kg	*		
Manganese	7439-96-5	659	4.4	0.065	mg/kg			
Zinc	7440-66-6	286	17.8	0.15	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100164-18 **Sample No:** MH1H13 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13300	22.9	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	37.5	1.1	0.13	mg/kg			
Calcium	7440-70-2	1600	571	3.2	mg/kg	*		
Copper	7440-50-8	137	2.9	0.047	mg/kg			
Iron	7439-89-6	45200	34.3	1.7	mg/kg	D*	J	A
Lead	7439-92-1	707	1.1	0.15	mg/kg			
Magnesium	7439-95-4	8430	571	2.3	mg/kg	*	J	A
Manganese	7439-96-5	3370	5.1	0.075	mg/kg	D		
Zinc	7440-66-6	343	6.9	0.056	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100164-01 **Sample No:** MH1G95 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.2	0.037	mg/kg	*		
Barium	7440-39-3	67.0	6.1	0.054	mg/kg			
Beryllium	7440-41-7	0.85	0.61	0.049	mg/kg		J+	I
Cadmium	7440-43-9	1.3	0.61	0.051	mg/kg	*		
Chromium	7440-47-3	4.5	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	7.9	0.61	0.037	mg/kg			
Molybdenum	7439-98-7	2.9	2.4	0.055	mg/kg			
Nickel	7440-02-0	4.5	0.61	0.055	mg/kg			
Selenium	7782-49-2	2.1	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	1.6	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	18.7	3.1	0.10	mg/kg	*		

Lab Sample Name: 6100164-02 **Sample No:** MH1G96 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.4	0.042	mg/kg	*	J	Q
Barium	7440-39-3	196	7.0	0.062	mg/kg			
Beryllium	7440-41-7	1.2	0.70	0.056	mg/kg			
Cadmium	7440-43-9	18.4	0.70	0.059	mg/kg	*	J	Q
Chromium	7440-47-3	9.3	1.4	0.12	mg/kg	*	J	A
Cobalt	7440-48-4	29.6	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	3.6	2.8	0.063	mg/kg			

Nickel	7440-02-0	13.1	0.70	0.063	mg/kg			
Selenium	7782-49-2	2.7	3.5	0.096	mg/kg	J	J	
Silver	7440-22-4	2.4	0.70	0.038	mg/kg			
Thallium	7440-28-0	0.70	0.70	0.054	mg/kg	J	U	B
Vanadium	7440-62-2	30.4	3.5	0.12	mg/kg	*	J	A

Lab Sample Name: 6100164-03 **Sample No:** MH1G97 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.2	0.035	mg/kg	*	J	*III
Barium	7440-39-3	71.7	5.9	0.052	mg/kg		J	*III
Beryllium	7440-41-7	0.80	0.59	0.047	mg/kg		J+	I,*III
Cadmium	7440-43-9	1.5	0.59	0.049	mg/kg	*	J	*III
Chromium	7440-47-3	4.5	1.2	0.097	mg/kg	*		
Cobalt	7440-48-4	8.5	0.59	0.035	mg/kg		J	*III
Molybdenum	7439-98-7	3.2	2.4	0.053	mg/kg		J	*III
Nickel	7440-02-0	4.7	0.59	0.053	mg/kg		J	*III
Selenium	7782-49-2	1.9	2.9	0.080	mg/kg	J	J	
Silver	7440-22-4	1.7	0.59	0.032	mg/kg		J	*III
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	17.5	2.9	0.097	mg/kg	*		

Lab Sample Name: 6100164-04 **Sample No:** MH1G98 **Sample Date:** 09/27/2016 14:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	7.2	1.3	0.038	mg/kg	*	J	Q, *III
Barium	7440-39-3	126	6.3	0.056	mg/kg		J	*III
Beryllium	7440-41-7	0.90	0.63	0.050	mg/kg		J+	I,*III
Cadmium	7440-43-9	2.5	0.63	0.053	mg/kg	*	J	Q, *III
Chromium	7440-47-3	5.6	1.3	0.10	mg/kg	*	J	A
Cobalt	7440-48-4	10.8	0.63	0.038	mg/kg		J	*III
Molybdenum	7439-98-7	7.9	2.5	0.057	mg/kg		J	*III
Nickel	7440-02-0	5.0	0.63	0.057	mg/kg		J	*III
Selenium	7782-49-2	2.4	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	4.2	0.63	0.034	mg/kg		J	*III
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	21.4	3.2	0.10	mg/kg	*	J	A

Lab Sample Name: 6100164-05 **Sample No:** MH1G99 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.3	0.039	mg/kg	*	J	*III

Analysis Method ICP_MS

Barium	7440-39-3	64.4	6.5	0.058	mg/kg		J	*III
Beryllium	7440-41-7	0.79	0.65	0.052	mg/kg		J+	I,*III
Cadmium	7440-43-9	6.0	0.65	0.055	mg/kg	*	J	*III
Chromium	7440-47-3	5.1	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	11.2	0.65	0.039	mg/kg		J	*III
Molybdenum	7439-98-7	3.8	2.6	0.059	mg/kg		J	*III
Nickel	7440-02-0	5.1	0.65	0.059	mg/kg		J	*III
Selenium	7782-49-2	2.0	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	2.2	0.65	0.035	mg/kg		J	*III
Thallium	7440-28-0	0.65	0.65	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	25.2	3.3	0.11	mg/kg	*		

Lab Sample Name: 6100164-06 **Sample No:** MH1H01 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.086	1.2	0.037	mg/kg	J*	J	Q
Barium	7440-39-3	6.2	6.2	0.054	mg/kg	J	U	B
Beryllium	7440-41-7	0.060	0.62	0.049	mg/kg	J	J+	I
Cadmium	7440-43-9	0.11	0.62	0.052	mg/kg	J*	J	Q
Chromium	7440-47-3	0.12	1.2	0.10	mg/kg	J*	J	A
Cobalt	7440-48-4	0.62	0.62	0.037	mg/kg	J	U	B
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	0.62	0.62	0.056	mg/kg	J	U	B
Selenium	7782-49-2	3.1	3.1	0.084	mg/kg	U	U	
Silver	7440-22-4	0.62	0.62	0.033	mg/kg	J	U	B
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	U	U	
Vanadium	7440-62-2	0.52	3.1	0.10	mg/kg	J*	J-	I,A

Lab Sample Name: 6100164-07 **Sample No:** MH1H02 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.2	3.5	0.11	mg/kg	D*	J	*III
Barium	7440-39-3	134	17.7	0.16	mg/kg	D	J	*III
Beryllium	7440-41-7	1.8	0.88	0.071	mg/kg		J	*III
Cadmium	7440-43-9	3.7	1.8	0.15	mg/kg	D*	J	*III
Chromium	7440-47-3	7.0	1.8	0.15	mg/kg	*		
Cobalt	7440-48-4	12.2	1.8	0.11	mg/kg	D	J	*III
Molybdenum	7439-98-7	7.1	7.1	0.16	mg/kg	JD	UJ	B,*III
Nickel	7440-02-0	6.2	1.8	0.16	mg/kg	D	J	*III
Selenium	7782-49-2	3.9	4.4	0.12	mg/kg	J	J	
Silver	7440-22-4	5.0	1.8	0.096	mg/kg	D	J	*III
Thallium	7440-28-0	0.88	0.88	0.067	mg/kg	J	U	B

Vanadium		7440-62-2	25.6	4.4	0.15	mg/kg	*		

Lab Sample Name: 6100164-08 **Sample No:** MH1H03 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.0	1.1	0.034	mg/kg	*	J	Q, *III
Barium	7440-39-3	73.3	5.7	0.050	mg/kg		J	*III
Beryllium	7440-41-7	0.68	0.57	0.045	mg/kg		J+	I,*III
Cadmium	7440-43-9	1.8	0.57	0.047	mg/kg	*	J	Q, *III
Chromium	7440-47-3	5.9	1.1	0.093	mg/kg	*	J	A
Cobalt	7440-48-4	10.7	0.57	0.034	mg/kg		J	*III
Molybdenum	7439-98-7	3.6	2.3	0.051	mg/kg		J	*III
Nickel	7440-02-0	5.2	0.57	0.051	mg/kg		J	*III
Selenium	7782-49-2	2.0	2.8	0.077	mg/kg	J	J	
Silver	7440-22-4	2.9	0.57	0.031	mg/kg		J	*III
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	22.8	2.8	0.093	mg/kg	*	J	A

Lab Sample Name: 6100164-09 **Sample No:** MH1H04 **Sample Date:** 09/27/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.3	0.038	mg/kg	*	J	*III
Barium	7440-39-3	103	6.4	0.056	mg/kg		J	*III
Beryllium	7440-41-7	1.0	0.64	0.051	mg/kg		J+	I,*III
Cadmium	7440-43-9	1.3	0.64	0.054	mg/kg	*	J	*III
Chromium	7440-47-3	4.4	1.3	0.10	mg/kg	*		
Cobalt	7440-48-4	8.3	0.64	0.038	mg/kg		J	*III
Molybdenum	7439-98-7	2.9	2.5	0.057	mg/kg		J	*III
Nickel	7440-02-0	4.2	0.64	0.057	mg/kg		J	*III
Selenium	7782-49-2	2.3	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	2.4	0.64	0.034	mg/kg		J	*III
Thallium	7440-28-0	0.64	0.64	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	18.1	3.2	0.10	mg/kg	*		

Lab Sample Name: 6100164-10 **Sample No:** MH1H05 **Sample Date:** 09/27/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	1.4	0.042	mg/kg	*	J	Q, *III
Barium	7440-39-3	129	7.0	0.061	mg/kg		J	*III
Beryllium	7440-41-7	0.66	0.70	0.056	mg/kg	J	J+	I,*III
Cadmium	7440-43-9	3.2	0.70	0.059	mg/kg	*	J	Q, *III
Chromium	7440-47-3	8.2	1.4	0.11	mg/kg	*	J	A

Analysis Method ICP_MS

Cobalt	7440-48-4	17.5	0.70	0.042	mg/kg		J	*III
Molybdenum	7439-98-7	2.8	2.8	0.063	mg/kg		J	*III
Nickel	7440-02-0	6.2	0.70	0.063	mg/kg		J	*III
Selenium	7782-49-2	1.3	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	1.6	0.70	0.038	mg/kg		J	*III
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	27.7	3.5	0.11	mg/kg	*	J	A

Lab Sample Name: 6100164-11 **Sample No:** MH1H06 **Sample Date:** 09/27/2016 12:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.0	1.6	0.048	mg/kg	*		
Barium	7440-39-3	223	8.0	0.070	mg/kg			
Beryllium	7440-41-7	0.80	0.80	0.064	mg/kg	J	U	B
Cadmium	7440-43-9	5.3	0.80	0.067	mg/kg	*		
Chromium	7440-47-3	5.8	1.6	0.13	mg/kg	*		
Cobalt	7440-48-4	45.0	0.80	0.048	mg/kg			
Molybdenum	7439-98-7	6.6	3.2	0.072	mg/kg			
Nickel	7440-02-0	5.7	0.80	0.072	mg/kg			
Selenium	7782-49-2	1.7	4.0	0.11	mg/kg	J	J	
Silver	7440-22-4	3.2	0.80	0.043	mg/kg			
Thallium	7440-28-0	1.0	0.80	0.061	mg/kg			
Vanadium	7440-62-2	28.1	4.0	0.13	mg/kg	*		

Lab Sample Name: 6100164-12 **Sample No:** MH1H07 **Sample Date:** 09/27/2016 12:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.2	1.4	0.043	mg/kg	*	J	Q
Barium	7440-39-3	82.5	7.1	0.063	mg/kg			
Beryllium	7440-41-7	0.71	0.71	0.057	mg/kg	J	U	B
Cadmium	7440-43-9	1.6	0.71	0.060	mg/kg	*	J	Q
Chromium	7440-47-3	8.0	1.4	0.12	mg/kg	*	J	A
Cobalt	7440-48-4	7.5	0.71	0.043	mg/kg			
Molybdenum	7439-98-7	6.2	2.9	0.064	mg/kg			
Nickel	7440-02-0	4.2	0.71	0.064	mg/kg			
Selenium	7782-49-2	1.9	3.6	0.097	mg/kg	J	J	
Silver	7440-22-4	4.7	0.71	0.039	mg/kg			
Thallium	7440-28-0	0.71	0.71	0.054	mg/kg	J	U	B
Vanadium	7440-62-2	30.4	3.6	0.12	mg/kg	*	J	A

Analysis Method ICP_MS

Lab Sample Name: 6100164-13 **Sample No:** MH1H08 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.4	4.8	0.14	mg/kg	JD*	J	
Barium	7440-39-3	83.8	24.1	0.21	mg/kg	D		
Beryllium	7440-41-7	2.4	2.4	0.19	mg/kg	JD	U	B
Cadmium	7440-43-9	2.4	2.4	0.20	mg/kg	JD*	U	B
Chromium	7440-47-3	7.1	2.4	0.20	mg/kg	*		
Cobalt	7440-48-4	4.4	2.4	0.14	mg/kg	D		
Molybdenum	7439-98-7	9.6	9.6	0.22	mg/kg	JD	U	B
Nickel	7440-02-0	3.1	2.4	0.22	mg/kg	D		
Selenium	7782-49-2	2.4	6.0	0.16	mg/kg	J	J	
Silver	7440-22-4	8.2	2.4	0.13	mg/kg	D		
Thallium	7440-28-0	1.2	1.2	0.092	mg/kg	J	U	B
Vanadium	7440-62-2	33.2	6.0	0.20	mg/kg	*		

Lab Sample Name: 6100164-14 **Sample No:** MH1H09 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.1	0.034	mg/kg	*	J	Q, *III
Barium	7440-39-3	87.4	5.6	0.049	mg/kg		J	*III
Beryllium	7440-41-7	0.56	0.56	0.045	mg/kg	J	UJ	B,*III
Cadmium	7440-43-9	1.2	0.56	0.047	mg/kg	*	J	Q, *III
Chromium	7440-47-3	6.8	1.1	0.092	mg/kg	*	J	A, F1
Cobalt	7440-48-4	13.2	0.56	0.034	mg/kg		J	*III
Molybdenum	7439-98-7	3.9	2.2	0.051	mg/kg		J	*III
Nickel	7440-02-0	4.6	0.56	0.051	mg/kg		J	*III
Selenium	7782-49-2	2.5	2.8	0.076	mg/kg	J	J	
Silver	7440-22-4	2.3	0.56	0.030	mg/kg		J	*III
Thallium	7440-28-0	0.56	0.56	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	32.2	2.8	0.092	mg/kg	*	J	A, F1

Lab Sample Name: 6100164-15 **Sample No:** MH1H10 **Sample Date:** 09/27/2016 09:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	1.2	0.037	mg/kg	*	J	*III
Barium	7440-39-3	123	6.2	0.055	mg/kg		J	*III
Beryllium	7440-41-7	0.86	0.62	0.050	mg/kg		J+	I,*III
Cadmium	7440-43-9	3.5	0.62	0.052	mg/kg	*	J	*III
Chromium	7440-47-3	6.5	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	22.0	0.62	0.037	mg/kg		J	*III

Analysis Method ICP_MS

Molybdenum	7439-98-7	3.8	2.5	0.056	mg/kg		J	*III
Nickel	7440-02-0	6.5	0.62	0.056	mg/kg		J	*III
Selenium	7782-49-2	2.1	3.1	0.084	mg/kg	J	J	
Silver	7440-22-4	1.3	0.62	0.033	mg/kg		J	*III
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	25.9	3.1	0.10	mg/kg	*		

Lab Sample Name: 6100164-16 **Sample No:** MH1H11 **Sample Date:** 09/27/2016 09:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.0	1.7	0.050	mg/kg	*	J	Q, *III
Barium	7440-39-3	119	8.3	0.073	mg/kg		J	*III
Beryllium	7440-41-7	1.2	0.83	0.067	mg/kg		J+	I,*III
Cadmium	7440-43-9	5.1	0.83	0.070	mg/kg	*	J	Q, *III
Chromium	7440-47-3	11.4	1.7	0.14	mg/kg	*	J	A
Cobalt	7440-48-4	15.4	0.83	0.050	mg/kg		J	*III
Molybdenum	7439-98-7	6.9	3.3	0.075	mg/kg		J	*III
Nickel	7440-02-0	7.4	0.83	0.075	mg/kg		J	*III
Selenium	7782-49-2	3.2	4.2	0.11	mg/kg	J	J	
Silver	7440-22-4	5.2	0.83	0.045	mg/kg		J	*III
Thallium	7440-28-0	0.83	0.83	0.063	mg/kg	J	U	B
Vanadium	7440-62-2	37.9	4.2	0.14	mg/kg	*	J	A

Lab Sample Name: 6100164-17 **Sample No:** MH1H12 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.1	3.0	0.089	mg/kg	*	J	*III
Barium	7440-39-3	89.4	14.8	0.13	mg/kg		J	*III
Beryllium	7440-41-7	1.5	1.5	0.12	mg/kg		J+	I,*III
Cadmium	7440-43-9	1.8	1.5	0.12	mg/kg	*	J	*III
Chromium	7440-47-3	8.9	3.0	0.24	mg/kg	*	J	F1
Cobalt	7440-48-4	4.4	1.5	0.089	mg/kg		J	*III
Molybdenum	7439-98-7	5.9	5.9	0.13	mg/kg	J	UJ	B,*III
Nickel	7440-02-0	3.4	1.5	0.13	mg/kg		J	*III
Selenium	7782-49-2	6.0	7.4	0.20	mg/kg	J	J	
Silver	7440-22-4	3.7	1.5	0.080	mg/kg		J	*III
Thallium	7440-28-0	1.5	1.5	0.11	mg/kg	J	U	B
Vanadium	7440-62-2	24.3	7.4	0.24	mg/kg	*		

Lab Sample Name: 6100164-18 **Sample No:** MH1H13 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	1.5	2.3	0.069	mg/kg	JD*	**J**	**Q, *III**
Barium	7440-39-3	49.3	11.4	0.10	mg/kg	D	**J**	***III**
Beryllium	7440-41-7	0.57	0.57	0.046	mg/kg	J	**UJ**	**B,*III**
Cadmium	7440-43-9	1.4	1.1	0.096	mg/kg	D*	**J**	**Q, *III**
Chromium	7440-47-3	5.1	1.1	0.094	mg/kg	*	**J**	**A**
Cobalt	7440-48-4	11.4	1.1	0.069	mg/kg	D	**J**	***III**
Molybdenum	7439-98-7	4.6	4.6	0.10	mg/kg	JD	**UJ**	**B,*III**
Nickel	7440-02-0	4.8	1.1	0.10	mg/kg	D	**J**	***III**
Selenium	7782-49-2	1.8	2.9	0.078	mg/kg	J	**J**	
Silver	7440-22-4	1.3	1.1	0.062	mg/kg	D	**J**	***III**
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	26.3	2.9	0.094	mg/kg	*	**J**	**A**

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1H14

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1H14
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1H14	6100165-01	Sediment	09/30/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1H15	6100165-02	Soil	09/30/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1H16	6100165-03	Sediment	09/30/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1H17	6100165-04	Soil	09/30/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1H18	6100165-05	Sediment	09/27/2016 11:10:00	Hg, ICP-AES, ICP-MS
MH1H19	6100165-06	Soil	09/27/2016 11:10:00	Hg, ICP-AES, ICP-MS
MH1H20	6100165-07	Sediment	09/29/2016 16:05:00	Hg, ICP-AES, ICP-MS
MH1H21	6100165-08	Soil	09/29/2016 16:05:00	Hg, ICP-AES, ICP-MS
MH1H22	6100165-09	Sediment	09/29/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1H23	6100165-10	Soil	09/29/2016 15:00:00	Hg, ICP-AES, ICP-MS
MH1H24	6100165-11	Sediment	09/29/2016 11:50:00	Hg, ICP-AES, ICP-MS
MH1H25	6100165-12	Soil	09/29/2016 11:50:00	Hg, ICP-AES, ICP-MS
MH1H26	6100165-13	Sediment	09/29/2016 09:35:00	Hg, ICP-AES, ICP-MS
MH1H27	6100165-14	Soil	09/29/2016 09:35:00	Hg, ICP-AES, ICP-MS
MH1H28	6100165-15	Sediment	09/29/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1H29	6100165-16	Soil	09/29/2016 10:30:00	Hg, ICP-AES, ICP-MS
MH1H30	6100165-17	Sediment	09/29/2016 11:10:00	Hg, ICP-AES, ICP-MS
MH1H31	6100165-18	Soil	09/29/2016 11:10:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/19/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based upon professional judgement, qualifications were not assigned when the site sample results was >10x the amount in the blank.

Analyte	ICB/CCB blank concentrations (µg/L)	Preparation blank concentration (mg/kg)	Qualified Samples
beryllium	0.12 J, 0.11 J		All samples except MH1H19, MH1H28, MH1H30
molybdenum	0.43 J, 0.39 J		MH1H14, MH1H16, MH1H17, MH1H18, MH1H20
thallium	0.12 J (ICB), 0.11 J, 0.090 J		All samples except MH1H16, MH1H19
cadmium	0.052 J (ICB), 0.072 J, 0.057 J		MH1H17, MH1H20, MH1H21, MH1H22, MH1H23, MH1H24, MH1H25, MH1H26, MH1H27, MH1H28, MH1H29, MH1H30, MH1H31
nickel		0.14 J	MH1H16
silver	0.051 J (ICB)		MH1H24, MH1H25, MH1H26, MH1H28, MH1H30

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 85-115% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1H17. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
copper iron zinc	25% 31% 42%	All soil samples in the SDG. The sediment matrix samples are not qualified.
antimony	105%	

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1H17. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. Post-digestion spikes were performed and were within acceptance limits for the affected analytes, with the exception of arsenic. Affected sample detects were qualified as estimated (J/J-). The arsenic non-detect for sample MH1H17 was rejected (R) as unusable.
-

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
arsenic	2% / 0%	All soil samples (J- / R)
manganese zinc	139% / 90% 241% / 107%	All soil samples (J)
antimony selenium	60% / 81% 58% / 129%	

- Post Digestion Spike: Post digestion spike analyses were performed and assessed as above with the associated matrix spike analyses.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1H17. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10%

difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
aluminum	25%	All soil samples (J)
copper	24%	
iron	36%	
lead	14%	
manganese	11%	
zinc	58%	

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1H14

Analysis Method Hg

Lab Sample Name: 6100165-01 **Sample No:** MH1H14 **Sample Date:** 09/30/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.10	0.17	0.0054	mg/kg	J	J	

Lab Sample Name: 6100165-02 **Sample No:** MH1H15 **Sample Date:** 09/30/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.042	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100165-03 **Sample No:** MH1H16 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.21	0.19	0.0062	mg/kg			

Lab Sample Name: 6100165-04 **Sample No:** MH1H17 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.15	0.0046	mg/kg	J	J	

Lab Sample Name: 6100165-05 **Sample No:** MH1H18 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.037	0.14	0.0046	mg/kg	J	J	

Lab Sample Name: 6100165-06 **Sample No:** MH1H19 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.095	0.17	0.0054	mg/kg	J	J	

Lab Sample Name: 6100165-07 **Sample No:** MH1H20 **Sample Date:** 09/29/2016 16:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.038	0.12	0.0040	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100165-08 **Sample No:** MH1H21 **Sample Date:** 09/29/2016 16:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.032	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100165-09 **Sample No:** MH1H22 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.061	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100165-10 **Sample No:** MH1H23 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.056	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100165-11 **Sample No:** MH1H24 **Sample Date:** 09/29/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.016	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100165-12 **Sample No:** MH1H25 **Sample Date:** 09/29/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.012	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100165-13 **Sample No:** MH1H26 **Sample Date:** 09/29/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100165-14 **Sample No:** MH1H27 **Sample Date:** 09/29/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.012	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100165-15 **Sample No:** MH1H28 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0089	0.16	0.0050	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100165-16 **Sample No:** MH1H29 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.024	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100165-17 **Sample No:** MH1H30 **Sample Date:** 09/29/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.011	0.14	0.0045	mg/kg	J	J	

Lab Sample Name: 6100165-18 **Sample No:** MH1H31 **Sample Date:** 09/29/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.027	0.12	0.0037	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100165-01 **Sample No:** MH1H14 **Sample Date:** 09/30/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12500	33.9	3.4	mg/kg	*		
Arsenic	7440-38-2	14.1	1.7	0.22	mg/kg	*		
Calcium	7440-70-2	1420	848	9.8	mg/kg	*		
Copper	7440-50-8	200	4.2	0.087	mg/kg	*		
Iron	7439-89-6	32400	17.0	1.4	mg/kg	*		
Lead	7439-92-1	307	1.7	0.19	mg/kg	*		
Magnesium	7439-95-4	5690	848	3.7	mg/kg	*		
Manganese	7439-96-5	2500	2.5	0.10	mg/kg	*		
Zinc	7440-66-6	366	10.2	0.44	mg/kg	*		

Lab Sample Name: 6100165-02 **Sample No:** MH1H15 **Sample Date:** 09/30/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14400	26.6	2.7	mg/kg	*	J	A
Arsenic	7440-38-2	29.8	1.3	0.17	mg/kg	*	J-	Q
Calcium	7440-70-2	2320	666	7.7	mg/kg	*		
Copper	7440-50-8	195	3.3	0.068	mg/kg	*	J	E,A
Iron	7439-89-6	44300	13.3	1.1	mg/kg	*	J	E,A
Lead	7439-92-1	579	1.3	0.15	mg/kg	*	J	A
Magnesium	7439-95-4	7210	666	2.9	mg/kg	*		
Manganese	7439-96-5	3800	4.0	0.16	mg/kg	D*	J	Q,A

Analysis Method ICP_AES

Zinc		7440-66-6	501	8.0	0.35	mg/kg	*	J	Q,E,A

Lab Sample Name: 6100165-03 **Sample No:** MH1H16 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	3610	38.6	3.9	mg/kg	*		
Arsenic	7440-38-2	1.9	1.9	0.25	mg/kg	U*	U	
Calcium	7440-70-2	762	965	11.2	mg/kg	J*	J	
Copper	7440-50-8	21.9	4.8	0.098	mg/kg	*		
Iron	7439-89-6	288000	116	9.6	mg/kg	D*		
Lead	7439-92-1	259	1.9	0.21	mg/kg	*		
Magnesium	7439-95-4	530	965	4.2	mg/kg	J*	J	
Manganese	7439-96-5	137	2.9	0.12	mg/kg	*		
Zinc	7440-66-6	422	11.6	0.50	mg/kg	*		

Lab Sample Name: 6100165-04 **Sample No:** MH1H17 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5970	29.0	2.9	mg/kg	*	J	A
Arsenic	7440-38-2	1.5	1.5	0.19	mg/kg	U*	R	Q
Calcium	7440-70-2	783	726	8.4	mg/kg	*		
Copper	7440-50-8	53.8	3.6	0.074	mg/kg	*	J	E,A
Iron	7439-89-6	292000	145	12.0	mg/kg	D*	J	E,A
Lead	7439-92-1	247	1.5	0.16	mg/kg	*	J	A
Magnesium	7439-95-4	1460	726	3.2	mg/kg	*		
Manganese	7439-96-5	207	2.2	0.089	mg/kg	*	J	Q,A
Zinc	7440-66-6	385	8.7	0.38	mg/kg	*	J	Q,E,A

Lab Sample Name: 6100165-05 **Sample No:** MH1H18 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8980	28.7	2.9	mg/kg	*		
Arsenic	7440-38-2	12.6	1.4	0.19	mg/kg	*		
Calcium	7440-70-2	1460	717	8.3	mg/kg	*		
Copper	7440-50-8	337	3.6	0.073	mg/kg	*		
Iron	7439-89-6	124000	86.0	7.1	mg/kg	D*		
Lead	7439-92-1	408	1.4	0.16	mg/kg	*		
Magnesium	7439-95-4	4190	717	3.2	mg/kg	*		
Manganese	7439-96-5	10600	12.9	0.52	mg/kg	D*		
Zinc	7440-66-6	412	8.6	0.37	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100165-06 **Sample No:** MH1H19 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19700	34.0	3.4	mg/kg	*	J	A
Arsenic	7440-38-2	26.6	1.7	0.22	mg/kg	*	J-	Q
Calcium	7440-70-2	3910	850	9.9	mg/kg	*		
Copper	7440-50-8	124	4.3	0.087	mg/kg	*	J	E,A
Iron	7439-89-6	31900	17.0	1.4	mg/kg	*	J	E,A
Lead	7439-92-1	442	1.7	0.19	mg/kg	*	J	A
Magnesium	7439-95-4	4870	850	3.7	mg/kg	*		
Manganese	7439-96-5	26500	25.5	1.0	mg/kg	D*	J	Q,A
Zinc	7440-66-6	1120	10.2	0.44	mg/kg	*	J	Q,E,A

Lab Sample Name: 6100165-07 **Sample No:** MH1H20 **Sample Date:** 09/29/2016 16:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14000	24.8	2.5	mg/kg	*		
Arsenic	7440-38-2	23.6	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	1400	620	7.2	mg/kg	*		
Copper	7440-50-8	57.2	3.1	0.063	mg/kg	*		
Iron	7439-89-6	51500	12.4	1.0	mg/kg	*		
Lead	7439-92-1	670	1.2	0.14	mg/kg	*		
Magnesium	7439-95-4	5790	620	2.7	mg/kg	*		
Manganese	7439-96-5	615	1.9	0.076	mg/kg	*		
Zinc	7440-66-6	80.4	7.4	0.32	mg/kg	*		

Lab Sample Name: 6100165-08 **Sample No:** MH1H21 **Sample Date:** 09/29/2016 16:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	23.8	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	9.2	1.2	0.15	mg/kg	*	J-	Q
Calcium	7440-70-2	1800	595	6.9	mg/kg	*		
Copper	7440-50-8	41.4	3.0	0.061	mg/kg	*	J	E,A
Iron	7439-89-6	33700	11.9	0.99	mg/kg	*	J	E,A
Lead	7439-92-1	294	1.2	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	5820	595	2.6	mg/kg	*		
Manganese	7439-96-5	409	1.8	0.073	mg/kg	*	J	Q,A
Zinc	7440-66-6	62.9	7.1	0.31	mg/kg	*	J	Q,E,A

Analysis Method ICP_AES

Lab Sample Name: 6100165-09 **Sample No:** MH1H22 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	4710	25.5	2.5	mg/kg	*		
Arsenic	7440-38-2	20.3	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	611	636	7.4	mg/kg	J*	J	
Copper	7440-50-8	31.6	3.2	0.065	mg/kg	*		
Iron	7439-89-6	33500	12.7	1.1	mg/kg	*		
Lead	7439-92-1	268	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	2230	636	2.8	mg/kg	*		
Manganese	7439-96-5	241	1.9	0.078	mg/kg	*		
Zinc	7440-66-6	68.5	7.6	0.33	mg/kg	*		

Lab Sample Name: 6100165-10 **Sample No:** MH1H23 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10200	22.2	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	53.5	1.1	0.14	mg/kg	*	J-	Q
Calcium	7440-70-2	994	556	6.5	mg/kg	*		
Copper	7440-50-8	82.7	2.8	0.057	mg/kg	*	J	E,A
Iron	7439-89-6	82300	33.4	2.8	mg/kg	D*	J	E,A
Lead	7439-92-1	1950	1.1	0.12	mg/kg	*	J	A
Magnesium	7439-95-4	4410	556	2.4	mg/kg	*		
Manganese	7439-96-5	489	1.7	0.068	mg/kg	*	J	Q,A
Zinc	7440-66-6	577	6.7	0.29	mg/kg	*	J	Q,E,A

Lab Sample Name: 6100165-11 **Sample No:** MH1H24 **Sample Date:** 09/29/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	26.8	2.7	mg/kg	*		
Arsenic	7440-38-2	11.8	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	1460	670	7.8	mg/kg	*		
Copper	7440-50-8	34.2	3.4	0.068	mg/kg	*		
Iron	7439-89-6	52300	13.4	1.1	mg/kg	*		
Lead	7439-92-1	44.3	1.3	0.15	mg/kg	*		
Magnesium	7439-95-4	4390	670	2.9	mg/kg	*		
Manganese	7439-96-5	424	2.0	0.082	mg/kg	*		
Zinc	7440-66-6	86.3	8.0	0.35	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100165-12 **Sample No:** MH1H25 **Sample Date:** 09/29/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9570	23.6	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	14.8	1.2	0.15	mg/kg	*	J-	Q
Calcium	7440-70-2	833	589	6.8	mg/kg	*		
Copper	7440-50-8	25.2	2.9	0.060	mg/kg	*	J	E,A
Iron	7439-89-6	41900	11.8	0.98	mg/kg	*	J	E,A
Lead	7439-92-1	78.6	1.2	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	3270	589	2.6	mg/kg	*		
Manganese	7439-96-5	453	1.8	0.072	mg/kg	*	J	Q,A
Zinc	7440-66-6	53.7	7.1	0.31	mg/kg	*	J	Q,E,A

Lab Sample Name: 6100165-13 **Sample No:** MH1H26 **Sample Date:** 09/29/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9310	25.5	2.5	mg/kg	*		
Arsenic	7440-38-2	17.9	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	1670	636	7.4	mg/kg	*		
Copper	7440-50-8	193	3.2	0.065	mg/kg	*		
Iron	7439-89-6	64000	38.2	3.2	mg/kg	D*		
Lead	7439-92-1	76.3	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	3390	636	2.8	mg/kg	*		
Manganese	7439-96-5	393	1.9	0.078	mg/kg	*		
Zinc	7440-66-6	62.7	7.6	0.33	mg/kg	*		

Lab Sample Name: 6100165-14 **Sample No:** MH1H27 **Sample Date:** 09/29/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10300	22.3	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	13.4	1.1	0.14	mg/kg	*	J-	Q
Calcium	7440-70-2	1190	557	6.5	mg/kg	*		
Copper	7440-50-8	35.5	2.8	0.057	mg/kg	*	J	E,A
Iron	7439-89-6	56900	33.4	2.8	mg/kg	D*	J	E,A
Lead	7439-92-1	103	1.1	0.12	mg/kg	*	J	A
Magnesium	7439-95-4	3580	557	2.4	mg/kg	*		
Manganese	7439-96-5	408	1.7	0.068	mg/kg	*	J	Q,A
Zinc	7440-66-6	71.9	6.7	0.29	mg/kg	*	J	Q,E,A

Analysis Method ICP_AES

Lab Sample Name: 6100165-15 **Sample No:** MH1H28 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9020	31.4	3.1	mg/kg	*		
Arsenic	7440-38-2	31.4	1.6	0.20	mg/kg	*		
Calcium	7440-70-2	1250	784	9.1	mg/kg	*		
Copper	7440-50-8	65.2	3.9	0.080	mg/kg	*		
Iron	7439-89-6	131000	47.1	3.9	mg/kg	D*		
Lead	7439-92-1	228	1.6	0.17	mg/kg	*		
Magnesium	7439-95-4	2350	784	3.5	mg/kg	*		
Manganese	7439-96-5	349	2.4	0.096	mg/kg	*		
Zinc	7440-66-6	99.8	9.4	0.41	mg/kg	*		

Lab Sample Name: 6100165-16 **Sample No:** MH1H29 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11600	23.6	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	26.3	1.2	0.15	mg/kg	*	J-	Q
Calcium	7440-70-2	677	591	6.9	mg/kg	*		
Copper	7440-50-8	43.9	3.0	0.060	mg/kg	*	J	E,A
Iron	7439-89-6	99300	35.5	2.9	mg/kg	D*	J	E,A
Lead	7439-92-1	94.9	1.2	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	2880	591	2.6	mg/kg	*		
Manganese	7439-96-5	420	1.8	0.072	mg/kg	*	J	Q,A
Zinc	7440-66-6	143	7.1	0.31	mg/kg	*	J	Q,E,A

Lab Sample Name: 6100165-17 **Sample No:** MH1H30 **Sample Date:** 09/29/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8730	28.0	2.8	mg/kg	*		
Arsenic	7440-38-2	11.8	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	1100	699	8.1	mg/kg	*		
Copper	7440-50-8	48.4	3.5	0.071	mg/kg	*		
Iron	7439-89-6	98300	41.9	3.5	mg/kg	D*		
Lead	7439-92-1	93.6	1.4	0.15	mg/kg	*		
Magnesium	7439-95-4	2220	699	3.1	mg/kg	*		
Manganese	7439-96-5	444	2.1	0.085	mg/kg	*		
Zinc	7440-66-6	111	8.4	0.36	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100165-18 **Sample No:** MH1H31 **Sample Date:** 09/29/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8220	23.1	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	20.5	1.2	0.15	mg/kg	*	J-	Q
Calcium	7440-70-2	1040	578	6.7	mg/kg	*		
Copper	7440-50-8	29.9	2.9	0.059	mg/kg	*	J	E,A
Iron	7439-89-6	37700	11.6	0.96	mg/kg	*	J	E,A
Lead	7439-92-1	259	1.2	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	3080	578	2.5	mg/kg	*		
Manganese	7439-96-5	359	1.7	0.071	mg/kg	*	J	Q,A
Zinc	7440-66-6	146	6.9	0.30	mg/kg	*	J	Q,E,A

Analysis Method ICP_MS

Lab Sample Name: 6100165-01 **Sample No:** MH1H14 **Sample Date:** 09/30/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.7	0.051	mg/kg	*		
Barium	7440-39-3	56.1	8.5	0.075	mg/kg			
Beryllium	7440-41-7	0.85	0.85	0.068	mg/kg	J	U	B
Cadmium	7440-43-9	1.8	0.85	0.071	mg/kg			
Chromium	7440-47-3	3.8	1.7	0.14	mg/kg			
Cobalt	7440-48-4	6.6	0.85	0.051	mg/kg			
Molybdenum	7439-98-7	3.4	3.4	0.076	mg/kg	J	U	B
Nickel	7440-02-0	2.9	0.85	0.076	mg/kg			
Selenium	7782-49-2	2.2	4.2	0.12	mg/kg	J*	J	
Silver	7440-22-4	1.9	0.85	0.046	mg/kg	*		
Thallium	7440-28-0	0.85	0.85	0.064	mg/kg	J	U	B
Vanadium	7440-62-2	14.7	4.2	0.14	mg/kg			

Lab Sample Name: 6100165-02 **Sample No:** MH1H15 **Sample Date:** 09/30/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.3	0.040	mg/kg	*	J	Q,E
Barium	7440-39-3	51.0	6.7	0.059	mg/kg			
Beryllium	7440-41-7	0.67	0.67	0.053	mg/kg	J	U	B
Cadmium	7440-43-9	1.7	0.67	0.056	mg/kg			
Chromium	7440-47-3	3.9	1.3	0.11	mg/kg			
Cobalt	7440-48-4	10.8	0.67	0.040	mg/kg			
Molybdenum	7439-98-7	3.4	2.7	0.060	mg/kg			

Nickel	7440-02-0	4.0	0.67	0.060	mg/kg			
Selenium	7782-49-2	1.2	3.3	0.091	mg/kg	J*	J	Q
Silver	7440-22-4	2.0	0.67	0.036	mg/kg	*		
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	19.3	3.3	0.11	mg/kg			

Lab Sample Name: 6100165-03 **Sample No:** MH1H16 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.95	1.9	0.058	mg/kg	J*	J	
Barium	7440-39-3	9.7	9.7	0.085	mg/kg	J	J	
Beryllium	7440-41-7	0.97	0.97	0.077	mg/kg	J	U	B
Cadmium	7440-43-9	0.71	0.97	0.081	mg/kg	J	J	
Chromium	7440-47-3	1.9	1.9	0.16	mg/kg			
Cobalt	7440-48-4	1.0	0.97	0.058	mg/kg			
Molybdenum	7439-98-7	3.9	3.9	0.087	mg/kg	J	U	B
Nickel	7440-02-0	0.97	0.97	0.087	mg/kg	J	U	B
Selenium	7782-49-2	0.40	4.8	0.13	mg/kg	J*	J	
Silver	7440-22-4	1.9	0.97	0.052	mg/kg	*		
Thallium	7440-28-0	0.97	0.97	0.073	mg/kg	U	U	
Vanadium	7440-62-2	12.4	4.8	0.16	mg/kg			

Lab Sample Name: 6100165-04 **Sample No:** MH1H17 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	1.5	0.044	mg/kg	*	J	Q,E
Barium	7440-39-3	16.1	7.3	0.064	mg/kg			
Beryllium	7440-41-7	0.73	0.73	0.058	mg/kg	J	U	B
Cadmium	7440-43-9	0.73	0.73	0.061	mg/kg	J	U	B
Chromium	7440-47-3	2.9	1.5	0.12	mg/kg			
Cobalt	7440-48-4	1.5	0.73	0.044	mg/kg			
Molybdenum	7439-98-7	2.9	2.9	0.065	mg/kg	J	U	B
Nickel	7440-02-0	1.1	0.73	0.065	mg/kg			
Selenium	7782-49-2	1.1	3.6	0.099	mg/kg	J*	J	Q
Silver	7440-22-4	1.9	0.73	0.039	mg/kg	*		
Thallium	7440-28-0	0.73	0.73	0.055	mg/kg	J	U	B
Vanadium	7440-62-2	19.2	3.6	0.12	mg/kg			

Lab Sample Name: 6100165-05 **Sample No:** MH1H18 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.043	mg/kg	*		

Analysis Method ICP_MS

Barium	7440-39-3	33.7	7.2	0.063	mg/kg			
Beryllium	7440-41-7	0.72	0.72	0.057	mg/kg	J	U	B
Cadmium	7440-43-9	1.7	0.72	0.060	mg/kg			
Chromium	7440-47-3	4.9	1.4	0.12	mg/kg			
Cobalt	7440-48-4	20.7	0.72	0.043	mg/kg			
Molybdenum	7439-98-7	2.9	2.9	0.065	mg/kg	J	U	B
Nickel	7440-02-0	2.5	0.72	0.065	mg/kg			
Selenium	7782-49-2	0.93	3.6	0.098	mg/kg	J*	J	
Silver	7440-22-4	0.88	0.72	0.039	mg/kg	*		
Thallium	7440-28-0	0.72	0.72	0.054	mg/kg	J	U	B
Vanadium	7440-62-2	10.5	3.6	0.12	mg/kg			

Lab Sample Name: 6100165-06 **Sample No:** MH1H19 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.9	1.7	0.051	mg/kg	*	J	Q,E
Barium	7440-39-3	204	8.5	0.075	mg/kg			
Beryllium	7440-41-7	0.92	0.85	0.068	mg/kg			
Cadmium	7440-43-9	10.2	0.85	0.071	mg/kg			
Chromium	7440-47-3	4.6	1.7	0.14	mg/kg			
Cobalt	7440-48-4	81.5	0.85	0.051	mg/kg			
Molybdenum	7439-98-7	5.2	3.4	0.077	mg/kg			
Nickel	7440-02-0	15.7	0.85	0.077	mg/kg			
Selenium	7782-49-2	2.9	4.3	0.12	mg/kg	J*	J	Q
Silver	7440-22-4	2.3	0.85	0.046	mg/kg	*		
Thallium	7440-28-0	1.1	0.85	0.065	mg/kg			
Vanadium	7440-62-2	17.5	4.3	0.14	mg/kg			

Lab Sample Name: 6100165-07 **Sample No:** MH1H20 **Sample Date:** 09/29/2016 16:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.57	1.2	0.037	mg/kg	J*	J	
Barium	7440-39-3	48.2	6.2	0.055	mg/kg			
Beryllium	7440-41-7	0.62	0.62	0.050	mg/kg	J	U	B
Cadmium	7440-43-9	0.62	0.62	0.052	mg/kg	J	U	B
Chromium	7440-47-3	2.9	1.2	0.10	mg/kg			
Cobalt	7440-48-4	3.2	0.62	0.037	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	1.4	0.62	0.056	mg/kg			
Selenium	7782-49-2	1.5	3.1	0.084	mg/kg	J*	J	
Silver	7440-22-4	0.71	0.62	0.033	mg/kg	*		
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B

Analysis Method ICP_MS

Vanadium	7440-62-2	18.8	3.1	0.10	mg/kg			

Lab Sample Name: 6100165-08 **Sample No:** MH1H21 **Sample Date:** 09/29/2016 16:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.49	1.2	0.036	mg/kg	J*	J	Q,E
Barium	7440-39-3	47.8	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.048	mg/kg	J	U	B
Cadmium	7440-43-9	0.59	0.59	0.050	mg/kg	J	U	B
Chromium	7440-47-3	5.0	1.2	0.098	mg/kg			
Cobalt	7440-48-4	7.2	0.59	0.036	mg/kg			
Molybdenum	7439-98-7	2.8	2.4	0.054	mg/kg			
Nickel	7440-02-0	3.8	0.59	0.054	mg/kg			
Selenium	7782-49-2	1.6	3.0	0.081	mg/kg	J*	J	Q
Silver	7440-22-4	1.3	0.59	0.032	mg/kg	*		
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	23.7	3.0	0.098	mg/kg			

Lab Sample Name: 6100165-09 **Sample No:** MH1H22 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	44.4	6.4	0.056	mg/kg			
Beryllium	7440-41-7	0.64	0.64	0.051	mg/kg	J	U	B
Cadmium	7440-43-9	0.64	0.64	0.053	mg/kg	J	U	B
Chromium	7440-47-3	3.4	1.3	0.10	mg/kg			
Cobalt	7440-48-4	3.0	0.64	0.038	mg/kg			
Molybdenum	7439-98-7	4.0	2.5	0.057	mg/kg			
Nickel	7440-02-0	2.2	0.64	0.057	mg/kg			
Selenium	7782-49-2	1.7	3.2	0.087	mg/kg	J*	J	
Silver	7440-22-4	4.3	0.64	0.034	mg/kg	*		
Thallium	7440-28-0	0.64	0.64	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	18.9	3.2	0.10	mg/kg			

Lab Sample Name: 6100165-10 **Sample No:** MH1H23 **Sample Date:** 09/29/2016 15:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.8	1.1	0.033	mg/kg	*	J	Q,E
Barium	7440-39-3	48.6	5.6	0.049	mg/kg			
Beryllium	7440-41-7	0.56	0.56	0.044	mg/kg	J	U	B
Cadmium	7440-43-9	0.56	0.56	0.047	mg/kg	J	U	B
Chromium	7440-47-3	4.5	1.1	0.091	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	3.2	0.56	0.033	mg/kg			
Molybdenum	7439-98-7	6.9	2.2	0.050	mg/kg			
Nickel	7440-02-0	2.1	0.56	0.050	mg/kg			
Selenium	7782-49-2	2.1	2.8	0.076	mg/kg	J*	J	Q
Silver	7440-22-4	2.4	0.56	0.030	mg/kg	*		
Thallium	7440-28-0	0.56	0.56	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	25.4	2.8	0.091	mg/kg			

Lab Sample Name: 6100165-11 **Sample No:** MH1H24 **Sample Date:** 09/29/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.58	1.3	0.040	mg/kg	J*	J	
Barium	7440-39-3	53.7	6.7	0.059	mg/kg			
Beryllium	7440-41-7	0.67	0.67	0.054	mg/kg	J	U	B
Cadmium	7440-43-9	0.67	0.67	0.056	mg/kg	J	U	B
Chromium	7440-47-3	3.3	1.3	0.11	mg/kg			
Cobalt	7440-48-4	5.6	0.67	0.040	mg/kg			
Molybdenum	7439-98-7	3.4	2.7	0.060	mg/kg			
Nickel	7440-02-0	2.7	0.67	0.060	mg/kg			
Selenium	7782-49-2	2.4	3.4	0.091	mg/kg	J*	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J*	U	B
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	20.8	3.4	0.11	mg/kg			

Lab Sample Name: 6100165-12 **Sample No:** MH1H25 **Sample Date:** 09/29/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.54	1.2	0.035	mg/kg	J*	J	Q,E
Barium	7440-39-3	68.0	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.047	mg/kg	J	U	B
Cadmium	7440-43-9	0.59	0.59	0.049	mg/kg	J	U	B
Chromium	7440-47-3	2.6	1.2	0.097	mg/kg			
Cobalt	7440-48-4	4.1	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	3.1	2.4	0.053	mg/kg			
Nickel	7440-02-0	1.4	0.59	0.053	mg/kg			
Selenium	7782-49-2	2.0	2.9	0.080	mg/kg	J*	J	Q
Silver	7440-22-4	0.59	0.59	0.032	mg/kg	J*	U	B
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	18.8	2.9	0.097	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100165-13 **Sample No:** MH1H26 **Sample Date:** 09/29/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.59	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	45.1	6.4	0.056	mg/kg			
Beryllium	7440-41-7	0.64	0.64	0.051	mg/kg	J	U	B
Cadmium	7440-43-9	0.64	0.64	0.053	mg/kg	J	U	B
Chromium	7440-47-3	3.1	1.3	0.10	mg/kg			
Cobalt	7440-48-4	6.3	0.64	0.038	mg/kg			
Molybdenum	7439-98-7	4.5	2.5	0.057	mg/kg			
Nickel	7440-02-0	2.0	0.64	0.057	mg/kg			
Selenium	7782-49-2	1.9	3.2	0.087	mg/kg	J*	J	
Silver	7440-22-4	0.64	0.64	0.034	mg/kg	J*	U	B
Thallium	7440-28-0	0.64	0.64	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	21.1	3.2	0.10	mg/kg			

Lab Sample Name: 6100165-14 **Sample No:** MH1H27 **Sample Date:** 09/29/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.62	1.1	0.033	mg/kg	J*	J	Q,E
Barium	7440-39-3	59.6	5.6	0.049	mg/kg			
Beryllium	7440-41-7	0.56	0.56	0.045	mg/kg	J	U	B
Cadmium	7440-43-9	0.56	0.56	0.047	mg/kg	J	U	B
Chromium	7440-47-3	4.3	1.1	0.091	mg/kg			
Cobalt	7440-48-4	3.3	0.56	0.033	mg/kg			
Molybdenum	7439-98-7	4.0	2.2	0.050	mg/kg			
Nickel	7440-02-0	1.9	0.56	0.050	mg/kg			
Selenium	7782-49-2	2.1	2.8	0.076	mg/kg	J*	J	Q
Silver	7440-22-4	0.64	0.56	0.030	mg/kg	*		
Thallium	7440-28-0	0.56	0.56	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	27.0	2.8	0.091	mg/kg			

Lab Sample Name: 6100165-15 **Sample No:** MH1H28 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.74	1.6	0.047	mg/kg	J*	J	
Barium	7440-39-3	36.6	7.8	0.069	mg/kg			
Beryllium	7440-41-7	0.99	0.78	0.063	mg/kg			
Cadmium	7440-43-9	0.78	0.78	0.066	mg/kg	J	U	B
Chromium	7440-47-3	2.6	1.6	0.13	mg/kg			
Cobalt	7440-48-4	4.6	0.78	0.047	mg/kg			

Analysis Method ICP_MS

Molybdenum	7439-98-7	7.8	3.1	0.071	mg/kg			
Nickel	7440-02-0	2.2	0.78	0.071	mg/kg			
Selenium	7782-49-2	2.1	3.9	0.11	mg/kg	J*	J	
Silver	7440-22-4	0.78	0.78	0.042	mg/kg	J*	U	B
Thallium	7440-28-0	0.78	0.78	0.060	mg/kg	J	U	B
Vanadium	7440-62-2	19.0	3.9	0.13	mg/kg			

Lab Sample Name: 6100165-16 **Sample No:** MH1H29 **Sample Date:** 09/29/2016 10:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.42	1.2	0.035	mg/kg	J*	J	Q,E
Barium	7440-39-3	48.5	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.047	mg/kg	J	U	B
Cadmium	7440-43-9	0.59	0.59	0.050	mg/kg	J	U	B
Chromium	7440-47-3	3.3	1.2	0.097	mg/kg			
Cobalt	7440-48-4	4.8	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	4.1	2.4	0.053	mg/kg			
Nickel	7440-02-0	1.9	0.59	0.053	mg/kg			
Selenium	7782-49-2	2.1	3.0	0.080	mg/kg	J*	J	Q
Silver	7440-22-4	0.71	0.59	0.032	mg/kg	*		
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	23.3	3.0	0.097	mg/kg			

Lab Sample Name: 6100165-17 **Sample No:** MH1H30 **Sample Date:** 09/29/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.66	1.4	0.042	mg/kg	J*	J	
Barium	7440-39-3	44.9	7.0	0.061	mg/kg			
Beryllium	7440-41-7	1.0	0.70	0.056	mg/kg			
Cadmium	7440-43-9	0.70	0.70	0.059	mg/kg	J	U	B
Chromium	7440-47-3	2.6	1.4	0.11	mg/kg			
Cobalt	7440-48-4	4.2	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	7.4	2.8	0.063	mg/kg			
Nickel	7440-02-0	1.8	0.70	0.063	mg/kg			
Selenium	7782-49-2	2.0	3.5	0.095	mg/kg	J*	J	
Silver	7440-22-4	0.70	0.70	0.038	mg/kg	J*	U	B
Thallium	7440-28-0	0.7	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	19.4	3.5	0.11	mg/kg			

Lab Sample Name: 6100165-18 **Sample No:** MH1H31 **Sample Date:** 09/29/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	0.73	1.2	0.035	mg/kg	J*	**J**	**Q,E**
Barium	7440-39-3	51.2	5.8	0.051	mg/kg			
Beryllium	7440-41-7	0.580	0.58	0.046	mg/kg	J	**U**	**B**
Cadmium	7440-43-9	0.58	0.58	0.049	mg/kg	J	**U**	**B**
Chromium	7440-47-3	2.6	1.2	0.095	mg/kg			
Cobalt	7440-48-4	3.9	0.58	0.035	mg/kg			
Molybdenum	7439-98-7	6.7	2.3	0.052	mg/kg			
Nickel	7440-02-0	1.9	0.58	0.052	mg/kg			
Selenium	7782-49-2	2.4	2.9	0.079	mg/kg	J*	**J**	**Q**
Silver	7440-22-4	1.5	0.58	0.031	mg/kg	*		
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	17.1	2.9	0.095	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1H32

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1H32
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1H32	6100166-01	Sediment	09/29/2016 08:40:00	Hg, ICP-AES, ICP-MS
MH1H33	6100166-02	Soil	09/29/2016 08:40:00	Hg, ICP-AES, ICP-MS
MH1H34	6100166-03	Sediment	09/29/2016 13:25:00	Hg, ICP-AES, ICP-MS
MH1H35	6100166-04	Soil	09/29/2016 13:25:00	Hg, ICP-AES, ICP-MS
MH1H36	6100166-05	Sediment	09/29/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1H37	6100166-06	Soil	09/29/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1H38	6100166-07	Sediment	09/28/2016 17:15:00	Hg, ICP-AES, ICP-MS
MH1H39	6100166-08	Soil	09/28/2016 17:15:00	Hg, ICP-AES, ICP-MS
MH1H40	6100166-09	Sediment	09/28/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1H41	6100166-10	Soil	09/28/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1H42	6100166-11	Sediment	09/28/2016 15:50:00	Hg, ICP-AES, ICP-MS
MH1H43	6100166-12	Soil	09/28/2016 15:50:00	Hg, ICP-AES, ICP-MS
MH1H44	6100166-13	Sediment	09/28/2016 17:10:00	Hg, ICP-AES, ICP-MS
MH1H45	6100166-14	Soil	09/28/2016 17:10:00	Hg, ICP-AES, ICP-MS
MH1H46	6100166-15	Sediment	09/29/2016 17:10:00	Hg, ICP-AES, ICP-MS
MH1H47	6100166-16	Soil	09/29/2016 17:10:00	Hg, ICP-AES, ICP-MS
MH1H48	6100166-17	Sediment	09/29/2016 14:40:00	Hg, ICP-AES, ICP-MS
MH1H49	6100166-18	Soil	09/29/2016 14:40:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/20/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Calibration and Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
antimony	0.13 J (ICB) 0.51 J (ICB)	MH1H32, MH1H38, MH1H46
molybdenum	0.35 J, 0.39 J, 0.65 J	MH1H49, MH1H34, MH1H48, MH1H46
thallium	0.071 J, 0.079 J 0.18 J (ICB)	All samples in the SDG
cobalt	0.026 J (ICB), 0.044 J, 0.077 J	MH1H44
cadmium	0.045 J, 0.088 J	MH1H33, MH1H45, MH1H34, MH1H44
silver	0.020 J (ICB), 0.0076 J, 0.011 J	MH1H32

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.

- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1H35. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
arsenic manganese	28% 21%	All soil samples in the SDG. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1H35. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exception listed in the table below. A post-digestion spike was performed and was within acceptance limits for the affected analyte. Antimony sample detects were qualified as estimated (J).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony	62% / 78%	All soil samples

- Post Digestion Spike: A post digestion spike analysis was performed and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1H35. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
aluminum copper iron magnesium manganese	15% 11% 146% 18% 18%	All soil samples (J)
barium cobalt nickel silver	16% 23% 18% 17%	All soil samples (J)

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.
- All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: Samples MH1J18/MH1H48 and MH1J19/MH1H49 were identified as field duplicate pairs. RPD were within the limits of ≤50% or ±RL for all analytes.

Validated Sample Result Forms MH1H32

Analysis Method Hg

Lab Sample Name: 6100166-01 **Sample No:** MH1H32 **Sample Date:** 09/29/2016 08:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.018	0.14	0.0043	mg/kg	J	J	

Lab Sample Name: 6100166-02 **Sample No:** MH1H33 **Sample Date:** 09/29/2016 08:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.057	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100166-03 **Sample No:** MH1H34 **Sample Date:** 09/29/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.33	0.26	0.0082	mg/kg			

Lab Sample Name: 6100166-04 **Sample No:** MH1H35 **Sample Date:** 09/29/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.056	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100166-05 **Sample No:** MH1H36 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.10	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100166-06 **Sample No:** MH1H37 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.027	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100166-07 **Sample No:** MH1H38 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0059	0.14	0.0045	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100166-08 **Sample No:** MH1H39 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100166-09 **Sample No:** MH1H40 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.014	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100166-10 **Sample No:** MH1H41 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.028	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100166-11 **Sample No:** MH1H42 **Sample Date:** 09/28/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.072	0.18	0.0057	mg/kg	J	J	

Lab Sample Name: 6100166-12 **Sample No:** MH1H43 **Sample Date:** 09/28/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.026	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100166-13 **Sample No:** MH1H44 **Sample Date:** 09/28/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.015	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100166-14 **Sample No:** MH1H45 **Sample Date:** 09/28/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.028	0.10	0.0033	mg/kg	J	J	

Lab Sample Name: 6100166-15 **Sample No:** MH1H46 **Sample Date:** 09/29/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.039	0.12	0.0040	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100166-16 **Sample No:** MH1H47 **Sample Date:** 09/29/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.058	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100166-17 **Sample No:** MH1H48 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.16	0.17	0.0054	mg/kg	J	J	

Lab Sample Name: 6100166-18 **Sample No:** MH1H49 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.11	0.0037	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100166-01 **Sample No:** MH1H32 **Sample Date:** 09/29/2016 08:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12200	27.0	2.7	mg/kg	*		
Arsenic	7440-38-2	10.1	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	2220	676	7.8	mg/kg	*		
Copper	7440-50-8	95.6	3.4	0.069	mg/kg	*		
Iron	7439-89-6	79200	54.1	4.5	mg/kg	D*		
Lead	7439-92-1	143	1.4	0.15	mg/kg			
Magnesium	7439-95-4	5590	676	3.0	mg/kg	*		
Manganese	7439-96-5	1370	2.0	0.082	mg/kg	*		
Zinc	7440-66-6	259	8.1	0.35	mg/kg			

Lab Sample Name: 6100166-02 **Sample No:** MH1H33 **Sample Date:** 09/29/2016 08:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8960	24.9	2.5	mg/kg	*	J	A
Arsenic	7440-38-2	12.5	1.2	0.16	mg/kg	*	J	E
Calcium	7440-70-2	1200	621	7.2	mg/kg	*		
Copper	7440-50-8	41.8	3.1	0.063	mg/kg	*	J	A
Iron	7439-89-6	30200	12.4	1.0	mg/kg	*	J	A
Lead	7439-92-1	541	1.2	0.14	mg/kg			
Magnesium	7439-95-4	4290	621	2.7	mg/kg	*	J	A
Manganese	7439-96-5	491	1.9	0.076	mg/kg	*	J	E,A

Zinc		7440-66-6	176	7.5	0.32	mg/kg			

Lab Sample Name: 6100166-03 **Sample No:** MH1H34 **Sample Date:** 09/29/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10200	51.5	5.2	mg/kg	*		
Arsenic	7440-38-2	9.8	2.6	0.33	mg/kg	*		
Calcium	7440-70-2	1500	1290	14.9	mg/kg	*		
Copper	7440-50-8	75.5	6.4	0.13	mg/kg	*		
Iron	7439-89-6	131000	129	10.7	mg/kg	D*		
Lead	7439-92-1	603	2.6	0.28	mg/kg			
Magnesium	7439-95-4	3050	1290	5.7	mg/kg	*		
Manganese	7439-96-5	615	3.9	0.16	mg/kg	*		
Zinc	7440-66-6	259	15.5	0.67	mg/kg			

Lab Sample Name: 6100166-04 **Sample No:** MH1H35 **Sample Date:** 09/29/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12500	22.6	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	27.6	1.1	0.15	mg/kg	*	J	E
Calcium	7440-70-2	1730	565	6.6	mg/kg	*		
Copper	7440-50-8	234	2.8	0.058	mg/kg	*	J	A
Iron	7439-89-6	78200	56.5	4.7	mg/kg	D*	J	A
Lead	7439-92-1	2070	1.1	0.12	mg/kg			
Magnesium	7439-95-4	6000	565	2.5	mg/kg	*	J	A
Manganese	7439-96-5	1230	1.7	0.069	mg/kg	*	J	E,A
Zinc	7440-66-6	1060	6.8	0.29	mg/kg			

Lab Sample Name: 6100166-05 **Sample No:** MH1H36 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10100	26.7	2.7	mg/kg	*		
Arsenic	7440-38-2	17.0	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	1540	667	7.7	mg/kg	*		
Copper	7440-50-8	91.5	3.3	0.068	mg/kg	*		
Iron	7439-89-6	88300	93.4	7.8	mg/kg	D*		
Lead	7439-92-1	496	1.3	0.15	mg/kg			
Magnesium	7439-95-4	4690	667	2.9	mg/kg	*		
Manganese	7439-96-5	879	2.0	0.081	mg/kg	*		
Zinc	7440-66-6	354	8.0	0.35	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100166-06 **Sample No:** MH1H37 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10800	21.3	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	30.1	1.1	0.14	mg/kg	*	J	E
Calcium	7440-70-2	1620	533	6.2	mg/kg	*		
Copper	7440-50-8	84.4	2.7	0.054	mg/kg	*	J	A
Iron	7439-89-6	63500	53.3	4.4	mg/kg	D*	J	A
Lead	7439-92-1	498	1.1	0.12	mg/kg			
Magnesium	7439-95-4	6040	533	2.3	mg/kg	*	J	A
Manganese	7439-96-5	1180	1.6	0.065	mg/kg	*	J	E,A
Zinc	7440-66-6	338	6.4	0.28	mg/kg			

Lab Sample Name: 6100166-07 **Sample No:** MH1H38 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13700	28.4	2.8	mg/kg	*		
Arsenic	7440-38-2	13.9	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	2660	709	8.2	mg/kg	*		
Copper	7440-50-8	140	3.5	0.072	mg/kg	*		
Iron	7439-89-6	68300	56.8	4.7	mg/kg	D*		
Lead	7439-92-1	249	1.4	0.16	mg/kg			
Magnesium	7439-95-4	5900	709	3.1	mg/kg	*		
Manganese	7439-96-5	2060	2.1	0.087	mg/kg	*		
Zinc	7440-66-6	414	8.5	0.37	mg/kg			

Lab Sample Name: 6100166-08 **Sample No:** MH1H39 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11800	24.2	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	27.1	1.2	0.16	mg/kg	*	J	E
Calcium	7440-70-2	1570	605	7.0	mg/kg	*		
Copper	7440-50-8	127	3.0	0.062	mg/kg	*	J	A
Iron	7439-89-6	57600	48.4	4.0	mg/kg	D*	J	A
Lead	7439-92-1	487	1.2	0.13	mg/kg			
Magnesium	7439-95-4	6370	605	2.7	mg/kg	*	J	A
Manganese	7439-96-5	1320	1.8	0.074	mg/kg	*	J	E,A
Zinc	7440-66-6	397	7.3	0.31	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100166-09 **Sample No:** MH1H40 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10300	24.0	2.4	mg/kg	*		
Arsenic	7440-38-2	18.8	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	1990	599	6.9	mg/kg	*		
Copper	7440-50-8	101	3.0	0.061	mg/kg	*		
Iron	7439-89-6	69200	47.9	4.0	mg/kg	D*		
Lead	7439-92-1	611	1.2	0.13	mg/kg			
Magnesium	7439-95-4	5920	599	2.6	mg/kg	*		
Manganese	7439-96-5	985	1.8	0.073	mg/kg	*		
Zinc	7440-66-6	851	7.2	0.31	mg/kg			

Lab Sample Name: 6100166-10 **Sample No:** MH1H41 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9640	24.3	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	31.2	1.2	0.16	mg/kg	*	J	E
Calcium	7440-70-2	1390	608	7.1	mg/kg	*		
Copper	7440-50-8	156	3.0	0.062	mg/kg	*	J	A
Iron	7439-89-6	66300	48.6	4.0	mg/kg	D*	J	A
Lead	7439-92-1	1330	1.2	0.13	mg/kg			
Magnesium	7439-95-4	5050	608	2.7	mg/kg	*	J	A
Manganese	7439-96-5	1230	1.8	0.074	mg/kg	*	J	E,A
Zinc	7440-66-6	5300	29.2	1.3	mg/kg	D		

Lab Sample Name: 6100166-11 **Sample No:** MH1H42 **Sample Date:** 09/28/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7360	35.9	3.6	mg/kg	*		
Arsenic	7440-38-2	21.7	1.8	0.23	mg/kg	*		
Calcium	7440-70-2	876	897	10.4	mg/kg	J*	J	
Copper	7440-50-8	58.5	4.5	0.091	mg/kg	*		
Iron	7439-89-6	107000	71.8	6.0	mg/kg	D*		
Lead	7439-92-1	406	1.8	0.20	mg/kg			
Magnesium	7439-95-4	3160	897	3.9	mg/kg	*		
Manganese	7439-96-5	549	2.7	0.11	mg/kg	*		
Zinc	7440-66-6	589	10.8	0.47	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100166-12 **Sample No:** MH1H43 **Sample Date:** 09/28/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9310	25.8	2.6	mg/kg	*	J	A
Arsenic	7440-38-2	22.4	1.3	0.17	mg/kg	*	J	E
Calcium	7440-70-2	1290	644	7.5	mg/kg	*		
Copper	7440-50-8	98.9	3.2	0.066	mg/kg	*	J	A
Iron	7439-89-6	56100	51.5	4.3	mg/kg	D*	J	A
Lead	7439-92-1	580	1.3	0.14	mg/kg			
Magnesium	7439-95-4	5120	644	2.8	mg/kg	*	J	A
Manganese	7439-96-5	1080	1.9	0.079	mg/kg	*	J	E,A
Zinc	7440-66-6	765	7.7	0.33	mg/kg			

Lab Sample Name: 6100166-13 **Sample No:** MH1H44 **Sample Date:** 09/28/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6330	23.9	2.4	mg/kg	*		
Arsenic	7440-38-2	13.1	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	198	597	6.9	mg/kg	J*	J	
Copper	7440-50-8	22.2	3.0	0.061	mg/kg	*		
Iron	7439-89-6	29300	11.9	0.99	mg/kg	*		
Lead	7439-92-1	246	1.2	0.13	mg/kg			
Magnesium	7439-95-4	3850	597	2.6	mg/kg	*		
Manganese	7439-96-5	318	1.8	0.073	mg/kg	*		
Zinc	7440-66-6	37.4	7.2	0.31	mg/kg			

Lab Sample Name: 6100166-14 **Sample No:** MH1H45 **Sample Date:** 09/28/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6200	20.6	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	24.2	1.0	0.13	mg/kg	*	J	E
Calcium	7440-70-2	207	515	6.0	mg/kg	J*	J	
Copper	7440-50-8	21.6	2.6	0.053	mg/kg	*	J	A
Iron	7439-89-6	30400	10.3	0.86	mg/kg	*	J	A
Lead	7439-92-1	302	1.0	0.11	mg/kg			
Magnesium	7439-95-4	3020	515	2.3	mg/kg	*	J	A
Manganese	7439-96-5	259	1.5	0.063	mg/kg	*	J	E,A
Zinc	7440-66-6	64.4	6.2	0.27	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100166-15 **Sample No:** MH1H46 **Sample Date:** 09/29/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	3650	24.8	2.5	mg/kg	*		
Arsenic	7440-38-2	35.7	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	233	620	7.2	mg/kg	J*	J	
Copper	7440-50-8	23.8	3.1	0.063	mg/kg	*		
Iron	7439-89-6	36100	12.4	1.0	mg/kg	*		
Lead	7439-92-1	226	1.2	0.14	mg/kg			
Magnesium	7439-95-4	872	620	2.7	mg/kg	*		
Manganese	7439-96-5	69.5	1.9	0.076	mg/kg	*		
Zinc	7440-66-6	22.1	7.4	0.32	mg/kg			

Lab Sample Name: 6100166-16 **Sample No:** MH1H47 **Sample Date:** 09/29/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	3920	21.4	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	65.9	1.1	0.14	mg/kg	*	J	E
Calcium	7440-70-2	203	535	6.2	mg/kg	J*	J	
Copper	7440-50-8	22.2	2.7	0.055	mg/kg	*	J	A
Iron	7439-89-6	33400	10.7	0.89	mg/kg	*	J	A
Lead	7439-92-1	275	1.1	0.12	mg/kg			
Magnesium	7439-95-4	708	535	2.4	mg/kg	*	J	A
Manganese	7439-96-5	83.6	1.6	0.065	mg/kg	*	J	E,A
Zinc	7440-66-6	18.7	6.4	0.28	mg/kg			

Lab Sample Name: 6100166-17 **Sample No:** MH1H48 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12900	34.0	3.4	mg/kg	*		
Arsenic	7440-38-2	58.2	1.7	0.22	mg/kg	*		
Calcium	7440-70-2	1130	851	9.9	mg/kg	*		
Copper	7440-50-8	166	4.3	0.087	mg/kg	*		
Iron	7439-89-6	37800	17.0	1.4	mg/kg	*		
Lead	7439-92-1	807	1.7	0.19	mg/kg			
Magnesium	7439-95-4	2540	851	3.7	mg/kg	*		
Manganese	7439-96-5	365	2.6	0.10	mg/kg	*		
Zinc	7440-66-6	511	10.2	0.44	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100166-18 **Sample No:** MH1H49 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8670	22.9	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	77.5	1.1	0.15	mg/kg	*	J	E
Calcium	7440-70-2	283	573	6.6	mg/kg	J*	J	
Copper	7440-50-8	46.7	2.9	0.058	mg/kg	*	J	A
Iron	7439-89-6	46500	45.9	3.8	mg/kg	D*	J	A
Lead	7439-92-1	617	1.1	0.13	mg/kg			
Magnesium	7439-95-4	2790	573	2.5	mg/kg	*	J	A
Manganese	7439-96-5	204	1.7	0.070	mg/kg	*	J	E,A
Zinc	7440-66-6	352	6.9	0.30	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100166-01 **Sample No:** MH1H32 **Sample Date:** 09/29/2016 08:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.041	mg/kg	J*	U	B
Barium	7440-39-3	42.6	6.8	0.060	mg/kg	*		
Beryllium	7440-41-7	1.0	0.68	0.054	mg/kg			
Cadmium	7440-43-9	0.72	0.68	0.057	mg/kg			
Chromium	7440-47-3	5.0	1.4	0.11	mg/kg			
Cobalt	7440-48-4	11.0	0.68	0.041	mg/kg	*		
Molybdenum	7439-98-7	4.0	2.7	0.061	mg/kg	*		
Nickel	7440-02-0	3.6	0.68	0.061	mg/kg	*		
Selenium	7782-49-2	2.1	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	0.68	0.68	0.037	mg/kg	J*	U	B
Thallium	7440-28-0	0.68	0.68	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	31.6	3.4	0.11	mg/kg			

Lab Sample Name: 6100166-02 **Sample No:** MH1H33 **Sample Date:** 09/29/2016 08:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.2	1.2	0.037	mg/kg	*	J	Q
Barium	7440-39-3	79.3	6.2	0.055	mg/kg	*	J	A
Beryllium	7440-41-7	0.12	0.62	0.050	mg/kg	J	J	
Cadmium	7440-43-9	0.62	0.62	0.052	mg/kg	J	U	B
Chromium	7440-47-3	4.5	1.2	0.10	mg/kg			
Cobalt	7440-48-4	3.2	0.62	0.037	mg/kg	*	J	A
Molybdenum	7439-98-7	4.2	2.5	0.056	mg/kg	*		

Analysis Method ICP_MS

Nickel	7440-02-0	2.3	0.62	0.056	mg/kg	*	J	A
Selenium	7782-49-2	2.2	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	3.4	0.62	0.034	mg/kg	*	J	A
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	22.6	3.1	0.10	mg/kg			

Lab Sample Name: 6100166-03 **Sample No:** MH1H34 **Sample Date:** 09/29/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.9	2.6	0.077	mg/kg	*		
Barium	7440-39-3	82.2	12.9	0.11	mg/kg	*		
Beryllium	7440-41-7	0.39	1.3	0.10	mg/kg	J	J	
Cadmium	7440-43-9	1.3	1.3	0.11	mg/kg	J	U	B
Chromium	7440-47-3	6.7	2.6	0.21	mg/kg			
Cobalt	7440-48-4	4.3	1.3	0.077	mg/kg	*		
Molybdenum	7439-98-7	5.2	5.2	0.12	mg/kg	J*	U	B
Nickel	7440-02-0	2.7	1.3	0.12	mg/kg	*		
Selenium	7782-49-2	2.4	6.4	0.18	mg/kg	J	J	
Silver	7440-22-4	4.4	1.3	0.070	mg/kg	*		
Thallium	7440-28-0	1.3	1.3	0.098	mg/kg	J	U	B
Vanadium	7440-62-2	28.6	6.4	0.21	mg/kg			

Lab Sample Name: 6100166-04 **Sample No:** MH1H35 **Sample Date:** 09/29/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.5	1.1	0.034	mg/kg	*	J	Q
Barium	7440-39-3	54.9	5.6	0.050	mg/kg	*	J	A
Beryllium	7440-41-7	1.1	0.56	0.045	mg/kg			
Cadmium	7440-43-9	2.0	0.56	0.047	mg/kg			
Chromium	7440-47-3	7.0	1.1	0.093	mg/kg			
Cobalt	7440-48-4	5.5	0.56	0.034	mg/kg	*	J	A
Molybdenum	7439-98-7	7.2	2.3	0.051	mg/kg	*		
Nickel	7440-02-0	3.6	0.56	0.051	mg/kg	*	J	A
Selenium	7782-49-2	2.8	2.8	0.077	mg/kg			
Silver	7440-22-4	3.8	0.56	0.030	mg/kg	*	J	A
Thallium	7440-28-0	0.56	0.56	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	35.1	2.8	0.093	mg/kg			

Lab Sample Name: 6100166-05 **Sample No:** MH1H36 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.2	1.3	0.040	mg/kg	*		

Analysis Method ICP_MS

Barium	7440-39-3	49.4	6.7	0.059	mg/kg	*		
Beryllium	7440-41-7	0.24	0.67	0.054	mg/kg	J	J	
Cadmium	7440-43-9	0.67	0.67	0.057	mg/kg			
Chromium	7440-47-3	4.8	1.3	0.11	mg/kg			
Cobalt	7440-48-4	5.6	0.67	0.040	mg/kg	*		
Molybdenum	7439-98-7	4.7	2.7	0.061	mg/kg	*		
Nickel	7440-02-0	3.2	0.67	0.061	mg/kg	*		
Selenium	7782-49-2	2.0	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	5.8	0.67	0.036	mg/kg	*		
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	26.5	3.4	0.11	mg/kg			

Lab Sample Name: 6100166-06 **Sample No:** MH1H37 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.1	0.032	mg/kg	*	J	Q
Barium	7440-39-3	47.5	5.3	0.047	mg/kg	*	J	A
Beryllium	7440-41-7	0.22	0.53	0.043	mg/kg	J	J	
Cadmium	7440-43-9	0.66	0.53	0.045	mg/kg			
Chromium	7440-47-3	6.0	1.1	0.087	mg/kg			
Cobalt	7440-48-4	7.1	0.53	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	3.6	2.1	0.048	mg/kg	*		
Nickel	7440-02-0	3.9	0.53	0.048	mg/kg	*	J	A
Selenium	7782-49-2	2.0	2.7	0.072	mg/kg	J	J	
Silver	7440-22-4	1.9	0.53	0.029	mg/kg	*	J	A
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	32.1	2.7	0.087	mg/kg			

Lab Sample Name: 6100166-07 **Sample No:** MH1H38 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.043	mg/kg	J*	U	B
Barium	7440-39-3	57.0	7.1	0.062	mg/kg	*		
Beryllium	7440-41-7	1.1	0.71	0.057	mg/kg			
Cadmium	7440-43-9	1.1	0.71	0.060	mg/kg			
Chromium	7440-47-3	7.4	1.4	0.12	mg/kg			
Cobalt	7440-48-4	16.7	0.71	0.043	mg/kg	*		
Molybdenum	7439-98-7	4.1	2.8	0.064	mg/kg	*		
Nickel	7440-02-0	5.1	0.71	0.064	mg/kg	*		
Selenium	7782-49-2	2.6	3.5	0.096	mg/kg	J	J	
Silver	7440-22-4	0.84	0.71	0.038	mg/kg	*		
Thallium	7440-28-0	0.71	0.71	0.054	mg/kg	J	U	B

Vanadium	7440-62-2	39.5	3.5	0.12	mg/kg			

Lab Sample Name: 6100166-08 **Sample No:** MH1H39 **Sample Date:** 09/28/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.2	0.036	mg/kg	*	J	Q
Barium	7440-39-3	76.2	6.0	0.053	mg/kg	*	J	A
Beryllium	7440-41-7	0.52	0.60	0.048	mg/kg	J	J	
Cadmium	7440-43-9	0.96	0.60	0.051	mg/kg			
Chromium	7440-47-3	6.2	1.2	0.099	mg/kg			
Cobalt	7440-48-4	11.4	0.60	0.036	mg/kg	*	J	A
Molybdenum	7439-98-7	4.2	2.4	0.054	mg/kg	*		
Nickel	7440-02-0	4.1	0.60	0.054	mg/kg	*	J	A
Selenium	7782-49-2	3.3	3.0	0.082	mg/kg			
Silver	7440-22-4	1.8	0.60	0.033	mg/kg	*	J	A
Thallium	7440-28-0	0.6	0.60	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	37.4	3.0	0.099	mg/kg			

Lab Sample Name: 6100166-09 **Sample No:** MH1H40 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.0	1.2	0.036	mg/kg	*		
Barium	7440-39-3	39.9	6.1	0.053	mg/kg	*		
Beryllium	7440-41-7	0.26	0.61	0.048	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.61	0.051	mg/kg			
Chromium	7440-47-3	4.3	1.2	0.099	mg/kg			
Cobalt	7440-48-4	8.4	0.61	0.036	mg/kg	*		
Molybdenum	7439-98-7	5.4	2.4	0.054	mg/kg	*		
Nickel	7440-02-0	3.0	0.61	0.054	mg/kg	*		
Selenium	7782-49-2	1.6	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	1.8	0.61	0.033	mg/kg	*		
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	24.0	3.0	0.099	mg/kg			

Lab Sample Name: 6100166-10 **Sample No:** MH1H41 **Sample Date:** 09/28/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.6	1.2	0.036	mg/kg	*	J	Q
Barium	7440-39-3	56.6	6.1	0.054	mg/kg	*	J	A
Beryllium	7440-41-7	0.38	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	4.7	0.61	0.051	mg/kg			
Chromium	7440-47-3	7.1	1.2	0.10	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	7.1	0.61	0.036	mg/kg	*	J	A
Molybdenum	7439-98-7	5.2	2.4	0.055	mg/kg	*		
Nickel	7440-02-0	7.0	0.61	0.055	mg/kg	*	J	A
Selenium	7782-49-2	2.5	3.0	0.083	mg/kg	J	J	
Silver	7440-22-4	2.8	0.61	0.033	mg/kg	*	J	A
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	29.6	3.0	0.10	mg/kg			

Lab Sample Name: 6100166-11 **Sample No:** MH1H42 **Sample Date:** 09/28/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.3	1.8	0.054	mg/kg	*		
Barium	7440-39-3	60.6	9.0	0.079	mg/kg	*		
Beryllium	7440-41-7	0.29	0.90	0.072	mg/kg	J	J	
Cadmium	7440-43-9	2.1	0.90	0.075	mg/kg			
Chromium	7440-47-3	5.4	1.8	0.15	mg/kg			
Cobalt	7440-48-4	4.2	0.90	0.054	mg/kg	*		
Molybdenum	7439-98-7	5.2	3.6	0.081	mg/kg	*		
Nickel	7440-02-0	3.0	0.90	0.081	mg/kg	*		
Selenium	7782-49-2	2.1	4.5	0.12	mg/kg	J	J	
Silver	7440-22-4	2.8	0.90	0.048	mg/kg	*		
Thallium	7440-28-0	0.90	0.90	0.068	mg/kg	J	U	B
Vanadium	7440-62-2	45.5	4.5	0.15	mg/kg			

Lab Sample Name: 6100166-12 **Sample No:** MH1H43 **Sample Date:** 09/28/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	7.4	1.3	0.039	mg/kg	*	J	Q
Barium	7440-39-3	40.6	6.4	0.057	mg/kg	*	J	A
Beryllium	7440-41-7	0.20	0.64	0.052	mg/kg	J	J	
Cadmium	7440-43-9	3.4	0.64	0.054	mg/kg			
Chromium	7440-47-3	5.7	1.3	0.11	mg/kg			
Cobalt	7440-48-4	4.5	0.64	0.039	mg/kg	*	J	A
Molybdenum	7439-98-7	4.4	2.6	0.058	mg/kg	*		
Nickel	7440-02-0	3.4	0.64	0.058	mg/kg	*	J	A
Selenium	7782-49-2	2.0	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	2.0	0.64	0.035	mg/kg	*	J	A
Thallium	7440-28-0	0.64	0.64	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	31.6	3.2	0.11	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100166-13 **Sample No:** MH1H44 **Sample Date:** 09/28/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.9	1.2	0.036	mg/kg	*		
Barium	7440-39-3	33.9	6.0	0.053	mg/kg	*		
Beryllium	7440-41-7	0.60	0.60	0.048	mg/kg	U	U	
Cadmium	7440-43-9	0.60	0.60	0.051	mg/kg	J	U	B
Chromium	7440-47-3	2.7	1.2	0.099	mg/kg			
Cobalt	7440-48-4	0.60	0.60	0.036	mg/kg	J*	U	B
Molybdenum	7439-98-7	9.0	2.4	0.054	mg/kg	*		
Nickel	7440-02-0	0.70	0.60	0.054	mg/kg	*		
Selenium	7782-49-2	3.0	3.0	0.082	mg/kg			
Silver	7440-22-4	4.4	0.60	0.033	mg/kg	*		
Thallium	7440-28-0	0.60	0.60	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	12.8	3.0	0.099	mg/kg			

Lab Sample Name: 6100166-14 **Sample No:** MH1H45 **Sample Date:** 09/28/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.8	1.0	0.031	mg/kg	*	J	Q
Barium	7440-39-3	65.9	5.2	0.045	mg/kg	*	J	A
Beryllium	7440-41-7	0.083	0.52	0.041	mg/kg	J	J	
Cadmium	7440-43-9	0.52	0.52	0.043	mg/kg	J	U	B
Chromium	7440-47-3	3.9	1.0	0.084	mg/kg			
Cobalt	7440-48-4	0.69	0.52	0.031	mg/kg	*	J	A
Molybdenum	7439-98-7	6.7	2.1	0.046	mg/kg	*		
Nickel	7440-02-0	0.94	0.52	0.046	mg/kg	*	J	A
Selenium	7782-49-2	4.7	2.6	0.070	mg/kg			
Silver	7440-22-4	1.2	0.52	0.028	mg/kg	*	J	A
Thallium	7440-28-0	0.52	0.52	0.039	mg/kg	J	U	B
Vanadium	7440-62-2	17.5	2.6	0.084	mg/kg			

Lab Sample Name: 6100166-15 **Sample No:** MH1H46 **Sample Date:** 09/29/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.49	0.49	0.015	mg/kg	JD	U	B
Barium	7440-39-3	74.0	2.5	0.022	mg/kg	D		
Beryllium	7440-41-7	0.39	0.12	0.0099	mg/kg			
Cadmium	7440-43-9	5.9	0.25	0.021	mg/kg	D		
Chromium	7440-47-3	1.6	0.25	0.020	mg/kg			
Cobalt	7440-48-4	6.7	0.25	0.015	mg/kg	D		

Analysis Method ICP_MS

Molybdenum	7439-98-7	0.99	0.99	0.022	mg/kg	JD	U	B
Nickel	7440-02-0	5.5	0.25	0.022	mg/kg	D		
Selenium	7782-49-2	0.92	0.62	0.017	mg/kg			
Silver	7440-22-4	0.53	0.25	0.013	mg/kg	D		
Thallium	7440-28-0	0.25	0.25	0.019	mg/kg	JD	U	B
Vanadium	7440-62-2	9.7	0.62	0.020	mg/kg			

Lab Sample Name: 6100166-16 **Sample No:** MH1H47 **Sample Date:** 09/29/2016 17:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.9	1.1	0.032	mg/kg	*	J	Q
Barium	7440-39-3	118	5.4	0.047	mg/kg	*	J	A
Beryllium	7440-41-7	0.11	0.54	0.043	mg/kg	J	J	
Cadmium	7440-43-9	0.54	0.54	0.045	mg/kg	U	U	
Chromium	7440-47-3	5.5	1.1	0.088	mg/kg			
Cobalt	7440-48-4	1.1	0.54	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	4.5	2.1	0.048	mg/kg	*		
Nickel	7440-02-0	1.1	0.54	0.048	mg/kg	*	J	A
Selenium	7782-49-2	4.0	2.7	0.073	mg/kg			
Silver	7440-22-4	2.2	0.54	0.029	mg/kg	*	J	A
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	16.0	2.7	0.088	mg/kg			

Lab Sample Name: 6100166-17 **Sample No:** MH1H48 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.5	1.7	0.051	mg/kg	*		
Barium	7440-39-3	121	8.5	0.075	mg/kg	*		
Beryllium	7440-41-7	0.51	0.85	0.068	mg/kg	J	J	
Cadmium	7440-43-9	1.6	0.85	0.071	mg/kg			
Chromium	7440-47-3	4.1	1.7	0.14	mg/kg			
Cobalt	7440-48-4	3.7	0.85	0.051	mg/kg	*		
Molybdenum	7439-98-7	3.4	3.4	0.077	mg/kg	J*	U	B
Nickel	7440-02-0	2.4	0.85	0.077	mg/kg	*		
Selenium	7782-49-2	3.2	4.3	0.12	mg/kg	J	J	
Silver	7440-22-4	2.5	0.85	0.046	mg/kg	*		
Thallium	7440-28-0	0.85	0.85	0.065	mg/kg	J	U	B
Vanadium	7440-62-2	17.9	4.3	0.14	mg/kg			

Lab Sample Name: 6100166-18 **Sample No:** MH1H49 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	6.2	1.1	0.034	mg/kg	*	**J**	**Q**
Barium	7440-39-3	148	5.7	0.050	mg/kg	*	**J**	**A**
Beryllium	7440-41-7	0.13	0.57	0.046	mg/kg	J	**J**	
Cadmium	7440-43-9	0.84	0.57	0.048	mg/kg			
Chromium	7440-47-3	3.8	1.1	0.094	mg/kg			
Cobalt	7440-48-4	2.3	0.57	0.034	mg/kg	*	**J**	**A**
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J*	**U**	**B**
Nickel	7440-02-0	1.6	0.57	0.052	mg/kg	*	**J**	**A**
Selenium	7782-49-2	2.9	2.9	0.078	mg/kg			
Silver	7440-22-4	5.8	0.57	0.031	mg/kg	*	**J**	**A**
Thallium	7440-28-0	0.57	0.57	0.044	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	19.8	2.9	0.094	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1H50

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1H50
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1H50	6100167-01	Sediment	09/29/2016 15:15:00	Hg, ICP-AES, ICP-MS
MH1H51	6100167-02	Sediment	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1H52	6100167-03	Soil	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1H53	6100167-04	Sediment	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1H54	6100167-05	Soil	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1H55	6100167-06	Sediment	09/30/2016 08:42:00	Hg, ICP-AES, ICP-MS
MH1H56	6100167-07	Soil	09/30/2016 08:42:00	Hg, ICP-AES, ICP-MS
MH1H57	6100167-08	Sediment	09/30/2016 09:30:00	Hg, ICP-AES, ICP-MS
MH1H58	6100167-09	Soil	09/30/2016 09:30:00	Hg, ICP-AES, ICP-MS
MH1H59	6100167-10	Sediment	09/30/2016 09:50:00	Hg, ICP-AES, ICP-MS
MH1H60	6100167-11	Soil	09/30/2016 09:50:00	Hg, ICP-AES, ICP-MS
MH1H61	6100167-12	Sediment	09/30/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1H62	6100167-13	Soil	09/30/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1H63	6100167-14	Sediment	09/30/2016 11:15:00	Hg, ICP-AES, ICP-MS
MH1H64	6100167-15	Sediment	09/30/2016 11:50:00	Hg, ICP-AES, ICP-MS
MH1H65	6100167-16	Soil	09/30/2016 11:50:00	Hg, ICP-AES, ICP-MS
MH1H66	6100167-17	Sediment	09/30/2016 12:40:00	Hg, ICP-AES, ICP-MS
MH1H67	6100167-18	Soil	09/30/2016 12:40:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/22/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method and Calibration Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Method blank concentrations (mg/Kg)	Qualified Samples
cadmium	0.052 J (ICB), 0.047 J, 0.044 J, 0.043 J, 0.053 J, 0.062 J (ICB)		MH1H54, MH1H58, MH1H60, MH1H67, MH1H50, MH1H53, MH1H63, MH1H64, MH1H66
cobalt	0.053 J (ICB), 0.047 J, 0.041 J, 0.015 J (ICB), 0.042 J, 0.040 J, 0.038 J (ICB)		MH1H65, MH1H50
molybdenum	0.36 J, 0.32 J, 0.33 J, 0.29 J, 0.32 J	0.068 J	all samples except MH1H54
nickel		0.15 J	MH1H65, MH1H50
silver	0.051 J (ICB), 0.0068 J, 0.0065 J		MH1H56, MH1H60, MH1H62, MH1H67, MH1H50, MH1H53,

	0.017 J (ICB), 0.0069 J, 0.031 J (ICB)		MH1H59, MH1H61, MH1H63, MH1H66
thallium	0.12 J (ICB), 0.077 J, 0.076 J, 0.082 J, 0.075 J, 0.066 J (ICB)		all samples

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1H52. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J) and affected analyte non-detects were qualified as estimated (UJ).

Analyte	Duplicate Sample Result RPD	Qualified Samples
arsenic copper iron lead zinc	41% 32% 30% 39% 46%	All soil samples in the SDG. The sediment matrix samples are not qualified.
barium cobalt	25% 26%	All soil samples in the SDG.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1H52. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. A post-digestion spike was performed and was within acceptance limits for the affected analytes. Associated soil sample detects were qualified as estimated (J), and associated soil sample non-detects were qualified as estimated (UJ).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
copper manganese	66% / 91% 15% / 99%	All soil samples.
antimony molybdenum	62% / 94% 74% / 113%	All soil samples.

- Post Digestion Spike: A post digestion spike analyses were performed and assessed as above with the associated matrix spike analyses.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1H52. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
aluminum copper iron lead manganese zinc	17% 14% 17% 13% 18% 13%	All soil samples (J)
cadmium	11%	All soil samples (J/UJ)

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: Samples MH1J20/MH1H51, MH1J21/MH1H52, MH1J24/MH1H58 and MH1J25/MH1H59 were identified as field duplicate pairs. RPD were within the limits of ≤50% or ±RL for all analytes except manganese (59%) in pair MH1J20/MH1H51, antimony (86%), arsenic (58%), calcium (76%) and copper (51%) in pair MH1J21/MH1H52, barium (81%), cadmium (87%), cobalt 141%), nickel (122%), arsenic (100%), calcium (112%), copper (120%), iron (52%), lead (90%), magnesium (81%), manganese (142%), and zinc (158%) in pair MH1J24/MH1H58, and cadmium (113%) and zinc (117%) in pair MH1J25/MH1H59. These elements were qualified as estimated in the duplicate pairs.

Validated Sample Result Forms MH1H50

Analysis Method Hg

Lab Sample Name: 6100167-01 **Sample No:** MH1H50 **Sample Date:** 09/29/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.038	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100167-02 **Sample No:** MH1H51 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.089	0.14	0.0045	mg/kg	J	J	

Lab Sample Name: 6100167-03 **Sample No:** MH1H52 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.096	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100167-04 **Sample No:** MH1H53 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.041	0.15	0.0046	mg/kg	J	J	

Lab Sample Name: 6100167-05 **Sample No:** MH1H54 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.045	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100167-06 **Sample No:** MH1H55 **Sample Date:** 09/30/2016 08:42:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.13	0.0040	mg/kg			

Lab Sample Name: 6100167-07 **Sample No:** MH1H56 **Sample Date:** 09/30/2016 08:42:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.12	0.0038	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100167-08 **Sample No:** MH1H57 **Sample Date:** 09/30/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.35	0.17	0.0054	mg/kg			

Lab Sample Name: 6100167-09 **Sample No:** MH1H58 **Sample Date:** 09/30/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.081	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100167-10 **Sample No:** MH1H59 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.045	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100167-11 **Sample No:** MH1H60 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.028	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100167-12 **Sample No:** MH1H61 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.16	0.0050	mg/kg	J	J	

Lab Sample Name: 6100167-13 **Sample No:** MH1H62 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.073	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100167-14 **Sample No:** MH1H63 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.026	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100167-15 **Sample No:** MH1H64 **Sample Date:** 09/30/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.041	0.15	0.0047	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100167-16 **Sample No:** MH1H65 **Sample Date:** 09/30/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.063	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100167-17 **Sample No:** MH1H66 **Sample Date:** 09/30/2016 12:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.030	0.15	0.0047	mg/kg	J	J	

Lab Sample Name: 6100167-18 **Sample No:** MH1H67 **Sample Date:** 09/30/2016 12:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.073	0.14	0.0043	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100167-01 **Sample No:** MH1H50 **Sample Date:** 09/29/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	3100	24.2	2.4	mg/kg	*		
Arsenic	7440-38-2	51.8	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	143	606	7.0	mg/kg	J*	J	
Copper	7440-50-8	26.2	3.0	0.062	mg/kg	*		
Iron	7439-89-6	36200	12.1	1.0	mg/kg	*		
Lead	7439-92-1	275	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	675	606	2.7	mg/kg	*		
Manganese	7439-96-5	118	1.8	0.074	mg/kg	*		
Zinc	7440-66-6	75.2	7.3	0.32	mg/kg	*		

Lab Sample Name: 6100167-02 **Sample No:** MH1H51 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9110	28.1	2.8	mg/kg	*		
Arsenic	7440-38-2	46.6	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	1270	702	8.1	mg/kg	*		
Copper	7440-50-8	155	3.5	0.072	mg/kg	*		
Iron	7439-89-6	31800	14.0	1.2	mg/kg	*		
Lead	7439-92-1	664	1.4	0.15	mg/kg	*		
Magnesium	7439-95-4	1690	702	3.1	mg/kg	*		
Manganese	7439-96-5	353	2.1	0.086	mg/kg	*	J	F1

Zinc		7440-66-6	613	8.4	0.37	mg/kg	*		

Lab Sample Name: 6100167-03 **Sample No:** MH1H52 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6880	21.7	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	63.3	1.1	0.14	mg/kg	*	J	E, F1
Calcium	7440-70-2	1010	541	6.3	mg/kg	*	J	F1
Copper	7440-50-8	61.4	2.7	0.055	mg/kg	*	J	Q,E,A, F1
Iron	7439-89-6	42100	10.8	0.90	mg/kg	*	J	E,A
Lead	7439-92-1	568	1.1	0.12	mg/kg	*	J	E,A
Magnesium	7439-95-4	1970	541	2.4	mg/kg	*		
Manganese	7439-96-5	289	1.6	0.066	mg/kg	*	J	Q,A
Zinc	7440-66-6	898	6.5	0.28	mg/kg	*	J	E,A

Lab Sample Name: 6100167-04 **Sample No:** MH1H53 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6620	29.0	2.9	mg/kg	*		
Arsenic	7440-38-2	34.2	1.5	0.19	mg/kg	*		
Calcium	7440-70-2	927	725	8.4	mg/kg	*		
Copper	7440-50-8	94.9	3.6	0.074	mg/kg	*		
Iron	7439-89-6	34900	14.5	1.2	mg/kg	*		
Lead	7439-92-1	222	1.5	0.16	mg/kg	*		
Magnesium	7439-95-4	1930	725	3.2	mg/kg	*		
Manganese	7439-96-5	261	2.2	0.088	mg/kg	*		
Zinc	7440-66-6	212	8.7	0.38	mg/kg	*		

Lab Sample Name: 6100167-05 **Sample No:** MH1H54 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	4180	23.3	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	40.9	1.2	0.15	mg/kg	*	J	E
Calcium	7440-70-2	113	584	6.8	mg/kg	J*	J	
Copper	7440-50-8	20.5	2.9	0.060	mg/kg	*	J	Q,E,A
Iron	7439-89-6	29900	11.7	0.97	mg/kg	*	J	E,A
Lead	7439-92-1	101	1.2	0.13	mg/kg	*	J	E,A
Magnesium	7439-95-4	1010	584	2.6	mg/kg	*		
Manganese	7439-96-5	73.3	1.8	0.071	mg/kg	*	J	Q,A
Zinc	7440-66-6	33.6	7.0	0.30	mg/kg	*	J	E,A

Analysis Method ICP_AES

Lab Sample Name: 6100167-06 **Sample No:** MH1H55 **Sample Date:** 09/30/2016 08:42:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	4300	25.1	2.5	mg/kg	*		
Arsenic	7440-38-2	482	1.3	0.16	mg/kg	*		
Calcium	7440-70-2	540	628	7.3	mg/kg	J*	J	
Copper	7440-50-8	421	3.1	0.064	mg/kg	*		
Iron	7439-89-6	33400	12.6	1.0	mg/kg	*		
Lead	7439-92-1	492	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	1270	628	2.8	mg/kg	*		
Manganese	7439-96-5	184	1.9	0.077	mg/kg	*		
Zinc	7440-66-6	37.4	7.5	0.33	mg/kg	*		

Lab Sample Name: 6100167-07 **Sample No:** MH1H56 **Sample Date:** 09/30/2016 08:42:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7620	24.0	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	31.3	1.2	0.16	mg/kg	*	J	E
Calcium	7440-70-2	455	600	7.0	mg/kg	J*	J	
Copper	7440-50-8	13.4	3.0	0.061	mg/kg	*	J	Q,E,A
Iron	7439-89-6	25200	12.0	1.0	mg/kg	*	J	E,A
Lead	7439-92-1	72.5	1.2	0.13	mg/kg	*	J	E,A
Magnesium	7439-95-4	2180	600	2.6	mg/kg	*		
Manganese	7439-96-5	147	1.8	0.073	mg/kg	*	J	Q,A
Zinc	7440-66-6	47.5	7.2	0.31	mg/kg	*	J	E,A

Lab Sample Name: 6100167-08 **Sample No:** MH1H57 **Sample Date:** 09/30/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6370	34.0	3.4	mg/kg	*		
Arsenic	7440-38-2	91.7	1.7	0.22	mg/kg	*		
Calcium	7440-70-2	182	849	9.8	mg/kg	J*	J	
Copper	7440-50-8	67.8	4.2	0.087	mg/kg	*		
Iron	7439-89-6	42000	17.0	1.4	mg/kg	*		
Lead	7439-92-1	1770	1.7	0.19	mg/kg	*		
Magnesium	7439-95-4	1270	849	3.7	mg/kg	*		
Manganese	7439-96-5	78.9	2.5	0.10	mg/kg	*		
Zinc	7440-66-6	683	10.2	0.44	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100167-09 **Sample No:** MH1H58 **Sample Date:** 09/30/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9430	25.1	2.5	mg/kg	*	J	A
Arsenic	7440-38-2	36.1	1.3	0.16	mg/kg	*	J	E, F1
Calcium	7440-70-2	784	627	7.3	mg/kg	*	J	F1
Copper	7440-50-8	25.1	3.1	0.064	mg/kg	*	J	Q,E,A, F1
Iron	7439-89-6	26800	12.5	1.0	mg/kg	*	J	E,A, F1
Lead	7439-92-1	169	1.3	0.14	mg/kg	*	J	E,A, F1
Magnesium	7439-95-4	1980	627	2.8	mg/kg	*	J	F1
Manganese	7439-96-5	189	1.9	0.076	mg/kg	*	J	Q,A, F1
Zinc	7440-66-6	77.7	7.5	0.33	mg/kg	*	J	E,A, F1

Lab Sample Name: 6100167-10 **Sample No:** MH1H59 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11600	26.1	2.6	mg/kg	*		
Arsenic	7440-38-2	32.4	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	2520	652	7.6	mg/kg	*		
Copper	7440-50-8	87.9	3.3	0.066	mg/kg	*		
Iron	7439-89-6	39200	13.0	1.1	mg/kg	*		
Lead	7439-92-1	275	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	3740	652	2.9	mg/kg	*		
Manganese	7439-96-5	1120	2.0	0.080	mg/kg	*		
Zinc	7440-66-6	739	7.8	0.34	mg/kg	*	J	F1

Lab Sample Name: 6100167-11 **Sample No:** MH1H60 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10700	23.8	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	13.1	1.2	0.15	mg/kg	*	J	E
Calcium	7440-70-2	2160	594	6.9	mg/kg	*		
Copper	7440-50-8	49.6	3.0	0.061	mg/kg	*	J	Q,E,A
Iron	7439-89-6	27300	11.9	0.99	mg/kg	*	J	E,A
Lead	7439-92-1	211	1.2	0.13	mg/kg	*	J	E,A
Magnesium	7439-95-4	3380	594	2.6	mg/kg	*		
Manganese	7439-96-5	467	1.8	0.073	mg/kg	*	J	Q,A
Zinc	7440-66-6	142	7.1	0.31	mg/kg	*	J	E,A

Analysis Method ICP_AES

Lab Sample Name: 6100167-12 **Sample No:** MH1H61 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8330	31.3	3.1	mg/kg	*		
Arsenic	7440-38-2	10.5	1.6	0.20	mg/kg	*		
Calcium	7440-70-2	1840	783	9.1	mg/kg	*		
Copper	7440-50-8	32.2	3.9	0.080	mg/kg	*		
Iron	7439-89-6	18800	15.7	1.3	mg/kg	*		
Lead	7439-92-1	29.4	1.6	0.17	mg/kg	*		
Magnesium	7439-95-4	1930	783	3.4	mg/kg	*		
Manganese	7439-96-5	954	2.3	0.096	mg/kg	*		
Zinc	7440-66-6	798	9.4	0.41	mg/kg	*		

Lab Sample Name: 6100167-13 **Sample No:** MH1H62 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10500	24.5	2.5	mg/kg	*	J	A
Arsenic	7440-38-2	18.6	1.2	0.16	mg/kg	*	J	E
Calcium	7440-70-2	2620	613	7.1	mg/kg	*		
Copper	7440-50-8	21.3	3.1	0.063	mg/kg	*	J	Q,E,A
Iron	7439-89-6	24700	12.3	1.0	mg/kg	*	J	E,A
Lead	7439-92-1	100	1.2	0.13	mg/kg	*	J	E,A
Magnesium	7439-95-4	3380	613	2.7	mg/kg	*		
Manganese	7439-96-5	705	1.8	0.075	mg/kg	*	J	Q,A
Zinc	7440-66-6	211	7.4	0.32	mg/kg	*	J	E,A

Lab Sample Name: 6100167-14 **Sample No:** MH1H63 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7210	25.3	2.5	mg/kg	*		
Arsenic	7440-38-2	25.6	1.3	0.16	mg/kg	*		
Calcium	7440-70-2	1080	632	7.3	mg/kg	*		
Copper	7440-50-8	30.8	3.2	0.064	mg/kg	*		
Iron	7439-89-6	68300	37.9	3.1	mg/kg	D*		
Lead	7439-92-1	96.4	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	1990	632	2.8	mg/kg	*		
Manganese	7439-96-5	2180	1.9	0.077	mg/kg	*		
Zinc	7440-66-6	102	7.6	0.33	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100167-15 **Sample No:** MH1H64 **Sample Date:** 09/30/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5190	29.4	2.9	mg/kg	*		
Arsenic	7440-38-2	57.6	1.5	0.19	mg/kg	*		
Calcium	7440-70-2	1180	736	8.5	mg/kg	*		
Copper	7440-50-8	14.3	3.7	0.075	mg/kg	*		
Iron	7439-89-6	44300	14.7	1.2	mg/kg	*		
Lead	7439-92-1	767	1.5	0.16	mg/kg	*		
Magnesium	7439-95-4	516	736	3.2	mg/kg	J*	J	
Manganese	7439-96-5	189	2.2	0.090	mg/kg	*		
Zinc	7440-66-6	65.8	8.8	0.38	mg/kg	*		

Lab Sample Name: 6100167-16 **Sample No:** MH1H65 **Sample Date:** 09/30/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	3520	25.9	2.6	mg/kg	*	J	A
Arsenic	7440-38-2	44.8	1.3	0.17	mg/kg	*	J	E
Calcium	7440-70-2	57.8	647	7.5	mg/kg	J*	J	
Copper	7440-50-8	8.7	3.2	0.066	mg/kg	*	J	Q,E,A
Iron	7439-89-6	55600	12.9	1.1	mg/kg	*	J	E,A
Lead	7439-92-1	664	1.3	0.14	mg/kg	*	J	E,A
Magnesium	7439-95-4	171	647	2.8	mg/kg	J*	J	
Manganese	7439-96-5	9.0	1.9	0.079	mg/kg	*	J	Q,A
Zinc	7440-66-6	24.7	7.8	0.34	mg/kg	*	J	E,A

Lab Sample Name: 6100167-17 **Sample No:** MH1H66 **Sample Date:** 09/30/2016 12:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7100	29.6	3.0	mg/kg	*		
Arsenic	7440-38-2	68.4	1.5	0.19	mg/kg	*		
Calcium	7440-70-2	957	741	8.6	mg/kg	*		
Copper	7440-50-8	47.0	3.7	0.076	mg/kg	*		
Iron	7439-89-6	30900	14.8	1.2	mg/kg	*		
Lead	7439-92-1	430	1.5	0.16	mg/kg	*		
Magnesium	7439-95-4	1330	741	3.3	mg/kg	*		
Manganese	7439-96-5	965	2.2	0.090	mg/kg	*		
Zinc	7440-66-6	156	8.9	0.39	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100167-18 **Sample No:** MH1H67 **Sample Date:** 09/30/2016 12:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8720	27.0	2.7	mg/kg	*	J	A
Arsenic	7440-38-2	55.8	1.4	0.18	mg/kg	*	J	E
Calcium	7440-70-2	1320	675	7.8	mg/kg	*		
Copper	7440-50-8	14.7	3.4	0.069	mg/kg	*	J	Q,E,A
Iron	7439-89-6	41500	13.5	1.1	mg/kg	*	J	E,A
Lead	7439-92-1	600	1.4	0.15	mg/kg	*	J	E,A
Magnesium	7439-95-4	1510	675	3.0	mg/kg	*		
Manganese	7439-96-5	145	2.0	0.082	mg/kg	*	J	Q,A
Zinc	7440-66-6	48.4	8.1	0.35	mg/kg	*	J	E,A

Analysis Method ICP_MS

Lab Sample Name: 6100167-01 **Sample No:** MH1H50 **Sample Date:** 09/29/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.8	1.2	0.036	mg/kg	*		
Barium	7440-39-3	46.5	6.1	0.053	mg/kg	*		
Beryllium	7440-41-7	0.062	0.61	0.048	mg/kg	J	J	
Cadmium	7440-43-9	0.61	0.61	0.051	mg/kg	J*	U	B
Chromium	7440-47-3	1.5	1.2	0.099	mg/kg			
Cobalt	7440-48-4	0.61	0.61	0.036	mg/kg	J*	U	B
Molybdenum	7439-98-7	2.4	2.4	0.055	mg/kg	J*	U	B
Nickel	7440-02-0	0.61	0.61	0.055	mg/kg	J	U	B
Selenium	7782-49-2	1.4	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	0.61	0.61	0.033	mg/kg	J	U	B
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	6.6	3.0	0.099	mg/kg			

Lab Sample Name: 6100167-02 **Sample No:** MH1H51 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	1.4	0.042	mg/kg	*		
Barium	7440-39-3	61.1	7.0	0.062	mg/kg	*		
Beryllium	7440-41-7	0.41	0.70	0.056	mg/kg	J	J	
Cadmium	7440-43-9	1.4	0.70	0.059	mg/kg	*		
Chromium	7440-47-3	1.6	1.4	0.12	mg/kg			
Cobalt	7440-48-4	7.4	0.70	0.042	mg/kg	*		
Molybdenum	7439-98-7	2.8	2.8	0.063	mg/kg	J*	U	B

Analysis Method ICP_MS

Nickel	7440-02-0	3.1	0.70	0.063	mg/kg			
Selenium	7782-49-2	1.5	3.5	0.096	mg/kg	J	J	
Silver	7440-22-4	1.4	0.70	0.038	mg/kg			
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	8.9	3.5	0.12	mg/kg			

Lab Sample Name: 6100167-03 **Sample No:** MH1H52 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	1.1	0.032	mg/kg	*	J	Q, F1
Barium	7440-39-3	35.2	5.4	0.048	mg/kg	*	J	E
Beryllium	7440-41-7	0.17	0.54	0.043	mg/kg	J	J	
Cadmium	7440-43-9	3.5	0.54	0.045	mg/kg	*	J	A
Chromium	7440-47-3	1.9	1.1	0.089	mg/kg			
Cobalt	7440-48-4	2.1	0.54	0.032	mg/kg	*	J	E
Molybdenum	7439-98-7	2.2	2.2	0.049	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	1.3	0.54	0.049	mg/kg			
Selenium	7782-49-2	1.6	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	1.3	0.54	0.029	mg/kg			
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	12.1	2.7	0.089	mg/kg			

Lab Sample Name: 6100167-04 **Sample No:** MH1H53 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.5	0.044	mg/kg	*		
Barium	7440-39-3	77.1	7.3	0.064	mg/kg	*		
Beryllium	7440-41-7	0.40	0.73	0.058	mg/kg	J	J	
Cadmium	7440-43-9	0.73	0.73	0.061	mg/kg	J*	U	B
Chromium	7440-47-3	2.4	1.5	0.12	mg/kg			
Cobalt	7440-48-4	3.8	0.73	0.044	mg/kg	*		
Molybdenum	7439-98-7	2.9	2.9	0.065	mg/kg	J*	U	B
Nickel	7440-02-0	2.7	0.73	0.065	mg/kg			
Selenium	7782-49-2	2.1	3.6	0.099	mg/kg	J	J	
Silver	7440-22-4	0.73	0.73	0.039	mg/kg	J	U	B
Thallium	7440-28-0	0.73	0.73	0.055	mg/kg	J	U	B
Vanadium	7440-62-2	13.3	3.6	0.12	mg/kg			

Lab Sample Name: 6100167-05 **Sample No:** MH1H54 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.035	mg/kg	*	J	Q

Analysis Method ICP_MS

Barium	7440-39-3	114	5.8	0.051	mg/kg	*	J	E
Beryllium	7440-41-7	0.063	0.58	0.047	mg/kg	J	J	
Cadmium	7440-43-9	0.58	0.58	0.049	mg/kg	J*	UJ	B,A
Chromium	7440-47-3	2.0	1.2	0.096	mg/kg			
Cobalt	7440-48-4	0.65	0.58	0.035	mg/kg	*	J	E
Molybdenum	7439-98-7	2.6	2.3	0.053	mg/kg	*	J	Q
Nickel	7440-02-0	0.92	0.58	0.053	mg/kg			
Selenium	7782-49-2	2.4	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	0.62	0.58	0.032	mg/kg			
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	11.4	2.9	0.096	mg/kg			

Lab Sample Name: 6100167-06 **Sample No:** MH1H55 **Sample Date:** 09/30/2016 08:42:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	7.0	1.3	0.038	mg/kg	*		
Barium	7440-39-3	46.1	6.3	0.055	mg/kg	*		
Beryllium	7440-41-7	0.093	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	0.68	0.63	0.053	mg/kg	*		
Chromium	7440-47-3	1.9	1.3	0.10	mg/kg			
Cobalt	7440-48-4	1.8	0.63	0.038	mg/kg	*		
Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J*	U	B
Nickel	7440-02-0	1.2	0.63	0.057	mg/kg			
Selenium	7782-49-2	2.2	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	2.8	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	11.7	3.1	0.10	mg/kg			

Lab Sample Name: 6100167-07 **Sample No:** MH1H56 **Sample Date:** 09/30/2016 08:42:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.2	0.036	mg/kg		J	Q
Barium	7440-39-3	78.3	6.0	0.053	mg/kg	*	J	E
Beryllium	7440-41-7	0.11	0.60	0.048	mg/kg	J	J	
Cadmium	7440-43-9	0.60	0.60	0.050	mg/kg	U*	UJ	A
Chromium	7440-47-3	2.6	1.2	0.098	mg/kg			
Cobalt	7440-48-4	0.94	0.60	0.036	mg/kg	*	J	E
Molybdenum	7439-98-7	2.4	2.4	0.054	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	0.84	0.60	0.054	mg/kg			
Selenium	7782-49-2	1.5	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	0.60	0.60	0.032	mg/kg	J	U	B
Thallium	7440-28-0	0.60	0.60	0.046	mg/kg	J	U	B

Vanadium	7440-62-2	11.4	3.0	0.098	mg/kg			

Lab Sample Name: 6100167-08 **Sample No:** MH1H57 **Sample Date:** 09/30/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.4	1.7	0.051	mg/kg	*		
Barium	7440-39-3	113	8.5	0.075	mg/kg	*		
Beryllium	7440-41-7	0.12	0.85	0.068	mg/kg	J	J	
Cadmium	7440-43-9	3.1	0.85	0.071	mg/kg	*		
Chromium	7440-47-3	3.4	1.7	0.14	mg/kg			
Cobalt	7440-48-4	0.89	0.85	0.051	mg/kg	*		
Molybdenum	7439-98-7	3.4	3.4	0.076	mg/kg	J*	U	B
Nickel	7440-02-0	0.99	0.85	0.076	mg/kg			
Selenium	7782-49-2	2.1	4.2	0.12	mg/kg	J	J	
Silver	7440-22-4	8.0	0.85	0.046	mg/kg			
Thallium	7440-28-0	0.85	0.85	0.065	mg/kg	J	U	B
Vanadium	7440-62-2	21.1	4.2	0.14	mg/kg			

Lab Sample Name: 6100167-09 **Sample No:** MH1H58 **Sample Date:** 09/30/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	*	J	Q
Barium	7440-39-3	111	6.3	0.055	mg/kg	*	J	E, F1
Beryllium	7440-41-7	0.26	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	0.63	0.63	0.053	mg/kg	J*	UJ	B,A, F1
Chromium	7440-47-3	3.7	1.3	0.10	mg/kg			
Cobalt	7440-48-4	2.4	0.63	0.038	mg/kg	*	J	E, F1
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	UJ	B,Q
Nickel	7440-02-0	1.9	0.63	0.056	mg/kg		J	F1
Selenium	7782-49-2	1.4	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	0.88	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	17.9	3.1	0.10	mg/kg			

Lab Sample Name: 6100167-10 **Sample No:** MH1H59 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.3	0.039	mg/kg	J*	J	
Barium	7440-39-3	66.9	6.5	0.057	mg/kg	*		
Beryllium	7440-41-7	0.73	0.65	0.052	mg/kg			
Cadmium	7440-43-9	2.1	0.65	0.055	mg/kg	*	J	F1
Chromium	7440-47-3	3.0	1.3	0.11	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	13.1	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J*	U	B
Nickel	7440-02-0	7.1	0.65	0.059	mg/kg			
Selenium	7782-49-2	1.9	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	0.65	0.65	0.035	mg/kg	J	U	B
Thallium	7440-28-0	0.65	0.65	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	19.0	3.3	0.11	mg/kg			

Lab Sample Name: 6100167-11 **Sample No:** MH1H60 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.44	1.2	0.036	mg/kg	J*	J	Q
Barium	7440-39-3	84.1	5.9	0.052	mg/kg	*	J	E
Beryllium	7440-41-7	0.48	0.59	0.048	mg/kg	J	J	
Cadmium	7440-43-9	0.59	0.59	0.050	mg/kg	J*	UJ	B,A
Chromium	7440-47-3	3.2	1.2	0.097	mg/kg			
Cobalt	7440-48-4	8.7	0.59	0.036	mg/kg	*	J	E
Molybdenum	7439-98-7	2.4	2.4	0.054	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	4.5	0.59	0.054	mg/kg			
Selenium	7782-49-2	1.6	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	0.59	0.59	0.032	mg/kg	J	U	B
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	18.1	3.0	0.097	mg/kg			

Lab Sample Name: 6100167-12 **Sample No:** MH1H61 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.37	3.1	0.094	mg/kg	JD*	J	
Barium	7440-39-3	82.3	15.7	0.14	mg/kg	D*		
Beryllium	7440-41-7	1.5	0.78	0.063	mg/kg			
Cadmium	7440-43-9	3.6	1.6	0.13	mg/kg	D*		
Chromium	7440-47-3	2.4	1.6	0.13	mg/kg			
Cobalt	7440-48-4	23.9	1.6	0.094	mg/kg	D*		
Molybdenum	7439-98-7	6.3	6.3	0.14	mg/kg	JD*	U	B
Nickel	7440-02-0	19.3	1.6	0.14	mg/kg	D		
Selenium	7782-49-2	3.3	3.9	0.11	mg/kg	J	J	
Silver	7440-22-4	1.6	1.6	0.085	mg/kg	JD	U	B
Thallium	7440-28-0	1.6	1.6	0.12	mg/kg	JD	U	B
Vanadium	7440-62-2	17.5	3.9	0.13	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100167-13 **Sample No:** MH1H62 **Sample Date:** 09/30/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.50	1.2	0.037	mg/kg	J*	J	Q
Barium	7440-39-3	120	6.1	0.054	mg/kg	*	J	E
Beryllium	7440-41-7	0.57	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	0.76	0.61	0.052	mg/kg	*	J	A
Chromium	7440-47-3	2.5	1.2	0.10	mg/kg			
Cobalt	7440-48-4	10.4	0.61	0.037	mg/kg	*	J	E
Molybdenum	7439-98-7	2.5	2.5	0.055	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	4.7	0.61	0.055	mg/kg			
Selenium	7782-49-2	1.3	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	0.61	0.61	0.033	mg/kg	J	U	B
Thallium	7440-28-0	0.61	0.61	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	15.2	3.1	0.10	mg/kg			

Lab Sample Name: 6100167-14 **Sample No:** MH1H63 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.87	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	63.9	6.3	0.056	mg/kg	*		
Beryllium	7440-41-7	0.68	0.63	0.051	mg/kg			
Cadmium	7440-43-9	0.63	0.63	0.053	mg/kg	J*	U	B
Chromium	7440-47-3	1.9	1.3	0.10	mg/kg			
Cobalt	7440-48-4	10.6	0.63	0.038	mg/kg	*		
Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J*	U	B
Nickel	7440-02-0	6.4	0.63	0.057	mg/kg			
Selenium	7782-49-2	1.7	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	0.63	0.63	0.034	mg/kg	J	U	B
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	17.2	3.2	0.10	mg/kg			

Lab Sample Name: 6100167-15 **Sample No:** MH1H64 **Sample Date:** 09/30/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.57	1.5	0.044	mg/kg	J*	J	
Barium	7440-39-3	158	7.4	0.065	mg/kg	*		
Beryllium	7440-41-7	0.47	0.74	0.059	mg/kg	J	J	
Cadmium	7440-43-9	0.74	0.74	0.062	mg/kg	J*	U	B
Chromium	7440-47-3	1.2	1.5	0.12	mg/kg	J	J	
Cobalt	7440-48-4	3.9	0.74	0.044	mg/kg	*		

Analysis Method ICP_MS

Molybdenum	7439-98-7	2.9	2.9	0.066	mg/kg	J*	U	B
Nickel	7440-02-0	3.9	0.74	0.066	mg/kg			
Selenium	7782-49-2	1.8	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	1.0	0.74	0.040	mg/kg			
Thallium	7440-28-0	0.74	0.74	0.056	mg/kg	J	U	B
Vanadium	7440-62-2	20.2	3.7	0.12	mg/kg			

Lab Sample Name: 6100167-16 **Sample No:** MH1H65 **Sample Date:** 09/30/2016 11:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.55	1.3	0.039	mg/kg	J*	J	Q
Barium	7440-39-3	128	6.5	0.057	mg/kg	*	J	E
Beryllium	7440-41-7	0.056	0.65	0.052	mg/kg	J	J	
Cadmium	7440-43-9	0.65	0.65	0.054	mg/kg	U*	UJ	A
Chromium	7440-47-3	0.74	1.3	0.11	mg/kg	J	J	
Cobalt	7440-48-4	0.65	0.65	0.039	mg/kg	J*	UJ	B,E
Molybdenum	7439-98-7	2.6	2.6	0.058	mg/kg	J*	UJ	B,Q
Nickel	7440-02-0	0.65	0.65	0.058	mg/kg	J	U	B
Selenium	7782-49-2	1.5	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	1.9	0.65	0.035	mg/kg			
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	19.0	3.2	0.11	mg/kg			

Lab Sample Name: 6100167-17 **Sample No:** MH1H66 **Sample Date:** 09/30/2016 12:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.5	0.044	mg/kg	*		
Barium	7440-39-3	71.7	7.4	0.065	mg/kg	*		
Beryllium	7440-41-7	0.36	0.74	0.059	mg/kg	J	J	
Cadmium	7440-43-9	0.74	0.74	0.062	mg/kg	J*	U	B
Chromium	7440-47-3	3.0	1.5	0.12	mg/kg			
Cobalt	7440-48-4	20.4	0.74	0.044	mg/kg	*		
Molybdenum	7439-98-7	3.0	3.0	0.067	mg/kg	J*	U	B
Nickel	7440-02-0	3.4	0.74	0.067	mg/kg			
Selenium	7782-49-2	1.1	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	0.74	0.74	0.040	mg/kg	J	U	B
Thallium	7440-28-0	0.74	0.74	0.056	mg/kg	J	U	B
Vanadium	7440-62-2	18.0	3.7	0.12	mg/kg			

Lab Sample Name: 6100167-18 **Sample No:** MH1H67 **Sample Date:** 09/30/2016 12:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	2.6	1.4	0.041	mg/kg	*	**J**	**Q**
Barium	7440-39-3	152	6.8	0.059	mg/kg	*	**J**	**E**
Beryllium	7440-41-7	0.24	0.68	0.054	mg/kg	J	**J**	
Cadmium	7440-43-9	0.68	0.68	0.057	mg/kg	J*	**UJ**	**B,A**
Chromium	7440-47-3	3.8	1.4	0.11	mg/kg			
Cobalt	7440-48-4	2.3	0.68	0.041	mg/kg	*	**J**	**E**
Molybdenum	7439-98-7	2.7	2.7	0.061	mg/kg	J*	**UJ**	**B,Q**
Nickel	7440-02-0	1.9	0.68	0.061	mg/kg			
Selenium	7782-49-2	1.8	3.4	0.092	mg/kg	J	**J**	
Silver	7440-22-4	0.68	0.68	0.036	mg/kg	J	**U**	**B**
Thallium	7440-28-0	0.68	0.68	0.051	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	20.5	3.4	0.11	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1H68

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1H68
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1H68	6100168-01	Sediment	09/29/2016 10:40:00	Hg, ICP-AES, ICP-MS
MH1H69	6100168-02	Soil	09/29/2016 10:40:00	Hg, ICP-AES, ICP-MS
MH1H70	6100168-03	Sediment	09/29/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1H71	6100168-04	Soil	09/29/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1H72	6100168-05	Sediment	09/29/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1H73	6100168-06	Soil	09/29/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1H74	6100168-07	Sediment	09/29/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1H75	6100168-08	Soil	09/29/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1H76	6100168-09	Sediment	09/29/2016 09:15:00	Hg, ICP-AES, ICP-MS
MH1H77	6100168-10	Soil	09/29/2016 09:15:00	Hg, ICP-AES, ICP-MS
MH1H78	6100168-11	Sediment	09/29/2016 09:45:00	Hg, ICP-AES, ICP-MS
MH1H79	6100168-12	Soil	09/29/2016 09:45:00	Hg, ICP-AES, ICP-MS
MH1H80	6100168-13	Sediment	09/28/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1H81	6100168-14	Soil	09/28/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1H82	6100168-15	Sediment	09/28/2016 15:10:00	Hg, ICP-AES, ICP-MS
MH1H83	6100168-16	Soil	09/28/2016 15:10:00	Hg, ICP-AES, ICP-MS
MH1H84	6100168-17	Sediment	09/28/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1H85	6100168-18	Sediment	09/28/2016 08:45:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/22/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method and Calibration Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.
-

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
calcium	11.8 J, 12.1 J, 22.4 J	MH1H70, MH1H71, MH1H72, MH1H73, MH1H74, MH1H75, MH1H76, MH1H77, MH1H78, MH1H80, MH1H81
antimony	0.13 J (ICB)	MH1H84
cadmium	0.066 J, 0.11 J	MH1H68, MH1H69, MH1H70, MH1H73, MH1H74, MH1H75, MH1H77, MH1H79
molybdenum	0.38 J, 0.46 J	MH1H68, MH1H69, MH1H70, MH1H71, MH1H72, MH1H73, MH1H74, MH1H75, MH1H76, MH1H78, MH1H79, MH1H84
thallium	0.081 J, 0.10 J	all samples in the SDG
silver	0.020 J (ICB), 0.010 J, 0.014 J	MH1H68

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1H71. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J) and affected analyte non-detects were qualified as estimated (UJ).

Analyte	Duplicate Sample Result RPD	Qualified Samples
aluminum arsenic copper iron lead manganese zinc	35% 36% 34% 34% 21% 51% 27%	All soil samples in the SDG. The sediment matrix samples are not qualified.
antimony barium cadmium vanadium	36% 25% 38% 33%	All soil samples in the SDG.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1H71. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exception listed in the table below. A post-digestion spike was performed and was within acceptance limits for the affected analyte. Associated soil sample detects were qualified as estimated (J).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony	55% / 102%	All soils samples.

- Post Digestion Spike: A post digestion spike analysis was performed and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analyses were performed on sample MH1H71. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes.
- Internal Standards: Intensities for all site sample ICP-MS internal standards were within 60-125% relative intensity (%RI) of the response in the calibration blank for reported target analytes except as noted in the table below. All %RI infractions were >125%. The sample with %RI infractions was reanalyzed at a 2x dilution. When the diluted analyses passed internal standard criteria, results were

reported from the dilution. When the diluted analyses had %RI infractions, results were reported from the undiluted analysis. All associated sample result detects were qualified as estimated (J), and associated sample result non-detects were qualified as estimated (UJ).

Internal standard	Affected analytes	Qualified samples
Sc-45, Tb-159	antimony, barium, beryllium, cadmium, cobalt, nickel, and silver	MH1H85

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1H68

Analysis Method Hg

Lab Sample Name: 6100168-01 **Sample No:** MH1H68 **Sample Date:** 09/29/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.063	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100168-02 **Sample No:** MH1H69 **Sample Date:** 09/29/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.036	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100168-03 **Sample No:** MH1H70 **Sample Date:** 09/29/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.19	0.0060	mg/kg	J	J	

Lab Sample Name: 6100168-04 **Sample No:** MH1H71 **Sample Date:** 09/29/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.12	0.0040	mg/kg			

Lab Sample Name: 6100168-05 **Sample No:** MH1H72 **Sample Date:** 09/29/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100168-06 **Sample No:** MH1H73 **Sample Date:** 09/29/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.028	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100168-07 **Sample No:** MH1H74 **Sample Date:** 09/29/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.15	0.14	0.0046	mg/kg			

Analysis Method Hg

Lab Sample Name: 6100168-08 **Sample No:** MH1H75 **Sample Date:** 09/29/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.075	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100168-09 **Sample No:** MH1H76 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.24	0.18	0.0057	mg/kg			

Lab Sample Name: 6100168-10 **Sample No:** MH1H77 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.048	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100168-11 **Sample No:** MH1H78 **Sample Date:** 09/29/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.15	0.15	0.0047	mg/kg	J	J	

Lab Sample Name: 6100168-12 **Sample No:** MH1H79 **Sample Date:** 09/29/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.024	0.11	0.0037	mg/kg	J	J	

Lab Sample Name: 6100168-13 **Sample No:** MH1H80 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.17	0.17	0.0053	mg/kg			

Lab Sample Name: 6100168-14 **Sample No:** MH1H81 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.25	0.11	0.0034	mg/kg			

Lab Sample Name: 6100168-15 **Sample No:** MH1H82 **Sample Date:** 09/28/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.076	0.13	0.0041	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100168-16 **Sample No:** MH1H83 **Sample Date:** 09/28/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.26	0.11	0.0035	mg/kg			

Lab Sample Name: 6100168-17 **Sample No:** MH1H84 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.027	0.16	0.0052	mg/kg	J	J	

Lab Sample Name: 6100168-18 **Sample No:** MH1H85 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.044	0.20	0.0063	mg/kg	JD	J	

Analysis Method ICP_AES

Lab Sample Name: 6100168-01 **Sample No:** MH1H68 **Sample Date:** 09/29/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11600	30.9	2.2	mg/kg	*		
Arsenic	7440-38-2	38.9	1.5	0.17	mg/kg	*		
Calcium	7440-70-2	2080	772	4.3	mg/kg			
Copper	7440-50-8	14.1	3.9	0.063	mg/kg	*		
Iron	7439-89-6	32000	15.4	0.77	mg/kg	*		
Lead	7439-92-1	381	1.5	0.20	mg/kg	*		
Magnesium	7439-95-4	2650	772	3.1	mg/kg			
Manganese	7439-96-5	255	2.3	0.034	mg/kg	*		
Zinc	7440-66-6	48.5	9.3	0.076	mg/kg	*		

Lab Sample Name: 6100168-02 **Sample No:** MH1H69 **Sample Date:** 09/29/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5330	24.4	1.7	mg/kg	*	J	E
Arsenic	7440-38-2	35.1	1.2	0.13	mg/kg	*	J	E
Calcium	7440-70-2	877	611	3.4	mg/kg			
Copper	7440-50-8	22.5	3.1	0.050	mg/kg	*	J	E
Iron	7439-89-6	22500	12.2	0.61	mg/kg	*	J	E
Lead	7439-92-1	577	1.2	0.16	mg/kg	*	J	E
Magnesium	7439-95-4	1380	611	2.4	mg/kg			
Manganese	7439-96-5	190	1.8	0.027	mg/kg	*	J	E

Zinc		7440-66-6	102	7.3	0.060	mg/kg	*	J	E

Lab Sample Name: 6100168-03 **Sample No:** MH1H70 **Sample Date:** 09/29/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	4840	37.7	2.6	mg/kg	*		
Arsenic	7440-38-2	70.2	1.9	0.21	mg/kg	*		
Calcium	7440-70-2	942	942	5.3	mg/kg	J	U	B
Copper	7440-50-8	47.0	4.7	0.077	mg/kg	*		
Iron	7439-89-6	45500	18.8	0.94	mg/kg	*		
Lead	7439-92-1	591	1.9	0.24	mg/kg	*		
Magnesium	7439-95-4	890	942	3.8	mg/kg	J	J	
Manganese	7439-96-5	100	2.8	0.041	mg/kg	*		
Zinc	7440-66-6	161	11.3	0.092	mg/kg	*		

Lab Sample Name: 6100168-04 **Sample No:** MH1H71 **Sample Date:** 09/29/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	4990	24.9	1.7	mg/kg	*	J	E
Arsenic	7440-38-2	55.0	1.2	0.14	mg/kg	*	J	E
Calcium	7440-70-2	624	624	3.5	mg/kg	J	U	B
Copper	7440-50-8	47.8	3.1	0.051	mg/kg	*	J	E
Iron	7439-89-6	27600	12.5	0.62	mg/kg	*	J	E
Lead	7439-92-1	483	1.2	0.16	mg/kg	*	J	E
Magnesium	7439-95-4	1320	624	2.5	mg/kg			
Manganese	7439-96-5	136	1.9	0.027	mg/kg	*	J	E
Zinc	7440-66-6	638	7.5	0.061	mg/kg	*	J	E

Lab Sample Name: 6100168-05 **Sample No:** MH1H72 **Sample Date:** 09/29/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6400	30.8	2.2	mg/kg	*		
Arsenic	7440-38-2	52.2	1.5	0.17	mg/kg	*		
Calcium	7440-70-2	770	770	4.3	mg/kg	J	U	B
Copper	7440-50-8	47.2	3.9	0.063	mg/kg	*		
Iron	7439-89-6	40500	15.4	0.77	mg/kg	*		
Lead	7439-92-1	466	1.5	0.20	mg/kg	*		
Magnesium	7439-95-4	1820	770	3.1	mg/kg			
Manganese	7439-96-5	221	2.3	0.034	mg/kg	*		
Zinc	7440-66-6	299	9.2	0.075	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100168-06 **Sample No:** MH1H73 **Sample Date:** 09/29/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5430	25.3	1.8	mg/kg	*	J	E
Arsenic	7440-38-2	59.8	1.3	0.14	mg/kg	*	J	E
Calcium	7440-70-2	633	633	3.5	mg/kg	J	U	B
Copper	7440-50-8	28.0	3.2	0.052	mg/kg	*	J	E
Iron	7439-89-6	26900	12.7	0.63	mg/kg	*	J	E
Lead	7439-92-1	165	1.3	0.16	mg/kg	*	J	E
Magnesium	7439-95-4	1470	633	2.5	mg/kg			
Manganese	7439-96-5	190	1.9	0.028	mg/kg	*	J	E
Zinc	7440-66-6	35.0	7.6	0.062	mg/kg	*	J	E

Lab Sample Name: 6100168-07 **Sample No:** MH1H74 **Sample Date:** 09/29/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6320	28.5	2.0	mg/kg	*		
Arsenic	7440-38-2	123	1.4	0.16	mg/kg	*		
Calcium	7440-70-2	712	712	4.0	mg/kg	J	U	B
Copper	7440-50-8	58.0	3.6	0.058	mg/kg	*		
Iron	7439-89-6	39100	14.2	0.71	mg/kg	*		
Lead	7439-92-1	321	1.4	0.19	mg/kg	*		
Magnesium	7439-95-4	1500	712	2.8	mg/kg			
Manganese	7439-96-5	144	2.1	0.031	mg/kg	*		
Zinc	7440-66-6	87.5	8.5	0.070	mg/kg	*		

Lab Sample Name: 6100168-08 **Sample No:** MH1H75 **Sample Date:** 09/29/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5930	22.2	1.6	mg/kg	*	J	E
Arsenic	7440-38-2	61.8	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	556	556	3.1	mg/kg	J	U	B
Copper	7440-50-8	43.2	2.8	0.046	mg/kg	*	J	E
Iron	7439-89-6	37300	22.2	1.1	mg/kg	D*	J	E
Lead	7439-92-1	205	1.1	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	1220	556	2.2	mg/kg			
Manganese	7439-96-5	161	1.7	0.024	mg/kg	*	J	E
Zinc	7440-66-6	48.9	6.7	0.054	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100168-09 **Sample No:** MH1H76 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7490	35.9	2.5	mg/kg	*		
Arsenic	7440-38-2	114	1.8	0.20	mg/kg	*		
Calcium	7440-70-2	897	897	5.0	mg/kg	J	U	B
Copper	7440-50-8	66.4	4.5	0.074	mg/kg	*		
Iron	7439-89-6	56500	17.9	0.90	mg/kg	*		
Lead	7439-92-1	1040	1.8	0.23	mg/kg	*		
Magnesium	7439-95-4	1810	897	3.6	mg/kg			
Manganese	7439-96-5	183	2.7	0.039	mg/kg	*		
Zinc	7440-66-6	367	10.8	0.088	mg/kg	*		

Lab Sample Name: 6100168-10 **Sample No:** MH1H77 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	2280	21.2	1.5	mg/kg	*	J	E
Arsenic	7440-38-2	41.7	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	531	531	3.0	mg/kg	J	U	B
Copper	7440-50-8	18.3	2.7	0.044	mg/kg	*	J	E
Iron	7439-89-6	25800	10.6	0.53	mg/kg	*	J	E
Lead	7439-92-1	334	1.1	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	597	531	2.1	mg/kg			
Manganese	7439-96-5	84.5	1.6	0.023	mg/kg	*	J	E
Zinc	7440-66-6	23.5	6.4	0.052	mg/kg	*	J	E

Lab Sample Name: 6100168-11 **Sample No:** MH1H78 **Sample Date:** 09/29/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5240	29.7	2.1	mg/kg	*		
Arsenic	7440-38-2	58.9	1.5	0.16	mg/kg	*		
Calcium	7440-70-2	742	742	4.2	mg/kg	J	U	B
Copper	7440-50-8	41.8	3.7	0.061	mg/kg	*		
Iron	7439-89-6	38000	14.8	0.74	mg/kg	*		
Lead	7439-92-1	412	1.5	0.19	mg/kg	*		
Magnesium	7439-95-4	1480	742	3.0	mg/kg			
Manganese	7439-96-5	184	2.2	0.033	mg/kg	*		
Zinc	7440-66-6	221	8.9	0.073	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100168-12 **Sample No:** MH1H79 **Sample Date:** 09/29/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6590	22.9	1.6	mg/kg	*	J	E
Arsenic	7440-38-2	26.5	1.1	0.13	mg/kg	*	J	E
Calcium	7440-70-2	710	574	3.2	mg/kg			
Copper	7440-50-8	14.9	2.9	0.047	mg/kg	*	J	E
Iron	7439-89-6	42800	22.9	1.1	mg/kg	D*	J	E
Lead	7439-92-1	364	1.1	0.15	mg/kg	*	J	E
Magnesium	7439-95-4	3260	574	2.3	mg/kg			
Manganese	7439-96-5	360	1.7	0.025	mg/kg	*	J	E
Zinc	7440-66-6	33.6	6.9	0.056	mg/kg	*	J	E

Lab Sample Name: 6100168-13 **Sample No:** MH1H80 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6450	33.3	2.3	mg/kg	*		
Arsenic	7440-38-2	126	1.7	0.18	mg/kg	*		
Calcium	7440-70-2	832	832	4.7	mg/kg	J	U	B
Copper	7440-50-8	352	4.2	0.068	mg/kg	*		
Iron	7439-89-6	78200	33.3	1.7	mg/kg	D*		
Lead	7439-92-1	522	1.7	0.22	mg/kg	*		
Magnesium	7439-95-4	1940	832	3.3	mg/kg			
Manganese	7439-96-5	200	2.5	0.037	mg/kg	*		
Zinc	7440-66-6	501	10.0	0.082	mg/kg	*		

Lab Sample Name: 6100168-14 **Sample No:** MH1H81 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5350	21.2	1.5	mg/kg	*	J	E
Arsenic	7440-38-2	91.0	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	529	529	3.0	mg/kg	J	U	B
Copper	7440-50-8	67.2	2.6	0.043	mg/kg	*	J	E
Iron	7439-89-6	43300	21.2	1.1	mg/kg	D*	J	E
Lead	7439-92-1	398	1.1	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	1870	529	2.1	mg/kg			
Manganese	7439-96-5	200	1.6	0.023	mg/kg	*	J	E
Zinc	7440-66-6	382	6.4	0.052	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100168-15 **Sample No:** MH1H82 **Sample Date:** 09/28/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8080	25.5	1.8	mg/kg	*		
Arsenic	7440-38-2	29.8	1.3	0.14	mg/kg	*		
Calcium	7440-70-2	973	638	3.6	mg/kg			
Copper	7440-50-8	79.1	3.2	0.052	mg/kg	*		
Iron	7439-89-6	54300	25.5	1.3	mg/kg	D*		
Lead	7439-92-1	671	1.3	0.17	mg/kg	*		
Magnesium	7439-95-4	4380	638	2.6	mg/kg			
Manganese	7439-96-5	675	1.9	0.028	mg/kg	*		
Zinc	7440-66-6	1190	7.7	0.063	mg/kg	*		

Lab Sample Name: 6100168-16 **Sample No:** MH1H83 **Sample Date:** 09/28/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6950	21.8	1.5	mg/kg	*	J	E
Arsenic	7440-38-2	36.3	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	670	546	3.1	mg/kg			
Copper	7440-50-8	86.7	2.7	0.045	mg/kg	*	J	E
Iron	7439-89-6	49600	21.8	1.1	mg/kg	D*	J	E
Lead	7439-92-1	755	1.1	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	3800	546	2.2	mg/kg			
Manganese	7439-96-5	538	1.6	0.024	mg/kg	*	J	E
Zinc	7440-66-6	656	6.5	0.053	mg/kg	*	J	E

Lab Sample Name: 6100168-17 **Sample No:** MH1H84 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15400	32.4	2.3	mg/kg	*		
Arsenic	7440-38-2	14.1	1.6	0.18	mg/kg	*		
Calcium	7440-70-2	4380	810	4.5	mg/kg			
Copper	7440-50-8	65.7	4.1	0.066	mg/kg	*		
Iron	7439-89-6	33100	16.2	0.81	mg/kg	*		
Lead	7439-92-1	211	1.6	0.21	mg/kg	*		
Magnesium	7439-95-4	8770	810	3.2	mg/kg			
Manganese	7439-96-5	1310	2.4	0.036	mg/kg	*		
Zinc	7440-66-6	571	9.7	0.079	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100168-18 **Sample No:** MH1H85 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16400	19.5	1.4	mg/kg	*		
Arsenic	7440-38-2	156	0.98	0.11	mg/kg	*		
Calcium	7440-70-2	4990	488	2.7	mg/kg			
Copper	7440-50-8	482	2.4	0.040	mg/kg	*		
Iron	7439-89-6	926000	390	19.5	mg/kg	D*		
Lead	7439-92-1	687	0.98	0.13	mg/kg	*		
Magnesium	7439-95-4	4700	488	2.0	mg/kg			
Manganese	7439-96-5	3870	7.3	0.11	mg/kg	D*		
Zinc	7440-66-6	6180	29.3	0.24	mg/kg	D*		

Analysis Method ICP_MS

Lab Sample Name: 6100168-01 **Sample No:** MH1H68 **Sample Date:** 09/29/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.5	1.5	0.046	mg/kg	*		
Barium	7440-39-3	172	7.7	0.068	mg/kg	*		
Beryllium	7440-41-7	0.15	0.77	0.062	mg/kg	J	J	
Cadmium	7440-43-9	0.77	0.77	0.065	mg/kg	J*	U	B
Chromium	7440-47-3	5.3	1.5	0.13	mg/kg			
Cobalt	7440-48-4	2.3	0.77	0.046	mg/kg			
Molybdenum	7439-98-7	3.1	3.1	0.069	mg/kg	J	U	B
Nickel	7440-02-0	1.9	0.77	0.069	mg/kg			
Selenium	7782-49-2	2.5	3.9	0.10	mg/kg	J	J	
Silver	7440-22-4	0.77	0.77	0.042	mg/kg	J	U	B
Thallium	7440-28-0	0.77	0.77	0.059	mg/kg	J	U	B
Vanadium	7440-62-2	27.6	3.9	0.13	mg/kg	*		

Lab Sample Name: 6100168-02 **Sample No:** MH1H69 **Sample Date:** 09/29/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.7	1.2	0.037	mg/kg	*	J	Q,E
Barium	7440-39-3	118	6.1	0.054	mg/kg	*	J	E
Beryllium	7440-41-7	0.16	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	0.61	0.61	0.051	mg/kg	J*	UJ	B,E
Chromium	7440-47-3	4.0	1.2	0.10	mg/kg			
Cobalt	7440-48-4	1.9	0.61	0.037	mg/kg			
Molybdenum	7439-98-7	2.4	2.4	0.055	mg/kg	J	U	B

Nickel	7440-02-0	1.4	0.61	0.055	mg/kg			
Selenium	7782-49-2	1.9	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	3.3	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	21.3	3.1	0.10	mg/kg	*	J	E

Lab Sample Name: 6100168-03 **Sample No:** MH1H70 **Sample Date:** 09/29/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.1	1.9	0.057	mg/kg	*		
Barium	7440-39-3	131	9.4	0.083	mg/kg	*		
Beryllium	7440-41-7	0.94	0.94	0.075	mg/kg	U	U	
Cadmium	7440-43-9	0.94	0.94	0.079	mg/kg	J*	U	B
Chromium	7440-47-3	4.2	1.9	0.15	mg/kg			
Cobalt	7440-48-4	1.9	0.94	0.057	mg/kg			
Molybdenum	7439-98-7	3.8	3.8	0.085	mg/kg	J	U	B
Nickel	7440-02-0	1.7	0.94	0.085	mg/kg			
Selenium	7782-49-2	2.4	4.7	0.13	mg/kg	J	J	
Silver	7440-22-4	3.3	0.94	0.051	mg/kg			
Thallium	7440-28-0	0.94	0.94	0.072	mg/kg	J	U	B
Vanadium	7440-62-2	14.7	4.7	0.15	mg/kg	*		

Lab Sample Name: 6100168-04 **Sample No:** MH1H71 **Sample Date:** 09/29/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.0	1.2	0.037	mg/kg	*	J	Q,E
Barium	7440-39-3	82.7	6.2	0.055	mg/kg	*	J	E
Beryllium	7440-41-7	0.16	0.62	0.050	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.62	0.052	mg/kg	*	J	E
Chromium	7440-47-3	2.7	1.2	0.10	mg/kg			
Cobalt	7440-48-4	2.8	0.62	0.037	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	1.5	0.62	0.056	mg/kg			
Selenium	7782-49-2	2.1	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	2.0	0.62	0.034	mg/kg			
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	13.2	3.1	0.10	mg/kg	*	J	E

Lab Sample Name: 6100168-05 **Sample No:** MH1H72 **Sample Date:** 09/29/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.8	1.5	0.046	mg/kg	*		

Analysis Method ICP_MS

Barium	7440-39-3	103	7.7	0.068	mg/kg	*		
Beryllium	7440-41-7	0.16	0.77	0.062	mg/kg	J	J	
Cadmium	7440-43-9	1.0	0.77	0.065	mg/kg	*		
Chromium	7440-47-3	4.0	1.5	0.13	mg/kg			
Cobalt	7440-48-4	3.4	0.77	0.046	mg/kg			
Molybdenum	7439-98-7	3.1	3.1	0.069	mg/kg	J	U	B
Nickel	7440-02-0	1.9	0.77	0.069	mg/kg			
Selenium	7782-49-2	2.5	3.9	0.10	mg/kg	J	J	
Silver	7440-22-4	2.9	0.77	0.042	mg/kg			
Thallium	7440-28-0	0.77	0.77	0.059	mg/kg	J	U	B
Vanadium	7440-62-2	16.9	3.9	0.13	mg/kg	*		

Lab Sample Name: 6100168-06 **Sample No:** MH1H73 **Sample Date:** 09/29/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.8	1.3	0.038	mg/kg	*	J	Q,E
Barium	7440-39-3	224	6.3	0.056	mg/kg	*	J	E
Beryllium	7440-41-7	0.12	0.63	0.051	mg/kg	J	J	
Cadmium	7440-43-9	0.63	0.63	0.053	mg/kg	J*	UJ	B,E
Chromium	7440-47-3	3.8	1.3	0.10	mg/kg			
Cobalt	7440-48-4	2.4	0.63	0.038	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J	U	B
Nickel	7440-02-0	1.8	0.63	0.057	mg/kg			
Selenium	7782-49-2	2.4	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	0.90	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	20.4	3.2	0.10	mg/kg	*	J	E

Lab Sample Name: 6100168-07 **Sample No:** MH1H74 **Sample Date:** 09/29/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.1	1.4	0.043	mg/kg	*		
Barium	7440-39-3	150	7.1	0.063	mg/kg	*		
Beryllium	7440-41-7	0.12	0.71	0.057	mg/kg	J	J	
Cadmium	7440-43-9	0.71	0.71	0.060	mg/kg	J*	U	B
Chromium	7440-47-3	4.4	1.4	0.12	mg/kg			
Cobalt	7440-48-4	1.6	0.71	0.043	mg/kg			
Molybdenum	7439-98-7	2.8	2.8	0.064	mg/kg	J	U	B
Nickel	7440-02-0	1.5	0.71	0.064	mg/kg			
Selenium	7782-49-2	3.6	3.6	0.097	mg/kg			
Silver	7440-22-4	1.8	0.71	0.038	mg/kg			
Thallium	7440-28-0	0.71	0.71	0.054	mg/kg	J	U	B

Vanadium		7440-62-2	24.3	3.6	0.12	mg/kg	*		

Lab Sample Name: 6100168-08 **Sample No:** MH1H75 **Sample Date:** 09/29/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.5	1.1	0.033	mg/kg	*	J	Q,E
Barium	7440-39-3	268	5.6	0.049	mg/kg	*	J	E
Beryllium	7440-41-7	0.19	0.56	0.044	mg/kg	J	J	
Cadmium	7440-43-9	0.56	0.56	0.047	mg/kg	J*	UJ	B,E
Chromium	7440-47-3	5.6	1.1	0.091	mg/kg			
Cobalt	7440-48-4	1.2	0.56	0.033	mg/kg			
Molybdenum	7439-98-7	2.2	2.2	0.050	mg/kg	J	U	B
Nickel	7440-02-0	1.1	0.56	0.050	mg/kg			
Selenium	7782-49-2	2.6	2.8	0.076	mg/kg	J	J	
Silver	7440-22-4	1.0	0.56	0.030	mg/kg			
Thallium	7440-28-0	0.56	0.56	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	27.2	2.8	0.091	mg/kg	*	J	E

Lab Sample Name: 6100168-09 **Sample No:** MH1H76 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.7	1.8	0.054	mg/kg	*		
Barium	7440-39-3	197	9.0	0.079	mg/kg	*		
Beryllium	7440-41-7	0.12	0.90	0.072	mg/kg	J	J	
Cadmium	7440-43-9	1.1	0.90	0.075	mg/kg	*		
Chromium	7440-47-3	4.5	1.8	0.15	mg/kg			
Cobalt	7440-48-4	1.7	0.90	0.054	mg/kg			
Molybdenum	7439-98-7	3.6	3.6	0.081	mg/kg	J	U	B
Nickel	7440-02-0	1.5	0.90	0.081	mg/kg			
Selenium	7782-49-2	4.6	4.5	0.12	mg/kg			
Silver	7440-22-4	5.3	0.90	0.048	mg/kg			
Thallium	7440-28-0	0.9	0.90	0.068	mg/kg	J	U	B
Vanadium	7440-62-2	20.3	4.5	0.15	mg/kg	*		

Lab Sample Name: 6100168-10 **Sample No:** MH1H77 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	9.0	1.1	0.032	mg/kg	*	J	Q,E
Barium	7440-39-3	240	5.3	0.047	mg/kg	*	J	E
Beryllium	7440-41-7	0.051	0.53	0.042	mg/kg	J	J	
Cadmium	7440-43-9	0.53	0.53	0.045	mg/kg	J*	UJ	B,E
Chromium	7440-47-3	2.1	1.1	0.087	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	0.66	0.53	0.032	mg/kg			
Molybdenum	7439-98-7	2.5	2.1	0.048	mg/kg			
Nickel	7440-02-0	0.58	0.53	0.048	mg/kg			
Selenium	7782-49-2	3.5	2.7	0.072	mg/kg			
Silver	7440-22-4	3.0	0.53	0.029	mg/kg			
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	10.8	2.7	0.087	mg/kg	*	J	E

Lab Sample Name: 6100168-11 **Sample No:** MH1H78 **Sample Date:** 09/29/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.9	1.5	0.045	mg/kg	*		
Barium	7440-39-3	137	7.4	0.065	mg/kg	*		
Beryllium	7440-41-7	0.10	0.74	0.059	mg/kg	J	J	
Cadmium	7440-43-9	0.96	0.74	0.062	mg/kg	*		
Chromium	7440-47-3	3.9	1.5	0.12	mg/kg			
Cobalt	7440-48-4	2.2	0.74	0.045	mg/kg			
Molybdenum	7439-98-7	3.0	3.0	0.067	mg/kg	J	U	B
Nickel	7440-02-0	1.6	0.74	0.067	mg/kg			
Selenium	7782-49-2	3.2	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	2.5	0.74	0.040	mg/kg			
Thallium	7440-28-0	0.74	0.74	0.056	mg/kg	J	U	B
Vanadium	7440-62-2	17.1	3.7	0.12	mg/kg	*		

Lab Sample Name: 6100168-12 **Sample No:** MH1H79 **Sample Date:** 09/29/2016 09:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	1.1	0.034	mg/kg	*	J	Q,E
Barium	7440-39-3	116	5.7	0.050	mg/kg	*	J	E
Beryllium	7440-41-7	0.061	0.57	0.046	mg/kg	J	J	
Cadmium	7440-43-9	0.57	0.57	0.048	mg/kg	J*	UJ	B,E
Chromium	7440-47-3	3.2	1.1	0.094	mg/kg			
Cobalt	7440-48-4	1.2	0.57	0.034	mg/kg			
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J	U	B
Nickel	7440-02-0	0.88	0.57	0.052	mg/kg			
Selenium	7782-49-2	3.4	2.9	0.078	mg/kg			
Silver	7440-22-4	0.70	0.57	0.031	mg/kg			
Thallium	7440-28-0	0.57	0.57	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	25.3	2.9	0.094	mg/kg	*	J	E

Analysis Method ICP_MS

Lab Sample Name: 6100168-13 **Sample No:** MH1H80 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	12.1	1.7	0.050	mg/kg	*		
Barium	7440-39-3	164	8.3	0.073	mg/kg	*		
Beryllium	7440-41-7	0.14	0.83	0.067	mg/kg	J	J	
Cadmium	7440-43-9	2.1	0.83	0.070	mg/kg	*		
Chromium	7440-47-3	4.7	1.7	0.14	mg/kg			
Cobalt	7440-48-4	2.1	0.83	0.050	mg/kg			
Molybdenum	7439-98-7	3.6	3.3	0.075	mg/kg			
Nickel	7440-02-0	1.7	0.83	0.075	mg/kg			
Selenium	7782-49-2	3.9	4.2	0.11	mg/kg	J	J	
Silver	7440-22-4	4.9	0.83	0.045	mg/kg			
Thallium	7440-28-0	0.83	0.83	0.063	mg/kg	J	U	B
Vanadium	7440-62-2	50.7	4.2	0.14	mg/kg	*		

Lab Sample Name: 6100168-14 **Sample No:** MH1H81 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.4	1.1	0.032	mg/kg	*	J	Q,E
Barium	7440-39-3	99.2	5.3	0.047	mg/kg	*	J	E
Beryllium	7440-41-7	0.067	0.53	0.042	mg/kg	J	J	
Cadmium	7440-43-9	1.6	0.53	0.044	mg/kg	*	J	E
Chromium	7440-47-3	3.3	1.1	0.087	mg/kg			
Cobalt	7440-48-4	1.8	0.53	0.032	mg/kg			
Molybdenum	7439-98-7	2.8	2.1	0.048	mg/kg			
Nickel	7440-02-0	1.3	0.53	0.048	mg/kg			
Selenium	7782-49-2	2.9	2.6	0.072	mg/kg			
Silver	7440-22-4	3.1	0.53	0.029	mg/kg			
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	21.8	2.6	0.087	mg/kg	*	J	E

Lab Sample Name: 6100168-15 **Sample No:** MH1H82 **Sample Date:** 09/28/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.9	1.3	0.038	mg/kg	*		
Barium	7440-39-3	40.3	6.4	0.056	mg/kg	*		
Beryllium	7440-41-7	0.16	0.64	0.051	mg/kg	J	J	
Cadmium	7440-43-9	6.0	0.64	0.054	mg/kg	*		
Chromium	7440-47-3	4.1	1.3	0.10	mg/kg			
Cobalt	7440-48-4	3.3	0.64	0.038	mg/kg			

Analysis Method ICP_MS

Molybdenum	7439-98-7	3.5	2.6	0.057	mg/kg			
Nickel	7440-02-0	2.5	0.64	0.057	mg/kg			
Selenium	7782-49-2	1.6	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	1.7	0.64	0.034	mg/kg			
Thallium	7440-28-0	0.64	0.64	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	28.2	3.2	0.10	mg/kg	*		

Lab Sample Name: 6100168-16 **Sample No:** MH1H83 **Sample Date:** 09/28/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.7	1.1	0.033	mg/kg	*	J	Q,E
Barium	7440-39-3	58.6	5.5	0.048	mg/kg	*	J	E
Beryllium	7440-41-7	0.11	0.55	0.044	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.55	0.046	mg/kg	*	J	E
Chromium	7440-47-3	4.0	1.1	0.089	mg/kg			
Cobalt	7440-48-4	3.4	0.55	0.033	mg/kg			
Molybdenum	7439-98-7	4.9	2.2	0.049	mg/kg			
Nickel	7440-02-0	2.2	0.55	0.049	mg/kg			
Selenium	7782-49-2	2.4	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	4.9	0.55	0.029	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	25.7	2.7	0.089	mg/kg	*	J	E

Lab Sample Name: 6100168-17 **Sample No:** MH1H84 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.6	0.049	mg/kg	J*	U	B
Barium	7440-39-3	107	8.1	0.071	mg/kg	*		
Beryllium	7440-41-7	0.56	0.81	0.065	mg/kg	J	J	
Cadmium	7440-43-9	1.4	0.81	0.068	mg/kg	*		
Chromium	7440-47-3	8.5	1.6	0.13	mg/kg			
Cobalt	7440-48-4	13.6	0.81	0.049	mg/kg			
Molybdenum	7439-98-7	3.2	3.2	0.073	mg/kg	J	U	B
Nickel	7440-02-0	9.4	0.81	0.073	mg/kg			
Selenium	7782-49-2	2.4	4.1	0.11	mg/kg	J	J	
Silver	7440-22-4	1.0	0.81	0.044	mg/kg			
Thallium	7440-28-0	0.81	0.81	0.062	mg/kg	J	U	B
Vanadium	7440-62-2	29.0	4.1	0.13	mg/kg	*		

Lab Sample Name: 6100168-18 **Sample No:** MH1H85 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	4.9	0.97	0.029	mg/kg		J	*III
Barium	7440-39-3	54.3	4.8	0.043	mg/kg		J	*III
Beryllium	7440-41-7	6.6	0.48	0.039	mg/kg		J	*III
Cadmium	7440-43-9	5.5	0.48	0.041	mg/kg		J	*III
Chromium	7440-47-3	2.4	0.97	0.079	mg/kg			
Cobalt	7440-48-4	19.2	0.48	0.029	mg/kg		J	*III
Molybdenum	7439-98-7	10.7	1.9	0.044	mg/kg			
Nickel	7440-02-0	3.9	0.48	0.044	mg/kg		J	*III
Selenium	7782-49-2	5.3	2.4	0.066	mg/kg			
Silver	7440-22-4	1.0	0.48	0.026	mg/kg		J	*III
Thallium	7440-28-0	0.97	0.97	0.074	mg/kg	JD	U	B
Vanadium	7440-62-2	12.2	2.4	0.079	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1H86

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1H86
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1H86	6100169-01	Soil	09/28/2016 08:45:00	Hg, ICP-AES, ICP-MS
MH1H87	6100169-02	Sediment	09/28/2016 11:40:00	Hg, ICP-AES, ICP-MS
MH1H88	6100169-03	Soil	09/28/2016 11:40:00	Hg, ICP-AES, ICP-MS
MH1H89	6100169-04	Sediment	09/28/2016 10:40:00	Hg, ICP-AES, ICP-MS
MH1H90	6100169-05	Soil	09/28/2016 10:40:00	Hg, ICP-AES, ICP-MS
MH1H91	6100169-06	Sediment	09/27/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1H92	6100169-07	Soil	09/27/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1H93	6100169-08	Sediment	09/28/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1H94	6100169-09	Soil	09/28/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1H95	6100169-10	Sediment	09/27/2016 16:15:00	Hg, ICP-AES, ICP-MS
MH1H96	6100169-11	Soil	09/27/2016 16:15:00	Hg, ICP-AES, ICP-MS
MH1H97	6100169-12	Sediment	09/27/2016 14:40:00	Hg, ICP-AES, ICP-MS
MH1H98	6100169-13	Soil	09/27/2016 14:40:00	Hg, ICP-AES, ICP-MS
MH1H99	6100169-14	Sediment	09/27/2016 15:10:00	Hg, ICP-AES, ICP-MS
MH1J01	6100169-15	Soil	09/27/2016 17:20:00	Hg, ICP-AES, ICP-MS
MH1J02	6100169-16	Sediment	09/27/2016 13:20:00	Hg, ICP-AES, ICP-MS
MH1J03	6100169-17	Soil	09/27/2016 13:20:00	Hg, ICP-AES, ICP-MS
MH1J04	6100169-18	Sediment	09/27/2016 12:30:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/22/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method and Calibration Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
molybdenum	0.22 J, 0.24 J, 0.57 J, 0.66 J, 0.65 J	MH1H86, MH1H87, MH1H88, MH1H90, MH1H91, MH1H95, MH1H99, MH1J04
thallium	0.058 J (ICB), 0.082 J, 0.12 J (ICB), 0.24 J, 0.18 J (ICB), 0.34 J	All samples in the SDG.
antimony	0.21J, 0.20 J, 0.51 J (ICB), 0.18 J	MH1H87, MH1H97
silver	0.029 J (ICB), 0.021 J (ICB)	MH1H97, MH1H99

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1H86. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL

when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
arsenic zinc	36% 30%	All soil samples. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1H86. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exception listed in the table below. A post-digestion spike was performed and was within acceptance limits for the affected analyte. Associated soil sample detects were qualified as estimated (J).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony selenium	62% /91% 71% / 99%	All soil samples.

- Post Digestion Spike: A post digestion spike analysis was performed and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1H86. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
aluminum copper iron magnesium manganese cobalt	12% 12% 25% 14% 15% 13%	All soil samples (J)

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: Samples MH1J14/MH1H93 and MH1J15/MH1H94 were identified as field duplicate pairs. RPD were within the limits of ≤50% or ±RL for all analytes except silver (56%) and copper (52%) in pair MH1J14/MH1H93. These elements were qualified as estimated in the duplicate pair.

Validated Sample Result Forms MH1H86

Analysis Method Hg

Lab Sample Name: 6100169-01 **Sample No:** MH1H86 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.047	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100169-02 **Sample No:** MH1H87 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.059	0.14	0.0043	mg/kg	J	J	

Lab Sample Name: 6100169-03 **Sample No:** MH1H88 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.031	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100169-04 **Sample No:** MH1H89 **Sample Date:** 09/28/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.021	0.098	0.0031	mg/kg	J	J	

Lab Sample Name: 6100169-05 **Sample No:** MH1H90 **Sample Date:** 09/28/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.073	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100169-06 **Sample No:** MH1H91 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.14	0.0044	mg/kg	U	U	

Lab Sample Name: 6100169-07 **Sample No:** MH1H92 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.020	0.11	0.0034	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100169-08 **Sample No:** MH1H93 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0081	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100169-09 **Sample No:** MH1H94 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.042	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100169-10 **Sample No:** MH1H95 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.043	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100169-11 **Sample No:** MH1H96 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.041	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100169-12 **Sample No:** MH1H97 **Sample Date:** 09/27/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.010	0.095	0.0031	mg/kg	J	J	

Lab Sample Name: 6100169-13 **Sample No:** MH1H98 **Sample Date:** 09/27/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.29	0.11	0.0035	mg/kg			

Lab Sample Name: 6100169-14 **Sample No:** MH1H99 **Sample Date:** 09/27/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.14	0.0044	mg/kg	U	U	

Lab Sample Name: 6100169-15 **Sample No:** MH1J01 **Sample Date:** 09/27/2016 17:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.028	0.12	0.0037	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100169-16 **Sample No:** MH1J02 **Sample Date:** 09/27/2016 13:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.063	0.15	0.0050	mg/kg	J	J	

Lab Sample Name: 6100169-17 **Sample No:** MH1J03 **Sample Date:** 09/27/2016 13:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.032	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100169-18 **Sample No:** MH1J04 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.088	0.18	0.0058	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100169-01 **Sample No:** MH1H86 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11000	21.8	1.5	mg/kg	*	J	A
Arsenic	7440-38-2	46.3	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	1260	544	3.0	mg/kg	*		
Copper	7440-50-8	54.3	2.7	0.045	mg/kg	*	J	A
Iron	7439-89-6	40300	32.6	1.6	mg/kg	D*	J	A
Lead	7439-92-1	540	1.1	0.14	mg/kg			
Magnesium	7439-95-4	3930	544	2.2	mg/kg	*	J	A
Manganese	7439-96-5	585	1.6	0.024	mg/kg	*	J	A
Zinc	7440-66-6	285	6.5	0.053	mg/kg	*	J	E

Lab Sample Name: 6100169-02 **Sample No:** MH1H87 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18600	27.1	1.9	mg/kg	*		
Arsenic	7440-38-2	55.8	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	1450	677	3.8	mg/kg	*		
Copper	7440-50-8	182	3.4	0.056	mg/kg	*		
Iron	7439-89-6	58800	40.6	2.0	mg/kg	D*		
Lead	7439-92-1	2080	1.4	0.18	mg/kg			
Magnesium	7439-95-4	11100	677	2.7	mg/kg	*		
Manganese	7439-96-5	2500	6.1	0.089	mg/kg	D*		

Zinc		7440-66-6	2040	8.1	0.066	mg/kg	*		

Lab Sample Name: 6100169-03 **Sample No:** MH1H88 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11200	25.1	1.8	mg/kg	*	J	A
Arsenic	7440-38-2	73.5	1.3	0.14	mg/kg	*	J	E
Calcium	7440-70-2	1470	627	3.5	mg/kg	*		
Copper	7440-50-8	93.9	3.1	0.051	mg/kg	*	J	A
Iron	7439-89-6	40500	12.5	0.63	mg/kg	*	J	A
Lead	7439-92-1	1480	1.3	0.16	mg/kg			
Magnesium	7439-95-4	4850	627	2.5	mg/kg	*	J	A
Manganese	7439-96-5	1150	1.9	0.028	mg/kg	*	J	A
Zinc	7440-66-6	546	7.5	0.061	mg/kg	*	J	E

Lab Sample Name: 6100169-04 **Sample No:** MH1H89 **Sample Date:** 09/28/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9170	19.7	1.4	mg/kg			
Arsenic	7440-38-2	118	0.99	0.11	mg/kg			
Calcium	7440-70-2	3670	493	2.8	mg/kg			
Copper	7440-50-8	431	2.5	0.040	mg/kg			
Iron	7439-89-6	178000	98.7	4.9	mg/kg	D		
Lead	7439-92-1	897	0.99	0.13	mg/kg			
Magnesium	7439-95-4	1260	493	2.0	mg/kg			
Manganese	7439-96-5	2870	14.8	0.22	mg/kg	D		
Zinc	7440-66-6	1760	59.2	0.48	mg/kg	D		

Lab Sample Name: 6100169-05 **Sample No:** MH1H90 **Sample Date:** 09/28/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9870	21.3	1.5	mg/kg	*	J	A
Arsenic	7440-38-2	48.8	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	1120	534	3.0	mg/kg	*		
Copper	7440-50-8	76.5	2.7	0.044	mg/kg	*	J	A
Iron	7439-89-6	42700	32.0	1.6	mg/kg	D*	J	A
Lead	7439-92-1	890	1.1	0.14	mg/kg			
Magnesium	7439-95-4	3510	534	2.1	mg/kg	*	J	A
Manganese	7439-96-5	926	1.6	0.023	mg/kg	*	J	A
Zinc	7440-66-6	638	6.4	0.052	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100169-06 **Sample No:** MH1H91 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9010	27.8	1.9	mg/kg	*		
Arsenic	7440-38-2	41.6	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	1440	695	3.9	mg/kg	*		
Copper	7440-50-8	46.1	3.5	0.057	mg/kg	*		
Iron	7439-89-6	93700	55.6	2.8	mg/kg	D*		
Lead	7439-92-1	307	1.4	0.18	mg/kg			
Magnesium	7439-95-4	4980	695	2.8	mg/kg	*		
Manganese	7439-96-5	620	2.1	0.031	mg/kg	*		
Zinc	7440-66-6	299	8.3	0.068	mg/kg	*		

Lab Sample Name: 6100169-07 **Sample No:** MH1H92 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9170	21.3	1.5	mg/kg	*	J	A
Arsenic	7440-38-2	36.4	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	887	532	3.0	mg/kg	*		
Copper	7440-50-8	61.7	2.7	0.044	mg/kg	*	J	A
Iron	7439-89-6	57400	42.6	2.1	mg/kg	D*	J	A
Lead	7439-92-1	414	1.1	0.14	mg/kg			
Magnesium	7439-95-4	4920	532	2.1	mg/kg	*	J	A
Manganese	7439-96-5	650	1.6	0.023	mg/kg	*	J	A
Zinc	7440-66-6	577	6.4	0.052	mg/kg	*	J	E

Lab Sample Name: 6100169-08 **Sample No:** MH1H93 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8800	27.6	1.9	mg/kg	*		
Arsenic	7440-38-2	36.3	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	1470	689	3.9	mg/kg	*		
Copper	7440-50-8	141	3.4	0.056	mg/kg	*	J	F1
Iron	7439-89-6	86700	55.1	2.8	mg/kg	D*		
Lead	7439-92-1	359	1.4	0.18	mg/kg			
Magnesium	7439-95-4	5080	689	2.8	mg/kg	*		
Manganese	7439-96-5	668	2.1	0.030	mg/kg	*		
Zinc	7440-66-6	799	8.3	0.068	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100169-09 **Sample No:** MH1H94 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9290	25.0	1.8	mg/kg	*	J	A
Arsenic	7440-38-2	42.8	1.3	0.14	mg/kg	*	J	E
Calcium	7440-70-2	1160	626	3.5	mg/kg	*		
Copper	7440-50-8	122	3.1	0.051	mg/kg	*	J	A
Iron	7439-89-6	70500	50.1	2.5	mg/kg	D*	J	A
Lead	7439-92-1	626	1.3	0.16	mg/kg			
Magnesium	7439-95-4	4640	626	2.5	mg/kg	*	J	A
Manganese	7439-96-5	764	1.9	0.028	mg/kg	*	J	A
Zinc	7440-66-6	904	7.5	0.061	mg/kg	*	J	E

Lab Sample Name: 6100169-10 **Sample No:** MH1H95 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7700	27.4	1.9	mg/kg	*		
Arsenic	7440-38-2	56.4	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	957	684	3.8	mg/kg	*		
Copper	7440-50-8	26.1	3.4	0.056	mg/kg	*		
Iron	7439-89-6	52000	41.1	2.1	mg/kg	D*		
Lead	7439-92-1	493	1.4	0.18	mg/kg			
Magnesium	7439-95-4	3570	684	2.7	mg/kg	*		
Manganese	7439-96-5	345	2.1	0.030	mg/kg	*		
Zinc	7440-66-6	312	8.2	0.067	mg/kg	*		

Lab Sample Name: 6100169-11 **Sample No:** MH1H96 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9410	23.1	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	45.2	1.2	0.13	mg/kg	*	J	E
Calcium	7440-70-2	779	578	3.2	mg/kg	*		
Copper	7440-50-8	77.9	2.9	0.047	mg/kg	*	J	A
Iron	7439-89-6	56600	46.3	2.3	mg/kg	D*	J	A
Lead	7439-92-1	621	1.2	0.15	mg/kg			
Magnesium	7439-95-4	5200	578	2.3	mg/kg	*	J	A
Manganese	7439-96-5	575	1.7	0.025	mg/kg	*	J	A
Zinc	7440-66-6	502	6.9	0.057	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100169-12 **Sample No:** MH1H97 **Sample Date:** 09/27/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16800	19.8	1.4	mg/kg			
Arsenic	7440-38-2	64.9	0.99	0.11	mg/kg			
Calcium	7440-70-2	9330	495	2.8	mg/kg			
Copper	7440-50-8	416	2.5	0.041	mg/kg			
Iron	7439-89-6	83800	99.0	4.9	mg/kg	D		
Lead	7439-92-1	134	0.99	0.13	mg/kg			
Magnesium	7439-95-4	1890	495	2.0	mg/kg			
Manganese	7439-96-5	18600	14.8	0.22	mg/kg	D		
Zinc	7440-66-6	1310	59.4	0.48	mg/kg	D		

Lab Sample Name: 6100169-13 **Sample No:** MH1H98 **Sample Date:** 09/27/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8230	22.1	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	7.3	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	1060	554	3.1	mg/kg	*		
Copper	7440-50-8	58.2	2.8	0.045	mg/kg	*	J	A
Iron	7439-89-6	27200	11.1	0.55	mg/kg	*	J	A
Lead	7439-92-1	422	1.1	0.14	mg/kg			
Magnesium	7439-95-4	3410	554	2.2	mg/kg	*	J	A
Manganese	7439-96-5	385	1.7	0.024	mg/kg	*	J	A
Zinc	7440-66-6	101	6.6	0.054	mg/kg	*	J	E

Lab Sample Name: 6100169-14 **Sample No:** MH1H99 **Sample Date:** 09/27/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11100	27.6	1.9	mg/kg	*		
Arsenic	7440-38-2	11.5	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	2610	690	3.9	mg/kg	*		
Copper	7440-50-8	52.1	3.4	0.057	mg/kg	*		
Iron	7439-89-6	31400	13.8	0.69	mg/kg	*		
Lead	7439-92-1	119	1.4	0.18	mg/kg			
Magnesium	7439-95-4	5090	690	2.8	mg/kg	*		
Manganese	7439-96-5	811	2.1	0.030	mg/kg	*		
Zinc	7440-66-6	142	8.3	0.068	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100169-15 **Sample No:** MH1J01 **Sample Date:** 09/27/2016 17:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14800	23.1	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	31.8	1.2	0.13	mg/kg	*	J	E
Calcium	7440-70-2	2570	578	3.2	mg/kg	*		
Copper	7440-50-8	93.3	2.9	0.047	mg/kg	*	J	A
Iron	7439-89-6	65700	46.2	2.3	mg/kg	D*	J	A
Lead	7439-92-1	205	1.2	0.15	mg/kg			
Magnesium	7439-95-4	7660	578	2.3	mg/kg	*	J	A
Manganese	7439-96-5	960	1.7	0.025	mg/kg	*	J	A
Zinc	7440-66-6	177	6.9	0.057	mg/kg	*	J	E

Lab Sample Name: 6100169-16 **Sample No:** MH1J02 **Sample Date:** 09/27/2016 13:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8500	31.0	2.2	mg/kg	*		
Arsenic	7440-38-2	75.1	1.5	0.17	mg/kg	*		
Calcium	7440-70-2	1120	774	4.3	mg/kg	*		
Copper	7440-50-8	38.3	3.9	0.064	mg/kg	*		
Iron	7439-89-6	70300	62.0	3.1	mg/kg	D*		
Lead	7439-92-1	390	1.5	0.20	mg/kg			
Magnesium	7439-95-4	3530	774	3.1	mg/kg	*		
Manganese	7439-96-5	426	2.3	0.034	mg/kg	*		
Zinc	7440-66-6	402	9.3	0.076	mg/kg	*		

Lab Sample Name: 6100169-17 **Sample No:** MH1J03 **Sample Date:** 09/27/2016 13:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8380	22.6	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	57.2	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	635	566	3.2	mg/kg	*		
Copper	7440-50-8	48.9	2.8	0.046	mg/kg	*	J	A
Iron	7439-89-6	53100	33.9	1.7	mg/kg	D*	J	A
Lead	7439-92-1	343	1.1	0.15	mg/kg			
Magnesium	7439-95-4	4030	566	2.3	mg/kg	*	J	A
Manganese	7439-96-5	583	1.7	0.025	mg/kg	*	J	A
Zinc	7440-66-6	765	6.8	0.055	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100169-18 **Sample No:** MH1J04 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10100	36.5	2.6	mg/kg	*		
Arsenic	7440-38-2	83.0	1.8	0.20	mg/kg	*		
Calcium	7440-70-2	1430	912	5.1	mg/kg	*		
Copper	7440-50-8	41.0	4.6	0.075	mg/kg	*		
Iron	7439-89-6	74800	54.7	2.7	mg/kg	D*		
Lead	7439-92-1	447	1.8	0.24	mg/kg			
Magnesium	7439-95-4	4060	912	3.6	mg/kg	*		
Manganese	7439-96-5	438	2.7	0.040	mg/kg	*		
Zinc	7440-66-6	409	10.9	0.089	mg/kg	*		

Analysis Method ICP_MS

Lab Sample Name: 6100169-01 **Sample No:** MH1H86 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.82	1.1	0.033	mg/kg	J*	J	Q
Barium	7440-39-3	106	5.4	0.048	mg/kg			
Beryllium	7440-41-7	0.27	0.54	0.044	mg/kg	J	J	
Cadmium	7440-43-9	0.66	0.54	0.046	mg/kg			
Chromium	7440-47-3	2.7	1.1	0.089	mg/kg			
Cobalt	7440-48-4	3.4	0.54	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	2.2	2.2	0.049	mg/kg	J	U	B
Nickel	7440-02-0	2.3	0.54	0.049	mg/kg	*		
Selenium	7782-49-2	1.3	2.7	0.074	mg/kg	J*	J	Q
Silver	7440-22-4	1.5	0.54	0.029	mg/kg			
Thallium	7440-28-0	1.1	1.1	0.083	mg/kg	JD	U	B
Vanadium	7440-62-2	17.3	2.7	0.089	mg/kg			

Lab Sample Name: 6100169-02 **Sample No:** MH1H87 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.7	2.7	0.081	mg/kg	JD*	U	B
Barium	7440-39-3	56.4	13.5	0.12	mg/kg	D		
Beryllium	7440-41-7	0.34	0.68	0.054	mg/kg	J	J	
Cadmium	7440-43-9	3.5	0.68	0.057	mg/kg			
Chromium	7440-47-3	0.80	1.4	0.11	mg/kg	J	J	
Cobalt	7440-48-4	7.9	0.68	0.041	mg/kg	*		
Molybdenum	7439-98-7	2.7	2.7	0.061	mg/kg	J	U	B

Nickel	7440-02-0	1.8	0.68	0.061	mg/kg	*		
Selenium	7782-49-2	2.6	3.4	0.092	mg/kg	J*	J	
Silver	7440-22-4	3.6	0.68	0.037	mg/kg			
Thallium	7440-28-0	1.4	1.4	0.10	mg/kg	JD	U	B
Vanadium	7440-62-2	12.8	3.4	0.11	mg/kg			

Lab Sample Name: 6100169-03 **Sample No:** MH1H88 **Sample Date:** 09/28/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.7	2.5	0.075	mg/kg	D*	J	Q
Barium	7440-39-3	95.3	12.5	0.11	mg/kg	D		
Beryllium	7440-41-7	0.30	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	1.7	0.63	0.053	mg/kg			
Chromium	7440-47-3	1.4	1.3	0.10	mg/kg			
Cobalt	7440-48-4	8.1	0.63	0.038	mg/kg	*	J	A
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	1.9	0.63	0.056	mg/kg	*		
Selenium	7782-49-2	2.6	3.1	0.085	mg/kg	J*	J	Q
Silver	7440-22-4	3.5	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	16.7	3.1	0.10	mg/kg			

Lab Sample Name: 6100169-04 **Sample No:** MH1H89 **Sample Date:** 09/28/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.3	2.0	0.060	mg/kg	D		
Barium	7440-39-3	73.8	9.9	0.087	mg/kg	D		
Beryllium	7440-41-7	7.3	0.99	0.079	mg/kg	D		
Cadmium	7440-43-9	5.4	0.99	0.083	mg/kg	D		
Chromium	7440-47-3	2.7	0.99	0.081	mg/kg			
Cobalt	7440-48-4	48.6	0.99	0.060	mg/kg	D		
Molybdenum	7439-98-7	9.5	4.0	0.089	mg/kg	D		
Nickel	7440-02-0	4.0	0.99	0.089	mg/kg	D		
Selenium	7782-49-2	5.7	2.5	0.067	mg/kg			
Silver	7440-22-4	2.2	0.99	0.054	mg/kg	D		
Thallium	7440-28-0	0.99	0.99	0.075	mg/kg	JD	U	B
Vanadium	7440-62-2	15.4	2.5	0.081	mg/kg			

Lab Sample Name: 6100169-05 **Sample No:** MH1H90 **Sample Date:** 09/28/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.032	mg/kg	*	J	Q

Analysis Method ICP_MS

Barium	7440-39-3	87.2	5.3	0.047	mg/kg			
Beryllium	7440-41-7	0.27	0.53	0.043	mg/kg	J	J	
Cadmium	7440-43-9	3.7	0.53	0.045	mg/kg			
Chromium	7440-47-3	2.2	1.1	0.088	mg/kg			
Cobalt	7440-48-4	5.5	0.53	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	J	U	B
Nickel	7440-02-0	2.0	0.53	0.048	mg/kg	*		
Selenium	7782-49-2	1.7	2.7	0.073	mg/kg	J*	J	Q
Silver	7440-22-4	2.3	0.53	0.029	mg/kg			
Thallium	7440-28-0	0.53	0.53	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	16.6	2.7	0.088	mg/kg			

Lab Sample Name: 6100169-06 **Sample No:** MH1H91 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.4	0.042	mg/kg	J*	J	
Barium	7440-39-3	29.0	7.0	0.061	mg/kg			
Beryllium	7440-41-7	0.15	0.70	0.056	mg/kg	J	J	
Cadmium	7440-43-9	0.98	0.70	0.058	mg/kg			
Chromium	7440-47-3	3.8	1.4	0.11	mg/kg			
Cobalt	7440-48-4	3.2	0.70	0.042	mg/kg	*		
Molybdenum	7439-98-7	2.8	2.8	0.063	mg/kg	J	U	B
Nickel	7440-02-0	2.2	0.70	0.063	mg/kg	*		
Selenium	7782-49-2	1.2	3.5	0.095	mg/kg	J*	J	
Silver	7440-22-4	0.79	0.70	0.038	mg/kg			
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	26.3	3.5	0.11	mg/kg			

Lab Sample Name: 6100169-07 **Sample No:** MH1H92 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.2	1.1	0.032	mg/kg	*	J	Q
Barium	7440-39-3	48.8	5.3	0.047	mg/kg			
Beryllium	7440-41-7	0.14	0.53	0.043	mg/kg	J	J	
Cadmium	7440-43-9	1.0	0.53	0.045	mg/kg			
Chromium	7440-47-3	4.5	1.1	0.087	mg/kg			
Cobalt	7440-48-4	3.1	0.53	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	2.6	2.1	0.048	mg/kg			
Nickel	7440-02-0	2.3	0.53	0.048	mg/kg	*		
Selenium	7782-49-2	1.4	2.7	0.072	mg/kg	J*	J	Q
Silver	7440-22-4	1.6	0.53	0.029	mg/kg			
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B

Analysis Method ICP_MS

Vanadium	7440-62-2	27.2	2.7	0.087	mg/kg			

Lab Sample Name: 6100169-08 **Sample No:** MH1H93 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.4	0.041	mg/kg	*		
Barium	7440-39-3	32.6	6.9	0.061	mg/kg			
Beryllium	7440-41-7	0.19	0.69	0.055	mg/kg	J	J	
Cadmium	7440-43-9	2.6	0.69	0.058	mg/kg			
Chromium	7440-47-3	4.1	1.4	0.11	mg/kg			
Cobalt	7440-48-4	3.7	0.69	0.041	mg/kg	*		
Molybdenum	7439-98-7	3.1	2.8	0.062	mg/kg			
Nickel	7440-02-0	2.9	0.69	0.062	mg/kg	*		
Selenium	7782-49-2	1.4	3.4	0.094	mg/kg	J*	J	
Silver	7440-22-4	1.4	0.69	0.037	mg/kg		J	F1
Thallium	7440-28-0	0.69	0.69	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	32.0	3.4	0.11	mg/kg			

Lab Sample Name: 6100169-09 **Sample No:** MH1H94 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.8	1.3	0.038	mg/kg	*	J	Q
Barium	7440-39-3	50.2	6.3	0.055	mg/kg			
Beryllium	7440-41-7	0.26	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	2.7	0.63	0.053	mg/kg			
Chromium	7440-47-3	5.1	1.3	0.10	mg/kg			
Cobalt	7440-48-4	5.1	0.63	0.038	mg/kg	*	J	A
Molybdenum	7439-98-7	4.9	2.5	0.056	mg/kg			
Nickel	7440-02-0	2.9	0.63	0.056	mg/kg	*		
Selenium	7782-49-2	2.2	3.1	0.085	mg/kg	J*	J	Q
Silver	7440-22-4	2.6	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	34.6	3.1	0.10	mg/kg			

Lab Sample Name: 6100169-10 **Sample No:** MH1H95 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	9.5	1.4	0.041	mg/kg	*		
Barium	7440-39-3	69.3	6.8	0.060	mg/kg			
Beryllium	7440-41-7	0.18	0.68	0.055	mg/kg	J	J	
Cadmium	7440-43-9	0.86	0.68	0.057	mg/kg			
Chromium	7440-47-3	2.8	1.4	0.11	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	2.4	0.68	0.041	mg/kg	*		
Molybdenum	7439-98-7	2.7	2.7	0.062	mg/kg	J	U	B
Nickel	7440-02-0	1.8	0.68	0.062	mg/kg	*		
Selenium	7782-49-2	1.7	3.4	0.093	mg/kg	J*	J	
Silver	7440-22-4	2.7	0.68	0.037	mg/kg			
Thallium	7440-28-0	0.68	0.68	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	18.5	3.4	0.11	mg/kg			

Lab Sample Name: 6100169-11 **Sample No:** MH1H96 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.5	1.2	0.035	mg/kg	*	J	Q
Barium	7440-39-3	60.3	5.8	0.051	mg/kg			
Beryllium	7440-41-7	0.22	0.58	0.046	mg/kg	J	J	
Cadmium	7440-43-9	2.1	0.58	0.049	mg/kg			
Chromium	7440-47-3	4.4	1.2	0.095	mg/kg			
Cobalt	7440-48-4	4.9	0.58	0.035	mg/kg	*	J	A
Molybdenum	7439-98-7	3.9	2.3	0.052	mg/kg			
Nickel	7440-02-0	3.0	0.58	0.052	mg/kg	*		
Selenium	7782-49-2	2.2	2.9	0.079	mg/kg	J*	J	Q
Silver	7440-22-4	2.5	0.58	0.031	mg/kg			
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	29.6	2.9	0.095	mg/kg			

Lab Sample Name: 6100169-12 **Sample No:** MH1H97 **Sample Date:** 09/27/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.0	2.0	0.059	mg/kg	JD	U	B
Barium	7440-39-3	140	9.9	0.087	mg/kg	D		
Beryllium	7440-41-7	2.9	0.99	0.079	mg/kg	D		
Cadmium	7440-43-9	4.8	0.99	0.083	mg/kg	D		
Chromium	7440-47-3	9.8	0.99	0.081	mg/kg			
Cobalt	7440-48-4	45.8	0.99	0.059	mg/kg	D		
Molybdenum	7439-98-7	28.5	3.9	0.089	mg/kg	D		
Nickel	7440-02-0	18.7	0.99	0.089	mg/kg	D		
Selenium	7782-49-2	4.7	2.5	0.067	mg/kg			
Silver	7440-22-4	0.99	0.99	0.053	mg/kg	JD	U	B
Thallium	7440-28-0	0.99	0.99	0.075	mg/kg	JD	U	B
Vanadium	7440-62-2	49.6	2.5	0.081	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100169-13 **Sample No:** MH1H98 **Sample Date:** 09/27/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.8	1.1	0.033	mg/kg	*	J	Q
Barium	7440-39-3	106	5.5	0.049	mg/kg			
Beryllium	7440-41-7	0.11	0.55	0.044	mg/kg	J	J	
Cadmium	7440-43-9	0.47	0.55	0.047	mg/kg	J	J	
Chromium	7440-47-3	4.0	1.1	0.091	mg/kg			
Cobalt	7440-48-4	3.2	0.55	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	4.8	2.2	0.050	mg/kg			
Nickel	7440-02-0	3.2	0.55	0.050	mg/kg	*		
Selenium	7782-49-2	3.8	2.8	0.075	mg/kg	*	J	Q
Silver	7440-22-4	1.3	0.55	0.030	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	21.4	2.8	0.091	mg/kg			

Lab Sample Name: 6100169-14 **Sample No:** MH1H99 **Sample Date:** 09/27/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.93	1.4	0.041	mg/kg	J*	J	
Barium	7440-39-3	140	6.9	0.061	mg/kg			
Beryllium	7440-41-7	0.35	0.69	0.055	mg/kg	J	J	
Cadmium	7440-43-9	0.35	0.69	0.058	mg/kg	J	J	
Chromium	7440-47-3	5.5	1.4	0.11	mg/kg			
Cobalt	7440-48-4	8.6	0.69	0.041	mg/kg	*		
Molybdenum	7439-98-7	2.8	2.8	0.062	mg/kg	J	U	B
Nickel	7440-02-0	6.5	0.69	0.062	mg/kg	*		
Selenium	7782-49-2	2.9	3.4	0.094	mg/kg	J*	J	
Silver	7440-22-4	0.69	0.69	0.037	mg/kg	J	U	B
Thallium	7440-28-0	0.69	0.69	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	23.2	3.4	0.11	mg/kg			

Lab Sample Name: 6100169-15 **Sample No:** MH1J01 **Sample Date:** 09/27/2016 17:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.0	1.2	0.035	mg/kg	J*	J	Q
Barium	7440-39-3	109	5.8	0.051	mg/kg			
Beryllium	7440-41-7	0.29	0.58	0.046	mg/kg	J	J	
Cadmium	7440-43-9	0.29	0.58	0.049	mg/kg	J	J	
Chromium	7440-47-3	9.2	1.2	0.095	mg/kg			
Cobalt	7440-48-4	8.8	0.58	0.035	mg/kg	*	J	A

Analysis Method ICP_MS

Molybdenum	7439-98-7	3.0	2.3	0.052	mg/kg			
Nickel	7440-02-0	6.5	0.58	0.052	mg/kg	*		
Selenium	7782-49-2	2.1	2.9	0.079	mg/kg	J*	J	Q
Silver	7440-22-4	0.99	0.58	0.031	mg/kg			
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	20.9	2.9	0.095	mg/kg			

Lab Sample Name: 6100169-16 **Sample No:** MH1J02 **Sample Date:** 09/27/2016 13:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	11.9	1.5	0.046	mg/kg	*		
Barium	7440-39-3	70.7	7.7	0.068	mg/kg			
Beryllium	7440-41-7	0.24	0.77	0.062	mg/kg	J	J	
Cadmium	7440-43-9	1.2	0.77	0.065	mg/kg			
Chromium	7440-47-3	3.1	1.5	0.13	mg/kg			
Cobalt	7440-48-4	4.4	0.77	0.046	mg/kg	*		
Molybdenum	7439-98-7	3.3	3.1	0.070	mg/kg			
Nickel	7440-02-0	2.6	0.77	0.070	mg/kg	*		
Selenium	7782-49-2	2.4	3.9	0.11	mg/kg	J*	J	
Silver	7440-22-4	4.3	0.77	0.042	mg/kg			
Thallium	7440-28-0	0.77	0.77	0.059	mg/kg	J	U	B
Vanadium	7440-62-2	22.0	3.9	0.13	mg/kg			

Lab Sample Name: 6100169-17 **Sample No:** MH1J03 **Sample Date:** 09/27/2016 13:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.7	1.1	0.034	mg/kg	*	J	Q
Barium	7440-39-3	63.0	5.7	0.050	mg/kg			
Beryllium	7440-41-7	0.16	0.57	0.045	mg/kg	J	J	
Cadmium	7440-43-9	0.82	0.57	0.048	mg/kg			
Chromium	7440-47-3	5.0	1.1	0.093	mg/kg			
Cobalt	7440-48-4	3.5	0.57	0.034	mg/kg	*	J	A
Molybdenum	7439-98-7	2.7	2.3	0.051	mg/kg			
Nickel	7440-02-0	2.3	0.57	0.051	mg/kg	*		
Selenium	7782-49-2	1.7	2.8	0.077	mg/kg	J*	J	Q
Silver	7440-22-4	5.1	0.57	0.031	mg/kg			
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	27.8	2.8	0.093	mg/kg			

Lab Sample Name: 6100169-18 **Sample No:** MH1J04 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	13.3	1.8	0.055	mg/kg	*		
Barium	7440-39-3	90.5	9.1	0.080	mg/kg			
Beryllium	7440-41-7	0.26	0.91	0.073	mg/kg	J	**J**	
Cadmium	7440-43-9	1.4	0.91	0.077	mg/kg			
Chromium	7440-47-3	3.3	1.8	0.15	mg/kg			
Cobalt	7440-48-4	3.9	0.91	0.055	mg/kg	*		
Molybdenum	7439-98-7	3.6	3.6	0.082	mg/kg	J	**U**	**B**
Nickel	7440-02-0	2.6	0.91	0.082	mg/kg	*		
Selenium	7782-49-2	2.7	4.6	0.12	mg/kg	J*	**J**	
Silver	7440-22-4	4.5	0.91	0.049	mg/kg			
Thallium	7440-28-0	0.91	0.91	0.069	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	23.3	4.6	0.15	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1J05

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1J05
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1J05	6100170-01	Soil	09/27/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1J06	6100170-02	Sediment	09/27/2016 11:25:00	Hg, ICP-AES, ICP-MS
MH1J07	6100170-03	Soil	09/27/2016 11:25:00	Hg, ICP-AES, ICP-MS
MH1J08	6100170-04	Sediment	09/27/2016 09:35:00	Hg, ICP-AES, ICP-MS
MH1J09	6100170-05	Soil	09/27/2016 09:35:00	Hg, ICP-AES, ICP-MS
MH1J10	6100170-06	Sediment	09/27/2016 18:00:00	Hg, ICP-AES, ICP-MS
MH1J11	6100170-07	Soil	09/27/2016 18:00:00	Hg, ICP-AES, ICP-MS
MH1J12	6100170-08	Sediment	09/27/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1J13	6100170-09	Soil	09/27/2016 16:30:00	Hg, ICP-AES, ICP-MS
MH1J14	6100170-10	Sediment	09/28/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1J15	6100170-11	Soil	09/28/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1J16	6100170-12	Sediment	09/28/2016 17:50:00	Hg, ICP-AES, ICP-MS
MH1J17	6100170-13	Soil	09/28/2016 17:50:00	Hg, ICP-AES, ICP-MS
MH1J18	6100170-14	Sediment	09/29/2016 14:40:00	Hg, ICP-AES, ICP-MS
MH1J19	6100170-15	Soil	09/29/2016 14:40:00	Hg, ICP-AES, ICP-MS
MH1J20	6100170-16	Sediment	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1J21	6100170-17	Soil	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1J22	6100170-18	Sediment	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. According to the Sample Receipt Forms (SRF) the samples were received intact and properly preserved except as noted below. The chains of custody (COC) were signed and dated by field and/or laboratory personnel except as noted below. The samples were logged in by the laboratory for the total metals and mercury analyses. Custody seals were present; the

SRF indicated that 419 solid samples for Case 46282 were received on October 13, 2016 in 10 coolers via FedEx.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods 200.7, 200.8, and 7471B—Metals and Mercury

Reviewed By: K. Okonzak-Lowry
Date Reviewed: 1/23/2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding time, 28 days for mercury and six months for the other metals, was met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110%. The reporting limit check standards met laboratory recovery limits.
- Method and Calibration Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected sample results that were below the reporting limit (RL) were qualified as nondetect (U) at the RL.

Analyte	ICB/CCB blank concentrations (µg/L)	Qualified Samples
beryllium	0.13 J	all samples except MH1J13 and MH1J12
thallium	0.075 J	all samples
molybdenum	0.32 J	MH1J09, MH1J13, MH1J19, MH1J21, MH1J08, MH1J10, MH1J12, MH1J16, MH1J18, MH1J20, MH1J22
cadmium	0.053 J	MH1J06, MH1J08, MH1J10, MH1J16, MH1J22
silver	0.017 J (ICB)	MH1J16

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The LCS recoveries were within the laboratory control limits of 70-130% for all target analytes.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on soil sample MH1J05. All RPDs met the laboratory control limit of ≤20% for sample results >5xRL and results were within ±RL when the parent and/or duplicate results were <5xRL, with the exceptions noted in the table below. All soil sample detects for the affected analytes were qualified as estimated (J).

Analyte	Duplicate Sample Result RPD	Qualified Samples
zinc	28%	All soil samples. The sediment matrix samples are not qualified.

- Matrix Spike: Matrix spike analyses were performed on soil sample MH1J05. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%, with the exceptions listed in the table below. A post-digestion spike was performed and was within acceptance limits for the affected analytes. Associated soil sample detects were qualified as estimated (J).

Analyte	Matrix Spike Recovery / Post-Digestion Spike Recovery	Qualified Samples
antimony cadmium	69% / 95% 74% / 84%	All soil samples.

- Post Digestion Spike: Post digestion spike analyses were performed and assessed as above with the associated matrix spike analysis.
- Serial Dilution: Serial dilution analyses were performed on soil sample MH1J05. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes, with the exceptions noted in the table below.

Analyte	Serial Dilution %D	Qualified Samples
magnesium manganese nickel	12% 11% 31%	All soil samples (J)

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

All samples were diluted 5x for total ICP/MS analysis. Several samples were analyzed at dilutions due to exceeded linear range and/or internal standard infractions. The detected results for the dilutions were flagged with "D" by the laboratory. The reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: Samples MH1J14/MH1H93, MH1J15/MH1H94, MH1J18/MH1H48, MH1J19/MH1H49, MH1J20/MH1H51, MH1J21/MH1H52 and MH1J22/MH1H08 were identified as field duplicate pairs. RPD were within the limits of ≤50% or ±RL for all analytes except silver (56%) and copper (52%) in pair MH1J14/MH1H93, manganese (59%) in pair MH1J20/MH1H51, antimony (86%), arsenic (58%), calcium (76%) and copper (51%) in pair MH1J21/MH1H52, and arsenic (52%), iron (76%) and zinc (59%) in pair MH1J22/MH1H08. These elements were qualified as estimated in the duplicate pair.

Validated Sample Result Forms MH1J05

Analysis Method Hg

Lab Sample Name: 6100170-01 **Sample No:** MH1J05 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.038	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100170-02 **Sample No:** MH1J06 **Sample Date:** 09/27/2016 11:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.057	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100170-03 **Sample No:** MH1J07 **Sample Date:** 09/27/2016 11:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100170-04 **Sample No:** MH1J08 **Sample Date:** 09/27/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.035	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100170-05 **Sample No:** MH1J09 **Sample Date:** 09/27/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.061	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100170-06 **Sample No:** MH1J10 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.030	0.18	0.0056	mg/kg	J	J	

Lab Sample Name: 6100170-07 **Sample No:** MH1J11 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.038	0.10	0.0033	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100170-08 **Sample No:** MH1J12 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0091	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100170-09 **Sample No:** MH1J13 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.056	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100170-10 **Sample No:** MH1J14 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.027	0.14	0.0045	mg/kg	J	J	

Lab Sample Name: 6100170-11 **Sample No:** MH1J15 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.073	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100170-12 **Sample No:** MH1J16 **Sample Date:** 09/28/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.022	0.16	0.0052	mg/kg	J	J	

Lab Sample Name: 6100170-13 **Sample No:** MH1J17 **Sample Date:** 09/28/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.047	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100170-14 **Sample No:** MH1J18 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.17	0.0053	mg/kg	J	J	

Lab Sample Name: 6100170-15 **Sample No:** MH1J19 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.11	0.0035	mg/kg			

Analysis Method Hg

Lab Sample Name: 6100170-16 **Sample No:** MH1J20 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.17	0.0054	mg/kg	J	J	

Lab Sample Name: 6100170-17 **Sample No:** MH1J21 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.11	0.0034	mg/kg			

Lab Sample Name: 6100170-18 **Sample No:** MH1J22 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.69	0.18	0.0057	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100170-01 **Sample No:** MH1J05 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9870	23.1	2.3	mg/kg			
Arsenic	7440-38-2	36.2	1.2	0.15	mg/kg	*	J	Q
Calcium	7440-70-2	1140	577	6.7	mg/kg	*		
Copper	7440-50-8	90.0	2.9	0.059	mg/kg			
Iron	7439-89-6	58800	34.6	2.9	mg/kg	D		
Lead	7439-92-1	438	1.2	0.13	mg/kg			
Magnesium	7439-95-4	4710	577	2.5	mg/kg	*	J	A
Manganese	7439-96-5	703	1.7	0.070	mg/kg	*	J	A
Zinc	7440-66-6	841	6.9	0.30	mg/kg	*	J	E

Lab Sample Name: 6100170-02 **Sample No:** MH1J06 **Sample Date:** 09/27/2016 11:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9180	30.4	3.0	mg/kg			
Arsenic	7440-38-2	58.2	1.5	0.20	mg/kg	*		
Calcium	7440-70-2	1170	761	8.8	mg/kg	*		
Copper	7440-50-8	43.7	3.8	0.078	mg/kg			
Iron	7439-89-6	71100	30.4	2.5	mg/kg	D		
Lead	7439-92-1	351	1.5	0.17	mg/kg			
Magnesium	7439-95-4	3520	761	3.3	mg/kg	*		
Manganese	7439-96-5	394	2.3	0.093	mg/kg	*		

Zinc		7440-66-6	314	9.1	0.40	mg/kg	*		

Lab Sample Name: 6100170-03 **Sample No:** MH1J07 **Sample Date:** 09/27/2016 11:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9420	23.8	2.4	mg/kg			
Arsenic	7440-38-2	43.7	1.2	0.15	mg/kg	*	J	Q
Calcium	7440-70-2	1360	596	6.9	mg/kg	*		
Copper	7440-50-8	48.2	3.0	0.061	mg/kg			
Iron	7439-89-6	58800	35.7	3.0	mg/kg	D		
Lead	7439-92-1	279	1.2	0.13	mg/kg			
Magnesium	7439-95-4	4960	596	2.6	mg/kg	*	J	A
Manganese	7439-96-5	597	1.8	0.073	mg/kg	*	J	A
Zinc	7440-66-6	282	7.1	0.31	mg/kg	*	J	E

Lab Sample Name: 6100170-04 **Sample No:** MH1J08 **Sample Date:** 09/27/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6760	24.4	2.4	mg/kg			
Arsenic	7440-38-2	28.1	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	938	610	7.1	mg/kg	*		
Copper	7440-50-8	46.4	3.1	0.062	mg/kg			
Iron	7439-89-6	45300	24.4	2.0	mg/kg	D		
Lead	7439-92-1	203	1.2	0.13	mg/kg			
Magnesium	7439-95-4	3260	610	2.7	mg/kg	*		
Manganese	7439-96-5	372	1.8	0.074	mg/kg	*		
Zinc	7440-66-6	191	7.3	0.32	mg/kg	*		

Lab Sample Name: 6100170-05 **Sample No:** MH1J09 **Sample Date:** 09/27/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13200	22.3	2.2	mg/kg			
Arsenic	7440-38-2	41.9	1.1	0.14	mg/kg	*	J	Q
Calcium	7440-70-2	2580	557	6.5	mg/kg	*		
Copper	7440-50-8	163	2.8	0.057	mg/kg			
Iron	7439-89-6	43400	22.3	1.9	mg/kg	D		
Lead	7439-92-1	392	1.1	0.12	mg/kg			
Magnesium	7439-95-4	6280	557	2.5	mg/kg	*	J	A
Manganese	7439-96-5	778	1.7	0.068	mg/kg	*	J	A
Zinc	7440-66-6	286	6.7	0.29	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100170-06 **Sample No:** MH1J10 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10500	35.1	3.5	mg/kg			
Arsenic	7440-38-2	29.9	1.8	0.23	mg/kg	*		
Calcium	7440-70-2	1070	877	10.2	mg/kg	*		
Copper	7440-50-8	45.4	4.4	0.089	mg/kg			
Iron	7439-89-6	85700	52.6	4.4	mg/kg	D		
Lead	7439-92-1	371	1.8	0.19	mg/kg			
Magnesium	7439-95-4	5490	877	3.9	mg/kg	*		
Manganese	7439-96-5	884	2.6	0.11	mg/kg	*		
Zinc	7440-66-6	278	10.5	0.46	mg/kg	*		

Lab Sample Name: 6100170-07 **Sample No:** MH1J11 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9180	20.9	2.1	mg/kg			
Arsenic	7440-38-2	27.7	1.0	0.14	mg/kg	*	J	Q
Calcium	7440-70-2	964	523	6.1	mg/kg	*		
Copper	7440-50-8	53.4	2.6	0.053	mg/kg			
Iron	7439-89-6	43600	31.4	2.6	mg/kg	D		
Lead	7439-92-1	337	1.0	0.12	mg/kg			
Magnesium	7439-95-4	4720	523	2.3	mg/kg	*	J	A
Manganese	7439-96-5	607	1.6	0.064	mg/kg	*	J	A
Zinc	7440-66-6	700	6.3	0.27	mg/kg	*	J	E

Lab Sample Name: 6100170-08 **Sample No:** MH1J12 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10200	23.5	2.3	mg/kg			
Arsenic	7440-38-2	41.7	1.2	0.15	mg/kg	*		
Calcium	7440-70-2	1420	587	6.8	mg/kg	*		
Copper	7440-50-8	120	2.9	0.060	mg/kg			
Iron	7439-89-6	22700	11.7	0.97	mg/kg			
Lead	7439-92-1	238	1.2	0.13	mg/kg			
Magnesium	7439-95-4	4860	587	2.6	mg/kg	*		
Manganese	7439-96-5	1800	1.8	0.072	mg/kg	*		
Zinc	7440-66-6	355	7.0	0.31	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100170-09 **Sample No:** MH1J13 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19800	26.2	2.6	mg/kg			
Arsenic	7440-38-2	31.3	1.3	0.17	mg/kg	*	J	Q
Calcium	7440-70-2	2370	655	7.6	mg/kg	*		
Copper	7440-50-8	218	3.3	0.067	mg/kg			
Iron	7439-89-6	30100	13.1	1.1	mg/kg			
Lead	7439-92-1	584	1.3	0.14	mg/kg			
Magnesium	7439-95-4	4880	655	2.9	mg/kg	*	J	A
Manganese	7439-96-5	10800	9.8	0.40	mg/kg	D*	J	A
Zinc	7440-66-6	863	7.9	0.34	mg/kg	*	J	E

Lab Sample Name: 6100170-10 **Sample No:** MH1J14 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9150	28.1	2.8	mg/kg			
Arsenic	7440-38-2	42.2	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	1500	701	8.1	mg/kg	*		
Copper	7440-50-8	82.4	3.5	0.072	mg/kg		J	F1
Iron	7439-89-6	72900	56.1	4.7	mg/kg	D		
Lead	7439-92-1	469	1.4	0.15	mg/kg			
Magnesium	7439-95-4	4640	701	3.1	mg/kg	*		
Manganese	7439-96-5	642	2.1	0.086	mg/kg	*		
Zinc	7440-66-6	1180	8.4	0.36	mg/kg	*		

Lab Sample Name: 6100170-11 **Sample No:** MH1J15 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9550	24.2	2.4	mg/kg			
Arsenic	7440-38-2	52.1	1.2	0.16	mg/kg	*	J	Q
Calcium	7440-70-2	1040	605	7.0	mg/kg	*		
Copper	7440-50-8	113	3.0	0.062	mg/kg			
Iron	7439-89-6	62200	36.3	3.0	mg/kg	D		
Lead	7439-92-1	467	1.2	0.13	mg/kg			
Magnesium	7439-95-4	4570	605	2.7	mg/kg	*	J	A
Manganese	7439-96-5	857	1.8	0.074	mg/kg	*	J	A
Zinc	7440-66-6	555	7.3	0.31	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100170-12 **Sample No:** MH1J16 **Sample Date:** 09/28/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13800	32.4	3.2	mg/kg			
Arsenic	7440-38-2	14.5	1.6	0.21	mg/kg	*		
Calcium	7440-70-2	2460	811	9.4	mg/kg	*		
Copper	7440-50-8	127	4.1	0.083	mg/kg			
Iron	7439-89-6	62700	32.4	2.7	mg/kg	D		
Lead	7439-92-1	216	1.6	0.18	mg/kg			
Magnesium	7439-95-4	6150	811	3.6	mg/kg	*		
Manganese	7439-96-5	1670	2.4	0.099	mg/kg	*		
Zinc	7440-66-6	374	9.7	0.42	mg/kg	*		

Lab Sample Name: 6100170-13 **Sample No:** MH1J17 **Sample Date:** 09/28/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12600	22.3	2.2	mg/kg			
Arsenic	7440-38-2	13.4	1.1	0.15	mg/kg	*	J	Q
Calcium	7440-70-2	1950	558	6.5	mg/kg	*		
Copper	7440-50-8	75.1	2.8	0.057	mg/kg			
Iron	7439-89-6	53900	33.5	2.8	mg/kg	D		
Lead	7439-92-1	212	1.1	0.12	mg/kg			
Magnesium	7439-95-4	7770	558	2.5	mg/kg	*	J	A
Manganese	7439-96-5	987	1.7	0.068	mg/kg	*	J	A
Zinc	7440-66-6	249	6.7	0.29	mg/kg	*	J	E

Lab Sample Name: 6100170-14 **Sample No:** MH1J18 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10600	33.3	3.3	mg/kg			
Arsenic	7440-38-2	68.8	1.7	0.22	mg/kg	*		
Calcium	7440-70-2	924	833	9.7	mg/kg	*		
Copper	7440-50-8	139	4.2	0.085	mg/kg			
Iron	7439-89-6	40500	16.7	1.4	mg/kg			
Lead	7439-92-1	693	1.7	0.18	mg/kg			
Magnesium	7439-95-4	2010	833	3.7	mg/kg	*		
Manganese	7439-96-5	332	2.5	0.10	mg/kg	*		
Zinc	7440-66-6	703	10.0	0.43	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100170-15 **Sample No:** MH1J19 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7140	22.2	2.2	mg/kg			
Arsenic	7440-38-2	94.5	1.1	0.14	mg/kg	*	J	Q
Calcium	7440-70-2	226	555	6.4	mg/kg	J*	J	
Copper	7440-50-8	61.0	2.8	0.057	mg/kg			
Iron	7439-89-6	41100	33.3	2.8	mg/kg	D		
Lead	7439-92-1	946	1.1	0.12	mg/kg			
Magnesium	7439-95-4	2040	555	2.4	mg/kg	*	J	A
Manganese	7439-96-5	163	1.7	0.068	mg/kg	*	J	A
Zinc	7440-66-6	232	6.7	0.29	mg/kg	*	J	E

Lab Sample Name: 6100170-16 **Sample No:** MH1J20 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11100	33.8	3.4	mg/kg			
Arsenic	7440-38-2	58.9	1.7	0.22	mg/kg	*		
Calcium	7440-70-2	1300	844	9.8	mg/kg	*		
Copper	7440-50-8	154	4.2	0.086	mg/kg			
Iron	7439-89-6	45700	16.9	1.4	mg/kg			
Lead	7439-92-1	651	1.7	0.19	mg/kg			
Magnesium	7439-95-4	2290	844	3.7	mg/kg	*		
Manganese	7439-96-5	651	2.5	0.10	mg/kg	*	J	F1
Zinc	7440-66-6	756	10.1	0.44	mg/kg	*		

Lab Sample Name: 6100170-17 **Sample No:** MH1J21 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6980	21.4	2.1	mg/kg			
Arsenic	7440-38-2	115	1.1	0.14	mg/kg	*	J	Q, F1
Calcium	7440-70-2	453	534	6.2	mg/kg	J*	J	F1
Copper	7440-50-8	36.3	2.7	0.054	mg/kg		J	F1
Iron	7439-89-6	32200	10.7	0.89	mg/kg			
Lead	7439-92-1	862	1.1	0.12	mg/kg			
Magnesium	7439-95-4	2010	534	2.4	mg/kg	*	J	A
Manganese	7439-96-5	203	1.6	0.065	mg/kg	*	J	A
Zinc	7440-66-6	717	6.4	0.28	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100170-18 **Sample No:** MH1J22 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	35.6	3.6	mg/kg			
Arsenic	7440-38-2	7.0	1.8	0.23	mg/kg	*	J	F1
Calcium	7440-70-2	1040	891	10.3	mg/kg	*		
Copper	7440-50-8	108	4.5	0.091	mg/kg			
Iron	7439-89-6	79200	53.5	4.4	mg/kg	D	J	F1
Lead	7439-92-1	575	1.8	0.20	mg/kg			
Magnesium	7439-95-4	2680	891	3.9	mg/kg	*		
Manganese	7439-96-5	463	2.7	0.11	mg/kg	*		
Zinc	7440-66-6	249	10.7	0.46	mg/kg	*	J	F1

Analysis Method ICP_MS

Lab Sample Name: 6100170-01 **Sample No:** MH1J05 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.2	0.035	mg/kg	*	J	Q
Barium	7440-39-3	41.2	5.8	0.051	mg/kg			
Beryllium	7440-41-7	0.58	0.58	0.046	mg/kg	J	U	B
Cadmium	7440-43-9	2.1	0.58	0.048	mg/kg	*	J	Q
Chromium	7440-47-3	3.9	1.2	0.095	mg/kg			
Cobalt	7440-48-4	4.5	0.58	0.035	mg/kg			
Molybdenum	7439-98-7	3.3	2.3	0.052	mg/kg			
Nickel	7440-02-0	2.5	0.58	0.052	mg/kg	*	J	A
Selenium	7782-49-2	1.9	2.9	0.078	mg/kg	J	J	
Silver	7440-22-4	1.7	0.58	0.031	mg/kg			
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	25.9	2.9	0.095	mg/kg			

Lab Sample Name: 6100170-02 **Sample No:** MH1J06 **Sample Date:** 09/27/2016 11:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	13.4	1.5	0.046	mg/kg	*		
Barium	7440-39-3	81.4	7.6	0.067	mg/kg			
Beryllium	7440-41-7	0.76	0.76	0.061	mg/kg	J	U	B
Cadmium	7440-43-9	0.76	0.76	0.064	mg/kg	J*	U	B
Chromium	7440-47-3	3.3	1.5	0.12	mg/kg			
Cobalt	7440-48-4	4.2	0.76	0.046	mg/kg			
Molybdenum	7439-98-7	3.5	3.0	0.068	mg/kg			

Nickel	7440-02-0	2.2	0.76	0.068	mg/kg	*		
Selenium	7782-49-2	2.2	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	3.4	0.76	0.041	mg/kg			
Thallium	7440-28-0	0.76	0.76	0.058	mg/kg	J	U	B
Vanadium	7440-62-2	24.4	3.8	0.12	mg/kg			

Lab Sample Name: 6100170-03 **Sample No:** MH1J07 **Sample Date:** 09/27/2016 11:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.2	0.036	mg/kg	*	J	Q
Barium	7440-39-3	35.7	6.0	0.052	mg/kg			
Beryllium	7440-41-7	0.60	0.60	0.048	mg/kg	J	U	B
Cadmium	7440-43-9	1.2	0.60	0.050	mg/kg	*	J	Q
Chromium	7440-47-3	4.6	1.2	0.098	mg/kg			
Cobalt	7440-48-4	3.8	0.60	0.036	mg/kg			
Molybdenum	7439-98-7	3.2	2.4	0.054	mg/kg			
Nickel	7440-02-0	3.1	0.60	0.054	mg/kg	*	J	A
Selenium	7782-49-2	1.5	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	1.1	0.60	0.032	mg/kg			
Thallium	7440-28-0	0.60	0.60	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	30.7	3.0	0.098	mg/kg			

Lab Sample Name: 6100170-04 **Sample No:** MH1J08 **Sample Date:** 09/27/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.5	1.2	0.037	mg/kg	*		
Barium	7440-39-3	37.4	6.1	0.054	mg/kg			
Beryllium	7440-41-7	0.61	0.61	0.049	mg/kg	J	U	B
Cadmium	7440-43-9	0.61	0.61	0.051	mg/kg	J*	U	B
Chromium	7440-47-3	2.1	1.2	0.10	mg/kg			
Cobalt	7440-48-4	2.7	0.61	0.037	mg/kg			
Molybdenum	7439-98-7	2.4	2.4	0.055	mg/kg	J	U	B
Nickel	7440-02-0	1.9	0.61	0.055	mg/kg	*		
Selenium	7782-49-2	1.5	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	0.87	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	15.5	3.1	0.10	mg/kg			

Lab Sample Name: 6100170-05 **Sample No:** MH1J09 **Sample Date:** 09/27/2016 09:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.1	1.1	0.033	mg/kg	*	J	Q

Analysis Method ICP_MS

Barium	7440-39-3	153	5.6	0.049	mg/kg			
Beryllium	7440-41-7	0.56	0.56	0.045	mg/kg	J	U	B
Cadmium	7440-43-9	1.1	0.56	0.047	mg/kg	*	J	Q
Chromium	7440-47-3	4.8	1.1	0.091	mg/kg			
Cobalt	7440-48-4	6.1	0.56	0.033	mg/kg			
Molybdenum	7439-98-7	2.2	2.2	0.050	mg/kg	J	U	B
Nickel	7440-02-0	4.1	0.56	0.050	mg/kg	*	J	A
Selenium	7782-49-2	1.7	2.8	0.076	mg/kg	J	J	
Silver	7440-22-4	1.6	0.56	0.030	mg/kg			
Thallium	7440-28-0	0.56	0.56	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	24.1	2.8	0.091	mg/kg			

Lab Sample Name: 6100170-06 **Sample No:** MH1J10 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.7	1.8	0.053	mg/kg	*		
Barium	7440-39-3	31.3	8.8	0.077	mg/kg			
Beryllium	7440-41-7	0.88	0.88	0.070	mg/kg	J	U	B
Cadmium	7440-43-9	0.88	0.88	0.074	mg/kg	J*	U	B
Chromium	7440-47-3	3.3	1.8	0.14	mg/kg			
Cobalt	7440-48-4	3.2	0.88	0.053	mg/kg			
Molybdenum	7439-98-7	3.5	3.5	0.079	mg/kg	J	U	B
Nickel	7440-02-0	2.8	0.88	0.079	mg/kg	*		
Selenium	7782-49-2	1.2	4.4	0.12	mg/kg	J	J	
Silver	7440-22-4	1.0	0.88	0.047	mg/kg			
Thallium	7440-28-0	0.88	0.88	0.067	mg/kg	J	U	B
Vanadium	7440-62-2	29.5	4.4	0.14	mg/kg			

Lab Sample Name: 6100170-07 **Sample No:** MH1J11 **Sample Date:** 09/27/2016 18:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	1.0	0.031	mg/kg	*	J	Q
Barium	7440-39-3	46.5	5.2	0.046	mg/kg			
Beryllium	7440-41-7	0.52	0.52	0.042	mg/kg	J	U	B
Cadmium	7440-43-9	2.4	0.52	0.044	mg/kg	*	J	Q
Chromium	7440-47-3	3.5	1.0	0.086	mg/kg			
Cobalt	7440-48-4	2.9	0.52	0.031	mg/kg			
Molybdenum	7439-98-7	2.2	2.1	0.047	mg/kg			
Nickel	7440-02-0	2.2	0.52	0.047	mg/kg	*	J	A
Selenium	7782-49-2	1.2	2.6	0.071	mg/kg	J	J	
Silver	7440-22-4	1.8	0.52	0.028	mg/kg			
Thallium	7440-28-0	0.52	0.52	0.040	mg/kg	J	U	B

Vanadium	7440-62-2	20.2	2.6	0.086	mg/kg			

Lab Sample Name: 6100170-08 **Sample No:** MH1J12 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.87	1.2	0.035	mg/kg	J*	J	
Barium	7440-39-3	51.2	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.72	0.59	0.047	mg/kg			
Cadmium	7440-43-9	1.3	0.59	0.049	mg/kg	*		
Chromium	7440-47-3	3.3	1.2	0.096	mg/kg			
Cobalt	7440-48-4	5.4	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	2.3	2.3	0.053	mg/kg	J	U	B
Nickel	7440-02-0	3.0	0.59	0.053	mg/kg	*		
Selenium	7782-49-2	1.3	2.9	0.080	mg/kg	J	J	
Silver	7440-22-4	1.4	0.59	0.032	mg/kg			
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	12.5	2.9	0.096	mg/kg			

Lab Sample Name: 6100170-09 **Sample No:** MH1J13 **Sample Date:** 09/27/2016 16:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.3	0.039	mg/kg	J*	J	Q
Barium	7440-39-3	127	6.5	0.058	mg/kg			
Beryllium	7440-41-7	1.1	0.65	0.052	mg/kg			
Cadmium	7440-43-9	12.3	0.65	0.055	mg/kg	*	J	Q
Chromium	7440-47-3	6.1	1.3	0.11	mg/kg			
Cobalt	7440-48-4	20.6	0.65	0.039	mg/kg			
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J	U	B
Nickel	7440-02-0	9.0	0.65	0.059	mg/kg	*	J	A
Selenium	7782-49-2	1.9	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	1.7	0.65	0.035	mg/kg			
Thallium	7440-28-0	0.65	0.65	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	20.2	3.3	0.11	mg/kg			

Lab Sample Name: 6100170-10 **Sample No:** MH1J14 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.8	1.4	0.042	mg/kg	*		
Barium	7440-39-3	35.1	7.0	0.062	mg/kg			
Beryllium	7440-41-7	0.70	0.70	0.056	mg/kg	J	U	B
Cadmium	7440-43-9	3.4	0.70	0.059	mg/kg	*		
Chromium	7440-47-3	3.8	1.4	0.12	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	3.9	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	3.1	2.8	0.063	mg/kg			
Nickel	7440-02-0	2.7	0.70	0.063	mg/kg	*		
Selenium	7782-49-2	1.5	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	2.5	0.70	0.038	mg/kg		J	F1
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	26.8	3.5	0.12	mg/kg			

Lab Sample Name: 6100170-11 **Sample No:** MH1J15 **Sample Date:** 09/28/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.8	1.2	0.036	mg/kg	*	J	Q
Barium	7440-39-3	38.0	6.1	0.053	mg/kg			
Beryllium	7440-41-7	0.61	0.61	0.048	mg/kg	J	U	B
Cadmium	7440-43-9	2.1	0.61	0.051	mg/kg	*	J	Q
Chromium	7440-47-3	3.5	1.2	0.099	mg/kg			
Cobalt	7440-48-4	4.0	0.61	0.036	mg/kg			
Molybdenum	7439-98-7	4.0	2.4	0.054	mg/kg			
Nickel	7440-02-0	2.2	0.61	0.054	mg/kg	*	J	A
Selenium	7782-49-2	1.8	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	1.7	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	24.9	3.0	0.099	mg/kg			

Lab Sample Name: 6100170-12 **Sample No:** MH1J16 **Sample Date:** 09/28/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.85	3.2	0.097	mg/kg	JD*	J	
Barium	7440-39-3	54.4	16.2	0.14	mg/kg	D		
Beryllium	7440-41-7	1.6	1.6	0.13	mg/kg	JD	U	B
Cadmium	7440-43-9	1.6	1.6	0.14	mg/kg	JD*	U	B
Chromium	7440-47-3	5.2	1.6	0.13	mg/kg			
Cobalt	7440-48-4	14.2	1.6	0.097	mg/kg	D		
Molybdenum	7439-98-7	6.5	6.5	0.15	mg/kg	JD	U	B
Nickel	7440-02-0	4.2	1.6	0.15	mg/kg	D*		
Selenium	7782-49-2	2.9	4.1	0.11	mg/kg	J	J	
Silver	7440-22-4	1.6	1.6	0.088	mg/kg	JD	U	B
Thallium	7440-28-0	0.81	0.81	0.062	mg/kg	J	U	B
Vanadium	7440-62-2	32.3	4.1	0.13	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100170-13 **Sample No:** MH1J17 **Sample Date:** 09/28/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.1	0.034	mg/kg	*	J	Q
Barium	7440-39-3	48.3	5.6	0.049	mg/kg			
Beryllium	7440-41-7	0.56	0.56	0.045	mg/kg	J	U	B
Cadmium	7440-43-9	0.81	0.56	0.047	mg/kg	*	J	Q
Chromium	7440-47-3	4.5	1.1	0.092	mg/kg			
Cobalt	7440-48-4	5.6	0.56	0.034	mg/kg			
Molybdenum	7439-98-7	3.7	2.2	0.050	mg/kg			
Nickel	7440-02-0	2.7	0.56	0.050	mg/kg	*	J	A
Selenium	7782-49-2	1.8	2.8	0.076	mg/kg	J	J	
Silver	7440-22-4	1.3	0.56	0.030	mg/kg			
Thallium	7440-28-0	0.56	0.56	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	25.6	2.8	0.092	mg/kg			

Lab Sample Name: 6100170-14 **Sample No:** MH1J18 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.8	1.7	0.050	mg/kg	*		
Barium	7440-39-3	99.4	8.3	0.073	mg/kg			
Beryllium	7440-41-7	0.83	0.83	0.067	mg/kg	J	U	B
Cadmium	7440-43-9	1.3	0.83	0.070	mg/kg	*		
Chromium	7440-47-3	2.8	1.7	0.14	mg/kg			
Cobalt	7440-48-4	3.4	0.83	0.050	mg/kg			
Molybdenum	7439-98-7	3.3	3.3	0.075	mg/kg	J	U	B
Nickel	7440-02-0	2.3	0.83	0.075	mg/kg	*		
Selenium	7782-49-2	2.1	4.2	0.11	mg/kg	J	J	
Silver	7440-22-4	2.6	0.83	0.045	mg/kg			
Thallium	7440-28-0	0.83	0.83	0.063	mg/kg	J	U	B
Vanadium	7440-62-2	13.1	4.2	0.14	mg/kg			

Lab Sample Name: 6100170-15 **Sample No:** MH1J19 **Sample Date:** 09/29/2016 14:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	7.9	1.1	0.033	mg/kg	*	J	Q
Barium	7440-39-3	107	5.5	0.049	mg/kg			
Beryllium	7440-41-7	0.55	0.55	0.044	mg/kg	J	U	B
Cadmium	7440-43-9	1.4	0.55	0.047	mg/kg	*	J	Q
Chromium	7440-47-3	2.5	1.1	0.091	mg/kg			
Cobalt	7440-48-4	1.6	0.55	0.033	mg/kg			

Analysis Method ICP_MS

Molybdenum	7439-98-7	2.2	2.2	0.050	mg/kg	J	U	B
Nickel	7440-02-0	1.0	0.55	0.050	mg/kg	*	J	A
Selenium	7782-49-2	2.1	2.8	0.075	mg/kg	J	J	
Silver	7440-22-4	8.9	0.55	0.030	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	14.4	2.8	0.091	mg/kg			

Lab Sample Name: 6100170-16 **Sample No:** MH1J20 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.4	1.7	0.051	mg/kg	*		
Barium	7440-39-3	81.9	8.4	0.074	mg/kg			
Beryllium	7440-41-7	0.84	0.84	0.068	mg/kg	J	U	B
Cadmium	7440-43-9	2.3	0.84	0.071	mg/kg	*		
Chromium	7440-47-3	2.4	1.7	0.14	mg/kg			
Cobalt	7440-48-4	4.5	0.84	0.051	mg/kg			
Molybdenum	7439-98-7	3.4	3.4	0.076	mg/kg	J	U	B
Nickel	7440-02-0	3.4	0.84	0.076	mg/kg	*		
Selenium	7782-49-2	2.4	4.2	0.11	mg/kg	J	J	
Silver	7440-22-4	1.9	0.84	0.046	mg/kg			
Thallium	7440-28-0	0.84	0.84	0.064	mg/kg	J	U	B
Vanadium	7440-62-2	11.3	4.2	0.14	mg/kg			

Lab Sample Name: 6100170-17 **Sample No:** MH1J21 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.3	1.1	0.032	mg/kg	*	J	Q, F1
Barium	7440-39-3	41.1	5.3	0.047	mg/kg			
Beryllium	7440-41-7	0.53	0.53	0.043	mg/kg	J	U	B
Cadmium	7440-43-9	2.2	0.53	0.045	mg/kg	*	J	Q
Chromium	7440-47-3	1.6	1.1	0.088	mg/kg			
Cobalt	7440-48-4	2.8	0.53	0.032	mg/kg			
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	J	U	B
Nickel	7440-02-0	1.0	0.53	0.048	mg/kg	*	J	A
Selenium	7782-49-2	2.0	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	1.6	0.53	0.029	mg/kg			
Thallium	7440-28-0	0.53	0.53	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	11.1	2.7	0.088	mg/kg			

Lab Sample Name: 6100170-18 **Sample No:** MH1J22 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	1.8	1.8	0.053	mg/kg	*		
Barium	7440-39-3	69.4	8.9	0.078	mg/kg			
Beryllium	7440-41-7	0.89	0.89	0.071	mg/kg	J	**U**	**B**
Cadmium	7440-43-9	0.89	0.89	0.075	mg/kg	J*	**U**	**B**
Chromium	7440-47-3	4.8	1.8	0.15	mg/kg			
Cobalt	7440-48-4	3.7	0.89	0.053	mg/kg			
Molybdenum	7439-98-7	3.6	3.6	0.080	mg/kg	J	**U**	**B**
Nickel	7440-02-0	2.4	0.89	0.080	mg/kg	*		
Selenium	7782-49-2	2.0	4.5	0.12	mg/kg	J	**J**	
Silver	7440-22-4	6.8	0.89	0.048	mg/kg			
Thallium	7440-28-0	0.89	0.89	0.068	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	23.9	4.5	0.15	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1J23

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1J23
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1J23	6100171-01	Soil	09/29/2016 17:30:00	Hg, ICP-AES, ICP-MS
MH1J24	6100171-02	Sediment	09/30/2016 09:50:00	Hg, ICP-AES, ICP-MS
MH1J25	6100171-03	Soil	09/30/2016 09:50:00	Hg, ICP-AES, ICP-MS
MH1J26	6100171-04	Sediment	09/30/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1J27	6100171-05	Soil	09/30/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1J28	6100171-06	Sediment	09/30/2016 10:35:00	Hg, ICP-AES, ICP-MS
MH1J29	6100171-07	Soil	09/30/2016 10:35:00	Hg, ICP-AES, ICP-MS
MH1J30	6100171-08	Sediment	09/30/2016 12:35:00	Hg, ICP-AES, ICP-MS
MH1J31	6100171-09	Soil	09/30/2016 12:35:00	Hg, ICP-AES, ICP-MS
MH1J32	6100171-10	Sediment	09/30/2016 13:10:00	Hg, ICP-AES, ICP-MS
MH1J33	6100171-11	Soil	09/30/2016 13:10:00	Hg, ICP-AES, ICP-MS
MH1J34	6100171-12	Sediment	09/30/2016 11:40:00	Hg, ICP-AES, ICP-MS
MH1J35	6100171-13	Soil	09/30/2016 11:40:00	Hg, ICP-AES, ICP-MS
MH1J36	6100171-14	Sediment	09/30/2016 09:25:00	Hg, ICP-AES, ICP-MS
MH1J37	6100171-15	Soil	09/30/2016 09:25:00	Hg, ICP-AES, ICP-MS
MH1J38	6100171-16	Sediment	09/30/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1J39	6100171-17	Soil	09/30/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1J40	6100171-18	Sediment	09/30/2016 14:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 23, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied. Detected results for mercury that were <10x the absolute value of the negative MB value were qualified as estimated with low potential bias (J-).

Analyte	Calibration or Method blank concentration	Qualified Samples
antimony	0.20 µg/L (CCB)	MH1J29
thallium	.081 µg/L (CCB)	MH1J23, MH1J24, MH1J25, MH1J26, MH1J27, MH1J37
thallium	0.21 µg/L (CCB)	MH1J23, MH1J24, MH1J25, MH1J26, MH1J27, MH1J31, MH1J37, MH1J39, MH1J40
mercury	-0.01 mg/Kg (MB)	MH1J23, MH1J24, MH1J25, MH1J26, MH1J27, MH1J28, MH1J29, MH1J30, MH1J32, MH1J33, MH1J34, MH1J35, MH1J36, MH1K37

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1J23 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exception of silver (35%). All associated soil results were detected and were qualified as estimated (J).
- Matrix Spike: Matrix spike analyses were performed on sample MH1J23 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of zinc (128%) and antimony (53%). Antimony results in soil samples were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). Detected zinc results in soil samples were qualified as estimated with high potential bias (J+). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.
- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1J23 for ICP-AES and ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes with the exceptions of antimony (178%) and zinc (71%). All detected soil sample results for antimony were qualified as estimated with high potential bias (J+). All soil sample results for zinc were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). Bias was removed from both elements due to the conflicting bias in the matrix spike results.
- Serial Dilution: Serial dilution analysis was performed on sample MH1J23 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of calcium (13%) and magnesium (13%). All associated soil sample results were detected and were qualified as estimated (J).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes except as noted in the table below. This sample was not analyzed at a 2x dilution. Associated sample results were qualified as estimated (J).

Internal standard	%RI	Affected analytes	Qualified sample
Indium-115	129%	antimony, barium, cadmium, cobalt, nickel, silver	MH1J27

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range and internal standard infractions. Detected results for dilutions were flagged with “D” by the laboratory. Reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: Samples MH1J23/MH1H09, MH1J24/MH1H58, MH1J25/MH1H59, MH1J26/MH1H12 and MH1J27/MH1H13 were identified as field duplicate pairs in this SDG. RPD were ≤50% of ±RL for all analytes except vanadium and chromium in pair MH1J23/MH1H09, barium (81%), cadmium (87%), cobalt 141%), nickel (122%), arsenic (100%), calcium (112%), copper (120%), iron (52%), lead (90%), magnesium (81%), manganese (142%), and zinc (158%) in pair MH1J24/MH1H58, cadmium (113%) and zinc (117%) in pair MH1J25/MH1H59 and chromium (66%) in pair MH1J26/MH1H12. These elements were qualified as estimated in the duplicate pairs.

Validated Sample Result Forms MH1J23

Analysis Method Hg

Lab Sample Name: 6100171-01 **Sample No:** MH1J23 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.042	0.11	0.0037	mg/kg	J	J-	B

Lab Sample Name: 6100171-02 **Sample No:** MH1J24 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.14	0.0044	mg/kg	J	J-	B

Lab Sample Name: 6100171-03 **Sample No:** MH1J25 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.046	0.12	0.0038	mg/kg	J	J-	B

Lab Sample Name: 6100171-04 **Sample No:** MH1J26 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.040	0.22	0.0071	mg/kg	J	J-	B

Lab Sample Name: 6100171-05 **Sample No:** MH1J27 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0082	0.11	0.0036	mg/kg	J	J-	B

Lab Sample Name: 6100171-06 **Sample No:** MH1J28 **Sample Date:** 09/30/2016 10:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0051	0.13	0.0041	mg/kg	J	J-	B

Lab Sample Name: 6100171-07 **Sample No:** MH1J29 **Sample Date:** 09/30/2016 10:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.016	0.12	0.0038	mg/kg	J	J-	B

Analysis Method Hg

Lab Sample Name: 6100171-08 **Sample No:** MH1J30 **Sample Date:** 09/30/2016 12:35:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.012	0.14	0.0045	mg/kg	J	J-	B

Lab Sample Name: 6100171-09 **Sample No:** MH1J31 **Sample Date:** 09/30/2016 12:35:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.23	0.0074	mg/kg	J	J	

Lab Sample Name: 6100171-10 **Sample No:** MH1J32 **Sample Date:** 09/30/2016 13:10:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.029	0.18	0.0056	mg/kg	J	J-	B

Lab Sample Name: 6100171-11 **Sample No:** MH1J33 **Sample Date:** 09/30/2016 13:10:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.056	0.27	0.0086	mg/kg	J	J-	B

Lab Sample Name: 6100171-12 **Sample No:** MH1J34 **Sample Date:** 09/30/2016 11:40:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.046	0.19	0.0062	mg/kg	J	J-	B

Lab Sample Name: 6100171-13 **Sample No:** MH1J35 **Sample Date:** 09/30/2016 11:40:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.072	0.15	0.0047	mg/kg	J	J-	B

Lab Sample Name: 6100171-14 **Sample No:** MH1J36 **Sample Date:** 09/30/2016 09:25:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.093	0.32	0.010	mg/kg	J	J-	B

Lab Sample Name: 6100171-15 **Sample No:** MH1J37 **Sample Date:** 09/30/2016 09:25:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.046	0.13	0.0040	mg/kg	J	J-	B

Analysis Method Hg

Lab Sample Name: 6100171-16 **Sample No:** MH1J38 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	12.8	2.3	0.074	mg/kg	D		

Lab Sample Name: 6100171-17 **Sample No:** MH1J39 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.86	0.14	0.0046	mg/kg			

Lab Sample Name: 6100171-18 **Sample No:** MH1J40 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.51	0.16	0.0050	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100171-01 **Sample No:** MH1J23 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11700	22.9	1.6	mg/kg			
Arsenic	7440-38-2	25.7	1.1	0.13	mg/kg			
Calcium	7440-70-2	1520	572	3.2	mg/kg	*	J	A
Copper	7440-50-8	114	2.9	0.047	mg/kg			
Iron	7439-89-6	54900	22.9	1.1	mg/kg	D		
Lead	7439-92-1	545	1.1	0.15	mg/kg			
Magnesium	7439-95-4	5260	572	2.3	mg/kg	*	J	A
Manganese	7439-96-5	3010	3.4	0.050	mg/kg	D		
Zinc	7440-66-6	333	6.9	0.056	mg/kg	*	J	Q

Lab Sample Name: 6100171-02 **Sample No:** MH1J24 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13000	27.7	1.9	mg/kg			
Arsenic	7440-38-2	109	1.4	0.15	mg/kg		J	F1
Calcium	7440-70-2	2770	694	3.9	mg/kg	*	J	F1
Copper	7440-50-8	100	3.5	0.057	mg/kg		J	F1
Iron	7439-89-6	45700	13.9	0.69	mg/kg		J	F1
Lead	7439-92-1	443	1.4	0.18	mg/kg		J	F1
Magnesium	7439-95-4	4650	694	2.8	mg/kg	*	J	F1
Manganese	7439-96-5	1120	2.1	0.031	mg/kg		J	F1

Analysis Method ICP_AES

Zinc		7440-66-6	662	8.3	0.068	mg/kg	*	J	F1

Lab Sample Name: 6100171-03 **Sample No:** MH1J25 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12700	23.6	1.6	mg/kg			
Arsenic	7440-38-2	21.0	1.2	0.13	mg/kg			
Calcium	7440-70-2	2300	589	3.3	mg/kg	*	J	A
Copper	7440-50-8	71.4	2.9	0.048	mg/kg			
Iron	7439-89-6	50200	23.6	1.2	mg/kg	D		
Lead	7439-92-1	299	1.2	0.15	mg/kg			
Magnesium	7439-95-4	3820	589	2.4	mg/kg	*	J	A
Manganese	7439-96-5	740	1.8	0.026	mg/kg			
Zinc	7440-66-6	194	7.1	0.058	mg/kg	*	J	Q, F1

Lab Sample Name: 6100171-04 **Sample No:** MH1J26 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11900	44.1	3.1	mg/kg			
Arsenic	7440-38-2	20.0	2.2	0.24	mg/kg			
Calcium	7440-70-2	1300	1100	6.2	mg/kg	*		
Copper	7440-50-8	294	5.5	0.090	mg/kg			
Iron	7439-89-6	38200	22.1	1.1	mg/kg			
Lead	7439-92-1	399	2.2	0.29	mg/kg			
Magnesium	7439-95-4	2750	1100	4.4	mg/kg	*		
Manganese	7439-96-5	896	3.3	0.049	mg/kg			
Zinc	7440-66-6	296	13.2	0.11	mg/kg	*		

Lab Sample Name: 6100171-05 **Sample No:** MH1J27 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12100	22.7	1.6	mg/kg			
Arsenic	7440-38-2	23.4	1.1	0.12	mg/kg			
Calcium	7440-70-2	1940	568	3.2	mg/kg	*	J	A
Copper	7440-50-8	127	2.8	0.047	mg/kg			
Iron	7439-89-6	45000	22.7	1.1	mg/kg	D		
Lead	7439-92-1	503	1.1	0.15	mg/kg			
Magnesium	7439-95-4	7170	568	2.3	mg/kg	*	J	A
Manganese	7439-96-5	2080	3.4	0.050	mg/kg	D		
Zinc	7440-66-6	501	6.8	0.056	mg/kg	*	J	Q

Analysis Method ICP_AES

Lab Sample Name: 6100171-06 **Sample No:** MH1J28 **Sample Date:** 09/30/2016 10:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18000	25.4	1.8	mg/kg			
Arsenic	7440-38-2	54.4	1.3	0.14	mg/kg			
Calcium	7440-70-2	1180	635	3.6	mg/kg	*		
Copper	7440-50-8	171	3.2	0.052	mg/kg			
Iron	7439-89-6	25400	12.7	0.63	mg/kg			
Lead	7439-92-1	385	1.3	0.17	mg/kg			
Magnesium	7439-95-4	2700	635	2.5	mg/kg	*		
Manganese	7439-96-5	7500	9.5	0.14	mg/kg	D		
Zinc	7440-66-6	730	7.6	0.062	mg/kg	*		

Lab Sample Name: 6100171-07 **Sample No:** MH1J29 **Sample Date:** 09/30/2016 10:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15900	23.5	1.6	mg/kg			
Arsenic	7440-38-2	57.8	1.2	0.13	mg/kg			
Calcium	7440-70-2	996	588	3.3	mg/kg	*	J	A
Copper	7440-50-8	95.9	2.9	0.048	mg/kg			
Iron	7439-89-6	32800	11.8	0.59	mg/kg			
Lead	7439-92-1	470	1.2	0.15	mg/kg			
Magnesium	7439-95-4	3540	588	2.4	mg/kg	*	J	A
Manganese	7439-96-5	1440	1.8	0.026	mg/kg			
Zinc	7440-66-6	1070	7.1	0.058	mg/kg	*	J	Q

Lab Sample Name: 6100171-08 **Sample No:** MH1J30 **Sample Date:** 09/30/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	22200	27.9	2.0	mg/kg			
Arsenic	7440-38-2	61.7	1.4	0.15	mg/kg			
Calcium	7440-70-2	567	699	3.9	mg/kg	J*	J	
Copper	7440-50-8	311	3.5	0.057	mg/kg			
Iron	7439-89-6	38200	14.0	0.70	mg/kg			
Lead	7439-92-1	828	1.4	0.18	mg/kg			
Magnesium	7439-95-4	1830	699	2.8	mg/kg	*		
Manganese	7439-96-5	15800	21.0	0.31	mg/kg	D		
Zinc	7440-66-6	1330	8.4	0.068	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100171-09 **Sample No:** MH1J31 **Sample Date:** 09/30/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	30700	46.1	3.2	mg/kg			
Arsenic	7440-38-2	55.4	2.3	0.25	mg/kg			
Calcium	7440-70-2	2550	1150	6.5	mg/kg	*	J	A
Copper	7440-50-8	325	5.8	0.095	mg/kg			
Iron	7439-89-6	41600	23.1	1.2	mg/kg			
Lead	7439-92-1	638	2.3	0.30	mg/kg			
Magnesium	7439-95-4	3100	1150	4.6	mg/kg	*	J	A
Manganese	7439-96-5	14400	17.3	0.25	mg/kg	D		
Zinc	7440-66-6	1070	13.8	0.11	mg/kg	*	J	Q

Lab Sample Name: 6100171-10 **Sample No:** MH1J32 **Sample Date:** 09/30/2016 13:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	25200	35.1	2.5	mg/kg			
Arsenic	7440-38-2	28.1	1.8	0.19	mg/kg			
Calcium	7440-70-2	289	878	4.9	mg/kg	J*	J	
Copper	7440-50-8	126	4.4	0.072	mg/kg			
Iron	7439-89-6	27500	17.6	0.88	mg/kg			
Lead	7439-92-1	372	1.8	0.23	mg/kg			
Magnesium	7439-95-4	850	878	3.5	mg/kg	J*	J	
Manganese	7439-96-5	10100	13.2	0.19	mg/kg	D		
Zinc	7440-66-6	553	10.5	0.086	mg/kg	*		

Lab Sample Name: 6100171-11 **Sample No:** MH1J33 **Sample Date:** 09/30/2016 13:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	48300	54.0	3.8	mg/kg			
Arsenic	7440-38-2	34.7	2.7	0.30	mg/kg			
Calcium	7440-70-2	405	1350	7.6	mg/kg	J*	J	A
Copper	7440-50-8	208	6.8	0.11	mg/kg			
Iron	7439-89-6	36800	27.0	1.4	mg/kg			
Lead	7439-92-1	561	2.7	0.35	mg/kg			
Magnesium	7439-95-4	1640	1350	5.4	mg/kg	*	J	A
Manganese	7439-96-5	10700	12.2	0.18	mg/kg	D		
Zinc	7440-66-6	546	16.2	0.13	mg/kg	*	J	Q

Analysis Method ICP_AES

Lab Sample Name: 6100171-12 **Sample No:** MH1J34 **Sample Date:** 09/30/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13100	38.7	2.7	mg/kg			
Arsenic	7440-38-2	74.6	1.9	0.21	mg/kg			
Calcium	7440-70-2	3810	968	5.4	mg/kg	*		
Copper	7440-50-8	44.3	4.8	0.079	mg/kg			
Iron	7439-89-6	24900	19.4	0.97	mg/kg			
Lead	7439-92-1	290	1.9	0.25	mg/kg			
Magnesium	7439-95-4	4560	968	3.9	mg/kg	*		
Manganese	7439-96-5	2920	2.9	0.043	mg/kg			
Zinc	7440-66-6	1180	11.6	0.095	mg/kg	*		

Lab Sample Name: 6100171-13 **Sample No:** MH1J35 **Sample Date:** 09/30/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	29.4	2.1	mg/kg			
Arsenic	7440-38-2	105	1.5	0.16	mg/kg			
Calcium	7440-70-2	2920	735	4.1	mg/kg	*	J	A
Copper	7440-50-8	81.5	3.7	0.060	mg/kg			
Iron	7439-89-6	26000	14.7	0.74	mg/kg			
Lead	7439-92-1	334	1.5	0.19	mg/kg			
Magnesium	7439-95-4	4130	735	2.9	mg/kg	*	J	A
Manganese	7439-96-5	628	2.2	0.032	mg/kg			
Zinc	7440-66-6	480	8.8	0.072	mg/kg	*	J	Q

Lab Sample Name: 6100171-14 **Sample No:** MH1J36 **Sample Date:** 09/30/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	24800	64.3	4.5	mg/kg			
Arsenic	7440-38-2	99.3	3.2	0.35	mg/kg			
Calcium	7440-70-2	1830	1610	9.0	mg/kg	*		
Copper	7440-50-8	90.4	8.0	0.13	mg/kg			
Iron	7439-89-6	30700	32.2	1.6	mg/kg			
Lead	7439-92-1	400	3.2	0.42	mg/kg			
Magnesium	7439-95-4	4500	1610	6.4	mg/kg	*		
Manganese	7439-96-5	3770	4.8	0.071	mg/kg			
Zinc	7440-66-6	1130	19.3	0.16	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100171-15 **Sample No:** MH1J37 **Sample Date:** 09/30/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9340	25.2	1.8	mg/kg			
Arsenic	7440-38-2	34.9	1.3	0.14	mg/kg			
Calcium	7440-70-2	2690	630	3.5	mg/kg	*	J	A
Copper	7440-50-8	20.9	3.1	0.052	mg/kg			
Iron	7439-89-6	17100	12.6	0.63	mg/kg			
Lead	7439-92-1	163	1.3	0.16	mg/kg			
Magnesium	7439-95-4	3930	630	2.5	mg/kg	*	J	A
Manganese	7439-96-5	2490	3.8	0.055	mg/kg	D		
Zinc	7440-66-6	270	7.6	0.062	mg/kg	*	J	Q

Lab Sample Name: 6100171-16 **Sample No:** MH1J38 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14400	46.4	3.2	mg/kg			
Arsenic	7440-38-2	73.2	2.3	0.26	mg/kg			
Calcium	7440-70-2	1720	1160	6.5	mg/kg	*		
Copper	7440-50-8	644	5.8	0.095	mg/kg			
Iron	7439-89-6	29200	23.2	1.2	mg/kg			
Lead	7439-92-1	4310	2.3	0.30	mg/kg			
Magnesium	7439-95-4	3000	1160	4.6	mg/kg	*		
Manganese	7439-96-5	7050	10.4	0.15	mg/kg	D		
Zinc	7440-66-6	5720	41.7	0.34	mg/kg	D*		

Lab Sample Name: 6100171-17 **Sample No:** MH1J39 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17000	28.7	2.0	mg/kg			
Arsenic	7440-38-2	79.3	1.4	0.16	mg/kg			
Calcium	7440-70-2	606	717	4.0	mg/kg	J*	J	A
Copper	7440-50-8	518	3.6	0.059	mg/kg			
Iron	7439-89-6	37000	14.3	0.72	mg/kg			
Lead	7439-92-1	3390	1.4	0.19	mg/kg			
Magnesium	7439-95-4	3200	717	2.9	mg/kg	*	J	A
Manganese	7439-96-5	4270	10.8	0.16	mg/kg	D		
Zinc	7440-66-6	1460	8.6	0.070	mg/kg	*	J	Q

Analysis Method ICP_AES

Lab Sample Name: 6100171-18 **Sample No:** MH1J40 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9580	31.0	2.2	mg/kg			
Arsenic	7440-38-2	82.3	1.6	0.17	mg/kg			
Calcium	7440-70-2	1710	775	4.3	mg/kg	*		
Copper	7440-50-8	446	3.9	0.064	mg/kg			
Iron	7439-89-6	24100	15.5	0.78	mg/kg			
Lead	7439-92-1	4060	15.5	2.0	mg/kg	D		
Magnesium	7439-95-4	2010	775	3.1	mg/kg	*		
Manganese	7439-96-5	21000	23.3	0.34	mg/kg	D		
Zinc	7440-66-6	2690	93.0	0.76	mg/kg	D*		

Analysis Method ICP_MS

Lab Sample Name: 6100171-01 **Sample No:** MH1J23 **Sample Date:** 09/29/2016 17:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.3	1.1	0.034	mg/kg	*	J	Q
Barium	7440-39-3	59.1	5.7	0.050	mg/kg			
Beryllium	7440-41-7	0.44	0.57	0.046	mg/kg	J	J	
Cadmium	7440-43-9	0.82	0.57	0.048	mg/kg			
Chromium	7440-47-3	3.5	1.1	0.094	mg/kg		J	F1
Cobalt	7440-48-4	10.9	0.57	0.034	mg/kg			
Molybdenum	7439-98-7	2.8	2.3	0.052	mg/kg			
Nickel	7440-02-0	2.9	0.57	0.052	mg/kg			
Selenium	7782-49-2	1.6	2.9	0.078	mg/kg	J	J	
Silver	7440-22-4	2.2	0.57	0.031	mg/kg	*	J	E
Thallium	7440-28-0	0.57	0.57	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	18.8	2.9	0.094	mg/kg		J	F1

Lab Sample Name: 6100171-02 **Sample No:** MH1J24 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	*		
Barium	7440-39-3	47.2	6.9	0.061	mg/kg		J	F1
Beryllium	7440-41-7	0.88	0.69	0.055	mg/kg			
Cadmium	7440-43-9	1.6	0.69	0.058	mg/kg		J	F1
Chromium	7440-47-3	2.5	1.4	0.11	mg/kg			
Cobalt	7440-48-4	14.0	0.69	0.042	mg/kg		J	F1
Molybdenum	7439-98-7	0.76	2.8	0.062	mg/kg	J	J	

Nickel	7440-02-0	7.8	0.69	0.062	mg/kg		J	F1
Selenium	7782-49-2	1.9	3.5	0.094	mg/kg	J	J	
Silver	7440-22-4	0.32	0.69	0.037	mg/kg	J*	J	
Thallium	7440-28-0	0.69	0.69	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	17.5	3.5	0.11	mg/kg			

Lab Sample Name: 6100171-03 **Sample No:** MH1J25 **Sample Date:** 09/30/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.62	1.2	0.035	mg/kg	J*	J	Q
Barium	7440-39-3	76.5	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.48	0.59	0.047	mg/kg	J	J	
Cadmium	7440-43-9	0.58	0.59	0.049	mg/kg	J	J	F1
Chromium	7440-47-3	2.9	1.2	0.097	mg/kg			
Cobalt	7440-48-4	9.9	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	0.59	2.4	0.053	mg/kg	J	J	
Nickel	7440-02-0	4.8	0.59	0.053	mg/kg			
Selenium	7782-49-2	1.8	2.9	0.080	mg/kg	J	J	
Silver	7440-22-4	0.59	0.59	0.032	mg/kg	J*	J	E
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	18.7	2.9	0.097	mg/kg			

Lab Sample Name: 6100171-04 **Sample No:** MH1J26 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	4.4	0.13	mg/kg	JD*	J	
Barium	7440-39-3	61.0	22.1	0.19	mg/kg	D		
Beryllium	7440-41-7	0.89	1.1	0.088	mg/kg	J	J	
Cadmium	7440-43-9	2.0	1.1	0.093	mg/kg			
Chromium	7440-47-3	4.5	2.2	0.18	mg/kg		J	F1
Cobalt	7440-48-4	5.0	1.1	0.066	mg/kg			
Molybdenum	7439-98-7	3.6	4.4	0.099	mg/kg	J	J	
Nickel	7440-02-0	2.7	1.1	0.099	mg/kg			
Selenium	7782-49-2	3.7	5.5	0.15	mg/kg	J	J	
Silver	7440-22-4	2.6	1.1	0.060	mg/kg	*		
Thallium	7440-28-0	1.1	1.1	0.084	mg/kg	J	U	B
Vanadium	7440-62-2	15.1	5.5	0.18	mg/kg			

Lab Sample Name: 6100171-05 **Sample No:** MH1J27 **Sample Date:** 09/30/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.1	0.034	mg/kg	*	J	Q, *III

Analysis Method ICP_MS

Barium	7440-39-3	49.8	5.7	0.050	mg/kg		J	*III
Beryllium	7440-41-7	0.47	0.57	0.045	mg/kg	J	J	
Cadmium	7440-43-9	1.4	0.57	0.048	mg/kg		J	*III
Chromium	7440-47-3	4.2	1.1	0.093	mg/kg			
Cobalt	7440-48-4	13.1	0.57	0.034	mg/kg		J	*III
Molybdenum	7439-98-7	4.1	2.3	0.051	mg/kg			
Nickel	7440-02-0	3.6	0.57	0.051	mg/kg		J	*III
Selenium	7782-49-2	1.6	2.8	0.077	mg/kg	J	J	
Silver	7440-22-4	1.3	0.57	0.031	mg/kg	*	J	E, *III
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	21.0	2.8	0.093	mg/kg			

Lab Sample Name: 6100171-06 **Sample No:** MH1J28 **Sample Date:** 09/30/2016 10:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.9	1.3	0.038	mg/kg	*		
Barium	7440-39-3	33.0	6.3	0.056	mg/kg			
Beryllium	7440-41-7	2.1	0.63	0.051	mg/kg			
Cadmium	7440-43-9	7.6	0.63	0.053	mg/kg			
Chromium	7440-47-3	2.0	1.3	0.10	mg/kg			
Cobalt	7440-48-4	26.8	0.63	0.038	mg/kg			
Molybdenum	7439-98-7	12.7	2.5	0.057	mg/kg			
Nickel	7440-02-0	5.5	0.63	0.057	mg/kg			
Selenium	7782-49-2	1.4	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	1.1	0.63	0.034	mg/kg	*		
Thallium	7440-28-0	1.1	0.63	0.048	mg/kg			
Vanadium	7440-62-2	7.6	3.2	0.10	mg/kg			

Lab Sample Name: 6100171-07 **Sample No:** MH1J29 **Sample Date:** 09/30/2016 10:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	2.4	0.071	mg/kg	JD*	UJ	B, Q
Barium	7440-39-3	78.8	11.8	0.10	mg/kg	D		
Beryllium	7440-41-7	1.9	0.59	0.047	mg/kg			
Cadmium	7440-43-9	14.1	0.59	0.049	mg/kg			
Chromium	7440-47-3	2.8	1.2	0.096	mg/kg			
Cobalt	7440-48-4	26.1	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	13.7	2.4	0.053	mg/kg			
Nickel	7440-02-0	7.7	0.59	0.053	mg/kg			
Selenium	7782-49-2	1.7	2.9	0.080	mg/kg	J	J	
Silver	7440-22-4	1.1	0.59	0.032	mg/kg	*	J	E
Thallium	7440-28-0	1.5	1.2	0.089	mg/kg	D		

Vanadium	7440-62-2	12.1	2.9	0.096	mg/kg			

Lab Sample Name: 6100171-08 **Sample No:** MH1J30 **Sample Date:** 09/30/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.1	2.8	0.084	mg/kg	D*		
Barium	7440-39-3	87.0	14.0	0.12	mg/kg	D		
Beryllium	7440-41-7	3.0	0.70	0.056	mg/kg			
Cadmium	7440-43-9	17.0	0.70	0.059	mg/kg			
Chromium	7440-47-3	2.3	1.4	0.11	mg/kg			
Cobalt	7440-48-4	50.7	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	13.3	2.8	0.063	mg/kg			
Nickel	7440-02-0	8.4	0.70	0.063	mg/kg			
Selenium	7782-49-2	2.6	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	1.2	0.70	0.038	mg/kg	*		
Thallium	7440-28-0	2.5	1.4	0.11	mg/kg	D		
Vanadium	7440-62-2	8.7	3.5	0.11	mg/kg			

Lab Sample Name: 6100171-09 **Sample No:** MH1J31 **Sample Date:** 09/30/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.5	4.6	0.14	mg/kg	JD*	J	Q
Barium	7440-39-3	94.8	23.1	0.20	mg/kg	D		
Beryllium	7440-41-7	3.3	1.2	0.092	mg/kg			
Cadmium	7440-43-9	15.2	1.2	0.097	mg/kg			
Chromium	7440-47-3	3.7	2.3	0.19	mg/kg			
Cobalt	7440-48-4	46.0	1.2	0.069	mg/kg			
Molybdenum	7439-98-7	14.8	4.6	0.10	mg/kg			
Nickel	7440-02-0	8.9	1.2	0.10	mg/kg			
Selenium	7782-49-2	3.5	5.8	0.16	mg/kg	J	J	
Silver	7440-22-4	2.7	1.2	0.062	mg/kg	*	J	E
Thallium	7440-28-0	2.3	2.3	0.18	mg/kg	JD	U	B
Vanadium	7440-62-2	11.6	5.8	0.19	mg/kg			

Lab Sample Name: 6100171-10 **Sample No:** MH1J32 **Sample Date:** 09/30/2016 13:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.0	1.8	0.053	mg/kg	*		
Barium	7440-39-3	50.9	8.8	0.077	mg/kg			
Beryllium	7440-41-7	2.4	0.88	0.070	mg/kg			
Cadmium	7440-43-9	9.0	0.88	0.074	mg/kg			
Chromium	7440-47-3	1.7	1.8	0.14	mg/kg	J	J	

Analysis Method ICP_MS

Cobalt	7440-48-4	21.8	0.88	0.053	mg/kg			
Molybdenum	7439-98-7	8.2	3.5	0.079	mg/kg			
Nickel	7440-02-0	4.4	0.88	0.079	mg/kg			
Selenium	7782-49-2	1.9	4.4	0.12	mg/kg	J	J	
Silver	7440-22-4	0.94	0.88	0.047	mg/kg	*		
Thallium	7440-28-0	1.2	0.88	0.067	mg/kg			
Vanadium	7440-62-2	5.3	4.4	0.14	mg/kg			

Lab Sample Name: 6100171-11 **Sample No:** MH1J33 **Sample Date:** 09/30/2016 13:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.2	2.7	0.081	mg/kg	*	J	Q
Barium	7440-39-3	41.9	13.5	0.12	mg/kg			
Beryllium	7440-41-7	2.9	1.4	0.11	mg/kg			
Cadmium	7440-43-9	7.0	1.4	0.11	mg/kg			
Chromium	7440-47-3	1.7	2.7	0.22	mg/kg	J	J	
Cobalt	7440-48-4	25.0	1.4	0.081	mg/kg			
Molybdenum	7439-98-7	7.4	5.4	0.12	mg/kg			
Nickel	7440-02-0	3.8	1.4	0.12	mg/kg			
Selenium	7782-49-2	2.4	6.8	0.18	mg/kg	J	J	
Silver	7440-22-4	1.9	1.4	0.073	mg/kg	*	J	E
Thallium	7440-28-0	1.3	1.4	0.10	mg/kg	J	J	
Vanadium	7440-62-2	4.6	6.8	0.22	mg/kg	J	J	

Lab Sample Name: 6100171-12 **Sample No:** MH1J34 **Sample Date:** 09/30/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.9	0.058	mg/kg	J*	J	
Barium	7440-39-3	85.4	9.7	0.085	mg/kg			
Beryllium	7440-41-7	1.1	0.97	0.077	mg/kg			
Cadmium	7440-43-9	9.1	0.97	0.081	mg/kg			
Chromium	7440-47-3	2.4	1.9	0.16	mg/kg			
Cobalt	7440-48-4	8.2	0.97	0.058	mg/kg			
Molybdenum	7439-98-7	6.5	3.9	0.087	mg/kg			
Nickel	7440-02-0	4.9	0.97	0.087	mg/kg			
Selenium	7782-49-2	1.7	4.8	0.13	mg/kg	J	J	
Silver	7440-22-4	1.8	0.97	0.052	mg/kg	*		
Thallium	7440-28-0	0.71	0.97	0.074	mg/kg	J	J	
Vanadium	7440-62-2	11.1	4.8	0.16	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100171-13 **Sample No:** MH1J35 **Sample Date:** 09/30/2016 11:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.9	1.5	0.044	mg/kg	*	J	Q
Barium	7440-39-3	61.5	7.4	0.065	mg/kg			
Beryllium	7440-41-7	0.68	0.74	0.059	mg/kg	J	J	
Cadmium	7440-43-9	1.7	0.74	0.062	mg/kg			
Chromium	7440-47-3	2.9	1.5	0.12	mg/kg			
Cobalt	7440-48-4	4.4	0.74	0.044	mg/kg			
Molybdenum	7439-98-7	10.2	2.9	0.066	mg/kg			
Nickel	7440-02-0	2.4	0.74	0.066	mg/kg			
Selenium	7782-49-2	1.5	3.7	0.10	mg/kg	J	J	
Silver	7440-22-4	2.4	0.74	0.040	mg/kg	*	J	E
Thallium	7440-28-0	0.76	0.74	0.056	mg/kg			
Vanadium	7440-62-2	12.4	3.7	0.12	mg/kg			

Lab Sample Name: 6100171-14 **Sample No:** MH1J36 **Sample Date:** 09/30/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.7	3.2	0.097	mg/kg	J*	J	
Barium	7440-39-3	95.0	16.1	0.14	mg/kg			
Beryllium	7440-41-7	2.2	1.6	0.13	mg/kg			
Cadmium	7440-43-9	7.3	1.6	0.14	mg/kg			
Chromium	7440-47-3	4.3	3.2	0.26	mg/kg			
Cobalt	7440-48-4	12.0	1.6	0.097	mg/kg			
Molybdenum	7439-98-7	9.7	6.4	0.14	mg/kg			
Nickel	7440-02-0	6.7	1.6	0.14	mg/kg			
Selenium	7782-49-2	4.2	8.0	0.22	mg/kg	J	J	
Silver	7440-22-4	3.4	1.6	0.087	mg/kg	*		
Thallium	7440-28-0	0.93	1.6	0.12	mg/kg	J	J	
Vanadium	7440-62-2	16.2	8.0	0.26	mg/kg			

Lab Sample Name: 6100171-15 **Sample No:** MH1J37 **Sample Date:** 09/30/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.67	1.3	0.038	mg/kg	J*	J	Q
Barium	7440-39-3	29.6	6.3	0.055	mg/kg			
Beryllium	7440-41-7	0.59	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	1.5	0.63	0.053	mg/kg			
Chromium	7440-47-3	2.6	1.3	0.10	mg/kg			
Cobalt	7440-48-4	4.6	0.63	0.038	mg/kg			

Analysis Method ICP_MS

Molybdenum	7439-98-7	4.7	2.5	0.057	mg/kg			
Nickel	7440-02-0	2.4	0.63	0.057	mg/kg			
Selenium	7782-49-2	1.0	3.1	0.086	mg/kg	J	J	
Silver	7440-22-4	1.3	0.63	0.034	mg/kg	*	J	E
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	10.4	3.1	0.10	mg/kg			

Lab Sample Name: 6100171-16 **Sample No:** MH1J38 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	13.9	2.3	0.070	mg/kg	*		
Barium	7440-39-3	138	11.6	0.10	mg/kg			
Beryllium	7440-41-7	3.5	1.2	0.093	mg/kg			
Cadmium	7440-43-9	17.0	1.2	0.097	mg/kg			
Chromium	7440-47-3	4.1	2.3	0.19	mg/kg			
Cobalt	7440-48-4	9.6	1.2	0.070	mg/kg			
Molybdenum	7439-98-7	8.4	4.6	0.10	mg/kg			
Nickel	7440-02-0	5.2	1.2	0.10	mg/kg			
Selenium	7782-49-2	4.0	5.8	0.16	mg/kg	J	J	
Silver	7440-22-4	14.0	1.2	0.063	mg/kg	*		
Thallium	7440-28-0	0.97	1.2	0.088	mg/kg	J	J	
Vanadium	7440-62-2	16.3	5.8	0.19	mg/kg			

Lab Sample Name: 6100171-17 **Sample No:** MH1J39 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.8	2.9	0.086	mg/kg	D*	J	Q
Barium	7440-39-3	87.9	14.3	0.13	mg/kg	D		
Beryllium	7440-41-7	2.2	0.72	0.057	mg/kg			
Cadmium	7440-43-9	5.7	0.72	0.060	mg/kg			
Chromium	7440-47-3	4.2	1.4	0.12	mg/kg			
Cobalt	7440-48-4	12.3	0.72	0.043	mg/kg			
Molybdenum	7439-98-7	7.8	2.9	0.065	mg/kg			
Nickel	7440-02-0	3.6	0.72	0.065	mg/kg			
Selenium	7782-49-2	3.4	3.6	0.098	mg/kg	J	J	
Silver	7440-22-4	10.4	0.72	0.039	mg/kg	*	J	E
Thallium	7440-28-0	1.4	1.4	0.11	mg/kg	JD	U	B
Vanadium	7440-62-2	13.8	3.6	0.12	mg/kg			

Lab Sample Name: 6100171-18 **Sample No:** MH1J40 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	9.0	3.1	0.093	mg/kg	D*		
Barium	7440-39-3	154	15.5	0.14	mg/kg	D		
Beryllium	7440-41-7	3.5	0.78	0.062	mg/kg			
Cadmium	7440-43-9	21.7	0.78	0.065	mg/kg			
Chromium	7440-47-3	2.4	1.6	0.13	mg/kg			
Cobalt	7440-48-4	12.5	0.78	0.047	mg/kg			
Molybdenum	7439-98-7	8.9	3.1	0.070	mg/kg			
Nickel	7440-02-0	8.9	0.78	0.070	mg/kg			
Selenium	7782-49-2	4.4	3.9	0.11	mg/kg			
Silver	7440-22-4	6.8	0.78	0.042	mg/kg	*		
Thallium	7440-28-0	1.6	1.6	0.12	mg/kg	JD	**U**	**B**
Vanadium	7440-62-2	11.2	3.9	0.13	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1J41

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1J41
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 4
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1J41	6100172-01	Soil	09/30/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1J42	6100172-02	Sediment	09/30/2016 11:15:00	Hg, ICP-AES, ICP-MS
MH1J43	6100172-03	Soil	09/30/2016 11:15:00	Hg, ICP-AES, ICP-MS
MH1J44	6100172-04	Sediment	09/30/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1J45	6100172-05	Soil	09/30/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1J46	6100172-06	Sediment	09/30/2016 13:40:00	Hg, ICP-AES, ICP-MS
MH1J47	6100172-07	Soil	09/30/2016 13:40:00	Hg, ICP-AES, ICP-MS
MH1J48	6100172-08	Sediment	09/30/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1J49	6100172-09	Soil	09/30/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1J50	6100172-10	Sediment	09/30/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1J51	6100172-11	Soil	09/30/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1J52	6100172-12	Sediment	09/30/2016 11:00:00	Hg, ICP-AES, ICP-MS
MH1J53	6100172-13	Soil	09/30/2016 11:00:00	Hg, ICP-AES, ICP-MS
MH1J54	6100172-14	Sediment	09/30/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1J55	6100172-15	Soil	09/30/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1J56	6100172-16	Sediment	09/29/2016 14:05:00	Hg, ICP-AES, ICP-MS
MH1J57	6100172-17	Soil	09/29/2016 14:05:00	Hg, ICP-AES, ICP-MS
MH1J58	6100172-18	Sediment	09/29/2016 15:05:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.

  A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 21, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration:
  - Initial calibration: Initial instrument calibrations met method acceptance requirements.
  - Initial (ICV) and continuing calibration (CCV) verification: The ICV and CCV frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied.

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
beryllium,	0.22	MH1J56, MH1J57
molybdenum	0.48/0.86	MH1J44, MH1J48, MH1J57
thallium	0.090	MH1J44, MH1J45, MH1J48, MH1J49, MH1J55, MH1J56, MH1J57
antimony	0.28	MH1J43, MH1J44, MH1J45, MH1J48, MH1J49, MH1J58

- Interference Check Samples (ICSA/B): ICSAB recoveries for ICP-AES and ICP-MS were within the control limits of 80-120% or ±2× the reporting limit, whichever is greater. For all site samples <u>except</u> MH1J54, MH1J56, MH1J57 and MH1J58, the concentrations of aluminum and iron were >1/2 the concentrations in the ICSA spike, therefore; matrix interference was assessed for the remaining samples. Several target analytes were reported in the ICSA analyses at positive or negative values

>MDL; however, these ICSA results were not of sufficient concentration to qualify site sample results except as noted in the table below. Associated sample results were <10x the absolute value of the ICSA concentration and were qualified as estimated with low potential bias (J-).

Analyte	ICSA concentration (µg/L)	Qualified Samples
cadmium	-0.19	MH1J44, MH1J48

- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1J51 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exceptions of arsenic (41%), manganese (24%), barium (50%), cadmium (45%), chromium (22%), cobalt (54%), molybdenum (61%) and nickel (33%). All associated soil results were qualified as estimated (UJ for nondetects and U-qualified results, J for detects).
- Matrix Spike: Matrix spike analyses were performed on sample MH1J51 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of copper (13%) and antimony (57%). Associated results in soil samples were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.
- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1J51 for ICP-AES and ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes with the exception of copper (13%). All soil sample results for copper were qualified as estimated (J-). The bias was removed from the antimony due to the acceptable PDS spike recovery.
- Serial Dilution: Serial dilution analysis was performed on sample MH1J51 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of iron (11%) and magnesium (11%). All associated soil sample results were qualified as estimated (J).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was verified at a Stage 4 validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range and internal standard infractions. Detected results for dilutions were flagged with “D” by the laboratory. Reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1J41

Analysis Method Hg

Lab Sample Name: 6100172-01 **Sample No:** MH1J41 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.16	0.13	0.0042	mg/kg			

Lab Sample Name: 6100172-02 **Sample No:** MH1J42 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.73	0.15	0.0047	mg/kg			

Lab Sample Name: 6100172-03 **Sample No:** MH1J43 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.092	0.15	0.0047	mg/kg	J	J	

Lab Sample Name: 6100172-04 **Sample No:** MH1J44 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.020	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100172-05 **Sample No:** MH1J45 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.034	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100172-06 **Sample No:** MH1J46 **Sample Date:** 09/30/2016 13:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0039	mg/kg			

Lab Sample Name: 6100172-07 **Sample No:** MH1J47 **Sample Date:** 09/30/2016 13:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	2.6	0.33	0.011	mg/kg	D		

Analysis Method Hg

Lab Sample Name: 6100172-08 **Sample No:** MH1J48 **Sample Date:** 09/30/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.019	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100172-09 **Sample No:** MH1J49 **Sample Date:** 09/30/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.038	0.16	0.0050	mg/kg	J	J	

Lab Sample Name: 6100172-10 **Sample No:** MH1J50 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.97	0.14	0.0043	mg/kg			

Lab Sample Name: 6100172-11 **Sample No:** MH1J51 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.16	0.0050	mg/kg	J	J	

Lab Sample Name: 6100172-12 **Sample No:** MH1J52 **Sample Date:** 09/30/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.082	0.15	0.0048	mg/kg	J	J	

Lab Sample Name: 6100172-13 **Sample No:** MH1J53 **Sample Date:** 09/30/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.20	0.30	0.0096	mg/kg	J	J	

Lab Sample Name: 6100172-14 **Sample No:** MH1J54 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.078	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100172-15 **Sample No:** MH1J55 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	1.2	0.12	0.0040	mg/kg			

Analysis Method Hg

Lab Sample Name: 6100172-16 **Sample No:** MH1J56 **Sample Date:** 09/29/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.074	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100172-17 **Sample No:** MH1J57 **Sample Date:** 09/29/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.56	0.11	0.0034	mg/kg			

Lab Sample Name: 6100172-18 **Sample No:** MH1J58 **Sample Date:** 09/29/2016 15:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0037	mg/kg	U	U	

Analysis Method ICP_AES

Lab Sample Name: 6100172-01 **Sample No:** MH1J41 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	21200	26.4	1.8	mg/kg			
Arsenic	7440-38-2	44.8	1.3	0.15	mg/kg	*	J	E
Calcium	7440-70-2	611	659	3.7	mg/kg	J	J	
Copper	7440-50-8	318	3.3	0.054	mg/kg	*	J-	Q, P
Iron	7439-89-6	24000	13.2	0.66	mg/kg	*	J	A
Lead	7439-92-1	1500	1.3	0.17	mg/kg			
Magnesium	7439-95-4	3270	659	2.6	mg/kg	*	J	A
Manganese	7439-96-5	19600	13.8	0.20	mg/kg	D*	J	E
Zinc	7440-66-6	1600	7.9	0.065	mg/kg			

Lab Sample Name: 6100172-02 **Sample No:** MH1J42 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13200	29.2	2.0	mg/kg			
Arsenic	7440-38-2	66.4	1.5	0.16	mg/kg	*		
Calcium	7440-70-2	800	729	4.1	mg/kg			
Copper	7440-50-8	595	3.6	0.060	mg/kg	*		
Iron	7439-89-6	29600	14.6	0.73	mg/kg	*		
Lead	7439-92-1	5500	13.1	1.7	mg/kg	D		
Magnesium	7439-95-4	3010	729	2.9	mg/kg	*		
Manganese	7439-96-5	31100	19.7	0.29	mg/kg	D*		

Zinc	7440-66-6	4120	78.8	0.64	mg/kg	D	

Lab Sample Name: 6100172-03 **Sample No:** MH1J43 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	20100	29.6	2.1	mg/kg			
Arsenic	7440-38-2	52.5	1.5	0.16	mg/kg	*	J	E
Calcium	7440-70-2	1830	740	4.1	mg/kg			
Copper	7440-50-8	98.1	3.7	0.061	mg/kg	*	J-	Q, P
Iron	7439-89-6	27400	14.8	0.74	mg/kg	*	J	A
Lead	7439-92-1	491	1.5	0.19	mg/kg			
Magnesium	7439-95-4	3710	740	3.0	mg/kg	*	J	A
Manganese	7439-96-5	14700	8.9	0.13	mg/kg	D*	J	E
Zinc	7440-66-6	976	8.9	0.073	mg/kg			

Lab Sample Name: 6100172-04 **Sample No:** MH1J44 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17400	24.7	1.7	mg/kg			
Arsenic	7440-38-2	17.5	1.2	0.14	mg/kg	*		
Calcium	7440-70-2	1440	617	3.5	mg/kg			
Copper	7440-50-8	110	3.1	0.051	mg/kg	*		
Iron	7439-89-6	28300	12.3	0.62	mg/kg	*		
Lead	7439-92-1	112	1.2	0.16	mg/kg			
Magnesium	7439-95-4	6330	617	2.5	mg/kg	*		
Manganese	7439-96-5	2970	1.8	0.027	mg/kg	*		
Zinc	7440-66-6	399	7.4	0.060	mg/kg			

Lab Sample Name: 6100172-05 **Sample No:** MH1J45 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18000	27.8	1.9	mg/kg			
Arsenic	7440-38-2	31.4	1.4	0.15	mg/kg	*	J	E
Calcium	7440-70-2	1940	695	3.9	mg/kg			
Copper	7440-50-8	67.5	3.5	0.057	mg/kg	*	J-	Q, P
Iron	7439-89-6	29700	13.9	0.69	mg/kg	*	J	A
Lead	7439-92-1	150	1.4	0.18	mg/kg			
Magnesium	7439-95-4	6010	695	2.8	mg/kg	*	J	A
Manganese	7439-96-5	4800	4.2	0.061	mg/kg	D*	J	E
Zinc	7440-66-6	432	8.3	0.068	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100172-06 **Sample No:** MH1J46 **Sample Date:** 09/30/2016 13:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15200	24.3	1.7	mg/kg			
Arsenic	7440-38-2	32.9	1.2	0.13	mg/kg	*		
Calcium	7440-70-2	1090	606	3.4	mg/kg			
Copper	7440-50-8	238	3.0	0.050	mg/kg	*		
Iron	7439-89-6	24700	12.1	0.61	mg/kg	*		
Lead	7439-92-1	2100	1.2	0.16	mg/kg			
Magnesium	7439-95-4	3810	606	2.4	mg/kg	*		
Manganese	7439-96-5	18500	12.7	0.19	mg/kg	D*		
Zinc	7440-66-6	1150	7.3	0.059	mg/kg			

Lab Sample Name: 6100172-07 **Sample No:** MH1J47 **Sample Date:** 09/30/2016 13:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15800	32.9	2.3	mg/kg			
Arsenic	7440-38-2	41.2	1.6	0.18	mg/kg	*	J	E
Calcium	7440-70-2	2530	823	4.6	mg/kg			
Copper	7440-50-8	466	4.1	0.067	mg/kg	*	J-	Q, P
Iron	7439-89-6	28900	16.5	0.82	mg/kg	*	J	A
Lead	7439-92-1	6000	6.6	0.86	mg/kg	D		
Magnesium	7439-95-4	4490	823	3.3	mg/kg	*	J	A
Manganese	7439-96-5	14800	9.9	0.14	mg/kg	D*	J	E
Zinc	7440-66-6	2100	9.9	0.081	mg/kg			

Lab Sample Name: 6100172-08 **Sample No:** MH1J48 **Sample Date:** 09/30/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19600	24.8	1.7	mg/kg			
Arsenic	7440-38-2	15.3	1.2	0.14	mg/kg	*		
Calcium	7440-70-2	1510	621	3.5	mg/kg			
Copper	7440-50-8	106	3.1	0.051	mg/kg	*		
Iron	7439-89-6	34200	12.4	0.62	mg/kg	*		
Lead	7439-92-1	92.9	1.2	0.16	mg/kg			
Magnesium	7439-95-4	7210	621	2.5	mg/kg	*		
Manganese	7439-96-5	3690	3.7	0.055	mg/kg	D*		
Zinc	7440-66-6	436	7.5	0.061	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100172-09 **Sample No:** MH1J49 **Sample Date:** 09/30/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	25400	31.4	2.2	mg/kg			
Arsenic	7440-38-2	29.9	1.6	0.17	mg/kg	*	J	E
Calcium	7440-70-2	2930	786	4.4	mg/kg			
Copper	7440-50-8	156	3.9	0.064	mg/kg	*	J-	Q, P
Iron	7439-89-6	40100	15.7	0.79	mg/kg	*	J	A
Lead	7439-92-1	162	1.6	0.20	mg/kg			
Magnesium	7439-95-4	9250	786	3.1	mg/kg	*	J	A
Manganese	7439-96-5	7020	7.1	0.10	mg/kg	D*	J	E
Zinc	7440-66-6	813	9.4	0.077	mg/kg			

Lab Sample Name: 6100172-10 **Sample No:** MH1J50 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13900	27.2	1.9	mg/kg			
Arsenic	7440-38-2	52.2	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	799	679	3.8	mg/kg			
Copper	7440-50-8	702	3.4	0.056	mg/kg	*		
Iron	7439-89-6	25200	13.6	0.68	mg/kg	*		
Lead	7439-92-1	4230	9.5	1.2	mg/kg	D		
Magnesium	7439-95-4	2590	679	2.7	mg/kg	*		
Manganese	7439-96-5	18800	14.3	0.21	mg/kg	D*		
Zinc	7440-66-6	5460	57.1	0.47	mg/kg	D		

Lab Sample Name: 6100172-11 **Sample No:** MH1J51 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16100	31.5	2.2	mg/kg			
Arsenic	7440-38-2	57.8	1.6	0.17	mg/kg	*	J	E
Calcium	7440-70-2	4600	786	4.4	mg/kg			
Copper	7440-50-8	65.6	3.9	0.064	mg/kg	*	J-	Q, P
Iron	7439-89-6	25700	15.7	0.79	mg/kg	*	J	A
Lead	7439-92-1	500	1.6	0.20	mg/kg			
Magnesium	7439-95-4	4320	786	3.1	mg/kg	*	J	A
Manganese	7439-96-5	5490	4.7	0.069	mg/kg	D*	J	E
Zinc	7440-66-6	413	9.4	0.077	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100172-12 **Sample No:** MH1J52 **Sample Date:** 09/30/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15700	30.2	2.1	mg/kg			
Arsenic	7440-38-2	69.3	1.5	0.17	mg/kg	*		
Calcium	7440-70-2	1810	756	4.2	mg/kg			
Copper	7440-50-8	473	3.8	0.062	mg/kg	*		
Iron	7439-89-6	36100	15.1	0.76	mg/kg	*		
Lead	7439-92-1	2600	1.5	0.20	mg/kg			
Magnesium	7439-95-4	3950	756	3.0	mg/kg	*		
Manganese	7439-96-5	11300	9.1	0.13	mg/kg	D*		
Zinc	7440-66-6	2980	36.3	0.30	mg/kg	D		

Lab Sample Name: 6100172-13 **Sample No:** MH1J53 **Sample Date:** 09/30/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16900	60.2	4.2	mg/kg			
Arsenic	7440-38-2	176	3.0	0.33	mg/kg	*	J	E
Calcium	7440-70-2	10800	1500	8.4	mg/kg			
Copper	7440-50-8	2890	7.5	0.12	mg/kg	*	J-	Q, P
Iron	7439-89-6	69700	30.1	1.5	mg/kg	*	J	A
Lead	7439-92-1	1730	3.0	0.39	mg/kg			
Magnesium	7439-95-4	1550	1500	6.0	mg/kg	*	J	A
Manganese	7439-96-5	55900	45.2	0.66	mg/kg	D*	J	E
Zinc	7440-66-6	30200	181	1.5	mg/kg	D		

Lab Sample Name: 6100172-14 **Sample No:** MH1J54 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	24.8	1.7	mg/kg			
Arsenic	7440-38-2	35.9	1.2	0.14	mg/kg	*		
Calcium	7440-70-2	1220	621	3.5	mg/kg			
Copper	7440-50-8	162	3.1	0.051	mg/kg	*		
Iron	7439-89-6	21900	12.4	0.62	mg/kg	*		
Lead	7439-92-1	1170	1.2	0.16	mg/kg			
Magnesium	7439-95-4	4130	621	2.5	mg/kg	*		
Manganese	7439-96-5	10300	7.5	0.11	mg/kg	D*		
Zinc	7440-66-6	1830	7.5	0.061	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100172-15 **Sample No:** MH1J55 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15500	24.7	1.7	mg/kg			
Arsenic	7440-38-2	41.7	1.2	0.14	mg/kg	*	J	E
Calcium	7440-70-2	2410	618	3.5	mg/kg			
Copper	7440-50-8	182	3.1	0.051	mg/kg	*	J-	Q, P
Iron	7439-89-6	29300	12.4	0.62	mg/kg	*	J	A
Lead	7439-92-1	1300	1.2	0.16	mg/kg			
Magnesium	7439-95-4	6190	618	2.5	mg/kg	*	J	A
Manganese	7439-96-5	6080	5.6	0.082	mg/kg	D*	J	E
Zinc	7440-66-6	857	7.4	0.061	mg/kg			

Lab Sample Name: 6100172-16 **Sample No:** MH1J56 **Sample Date:** 09/29/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11200	23.7	1.7	mg/kg			
Arsenic	7440-38-2	36.3	1.2	0.13	mg/kg	*		
Calcium	7440-70-2	1040	593	3.3	mg/kg			
Copper	7440-50-8	188	3.0	0.049	mg/kg	*		
Iron	7439-89-6	17700	11.9	0.59	mg/kg	*		
Lead	7439-92-1	1230	1.2	0.15	mg/kg			
Magnesium	7439-95-4	3050	593	2.4	mg/kg	*		
Manganese	7439-96-5	10800	7.1	0.10	mg/kg	D*		
Zinc	7440-66-6	1130	7.1	0.058	mg/kg			

Lab Sample Name: 6100172-17 **Sample No:** MH1J57 **Sample Date:** 09/29/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12100	21.5	1.5	mg/kg			
Arsenic	7440-38-2	43.6	1.1	0.12	mg/kg	*	J	E
Calcium	7440-70-2	2860	537	3.0	mg/kg			
Copper	7440-50-8	92.9	2.7	0.044	mg/kg	*	J-	Q, P
Iron	7439-89-6	17700	10.7	0.54	mg/kg	*	J	A
Lead	7439-92-1	1250	1.1	0.14	mg/kg			
Magnesium	7439-95-4	4020	537	2.1	mg/kg	*	J	A
Manganese	7439-96-5	2130	1.6	0.024	mg/kg	*	J	E
Zinc	7440-66-6	907	6.4	0.053	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100172-18 **Sample No:** MH1J58 **Sample Date:** 09/29/2016 15:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11800	23.3	1.6	mg/kg			
Arsenic	7440-38-2	31.8	1.2	0.13	mg/kg	*		
Calcium	7440-70-2	1680	583	3.3	mg/kg			
Copper	7440-50-8	87.9	2.9	0.048	mg/kg	*		
Iron	7439-89-6	18200	11.7	0.58	mg/kg	*		
Lead	7439-92-1	400	1.2	0.15	mg/kg			
Magnesium	7439-95-4	4530	583	2.3	mg/kg	*		
Manganese	7439-96-5	3910	3.5	0.051	mg/kg	D*		
Zinc	7440-66-6	2600	14.0	0.11	mg/kg	D		

Analysis Method ICP_MS

Lab Sample Name: 6100172-01 **Sample No:** MH1J41 **Sample Date:** 09/30/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.1	1.3	0.040	mg/kg	*	J	Q
Barium	7440-39-3	169	6.6	0.058	mg/kg	*	J	E
Beryllium	7440-41-7	2.8	0.66	0.053	mg/kg			
Cadmium	7440-43-9	9.8	0.66	0.055	mg/kg	*	J	E
Chromium	7440-47-3	6.7	1.3	0.11	mg/kg	*	J	E
Cobalt	7440-48-4	13.4	0.66	0.040	mg/kg	*	J	E
Molybdenum	7439-98-7	4.7	2.6	0.059	mg/kg	*	J	E
Nickel	7440-02-0	6.5	0.66	0.059	mg/kg	*	J	E
Selenium	7782-49-2	2.6	3.3	0.090	mg/kg	J*	J	
Silver	7440-22-4	4.2	0.66	0.036	mg/kg			
Thallium	7440-28-0	0.78	0.66	0.050	mg/kg			
Vanadium	7440-62-2	21.4	3.3	0.11	mg/kg			

Lab Sample Name: 6100172-02 **Sample No:** MH1J42 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	13.1	1.5	0.044	mg/kg	*		
Barium	7440-39-3	167	7.3	0.064	mg/kg	*		
Beryllium	7440-41-7	3.5	0.73	0.058	mg/kg			
Cadmium	7440-43-9	23.9	0.73	0.061	mg/kg	*		
Chromium	7440-47-3	3.5	1.5	0.12	mg/kg	*		
Cobalt	7440-48-4	35.4	0.73	0.044	mg/kg	*		
Molybdenum	7439-98-7	9.4	2.9	0.066	mg/kg	*		

Nickel	7440-02-0	8.8	0.73	0.066	mg/kg	*
Selenium	7782-49-2	4.6	3.6	0.099	mg/kg	*
Silver	7440-22-4	8.5	0.73	0.039	mg/kg	
Thallium	7440-28-0	2.1	0.73	0.055	mg/kg	
Vanadium	7440-62-2	14.6	3.6	0.12	mg/kg	

Lab Sample Name: 6100172-03 **Sample No:** MH1J43 **Sample Date:** 09/30/2016 11:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.5	0.044	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	144	7.4	0.065	mg/kg	*	J	E
Beryllium	7440-41-7	1.8	0.74	0.059	mg/kg			
Cadmium	7440-43-9	2.6	0.74	0.062	mg/kg	*	J	E
Chromium	7440-47-3	4.7	1.5	0.12	mg/kg	*	J	E
Cobalt	7440-48-4	12.7	0.74	0.044	mg/kg	*	J	E
Molybdenum	7439-98-7	3.2	3.0	0.067	mg/kg	*	J	E
Nickel	7440-02-0	6.2	0.74	0.067	mg/kg	*	J	E
Selenium	7782-49-2	1.9	3.7	0.10	mg/kg	J*	J	
Silver	7440-22-4	1.4	0.74	0.040	mg/kg			
Thallium	7440-28-0	0.79	0.74	0.056	mg/kg			
Vanadium	7440-62-2	15.9	3.7	0.12	mg/kg			

Lab Sample Name: 6100172-04 **Sample No:** MH1J44 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.037	mg/kg	J*	U	B
Barium	7440-39-3	14.1	6.2	0.054	mg/kg	*		
Beryllium	7440-41-7	2.4	0.62	0.049	mg/kg			
Cadmium	7440-43-9	0.50	0.62	0.052	mg/kg	J*	J-	I
Chromium	7440-47-3	3.7	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	6.2	0.62	0.037	mg/kg	*		
Molybdenum	7439-98-7	2.5	2.5	0.055	mg/kg	J	U	B
Nickel	7440-02-0	2.9	0.62	0.055	mg/kg	*		
Selenium	7782-49-2	1.8	3.1	0.084	mg/kg	J*	J	
Silver	7440-22-4	0.16	0.62	0.033	mg/kg	J	J	
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	25.8	3.1	0.10	mg/kg			

Lab Sample Name: 6100172-05 **Sample No:** MH1J45 **Sample Date:** 09/30/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	J*	UJ	B, Q

Analysis Method ICP_MS

Barium	7440-39-3	57.5	6.9	0.061	mg/kg	*	J	E
Beryllium	7440-41-7	2.8	0.69	0.056	mg/kg			
Cadmium	7440-43-9	1.1	0.69	0.058	mg/kg	*	J	E
Chromium	7440-47-3	5.9	1.4	0.11	mg/kg	*	J	E
Cobalt	7440-48-4	9.3	0.69	0.042	mg/kg	*	J	E
Molybdenum	7439-98-7	4.4	2.8	0.063	mg/kg	*	J	E
Nickel	7440-02-0	5.6	0.69	0.063	mg/kg	*	J	E
Selenium	7782-49-2	1.9	3.5	0.095	mg/kg	J*	J	
Silver	7440-22-4	0.75	0.69	0.038	mg/kg			
Thallium	7440-28-0	0.69	0.69	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	22.5	3.5	0.11	mg/kg			

Lab Sample Name: 6100172-06 **Sample No:** MH1J46 **Sample Date:** 09/30/2016 13:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	8.6	1.2	0.036	mg/kg	*		
Barium	7440-39-3	108	6.1	0.053	mg/kg	*		
Beryllium	7440-41-7	4.0	0.61	0.049	mg/kg			
Cadmium	7440-43-9	7.4	0.61	0.051	mg/kg	*		
Chromium	7440-47-3	3.8	1.2	0.099	mg/kg	*		
Cobalt	7440-48-4	18.6	0.61	0.036	mg/kg	*		
Molybdenum	7439-98-7	5.7	2.4	0.055	mg/kg	*		
Nickel	7440-02-0	6.4	0.61	0.055	mg/kg	*		
Selenium	7782-49-2	2.5	3.0	0.082	mg/kg	J*	J	
Silver	7440-22-4	4.1	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.91	0.61	0.046	mg/kg			
Vanadium	7440-62-2	14.9	3.0	0.099	mg/kg			

Lab Sample Name: 6100172-07 **Sample No:** MH1J47 **Sample Date:** 09/30/2016 13:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	12.0	1.6	0.049	mg/kg	*	J	Q
Barium	7440-39-3	113	8.2	0.072	mg/kg	*	J	E
Beryllium	7440-41-7	1.7	0.82	0.066	mg/kg			
Cadmium	7440-43-9	15.9	0.82	0.069	mg/kg	*	J	E
Chromium	7440-47-3	4.1	1.6	0.13	mg/kg	*	J	E
Cobalt	7440-48-4	6.5	0.82	0.049	mg/kg	*	J	E
Molybdenum	7439-98-7	12.9	3.3	0.074	mg/kg	*	J	E
Nickel	7440-02-0	4.6	0.82	0.074	mg/kg	*	J	E
Selenium	7782-49-2	2.1	4.1	0.11	mg/kg	J*	J	
Silver	7440-22-4	21.8	0.82	0.044	mg/kg			
Thallium	7440-28-0	0.49	0.82	0.063	mg/kg	J	J	

Vanadium		7440-62-2	14.9	4.1	0.13	mg/kg			

Lab Sample Name: 6100172-08 **Sample No:** MH1J48 **Sample Date:** 09/30/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.037	mg/kg	J*	U	B
Barium	7440-39-3	25.1	6.2	0.055	mg/kg	*		
Beryllium	7440-41-7	4.7	0.62	0.050	mg/kg			
Cadmium	7440-43-9	0.89	0.62	0.052	mg/kg	*	J-	I
Chromium	7440-47-3	4.5	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	13.6	0.62	0.037	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J*	U	B
Nickel	7440-02-0	5.1	0.62	0.056	mg/kg	*		
Selenium	7782-49-2	1.5	3.1	0.084	mg/kg	J*	J	
Silver	7440-22-4	0.58	0.62	0.034	mg/kg	J	J	
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	25.2	3.1	0.10	mg/kg			

Lab Sample Name: 6100172-09 **Sample No:** MH1J49 **Sample Date:** 09/30/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.6	0.047	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	39.9	7.9	0.069	mg/kg	*	J	E
Beryllium	7440-41-7	6.1	0.79	0.063	mg/kg			
Cadmium	7440-43-9	1.6	0.79	0.066	mg/kg	*	J	E
Chromium	7440-47-3	5.8	1.6	0.13	mg/kg	*	J	E
Cobalt	7440-48-4	15.2	0.79	0.047	mg/kg	*	J	E
Molybdenum	7439-98-7	4.7	3.1	0.071	mg/kg	*	J	E
Nickel	7440-02-0	7.4	0.79	0.071	mg/kg	*	J	E
Selenium	7782-49-2	2.5	3.9	0.11	mg/kg	J*	J	
Silver	7440-22-4	0.62	0.79	0.042	mg/kg	J	J	
Thallium	7440-28-0	0.79	0.79	0.060	mg/kg	J	U	B
Vanadium	7440-62-2	32.5	3.9	0.13	mg/kg			

Lab Sample Name: 6100172-10 **Sample No:** MH1J50 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	8.9	1.4	0.041	mg/kg	*		
Barium	7440-39-3	103	6.8	0.060	mg/kg	*		
Beryllium	7440-41-7	5.0	0.68	0.054	mg/kg			
Cadmium	7440-43-9	16.1	0.68	0.057	mg/kg	*		
Chromium	7440-47-3	3.1	1.4	0.11	mg/kg	*		

Analysis Method ICP_MS

Cobalt	7440-48-4	22.3	0.68	0.041	mg/kg			
Molybdenum	7439-98-7	8.6	2.7	0.061	mg/kg	*		
Nickel	7440-02-0	6.7	0.68	0.061	mg/kg	*		
Selenium	7782-49-2	3.3	3.4	0.092	mg/kg	J*	J	
Silver	7440-22-4	7.5	0.68	0.037	mg/kg			
Thallium	7440-28-0	1.1	0.68	0.052	mg/kg			
Vanadium	7440-62-2	13.6	3.4	0.11	mg/kg			

Lab Sample Name: 6100172-11 **Sample No:** MH1J51 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.6	0.047	mg/kg	*	J	Q
Barium	7440-39-3	102	7.9	0.069	mg/kg	*	J	E
Beryllium	7440-41-7	1.8	0.79	0.063	mg/kg			
Cadmium	7440-43-9	4.0	0.79	0.066	mg/kg	*	J	E
Chromium	7440-47-3	6.4	1.6	0.13	mg/kg	*	J	E
Cobalt	7440-48-4	16.1	0.79	0.047	mg/kg	*	J	E
Molybdenum	7439-98-7	32.4	3.1	0.071	mg/kg	*	J	E
Nickel	7440-02-0	6.8	0.79	0.071	mg/kg	*	J	E
Selenium	7782-49-2	3.9	3.9	0.11	mg/kg	*		
Silver	7440-22-4	3.2	0.79	0.042	mg/kg			
Thallium	7440-28-0	0.79	0.79	0.060	mg/kg	J	J	
Vanadium	7440-62-2	27.1	3.9	0.13	mg/kg			

Lab Sample Name: 6100172-12 **Sample No:** MH1J52 **Sample Date:** 09/30/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.0	1.5	0.045	mg/kg	*		
Barium	7440-39-3	59.4	7.6	0.067	mg/kg	*		
Beryllium	7440-41-7	3.6	0.76	0.060	mg/kg			
Cadmium	7440-43-9	10.4	0.76	0.064	mg/kg	*		
Chromium	7440-47-3	3.0	1.5	0.12	mg/kg	*		
Cobalt	7440-48-4	13.5	0.76	0.045	mg/kg	*		
Molybdenum	7439-98-7	5.8	3.0	0.068	mg/kg	*		
Nickel	7440-02-0	5.2	0.76	0.068	mg/kg	*		
Selenium	7782-49-2	2.6	3.8	0.10	mg/kg	J*	J	
Silver	7440-22-4	5.7	0.76	0.041	mg/kg			
Thallium	7440-28-0	0.58	0.76	0.057	mg/kg	J	J	
Vanadium	7440-62-2	15.0	3.8	0.12	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100172-13 **Sample No:** MH1J53 **Sample Date:** 09/30/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.1	3.0	0.090	mg/kg	*	J	Q
Barium	7440-39-3	357	15.0	0.13	mg/kg	*	J	E
Beryllium	7440-41-7	9.0	1.5	0.12	mg/kg			
Cadmium	7440-43-9	216	1.5	0.13	mg/kg	*	J	E
Chromium	7440-47-3	3.4	3.0	0.25	mg/kg	*	J	E
Cobalt	7440-48-4	63.6	1.5	0.090	mg/kg	*	J	E
Molybdenum	7439-98-7	81.8	6.0	0.14	mg/kg	*	J	E
Nickel	7440-02-0	53.1	1.5	0.14	mg/kg	*	J	E
Selenium	7782-49-2	5.9	7.5	0.20	mg/kg	J*	J	
Silver	7440-22-4	5.9	1.5	0.081	mg/kg			
Thallium	7440-28-0	1.5	1.5	0.11	mg/kg			
Vanadium	7440-62-2	8.6	7.5	0.25	mg/kg			

Lab Sample Name: 6100172-14 **Sample No:** MH1J54 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.2	1.2	0.037	mg/kg	*		
Barium	7440-39-3	80.3	6.2	0.055	mg/kg	*		
Beryllium	7440-41-7	3.7	0.62	0.050	mg/kg			
Cadmium	7440-43-9	8.0	0.62	0.052	mg/kg	*		
Chromium	7440-47-3	3.8	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	16.4	0.62	0.037	mg/kg	*		
Molybdenum	7439-98-7	9.5	2.5	0.056	mg/kg	*		
Nickel	7440-02-0	6.5	0.62	0.056	mg/kg	*		
Selenium	7782-49-2	2.4	3.1	0.084	mg/kg	J*	J	
Silver	7440-22-4	3.7	0.62	0.034	mg/kg			
Thallium	7440-28-0	0.86	0.62	0.047	mg/kg			
Vanadium	7440-62-2	13.4	3.1	0.10	mg/kg			

Lab Sample Name: 6100172-15 **Sample No:** MH1J55 **Sample Date:** 09/30/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.0	1.2	0.037	mg/kg	*	J	Q
Barium	7440-39-3	59.3	6.2	0.054	mg/kg	*	J	E
Beryllium	7440-41-7	1.0	0.62	0.049	mg/kg			
Cadmium	7440-43-9	5.9	0.62	0.052	mg/kg	*	J	E
Chromium	7440-47-3	5.2	1.2	0.10	mg/kg	*	J	E
Cobalt	7440-48-4	8.8	0.62	0.037	mg/kg	*	J	E

Analysis Method ICP_MS

Molybdenum	7439-98-7	6.3	2.5	0.056	mg/kg	*	J	E
Nickel	7440-02-0	4.6	0.62	0.056	mg/kg	*	J	E
Selenium	7782-49-2	1.8	3.1	0.084	mg/kg	J*	J	
Silver	7440-22-4	5.2	0.62	0.033	mg/kg			
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	19.5	3.1	0.10	mg/kg			

Lab Sample Name: 6100172-16 **Sample No:** MH1J56 **Sample Date:** 09/29/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.7	2.4	0.071	mg/kg	D*		
Barium	7440-39-3	54.5	11.9	0.10	mg/kg	D*		
Beryllium	7440-41-7	1.2	1.2	0.095	mg/kg	JD	U	B
Cadmium	7440-43-9	5.2	1.2	0.10	mg/kg	D*		
Chromium	7440-47-3	4.7	1.2	0.097	mg/kg	*		
Cobalt	7440-48-4	8.3	1.2	0.071	mg/kg	D*		
Molybdenum	7439-98-7	5.9	4.7	0.11	mg/kg	D*		
Nickel	7440-02-0	4.5	1.2	0.11	mg/kg	D*		
Selenium	7782-49-2	1.5	3.0	0.081	mg/kg	J*	J	
Silver	7440-22-4	5.0	1.2	0.064	mg/kg	D		
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	17.7	3.0	0.097	mg/kg			

Lab Sample Name: 6100172-17 **Sample No:** MH1J57 **Sample Date:** 09/29/2016 14:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.8	2.1	0.064	mg/kg	D*	J	Q
Barium	7440-39-3	47.1	10.7	0.094	mg/kg	D*	J	E
Beryllium	7440-41-7	1.1	1.1	0.086	mg/kg	JD	U	B
Cadmium	7440-43-9	3.1	1.1	0.090	mg/kg	D*	J	E
Chromium	7440-47-3	4.3	1.1	0.088	mg/kg	*	J	E
Cobalt	7440-48-4	3.9	1.1	0.064	mg/kg	D*	J	E
Molybdenum	7439-98-7	4.3	4.3	0.097	mg/kg	JD*	UJ	B, E
Nickel	7440-02-0	3.1	1.1	0.097	mg/kg	D*	J	E
Selenium	7782-49-2	2.1	2.7	0.073	mg/kg	J*	J	
Silver	7440-22-4	3.7	1.1	0.058	mg/kg	D		
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	14.3	2.7	0.088	mg/kg			

Lab Sample Name: 6100172-18 **Sample No:** MH1J58 **Sample Date:** 09/29/2016 15:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	1.2	1.2	0.035	mg/kg	J*	**U**	**B**
Barium	7440-39-3	22.4	5.8	0.051	mg/kg	*		
Beryllium	7440-41-7	1.1	0.58	0.047	mg/kg			
Cadmium	7440-43-9	7.2	0.58	0.049	mg/kg	*		
Chromium	7440-47-3	1.8	1.2	0.096	mg/kg	*		
Cobalt	7440-48-4	19.9	0.58	0.035	mg/kg	*		
Molybdenum	7439-98-7	7.7	2.3	0.052	mg/kg	*		
Nickel	7440-02-0	3.3	0.58	0.052	mg/kg	*		
Selenium	7782-49-2	1.4	2.9	0.079	mg/kg	J*	**J**	
Silver	7440-22-4	0.68	0.58	0.031	mg/kg			
Thallium	7440-28-0	1.0	0.58	0.044	mg/kg			
Vanadium	7440-62-2	9.9	2.9	0.096	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1J59

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1J59
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1J59	6100173-01	Soil	09/29/2016 15:05:00	Hg, ICP-AES, ICP-MS
MH1J60	6100173-02	Sediment	09/29/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1J61	6100173-03	Soil	09/29/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1J62	6100173-04	Sediment	09/29/2016 12:10:00	Hg, ICP-AES, ICP-MS
MH1J63	6100173-05	Sediment	09/29/2016 11:20:00	Hg, ICP-AES, ICP-MS
MH1J64	6100173-06	Sediment	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1J65	6100173-07	Soil	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1J66	6100173-08	Sediment	09/29/2016 15:30:00	Hg, ICP-AES, ICP-MS
MH1J67	6100173-09	Soil	09/29/2016 15:30:00	Hg, ICP-AES, ICP-MS
MH1J68	6100173-10	Sediment	09/29/2016 13:30:00	Hg, ICP-AES, ICP-MS
MH1J69	6100173-11	Soil	09/29/2016 13:30:00	Hg, ICP-AES, ICP-MS
MH1J70	6100173-12	Sediment	09/29/2016 16:40:00	Hg, ICP-AES, ICP-MS
MH1J71	6100173-13	Soil	09/29/2016 16:40:00	Hg, ICP-AES, ICP-MS
MH1J72	6100173-14	Sediment	09/29/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1J73	6100173-15	Soil	09/29/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1J74	6100173-16	Sediment	09/29/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1J75	6100173-17	Soil	09/29/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1J76	6100173-18	Sediment	09/28/2016 16:15:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 20, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied. Associated detected results greater than the RL and <5x the MB concentration were qualified as estimated with high potential bias (J+).

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
antimony	0.30	MH1J59, MH1J60, MH1J65, MH1J66, MH1J68, MH1J69, MH1J70, MH1J71, MH1J72, MH1J73, MH1J74
antimony	0.51	MH1J64
cadmium	0.087	MH1J65, MH1J71, MH1J75
molybdenum	0.57	MH1J65, MH1J66, MH1J67, MH1J68, MH1J69, MH1J70, MH1J71, MH1J72, MH1J73, MH1J74
molybdenum	0.66	MH1J64
thallium	0.094	All site samples except MH1J64
thallium	0.34	MH1J64

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1J59 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exceptions of barium (26%), chromium (57%) and zinc (21%). All associated soil results were detected and were qualified as estimated (J).

- Matrix Spike: Matrix spike analyses were performed on sample MH1J59 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of arsenic (69%), copper (287%), zinc (30%), antimony (40%), barium (60%), chromium (50%), molybdenum (69%) and selenium (69%). Copper results in soil samples were all detected and were qualified as estimated with high potential bias (J+). All associated soil sample results for the remaining target analytes were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.

- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1J59 for ICP-AES. Recoveries met the laboratory control limit of 75-125% for all reported analytes with the exceptions of copper (387%) and zinc (126%). All associated soil sample results were qualified as estimated with high potential bias (J+). Bias was removed from the arsenic result due to the acceptable PDS recovery. Bias was removed from the zinc result due to the conflicting spike recoveries.

- Serial Dilution: Serial dilution analysis was performed on sample MH1J59 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of aluminum (19%), arsenic (12%), calcium (21%), copper (19%), iron (22%), lead (15%), magnesium (22%), manganese (22%), zinc (14%), barium (4%), cobalt (14%), molybdenum (12%) and nickel (12%). Associated soil sample results were qualified as estimated (UJ for nondetects and U-qualified results, J for detects).

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range and to protect the instrument. Detected results for dilutions were flagged with "D" by the laboratory. Samples MH1J64 was redigested at higher initial weights due to low total solids. Reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

- Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
- Field Duplicates: Samples MH1K46/MH1J64, MH1K47/MH1J65, MH1K48/MH1J60 and MH1K49/MH1/J61 were identified as field duplicates. RPD were within the criteria of ≤50% or ±RL for all analytes except copper (126%), lead (196%), zinc (102%) and barium (67%) in pair MH1K43/MH1K18, chromium (104%) and zinc (70%) in pair MH1K44/MH1K22, calcium (59%) and cadmium (51%) in pair MH1K45/MH1K23, arsenic (54%), zinc (55%), barium (124%), cadmium (102%), chromium (121%), cobalt (120%), nickel (124%), and vanadium (99%) in pair MH1K46/MH1J64 and manganese (74%) in pair MH1K48/MH1J60. These elements were qualified as estimated in the duplicate pairs.

Validated Sample Result Forms MH1J59

Analysis Method Hg

Lab Sample Name: 6100173-01 **Sample No:** MH1J59 **Sample Date:** 09/29/2016 15:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.020	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100173-02 **Sample No:** MH1J60 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.11	0.0037	mg/kg			

Lab Sample Name: 6100173-03 **Sample No:** MH1J61 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.64	0.11	0.0035	mg/kg			

Lab Sample Name: 6100173-04 **Sample No:** MH1J62 **Sample Date:** 09/29/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.016	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100173-05 **Sample No:** MH1J63 **Sample Date:** 09/29/2016 11:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0039	mg/kg	U	U	

Lab Sample Name: 6100173-06 **Sample No:** MH1J64 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.077	0.18	0.0058	mg/kg	JD	J	

Lab Sample Name: 6100173-07 **Sample No:** MH1J65 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.036	0.11	0.0034	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100173-08 **Sample No:** MH1J66 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.16	0.0051	mg/kg	J	J	

Lab Sample Name: 6100173-09 **Sample No:** MH1J67 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.064	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100173-10 **Sample No:** MH1J68 **Sample Date:** 09/29/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100173-11 **Sample No:** MH1J69 **Sample Date:** 09/29/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.11	0.0036	mg/kg			

Lab Sample Name: 6100173-12 **Sample No:** MH1J70 **Sample Date:** 09/29/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.32	0.32	0.010	mg/kg	U	U	

Lab Sample Name: 6100173-13 **Sample No:** MH1J71 **Sample Date:** 09/29/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.021	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100173-14 **Sample No:** MH1J72 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0099	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100173-15 **Sample No:** MH1J73 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.021	0.11	0.0036	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100173-16 **Sample No:** MH1J74 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.023	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100173-17 **Sample No:** MH1J75 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.23	0.11	0.0034	mg/kg			

Lab Sample Name: 6100173-18 **Sample No:** MH1J76 **Sample Date:** 09/28/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.037	0.13	0.0041	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100173-01 **Sample No:** MH1J59 **Sample Date:** 09/29/2016 15:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18600	21.8	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	32.8	1.1	0.14	mg/kg	*	J	Q, A
Calcium	7440-70-2	2290	546	6.3	mg/kg	*	J	A
Copper	7440-50-8	28.6	2.7	0.056	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	24200	10.9	0.91	mg/kg	*	J	A
Lead	7439-92-1	276	1.1	0.12	mg/kg	*	J	A
Magnesium	7439-95-4	5090	546	2.4	mg/kg	*	J	A
Manganese	7439-96-5	2660	1.6	0.067	mg/kg	*	J	A
Zinc	7440-66-6	430	6.5	0.28	mg/kg	*	J	E, Q, P, A

Lab Sample Name: 6100173-02 **Sample No:** MH1J60 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8170	22.8	2.3	mg/kg	*		
Arsenic	7440-38-2	18.3	1.1	0.15	mg/kg	*		
Calcium	7440-70-2	1910	570	6.6	mg/kg	*		
Copper	7440-50-8	57.2	2.9	0.058	mg/kg	*		
Iron	7439-89-6	18700	11.4	0.95	mg/kg	*		
Lead	7439-92-1	455	1.1	0.13	mg/kg	*		
Magnesium	7439-95-4	4530	570	2.5	mg/kg	*		
Manganese	7439-96-5	1660	1.7	0.070	mg/kg	*	J	F1

Zinc	7440-66-6	359	6.8	0.30	mg/kg	*	

Lab Sample Name: 6100173-03 **Sample No:** MH1J61 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12800	21.8	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	60.2	1.1	0.14	mg/kg	*	J	Q, A
Calcium	7440-70-2	1540	546	6.3	mg/kg	*	J	A
Copper	7440-50-8	141	2.7	0.056	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	40500	10.9	0.91	mg/kg	*	J	A
Lead	7439-92-1	1870	1.1	0.12	mg/kg	*	J	A
Magnesium	7439-95-4	6420	546	2.4	mg/kg	*	J	A
Manganese	7439-96-5	2350	1.6	0.067	mg/kg	*	J	A
Zinc	7440-66-6	404	6.5	0.28	mg/kg	*	J	E, Q, P, A

Lab Sample Name: 6100173-04 **Sample No:** MH1J62 **Sample Date:** 09/29/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8750	23.6	2.4	mg/kg	*		
Arsenic	7440-38-2	68.1	1.2	0.15	mg/kg	*		
Calcium	7440-70-2	2020	591	6.9	mg/kg	*		
Copper	7440-50-8	312	3.0	0.060	mg/kg	*		
Iron	7439-89-6	26000	11.8	0.98	mg/kg	*		
Lead	7439-92-1	848	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	4810	591	2.6	mg/kg	*		
Manganese	7439-96-5	20300	17.7	0.72	mg/kg	D*		
Zinc	7440-66-6	1510	7.1	0.31	mg/kg	*		

Lab Sample Name: 6100173-05 **Sample No:** MH1J63 **Sample Date:** 09/29/2016 11:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9780	24.1	2.4	mg/kg	*		
Arsenic	7440-38-2	38.5	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	2540	603	7.0	mg/kg	*		
Copper	7440-50-8	158	3.0	0.061	mg/kg	*		
Iron	7439-89-6	24500	12.1	1.0	mg/kg	*		
Lead	7439-92-1	454	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	6300	603	2.7	mg/kg	*		
Manganese	7439-96-5	4740	5.4	0.22	mg/kg	D*		
Zinc	7440-66-6	1150	7.2	0.31	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100173-06 **Sample No:** MH1J64 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15700	18.0	1.8	mg/kg			
Arsenic	7440-38-2	8.6	0.90	0.12	mg/kg		J	F1
Calcium	7440-70-2	6600	451	5.2	mg/kg			
Copper	7440-50-8	149	2.3	0.046	mg/kg			
Iron	7439-89-6	30900	9.0	0.75	mg/kg			
Lead	7439-92-1	302	0.90	0.099	mg/kg			
Magnesium	7439-95-4	8240	451	2.0	mg/kg			
Manganese	7439-96-5	3500	4.1	0.16	mg/kg	D		
Zinc	7440-66-6	1160	5.4	0.23	mg/kg		J	F1

Lab Sample Name: 6100173-07 **Sample No:** MH1J65 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	22800	21.4	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	14.7	1.1	0.14	mg/kg	*	J	Q, A
Calcium	7440-70-2	2950	534	6.2	mg/kg	*	J	A
Copper	7440-50-8	59.3	2.7	0.054	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	48000	10.7	0.89	mg/kg	*	J	A
Lead	7439-92-1	130	1.1	0.12	mg/kg	*	J	A
Magnesium	7439-95-4	11600	534	2.4	mg/kg	*	J	A
Manganese	7439-96-5	1880	1.6	0.065	mg/kg	*	J	A
Zinc	7440-66-6	366	6.4	0.28	mg/kg	*	J	E, Q, P, A

Lab Sample Name: 6100173-08 **Sample No:** MH1J66 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	26900	31.9	3.2	mg/kg	*		
Arsenic	7440-38-2	13.3	1.6	0.21	mg/kg	*		
Calcium	7440-70-2	4400	796	9.2	mg/kg	*		
Copper	7440-50-8	43.6	4.0	0.081	mg/kg	*		
Iron	7439-89-6	40900	15.9	1.3	mg/kg	*		
Lead	7439-92-1	103	1.6	0.18	mg/kg	*		
Magnesium	7439-95-4	9890	796	3.5	mg/kg	*		
Manganese	7439-96-5	1770	2.4	0.097	mg/kg	*		
Zinc	7440-66-6	724	9.6	0.41	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100173-09 **Sample No:** MH1J67 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	20900	21.7	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	26.6	1.1	0.14	mg/kg	*	J	Q, A
Calcium	7440-70-2	1620	542	6.3	mg/kg	*	J	A
Copper	7440-50-8	76.3	2.7	0.055	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	44900	10.8	0.90	mg/kg	*	J	A
Lead	7439-92-1	321	1.1	0.12	mg/kg	*	J	A
Magnesium	7439-95-4	8390	542	2.4	mg/kg	*	J	A
Manganese	7439-96-5	3410	4.9	0.20	mg/kg	D*	J	A
Zinc	7440-66-6	892	6.5	0.28	mg/kg	*	J	E, Q, P, A

Lab Sample Name: 6100173-10 **Sample No:** MH1J68 **Sample Date:** 09/29/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15300	23.8	2.4	mg/kg	*		
Arsenic	7440-38-2	17.6	1.2	0.15	mg/kg	*		
Calcium	7440-70-2	4620	594	6.9	mg/kg	*		
Copper	7440-50-8	214	3.0	0.061	mg/kg	*		
Iron	7439-89-6	45200	11.9	0.99	mg/kg	*		
Lead	7439-92-1	727	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	8800	594	2.6	mg/kg	*		
Manganese	7439-96-5	5000	5.3	0.22	mg/kg	D*		
Zinc	7440-66-6	1540	7.1	0.31	mg/kg	*		

Lab Sample Name: 6100173-11 **Sample No:** MH1J69 **Sample Date:** 09/29/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18300	22.8	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	23.8	1.1	0.15	mg/kg	*	J	Q, A
Calcium	7440-70-2	4040	569	6.6	mg/kg	*	J	A
Copper	7440-50-8	180	2.8	0.058	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	47500	11.4	0.94	mg/kg	*	J	A
Lead	7439-92-1	673	1.1	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	9150	569	2.5	mg/kg	*	J	A
Manganese	7439-96-5	3550	5.1	0.21	mg/kg	D*	J	A
Zinc	7440-66-6	688	6.8	0.30	mg/kg	*	J	E, Q, P, A

Analysis Method ICP_AES

Lab Sample Name: 6100173-12 **Sample No:** MH1J70 **Sample Date:** 09/29/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19000	63.6	6.4	mg/kg	*		
Arsenic	7440-38-2	6.0	3.2	0.41	mg/kg	*		
Calcium	7440-70-2	4430	1590	18.5	mg/kg	*		
Copper	7440-50-8	30.6	8.0	0.16	mg/kg	*		
Iron	7439-89-6	38500	31.8	2.6	mg/kg	*		
Lead	7439-92-1	75.9	3.2	0.35	mg/kg	*		
Magnesium	7439-95-4	8440	1590	7.0	mg/kg	*		
Manganese	7439-96-5	615	4.8	0.19	mg/kg	*		
Zinc	7440-66-6	294	19.1	0.83	mg/kg	*		

Lab Sample Name: 6100173-13 **Sample No:** MH1J71 **Sample Date:** 09/29/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	23500	24.2	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	13.5	1.2	0.16	mg/kg	*	J	Q, A
Calcium	7440-70-2	2090	604	7.0	mg/kg	*	J	A
Copper	7440-50-8	25.2	3.0	0.062	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	32500	12.1	1.0	mg/kg	*	J	A
Lead	7439-92-1	97.7	1.2	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	6530	604	2.7	mg/kg	*	J	A
Manganese	7439-96-5	1210	1.8	0.074	mg/kg	*	J	A
Zinc	7440-66-6	187	7.2	0.31	mg/kg	*	J	E, Q, P, A

Lab Sample Name: 6100173-14 **Sample No:** MH1J72 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19600	26.5	2.6	mg/kg	*		
Arsenic	7440-38-2	3.1	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	3650	661	7.7	mg/kg	*		
Copper	7440-50-8	92.1	3.3	0.067	mg/kg	*		
Iron	7439-89-6	29500	13.2	1.1	mg/kg	*		
Lead	7439-92-1	85.7	1.3	0.15	mg/kg	*		
Magnesium	7439-95-4	11800	661	2.9	mg/kg	*		
Manganese	7439-96-5	3950	6.0	0.24	mg/kg	D*		
Zinc	7440-66-6	1100	7.9	0.34	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100173-15 **Sample No:** MH1J73 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19200	22.8	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	8.8	1.1	0.15	mg/kg	*	J	Q, A
Calcium	7440-70-2	3370	569	6.6	mg/kg	*	J	A
Copper	7440-50-8	37.6	2.8	0.058	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	39200	11.4	0.95	mg/kg	*	J	A
Lead	7439-92-1	89.6	1.1	0.13	mg/kg	*	J	A
Magnesium	7439-95-4	8220	569	2.5	mg/kg	*	J	A
Manganese	7439-96-5	1300	1.7	0.069	mg/kg	*	J	A
Zinc	7440-66-6	178	6.8	0.30	mg/kg	*	J	E, Q, P, A

Lab Sample Name: 6100173-16 **Sample No:** MH1J74 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18000	27.4	2.7	mg/kg	*		
Arsenic	7440-38-2	18.3	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	3790	686	8.0	mg/kg	*		
Copper	7440-50-8	146	3.4	0.070	mg/kg	*		
Iron	7439-89-6	43300	13.7	1.1	mg/kg	*		
Lead	7439-92-1	266	1.4	0.15	mg/kg	*		
Magnesium	7439-95-4	10100	686	3.0	mg/kg	*		
Manganese	7439-96-5	4770	6.2	0.25	mg/kg	D*		
Zinc	7440-66-6	1500	8.2	0.36	mg/kg	*		

Lab Sample Name: 6100173-17 **Sample No:** MH1J75 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17300	21.4	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	17.4	1.1	0.14	mg/kg	*	J	Q, A
Calcium	7440-70-2	3890	534	6.2	mg/kg	*	J	A
Copper	7440-50-8	96.9	2.7	0.055	mg/kg	*	J+	Q, P, A
Iron	7439-89-6	55600	32.1	2.7	mg/kg	D*	J	A
Lead	7439-92-1	605	1.1	0.12	mg/kg	*	J	A
Magnesium	7439-95-4	9260	534	2.4	mg/kg	*	J	A
Manganese	7439-96-5	1620	1.6	0.065	mg/kg	*	J	A
Zinc	7440-66-6	282	6.4	0.28	mg/kg	*	J	E, Q, P, A

Analysis Method ICP_AES

Lab Sample Name: 6100173-18 **Sample No:** MH1J76 **Sample Date:** 09/28/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14100	25.8	2.6	mg/kg	*		
Arsenic	7440-38-2	69.3	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	4090	645	7.5	mg/kg	*		
Copper	7440-50-8	472	3.2	0.066	mg/kg	*		
Iron	7439-89-6	55500	12.9	1.1	mg/kg	*		
Lead	7439-92-1	12100	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	8520	645	2.8	mg/kg	*		
Manganese	7439-96-5	47300	19.4	0.79	mg/kg	D*		
Zinc	7440-66-6	11400	77.4	3.4	mg/kg	D*		

Analysis Method ICP_MS

Lab Sample Name: 6100173-01 **Sample No:** MH1J59 **Sample Date:** 09/29/2016 15:05:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.033	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	98.9	5.5	0.048	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.66	0.55	0.044	mg/kg			
Cadmium	7440-43-9	1.1	0.55	0.046	mg/kg			
Chromium	7440-47-3	12.0	1.1	0.090	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	6.5	0.55	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	4.4	2.2	0.049	mg/kg	*	J-	Q, A
Nickel	7440-02-0	4.4	0.55	0.049	mg/kg	*	J	A
Selenium	7782-49-2	1.0	2.7	0.074	mg/kg	J*	J-	Q
Silver	7440-22-4	0.90	0.55	0.029	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	17.2	2.7	0.090	mg/kg			

Lab Sample Name: 6100173-02 **Sample No:** MH1J60 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.034	mg/kg	J*	U	B
Barium	7440-39-3	31.7	5.7	0.050	mg/kg	*		
Beryllium	7440-41-7	0.62	0.57	0.046	mg/kg			
Cadmium	7440-43-9	1.2	0.57	0.048	mg/kg			
Chromium	7440-47-3	2.7	1.1	0.094	mg/kg	*		
Cobalt	7440-48-4	5.7	0.57	0.034	mg/kg	*		
Molybdenum	7439-98-7	5.2	2.3	0.051	mg/kg	*		

Nickel	7440-02-0	2.4	0.57	0.051	mg/kg	*		
Selenium	7782-49-2	0.84	2.9	0.078	mg/kg	J*	J	
Silver	7440-22-4	1.3	0.57	0.031	mg/kg			
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	14.2	2.9	0.094	mg/kg			

Lab Sample Name: 6100173-03 **Sample No:** MH1J61 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.9	1.1	0.033	mg/kg	*	J-	Q
Barium	7440-39-3	72.0	5.5	0.048	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.38	0.55	0.044	mg/kg	J	J	
Cadmium	7440-43-9	1.3	0.55	0.046	mg/kg			
Chromium	7440-47-3	5.9	1.1	0.089	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	6.3	0.55	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	16.3	2.2	0.049	mg/kg	*	J-	Q, A
Nickel	7440-02-0	3.6	0.55	0.049	mg/kg	*	J	A
Selenium	7782-49-2	1.2	2.7	0.074	mg/kg	J*	J-	Q
Silver	7440-22-4	5.9	0.55	0.029	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	20.3	2.7	0.089	mg/kg			

Lab Sample Name: 6100173-04 **Sample No:** MH1J62 **Sample Date:** 09/29/2016 12:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	9.4	1.2	0.035	mg/kg	*		
Barium	7440-39-3	69.6	5.9	0.052	mg/kg	*		
Beryllium	7440-41-7	2.4	0.59	0.047	mg/kg			
Cadmium	7440-43-9	5.2	0.59	0.050	mg/kg			
Chromium	7440-47-3	5.8	1.2	0.097	mg/kg	*		
Cobalt	7440-48-4	7.6	0.59	0.035	mg/kg	*		
Molybdenum	7439-98-7	3.1	2.4	0.053	mg/kg	*		
Nickel	7440-02-0	5.1	0.59	0.053	mg/kg	*		
Selenium	7782-49-2	1.4	3.0	0.080	mg/kg	J*	J	
Silver	7440-22-4	3.9	0.59	0.032	mg/kg			
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	14.8	3.0	0.097	mg/kg			

Lab Sample Name: 6100173-05 **Sample No:** MH1J63 **Sample Date:** 09/29/2016 11:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.4	1.2	0.036	mg/kg	*		

Barium	7440-39-3	45.5	6.0	0.053	mg/kg	*		
Beryllium	7440-41-7	1.3	0.60	0.048	mg/kg			
Cadmium	7440-43-9	7.1	0.60	0.051	mg/kg			
Chromium	7440-47-3	3.3	1.2	0.099	mg/kg	*		
Cobalt	7440-48-4	8.7	0.60	0.036	mg/kg	*		
Molybdenum	7439-98-7	6.2	2.4	0.054	mg/kg	*		
Nickel	7440-02-0	5.5	0.60	0.054	mg/kg	*		
Selenium	7782-49-2	1.4	3.0	0.082	mg/kg	J*	J	
Silver	7440-22-4	2.0	0.60	0.033	mg/kg			
Thallium	7440-28-0	0.60	0.60	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	14.5	3.0	0.099	mg/kg			

Lab Sample Name: 6100173-06 **Sample No:** MH1J64 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	0.90	0.90	0.027	mg/kg	J	U	B
Barium	7440-39-3	122	4.5	0.040	mg/kg		J	F1
Beryllium	7440-41-7	1.3	0.45	0.036	mg/kg			
Cadmium	7440-43-9	4.9	0.45	0.038	mg/kg		J	F1
Chromium	7440-47-3	5.3	0.90	0.074	mg/kg		J	F1
Cobalt	7440-48-4	14.4	0.45	0.027	mg/kg		J	F1
Molybdenum	7439-98-7	1.8	1.8	0.041	mg/kg	J	U	B
Nickel	7440-02-0	12.8	0.45	0.041	mg/kg		J	F1
Selenium	7782-49-2	2.8	2.3	0.061	mg/kg			
Silver	7440-22-4	1.3	0.45	0.024	mg/kg			
Thallium	7440-28-0	0.45	0.45	0.034	mg/kg	J	U	B
Vanadium	7440-62-2	35.4	2.3	0.074	mg/kg		J	F1

Lab Sample Name: 6100173-07 **Sample No:** MH1J65 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.032	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	49.2	5.3	0.047	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.73	0.53	0.043	mg/kg			
Cadmium	7440-43-9	0.57	0.53	0.045	mg/kg		J+	B
Chromium	7440-47-3	6.7	1.1	0.088	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	17.2	0.53	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	J*	UJ	B, Q, A
Nickel	7440-02-0	8.0	0.53	0.048	mg/kg	*	J	A
Selenium	7782-49-2	2.0	2.7	0.073	mg/kg	J*	J-	Q
Silver	7440-22-4	0.70	0.53	0.029	mg/kg			
Thallium	7440-28-0	0.53	0.53	0.041	mg/kg	J	U	B

Vanadium	7440-62-2	46.0	2.7	0.088	mg/kg			

Lab Sample Name: 6100173-08 **Sample No:** MH1J66 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.6	0.048	mg/kg	J*	U	B
Barium	7440-39-3	101	8.0	0.070	mg/kg	*		
Beryllium	7440-41-7	0.71	0.80	0.064	mg/kg	J	J	
Cadmium	7440-43-9	2.2	0.80	0.067	mg/kg			
Chromium	7440-47-3	8.3	1.6	0.13	mg/kg	*		
Cobalt	7440-48-4	6.5	0.80	0.048	mg/kg	*		
Molybdenum	7439-98-7	3.2	3.2	0.072	mg/kg	J*	U	B
Nickel	7440-02-0	6.6	0.80	0.072	mg/kg	*		
Selenium	7782-49-2	1.3	4.0	0.11	mg/kg	J*	J	
Silver	7440-22-4	0.8	0.80	0.043	mg/kg	J	J	
Thallium	7440-28-0	0.80	0.80	0.061	mg/kg	J	U	B
Vanadium	7440-62-2	30.5	4.0	0.13	mg/kg			

Lab Sample Name: 6100173-09 **Sample No:** MH1J67 **Sample Date:** 09/29/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.033	mg/kg	*	J-	Q
Barium	7440-39-3	51.0	5.4	0.048	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.76	0.54	0.043	mg/kg			
Cadmium	7440-43-9	1.3	0.54	0.046	mg/kg			
Chromium	7440-47-3	7.8	1.1	0.089	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	11.8	0.54	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	1.8	2.2	0.049	mg/kg	J*	UJ	B, Q, A
Nickel	7440-02-0	7.4	0.54	0.049	mg/kg	*	J	A
Selenium	7782-49-2	1.6	2.7	0.074	mg/kg	J*	J-	Q
Silver	7440-22-4	1.5	0.54	0.029	mg/kg			
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	30.8	2.7	0.089	mg/kg			

Lab Sample Name: 6100173-10 **Sample No:** MH1J68 **Sample Date:** 09/29/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	J*	U	B
Barium	7440-39-3	61.6	5.9	0.052	mg/kg	*		
Beryllium	7440-41-7	0.83	0.59	0.048	mg/kg			
Cadmium	7440-43-9	7.2	0.59	0.050	mg/kg			
Chromium	7440-47-3	4.5	1.2	0.097	mg/kg	*		

Analysis Method ICP_MS

Cobalt	7440-48-4	14.2	0.59	0.036	mg/kg	*		
Molybdenum	7439-98-7	2.4	2.4	0.053	mg/kg	J*	U	B
Nickel	7440-02-0	9.3	0.59	0.053	mg/kg	*		
Selenium	7782-49-2	1.6	3.0	0.081	mg/kg	J*	J	
Silver	7440-22-4	1.1	0.59	0.032	mg/kg			
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	26.1	3.0	0.097	mg/kg			

Lab Sample Name: 6100173-11 **Sample No:** MH1J69 **Sample Date:** 09/29/2016 13:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.034	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	55.7	5.7	0.050	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.69	0.57	0.046	mg/kg			
Cadmium	7440-43-9	2.4	0.57	0.048	mg/kg			
Chromium	7440-47-3	6.1	1.1	0.093	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	13.4	0.57	0.034	mg/kg	*	J	A
Molybdenum	7439-98-7	2.3	2.3	0.051	mg/kg	J*	UJ	B, Q, A
Nickel	7440-02-0	7.9	0.57	0.051	mg/kg	*	J	A
Selenium	7782-49-2	1.8	2.8	0.077	mg/kg	J*	J-	Q
Silver	7440-22-4	2.0	0.57	0.031	mg/kg			
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	29.1	2.8	0.093	mg/kg			

Lab Sample Name: 6100173-12 **Sample No:** MH1J70 **Sample Date:** 09/29/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.2	3.2	0.095	mg/kg	J*	U	B
Barium	7440-39-3	89.2	15.9	0.14	mg/kg	*		
Beryllium	7440-41-7	0.76	1.6	0.13	mg/kg	J	J	
Cadmium	7440-43-9	1.1	1.6	0.13	mg/kg	J	J	
Chromium	7440-47-3	7.3	3.2	0.26	mg/kg	*		
Cobalt	7440-48-4	11.6	1.6	0.095	mg/kg	*		
Molybdenum	7439-98-7	6.4	6.4	0.14	mg/kg	J*	U	B
Nickel	7440-02-0	9.3	1.6	0.14	mg/kg	*		
Selenium	7782-49-2	2.2	8.0	0.22	mg/kg	J*	J	
Silver	7440-22-4	0.43	1.6	0.086	mg/kg	J	J	
Thallium	7440-28-0	1.6	1.6	0.12	mg/kg	J	U	B
Vanadium	7440-62-2	33.4	8.0	0.26	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100173-13 **Sample No:** MH1J71 **Sample Date:** 09/29/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	64.4	6.0	0.053	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.50	0.60	0.048	mg/kg	J	J	
Cadmium	7440-43-9	0.60	0.60	0.051	mg/kg	J	U	B
Chromium	7440-47-3	9.7	1.2	0.099	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	5.8	0.60	0.036	mg/kg	*	J	A
Molybdenum	7439-98-7	2.4	2.4	0.054	mg/kg	J*	UJ	B, Q, A
Nickel	7440-02-0	6.2	0.60	0.054	mg/kg	*	J	A
Selenium	7782-49-2	0.92	3.0	0.082	mg/kg	J*	J-	Q
Silver	7440-22-4	0.38	0.60	0.033	mg/kg	J	J	
Thallium	7440-28-0	0.60	0.60	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	28.1	3.0	0.099	mg/kg			

Lab Sample Name: 6100173-14 **Sample No:** MH1J72 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.040	mg/kg	J*	U	B
Barium	7440-39-3	80.0	6.6	0.058	mg/kg	*		
Beryllium	7440-41-7	0.63	0.66	0.053	mg/kg	J	J	
Cadmium	7440-43-9	6.3	0.66	0.056	mg/kg			
Chromium	7440-47-3	6.2	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	9.3	0.66	0.040	mg/kg	*		
Molybdenum	7439-98-7	2.6	2.6	0.060	mg/kg	J*	U	B
Nickel	7440-02-0	9.7	0.66	0.060	mg/kg	*		
Selenium	7782-49-2	1.7	3.3	0.090	mg/kg	J*	J	
Silver	7440-22-4	0.46	0.66	0.036	mg/kg	J	J	
Thallium	7440-28-0	0.66	0.66	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	38.6	3.3	0.11	mg/kg			

Lab Sample Name: 6100173-15 **Sample No:** MH1J73 **Sample Date:** 09/29/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.034	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	54.4	5.7	0.050	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.59	0.57	0.046	mg/kg			
Cadmium	7440-43-9	0.55	0.57	0.048	mg/kg	J	J	
Chromium	7440-47-3	6.0	1.1	0.093	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	13.7	0.57	0.034	mg/kg	*	J	A

Analysis Method ICP_MS

Molybdenum	7439-98-7	2.3	2.3	0.051	mg/kg	J*	UJ	B, Q, A
Nickel	7440-02-0	8.4	0.57	0.051	mg/kg	*	J	A
Selenium	7782-49-2	1.5	2.8	0.077	mg/kg	J*	J-	Q
Silver	7440-22-4	0.31	0.57	0.031	mg/kg	J	J	
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	29.2	2.8	0.093	mg/kg			

Lab Sample Name: 6100173-16 **Sample No:** MH1J74 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.041	mg/kg	J*	U	B
Barium	7440-39-3	56.9	6.9	0.060	mg/kg	*		
Beryllium	7440-41-7	0.91	0.69	0.055	mg/kg			
Cadmium	7440-43-9	5.4	0.69	0.058	mg/kg			
Chromium	7440-47-3	6.0	1.4	0.11	mg/kg	*		
Cobalt	7440-48-4	14.5	0.69	0.041	mg/kg	*		
Molybdenum	7439-98-7	2.0	2.7	0.062	mg/kg	J*	U	B
Nickel	7440-02-0	10.4	0.69	0.062	mg/kg	*		
Selenium	7782-49-2	2.0	3.4	0.093	mg/kg	J*	J	
Silver	7440-22-4	1.1	0.69	0.037	mg/kg			
Thallium	7440-28-0	0.69	0.69	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	28.7	3.4	0.11	mg/kg			

Lab Sample Name: 6100173-17 **Sample No:** MH1J75 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.1	0.032	mg/kg	*	J-	Q
Barium	7440-39-3	48.0	5.3	0.047	mg/kg	*	J-	E, Q, A
Beryllium	7440-41-7	0.74	0.53	0.043	mg/kg			
Cadmium	7440-43-9	0.71	0.53	0.045	mg/kg		J+	B
Chromium	7440-47-3	8.8	1.1	0.088	mg/kg	*	J-	E, Q
Cobalt	7440-48-4	18.0	0.53	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	2.1	2.1	0.048	mg/kg	*	J-	Q, A
Nickel	7440-02-0	10.0	0.53	0.048	mg/kg	*	J	A
Selenium	7782-49-2	2.2	2.7	0.073	mg/kg	J*	J-	Q
Silver	7440-22-4	4.9	0.53	0.029	mg/kg			
Thallium	7440-28-0	0.53	0.53	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	39.2	2.7	0.088	mg/kg			

Lab Sample Name: 6100173-18 **Sample No:** MH1J76 **Sample Date:** 09/28/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	2.3	1.3	0.039	mg/kg	*		
Barium	7440-39-3	63.6	6.5	0.057	mg/kg	*		
Beryllium	7440-41-7	1.4	0.65	0.052	mg/kg			
Cadmium	7440-43-9	10.9	0.65	0.054	mg/kg			
Chromium	7440-47-3	13.2	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	16.7	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	78.4	2.6	0.058	mg/kg	*		
Nickel	7440-02-0	12.0	0.65	0.058	mg/kg	*		
Selenium	7782-49-2	2.8	3.2	0.088	mg/kg	J*	**J**	
Silver	7440-22-4	13.9	0.65	0.035	mg/kg			
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	34.0	3.2	0.11	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1J77

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1J77
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1J77	6100174-01	Soil	09/28/2016 16:15:00	Hg, ICP-AES, ICP-MS
MH1J78	6100174-02	Sediment	09/28/2016 13:25:00	Hg, ICP-AES, ICP-MS
MH1J79	6100174-03	Soil	09/28/2016 13:25:00	Hg, ICP-AES, ICP-MS
MH1J80	6100174-04	Sediment	09/28/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1J81	6100174-05	Soil	09/28/2016 11:30:00	Hg, ICP-AES, ICP-MS
MH1J82	6100174-06	Sediment	09/28/2016 14:50:00	Hg, ICP-AES, ICP-MS
MH1J83	6100174-07	Soil	09/28/2016 14:50:00	Hg, ICP-AES, ICP-MS
MH1J84	6100174-08	Sediment	09/27/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1J85	6100174-09	Soil	09/27/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1J86	6100174-10	Sediment	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1J87	6100174-11	Soil	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1J88	6100174-12	Sediment	09/27/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1J89	6100174-13	Soil	09/27/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1J90	6100174-14	Sediment	09/27/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1J91	6100174-15	Soil	09/27/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1J92	6100174-16	Sediment	09/27/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1J93	6100174-17	Soil	09/27/2016 10:00:00	Hg, ICP-AES, ICP-MS
MH1J94	6100174-18	Sediment	09/29/2016 08:45:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.

A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 20, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B*; and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied.

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
antimony	0.13	MH1J82, MH1J86
molybdenum	0.39	MH1J82
thallium	0.081	All site sample results

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1J77 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exceptions of copper (31%), lead (34%), manganese (29%) and silver (34%). All associated soil results were detected and were qualified as estimated (J).

- Matrix Spike: Matrix spike analyses were performed on sample MH1J77 for all methods. Recoveries were not assessed when the parent sample concentrations were > 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of copper (6%), antimony (53%), cadmium (72%) and silver (56%). All associated results for soil samples were detected and were qualified as estimated with low potential bias (J-). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium
- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1J77 for ICP-AES and ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes with the exception of antimony (20%). All associated antimony results for soil samples were detected and were qualified as estimated with low potential bias (J-). Bias was removed from the remaining MS outliers due to the acceptable PDS recoveries.
- Serial Dilution: Serial dilution analysis was performed on sample MHJ77 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of magnesium (11%), barium (20%), cadmium (21%), cobalt (27%), molybdenum (25%), nickel (25%) and silver (23%). All associated results for soil samples were detected and were qualified as estimated (J).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range. Detected results for dilutions were flagged with “D” by the laboratory. Reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1J77

Analysis Method Hg

Lab Sample Name: 6100174-01 **Sample No:** MH1J77 **Sample Date:** 09/28/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.046	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100174-02 **Sample No:** MH1J78 **Sample Date:** 09/28/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.055	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100174-03 **Sample No:** MH1J79 **Sample Date:** 09/28/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.055	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100174-04 **Sample No:** MH1J80 **Sample Date:** 09/28/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.046	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100174-05 **Sample No:** MH1J81 **Sample Date:** 09/28/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100174-06 **Sample No:** MH1J82 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0071	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100174-07 **Sample No:** MH1J83 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.32	0.16	0.0051	mg/kg			

Analysis Method Hg

Lab Sample Name: 6100174-08 **Sample No:** MH1J84 **Sample Date:** 09/27/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0081	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100174-09 **Sample No:** MH1J85 **Sample Date:** 09/27/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0096	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100174-10 **Sample No:** MH1J86 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.035	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100174-11 **Sample No:** MH1J87 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.093	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100174-12 **Sample No:** MH1J88 **Sample Date:** 09/27/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.042	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100174-13 **Sample No:** MH1J89 **Sample Date:** 09/27/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.071	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100174-14 **Sample No:** MH1J90 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.020	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100174-15 **Sample No:** MH1J91 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.028	0.11	0.0035	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100174-16 **Sample No:** MH1J92 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.55	0.12	0.0039	mg/kg			

Lab Sample Name: 6100174-17 **Sample No:** MH1J93 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	1.9	0.22	0.0069	mg/kg	D		

Lab Sample Name: 6100174-18 **Sample No:** MH1J94 **Sample Date:** 09/29/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.039	0.12	0.0038	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100174-01 **Sample No:** MH1J77 **Sample Date:** 09/28/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18100	21.0	2.1	mg/kg			
Arsenic	7440-38-2	42.4	1.1	0.14	mg/kg			
Calcium	7440-70-2	2790	526	6.1	mg/kg			
Copper	7440-50-8	192	2.6	0.054	mg/kg	*	J	E, Q
Iron	7439-89-6	65400	52.6	4.4	mg/kg	D		
Lead	7439-92-1	730	1.1	0.12	mg/kg	*	J	E
Magnesium	7439-95-4	8550	526	2.3	mg/kg	*	J	A
Manganese	7439-96-5	5830	7.9	0.32	mg/kg	D*	J	E
Zinc	7440-66-6	1050	6.3	0.27	mg/kg			

Lab Sample Name: 6100174-02 **Sample No:** MH1J78 **Sample Date:** 09/28/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14800	25.9	2.6	mg/kg			
Arsenic	7440-38-2	32.1	1.3	0.17	mg/kg			
Calcium	7440-70-2	3220	648	7.5	mg/kg			
Copper	7440-50-8	432	3.2	0.066	mg/kg	*		
Iron	7439-89-6	61200	64.8	5.4	mg/kg	D		
Lead	7439-92-1	1940	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	7950	648	2.8	mg/kg	*		
Manganese	7439-96-5	7080	9.7	0.40	mg/kg	D*		

Zinc		7440-66-6	3640	38.9	1.7	mg/kg	D		

Lab Sample Name: 6100174-03 **Sample No:** MH1J79 **Sample Date:** 09/28/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17700	22.0	2.2	mg/kg			
Arsenic	7440-38-2	18.6	1.1	0.14	mg/kg			
Calcium	7440-70-2	3890	550	6.4	mg/kg			
Copper	7440-50-8	456	2.7	0.056	mg/kg	*	J	E, Q
Iron	7439-89-6	60100	65.9	5.5	mg/kg	D		
Lead	7439-92-1	1010	1.1	0.12	mg/kg	*	J	E
Magnesium	7439-95-4	10100	550	2.4	mg/kg	*	J	A
Manganese	7439-96-5	9450	9.9	0.40	mg/kg	D*	J	E
Zinc	7440-66-6	3640	39.6	1.7	mg/kg	D		

Lab Sample Name: 6100174-04 **Sample No:** MH1J80 **Sample Date:** 09/28/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16200	25.4	2.5	mg/kg			
Arsenic	7440-38-2	28.7	1.3	0.17	mg/kg			
Calcium	7440-70-2	3160	636	7.4	mg/kg			
Copper	7440-50-8	419	3.2	0.065	mg/kg	*		
Iron	7439-89-6	46800	89.0	7.4	mg/kg	D		
Lead	7439-92-1	1090	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	8920	636	2.8	mg/kg	*		
Manganese	7439-96-5	9120	13.3	0.54	mg/kg	D*		
Zinc	7440-66-6	3660	53.4	2.3	mg/kg	D		

Lab Sample Name: 6100174-05 **Sample No:** MH1J81 **Sample Date:** 09/28/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16000	23.2	2.3	mg/kg			
Arsenic	7440-38-2	31.7	1.2	0.15	mg/kg			
Calcium	7440-70-2	2760	580	6.7	mg/kg			
Copper	7440-50-8	439	2.9	0.059	mg/kg	*	J	E, Q
Iron	7439-89-6	67000	116	9.6	mg/kg	D		
Lead	7439-92-1	1770	1.2	0.13	mg/kg	*	J	E
Magnesium	7439-95-4	8530	580	2.6	mg/kg	*	J	A
Manganese	7439-96-5	15100	17.4	0.71	mg/kg	D*	J	E
Zinc	7440-66-6	3450	69.6	3.0	mg/kg	D		

Analysis Method ICP_AES

Lab Sample Name: 6100174-06 **Sample No:** MH1J82 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14100	26.6	2.7	mg/kg			
Arsenic	7440-38-2	15.9	1.3	0.17	mg/kg			
Calcium	7440-70-2	2500	666	7.7	mg/kg			
Copper	7440-50-8	93.5	3.3	0.068	mg/kg	*		
Iron	7439-89-6	33600	13.3	1.1	mg/kg			
Lead	7439-92-1	78.8	1.3	0.15	mg/kg	*		
Magnesium	7439-95-4	9920	666	2.9	mg/kg	*		
Manganese	7439-96-5	4940	6.0	0.24	mg/kg	D*		
Zinc	7440-66-6	666	8.0	0.35	mg/kg			

Lab Sample Name: 6100174-07 **Sample No:** MH1J83 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	20700	31.6	3.2	mg/kg			
Arsenic	7440-38-2	31.9	1.6	0.21	mg/kg			
Calcium	7440-70-2	2870	790	9.2	mg/kg			
Copper	7440-50-8	571	3.9	0.081	mg/kg	*	J	E, Q
Iron	7439-89-6	44000	15.8	1.3	mg/kg			
Lead	7439-92-1	1390	1.6	0.17	mg/kg	*	J	E
Magnesium	7439-95-4	8020	790	3.5	mg/kg	*	J	A
Manganese	7439-96-5	13400	16.6	0.67	mg/kg	D*	J	E
Zinc	7440-66-6	3690	66.4	2.9	mg/kg	D		

Lab Sample Name: 6100174-08 **Sample No:** MH1J84 **Sample Date:** 09/27/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11200	27.8	2.8	mg/kg			
Arsenic	7440-38-2	19.3	1.4	0.18	mg/kg			
Calcium	7440-70-2	2590	695	8.1	mg/kg			
Copper	7440-50-8	80.6	3.5	0.071	mg/kg	*		
Iron	7439-89-6	40600	13.9	1.2	mg/kg			
Lead	7439-92-1	146	1.4	0.15	mg/kg	*		
Magnesium	7439-95-4	5990	695	3.1	mg/kg	*		
Manganese	7439-96-5	1360	2.1	0.085	mg/kg	*		
Zinc	7440-66-6	307	8.3	0.36	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100174-09 **Sample No:** MH1J85 **Sample Date:** 09/27/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11100	21.4	2.1	mg/kg			
Arsenic	7440-38-2	24.5	1.1	0.14	mg/kg			
Calcium	7440-70-2	1800	536	6.2	mg/kg			
Copper	7440-50-8	74.5	2.7	0.055	mg/kg	*	J	E, Q
Iron	7439-89-6	52000	32.1	2.7	mg/kg	D		
Lead	7439-92-1	164	1.1	0.12	mg/kg	*	J	E
Magnesium	7439-95-4	6870	536	2.4	mg/kg	*	J	A
Manganese	7439-96-5	1250	1.6	0.065	mg/kg	*	J	E
Zinc	7440-66-6	247	6.4	0.28	mg/kg			

Lab Sample Name: 6100174-10 **Sample No:** MH1J86 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18700	25.0	2.5	mg/kg			
Arsenic	7440-38-2	13.6	1.3	0.16	mg/kg			
Calcium	7440-70-2	4260	626	7.3	mg/kg			
Copper	7440-50-8	194	3.1	0.064	mg/kg	*		
Iron	7439-89-6	40200	12.5	1.0	mg/kg			
Lead	7439-92-1	452	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	12700	626	2.8	mg/kg	*		
Manganese	7439-96-5	8710	11.3	0.46	mg/kg	D*		
Zinc	7440-66-6	2540	45.1	2.0	mg/kg	D		

Lab Sample Name: 6100174-11 **Sample No:** MH1J87 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14800	22.1	2.2	mg/kg			
Arsenic	7440-38-2	20.4	1.1	0.14	mg/kg			
Calcium	7440-70-2	2850	552	6.4	mg/kg			
Copper	7440-50-8	237	2.8	0.056	mg/kg	*	J	E, Q
Iron	7439-89-6	36100	11.0	0.92	mg/kg			
Lead	7439-92-1	838	1.1	0.12	mg/kg	*	J	E
Magnesium	7439-95-4	7830	552	2.4	mg/kg	*	J	A
Manganese	7439-96-5	10000	13.2	0.54	mg/kg	D*	J	E
Zinc	7440-66-6	1940	53.0	2.3	mg/kg	D		

Analysis Method ICP_AES

Lab Sample Name: 6100174-12 **Sample No:** MH1J88 **Sample Date:** 09/27/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	23.4	2.3	mg/kg			
Arsenic	7440-38-2	27.3	1.2	0.15	mg/kg			
Calcium	7440-70-2	1820	584	6.8	mg/kg			
Copper	7440-50-8	119	2.9	0.060	mg/kg	*		
Iron	7439-89-6	33000	11.7	0.97	mg/kg			
Lead	7439-92-1	254	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	6620	584	2.6	mg/kg	*		
Manganese	7439-96-5	4220	3.5	0.14	mg/kg	D*		
Zinc	7440-66-6	1270	7.0	0.30	mg/kg			

Lab Sample Name: 6100174-13 **Sample No:** MH1J89 **Sample Date:** 09/27/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15800	24.6	2.5	mg/kg			
Arsenic	7440-38-2	38.6	1.2	0.16	mg/kg			
Calcium	7440-70-2	2240	615	7.1	mg/kg			
Copper	7440-50-8	331	3.1	0.063	mg/kg	*	J	E, Q
Iron	7439-89-6	63500	123	10.2	mg/kg	D		
Lead	7439-92-1	913	1.2	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	7170	615	2.7	mg/kg	*	J	A
Manganese	7439-96-5	11100	18.4	0.75	mg/kg	D*	J	E
Zinc	7440-66-6	2790	73.8	3.2	mg/kg	D		

Lab Sample Name: 6100174-14 **Sample No:** MH1J90 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10000	25.2	2.5	mg/kg			
Arsenic	7440-38-2	51.9	1.3	0.16	mg/kg			
Calcium	7440-70-2	2710	630	7.3	mg/kg			
Copper	7440-50-8	228	3.2	0.064	mg/kg	*		
Iron	7439-89-6	22900	12.6	1.0	mg/kg			
Lead	7439-92-1	710	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	5140	630	2.8	mg/kg	*		
Manganese	7439-96-5	9250	15.1	0.62	mg/kg	D*		
Zinc	7440-66-6	1870	7.6	0.33	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100174-15 **Sample No:** MH1J91 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9690	21.6	2.2	mg/kg			
Arsenic	7440-38-2	71.3	1.1	0.14	mg/kg			
Calcium	7440-70-2	1880	540	6.3	mg/kg			
Copper	7440-50-8	405	2.7	0.055	mg/kg	*	J	E, Q
Iron	7439-89-6	21200	10.8	0.90	mg/kg			
Lead	7439-92-1	874	1.1	0.12	mg/kg	*	J	E
Magnesium	7439-95-4	4800	540	2.4	mg/kg	*	J	A
Manganese	7439-96-5	10200	16.2	0.66	mg/kg	D*	J	E
Zinc	7440-66-6	2190	64.8	2.8	mg/kg	D		

Lab Sample Name: 6100174-16 **Sample No:** MH1J92 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12300	24.6	2.5	mg/kg			
Arsenic	7440-38-2	16.6	1.2	0.16	mg/kg			
Calcium	7440-70-2	2660	615	7.1	mg/kg			
Copper	7440-50-8	193	3.1	0.063	mg/kg	*		
Iron	7439-89-6	38400	12.3	1.0	mg/kg			
Lead	7439-92-1	752	1.2	0.14	mg/kg	*		
Magnesium	7439-95-4	6810	615	2.7	mg/kg	*		
Manganese	7439-96-5	5120	9.2	0.38	mg/kg	D*		
Zinc	7440-66-6	1710	7.4	0.32	mg/kg			

Lab Sample Name: 6100174-17 **Sample No:** MH1J93 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11700	21.7	2.2	mg/kg			
Arsenic	7440-38-2	23.7	1.1	0.14	mg/kg			
Calcium	7440-70-2	2900	542	6.3	mg/kg			
Copper	7440-50-8	485	2.7	0.055	mg/kg	*	J	E, Q
Iron	7439-89-6	95800	54.2	4.5	mg/kg	D		
Lead	7439-92-1	4390	5.4	0.60	mg/kg	D*	J	E
Magnesium	7439-95-4	5550	542	2.4	mg/kg	*	J	A
Manganese	7439-96-5	5300	8.1	0.33	mg/kg	D*	J	E
Zinc	7440-66-6	3770	32.5	1.4	mg/kg	D		

Analysis Method ICP_AES

Lab Sample Name: 6100174-18 **Sample No:** MH1J94 **Sample Date:** 09/29/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12500	23.7	2.4	mg/kg			
Arsenic	7440-38-2	51.5	1.2	0.15	mg/kg			
Calcium	7440-70-2	2600	593	6.9	mg/kg			
Copper	7440-50-8	293	3.0	0.060	mg/kg	*		
Iron	7439-89-6	29300	11.9	0.98	mg/kg			
Lead	7439-92-1	1040	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	6050	593	2.6	mg/kg	*		
Manganese	7439-96-5	10800	10.7	0.43	mg/kg	D*		
Zinc	7440-66-6	2870	42.7	1.8	mg/kg	D		

Analysis Method ICP_MS

Lab Sample Name: 6100174-01 **Sample No:** MH1J77 **Sample Date:** 09/28/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.1	0.032	mg/kg	*	J-	Q, P
Barium	7440-39-3	108	5.3	0.046	mg/kg	*	J	A
Beryllium	7440-41-7	0.84	0.53	0.042	mg/kg			
Cadmium	7440-43-9	4.9	0.53	0.044	mg/kg	*	J	Q, A
Chromium	7440-47-3	7.7	1.1	0.086	mg/kg			
Cobalt	7440-48-4	14.0	0.53	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	6.1	2.1	0.047	mg/kg	*	J	A
Nickel	7440-02-0	8.8	0.53	0.047	mg/kg	*	J	A
Selenium	7782-49-2	2.8	2.6	0.071	mg/kg			
Silver	7440-22-4	4.9	0.53	0.028	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	32.7	2.6	0.086	mg/kg			

Lab Sample Name: 6100174-02 **Sample No:** MH1J78 **Sample Date:** 09/28/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.3	0.039	mg/kg	*		
Barium	7440-39-3	72.0	6.5	0.057	mg/kg	*		
Beryllium	7440-41-7	1.1	0.65	0.052	mg/kg			
Cadmium	7440-43-9	11.5	0.65	0.054	mg/kg	*		
Chromium	7440-47-3	6.0	1.3	0.11	mg/kg			
Cobalt	7440-48-4	17.3	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	3.2	2.6	0.058	mg/kg	*		

Nickel	7440-02-0	12.2	0.65	0.058	mg/kg	*		
Selenium	7782-49-2	2.2	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	4.1	0.65	0.035	mg/kg	*		
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	27.6	3.2	0.11	mg/kg			

Lab Sample Name: 6100174-03 **Sample No:** MH1J79 **Sample Date:** 09/28/2016 13:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.0	1.1	0.033	mg/kg	*	J-	Q, P
Barium	7440-39-3	70.1	5.5	0.048	mg/kg	*	J	A
Beryllium	7440-41-7	0.98	0.55	0.044	mg/kg			
Cadmium	7440-43-9	12.2	0.55	0.046	mg/kg	*	J	Q, A
Chromium	7440-47-3	5.9	1.1	0.090	mg/kg			
Cobalt	7440-48-4	15.7	0.55	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	9.5	2.2	0.049	mg/kg	*	J	A
Nickel	7440-02-0	11.5	0.55	0.049	mg/kg	*	J	A
Selenium	7782-49-2	3.0	2.7	0.075	mg/kg			
Silver	7440-22-4	7.6	0.55	0.030	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	25.9	2.7	0.090	mg/kg			

Lab Sample Name: 6100174-04 **Sample No:** MH1J80 **Sample Date:** 09/28/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	79.7	6.4	0.056	mg/kg	*		
Beryllium	7440-41-7	1.0	0.64	0.051	mg/kg			
Cadmium	7440-43-9	16.3	0.64	0.053	mg/kg	*		
Chromium	7440-47-3	5.3	1.3	0.10	mg/kg			
Cobalt	7440-48-4	16.1	0.64	0.038	mg/kg	*		
Molybdenum	7439-98-7	3.6	2.5	0.057	mg/kg	*		
Nickel	7440-02-0	13.9	0.64	0.057	mg/kg	*		
Selenium	7782-49-2	2.1	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	2.4	0.64	0.034	mg/kg	*		
Thallium	7440-28-0	0.64	0.64	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	23.5	3.2	0.10	mg/kg			

Lab Sample Name: 6100174-05 **Sample No:** MH1J81 **Sample Date:** 09/28/2016 11:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	1.2	0.035	mg/kg	*	J-	Q, P

Analysis Method ICP_MS

Barium	7440-39-3	85.3	5.8	0.051	mg/kg	*	J	A
Beryllium	7440-41-7	0.86	0.58	0.046	mg/kg			
Cadmium	7440-43-9	11.0	0.58	0.049	mg/kg	*	J	Q, A
Chromium	7440-47-3	6.3	1.2	0.095	mg/kg			
Cobalt	7440-48-4	17.3	0.58	0.035	mg/kg	*	J	A
Molybdenum	7439-98-7	5.2	2.3	0.052	mg/kg	*	J	A
Nickel	7440-02-0	9.2	0.58	0.052	mg/kg	*	J	A
Selenium	7782-49-2	2.3	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	5.8	0.58	0.031	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	27.8	2.9	0.095	mg/kg			

Lab Sample Name: 6100174-06 **Sample No:** MH1J82 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.040	mg/kg	J*	U	B
Barium	7440-39-3	90.7	6.7	0.059	mg/kg	*		
Beryllium	7440-41-7	0.69	0.67	0.053	mg/kg			
Cadmium	7440-43-9	2.2	0.67	0.056	mg/kg	*		
Chromium	7440-47-3	7.7	1.3	0.11	mg/kg			
Cobalt	7440-48-4	16.5	0.67	0.040	mg/kg	*		
Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J*	U	B
Nickel	7440-02-0	13.1	0.67	0.060	mg/kg	*		
Selenium	7782-49-2	1.7	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	0.25	0.67	0.036	mg/kg	J*	J	
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	26.1	3.3	0.11	mg/kg			

Lab Sample Name: 6100174-07 **Sample No:** MH1J83 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.9	1.6	0.047	mg/kg	*	J-	Q, P
Barium	7440-39-3	223	7.9	0.070	mg/kg	*	J	A
Beryllium	7440-41-7	1.8	0.79	0.063	mg/kg			
Cadmium	7440-43-9	20.8	0.79	0.066	mg/kg	*	J	Q, A
Chromium	7440-47-3	8.3	1.6	0.13	mg/kg			
Cobalt	7440-48-4	20.0	0.79	0.047	mg/kg	*	J	A
Molybdenum	7439-98-7	5.4	3.2	0.071	mg/kg	*	J	A
Nickel	7440-02-0	15.9	0.79	0.071	mg/kg	*	J	A
Selenium	7782-49-2	5.2	3.9	0.11	mg/kg			
Silver	7440-22-4	7.6	0.79	0.043	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.79	0.79	0.060	mg/kg	J	U	B

Vanadium		7440-62-2	34.2	3.9	0.13	mg/kg			

Lab Sample Name: 6100174-08 **Sample No:** MH1J84 **Sample Date:** 09/27/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.4	0.042	mg/kg	J*	J	
Barium	7440-39-3	67.6	7.0	0.061	mg/kg	*		
Beryllium	7440-41-7	0.53	0.70	0.056	mg/kg	J	J	
Cadmium	7440-43-9	1.4	0.70	0.058	mg/kg	*		
Chromium	7440-47-3	4.9	1.4	0.11	mg/kg			
Cobalt	7440-48-4	10.2	0.70	0.042	mg/kg	*		
Molybdenum	7439-98-7	10.6	2.8	0.063	mg/kg	*		
Nickel	7440-02-0	6.2	0.70	0.063	mg/kg	*		
Selenium	7782-49-2	2.6	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	1.4	0.70	0.038	mg/kg	*		
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	20.4	3.5	0.11	mg/kg			

Lab Sample Name: 6100174-09 **Sample No:** MH1J85 **Sample Date:** 09/27/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.0	1.1	0.032	mg/kg	J*	J-	Q, P
Barium	7440-39-3	72.3	5.4	0.047	mg/kg	*	J	A
Beryllium	7440-41-7	0.48	0.54	0.043	mg/kg	J	J	
Cadmium	7440-43-9	0.64	0.54	0.045	mg/kg	*	J	Q, A
Chromium	7440-47-3	8.0	1.1	0.088	mg/kg			
Cobalt	7440-48-4	10.6	0.54	0.032	mg/kg	*	J	A
Molybdenum	7439-98-7	5.4	2.1	0.048	mg/kg	*	J	A
Nickel	7440-02-0	6.1	0.54	0.048	mg/kg	*	J	A
Selenium	7782-49-2	2.5	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	0.85	0.54	0.029	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	27.4	2.7	0.088	mg/kg			

Lab Sample Name: 6100174-10 **Sample No:** MH1J86 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	J*	U	B
Barium	7440-39-3	83.9	6.3	0.055	mg/kg	*		
Beryllium	7440-41-7	0.67	0.63	0.050	mg/kg			
Cadmium	7440-43-9	8.9	0.63	0.053	mg/kg	*		
Chromium	7440-47-3	3.9	1.3	0.10	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	10.5	0.63	0.038	mg/kg	*		
Molybdenum	7439-98-7	2.1	2.5	0.056	mg/kg	J*	J	
Nickel	7440-02-0	7.8	0.63	0.056	mg/kg	*		
Selenium	7782-49-2	1.5	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	1.5	0.63	0.034	mg/kg	*		
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	20.4	3.1	0.10	mg/kg			

Lab Sample Name: 6100174-11 **Sample No:** MH1J87 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.1	0.033	mg/kg	*	J-	Q, P
Barium	7440-39-3	159	5.5	0.049	mg/kg	*	J	A
Beryllium	7440-41-7	0.87	0.55	0.044	mg/kg			
Cadmium	7440-43-9	12.0	0.55	0.046	mg/kg	*	J	Q, A
Chromium	7440-47-3	5.5	1.1	0.090	mg/kg			
Cobalt	7440-48-4	17.9	0.55	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	4.3	2.2	0.050	mg/kg	*	J	A
Nickel	7440-02-0	9.6	0.55	0.050	mg/kg	*	J	A
Selenium	7782-49-2	2.1	2.8	0.075	mg/kg	J	J	
Silver	7440-22-4	2.2	0.55	0.030	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	23.5	2.8	0.090	mg/kg			

Lab Sample Name: 6100174-12 **Sample No:** MH1J88 **Sample Date:** 09/27/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.2	0.035	mg/kg	*		
Barium	7440-39-3	103	5.8	0.051	mg/kg	*		
Beryllium	7440-41-7	0.75	0.58	0.047	mg/kg			
Cadmium	7440-43-9	4.7	0.58	0.049	mg/kg	*		
Chromium	7440-47-3	5.7	1.2	0.096	mg/kg			
Cobalt	7440-48-4	14.7	0.58	0.035	mg/kg	*		
Molybdenum	7439-98-7	5.7	2.3	0.053	mg/kg	*		
Nickel	7440-02-0	8.3	0.58	0.053	mg/kg	*		
Selenium	7782-49-2	2.8	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	1.6	0.58	0.032	mg/kg	*		
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	23.4	2.9	0.096	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100174-13 **Sample No:** MH1J89 **Sample Date:** 09/27/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.2	0.037	mg/kg	*	J-	Q, P
Barium	7440-39-3	140	6.1	0.054	mg/kg	*	J	A
Beryllium	7440-41-7	0.97	0.61	0.049	mg/kg			
Cadmium	7440-43-9	10.2	0.61	0.052	mg/kg	*	J	Q, A
Chromium	7440-47-3	7.4	1.2	0.10	mg/kg			
Cobalt	7440-48-4	20.8	0.61	0.037	mg/kg	*	J	A
Molybdenum	7439-98-7	6.7	2.5	0.055	mg/kg	*	J	A
Nickel	7440-02-0	11.6	0.61	0.055	mg/kg	*	J	A
Selenium	7782-49-2	3.2	3.1	0.084	mg/kg			
Silver	7440-22-4	2.8	0.61	0.033	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.61	0.61	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	29.7	3.1	0.10	mg/kg			

Lab Sample Name: 6100174-14 **Sample No:** MH1J90 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.3	1.3	0.038	mg/kg	*		
Barium	7440-39-3	58.8	6.3	0.055	mg/kg	*		
Beryllium	7440-41-7	2.2	0.63	0.050	mg/kg			
Cadmium	7440-43-9	7.4	0.63	0.053	mg/kg	*		
Chromium	7440-47-3	3.8	1.3	0.10	mg/kg			
Cobalt	7440-48-4	10.6	0.63	0.038	mg/kg	*		
Molybdenum	7439-98-7	9.8	2.5	0.057	mg/kg	*		
Nickel	7440-02-0	7.0	0.63	0.057	mg/kg	*		
Selenium	7782-49-2	1.6	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	2.5	0.63	0.034	mg/kg	*		
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	17.3	3.2	0.10	mg/kg			

Lab Sample Name: 6100174-15 **Sample No:** MH1J91 **Sample Date:** 09/27/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.3	1.1	0.032	mg/kg	*	J-	Q, P
Barium	7440-39-3	75.6	5.4	0.048	mg/kg	*	J	A
Beryllium	7440-41-7	2.0	0.54	0.043	mg/kg			
Cadmium	7440-43-9	10.9	0.54	0.045	mg/kg	*	J	Q, A
Chromium	7440-47-3	4.4	1.1	0.089	mg/kg			
Cobalt	7440-48-4	10.9	0.54	0.032	mg/kg	*	J	A

Analysis Method ICP_MS

Molybdenum	7439-98-7	7.4	2.2	0.049	mg/kg	*	J	A
Nickel	7440-02-0	6.8	0.54	0.049	mg/kg	*	J	A
Selenium	7782-49-2	1.9	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	3.1	0.54	0.029	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	19.6	2.7	0.089	mg/kg			

Lab Sample Name: 6100174-16 **Sample No:** MH1J92 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.2	0.037	mg/kg	*		
Barium	7440-39-3	75.9	6.2	0.054	mg/kg	*		
Beryllium	7440-41-7	0.67	0.62	0.049	mg/kg			
Cadmium	7440-43-9	6.2	0.62	0.052	mg/kg	*		
Chromium	7440-47-3	6.5	1.2	0.10	mg/kg			
Cobalt	7440-48-4	15.8	0.62	0.037	mg/kg	*		
Molybdenum	7439-98-7	4.4	2.5	0.055	mg/kg	*		
Nickel	7440-02-0	9.8	0.62	0.055	mg/kg	*		
Selenium	7782-49-2	2.0	3.1	0.084	mg/kg	J	J	
Silver	7440-22-4	1.9	0.62	0.033	mg/kg	*		
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	23.3	3.1	0.10	mg/kg			

Lab Sample Name: 6100174-17 **Sample No:** MH1J93 **Sample Date:** 09/27/2016 10:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	10.1	1.1	0.033	mg/kg	*	J-	Q, P
Barium	7440-39-3	113	5.4	0.048	mg/kg	*	J	A
Beryllium	7440-41-7	0.61	0.54	0.043	mg/kg			
Cadmium	7440-43-9	14.8	0.54	0.046	mg/kg	*	J	Q, A
Chromium	7440-47-3	27.0	1.1	0.089	mg/kg			
Cobalt	7440-48-4	18.8	0.54	0.033	mg/kg	*	J	A
Molybdenum	7439-98-7	7.4	2.2	0.049	mg/kg	*	J	A
Nickel	7440-02-0	63.7	0.54	0.049	mg/kg	*	J	A
Selenium	7782-49-2	1.6	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	11.9	0.54	0.029	mg/kg	*	J	E, Q, A
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	25.1	2.7	0.089	mg/kg			

Lab Sample Name: 6100174-18 **Sample No:** MH1J94 **Sample Date:** 09/29/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	4.4	1.2	0.036	mg/kg	*		
Barium	7440-39-3	69.4	5.9	0.052	mg/kg	*		
Beryllium	7440-41-7	1.9	0.59	0.047	mg/kg			
Cadmium	7440-43-9	7.6	0.59	0.050	mg/kg	*		
Chromium	7440-47-3	4.0	1.2	0.097	mg/kg			
Cobalt	7440-48-4	9.3	0.59	0.036	mg/kg	*		
Molybdenum	7439-98-7	9.1	2.4	0.053	mg/kg	*		
Nickel	7440-02-0	7.5	0.59	0.053	mg/kg	*		
Selenium	7782-49-2	1.8	3.0	0.081	mg/kg	J	**J**	
Silver	7440-22-4	2.8	0.59	0.032	mg/kg	*		
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	16.8	3.0	0.097	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1J95

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1J95
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1J95	6100175-01	Soil	09/29/2016 08:45:00	Hg, ICP-AES, ICP-MS
MH1J96	6100175-02	Sediment	09/29/2016 10:20:00	Hg, ICP-AES, ICP-MS
MH1J97	6100175-03	Soil	09/29/2016 10:20:00	Hg, ICP-AES, ICP-MS
MH1J98	6100175-04	Sediment	09/29/2016 09:15:00	Hg, ICP-AES, ICP-MS
MH1J99	6100175-05	Soil	09/29/2016 09:15:00	Hg, ICP-AES, ICP-MS
MH1K01	6100175-06	Sediment	09/28/2016 11:10:00	Hg, ICP-AES, ICP-MS
MH1K02	6100175-07	Soil	09/28/2016 11:10:00	Hg, ICP-AES, ICP-MS
MH1K03	6100175-08	Sediment	09/28/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1K04	6100175-09	Soil	09/28/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1K05	6100175-10	Sediment	09/28/2016 10:10:00	Hg, ICP-AES, ICP-MS
MH1K06	6100175-11	Soil	09/28/2016 10:10:00	Hg, ICP-AES, ICP-MS
MH1K07	6100175-12	Sediment	09/27/2016 08:30:00	Hg, ICP-AES, ICP-MS
MH1K08	6100175-13	Soil	09/27/2016 08:30:00	Hg, ICP-AES, ICP-MS
MH1K09	6100175-14	Sediment	09/28/2016 08:50:00	Hg, ICP-AES, ICP-MS
MH1K10	6100175-15	Soil	09/28/2016 08:50:00	Hg, ICP-AES, ICP-MS
MH1K11	6100175-16	Sediment	09/28/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1K12	6100175-17	Soil	09/28/2016 14:15:00	Hg, ICP-AES, ICP-MS
MH1K13	6100175-18	Sediment	09/28/2016 14:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.

A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 20, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied.

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
antimony	0.21	MH1K01, MH1K02, MH1K03, MH1K04, MH1K08
beryllium	0.15/0.22	MH1K04, MH1K11, MH1K12
cadmium	0.11	MH1K02, MH1K03, MH1K04, MH1K01
molybdenum	0.51	MH1K01, MH1K03, MH1K04
thallium	0.09/0.16	All site samples except MH1J99, MH1K12

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1J95 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exception of silver (62%). All associated soil results were detected and were qualified as estimated (J).

- Matrix Spike: Matrix spike analyses were performed on sample MH1J95 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of antimony (56%), barium (72%), beryllium (73%), cadmium (58%), cobalt (70%), molybdenum (73%), nickel (71%) and thallium (71%). Associated results in soil samples were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). Results for beryllium and thallium that were rejected due to post digestion spike failures (see section below) were not further qualified. It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.

- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1J95 for ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes with the exceptions of antimony (41%), barium (72%), beryllium (3%) and thallium (-4%). All soil sample results for antimony and barium, and detected soil sample results for beryllium and thallium were qualified as estimated (UJ for nondetects and U-qualified results, J- for detects). Nondetected and U-qualified results for beryllium and thallium were qualified as rejected (R). Bias was removed from cadmium, cobalt, nickle and molybdenum due to the acceptable PDS recoveries.

- Serial Dilution: Serial dilution analysis was performed on sample MH1J95 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of aluminum (17%), calcium (19%), copper (12%), iron (19%), magnesium (20%), antimony (18%), barium (18%), cadmium (22%), cobalt (20%), molybdenum (16%), nickel (19%) and silver (22%). All associated soil sample results were qualified as estimated (UJ for nondetects and U-qualified results, J for detects).

- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes except as noted in the table below. This sample was analyzed at a 2x dilution, but results for analytes associated with scandium-45 were reported from the original analysis. Associated sample results were qualified as estimated (J).

Internal standard	%RI	Affected analytes	Qualified sample
Scandium-45	127%	antimony, barium, beryllium, cadmium, cobalt, nickel, silver	MH1K06

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range and internal standard infractions. Detected results for dilutions were flagged with “D” by the laboratory. Reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
    - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
    - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1J95

Analysis Method Hg

Lab Sample Name: 6100175-01 **Sample No:** MH1J95 **Sample Date:** 09/29/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.065	0.10	0.0033	mg/kg	J	J	

Lab Sample Name: 6100175-02 **Sample No:** MH1J96 **Sample Date:** 09/29/2016 10:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.060	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100175-03 **Sample No:** MH1J97 **Sample Date:** 09/29/2016 10:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.069	0.10	0.0033	mg/kg	J	J	

Lab Sample Name: 6100175-04 **Sample No:** MH1J98 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.049	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100175-05 **Sample No:** MH1J99 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.67	0.14	0.0044	mg/kg			

Lab Sample Name: 6100175-06 **Sample No:** MH1K01 **Sample Date:** 09/28/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0089	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100175-07 **Sample No:** MH1K02 **Sample Date:** 09/28/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.011	0.11	0.0034	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100175-08 **Sample No:** MH1K03 **Sample Date:** 09/28/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.037	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100175-09 **Sample No:** MH1K04 **Sample Date:** 09/28/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.060	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100175-10 **Sample No:** MH1K05 **Sample Date:** 09/28/2016 10:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.024	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100175-11 **Sample No:** MH1K06 **Sample Date:** 09/28/2016 10:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.036	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100175-12 **Sample No:** MH1K07 **Sample Date:** 09/27/2016 08:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.069	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100175-13 **Sample No:** MH1K08 **Sample Date:** 09/27/2016 08:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.032	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100175-14 **Sample No:** MH1K09 **Sample Date:** 09/28/2016 08:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.062	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100175-15 **Sample No:** MH1K10 **Sample Date:** 09/28/2016 08:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.049	0.12	0.0037	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100175-16 **Sample No:** MH1K11 **Sample Date:** 09/28/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.19	0.14	0.0046	mg/kg			

Lab Sample Name: 6100175-17 **Sample No:** MH1K12 **Sample Date:** 09/28/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.59	0.11	0.0034	mg/kg			

Lab Sample Name: 6100175-18 **Sample No:** MH1K13 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.062	0.099	0.0032	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100175-01 **Sample No:** MH1J95 **Sample Date:** 09/29/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11800	20.8	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	51.0	1.0	0.14	mg/kg			
Calcium	7440-70-2	2850	520	6.0	mg/kg	*	J	A
Copper	7440-50-8	316	2.6	0.053	mg/kg	*	J	A
Iron	7439-89-6	26200	10.4	0.86	mg/kg	*	J	A
Lead	7439-92-1	1490	1.0	0.11	mg/kg			
Magnesium	7439-95-4	5490	520	2.3	mg/kg	*	J	A
Manganese	7439-96-5	10800	12.5	0.51	mg/kg	D		
Zinc	7440-66-6	2230	49.9	2.2	mg/kg	D		

Lab Sample Name: 6100175-02 **Sample No:** MH1J96 **Sample Date:** 09/29/2016 10:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12800	27.8	2.8	mg/kg	*		
Arsenic	7440-38-2	33.3	1.4	0.18	mg/kg			
Calcium	7440-70-2	2400	695	8.1	mg/kg	*		
Copper	7440-50-8	401	3.5	0.071	mg/kg	*		
Iron	7439-89-6	24400	13.9	1.2	mg/kg	*		
Lead	7439-92-1	2200	1.4	0.15	mg/kg			
Magnesium	7439-95-4	6100	695	3.1	mg/kg	*		
Manganese	7439-96-5	18400	20.8	0.85	mg/kg	D		

Zinc		7440-66-6	3030	83.4	3.6	mg/kg	D		

Lab Sample Name: 6100175-03 **Sample No:** MH1J97 **Sample Date:** 09/29/2016 10:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10900	20.8	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	44.0	1.0	0.14	mg/kg			
Calcium	7440-70-2	2370	521	6.0	mg/kg	*	J	A
Copper	7440-50-8	378	2.6	0.053	mg/kg	*	J	A
Iron	7439-89-6	26200	10.4	0.86	mg/kg	*	J	A
Lead	7439-92-1	2180	1.0	0.11	mg/kg			
Magnesium	7439-95-4	5560	521	2.3	mg/kg	*	J	A
Manganese	7439-96-5	12900	15.6	0.64	mg/kg	D		
Zinc	7440-66-6	2130	62.5	2.7	mg/kg	D		

Lab Sample Name: 6100175-04 **Sample No:** MH1J98 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9330	21.6	2.2	mg/kg	*		
Arsenic	7440-38-2	30.6	1.1	0.14	mg/kg			
Calcium	7440-70-2	1940	541	6.3	mg/kg	*		
Copper	7440-50-8	372	2.7	0.055	mg/kg	*		
Iron	7439-89-6	21800	10.8	0.90	mg/kg	*		
Lead	7439-92-1	2150	1.1	0.12	mg/kg			
Magnesium	7439-95-4	4640	541	2.4	mg/kg	*		
Manganese	7439-96-5	14700	16.2	0.66	mg/kg	D		
Zinc	7440-66-6	2520	64.9	2.8	mg/kg	D		

Lab Sample Name: 6100175-05 **Sample No:** MH1J99 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13800	27.2	2.7	mg/kg	*	J	A
Arsenic	7440-38-2	50.3	1.4	0.18	mg/kg			
Calcium	7440-70-2	11700	680	7.9	mg/kg	*	J	A
Copper	7440-50-8	879	3.4	0.069	mg/kg	*	J	A
Iron	7439-89-6	31000	13.6	1.1	mg/kg	*	J	A
Lead	7439-92-1	10500	34.0	3.7	mg/kg	D		
Magnesium	7439-95-4	2340	680	3.0	mg/kg	*	J	A
Manganese	7439-96-5	43000	51.0	2.1	mg/kg	D		
Zinc	7440-66-6	2530	204	8.8	mg/kg	D		

Analysis Method ICP_AES

Lab Sample Name: 6100175-06 **Sample No:** MH1K01 **Sample Date:** 09/28/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11100	27.7	2.8	mg/kg	*		
Arsenic	7440-38-2	6.3	1.4	0.18	mg/kg			
Calcium	7440-70-2	3440	692	8.0	mg/kg	*		
Copper	7440-50-8	31.6	3.5	0.071	mg/kg	*		
Iron	7439-89-6	28700	13.8	1.1	mg/kg	*		
Lead	7439-92-1	60.5	1.4	0.15	mg/kg			
Magnesium	7439-95-4	5620	692	3.0	mg/kg	*		
Manganese	7439-96-5	1110	2.1	0.084	mg/kg			
Zinc	7440-66-6	272	8.3	0.36	mg/kg			

Lab Sample Name: 6100175-07 **Sample No:** MH1K02 **Sample Date:** 09/28/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9930	21.6	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	5.1	1.1	0.14	mg/kg			
Calcium	7440-70-2	3340	539	6.3	mg/kg	*	J	A
Copper	7440-50-8	77.0	2.7	0.055	mg/kg	*	J	A
Iron	7439-89-6	30000	10.8	0.89	mg/kg	*	J	A
Lead	7439-92-1	98.3	1.1	0.12	mg/kg			
Magnesium	7439-95-4	5770	539	2.4	mg/kg	*	J	A
Manganese	7439-96-5	964	1.6	0.066	mg/kg			
Zinc	7440-66-6	183	6.5	0.28	mg/kg			

Lab Sample Name: 6100175-08 **Sample No:** MH1K03 **Sample Date:** 09/28/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9420	27.5	2.7	mg/kg	*		
Arsenic	7440-38-2	8.1	1.4	0.18	mg/kg			
Calcium	7440-70-2	3940	687	8.0	mg/kg	*		
Copper	7440-50-8	21.7	3.4	0.070	mg/kg	*		
Iron	7439-89-6	30500	13.7	1.1	mg/kg	*		
Lead	7439-92-1	34.8	1.4	0.15	mg/kg			
Magnesium	7439-95-4	4600	687	3.0	mg/kg	*		
Manganese	7439-96-5	1290	2.1	0.084	mg/kg			
Zinc	7440-66-6	124	8.2	0.36	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100175-09 **Sample No:** MH1K04 **Sample Date:** 09/28/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10000	24.9	2.5	mg/kg	*	J	A
Arsenic	7440-38-2	11.4	1.2	0.16	mg/kg			
Calcium	7440-70-2	4250	623	7.2	mg/kg	*	J	A
Copper	7440-50-8	27.6	3.1	0.064	mg/kg	*	J	A
Iron	7439-89-6	32500	12.5	1.0	mg/kg	*	J	A
Lead	7439-92-1	40.8	1.2	0.14	mg/kg			
Magnesium	7439-95-4	3830	623	2.7	mg/kg	*	J	A
Manganese	7439-96-5	1180	1.9	0.076	mg/kg			
Zinc	7440-66-6	121	7.5	0.32	mg/kg			

Lab Sample Name: 6100175-10 **Sample No:** MH1K05 **Sample Date:** 09/28/2016 10:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10600	26.0	2.6	mg/kg	*		
Arsenic	7440-38-2	18.3	1.3	0.17	mg/kg			
Calcium	7440-70-2	2850	651	7.6	mg/kg	*		
Copper	7440-50-8	236	3.3	0.066	mg/kg	*		
Iron	7439-89-6	23800	13.0	1.1	mg/kg	*		
Lead	7439-92-1	1540	1.3	0.14	mg/kg			
Magnesium	7439-95-4	5880	651	2.9	mg/kg	*		
Manganese	7439-96-5	11600	11.7	0.48	mg/kg	D		
Zinc	7440-66-6	1640	7.8	0.34	mg/kg			

Lab Sample Name: 6100175-11 **Sample No:** MH1K06 **Sample Date:** 09/28/2016 10:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9630	21.6	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	19.8	1.1	0.14	mg/kg			
Calcium	7440-70-2	3380	541	6.3	mg/kg	*	J	A
Copper	7440-50-8	169	2.7	0.055	mg/kg	*	J	A
Iron	7439-89-6	28500	10.8	0.90	mg/kg	*	J	A
Lead	7439-92-1	810	1.1	0.12	mg/kg			
Magnesium	7439-95-4	4510	541	2.4	mg/kg	*	J	A
Manganese	7439-96-5	4320	8.1	0.33	mg/kg	D		
Zinc	7440-66-6	1020	6.5	0.28	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100175-12 **Sample No:** MH1K07 **Sample Date:** 09/27/2016 08:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	24.8	2.5	mg/kg	*		
Arsenic	7440-38-2	33.6	1.2	0.16	mg/kg			
Calcium	7440-70-2	2270	620	7.2	mg/kg	*		
Copper	7440-50-8	425	3.1	0.063	mg/kg	*		
Iron	7439-89-6	25000	12.4	1.0	mg/kg	*		
Lead	7439-92-1	2050	1.2	0.14	mg/kg			
Magnesium	7439-95-4	4980	620	2.7	mg/kg	*		
Manganese	7439-96-5	15700	18.6	0.76	mg/kg	D		
Zinc	7440-66-6	3060	74.4	3.2	mg/kg	D		

Lab Sample Name: 6100175-13 **Sample No:** MH1K08 **Sample Date:** 09/27/2016 08:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10700	21.7	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	16.1	1.1	0.14	mg/kg			
Calcium	7440-70-2	2960	541	6.3	mg/kg	*	J	A
Copper	7440-50-8	90.5	2.7	0.055	mg/kg	*	J	A
Iron	7439-89-6	26900	10.8	0.90	mg/kg	*	J	A
Lead	7439-92-1	433	1.1	0.12	mg/kg			
Magnesium	7439-95-4	5120	541	2.4	mg/kg	*	J	A
Manganese	7439-96-5	2980	4.9	0.20	mg/kg	D		
Zinc	7440-66-6	584	6.5	0.28	mg/kg			

Lab Sample Name: 6100175-14 **Sample No:** MH1K09 **Sample Date:** 09/28/2016 08:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9890	24.2	2.4	mg/kg	*		
Arsenic	7440-38-2	20.4	1.2	0.16	mg/kg			
Calcium	7440-70-2	2680	606	7.0	mg/kg	*		
Copper	7440-50-8	250	3.0	0.062	mg/kg	*		
Iron	7439-89-6	24700	12.1	1.0	mg/kg	*		
Lead	7439-92-1	1370	1.2	0.13	mg/kg			
Magnesium	7439-95-4	5160	606	2.7	mg/kg	*		
Manganese	7439-96-5	8990	10.9	0.44	mg/kg	D		
Zinc	7440-66-6	1640	7.3	0.32	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100175-15 **Sample No:** MH1K10 **Sample Date:** 09/28/2016 08:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10500	23.4	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	26.7	1.2	0.15	mg/kg			
Calcium	7440-70-2	2600	584	6.8	mg/kg	*	J	A
Copper	7440-50-8	331	2.9	0.060	mg/kg	*	J	A
Iron	7439-89-6	25600	11.7	0.97	mg/kg	*	J	A
Lead	7439-92-1	1860	1.2	0.13	mg/kg			
Magnesium	7439-95-4	5130	584	2.6	mg/kg	*	J	A
Manganese	7439-96-5	12200	17.5	0.71	mg/kg	D		
Zinc	7440-66-6	2660	70.1	3.0	mg/kg	D		

Lab Sample Name: 6100175-16 **Sample No:** MH1K11 **Sample Date:** 09/28/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5480	28.8	2.9	mg/kg	*		
Arsenic	7440-38-2	81.6	1.4	0.19	mg/kg			
Calcium	7440-70-2	1250	721	8.4	mg/kg	*		
Copper	7440-50-8	676	3.6	0.074	mg/kg	*		
Iron	7439-89-6	30900	14.4	1.2	mg/kg	*		
Lead	7439-92-1	1540	1.4	0.16	mg/kg			
Magnesium	7439-95-4	2590	721	3.2	mg/kg	*		
Manganese	7439-96-5	1560	2.2	0.088	mg/kg			
Zinc	7440-66-6	3530	26.0	1.1	mg/kg	D		

Lab Sample Name: 6100175-17 **Sample No:** MH1K12 **Sample Date:** 09/28/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5210	21.2	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	625	4.2	0.55	mg/kg	D		
Calcium	7440-70-2	7930	529	6.1	mg/kg	*	J	A
Copper	7440-50-8	995	2.6	0.054	mg/kg	*	J	A
Iron	7439-89-6	48900	42.3	3.5	mg/kg	D*	J	A
Lead	7439-92-1	6580	4.2	0.47	mg/kg	D		
Magnesium	7439-95-4	2230	529	2.3	mg/kg	*	J	A
Manganese	7439-96-5	4990	6.3	0.26	mg/kg	D		
Zinc	7440-66-6	3370	25.4	1.1	mg/kg	D		

Analysis Method ICP_AES

Lab Sample Name: 6100175-18 **Sample No:** MH1K13 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9720	46.1	4.6	mg/kg			
Arsenic	7440-38-2	11.3	2.3	0.30	mg/kg			
Calcium	7440-70-2	3850	1150	13.4	mg/kg			
Copper	7440-50-8	652	5.8	0.12	mg/kg			
Iron	7439-89-6	57400	23.0	1.9	mg/kg			
Lead	7439-92-1	648	2.3	0.25	mg/kg			
Magnesium	7439-95-4	2740	1150	5.1	mg/kg			
Manganese	7439-96-5	1270	3.5	0.14	mg/kg			
Zinc	7440-66-6	21300	96.7	4.2	mg/kg	D		

Analysis Method ICP_MS

Lab Sample Name: 6100175-01 **Sample No:** MH1J95 **Sample Date:** 09/29/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.8	1.0	0.031	mg/kg	*	J-	Q, P, A
Barium	7440-39-3	70.9	5.2	0.046	mg/kg	*	J-	Q, P, A
Beryllium	7440-41-7	1.7	0.52	0.042	mg/kg	*	J-	Q, P
Cadmium	7440-43-9	9.1	0.52	0.044	mg/kg	*	J	Q, A
Chromium	7440-47-3	3.6	1.0	0.085	mg/kg			
Cobalt	7440-48-4	12.1	0.52	0.031	mg/kg	*	J	Q, A
Molybdenum	7439-98-7	7.7	2.1	0.047	mg/kg	*	J	Q, A
Nickel	7440-02-0	7.6	0.52	0.047	mg/kg	*	J	Q, A
Selenium	7782-49-2	1.6	2.6	0.071	mg/kg	J	J	
Silver	7440-22-4	3.9	0.52	0.028	mg/kg	*	J	E, A
Thallium	7440-28-0	0.52	0.52	0.039	mg/kg	J*	R	B, P
Vanadium	7440-62-2	16.8	2.6	0.085	mg/kg			

Lab Sample Name: 6100175-02 **Sample No:** MH1J96 **Sample Date:** 09/29/2016 10:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.8	1.4	0.042	mg/kg	*		
Barium	7440-39-3	110	6.9	0.061	mg/kg	*		
Beryllium	7440-41-7	4.0	0.69	0.056	mg/kg	*		
Cadmium	7440-43-9	12.5	0.69	0.058	mg/kg	*		
Chromium	7440-47-3	3.8	1.4	0.11	mg/kg			
Cobalt	7440-48-4	12.3	0.69	0.042	mg/kg	*		
Molybdenum	7439-98-7	7.5	2.8	0.063	mg/kg	*		

Nickel	7440-02-0	7.9	0.69	0.063	mg/kg	*		
Selenium	7782-49-2	2.3	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	3.7	0.69	0.038	mg/kg	*		
Thallium	7440-28-0	0.69	0.69	0.053	mg/kg	J*	U	B
Vanadium	7440-62-2	16.4	3.5	0.11	mg/kg			

Lab Sample Name: 6100175-03 **Sample No:** MH1J97 **Sample Date:** 09/29/2016 10:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.2	1.0	0.031	mg/kg	*	J-	Q, P, A
Barium	7440-39-3	79.2	5.2	0.046	mg/kg	*	J-	Q, P, A
Beryllium	7440-41-7	1.5	0.52	0.042	mg/kg	*	J-	Q, P
Cadmium	7440-43-9	10.1	0.52	0.044	mg/kg	*	J	Q, A
Chromium	7440-47-3	4.2	1.0	0.085	mg/kg			
Cobalt	7440-48-4	9.8	0.52	0.031	mg/kg	*	J	Q, A
Molybdenum	7439-98-7	7.4	2.1	0.047	mg/kg	*	J	Q, A
Nickel	7440-02-0	6.0	0.52	0.047	mg/kg	*	J	Q, A
Selenium	7782-49-2	1.5	2.6	0.071	mg/kg	J	J	
Silver	7440-22-4	4.6	0.52	0.028	mg/kg	*	J	E, A
Thallium	7440-28-0	0.52	0.52	0.040	mg/kg	J*	R	B, P
Vanadium	7440-62-2	14.7	2.6	0.085	mg/kg			

Lab Sample Name: 6100175-04 **Sample No:** MH1J98 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	21.4	1.1	0.032	mg/kg	*		
Barium	7440-39-3	131	5.4	0.048	mg/kg	*		
Beryllium	7440-41-7	0.73	0.54	0.043	mg/kg	*		
Cadmium	7440-43-9	8.0	0.54	0.045	mg/kg	*		
Chromium	7440-47-3	3.7	1.1	0.089	mg/kg			
Cobalt	7440-48-4	3.9	0.54	0.032	mg/kg	*		
Molybdenum	7439-98-7	14.6	2.2	0.049	mg/kg	*		
Nickel	7440-02-0	1.5	0.54	0.049	mg/kg	*		
Selenium	7782-49-2	1.6	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	38.1	0.54	0.029	mg/kg	*		
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J*	U	B
Vanadium	7440-62-2	10.1	2.7	0.089	mg/kg			

Lab Sample Name: 6100175-05 **Sample No:** MH1J99 **Sample Date:** 09/29/2016 09:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	26.5	1.4	0.041	mg/kg	*	J-	Q, P, A

Analysis Method ICP_MS

Barium	7440-39-3	164	6.8	0.060	mg/kg	*	J-	Q, P, A
Beryllium	7440-41-7	0.93	0.68	0.054	mg/kg	*	J-	Q, P
Cadmium	7440-43-9	10.2	0.68	0.057	mg/kg	*	J	Q, A
Chromium	7440-47-3	4.8	1.4	0.11	mg/kg			
Cobalt	7440-48-4	4.9	0.68	0.041	mg/kg	*	J	Q, A
Molybdenum	7439-98-7	18.1	2.7	0.061	mg/kg	*	J	Q, A
Nickel	7440-02-0	1.9	0.68	0.061	mg/kg	*	J	Q, A
Selenium	7782-49-2	2.2	3.4	0.093	mg/kg	J	J	
Silver	7440-22-4	47.9	0.68	0.037	mg/kg	*	J	E, A
Thallium	7440-28-0	0.45	0.68	0.052	mg/kg	J*	J-	Q, P
Vanadium	7440-62-2	13.1	3.4	0.11	mg/kg			

Lab Sample Name: 6100175-06 **Sample No:** MH1K01 **Sample Date:** 09/28/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	J*	U	B
Barium	7440-39-3	83.1	6.9	0.061	mg/kg	*		
Beryllium	7440-41-7	0.85	0.69	0.055	mg/kg	*		
Cadmium	7440-43-9	0.69	0.69	0.058	mg/kg	J*	U	B
Chromium	7440-47-3	2.7	1.4	0.11	mg/kg			
Cobalt	7440-48-4	10.6	0.69	0.042	mg/kg	*		
Molybdenum	7439-98-7	2.8	2.8	0.062	mg/kg	J*	U	B
Nickel	7440-02-0	5.3	0.69	0.062	mg/kg	*		
Selenium	7782-49-2	1.6	3.5	0.094	mg/kg	J	J	
Silver	7440-22-4	0.78	0.69	0.037	mg/kg	*		
Thallium	7440-28-0	0.69	0.69	0.053	mg/kg	J*	U	B
Vanadium	7440-62-2	18.5	3.5	0.11	mg/kg			

Lab Sample Name: 6100175-07 **Sample No:** MH1K02 **Sample Date:** 09/28/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.032	mg/kg	J*	UJ	B, Q, P, A
Barium	7440-39-3	67.8	5.4	0.047	mg/kg	*	J-	Q, P, A
Beryllium	7440-41-7	0.68	0.54	0.043	mg/kg	*	J-	Q, P
Cadmium	7440-43-9	0.54	0.54	0.045	mg/kg	J*	UJ	B, Q, A
Chromium	7440-47-3	3.2	1.1	0.088	mg/kg			
Cobalt	7440-48-4	7.7	0.54	0.032	mg/kg	*	J	Q, A
Molybdenum	7439-98-7	3.3	2.2	0.049	mg/kg	*	J	Q, A
Nickel	7440-02-0	4.4	0.54	0.049	mg/kg	*	J	Q, A
Selenium	7782-49-2	1.2	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	0.71	0.54	0.029	mg/kg	*	J	E, A
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J*	R	B, P

Vanadium	7440-62-2	18.9	2.7	0.088	mg/kg			

Lab Sample Name: 6100175-08 **Sample No:** MH1K03 **Sample Date:** 09/28/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.041	mg/kg	J*	U	B
Barium	7440-39-3	84.1	6.9	0.060	mg/kg	*		
Beryllium	7440-41-7	0.76	0.69	0.055	mg/kg	*		
Cadmium	7440-43-9	0.69	0.69	0.058	mg/kg	J*	U	B
Chromium	7440-47-3	3.2	1.4	0.11	mg/kg			
Cobalt	7440-48-4	10.5	0.69	0.041	mg/kg	*		
Molybdenum	7439-98-7	2.7	2.7	0.062	mg/kg	J*	U	B
Nickel	7440-02-0	5.7	0.69	0.062	mg/kg	*		
Selenium	7782-49-2	1.9	3.4	0.093	mg/kg	J	J	
Silver	7440-22-4	0.70	0.69	0.037	mg/kg	*		
Thallium	7440-28-0	0.69	0.69	0.052	mg/kg	J*	U	B
Vanadium	7440-62-2	19.8	3.4	0.11	mg/kg			

Lab Sample Name: 6100175-09 **Sample No:** MH1K04 **Sample Date:** 09/28/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	2.5	0.075	mg/kg	JD*	UJ	B, Q, P, A
Barium	7440-39-3	147	12.5	0.11	mg/kg	D*	J-	Q, P, A
Beryllium	7440-41-7	1.2	1.2	0.10	mg/kg	JD*	R	B, P
Cadmium	7440-43-9	1.2	1.2	0.10	mg/kg	JD*	UJ	B, Q, A
Chromium	7440-47-3	4.0	1.2	0.10	mg/kg			
Cobalt	7440-48-4	10.5	1.2	0.075	mg/kg	D*	J	Q, A
Molybdenum	7439-98-7	5.0	5.0	0.11	mg/kg	JD*	UJ	B, Q, A
Nickel	7440-02-0	5.2	1.2	0.11	mg/kg	D*	J	Q, A
Selenium	7782-49-2	2.2	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	0.91	1.2	0.067	mg/kg	JD*	J	E, A
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J*	R	B, P
Vanadium	7440-62-2	26.6	3.1	0.10	mg/kg			

Lab Sample Name: 6100175-10 **Sample No:** MH1K05 **Sample Date:** 09/28/2016 10:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.3	0.039	mg/kg	*		
Barium	7440-39-3	67.8	6.5	0.057	mg/kg	*		
Beryllium	7440-41-7	0.88	0.65	0.052	mg/kg	*		
Cadmium	7440-43-9	6.0	0.65	0.055	mg/kg	*		
Chromium	7440-47-3	2.0	1.3	0.11	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	8.5	0.65	0.039	mg/kg	*		
Molybdenum	7439-98-7	3.4	2.6	0.059	mg/kg	*		
Nickel	7440-02-0	4.6	0.65	0.059	mg/kg	*		
Selenium	7782-49-2	1.2	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	2.1	0.65	0.035	mg/kg	*		
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J*	U	B
Vanadium	7440-62-2	11.4	3.3	0.11	mg/kg			

Lab Sample Name: 6100175-11 **Sample No:** MH1K06 **Sample Date:** 09/28/2016 10:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.1	0.032	mg/kg	*	J-	Q, P, A, *III
Barium	7440-39-3	98.3	5.4	0.048	mg/kg	*	J-	Q, P, A, *III
Beryllium	7440-41-7	0.91	0.54	0.043	mg/kg	*	J-	Q, P, *III
Cadmium	7440-43-9	5.2	0.54	0.045	mg/kg	*	J	Q, A, *III
Chromium	7440-47-3	2.8	1.1	0.089	mg/kg			
Cobalt	7440-48-4	10.0	0.54	0.032	mg/kg	*	J	Q, A, *III
Molybdenum	7439-98-7	3.3	2.2	0.049	mg/kg	*	J	Q, A
Nickel	7440-02-0	5.3	0.54	0.049	mg/kg	*	J	Q, A, *III
Selenium	7782-49-2	1.6	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	2.1	0.54	0.029	mg/kg	*	J	E, A, *III
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J*	R	B, P
Vanadium	7440-62-2	15.9	2.7	0.089	mg/kg			

Lab Sample Name: 6100175-12 **Sample No:** MH1K07 **Sample Date:** 09/27/2016 08:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	1.2	0.037	mg/kg	*		
Barium	7440-39-3	82.9	6.2	0.055	mg/kg	*		
Beryllium	7440-41-7	2.1	0.62	0.050	mg/kg	*		
Cadmium	7440-43-9	10.8	0.62	0.052	mg/kg	*		
Chromium	7440-47-3	2.6	1.2	0.10	mg/kg			
Cobalt	7440-48-4	9.9	0.62	0.037	mg/kg	*		
Molybdenum	7439-98-7	6.6	2.5	0.056	mg/kg	*		
Nickel	7440-02-0	6.5	0.62	0.056	mg/kg	*		
Selenium	7782-49-2	1.6	3.1	0.084	mg/kg	J	J	
Silver	7440-22-4	3.9	0.62	0.033	mg/kg	*		
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J*	U	B
Vanadium	7440-62-2	12.2	3.1	0.10	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100175-13 **Sample No:** MH1K08 **Sample Date:** 09/27/2016 08:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.032	mg/kg	J*	UJ	B, Q, P, A
Barium	7440-39-3	75.0	5.4	0.048	mg/kg	*	J-	Q, P, A
Beryllium	7440-41-7	1.7	0.54	0.043	mg/kg	*	J-	Q, P
Cadmium	7440-43-9	2.0	0.54	0.045	mg/kg	*	J	Q, A
Chromium	7440-47-3	2.6	1.1	0.089	mg/kg			
Cobalt	7440-48-4	8.9	0.54	0.032	mg/kg	*	J	Q, A
Molybdenum	7439-98-7	3.1	2.2	0.049	mg/kg	*	J	Q, A
Nickel	7440-02-0	4.4	0.54	0.049	mg/kg	*	J	Q, A
Selenium	7782-49-2	1.4	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	2.0	0.54	0.029	mg/kg	*	J	E, A
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J*	R	B, P
Vanadium	7440-62-2	15.7	2.7	0.089	mg/kg			

Lab Sample Name: 6100175-14 **Sample No:** MH1K09 **Sample Date:** 09/28/2016 08:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	1.2	0.036	mg/kg	*		
Barium	7440-39-3	83.2	6.1	0.053	mg/kg	*		
Beryllium	7440-41-7	0.89	0.61	0.048	mg/kg	*		
Cadmium	7440-43-9	7.3	0.61	0.051	mg/kg	*		
Chromium	7440-47-3	2.8	1.2	0.099	mg/kg			
Cobalt	7440-48-4	8.7	0.61	0.036	mg/kg	*		
Molybdenum	7439-98-7	5.0	2.4	0.055	mg/kg	*		
Nickel	7440-02-0	4.8	0.61	0.055	mg/kg	*		
Selenium	7782-49-2	1.5	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	2.8	0.61	0.033	mg/kg	*		
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J*	U	B
Vanadium	7440-62-2	14.9	3.0	0.099	mg/kg			

Lab Sample Name: 6100175-15 **Sample No:** MH1K10 **Sample Date:** 09/28/2016 08:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.7	1.2	0.035	mg/kg	*	J-	Q, P, A
Barium	7440-39-3	104	5.8	0.051	mg/kg	*	J-	Q, P, A
Beryllium	7440-41-7	1.2	0.58	0.047	mg/kg	*	J-	Q, P
Cadmium	7440-43-9	10.8	0.58	0.049	mg/kg	*	J	Q, A
Chromium	7440-47-3	3.6	1.2	0.096	mg/kg			
Cobalt	7440-48-4	11.2	0.58	0.035	mg/kg	*	J	Q, A

Molybdenum	7439-98-7	6.6	2.3	0.053	mg/kg	*	J	Q, A
Nickel	7440-02-0	6.5	0.58	0.053	mg/kg	*	J	Q, A
Selenium	7782-49-2	1.5	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	4.9	0.58	0.032	mg/kg	*	J	E, A
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J*	R	B, P
Vanadium	7440-62-2	16.6	2.9	0.096	mg/kg			

Lab Sample Name: 6100175-16 **Sample No:** MH1K11 **Sample Date:** 09/28/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.2	1.4	0.043	mg/kg	*		
Barium	7440-39-3	25.5	7.2	0.063	mg/kg	*		
Beryllium	7440-41-7	0.72	0.72	0.058	mg/kg	J*	U	B
Cadmium	7440-43-9	13.6	0.72	0.061	mg/kg	*		
Chromium	7440-47-3	4.3	1.4	0.12	mg/kg			
Cobalt	7440-48-4	3.7	0.72	0.043	mg/kg	*		
Molybdenum	7439-98-7	19.3	2.9	0.065	mg/kg	*		
Nickel	7440-02-0	2.3	0.72	0.065	mg/kg	*		
Selenium	7782-49-2	1.1	3.6	0.098	mg/kg	J	J	
Silver	7440-22-4	7.8	0.72	0.039	mg/kg	*		
Thallium	7440-28-0	0.72	0.72	0.055	mg/kg	J*	U	B
Vanadium	7440-62-2	9.7	3.6	0.12	mg/kg			

Lab Sample Name: 6100175-17 **Sample No:** MH1K12 **Sample Date:** 09/28/2016 14:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	31.9	1.1	0.032	mg/kg	*	J-	Q, P, A
Barium	7440-39-3	29.6	5.3	0.047	mg/kg	*	J-	Q, P, A
Beryllium	7440-41-7	0.53	0.53	0.042	mg/kg	J*	R	B, P
Cadmium	7440-43-9	12.1	0.53	0.044	mg/kg	*	J	Q, A
Chromium	7440-47-3	4.6	1.1	0.087	mg/kg			
Cobalt	7440-48-4	4.9	0.53	0.032	mg/kg	*	J	Q, A
Molybdenum	7439-98-7	22.5	2.1	0.048	mg/kg	*	J	Q, A
Nickel	7440-02-0	2.9	0.53	0.048	mg/kg	*	J	Q, A
Selenium	7782-49-2	1.7	2.6	0.072	mg/kg	J	J	
Silver	7440-22-4	18.5	0.53	0.029	mg/kg	*	J	E, A
Thallium	7440-28-0	0.55	0.53	0.040	mg/kg	*	J-	Q, P
Vanadium	7440-62-2	11.0	2.6	0.087	mg/kg			

Lab Sample Name: 6100175-18 **Sample No:** MH1K13 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	2.3	2.3	0.068	mg/kg			
Barium	7440-39-3	38.1	11.3	0.10	mg/kg			
Beryllium	7440-41-7	0.60	1.1	0.091	mg/kg	J	**J**	
Cadmium	7440-43-9	247	1.1	0.095	mg/kg			
Chromium	7440-47-3	4.1	2.3	0.19	mg/kg			
Cobalt	7440-48-4	29.5	1.1	0.068	mg/kg			
Molybdenum	7439-98-7	10.0	4.5	0.10	mg/kg			
Nickel	7440-02-0	14.6	1.1	0.10	mg/kg			
Selenium	7782-49-2	3.0	5.7	0.15	mg/kg	J	**J**	
Silver	7440-22-4	5.6	1.1	0.061	mg/kg			
Thallium	7440-28-0	1.1	1.1	0.086	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	11.2	5.7	0.19	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1K14

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1K14
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1K14	6100176-01	Soil	09/28/2016 14:00:00	Hg, ICP-AES, ICP-MS
MH1K15	6100176-02	Sediment	09/28/2016 14:50:00	Hg, ICP-AES, ICP-MS
MH1K16	6100176-03	Soil	09/28/2016 14:50:00	Hg, ICP-AES, ICP-MS
MH1K17	6100176-04	Sediment	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1K18	6100176-05	Soil	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1K19	6100176-06	Sediment	09/27/2016 15:15:00	Hg, ICP-AES, ICP-MS
MH1K20	6100176-07	Soil	09/27/2016 15:15:00	Hg, ICP-AES, ICP-MS
MH1K21	6100176-08	Sediment	09/27/2016 17:15:00	Hg, ICP-AES, ICP-MS
MH1K22	6100176-09	Sediment	09/28/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1K23	6100176-10	Soil	09/28/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1K24	6100176-11	Sediment	09/28/2016 15:30:00	Hg, ICP-AES, ICP-MS
MH1K25	6100176-12	Soil	09/28/2016 15:30:00	Hg, ICP-AES, ICP-MS
MH1K26	6100176-13	Sediment	09/27/2016 16:15:00	Hg, ICP-AES, ICP-MS
MH1K27	6100176-14	Soil	09/27/2016 16:15:00	Hg, ICP-AES, ICP-MS
MH1K28	6100176-15	Sediment	09/27/2016 12:55:00	Hg, ICP-AES, ICP-MS
MH1K29	6100176-16	Soil	09/27/2016 12:55:00	Hg, ICP-AES, ICP-MS
MH1K30	6100176-17	Sediment	09/27/2016 11:55:00	Hg, ICP-AES, ICP-MS
MH1K31	6100176-18	Soil	09/27/2016 11:55:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 19, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Detected results less than the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied.

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
antimony	0.48	MH1K15, MH1K16, MH1K17, MH1K18, MH1K19, MH1K20, MH1K22, MH1K23, MH1K24, MH1K27, MH1K28, MH1K29, MH1K29, MH1K30
cadmium	0.097	MH1K18
molybdenum	0.52	MH1K15, MH1K17, MH1K18, MH1K20, MH1K22, MH1K24, MH1K28
thallium	0.12	All site samples

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1K16 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exceptions of zinc

(24%) and chromium (23%). All associated soil sample results were detected and were qualified as estimated (J).

- Matrix Spike: Matrix spike analyses were performed on sample MH1K16 for all methods. Recoveries were not assessed when the parent sample concentrations were >4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of copper (42%) and antimony (66%). Associated results in soil samples were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.
- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1K167 for ICP-AES and ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes. Due to the acceptable recoveries of the PDS, bias was removed from antimony and copper.
- Serial Dilution: Serial dilution analysis was performed on sample MH1K16 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of aluminum (13%), calcium (16%), iron (16%), magnesium (15%), manganese (16%), and nickel (26%). All associated soil sample results were detected and were qualified as estimated (J).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range. Detected results for dilutions were flagged with “D” by the laboratory. Reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: Samples MH1K42/MH1K17, MH1K43/MH1K18, MH1K44/MH1K22 and MH1K45/MH1K23 were identified as field duplicates. RPD were within the criteria of ≤50% or ±RL for all analytes except copper (126%), lead (196%), zinc (102%) and barium (67%) in pair MH1K43/MH1K18, chromium (104%) and zinc (70%) in pair MH1K44/MH1K22, and calcium (59%) and cadmium (51%) in pair MH1K45/MH1K23. These elements were qualified as estimated in the duplicate pairs.

Validated Sample Result Forms MH1K14

Analysis Method Hg

Lab Sample Name: 6100176-01 **Sample No:** MH1K14 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.10	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100176-02 **Sample No:** MH1K15 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0038	mg/kg	U	U	

Lab Sample Name: 6100176-03 **Sample No:** MH1K16 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.10	0.0033	mg/kg	J	J	

Lab Sample Name: 6100176-04 **Sample No:** MH1K17 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0039	mg/kg	U	U	

Lab Sample Name: 6100176-05 **Sample No:** MH1K18 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.10	0.10	0.0034	mg/kg	U	U	

Lab Sample Name: 6100176-06 **Sample No:** MH1K19 **Sample Date:** 09/27/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0038	mg/kg	U	U	

Lab Sample Name: 6100176-07 **Sample No:** MH1K20 **Sample Date:** 09/27/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0076	0.11	0.0034	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100176-08 **Sample No:** MH1K21 **Sample Date:** 09/27/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.055	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100176-09 **Sample No:** MH1K22 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0040	mg/kg	U	U	

Lab Sample Name: 6100176-10 **Sample No:** MH1K23 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.015	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100176-11 **Sample No:** MH1K24 **Sample Date:** 09/28/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.14	0.0045	mg/kg	U	U	

Lab Sample Name: 6100176-12 **Sample No:** MH1K25 **Sample Date:** 09/28/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.012	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100176-13 **Sample No:** MH1K26 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.021	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100176-14 **Sample No:** MH1K27 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.041	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100176-15 **Sample No:** MH1K28 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0038	mg/kg	U	U	

Analysis Method Hg

Lab Sample Name: 6100176-16 **Sample No:** MH1K29 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.018	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100176-17 **Sample No:** MH1K30 **Sample Date:** 09/27/2016 11:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.014	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100176-18 **Sample No:** MH1K31 **Sample Date:** 09/27/2016 11:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.024	0.11	0.0036	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100176-01 **Sample No:** MH1K14 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7760	21.9	1.5	mg/kg	*	J	A
Arsenic	7440-38-2	47.4	1.1	0.12	mg/kg			
Calcium	7440-70-2	64500	1100	6.1	mg/kg	D*	J	A
Copper	7440-50-8	234	2.7	0.045	mg/kg	*	J	Q
Iron	7439-89-6	22700	11.0	0.55	mg/kg	*	J	A
Lead	7439-92-1	1860	1.1	0.14	mg/kg			
Magnesium	7439-95-4	7410	549	2.2	mg/kg	*	J	A
Manganese	7439-96-5	2310	1.6	0.024	mg/kg	*	J	A
Zinc	7440-66-6	1460	6.6	0.054	mg/kg	*	J	E

Lab Sample Name: 6100176-02 **Sample No:** MH1K15 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11900	23.6	1.7	mg/kg	*		
Arsenic	7440-38-2	3.6	1.2	0.13	mg/kg			
Calcium	7440-70-2	4160	590	3.3	mg/kg	*		
Copper	7440-50-8	61.5	3.0	0.048	mg/kg	*		
Iron	7439-89-6	27900	11.8	0.59	mg/kg	*		
Lead	7439-92-1	83.1	1.2	0.15	mg/kg			
Magnesium	7439-95-4	7160	590	2.4	mg/kg	*		
Manganese	7439-96-5	1050	1.8	0.026	mg/kg	*		

Analysis Method ICP_AES

Zinc	7440-66-6	599	7.1	0.058	mg/kg	*	

Lab Sample Name: 6100176-03 **Sample No:** MH1K16 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13600	20.7	1.4	mg/kg	*	J	A
Arsenic	7440-38-2	6.9	1.0	0.11	mg/kg			
Calcium	7440-70-2	5440	516	2.9	mg/kg	*	J	A
Copper	7440-50-8	130	2.6	0.042	mg/kg	*	J	Q
Iron	7439-89-6	28500	10.3	0.52	mg/kg	*	J	A
Lead	7439-92-1	236	1.0	0.13	mg/kg			
Magnesium	7439-95-4	6460	516	2.1	mg/kg	*	J	A
Manganese	7439-96-5	1590	1.5	0.023	mg/kg	*	J	A
Zinc	7440-66-6	506	6.2	0.051	mg/kg	*	J	E

Lab Sample Name: 6100176-04 **Sample No:** MH1K17 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10300	24.3	1.7	mg/kg	*		
Arsenic	7440-38-2	6.4	1.2	0.13	mg/kg			
Calcium	7440-70-2	3300	608	3.4	mg/kg	*		
Copper	7440-50-8	37.5	3.0	0.050	mg/kg	*		
Iron	7439-89-6	21900	12.2	0.61	mg/kg	*		
Lead	7439-92-1	386	1.2	0.16	mg/kg			
Magnesium	7439-95-4	5340	608	2.4	mg/kg	*		
Manganese	7439-96-5	896	1.8	0.027	mg/kg	*		
Zinc	7440-66-6	338	7.3	0.060	mg/kg	*		

Lab Sample Name: 6100176-05 **Sample No:** MH1K18 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11100	20.9	1.5	mg/kg	*	J	A
Arsenic	7440-38-2	6.0	1.0	0.12	mg/kg			
Calcium	7440-70-2	3030	523	2.9	mg/kg	*	J	A
Copper	7440-50-8	52.6	2.6	0.043	mg/kg	*	J-	Q, F1
Iron	7439-89-6	24900	10.5	0.52	mg/kg	*	J	A
Lead	7439-92-1	258	1.0	0.14	mg/kg		J	F1
Magnesium	7439-95-4	6970	523	2.1	mg/kg	*	J	A
Manganese	7439-96-5	918	1.6	0.023	mg/kg	*	J	A
Zinc	7440-66-6	294	6.3	0.051	mg/kg	*	J	E, F1

Analysis Method ICP_AES

Lab Sample Name: 6100176-06 **Sample No:** MH1K19 **Sample Date:** 09/27/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9260	23.8	1.7	mg/kg	*		
Arsenic	7440-38-2	8.9	1.2	0.13	mg/kg			
Calcium	7440-70-2	2910	596	3.3	mg/kg	*		
Copper	7440-50-8	208	3.0	0.049	mg/kg	*		
Iron	7439-89-6	27100	11.9	0.60	mg/kg	*		
Lead	7439-92-1	629	1.2	0.15	mg/kg			
Magnesium	7439-95-4	5290	596	2.4	mg/kg	*		
Manganese	7439-96-5	3730	3.6	0.052	mg/kg	D*		
Zinc	7440-66-6	977	7.1	0.058	mg/kg	*		

Lab Sample Name: 6100176-07 **Sample No:** MH1K20 **Sample Date:** 09/27/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12400	21.5	1.5	mg/kg	*	J	A
Arsenic	7440-38-2	15.0	1.1	0.12	mg/kg			
Calcium	7440-70-2	3550	537	3.0	mg/kg	*	J	A
Copper	7440-50-8	47.8	2.7	0.044	mg/kg	*	J	Q
Iron	7439-89-6	41200	10.7	0.54	mg/kg	*	J	A
Lead	7439-92-1	192	1.1	0.14	mg/kg			
Magnesium	7439-95-4	6460	537	2.1	mg/kg	*	J	A
Manganese	7439-96-5	1320	1.6	0.024	mg/kg	*	J	A
Zinc	7440-66-6	412	6.4	0.053	mg/kg	*	J	E

Lab Sample Name: 6100176-08 **Sample No:** MH1K21 **Sample Date:** 09/27/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6790	25.8	1.8	mg/kg	*		
Arsenic	7440-38-2	31.4	1.3	0.14	mg/kg			
Calcium	7440-70-2	19000	646	3.6	mg/kg	*		
Copper	7440-50-8	837	3.2	0.053	mg/kg	*		
Iron	7439-89-6	21400	12.9	0.65	mg/kg	*		
Lead	7439-92-1	8910	1.3	0.17	mg/kg			
Magnesium	7439-95-4	3500	646	2.6	mg/kg	*		
Manganese	7439-96-5	9510	5.8	0.085	mg/kg	D*		
Zinc	7440-66-6	11300	7.8	0.063	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100176-09 **Sample No:** MH1K22 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13900	25.1	1.8	mg/kg	*		
Arsenic	7440-38-2	4.0	1.3	0.14	mg/kg			
Calcium	7440-70-2	5090	628	3.5	mg/kg	*		
Copper	7440-50-8	10.5	3.1	0.051	mg/kg	*		
Iron	7439-89-6	33100	12.6	0.63	mg/kg	*		
Lead	7439-92-1	98.5	1.3	0.16	mg/kg			
Magnesium	7439-95-4	5940	628	2.5	mg/kg	*		
Manganese	7439-96-5	1830	1.9	0.028	mg/kg	*		
Zinc	7440-66-6	161	7.5	0.062	mg/kg	*	J	F1

Lab Sample Name: 6100176-10 **Sample No:** MH1K23 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10500	23.4	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	23.4	1.2	0.13	mg/kg			
Calcium	7440-70-2	2490	586	3.3	mg/kg	*	J	A, F1
Copper	7440-50-8	105	2.9	0.048	mg/kg	*	J	Q
Iron	7439-89-6	21800	11.7	0.59	mg/kg	*	J	A
Lead	7439-92-1	1760	1.2	0.15	mg/kg			
Magnesium	7439-95-4	4570	586	2.3	mg/kg	*	J	A
Manganese	7439-96-5	2210	1.8	0.026	mg/kg	*	J	A
Zinc	7440-66-6	665	7.0	0.057	mg/kg	*	J	E

Lab Sample Name: 6100176-11 **Sample No:** MH1K24 **Sample Date:** 09/28/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13400	28.1	2.0	mg/kg	*		
Arsenic	7440-38-2	6.8	1.4	0.15	mg/kg			
Calcium	7440-70-2	4460	702	3.9	mg/kg	*		
Copper	7440-50-8	20.2	3.5	0.058	mg/kg	*		
Iron	7439-89-6	29500	14.0	0.70	mg/kg	*		
Lead	7439-92-1	378	1.4	0.18	mg/kg			
Magnesium	7439-95-4	5550	702	2.8	mg/kg	*		
Manganese	7439-96-5	1350	2.1	0.031	mg/kg	*		
Zinc	7440-66-6	502	8.4	0.069	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100176-12 **Sample No:** MH1K25 **Sample Date:** 09/28/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13000	24.4	1.7	mg/kg	*	J	A
Arsenic	7440-38-2	9.2	1.2	0.13	mg/kg			
Calcium	7440-70-2	4610	609	3.4	mg/kg	*	J	A
Copper	7440-50-8	47.2	3.0	0.050	mg/kg	*	J	Q
Iron	7439-89-6	30200	12.2	0.61	mg/kg	*	J	A
Lead	7439-92-1	820	1.2	0.16	mg/kg			
Magnesium	7439-95-4	5120	609	2.4	mg/kg	*	J	A
Manganese	7439-96-5	1260	1.8	0.027	mg/kg	*	J	A
Zinc	7440-66-6	458	7.3	0.060	mg/kg	*	J	E

Lab Sample Name: 6100176-13 **Sample No:** MH1K26 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9490	25.8	1.8	mg/kg	*		
Arsenic	7440-38-2	18.3	1.3	0.14	mg/kg			
Calcium	7440-70-2	2900	645	3.6	mg/kg	*		
Copper	7440-50-8	231	3.2	0.053	mg/kg	*		
Iron	7439-89-6	23800	12.9	0.64	mg/kg	*		
Lead	7439-92-1	1480	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4660	645	2.6	mg/kg	*		
Manganese	7439-96-5	8170	5.8	0.085	mg/kg	D*		
Zinc	7440-66-6	1360	7.7	0.063	mg/kg	*		

Lab Sample Name: 6100176-14 **Sample No:** MH1K27 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19000	23.1	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	9.8	1.2	0.13	mg/kg			
Calcium	7440-70-2	5170	578	3.2	mg/kg	*	J	A
Copper	7440-50-8	79.8	2.9	0.047	mg/kg	*	J	Q
Iron	7439-89-6	33900	11.6	0.58	mg/kg	*	J	A
Lead	7439-92-1	328	1.2	0.15	mg/kg			
Magnesium	7439-95-4	6100	578	2.3	mg/kg	*	J	A
Manganese	7439-96-5	1810	1.7	0.025	mg/kg	*	J	A
Zinc	7440-66-6	559	6.9	0.057	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100176-15 **Sample No:** MH1K28 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8750	23.8	1.7	mg/kg	*		
Arsenic	7440-38-2	6.0	1.2	0.13	mg/kg			
Calcium	7440-70-2	2650	594	3.3	mg/kg	*		
Copper	7440-50-8	79.6	3.0	0.049	mg/kg	*		
Iron	7439-89-6	19600	11.9	0.59	mg/kg	*		
Lead	7439-92-1	512	1.2	0.15	mg/kg			
Magnesium	7439-95-4	4790	594	2.4	mg/kg	*		
Manganese	7439-96-5	2770	1.8	0.026	mg/kg	*		
Zinc	7440-66-6	858	7.1	0.058	mg/kg	*		

Lab Sample Name: 6100176-16 **Sample No:** MH1K29 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15400	21.5	1.5	mg/kg	*	J	A
Arsenic	7440-38-2	10.1	1.1	0.12	mg/kg			
Calcium	7440-70-2	4000	539	3.0	mg/kg	*	J	A
Copper	7440-50-8	90.0	2.7	0.044	mg/kg	*	J	Q
Iron	7439-89-6	37500	10.8	0.54	mg/kg	*	J	A
Lead	7439-92-1	508	1.1	0.14	mg/kg			
Magnesium	7439-95-4	10900	539	2.2	mg/kg	*	J	A
Manganese	7439-96-5	1200	1.6	0.024	mg/kg	*	J	A
Zinc	7440-66-6	275	6.5	0.053	mg/kg	*	J	E

Lab Sample Name: 6100176-17 **Sample No:** MH1K30 **Sample Date:** 09/27/2016 11:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8600	21.8	1.5	mg/kg	*		
Arsenic	7440-38-2	3.8	1.1	0.12	mg/kg			
Calcium	7440-70-2	2830	544	3.0	mg/kg	*		
Copper	7440-50-8	91.4	2.7	0.045	mg/kg	*		
Iron	7439-89-6	19300	10.9	0.54	mg/kg	*		
Lead	7439-92-1	323	1.1	0.14	mg/kg			
Magnesium	7439-95-4	5000	544	2.2	mg/kg	*		
Manganese	7439-96-5	3320	3.3	0.048	mg/kg	D*		
Zinc	7440-66-6	677	6.5	0.053	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100176-18 **Sample No:** MH1K31 **Sample Date:** 09/27/2016 11:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13900	22.7	1.6	mg/kg	*	J	A
Arsenic	7440-38-2	21.7	1.1	0.12	mg/kg			
Calcium	7440-70-2	2940	567	3.2	mg/kg	*	J	A
Copper	7440-50-8	156	2.8	0.046	mg/kg	*	J	Q
Iron	7439-89-6	28400	11.3	0.57	mg/kg	*	J	A
Lead	7439-92-1	963	1.1	0.15	mg/kg			
Magnesium	7439-95-4	5260	567	2.3	mg/kg	*	J	A
Manganese	7439-96-5	2190	1.7	0.025	mg/kg	*	J	A
Zinc	7440-66-6	404	6.8	0.056	mg/kg	*	J	E

Analysis Method ICP_MS

Lab Sample Name: 6100176-01 **Sample No:** MH1K14 **Sample Date:** 09/28/2016 14:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.6	1.1	0.033	mg/kg	*	J	Q
Barium	7440-39-3	53.3	5.5	0.048	mg/kg			
Beryllium	7440-41-7	0.55	0.55	0.044	mg/kg	J	J	
Cadmium	7440-43-9	4.3	0.55	0.046	mg/kg			
Chromium	7440-47-3	2.3	1.1	0.090	mg/kg	*	J	E
Cobalt	7440-48-4	5.0	0.55	0.033	mg/kg			
Molybdenum	7439-98-7	9.5	2.2	0.049	mg/kg			
Nickel	7440-02-0	2.6	0.55	0.049	mg/kg	*	J	A
Selenium	7782-49-2	0.80	2.7	0.075	mg/kg	J	J	
Silver	7440-22-4	8.0	0.55	0.030	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	10.7	2.7	0.090	mg/kg			

Lab Sample Name: 6100176-02 **Sample No:** MH1K15 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.035	mg/kg	J*	U	B
Barium	7440-39-3	17.1	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.047	mg/kg	J	J	
Cadmium	7440-43-9	2.2	0.59	0.050	mg/kg			
Chromium	7440-47-3	2.2	1.2	0.097	mg/kg	*		
Cobalt	7440-48-4	6.5	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	2.0	2.4	0.053	mg/kg	J	U	B

Nickel	7440-02-0	3.5	0.59	0.053	mg/kg	*		
Selenium	7782-49-2	0.86	3.0	0.080	mg/kg	J	J	
Silver	7440-22-4	0.59	0.59	0.032	mg/kg	J	J	
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	11.5	3.0	0.097	mg/kg			

Lab Sample Name: 6100176-03 **Sample No:** MH1K16 **Sample Date:** 09/28/2016 14:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.0	1.0	0.031	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	48.9	5.2	0.045	mg/kg			
Beryllium	7440-41-7	0.83	0.52	0.041	mg/kg			
Cadmium	7440-43-9	2.5	0.52	0.043	mg/kg			
Chromium	7440-47-3	5.1	1.0	0.085	mg/kg	*	J	E
Cobalt	7440-48-4	12.1	0.52	0.031	mg/kg			
Molybdenum	7439-98-7	4.3	2.1	0.046	mg/kg			
Nickel	7440-02-0	7.0	0.52	0.046	mg/kg	*	J	A
Selenium	7782-49-2	1.6	2.6	0.070	mg/kg	J	J	
Silver	7440-22-4	0.84	0.52	0.028	mg/kg			
Thallium	7440-28-0	0.52	0.52	0.039	mg/kg	J	U	B
Vanadium	7440-62-2	20.6	2.6	0.085	mg/kg			

Lab Sample Name: 6100176-04 **Sample No:** MH1K17 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	J*	U	B
Barium	7440-39-3	59.6	6.1	0.053	mg/kg			
Beryllium	7440-41-7	0.61	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	1.4	0.61	0.051	mg/kg			
Chromium	7440-47-3	2.7	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	6.8	0.61	0.036	mg/kg			
Molybdenum	7439-98-7	1.3	2.4	0.055	mg/kg	J	U	B
Nickel	7440-02-0	3.1	0.61	0.055	mg/kg	*		
Selenium	7782-49-2	1.2	3.0	0.083	mg/kg	J	J	
Silver	7440-22-4	0.61	0.61	0.033	mg/kg	J	J	
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	16.1	3.0	0.10	mg/kg			

Lab Sample Name: 6100176-05 **Sample No:** MH1K18 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.0	1.0	0.031	mg/kg	J*	UJ	B, Q

Analysis Method ICP_MS

Barium	7440-39-3	45.6	5.2	0.046	mg/kg		J	F1
Beryllium	7440-41-7	0.52	0.52	0.042	mg/kg	J	J	
Cadmium	7440-43-9	0.52	0.52	0.044	mg/kg	J	U	B
Chromium	7440-47-3	2.8	1.0	0.086	mg/kg	*	J	E
Cobalt	7440-48-4	4.0	0.52	0.031	mg/kg			
Molybdenum	7439-98-7	1.8	2.1	0.047	mg/kg	J	U	B
Nickel	7440-02-0	2.5	0.52	0.047	mg/kg	*	J	A
Selenium	7782-49-2	0.75	2.6	0.071	mg/kg	J	J	
Silver	7440-22-4	0.52	0.52	0.028	mg/kg	J	J	
Thallium	7440-28-0	0.52	0.52	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	14.2	2.6	0.086	mg/kg			

Lab Sample Name: 6100176-06 **Sample No:** MH1K19 **Sample Date:** 09/27/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	J*	U	B
Barium	7440-39-3	54.1	6.0	0.052	mg/kg			
Beryllium	7440-41-7	0.64	0.60	0.048	mg/kg			
Cadmium	7440-43-9	3.6	0.60	0.050	mg/kg			
Chromium	7440-47-3	2.6	1.2	0.098	mg/kg	*		
Cobalt	7440-48-4	6.5	0.60	0.036	mg/kg			
Molybdenum	7439-98-7	3.2	2.4	0.054	mg/kg			
Nickel	7440-02-0	4.3	0.60	0.054	mg/kg	*		
Selenium	7782-49-2	1.1	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	0.97	0.60	0.032	mg/kg			
Thallium	7440-28-0	0.60	0.60	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	13.7	3.0	0.098	mg/kg			

Lab Sample Name: 6100176-07 **Sample No:** MH1K20 **Sample Date:** 09/27/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.032	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	64.4	5.4	0.047	mg/kg			
Beryllium	7440-41-7	0.54	0.54	0.043	mg/kg	J	J	
Cadmium	7440-43-9	1.0	0.54	0.045	mg/kg			
Chromium	7440-47-3	3.4	1.1	0.088	mg/kg	*	J	E
Cobalt	7440-48-4	9.0	0.54	0.032	mg/kg			
Molybdenum	7439-98-7	1.9	2.1	0.048	mg/kg	J	U	B
Nickel	7440-02-0	4.0	0.54	0.048	mg/kg	*	J	A
Selenium	7782-49-2	1.2	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	0.54	0.54	0.029	mg/kg	J	J	
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B

Vanadium		7440-62-2	20.5	2.7	0.088	mg/kg			

Lab Sample Name: 6100176-08 **Sample No:** MH1K21 **Sample Date:** 09/27/2016 17:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.6	1.3	0.039	mg/kg	*		
Barium	7440-39-3	15.6	6.5	0.057	mg/kg			
Beryllium	7440-41-7	1.4	0.65	0.052	mg/kg			
Cadmium	7440-43-9	28.9	0.65	0.054	mg/kg			
Chromium	7440-47-3	1.6	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	12.4	0.65	0.039	mg/kg			
Molybdenum	7439-98-7	25.5	2.6	0.058	mg/kg			
Nickel	7440-02-0	3.3	0.65	0.058	mg/kg	*		
Selenium	7782-49-2	2.5	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	5.3	0.65	0.035	mg/kg			
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	6.5	3.2	0.11	mg/kg			

Lab Sample Name: 6100176-09 **Sample No:** MH1K22 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	J*	U	B
Barium	7440-39-3	105	6.3	0.055	mg/kg			
Beryllium	7440-41-7	0.63	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	0.63	0.63	0.053	mg/kg	J	J	
Chromium	7440-47-3	2.5	1.3	0.10	mg/kg	*	J	F1
Cobalt	7440-48-4	6.8	0.63	0.038	mg/kg			
Molybdenum	7439-98-7	0.88	2.5	0.057	mg/kg	J	U	B
Nickel	7440-02-0	2.2	0.63	0.057	mg/kg	*		
Selenium	7782-49-2	1.2	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	0.63	0.63	0.034	mg/kg	J	J	
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	17.8	3.1	0.10	mg/kg			

Lab Sample Name: 6100176-10 **Sample No:** MH1K23 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.035	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	28.9	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.047	mg/kg	J	J	
Cadmium	7440-43-9	2.2	0.59	0.049	mg/kg		J	F1
Chromium	7440-47-3	2.4	1.2	0.096	mg/kg	*	J	E

Analysis Method ICP_MS

Cobalt	7440-48-4	5.0	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	7.1	2.3	0.053	mg/kg			
Nickel	7440-02-0	2.3	0.59	0.053	mg/kg	*	J	A
Selenium	7782-49-2	1.0	2.9	0.080	mg/kg	J	J	
Silver	7440-22-4	2.0	0.59	0.032	mg/kg			
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	9.3	2.9	0.096	mg/kg			

Lab Sample Name: 6100176-11 **Sample No:** MH1K24 **Sample Date:** 09/28/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	J*	U	B
Barium	7440-39-3	92.4	7.0	0.062	mg/kg			
Beryllium	7440-41-7	0.70	0.70	0.056	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.70	0.059	mg/kg			
Chromium	7440-47-3	2.4	1.4	0.12	mg/kg	*		
Cobalt	7440-48-4	7.7	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	1.3	2.8	0.063	mg/kg	J	U	B
Nickel	7440-02-0	2.7	0.70	0.063	mg/kg	*		
Selenium	7782-49-2	1.3	3.5	0.095	mg/kg	J	J	
Silver	7440-22-4	0.70	0.70	0.038	mg/kg	J	J	
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	20.4	3.5	0.12	mg/kg			

Lab Sample Name: 6100176-12 **Sample No:** MH1K25 **Sample Date:** 09/28/2016 15:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.8	1.2	0.037	mg/kg	*	J	Q
Barium	7440-39-3	115	6.1	0.054	mg/kg			
Beryllium	7440-41-7	0.61	0.61	0.049	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.61	0.051	mg/kg			
Chromium	7440-47-3	4.8	1.2	0.10	mg/kg	*	J	E
Cobalt	7440-48-4	9.3	0.61	0.037	mg/kg			
Molybdenum	7439-98-7	4.4	2.4	0.055	mg/kg			
Nickel	7440-02-0	3.9	0.61	0.055	mg/kg	*	J	A
Selenium	7782-49-2	1.9	3.0	0.083	mg/kg	J	J	
Silver	7440-22-4	2.4	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	32.1	3.0	0.10	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100176-13 **Sample No:** MH1K26 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	1.3	0.039	mg/kg	*		
Barium	7440-39-3	74.2	6.4	0.057	mg/kg			
Beryllium	7440-41-7	0.89	0.64	0.052	mg/kg			
Cadmium	7440-43-9	6.0	0.64	0.054	mg/kg			
Chromium	7440-47-3	4.0	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	8.8	0.64	0.039	mg/kg			
Molybdenum	7439-98-7	5.2	2.6	0.058	mg/kg			
Nickel	7440-02-0	5.0	0.64	0.058	mg/kg	*		
Selenium	7782-49-2	1.3	3.2	0.088	mg/kg	J	J	
Silver	7440-22-4	2.3	0.64	0.035	mg/kg			
Thallium	7440-28-0	0.64	0.64	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	20.0	3.2	0.11	mg/kg			

Lab Sample Name: 6100176-14 **Sample No:** MH1K27 **Sample Date:** 09/27/2016 16:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.035	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	92.7	5.8	0.051	mg/kg			
Beryllium	7440-41-7	1.2	0.58	0.046	mg/kg			
Cadmium	7440-43-9	2.5	0.58	0.049	mg/kg			
Chromium	7440-47-3	8.8	1.2	0.095	mg/kg	*	J	E
Cobalt	7440-48-4	25.1	0.58	0.035	mg/kg			
Molybdenum	7439-98-7	6.3	2.3	0.052	mg/kg			
Nickel	7440-02-0	9.7	0.58	0.052	mg/kg	*	J	A
Selenium	7782-49-2	3.0	2.9	0.079	mg/kg			
Silver	7440-22-4	1.3	0.58	0.031	mg/kg			
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	31.4	2.9	0.095	mg/kg			

Lab Sample Name: 6100176-15 **Sample No:** MH1K28 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	J*	U	B
Barium	7440-39-3	45.7	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.66	0.59	0.048	mg/kg			
Cadmium	7440-43-9	2.8	0.59	0.050	mg/kg			
Chromium	7440-47-3	2.6	1.2	0.097	mg/kg	*		
Cobalt	7440-48-4	5.8	0.59	0.036	mg/kg			

Analysis Method ICP_MS

Molybdenum	7439-98-7	2.0	2.4	0.053	mg/kg	J	U	B
Nickel	7440-02-0	3.3	0.59	0.053	mg/kg	*		
Selenium	7782-49-2	0.90	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	0.59	0.59	0.032	mg/kg	J	J	
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	8.5	3.0	0.097	mg/kg			

Lab Sample Name: 6100176-16 **Sample No:** MH1K29 **Sample Date:** 09/27/2016 12:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.032	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	34.0	5.4	0.047	mg/kg			
Beryllium	7440-41-7	0.54	0.54	0.043	mg/kg	J	J	
Cadmium	7440-43-9	0.68	0.54	0.045	mg/kg			
Chromium	7440-47-3	7.0	1.1	0.088	mg/kg	*	J	E
Cobalt	7440-48-4	9.7	0.54	0.032	mg/kg			
Molybdenum	7439-98-7	2.5	2.2	0.048	mg/kg			
Nickel	7440-02-0	5.9	0.54	0.048	mg/kg	*	J	A
Selenium	7782-49-2	0.91	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	1.1	0.54	0.029	mg/kg			
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	23.7	2.7	0.088	mg/kg			

Lab Sample Name: 6100176-17 **Sample No:** MH1K30 **Sample Date:** 09/27/2016 11:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.033	mg/kg	J*	U	B
Barium	7440-39-3	34.4	5.4	0.048	mg/kg			
Beryllium	7440-41-7	0.54	0.54	0.044	mg/kg			
Cadmium	7440-43-9	2.0	0.54	0.046	mg/kg			
Chromium	7440-47-3	2.2	1.1	0.089	mg/kg	*		
Cobalt	7440-48-4	5.9	0.54	0.033	mg/kg			
Molybdenum	7439-98-7	2.7	2.2	0.049	mg/kg			
Nickel	7440-02-0	3.4	0.54	0.049	mg/kg	*		
Selenium	7782-49-2	1.0	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	0.73	0.54	0.029	mg/kg			
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	11.7	2.7	0.089	mg/kg			

Lab Sample Name: 6100176-18 **Sample No:** MH1K31 **Sample Date:** 09/27/2016 11:55:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	1.6	1.1	0.034	mg/kg	*	**J**	**Q**
Barium	7440-39-3	71.4	5.7	0.050	mg/kg			
Beryllium	7440-41-7	0.57	0.57	0.045	mg/kg	J	**J**	
Cadmium	7440-43-9	0.95	0.57	0.048	mg/kg			
Chromium	7440-47-3	4.0	1.1	0.093	mg/kg	*	**J**	**E**
Cobalt	7440-48-4	7.2	0.57	0.034	mg/kg			
Molybdenum	7439-98-7	8.3	2.3	0.051	mg/kg			
Nickel	7440-02-0	3.5	0.57	0.051	mg/kg	*	**J**	**A**
Selenium	7782-49-2	1.7	2.8	0.077	mg/kg	J	**J**	
Silver	7440-22-4	3.7	0.57	0.031	mg/kg			
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	16.4	2.8	0.093	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1K32

Prepared by

MEC^{X}
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1K32
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1K32	6100177-01	Sediment	09/27/2016 11:10:00	Hg, ICP-AES, ICP-MS
MH1K33	6100177-02	Soil	09/27/2016 11:10:00	Hg, ICP-AES, ICP-MS
MH1K34	6100177-03	Sediment	09/27/2016 10:25:00	Hg, ICP-AES, ICP-MS
MH1K35	6100177-04	Soil	09/27/2016 10:25:00	Hg, ICP-AES, ICP-MS
MH1K36	6100177-05	Sediment	09/27/2016 09:26:00	Hg, ICP-AES, ICP-MS
MH1K37	6100177-06	Soil	09/27/2016 09:26:00	Hg, ICP-AES, ICP-MS
MH1K38	6100177-07	Sediment	09/29/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1K39	6100177-08	Soil	09/29/2016 13:00:00	Hg, ICP-AES, ICP-MS
MH1K40	6100177-09	Sediment	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1K41	6100177-10	Soil	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1K42	6100177-11	Sediment	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1K43	6100177-12	Soil	09/27/2016 17:00:00	Hg, ICP-AES, ICP-MS
MH1K44	6100177-13	Sediment	09/28/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1K45	6100177-14	Soil	09/28/2016 16:20:00	Hg, ICP-AES, ICP-MS
MH1K46	6100177-15	Sediment	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1K47	6100177-16	Soil	09/29/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1K48	6100177-17	Sediment	09/29/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1K49	6100177-18	Soil	09/29/2016 15:40:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.

  A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 19, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury. It should be noted that Form 2-IN for run batch BJ62407M102016B indicated that the true value for the CCVs for barium was 2500.0, resulting in CCV recoveries for barium of 21% and 20%. Based on the fact that the CCV source for this run was the same lot as that used in other analytical runs in the SDG which had reported true values of 500.0 for barium, it was determined by the reviewer that the reported true value was incorrect for this run batch. The actual true value was 500.0, and CCV recoveries met the control limit.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied.

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
silver	0.032	MH1K44, MH1K46
antimony	0.21	MH1K36
antimony	0.48	MH1K34, MH1K35, MH1K38, MH1K39, MH1K40, MH1K41, MH1K42, MH1K43, MH1K44, MH1K45, MH1K46, MH1K47, MH1K48
beryllium	0.10	MH1K34, MH1K38, MH1K39, MH1K40, MH1K41, MH1K42, MH1K43, MH1K44, MH1K45, MH1K46, MH1K47, MH1K48, MH1K49
cadmium	0.097	MH1K43, MH1K44, MH1K47, MH1K49

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
molybdenum	0.49	MH1K34, MH1K38, MH1K39, MH1K40, MH1K41, MH1K42, MH1K43, MH1K44, MH1K46, MH1K47
thallium	0.14	All site samples except MH1K44

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1K35 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exception of arsenic (21%). All soil results for arsenic were detected and were qualified as estimated (J).
- Matrix Spike: Matrix spike analyses were performed on sample MH1K35 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125%. It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium
- Post Digestion Spike: Post digestion spike analyses were not reported.
- Serial Dilution: Serial dilution analysis was performed on sample MH1K35 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of aluminum (11%), calcium (14%), iron (14%), manganese (15%), barium (14%), cadmium (12%), cobalt (11%), molybdenum (19%), nickel (38%) and silver (22%). All associated soil sample results were qualified as estimated (UJ for nondetects and U-qualified results and J for detects).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes except as noted in the table below. Samples with %RI infractions were reanalyzed at a 2x dilution, with the exception of sample MH1K33. When the diluted analyses passed internal standard criteria, results were reported from the dilution. Associated sample results were qualified as estimated (UJ for nondetects and U-qualified results and J for detects).

Internal standard	%RI	Affected analytes	Qualified sample
Scandium-45	127%	antimony, barium, beryllium, cadmium, cobalt, nickel, silver	MH1K33

- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range and internal standard infractions. Sample MH1K46 was analyzed at a 2x dilution to protect the instrument. Detected results for dilutions were flagged with "D" by the laboratory. Reporting limits were adjusted accordingly.

- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.

  - Field Duplicates: Samples MH1K42/MH1K17, MH1K43/MH1K18, MH1K44/MH1K22, MH1K45/MH1K23, MH1K46/MH1J64, MH1K47/MH1J65, MH1K48/MH1J60 and MH1K49/MH1/J61 were identified as field duplicates. RPD were within the criteria of ≤50% or ±RL for all analytes except copper (126%), lead (196%), zinc (102%) and barium (67%) in pair MH1K43/MH1K18, chromium (104%) and zinc (70%) in pair MH1K44/MH1K22, calcium (59%) and cadmium (51%) in pair MH1K45/MH1K23, arsenic (54%), zinc (55%), barium (124%), cadmium (102%), chromium (121%), cobalt (120%), nickel (124%), and vanadium (99%) in pair MH1K46/MH1J64 and manganese (74%) in pair MH1K48/MH1J60. These elements were qualified as estimated in the duplicate pairs.

Validated Sample Result Forms MH1K32

Analysis Method Hg

Lab Sample Name: 6100177-01 **Sample No:** MH1K32 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0073	0.11	0.0036	mg/kg	J	J	

Lab Sample Name: 6100177-02 **Sample No:** MH1K33 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0077	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100177-03 **Sample No:** MH1K34 **Sample Date:** 09/27/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0084	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100177-04 **Sample No:** MH1K35 **Sample Date:** 09/27/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.031	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100177-05 **Sample No:** MH1K36 **Sample Date:** 09/27/2016 09:26:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.024	0.14	0.0046	mg/kg	J	J	

Lab Sample Name: 6100177-06 **Sample No:** MH1K37 **Sample Date:** 09/27/2016 09:26:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.042	0.17	0.0054	mg/kg	J	J	

Lab Sample Name: 6100177-07 **Sample No:** MH1K38 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0043	mg/kg	U	U	

Analysis Method Hg

Lab Sample Name: 6100177-08 **Sample No:** MH1K39 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.016	0.12	0.0037	mg/kg	J	J	

Lab Sample Name: 6100177-09 **Sample No:** MH1K40 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.030	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100177-10 **Sample No:** MH1K41 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.11	0.0036	mg/kg			

Lab Sample Name: 6100177-11 **Sample No:** MH1K42 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.019	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100177-12 **Sample No:** MH1K43 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.022	0.10	0.0033	mg/kg	J	J	

Lab Sample Name: 6100177-13 **Sample No:** MH1K44 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.018	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100177-14 **Sample No:** MH1K45 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.038	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100177-15 **Sample No:** MH1K46 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.095	0.18	0.0056	mg/kg	JD	J	

Analysis Method Hg

Lab Sample Name: 6100177-16 **Sample No:** MH1K47 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.047	0.11	0.0034	mg/kg	J	J	

Lab Sample Name: 6100177-17 **Sample No:** MH1K48 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.057	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100177-18 **Sample No:** MH1K49 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.76	0.11	0.0037	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100177-01 **Sample No:** MH1K32 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8690	22.7	2.3	mg/kg	*		
Arsenic	7440-38-2	10.7	1.1	0.15	mg/kg	*		
Calcium	7440-70-2	3210	569	6.6	mg/kg	*		
Copper	7440-50-8	119	2.8	0.058	mg/kg			
Iron	7439-89-6	22500	11.4	0.94	mg/kg	*		
Lead	7439-92-1	654	1.1	0.13	mg/kg			
Magnesium	7439-95-4	5470	569	2.5	mg/kg	*		
Manganese	7439-96-5	5000	3.4	0.14	mg/kg	D		
Zinc	7440-66-6	1130	6.8	0.30	mg/kg			

Lab Sample Name: 6100177-02 **Sample No:** MH1K33 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8720	21.5	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	8.1	1.1	0.14	mg/kg	*	J	E
Calcium	7440-70-2	2660	537	6.2	mg/kg	*	J	A
Copper	7440-50-8	158	2.7	0.055	mg/kg			
Iron	7439-89-6	22200	10.7	0.89	mg/kg	*	J	A
Lead	7439-92-1	709	1.1	0.12	mg/kg			
Magnesium	7439-95-4	5630	537	2.4	mg/kg	*		
Manganese	7439-96-5	4240	3.2	0.13	mg/kg	D	J	A

Zinc	7440-66-6	1130	6.4	0.28	mg/kg	

Lab Sample Name: 6100177-03 **Sample No:** MH1K34 **Sample Date:** 09/27/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8070	23.6	2.4	mg/kg	*		
Arsenic	7440-38-2	9.1	1.2	0.15	mg/kg	*		
Calcium	7440-70-2	2630	590	6.8	mg/kg	*		
Copper	7440-50-8	124	3.0	0.060	mg/kg			
Iron	7439-89-6	23300	11.8	0.98	mg/kg	*		
Lead	7439-92-1	644	1.2	0.13	mg/kg			
Magnesium	7439-95-4	5120	590	2.6	mg/kg	*		
Manganese	7439-96-5	5100	5.3	0.22	mg/kg	D		
Zinc	7440-66-6	1450	7.1	0.31	mg/kg			

Lab Sample Name: 6100177-04 **Sample No:** MH1K35 **Sample Date:** 09/27/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10900	21.2	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	18.2	1.1	0.14	mg/kg	*	J	E
Calcium	7440-70-2	2840	529	6.1	mg/kg	*	J	A
Copper	7440-50-8	206	2.6	0.054	mg/kg			
Iron	7439-89-6	30400	10.6	0.88	mg/kg	*	J	A
Lead	7439-92-1	1020	1.1	0.12	mg/kg			
Magnesium	7439-95-4	6000	529	2.3	mg/kg	*		
Manganese	7439-96-5	5760	4.8	0.19	mg/kg	D	J	A
Zinc	7440-66-6	1490	6.4	0.28	mg/kg			

Lab Sample Name: 6100177-05 **Sample No:** MH1K36 **Sample Date:** 09/27/2016 09:26:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12800	28.1	2.8	mg/kg	*		
Arsenic	7440-38-2	20.2	1.4	0.18	mg/kg	*		
Calcium	7440-70-2	2640	703	8.2	mg/kg	*		
Copper	7440-50-8	60.4	3.5	0.072	mg/kg			
Iron	7439-89-6	40700	14.1	1.2	mg/kg	*		
Lead	7439-92-1	262	1.4	0.15	mg/kg			
Magnesium	7439-95-4	4480	703	3.1	mg/kg	*		
Manganese	7439-96-5	1200	2.1	0.086	mg/kg			
Zinc	7440-66-6	342	8.4	0.37	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100177-06 **Sample No:** MH1K37 **Sample Date:** 09/27/2016 09:26:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17100	33.6	3.4	mg/kg	*	J	A
Arsenic	7440-38-2	23.6	1.7	0.22	mg/kg	*	J	E
Calcium	7440-70-2	4460	839	9.7	mg/kg	*	J	A
Copper	7440-50-8	48.2	4.2	0.086	mg/kg			
Iron	7439-89-6	38300	16.8	1.4	mg/kg	*	J	A
Lead	7439-92-1	174	1.7	0.18	mg/kg			
Magnesium	7439-95-4	6060	839	3.7	mg/kg	*		
Manganese	7439-96-5	937	2.5	0.10	mg/kg		J	A
Zinc	7440-66-6	487	10.1	0.44	mg/kg			

Lab Sample Name: 6100177-07 **Sample No:** MH1K38 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13200	26.9	2.7	mg/kg	*		
Arsenic	7440-38-2	48.8	1.3	0.17	mg/kg	*		
Calcium	7440-70-2	3740	673	7.8	mg/kg	*		
Copper	7440-50-8	36.8	3.4	0.069	mg/kg			
Iron	7439-89-6	33200	13.5	1.1	mg/kg	*		
Lead	7439-92-1	134	1.3	0.15	mg/kg			
Magnesium	7439-95-4	6740	673	3.0	mg/kg	*		
Manganese	7439-96-5	4850	4.0	0.16	mg/kg	D		
Zinc	7440-66-6	419	8.1	0.35	mg/kg			

Lab Sample Name: 6100177-08 **Sample No:** MH1K39 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11800	22.9	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	50.9	1.1	0.15	mg/kg	*	J	E
Calcium	7440-70-2	3150	574	6.7	mg/kg	*	J	A
Copper	7440-50-8	46.9	2.9	0.059	mg/kg			
Iron	7439-89-6	31900	11.5	0.95	mg/kg	*	J	A
Lead	7439-92-1	174	1.1	0.13	mg/kg			
Magnesium	7439-95-4	6390	574	2.5	mg/kg	*		
Manganese	7439-96-5	5410	5.2	0.21	mg/kg	D	J	A
Zinc	7440-66-6	446	6.9	0.30	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100177-09 **Sample No:** MH1K40 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11500	23.9	2.4	mg/kg	*		
Arsenic	7440-38-2	9.5	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	3190	597	6.9	mg/kg	*		
Copper	7440-50-8	155	3.0	0.061	mg/kg			
Iron	7439-89-6	28900	11.9	0.99	mg/kg	*		
Lead	7439-92-1	269	1.2	0.13	mg/kg			
Magnesium	7439-95-4	6840	597	2.6	mg/kg	*		
Manganese	7439-96-5	5530	5.4	0.22	mg/kg	D		
Zinc	7440-66-6	2060	21.5	0.93	mg/kg	D		

Lab Sample Name: 6100177-10 **Sample No:** MH1K41 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13400	22.2	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	22.9	1.1	0.14	mg/kg	*	J	E
Calcium	7440-70-2	2970	556	6.5	mg/kg	*	J	A
Copper	7440-50-8	218	2.8	0.057	mg/kg			
Iron	7439-89-6	40200	11.1	0.92	mg/kg	*	J	A
Lead	7439-92-1	740	1.1	0.12	mg/kg			
Magnesium	7439-95-4	7580	556	2.4	mg/kg	*		
Manganese	7439-96-5	8120	6.7	0.27	mg/kg	D	J	A
Zinc	7440-66-6	1700	6.7	0.29	mg/kg			

Lab Sample Name: 6100177-11 **Sample No:** MH1K42 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9570	24.3	2.4	mg/kg	*		
Arsenic	7440-38-2	8.2	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	3220	607	7.0	mg/kg	*		
Copper	7440-50-8	43.1	3.0	0.062	mg/kg			
Iron	7439-89-6	26300	12.1	1.0	mg/kg	*		
Lead	7439-92-1	295	1.2	0.13	mg/kg			
Magnesium	7439-95-4	5260	607	2.7	mg/kg	*		
Manganese	7439-96-5	1240	1.8	0.074	mg/kg			
Zinc	7440-66-6	428	7.3	0.32	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100177-12 **Sample No:** MH1K43 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7780	20.9	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	5.8	1.0	0.14	mg/kg	*	J	E
Calcium	7440-70-2	1970	522	6.1	mg/kg	*	J	A
Copper	7440-50-8	230	2.6	0.053	mg/kg		J	F1
Iron	7439-89-6	21100	10.4	0.87	mg/kg	*	J	A
Lead	7439-92-1	25500	15.7	1.7	mg/kg	D	J	F1
Magnesium	7439-95-4	5460	522	2.3	mg/kg	*		
Manganese	7439-96-5	750	1.6	0.064	mg/kg		J	A
Zinc	7440-66-6	907	6.3	0.27	mg/kg		J	F1

Lab Sample Name: 6100177-13 **Sample No:** MH1K44 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9880	23.9	2.4	mg/kg	*		
Arsenic	7440-38-2	3.0	1.2	0.16	mg/kg	*		
Calcium	7440-70-2	5260	598	6.9	mg/kg	*		
Copper	7440-50-8	10.0	3.0	0.061	mg/kg			
Iron	7439-89-6	24400	12.0	0.99	mg/kg	*		
Lead	7439-92-1	77.1	1.2	0.13	mg/kg			
Magnesium	7439-95-4	5090	598	2.6	mg/kg	*		
Manganese	7439-96-5	1480	1.8	0.073	mg/kg			
Zinc	7440-66-6	507	7.2	0.31	mg/kg		J	F1

Lab Sample Name: 6100177-14 **Sample No:** MH1K45 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9220	21.3	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	22.4	1.1	0.14	mg/kg	*	J	E
Calcium	7440-70-2	4590	532	6.2	mg/kg	*	J	A, F1
Copper	7440-50-8	160	2.7	0.054	mg/kg			
Iron	7439-89-6	24100	10.6	0.88	mg/kg	*	J	A
Lead	7439-92-1	2040	1.1	0.12	mg/kg			
Magnesium	7439-95-4	4810	532	2.3	mg/kg	*		
Manganese	7439-96-5	2000	1.6	0.065	mg/kg		J	A
Zinc	7440-66-6	1010	6.4	0.28	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100177-15 **Sample No:** MH1K46 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19300	17.6	1.8	mg/kg			
Arsenic	7440-38-2	14.9	0.88	0.11	mg/kg		J	F1
Calcium	7440-70-2	6400	441	5.1	mg/kg			
Copper	7440-50-8	234	2.2	0.045	mg/kg			
Iron	7439-89-6	37800	8.8	0.73	mg/kg			
Lead	7439-92-1	428	0.88	0.097	mg/kg			
Magnesium	7439-95-4	9330	441	1.9	mg/kg			
Manganese	7439-96-5	5330	1.3	0.054	mg/kg			
Zinc	7440-66-6	2030	5.3	0.23	mg/kg		J	F1

Lab Sample Name: 6100177-16 **Sample No:** MH1K47 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	21600	21.3	2.1	mg/kg	*	J	A
Arsenic	7440-38-2	21.6	1.1	0.14	mg/kg	*	J	E
Calcium	7440-70-2	2880	534	6.2	mg/kg	*	J	A
Copper	7440-50-8	63.6	2.7	0.054	mg/kg			
Iron	7439-89-6	50900	21.3	1.8	mg/kg	D*	J	A
Lead	7439-92-1	125	1.1	0.12	mg/kg			
Magnesium	7439-95-4	11500	534	2.3	mg/kg	*		
Manganese	7439-96-5	1370	1.6	0.065	mg/kg		J	A
Zinc	7440-66-6	376	6.4	0.28	mg/kg			

Lab Sample Name: 6100177-17 **Sample No:** MH1K48 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6970	23.6	2.4	mg/kg	*		
Arsenic	7440-38-2	20.4	1.2	0.15	mg/kg	*		
Calcium	7440-70-2	1550	590	6.8	mg/kg	*		
Copper	7440-50-8	65.4	2.9	0.060	mg/kg			
Iron	7439-89-6	17100	11.8	0.98	mg/kg	*		
Lead	7439-92-1	484	1.2	0.13	mg/kg			
Magnesium	7439-95-4	4120	590	2.6	mg/kg	*		
Manganese	7439-96-5	3630	3.5	0.14	mg/kg	D	J	F1
Zinc	7440-66-6	472	7.1	0.31	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100177-18 **Sample No:** MH1K49 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10500	23.0	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	55.8	1.1	0.15	mg/kg	*	J	E
Calcium	7440-70-2	1350	575	6.7	mg/kg	*	J	A
Copper	7440-50-8	132	2.9	0.059	mg/kg			
Iron	7439-89-6	33600	11.5	0.95	mg/kg	*	J	A
Lead	7439-92-1	1800	1.1	0.13	mg/kg			
Magnesium	7439-95-4	4670	575	2.5	mg/kg	*		
Manganese	7439-96-5	2380	1.7	0.070	mg/kg		J	A
Zinc	7440-66-6	309	6.9	0.30	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100177-01 **Sample No:** MH1K32 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.1	0.034	mg/kg			
Barium	7440-39-3	93.2	5.7	0.050	mg/kg	*		
Beryllium	7440-41-7	0.68	0.57	0.045	mg/kg			
Cadmium	7440-43-9	3.8	0.57	0.048	mg/kg	*		
Chromium	7440-47-3	1.9	1.1	0.093	mg/kg			
Cobalt	7440-48-4	6.9	0.57	0.034	mg/kg	*		
Molybdenum	7439-98-7	3.9	2.3	0.051	mg/kg	*		
Nickel	7440-02-0	3.9	0.57	0.051	mg/kg	*		
Selenium	7782-49-2	0.93	2.8	0.077	mg/kg	J	J	
Silver	7440-22-4	1.1	0.57	0.031	mg/kg	*		
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	10.0	2.8	0.093	mg/kg			

Lab Sample Name: 6100177-02 **Sample No:** MH1K33 **Sample Date:** 09/27/2016 11:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.1	0.032	mg/kg		J	*III
Barium	7440-39-3	57.1	5.4	0.047	mg/kg	*	J	A, *III
Beryllium	7440-41-7	0.71	0.54	0.043	mg/kg		J	*III
Cadmium	7440-43-9	3.9	0.54	0.045	mg/kg	*	J	A, *III
Chromium	7440-47-3	2.2	1.1	0.088	mg/kg			
Cobalt	7440-48-4	7.0	0.54	0.032	mg/kg	*	J	A, *III
Molybdenum	7439-98-7	4.5	2.1	0.048	mg/kg	*	J	A

Analysis Method ICP_MS

Nickel	7440-02-0	3.9	0.54	0.048	mg/kg	*	J	A, *III
Selenium	7782-49-2	1.3	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	1.4	0.54	0.029	mg/kg	*	J	A, *III
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	12.2	2.7	0.088	mg/kg			

Lab Sample Name: 6100177-03 **Sample No:** MH1K34 **Sample Date:** 09/27/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	2.4	0.071	mg/kg	JD	U	B
Barium	7440-39-3	65.0	11.8	0.10	mg/kg	D*		
Beryllium	7440-41-7	1.2	1.2	0.094	mg/kg	JD	U	B
Cadmium	7440-43-9	4.2	1.2	0.099	mg/kg	D*		
Chromium	7440-47-3	2.9	1.2	0.097	mg/kg			
Cobalt	7440-48-4	7.3	1.2	0.071	mg/kg	D*		
Molybdenum	7439-98-7	4.7	4.7	0.11	mg/kg	JD*	U	B
Nickel	7440-02-0	5.0	1.2	0.11	mg/kg	D*		
Selenium	7782-49-2	1.1	3.0	0.080	mg/kg	J	J	
Silver	7440-22-4	1.8	1.2	0.064	mg/kg	D*		
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	11.5	3.0	0.097	mg/kg			

Lab Sample Name: 6100177-04 **Sample No:** MH1K35 **Sample Date:** 09/27/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	2.1	0.064	mg/kg	JD	U	B
Barium	7440-39-3	136	10.6	0.093	mg/kg	D*	J	A
Beryllium	7440-41-7	1.0	1.1	0.085	mg/kg	JD	J	
Cadmium	7440-43-9	7.0	1.1	0.089	mg/kg	D*	J	A
Chromium	7440-47-3	3.6	1.1	0.087	mg/kg			
Cobalt	7440-48-4	12.1	1.1	0.064	mg/kg	D*	J	A
Molybdenum	7439-98-7	6.5	4.2	0.095	mg/kg	D*	J	A
Nickel	7440-02-0	6.1	1.1	0.095	mg/kg	D*	J	A
Selenium	7782-49-2	1.5	2.6	0.072	mg/kg	J	J	
Silver	7440-22-4	3.4	1.1	0.057	mg/kg	D*	J	A
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	17.7	2.6	0.087	mg/kg			

Lab Sample Name: 6100177-05 **Sample No:** MH1K36 **Sample Date:** 09/27/2016 09:26:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.043	mg/kg	J	U	B

Analysis Method ICP_MS

Barium	7440-39-3	88.3	7.2	0.063	mg/kg	*		
Beryllium	7440-41-7	0.80	0.72	0.057	mg/kg			
Cadmium	7440-43-9	1.0	0.72	0.060	mg/kg	*		
Chromium	7440-47-3	5.3	1.4	0.12	mg/kg			
Cobalt	7440-48-4	9.8	0.72	0.043	mg/kg	*		
Molybdenum	7439-98-7	4.1	2.9	0.065	mg/kg	*		
Nickel	7440-02-0	5.0	0.72	0.065	mg/kg	*		
Selenium	7782-49-2	2.1	3.6	0.098	mg/kg	J	J	
Silver	7440-22-4	0.92	0.72	0.039	mg/kg	*		
Thallium	7440-28-0	0.72	0.72	0.055	mg/kg	J	U	B
Vanadium	7440-62-2	31.9	3.6	0.12	mg/kg			

Lab Sample Name: 6100177-06 **Sample No:** MH1K37 **Sample Date:** 09/27/2016 09:26:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.7	0.050	mg/kg	J	J	
Barium	7440-39-3	149	8.4	0.074	mg/kg	*	J	A
Beryllium	7440-41-7	0.89	0.84	0.067	mg/kg			
Cadmium	7440-43-9	1.6	0.84	0.070	mg/kg	*	J	A
Chromium	7440-47-3	6.6	1.7	0.14	mg/kg			
Cobalt	7440-48-4	12.8	0.84	0.050	mg/kg	*	J	A
Molybdenum	7439-98-7	4.6	3.4	0.076	mg/kg	*	J	A
Nickel	7440-02-0	6.8	0.84	0.076	mg/kg	*	J	A
Selenium	7782-49-2	2.9	4.2	0.11	mg/kg	J	J	
Silver	7440-22-4	1.4	0.84	0.045	mg/kg	*	J	A
Thallium	7440-28-0	0.84	0.84	0.064	mg/kg	J	U	B
Vanadium	7440-62-2	34.6	4.2	0.14	mg/kg			

Lab Sample Name: 6100177-07 **Sample No:** MH1K38 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.7	2.7	0.081	mg/kg	JD	U	B
Barium	7440-39-3	117	13.5	0.12	mg/kg	D*		
Beryllium	7440-41-7	1.3	1.3	0.11	mg/kg	JD	U	B
Cadmium	7440-43-9	1.6	1.3	0.11	mg/kg	D*		
Chromium	7440-47-3	5.1	1.3	0.11	mg/kg			
Cobalt	7440-48-4	13.4	1.3	0.081	mg/kg	D*		
Molybdenum	7439-98-7	5.4	5.4	0.12	mg/kg	JD*	U	B
Nickel	7440-02-0	8.6	1.3	0.12	mg/kg	D*		
Selenium	7782-49-2	1.7	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	0.8	1.3	0.073	mg/kg	JD*	J	
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B

Vanadium	7440-62-2	26.0	3.4	0.11	mg/kg			

Lab Sample Name: 6100177-08 **Sample No:** MH1K39 **Sample Date:** 09/29/2016 13:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.3	2.3	0.070	mg/kg	JD	U	B
Barium	7440-39-3	82.6	11.6	0.10	mg/kg	D*	J	A
Beryllium	7440-41-7	1.2	1.2	0.093	mg/kg	JD	U	B
Cadmium	7440-43-9	1.5	1.2	0.097	mg/kg	D*	J	A
Chromium	7440-47-3	5.4	1.2	0.095	mg/kg			
Cobalt	7440-48-4	8.8	1.2	0.070	mg/kg	D*	J	A
Molybdenum	7439-98-7	4.6	4.6	0.10	mg/kg	JD*	UJ	B, A
Nickel	7440-02-0	5.7	1.2	0.10	mg/kg	D*	J	A
Selenium	7782-49-2	1.4	2.9	0.079	mg/kg	J	J	
Silver	7440-22-4	1.5	1.2	0.063	mg/kg	D*	J	A
Thallium	7440-28-0	0.58	0.58	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	22.7	2.9	0.095	mg/kg			

Lab Sample Name: 6100177-09 **Sample No:** MH1K40 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	2.4	0.072	mg/kg	JD	U	B
Barium	7440-39-3	53.7	11.9	0.10	mg/kg	D*		
Beryllium	7440-41-7	1.2	1.2	0.095	mg/kg	JD	U	B
Cadmium	7440-43-9	5.1	1.2	0.10	mg/kg	D*		
Chromium	7440-47-3	2.6	1.2	0.098	mg/kg			
Cobalt	7440-48-4	7.4	1.2	0.072	mg/kg	D*		
Molybdenum	7439-98-7	4.8	4.8	0.11	mg/kg	JD*	U	B
Nickel	7440-02-0	5.8	1.2	0.11	mg/kg	D*		
Selenium	7782-49-2	1.2	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	0.47	1.2	0.064	mg/kg	JD*	J	
Thallium	7440-28-0	0.60	0.60	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	11.5	3.0	0.098	mg/kg			

Lab Sample Name: 6100177-10 **Sample No:** MH1K41 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.2	2.2	0.067	mg/kg	JD	U	B
Barium	7440-39-3	124	11.1	0.098	mg/kg	D*	J	A
Beryllium	7440-41-7	1.1	1.1	0.089	mg/kg	JD	U	B
Cadmium	7440-43-9	8.3	1.1	0.093	mg/kg	D*	J	A
Chromium	7440-47-3	4.5	1.1	0.091	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	11.9	1.1	0.067	mg/kg	D*	J	A
Molybdenum	7439-98-7	4.4	4.4	0.10	mg/kg	JD*	UJ	B, A
Nickel	7440-02-0	6.6	1.1	0.10	mg/kg	D*	J	A
Selenium	7782-49-2	1.8	2.8	0.076	mg/kg	J	J	
Silver	7440-22-4	1.3	1.1	0.060	mg/kg	D*	J	A
Thallium	7440-28-0	0.56	0.56	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	21.3	2.8	0.091	mg/kg			

Lab Sample Name: 6100177-11 **Sample No:** MH1K42 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	2.5	0.074	mg/kg	JD	U	B
Barium	7440-39-3	55.9	12.3	0.11	mg/kg	D*		
Beryllium	7440-41-7	1.2	1.2	0.098	mg/kg	JD	U	B
Cadmium	7440-43-9	1.6	1.2	0.10	mg/kg	D*		
Chromium	7440-47-3	2.3	1.2	0.10	mg/kg			
Cobalt	7440-48-4	6.4	1.2	0.074	mg/kg	D*		
Molybdenum	7439-98-7	4.9	4.9	0.11	mg/kg	JD*	U	B
Nickel	7440-02-0	2.7	1.2	0.11	mg/kg	D*		
Selenium	7782-49-2	1.5	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	0.59	1.2	0.066	mg/kg	JD*	J	
Thallium	7440-28-0	0.61	0.61	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	16.4	3.1	0.10	mg/kg			

Lab Sample Name: 6100177-12 **Sample No:** MH1K43 **Sample Date:** 09/27/2016 17:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	2.1	0.063	mg/kg	JD	U	B
Barium	7440-39-3	91.4	10.4	0.092	mg/kg	D*	J	A, F1
Beryllium	7440-41-7	1.0	1.0	0.084	mg/kg	JD	U	B
Cadmium	7440-43-9	1.0	1.0	0.088	mg/kg	JD*	UJ	B, A
Chromium	7440-47-3	3.4	1.0	0.086	mg/kg			
Cobalt	7440-48-4	5.2	1.0	0.063	mg/kg	D*	J	A
Molybdenum	7439-98-7	4.2	4.2	0.094	mg/kg	JD*	UJ	B, A
Nickel	7440-02-0	3.0	1.0	0.094	mg/kg	D*	J	A
Selenium	7782-49-2	1.2	2.6	0.071	mg/kg	J	J	
Silver	7440-22-4	0.49	1.0	0.056	mg/kg	JD*	J	A
Thallium	7440-28-0	0.52	0.52	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	17.4	2.6	0.086	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100177-13 **Sample No:** MH1K44 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	2.4	0.072	mg/kg	JD	U	B
Barium	7440-39-3	77.7	12.1	0.11	mg/kg	D*		
Beryllium	7440-41-7	1.2	1.2	0.097	mg/kg	JD	U	B
Cadmium	7440-43-9	1.2	1.2	0.10	mg/kg	JD*	U	B
Chromium	7440-47-3	5.2	1.2	0.099	mg/kg		J	F1
Cobalt	7440-48-4	5.8	1.2	0.072	mg/kg	D*		
Molybdenum	7439-98-7	4.8	4.8	0.11	mg/kg	JD*	U	B
Nickel	7440-02-0	2.7	1.2	0.11	mg/kg	D*		
Selenium	7782-49-2	1.1	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	1.2	1.2	0.065	mg/kg	JD*	U	B
Thallium	7440-28-0	0.60	0.60	0.046	mg/kg	U	U	
Vanadium	7440-62-2	13.6	3.0	0.099	mg/kg			

Lab Sample Name: 6100177-14 **Sample No:** MH1K45 **Sample Date:** 09/28/2016 16:20:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	2.1	0.064	mg/kg	JD	U	B
Barium	7440-39-3	40.2	10.6	0.094	mg/kg	D*	J	A
Beryllium	7440-41-7	1.1	1.1	0.085	mg/kg	JD	U	B
Cadmium	7440-43-9	3.7	1.1	0.089	mg/kg	D*	J	A, F1
Chromium	7440-47-3	3.4	1.1	0.087	mg/kg			
Cobalt	7440-48-4	6.5	1.1	0.064	mg/kg	D*	J	A
Molybdenum	7439-98-7	7.9	4.3	0.096	mg/kg	D*	J	A
Nickel	7440-02-0	2.7	1.1	0.096	mg/kg	D*	J	A
Selenium	7782-49-2	1.6	2.7	0.072	mg/kg	J	J	
Silver	7440-22-4	3.1	1.1	0.057	mg/kg	D*	J	A
Thallium	7440-28-0	0.53	0.53	0.040	mg/kg	J	U	B
Vanadium	7440-62-2	13.3	2.7	0.087	mg/kg			

Lab Sample Name: 6100177-15 **Sample No:** MH1K46 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.8	1.8	0.053	mg/kg	JD	U	B
Barium	7440-39-3	28.7	8.8	0.078	mg/kg	D*	J	F1
Beryllium	7440-41-7	0.88	0.88	0.071	mg/kg	JD	U	B
Cadmium	7440-43-9	1.6	0.88	0.074	mg/kg	D*	J	F1
Chromium	7440-47-3	1.3	0.88	0.072	mg/kg		J	F1
Cobalt	7440-48-4	3.6	0.88	0.053	mg/kg	D*	J	F1

Analysis Method ICP_MS

Molybdenum	7439-98-7	3.5	3.5	0.080	mg/kg	JD*	U	B
Nickel	7440-02-0	3.0	0.88	0.080	mg/kg	D*	J	F1
Selenium	7782-49-2	0.80	2.2	0.060	mg/kg	J	J	
Silver	7440-22-4	0.88	0.88	0.048	mg/kg	JD*	U	B
Thallium	7440-28-0	0.44	0.44	0.034	mg/kg	J	U	B
Vanadium	7440-62-2	12.0	2.2	0.072	mg/kg		J	F1

Lab Sample Name: 6100177-16 **Sample No:** MH1K47 **Sample Date:** 09/29/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.1	2.1	0.064	mg/kg	JD	U	B
Barium	7440-39-3	51.3	10.7	0.094	mg/kg	D*	J	A
Beryllium	7440-41-7	1.1	1.1	0.085	mg/kg	JD	U	B
Cadmium	7440-43-9	1.1	1.1	0.090	mg/kg	JD*	UJ	B, A
Chromium	7440-47-3	5.7	1.1	0.088	mg/kg			
Cobalt	7440-48-4	16.8	1.1	0.064	mg/kg	D*	J	A
Molybdenum	7439-98-7	4.3	4.3	0.096	mg/kg	JD*	UJ	B, A
Nickel	7440-02-0	6.7	1.1	0.096	mg/kg	D*	J	A
Selenium	7782-49-2	2.1	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	0.47	1.1	0.058	mg/kg	JD*	J	A
Thallium	7440-28-0	0.53	0.53	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	43.6	2.7	0.088	mg/kg			

Lab Sample Name: 6100177-17 **Sample No:** MH1K48 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.3	2.3	0.070	mg/kg	JD	U	B
Barium	7440-39-3	28.2	11.7	0.10	mg/kg	D*		
Beryllium	7440-41-7	1.2	1.2	0.094	mg/kg	JD	U	B
Cadmium	7440-43-9	1.3	1.2	0.099	mg/kg	D*		
Chromium	7440-47-3	3.2	1.2	0.096	mg/kg			
Cobalt	7440-48-4	5.0	1.2	0.070	mg/kg	D*		
Molybdenum	7439-98-7	6.1	4.7	0.11	mg/kg	D*		
Nickel	7440-02-0	2.3	1.2	0.11	mg/kg	D*		
Selenium	7782-49-2	0.80	2.9	0.080	mg/kg	J	J	
Silver	7440-22-4	1.7	1.2	0.063	mg/kg	D*		
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	15.4	2.9	0.096	mg/kg			

Lab Sample Name: 6100177-18 **Sample No:** MH1K49 **Sample Date:** 09/29/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	3.6	2.3	0.069	mg/kg	D		
Barium	7440-39-3	61.0	11.5	0.10	mg/kg	D*	**J**	**A**
Beryllium	7440-41-7	1.1	1.1	0.092	mg/kg	JD	**U**	**B**
Cadmium	7440-43-9	1.1	1.1	0.097	mg/kg	JD*	**UJ**	**B,A**
Chromium	7440-47-3	5.9	1.1	0.094	mg/kg			
Cobalt	7440-48-4	6.6	1.1	0.069	mg/kg	D*	**J**	**A**
Molybdenum	7439-98-7	15.5	4.6	0.10	mg/kg	D*	**J**	**A**
Nickel	7440-02-0	3.3	1.1	0.10	mg/kg	D*	**J**	**A**
Selenium	7782-49-2	1.2	2.9	0.078	mg/kg	J	**J**	
Silver	7440-22-4	6.2	1.1	0.062	mg/kg	D*	**J**	**A**
Thallium	7440-28-0	0.57	0.57	0.044	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	21.5	2.9	0.094	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1K50

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1K50
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1K50	6100178-01	Sediment	10/07/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1K51	6100178-02	Soil	10/07/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1K52	6100178-03	Sediment	10/07/2016 15:10:00	Hg, ICP-AES, ICP-MS
MH1K53	6100178-04	Soil	10/07/2016 15:10:00	Hg, ICP-AES, ICP-MS
MH1K54	6100178-05	Sediment	10/07/2016 17:35:00	Hg, ICP-AES, ICP-MS
MH1K55	6100178-06	Soil	10/07/2016 17:35:00	Hg, ICP-AES, ICP-MS
MH1K56	6100178-07	Sediment	10/07/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1K57	6100178-08	Soil	10/07/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1K58	6100178-09	Sediment	10/08/2016 09:25:00	Hg, ICP-AES, ICP-MS
MH1K59	6100178-10	Soil	10/08/2016 09:25:00	Hg, ICP-AES, ICP-MS
MH1K60	6100178-11	Sediment	10/08/2016 09:50:00	Hg, ICP-AES, ICP-MS
MH1K61	6100178-12	Soil	10/08/2016 09:50:00	Hg, ICP-AES, ICP-MS
MH1K62	6100178-13	Sediment	10/08/2016 08:35:00	Hg, ICP-AES, ICP-MS
MH1K63	6100178-14	Soil	10/08/2016 08:35:00	Hg, ICP-AES, ICP-MS
MH1K64	6100178-15	Sediment	10/07/2016 11:00:00	Hg, ICP-AES, ICP-MS
MH1K65	6100178-16	Soil	10/07/2016 11:00:00	Hg, ICP-AES, ICP-MS
MH1K66	6100178-17	Sediment	10/07/2016 11:00:00	Hg, ICP-AES, ICP-MS
MH1K67	6100178-18	Soil	10/07/2016 11:00:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 19, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied. Associated detected results greater than the RL and <5x the MB concentration were qualified as estimated with high potential bias (J+).

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
antimony	0.48	MH1K50, MH1K51, MH1K53, MH1K54, MH1K55, MH1K59, MH1K60, MH1K61, MH1K62, MH1K65
antimony	0.51	MH1K63
cadmium	0.11	MH1K51, MH1K53, MH1K54, MH1K55, MH1K59, MH1K65, MH1K67
cadmium	0.15	MH1K64
molybdenum	0.67	All site samples except MH1K52, MH1K56, MH1K63, MH1K64
molybdenum	0.65	MH1K63
molybdenum	1.4	MH1K64
silver	0.032	MH1K50, MH1K51, MH1K54, MH1K55, MH1K59, MH1K60, MH1K65
silver	0.021	MH1K63
thallium	0.15	MH1K50, MH1K51, MH1K53, MH1K54, MH1K55, MH1K57, MH1K58, MH1K59, MH1K60, MH1K61, MH1K62, MH1K63, MH1K65, MH1K66, MH1K67

Analyte	Calibration blank concentration (µg/L)	Qualified Samples
beryllium	0.11	MH1K53, MH1K54, MH1K57, MH1K58, MH1K59, MH1K60, MH1K62, MH1K65, MH1K66, MH1K67

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1K51 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exceptions of nickel (26%) and vanadium (28%). All associated soil results were detected and were qualified as estimated (J).
- Matrix Spike: Matrix spike analyses were performed on sample MH1K51 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exception of antimony (61%). Antimony results in soil samples were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.
- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1K51 for ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes; therefore, the bias was removed from the qualification of antimony.
- Serial Dilution: Serial dilution analysis was performed on sample MH1K51 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes.
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range and initial internal standard infractions. Detected results for dilutions were flagged with “D” by the laboratory. Samples MH1K52, MH1K56, and MH1K64 were redigested at higher initial weights due to low total solids. Reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.

- Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
- Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1K50

Analysis Method Hg

Lab Sample Name: 6100178-01 **Sample No:** MH1K50 **Sample Date:** 10/07/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0072	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100178-02 **Sample No:** MH1K51 **Sample Date:** 10/07/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.036	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100178-03 **Sample No:** MH1K52 **Sample Date:** 10/07/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.17	0.17	0.0056	mg/kg	JD	J	

Lab Sample Name: 6100178-04 **Sample No:** MH1K53 **Sample Date:** 10/07/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.092	0.13	0.0043	mg/kg	J	J	

Lab Sample Name: 6100178-05 **Sample No:** MH1K54 **Sample Date:** 10/07/2016 17:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.19	0.0062	mg/kg	J	J	

Lab Sample Name: 6100178-06 **Sample No:** MH1K55 **Sample Date:** 10/07/2016 17:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.039	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100178-07 **Sample No:** MH1K56 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.35	0.18	0.0057	mg/kg	D		

Analysis Method Hg

Lab Sample Name: 6100178-08 **Sample No:** MH1K57 **Sample Date:** 10/07/2016 15:45:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.11	0.0035	mg/kg			

Lab Sample Name: 6100178-09 **Sample No:** MH1K58 **Sample Date:** 10/08/2016 09:25:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.077	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100178-10 **Sample No:** MH1K59 **Sample Date:** 10/08/2016 09:25:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.013	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100178-11 **Sample No:** MH1K60 **Sample Date:** 10/08/2016 09:50:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0041	mg/kg	U	U	

Lab Sample Name: 6100178-12 **Sample No:** MH1K61 **Sample Date:** 10/08/2016 09:50:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.022	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100178-13 **Sample No:** MH1K62 **Sample Date:** 10/08/2016 08:35:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.014	0.11	0.0037	mg/kg	J	J	

Lab Sample Name: 6100178-14 **Sample No:** MH1K63 **Sample Date:** 10/08/2016 08:35:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.015	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100178-15 **Sample No:** MH1K64 **Sample Date:** 10/07/2016 11:00:00
Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.018	0.20	0.0064	mg/kg	JD	J	

Analysis Method Hg

Lab Sample Name: 6100178-16 **Sample No:** MH1K65 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.011	0.11	0.0037	mg/kg	J	J	

Lab Sample Name: 6100178-17 **Sample No:** MH1K66 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.10	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100178-18 **Sample No:** MH1K67 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.12	0.0038	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100178-01 **Sample No:** MH1K50 **Sample Date:** 10/07/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	12200	26.8	1.9	mg/kg			
Arsenic	7440-38-2	29.7	1.3	0.15	mg/kg			
Calcium	7440-70-2	2280	670	3.8	mg/kg			
Copper	7440-50-8	10.1	3.3	0.055	mg/kg			
Iron	7439-89-6	26300	13.4	0.67	mg/kg			
Lead	7439-92-1	107	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4290	670	2.7	mg/kg			
Manganese	7439-96-5	2250	2.0	0.029	mg/kg			
Zinc	7440-66-6	327	8.0	0.066	mg/kg			

Lab Sample Name: 6100178-02 **Sample No:** MH1K51 **Sample Date:** 10/07/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15700	26.7	1.9	mg/kg			
Arsenic	7440-38-2	12.3	1.3	0.15	mg/kg			
Calcium	7440-70-2	1780	666	3.7	mg/kg			
Copper	7440-50-8	8.2	3.3	0.055	mg/kg			
Iron	7439-89-6	25000	13.3	0.67	mg/kg			
Lead	7439-92-1	56.5	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4000	666	2.7	mg/kg			
Manganese	7439-96-5	1100	2.0	0.029	mg/kg			

Zinc		7440-66-6	110	8.0	0.065	mg/kg			

Lab Sample Name: 6100178-03 **Sample No:** MH1K52 **Sample Date:** 10/07/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6610	17.5	1.8	mg/kg			
Arsenic	7440-38-2	2100	17.5	2.3	mg/kg	D		
Calcium	7440-70-2	1020	438	5.1	mg/kg			
Copper	7440-50-8	130	2.2	0.045	mg/kg			
Iron	7439-89-6	228000	175	14.6	mg/kg	D		
Lead	7439-92-1	229	0.88	0.096	mg/kg			
Magnesium	7439-95-4	1710	438	1.9	mg/kg			
Manganese	7439-96-5	271	1.3	0.053	mg/kg			
Zinc	7440-66-6	194	5.3	0.23	mg/kg			

Lab Sample Name: 6100178-04 **Sample No:** MH1K53 **Sample Date:** 10/07/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	20400	26.7	1.9	mg/kg			
Arsenic	7440-38-2	14.6	1.3	0.15	mg/kg			
Calcium	7440-70-2	4250	667	3.7	mg/kg			
Copper	7440-50-8	30.2	3.3	0.055	mg/kg			
Iron	7439-89-6	33900	13.3	0.67	mg/kg			
Lead	7439-92-1	53.7	1.3	0.17	mg/kg			
Magnesium	7439-95-4	5690	667	2.7	mg/kg			
Manganese	7439-96-5	981	2.0	0.029	mg/kg			
Zinc	7440-66-6	135	8.0	0.065	mg/kg			

Lab Sample Name: 6100178-05 **Sample No:** MH1K54 **Sample Date:** 10/07/2016 17:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15200	38.9	2.7	mg/kg			
Arsenic	7440-38-2	22.6	1.9	0.21	mg/kg			
Calcium	7440-70-2	2580	972	5.4	mg/kg			
Copper	7440-50-8	79.5	4.9	0.080	mg/kg			
Iron	7439-89-6	23400	19.4	0.97	mg/kg			
Lead	7439-92-1	42.5	1.9	0.25	mg/kg			
Magnesium	7439-95-4	2630	972	3.9	mg/kg			
Manganese	7439-96-5	187	2.9	0.043	mg/kg			
Zinc	7440-66-6	127	11.7	0.095	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100178-06 **Sample No:** MH1K55 **Sample Date:** 10/07/2016 17:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18600	25.0	1.8	mg/kg			
Arsenic	7440-38-2	10.4	1.3	0.14	mg/kg			
Calcium	7440-70-2	5550	625	3.5	mg/kg			
Copper	7440-50-8	35.4	3.1	0.051	mg/kg			
Iron	7439-89-6	32800	12.5	0.63	mg/kg			
Lead	7439-92-1	28.5	1.3	0.16	mg/kg			
Magnesium	7439-95-4	3440	625	2.5	mg/kg			
Manganese	7439-96-5	1470	1.9	0.028	mg/kg			
Zinc	7440-66-6	121	7.5	0.061	mg/kg			

Lab Sample Name: 6100178-07 **Sample No:** MH1K56 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8150	17.9	1.8	mg/kg			
Arsenic	7440-38-2	3080	17.9	2.3	mg/kg	D		
Calcium	7440-70-2	2170	449	5.2	mg/kg			
Copper	7440-50-8	972	44.9	0.92	mg/kg	D		
Iron	7439-89-6	184000	179	14.9	mg/kg	D		
Lead	7439-92-1	458	0.90	0.099	mg/kg			
Magnesium	7439-95-4	2010	449	2.0	mg/kg			
Manganese	7439-96-5	257	1.3	0.055	mg/kg			
Zinc	7440-66-6	1700	108	4.7	mg/kg	D		

Lab Sample Name: 6100178-08 **Sample No:** MH1K57 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11700	22.0	1.5	mg/kg			
Arsenic	7440-38-2	125	1.1	0.12	mg/kg			
Calcium	7440-70-2	20800	549	3.1	mg/kg			
Copper	7440-50-8	175	2.7	0.045	mg/kg			
Iron	7439-89-6	28200	11.0	0.55	mg/kg			
Lead	7439-92-1	217	1.1	0.14	mg/kg			
Magnesium	7439-95-4	3170	549	2.2	mg/kg			
Manganese	7439-96-5	668	1.6	0.024	mg/kg			
Zinc	7440-66-6	405	6.6	0.054	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100178-09 **Sample No:** MH1K58 **Sample Date:** 10/08/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7730	25.0	1.8	mg/kg			
Arsenic	7440-38-2	383	1.2	0.14	mg/kg			
Calcium	7440-70-2	4150	625	3.5	mg/kg			
Copper	7440-50-8	489	3.1	0.051	mg/kg			
Iron	7439-89-6	37300	12.5	0.62	mg/kg			
Lead	7439-92-1	306	1.2	0.16	mg/kg			
Magnesium	7439-95-4	1350	625	2.5	mg/kg			
Manganese	7439-96-5	382	1.9	0.028	mg/kg			
Zinc	7440-66-6	301	7.5	0.061	mg/kg			

Lab Sample Name: 6100178-10 **Sample No:** MH1K59 **Sample Date:** 10/08/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14200	23.7	1.7	mg/kg			
Arsenic	7440-38-2	13.6	1.2	0.13	mg/kg			
Calcium	7440-70-2	992	593	3.3	mg/kg			
Copper	7440-50-8	55.9	3.0	0.049	mg/kg			
Iron	7439-89-6	46000	11.9	0.59	mg/kg			
Lead	7439-92-1	39.6	1.2	0.15	mg/kg			
Magnesium	7439-95-4	4920	593	2.4	mg/kg			
Manganese	7439-96-5	897	1.8	0.026	mg/kg			
Zinc	7440-66-6	71.4	7.1	0.058	mg/kg			

Lab Sample Name: 6100178-11 **Sample No:** MH1K60 **Sample Date:** 10/08/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11800	25.4	1.8	mg/kg			
Arsenic	7440-38-2	90.4	1.3	0.14	mg/kg			
Calcium	7440-70-2	2360	636	3.6	mg/kg			
Copper	7440-50-8	87.4	3.2	0.052	mg/kg			
Iron	7439-89-6	33700	12.7	0.64	mg/kg			
Lead	7439-92-1	99.4	1.3	0.17	mg/kg			
Magnesium	7439-95-4	4710	636	2.5	mg/kg			
Manganese	7439-96-5	2640	1.9	0.028	mg/kg			
Zinc	7440-66-6	376	7.6	0.062	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100178-12 **Sample No:** MH1K61 **Sample Date:** 10/08/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17700	26.2	1.8	mg/kg			
Arsenic	7440-38-2	22.0	1.3	0.14	mg/kg			
Calcium	7440-70-2	3120	656	3.7	mg/kg			
Copper	7440-50-8	175	3.3	0.054	mg/kg			
Iron	7439-89-6	29800	13.1	0.66	mg/kg			
Lead	7439-92-1	63.9	1.3	0.17	mg/kg			
Magnesium	7439-95-4	5050	656	2.6	mg/kg			
Manganese	7439-96-5	1110	2.0	0.029	mg/kg			
Zinc	7440-66-6	373	7.9	0.064	mg/kg			

Lab Sample Name: 6100178-13 **Sample No:** MH1K62 **Sample Date:** 10/08/2016 08:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10600	22.9	1.6	mg/kg			
Arsenic	7440-38-2	163	1.1	0.13	mg/kg			
Calcium	7440-70-2	2140	572	3.2	mg/kg			
Copper	7440-50-8	316	2.9	0.047	mg/kg			
Iron	7439-89-6	33700	11.4	0.57	mg/kg			
Lead	7439-92-1	113	1.1	0.15	mg/kg			
Magnesium	7439-95-4	3270	572	2.3	mg/kg			
Manganese	7439-96-5	1860	1.7	0.025	mg/kg			
Zinc	7440-66-6	472	6.9	0.056	mg/kg			

Lab Sample Name: 6100178-14 **Sample No:** MH1K63 **Sample Date:** 10/08/2016 08:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18600	24.5	1.7	mg/kg			
Arsenic	7440-38-2	19.9	1.2	0.13	mg/kg			
Calcium	7440-70-2	3560	611	3.4	mg/kg			
Copper	7440-50-8	80.6	3.1	0.050	mg/kg			
Iron	7439-89-6	39200	12.2	0.61	mg/kg			
Lead	7439-92-1	56.5	1.2	0.16	mg/kg			
Magnesium	7439-95-4	7990	611	2.4	mg/kg			
Manganese	7439-96-5	978	1.8	0.027	mg/kg			
Zinc	7440-66-6	160	7.3	0.060	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100178-15 **Sample No:** MH1K64 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	2020	19.9	2.0	mg/kg			
Arsenic	7440-38-2	279	1.0	0.13	mg/kg			
Calcium	7440-70-2	933	498	5.8	mg/kg			
Copper	7440-50-8	102	2.5	0.051	mg/kg			
Iron	7439-89-6	390000	10.0	0.83	mg/kg			
Lead	7439-92-1	101	1.0	0.11	mg/kg			
Magnesium	7439-95-4	271	498	2.2	mg/kg	J	J	
Manganese	7439-96-5	320	1.5	0.061	mg/kg			
Zinc	7440-66-6	139	6.0	0.26	mg/kg			

Lab Sample Name: 6100178-16 **Sample No:** MH1K65 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	22600	23.0	1.6	mg/kg			
Arsenic	7440-38-2	7.2	1.1	0.13	mg/kg			
Calcium	7440-70-2	2700	574	3.2	mg/kg			
Copper	7440-50-8	23.0	2.9	0.047	mg/kg			
Iron	7439-89-6	41900	11.5	0.57	mg/kg			
Lead	7439-92-1	100	1.1	0.15	mg/kg			
Magnesium	7439-95-4	9480	574	2.3	mg/kg			
Manganese	7439-96-5	1900	1.7	0.025	mg/kg			
Zinc	7440-66-6	186	6.9	0.056	mg/kg			

Lab Sample Name: 6100178-17 **Sample No:** MH1K66 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10100	24.0	1.7	mg/kg			
Arsenic	7440-38-2	63.3	1.2	0.13	mg/kg			
Calcium	7440-70-2	2700	600	3.4	mg/kg			
Copper	7440-50-8	36.8	3.0	0.049	mg/kg			
Iron	7439-89-6	41100	12.0	0.60	mg/kg			
Lead	7439-92-1	333	1.2	0.16	mg/kg			
Magnesium	7439-95-4	2850	600	2.4	mg/kg			
Manganese	7439-96-5	374	1.8	0.026	mg/kg			
Zinc	7440-66-6	126	7.2	0.059	mg/kg			

Analysis Method ICP_AES

Lab Sample Name: 6100178-18 **Sample No:** MH1K67 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11400	23.5	1.6	mg/kg			
Arsenic	7440-38-2	77.3	1.2	0.13	mg/kg			
Calcium	7440-70-2	513	587	3.3	mg/kg	J	J	
Copper	7440-50-8	34.0	2.9	0.048	mg/kg			
Iron	7439-89-6	49400	11.7	0.59	mg/kg			
Lead	7439-92-1	574	1.2	0.15	mg/kg			
Magnesium	7439-95-4	2290	587	2.3	mg/kg			
Manganese	7439-96-5	245	1.8	0.026	mg/kg			
Zinc	7440-66-6	129	7.0	0.058	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100178-01 **Sample No:** MH1K50 **Sample Date:** 10/07/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.040	mg/kg	J*	U	B
Barium	7440-39-3	98.6	6.7	0.059	mg/kg			
Beryllium	7440-41-7	0.86	0.67	0.054	mg/kg			
Cadmium	7440-43-9	1.6	0.67	0.056	mg/kg			
Chromium	7440-47-3	1.2	1.3	0.11	mg/kg	J	J	
Cobalt	7440-48-4	7.7	0.67	0.040	mg/kg			
Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J	U	B
Nickel	7440-02-0	3.3	0.67	0.060	mg/kg	*		
Selenium	7782-49-2	1.1	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J	U	B
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	11.3	3.3	0.11	mg/kg	*		

Lab Sample Name: 6100178-02 **Sample No:** MH1K51 **Sample Date:** 10/07/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.040	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	103	6.7	0.059	mg/kg			
Beryllium	7440-41-7	0.78	0.67	0.053	mg/kg			
Cadmium	7440-43-9	0.67	0.67	0.056	mg/kg	J	U	B
Chromium	7440-47-3	4.2	1.3	0.11	mg/kg			
Cobalt	7440-48-4	5.2	0.67	0.040	mg/kg			
Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J	U	B

Analysis Method ICP_MS

Nickel	7440-02-0	3.8	0.67	0.060	mg/kg	*	J	E
Selenium	7782-49-2	1.1	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	0.67	0.67	0.036	mg/kg	J	U	B
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	13.9	3.3	0.11	mg/kg	*	J	E

Lab Sample Name: 6100178-03 **Sample No:** MH1K52 **Sample Date:** 10/07/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.4	0.88	0.026	mg/kg			
Barium	7440-39-3	51.8	4.4	0.039	mg/kg			
Beryllium	7440-41-7	0.21	0.44	0.035	mg/kg	J	J	
Cadmium	7440-43-9	0.77	0.44	0.037	mg/kg			
Chromium	7440-47-3	10.7	0.88	0.072	mg/kg			
Cobalt	7440-48-4	2.9	0.44	0.026	mg/kg			
Molybdenum	7439-98-7	1.9	1.8	0.039	mg/kg			
Nickel	7440-02-0	2.7	0.44	0.039	mg/kg			
Selenium	7782-49-2	1.2	2.2	0.060	mg/kg	J	J	
Silver	7440-22-4	1.7	0.44	0.024	mg/kg			
Thallium	7440-28-0	0.97	0.44	0.033	mg/kg			
Vanadium	7440-62-2	34.8	2.2	0.072	mg/kg			

Lab Sample Name: 6100178-04 **Sample No:** MH1K53 **Sample Date:** 10/07/2016 15:10:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.040	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	166	6.7	0.059	mg/kg			
Beryllium	7440-41-7	0.67	0.67	0.053	mg/kg	J	U	B
Cadmium	7440-43-9	0.67	0.67	0.056	mg/kg	J	U	B
Chromium	7440-47-3	6.5	1.3	0.11	mg/kg			
Cobalt	7440-48-4	10.5	0.67	0.040	mg/kg			
Molybdenum	7439-98-7	2.7	2.7	0.060	mg/kg	J	U	B
Nickel	7440-02-0	5.5	0.67	0.060	mg/kg	*	J	E
Selenium	7782-49-2	1.2	3.3	0.091	mg/kg	J	J	
Silver	7440-22-4	0.23	0.67	0.036	mg/kg	J	J	
Thallium	7440-28-0	0.67	0.67	0.051	mg/kg	J	U	B
Vanadium	7440-62-2	24.7	3.3	0.11	mg/kg	*	J	E

Lab Sample Name: 6100178-05 **Sample No:** MH1K54 **Sample Date:** 10/07/2016 17:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.9	1.9	0.058	mg/kg	J*	U	B

Analysis Method ICP_MS

Barium	7440-39-3	75.0	9.7	0.086	mg/kg			
Beryllium	7440-41-7	0.97	0.97	0.078	mg/kg	J	U	B
Cadmium	7440-43-9	0.97	0.97	0.082	mg/kg	J	U	B
Chromium	7440-47-3	1.6	1.9	0.16	mg/kg	J	J	
Cobalt	7440-48-4	3.7	0.97	0.058	mg/kg			
Molybdenum	7439-98-7	3.9	3.9	0.088	mg/kg	J	U	B
Nickel	7440-02-0	2.5	0.97	0.088	mg/kg	*		
Selenium	7782-49-2	0.78	4.9	0.13	mg/kg	J	J	
Silver	7440-22-4	0.97	0.97	0.053	mg/kg	J	U	B
Thallium	7440-28-0	0.97	0.97	0.074	mg/kg	J	U	B
Vanadium	7440-62-2	9.8	4.9	0.16	mg/kg	*		

Lab Sample Name: 6100178-06 **Sample No:** MH1K55 **Sample Date:** 10/07/2016 17:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	183	6.3	0.055	mg/kg			
Beryllium	7440-41-7	0.68	0.63	0.050	mg/kg			
Cadmium	7440-43-9	0.63	0.63	0.053	mg/kg	J	U	B
Chromium	7440-47-3	4.2	1.3	0.10	mg/kg			
Cobalt	7440-48-4	11.0	0.63	0.038	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	5.3	0.63	0.056	mg/kg	*	J	E
Selenium	7782-49-2	1.6	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	0.63	0.63	0.034	mg/kg	J	U	B
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	19.8	3.1	0.10	mg/kg	*	J	E

Lab Sample Name: 6100178-07 **Sample No:** MH1K56 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.6	0.90	0.027	mg/kg			
Barium	7440-39-3	49.7	4.5	0.039	mg/kg			
Beryllium	7440-41-7	0.52	0.45	0.036	mg/kg			
Cadmium	7440-43-9	12.4	0.45	0.038	mg/kg			
Chromium	7440-47-3	13.8	0.90	0.074	mg/kg			
Cobalt	7440-48-4	4.8	0.45	0.027	mg/kg			
Molybdenum	7439-98-7	2.5	1.8	0.040	mg/kg			
Nickel	7440-02-0	6.4	0.45	0.040	mg/kg			
Selenium	7782-49-2	1.7	2.2	0.061	mg/kg	J	J	
Silver	7440-22-4	2.6	0.45	0.024	mg/kg			
Thallium	7440-28-0	1.5	0.45	0.034	mg/kg			

Analysis Method ICP_MS

Vanadium	7440-62-2	39.1	2.2	0.074	mg/kg			

Lab Sample Name: 6100178-08 **Sample No:** MH1K57 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	1.1	0.033	mg/kg	*	J	Q
Barium	7440-39-3	100	5.5	0.048	mg/kg			
Beryllium	7440-41-7	0.55	0.55	0.044	mg/kg	J	U	B
Cadmium	7440-43-9	2.5	0.55	0.046	mg/kg			
Chromium	7440-47-3	3.4	1.1	0.090	mg/kg			
Cobalt	7440-48-4	7.1	0.55	0.033	mg/kg			
Molybdenum	7439-98-7	2.2	2.2	0.049	mg/kg	J	U	B
Nickel	7440-02-0	4.3	0.55	0.049	mg/kg	*	J	E
Selenium	7782-49-2	1.3	2.7	0.075	mg/kg	J	J	
Silver	7440-22-4	0.98	0.55	0.030	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	17.7	2.7	0.090	mg/kg	*	J	E

Lab Sample Name: 6100178-09 **Sample No:** MH1K58 **Sample Date:** 10/08/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.8	1.2	0.038	mg/kg	*		
Barium	7440-39-3	62.4	6.2	0.055	mg/kg			
Beryllium	7440-41-7	0.62	0.62	0.050	mg/kg	J	U	B
Cadmium	7440-43-9	1.9	0.62	0.052	mg/kg			
Chromium	7440-47-3	1.5	1.2	0.10	mg/kg			
Cobalt	7440-48-4	7.0	0.62	0.038	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	3.2	0.62	0.056	mg/kg	*		
Selenium	7782-49-2	1.2	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	0.23	0.62	0.034	mg/kg	J	J	
Thallium	7440-28-0	0.62	0.62	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	12.5	3.1	0.10	mg/kg	*		

Lab Sample Name: 6100178-10 **Sample No:** MH1K59 **Sample Date:** 10/08/2016 09:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	92.9	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.047	mg/kg	J	U	B
Cadmium	7440-43-9	0.59	0.59	0.050	mg/kg	J	U	B
Chromium	7440-47-3	2.6	1.2	0.097	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	8.0	0.59	0.036	mg/kg			
Molybdenum	7439-98-7	2.4	2.4	0.053	mg/kg	J	U	B
Nickel	7440-02-0	3.2	0.59	0.053	mg/kg	*	J	E
Selenium	7782-49-2	0.76	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	0.59	0.59	0.032	mg/kg	J	U	B
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	15.0	3.0	0.097	mg/kg	*	J	E

Lab Sample Name: 6100178-11 **Sample No:** MH1K60 **Sample Date:** 10/08/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	J*	U	B
Barium	7440-39-3	48.8	6.4	0.056	mg/kg			
Beryllium	7440-41-7	0.64	0.64	0.051	mg/kg	J	U	B
Cadmium	7440-43-9	1.3	0.64	0.053	mg/kg			
Chromium	7440-47-3	2.4	1.3	0.10	mg/kg			
Cobalt	7440-48-4	11.6	0.64	0.038	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J	U	B
Nickel	7440-02-0	4.3	0.64	0.057	mg/kg	*		
Selenium	7782-49-2	0.97	3.2	0.086	mg/kg	J	J	
Silver	7440-22-4	0.64	0.64	0.034	mg/kg	J	U	B
Thallium	7440-28-0	0.64	0.64	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	11.8	3.2	0.10	mg/kg	*		

Lab Sample Name: 6100178-12 **Sample No:** MH1K61 **Sample Date:** 10/08/2016 09:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.039	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	127	6.6	0.058	mg/kg			
Beryllium	7440-41-7	0.62	0.66	0.052	mg/kg	J	J	
Cadmium	7440-43-9	1.3	0.66	0.055	mg/kg			
Chromium	7440-47-3	4.2	1.3	0.11	mg/kg			
Cobalt	7440-48-4	9.2	0.66	0.039	mg/kg			
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J	U	B
Nickel	7440-02-0	4.3	0.66	0.059	mg/kg	*	J	E
Selenium	7782-49-2	1.4	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	0.16	0.66	0.035	mg/kg	J	J	
Thallium	7440-28-0	0.66	0.66	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	17.9	3.3	0.11	mg/kg	*	J	E

Analysis Method ICP_MS

Lab Sample Name: 6100178-13 **Sample No:** MH1K62 **Sample Date:** 10/08/2016 08:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.034	mg/kg	J*	U	B
Barium	7440-39-3	37.9	5.7	0.050	mg/kg			
Beryllium	7440-41-7	0.57	0.57	0.046	mg/kg	J	U	B
Cadmium	7440-43-9	0.78	0.57	0.048	mg/kg			
Chromium	7440-47-3	2.5	1.1	0.094	mg/kg			
Cobalt	7440-48-4	7.6	0.57	0.034	mg/kg			
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J	U	B
Nickel	7440-02-0	3.0	0.57	0.052	mg/kg	*		
Selenium	7782-49-2	0.59	2.9	0.078	mg/kg	J	J	
Silver	7440-22-4	0.57	0.57	0.031	mg/kg	J	U	B
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	8.2	2.9	0.094	mg/kg	*		

Lab Sample Name: 6100178-14 **Sample No:** MH1K63 **Sample Date:** 10/08/2016 08:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.4	2.4	0.073	mg/kg	JD*	UJ	B, Q
Barium	7440-39-3	131	12.2	0.11	mg/kg	D		
Beryllium	7440-41-7	0.8	1.2	0.098	mg/kg	JD	J	
Cadmium	7440-43-9	0.63	1.2	0.10	mg/kg	JD	J	
Chromium	7440-47-3	4.5	1.2	0.10	mg/kg			
Cobalt	7440-48-4	17.7	1.2	0.073	mg/kg	D		
Molybdenum	7439-98-7	2.4	2.4	0.055	mg/kg	J	U	B
Nickel	7440-02-0	12.9	1.2	0.11	mg/kg	D*	J	E
Selenium	7782-49-2	1.3	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	1.2	1.2	0.066	mg/kg	JD	U	B
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	25.1	3.1	0.10	mg/kg	*	J	E

Lab Sample Name: 6100178-15 **Sample No:** MH1K64 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.0	0.93	0.028	mg/kg			
Barium	7440-39-3	8.7	4.7	0.041	mg/kg			
Beryllium	7440-41-7	0.47	0.47	0.037	mg/kg	U	U	
Cadmium	7440-43-9	0.47	0.47	0.039	mg/kg	J	U	B
Chromium	7440-47-3	4.8	0.93	0.076	mg/kg			
Cobalt	7440-48-4	1.5	0.47	0.028	mg/kg			

Analysis Method ICP_MS

Molybdenum	7439-98-7	3.0	1.9	0.042	mg/kg		J+	B
Nickel	7440-02-0	0.21	0.47	0.042	mg/kg	J	J	
Selenium	7782-49-2	1.0	2.3	0.063	mg/kg	J	J	
Silver	7440-22-4	0.68	0.47	0.025	mg/kg			
Thallium	7440-28-0	0.47	0.47	0.035	mg/kg	U	U	
Vanadium	7440-62-2	14.1	2.3	0.076	mg/kg			

Lab Sample Name: 6100178-16 **Sample No:** MH1K65 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.034	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	106	5.7	0.051	mg/kg			
Beryllium	7440-41-7	0.57	0.57	0.046	mg/kg	J	U	B
Cadmium	7440-43-9	0.57	0.57	0.048	mg/kg	J	U	B
Chromium	7440-47-3	4.6	1.1	0.094	mg/kg			
Cobalt	7440-48-4	9.3	0.57	0.034	mg/kg			
Molybdenum	7439-98-7	2.3	2.3	0.052	mg/kg	J	U	B
Nickel	7440-02-0	5.3	0.57	0.052	mg/kg	*	J	E
Selenium	7782-49-2	1.0	2.9	0.078	mg/kg	J	J	
Silver	7440-22-4	0.57	0.57	0.031	mg/kg	J	U	B
Thallium	7440-28-0	0.57	0.57	0.044	mg/kg	J	U	B
Vanadium	7440-62-2	20.8	2.9	0.094	mg/kg	*	J	E

Lab Sample Name: 6100178-17 **Sample No:** MH1K66 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	8.9	1.2	0.036	mg/kg	*		
Barium	7440-39-3	99.7	6.0	0.053	mg/kg			
Beryllium	7440-41-7	0.60	0.60	0.048	mg/kg	J	U	B
Cadmium	7440-43-9	1.2	0.60	0.050	mg/kg			
Chromium	7440-47-3	2.0	1.2	0.098	mg/kg			
Cobalt	7440-48-4	2.4	0.60	0.036	mg/kg			
Molybdenum	7439-98-7	2.4	2.4	0.054	mg/kg	J	U	B
Nickel	7440-02-0	1.6	0.60	0.054	mg/kg	*		
Selenium	7782-49-2	1.4	3.0	0.082	mg/kg	J	J	
Silver	7440-22-4	2.7	0.60	0.032	mg/kg			
Thallium	7440-28-0	0.60	0.60	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	17.4	3.0	0.098	mg/kg	*		

Lab Sample Name: 6100178-18 **Sample No:** MH1K67 **Sample Date:** 10/07/2016 11:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	2.7	1.2	0.035	mg/kg	*	**J**	**Q**
Barium	7440-39-3	115	5.9	0.052	mg/kg			
Beryllium	7440-41-7	0.59	0.59	0.047	mg/kg	J	**U**	**B**
Cadmium	7440-43-9	0.59	0.59	0.049	mg/kg	J	**U**	**B**
Chromium	7440-47-3	2.0	1.2	0.096	mg/kg			
Cobalt	7440-48-4	2.6	0.59	0.035	mg/kg			
Molybdenum	7439-98-7	2.3	2.3	0.053	mg/kg	J	**U**	**B**
Nickel	7440-02-0	1.6	0.59	0.053	mg/kg	*	**J**	**E**
Selenium	7782-49-2	1.5	2.9	0.080	mg/kg	J	**J**	
Silver	7440-22-4	2.2	0.59	0.032	mg/kg			
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	18.7	2.9	0.096	mg/kg	*	**J**	**E**

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1K68

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1K68
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1K68	6100179-01	Sediment	10/07/2016 10:45:00	Hg, ICP-AES, ICP-MS
MH1K69	6100179-02	Soil	10/07/2016 10:45:00	Hg, ICP-AES, ICP-MS
MH1K70	6100179-03	Sediment	10/07/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1K71	6100179-04	Soil	10/07/2016 15:45:00	Hg, ICP-AES, ICP-MS
MH1K72	6100179-05	Sediment	10/05/2016 12:35:00	Hg, ICP-AES, ICP-MS
MH1K73	6100179-06	Soil	10/05/2016 12:35:00	Hg, ICP-AES, ICP-MS
MH1K74	6100179-07	Sediment	10/05/2016 10:25:00	Hg, ICP-AES, ICP-MS
MH1K75	6100179-08	Soil	10/05/2016 10:25:00	Hg, ICP-AES, ICP-MS
MH1K76	6100179-09	Sediment	10/05/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1K77	6100179-10	Soil	10/05/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1K78	6100179-11	Sediment	10/05/2016 13:35:00	Hg, ICP-AES, ICP-MS
MH1K79	6100179-12	Soil	10/05/2016 13:35:00	Hg, ICP-AES, ICP-MS
MH1K80	6100179-13	Sediment	10/05/2016 15:15:00	Hg, ICP-AES, ICP-MS
MH1K81	6100179-14	Soil	10/05/2016 15:15:00	Hg, ICP-AES, ICP-MS
MH1K82	6100179-15	Sediment	10/05/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1K83	6100179-16	Soil	10/05/2016 16:00:00	Hg, ICP-AES, ICP-MS
MH1K84	6100179-17	Sediment	10/05/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1K85	6100179-18	Soil	10/05/2016 15:40:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.

  A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 18, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Associated detected results that were below the reporting limit (RL) were qualified as nondetect (U), unless the sample result was <10x the blank value, based on professional judgement.

Analyte	Calibration blank concentration (µg/L)	Method blank concentration (mg/Kg)	Qualified Samples
antimony	0.30	ND	MH1K69, MH1D73, MH1K74, MH1K75, MH1K77
cadmium	0.098	ND	MH1K80, MH1K83, MH1K85
silver	0.031	ND	MH1K69
thallium	0.13	ND	MH1K68, MH1K69, MH1K71, MH1K73, MH1K74, MH1K75, MH1K77, MH1K80, MH1K81, MH1K83, MH1K84, MH1K85
molybdenum	0.70	0.06	MH1K69, MH1K71, MH1K74, MH1K75
beryllium	0.14	ND	MH1K70

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1K71 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5xRL and results

were within ±RL when the parent and/or duplicate results were <5xRL with the exceptions of lead (37%), manganese (29%) and cobalt (29%). Associated soil sample results were detected and were qualified as estimated (J).

- Matrix Spike: Matrix spike analyses were performed on sample MH1K71 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of copper (64%), zinc (67%), antimony (59%) and barium (74%). All associated soil sample results were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). It should be noted that matrix spike results were not reported for aluminum, iron, magnesium or calcium.
- Post Digestion Spike: Post digestion spike analyses were performed on sample MH1K71 for ICP-AES and ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes with the exception of zinc (915%). All associated sample results for zinc were detected and were qualified as estimated (J) due to the conflict in the bias. Bias was removed from the other elements based upon the acceptable PDS recoveries.
- Serial Dilution: Serial dilution analysis was performed on sample MH1K71 for ICP-MS and ICP-AES. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of aluminum (14%), calcium (15%), copper (11%), iron (15%), magnesium (16%), manganese (17%), antimony (20%), barium (17%), cobalt (22%) and nickel (16%). All associated soil sample results were qualified as estimated (UJ for nondetects and U-qualified results, J for detects).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were analyzed at dilutions due to exceeded linear range. Sample MH1K70 was redigested at a higher initial weight due to low total solids. Detected results for dilutions were flagged with "D" by the laboratory. Reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: Samples MH1L01/MH1K84 and MH1L02/MH1K85 were identified as field duplicate pairs. RPDs were ≤50% or ±RL for all analytes with the exception of silver (61%), arsenic (113%), lead (88%), manganese and (74%) in pair MH1L01/MH1K84 and chromium

(84%), cobalt (52%), nickel (81%), vanadium (62%), molybdenum (87%), aluminum (71%), arsenic (51%), copper (76%), iron (63%), lead (70%), manganese (79%) and zinc (61%) in pair MH1L02/MH1K85. These elements were qualified as estimated in the field duplicate pairs.

Validated Sample Result Forms MH1K68

Analysis Method Hg

Lab Sample Name: 6100179-01 **Sample No:** MH1K68 **Sample Date:** 10/07/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.19	0.0062	mg/kg	J	J	

Lab Sample Name: 6100179-02 **Sample No:** MH1K69 **Sample Date:** 10/07/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.11	0.0037	mg/kg			

Lab Sample Name: 6100179-03 **Sample No:** MH1K70 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.15	0.083	0.0026	mg/kg			

Lab Sample Name: 6100179-04 **Sample No:** MH1K71 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.087	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100179-05 **Sample No:** MH1K72 **Sample Date:** 10/05/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.014	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100179-06 **Sample No:** MH1K73 **Sample Date:** 10/05/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.065	0.17	0.0055	mg/kg	J	J	

Lab Sample Name: 6100179-07 **Sample No:** MH1K74 **Sample Date:** 10/05/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.042	0.13	0.0040	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100179-08 **Sample No:** MH1K75 **Sample Date:** 10/05/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.028	0.13	0.0040	mg/kg	J	J	

Lab Sample Name: 6100179-09 **Sample No:** MH1K76 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.047	0.17	0.0055	mg/kg	J	J	

Lab Sample Name: 6100179-10 **Sample No:** MH1K77 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.051	0.15	0.0048	mg/kg	J	J	

Lab Sample Name: 6100179-11 **Sample No:** MH1K78 **Sample Date:** 10/05/2016 13:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.056	0.17	0.0054	mg/kg	J	J	

Lab Sample Name: 6100179-12 **Sample No:** MH1K79 **Sample Date:** 10/05/2016 13:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.054	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100179-13 **Sample No:** MH1K80 **Sample Date:** 10/05/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.029	0.12	0.0038	mg/kg	J	J	

Lab Sample Name: 6100179-14 **Sample No:** MH1K81 **Sample Date:** 10/05/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.062	0.16	0.0052	mg/kg	J	J	

Lab Sample Name: 6100179-15 **Sample No:** MH1K82 **Sample Date:** 10/05/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.047	0.14	0.0046	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100179-16 **Sample No:** MH1K83 **Sample Date:** 10/05/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.049	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100179-17 **Sample No:** MH1K84 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.019	0.14	0.0043	mg/kg	J	J	

Lab Sample Name: 6100179-18 **Sample No:** MH1K85 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.061	0.13	0.0041	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100179-01 **Sample No:** MH1K68 **Sample Date:** 10/07/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16900	38.5	3.9	mg/kg	*	J	A
Arsenic	7440-38-2	53.9	1.9	0.25	mg/kg			
Calcium	7440-70-2	1410	964	11.2	mg/kg	*	J	A
Copper	7440-50-8	188	4.8	0.098	mg/kg	*		
Iron	7439-89-6	51300	19.3	1.6	mg/kg	*	J	A
Lead	7439-92-1	680	1.9	0.21	mg/kg	*		
Magnesium	7439-95-4	2850	964	4.2	mg/kg	*	J	A
Manganese	7439-96-5	228	2.9	0.12	mg/kg	*		
Zinc	7440-66-6	377	11.6	0.50	mg/kg	*		

Lab Sample Name: 6100179-02 **Sample No:** MH1K69 **Sample Date:** 10/07/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10800	22.9	2.3	mg/kg	*	J	A
Arsenic	7440-38-2	43.6	1.1	0.15	mg/kg			
Calcium	7440-70-2	483	572	6.6	mg/kg	J*	J	A
Copper	7440-50-8	28.1	2.9	0.058	mg/kg	*	J	Q, A
Iron	7439-89-6	36300	11.4	0.95	mg/kg	*	J	A
Lead	7439-92-1	44.3	1.1	0.13	mg/kg	*	J	E
Magnesium	7439-95-4	2740	572	2.5	mg/kg	*	J	A
Manganese	7439-96-5	352	1.7	0.070	mg/kg	*	J	E, A

Analysis Method ICP_AES

Zinc		7440-66-6	61.6	6.9	0.30	mg/kg	*	J	Q, P

Lab Sample Name: 6100179-03 **Sample No:** MH1K70 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11600	16.5	1.6	mg/kg		J	A
Arsenic	7440-38-2	4130	16.5	2.1	mg/kg	D		
Calcium	7440-70-2	2680	412	4.8	mg/kg		J	A
Copper	7440-50-8	1430	41.2	0.84	mg/kg	D		
Iron	7439-89-6	255000	165	13.7	mg/kg	D	J	A
Lead	7439-92-1	616	0.82	0.091	mg/kg			
Magnesium	7439-95-4	2710	412	1.8	mg/kg		J	A
Manganese	7439-96-5	350	1.2	0.050	mg/kg			
Zinc	7440-66-6	2030	98.9	4.3	mg/kg	D		

Lab Sample Name: 6100179-04 **Sample No:** MH1K71 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10400	21.9	2.2	mg/kg	*	J	A
Arsenic	7440-38-2	112	1.1	0.14	mg/kg			
Calcium	7440-70-2	4520	548	6.4	mg/kg	*	J	A
Copper	7440-50-8	209	2.7	0.056	mg/kg	*	J	Q, A
Iron	7439-89-6	28500	11.0	0.91	mg/kg	*	J	A
Lead	7439-92-1	257	1.1	0.12	mg/kg	*	J	E
Magnesium	7439-95-4	2830	548	2.4	mg/kg	*	J	A
Manganese	7439-96-5	645	1.6	0.067	mg/kg	*	J	E, A
Zinc	7440-66-6	273	6.6	0.28	mg/kg	*	J	Q, P

Lab Sample Name: 6100179-05 **Sample No:** MH1K72 **Sample Date:** 10/05/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17800	25.7	2.6	mg/kg	*	J	A
Arsenic	7440-38-2	48.5	1.3	0.17	mg/kg			
Calcium	7440-70-2	1060	643	7.5	mg/kg	*	J	A
Copper	7440-50-8	188	3.2	0.066	mg/kg	*		
Iron	7439-89-6	26600	12.9	1.1	mg/kg	*	J	A
Lead	7439-92-1	387	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	2990	643	2.8	mg/kg	*	J	A
Manganese	7439-96-5	14600	7.7	0.31	mg/kg	D*		
Zinc	7440-66-6	721	7.7	0.33	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100179-06 **Sample No:** MH1K73 **Sample Date:** 10/05/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	19600	34.2	3.4	mg/kg	*	J	A
Arsenic	7440-38-2	36.2	1.7	0.22	mg/kg			
Calcium	7440-70-2	3450	855	9.9	mg/kg	*	J	A
Copper	7440-50-8	38.3	4.3	0.087	mg/kg	*	J	Q, A
Iron	7439-89-6	21500	17.1	1.4	mg/kg	*	J	A
Lead	7439-92-1	180	1.7	0.19	mg/kg	*	J	E
Magnesium	7439-95-4	4540	855	3.8	mg/kg	*	J	A
Manganese	7439-96-5	1870	2.6	0.10	mg/kg	*	J	E, A
Zinc	7440-66-6	338	10.3	0.44	mg/kg	*	J	Q, P

Lab Sample Name: 6100179-07 **Sample No:** MH1K74 **Sample Date:** 10/05/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14500	25.1	2.5	mg/kg	*	J	A
Arsenic	7440-38-2	88.7	1.3	0.16	mg/kg			
Calcium	7440-70-2	1760	628	7.3	mg/kg	*	J	A
Copper	7440-50-8	397	3.1	0.064	mg/kg	*		
Iron	7439-89-6	26100	12.6	1.0	mg/kg	*	J	A
Lead	7439-92-1	1130	1.3	0.14	mg/kg	*		
Magnesium	7439-95-4	2070	628	2.8	mg/kg	*	J	A
Manganese	7439-96-5	5750	3.8	0.15	mg/kg	D*		
Zinc	7440-66-6	2640	15.1	0.65	mg/kg	D*		

Lab Sample Name: 6100179-08 **Sample No:** MH1K75 **Sample Date:** 10/05/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14700	25.1	2.5	mg/kg	*	J	A
Arsenic	7440-38-2	60.1	1.3	0.16	mg/kg			
Calcium	7440-70-2	1600	629	7.3	mg/kg	*	J	A
Copper	7440-50-8	21.9	3.1	0.064	mg/kg	*	J	Q, A
Iron	7439-89-6	22900	12.6	1.0	mg/kg	*	J	A
Lead	7439-92-1	473	1.3	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	3030	629	2.8	mg/kg	*	J	A
Manganese	7439-96-5	910	1.9	0.077	mg/kg	*	J	E, A
Zinc	7440-66-6	328	7.5	0.33	mg/kg	*	J	Q, P

Analysis Method ICP_AES

Lab Sample Name: 6100179-09 **Sample No:** MH1K76 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18000	34.4	3.4	mg/kg	*	J	A
Arsenic	7440-38-2	95.5	1.7	0.22	mg/kg			
Calcium	7440-70-2	431	859	10.0	mg/kg	J*	J	A
Copper	7440-50-8	126	4.3	0.088	mg/kg	*		
Iron	7439-89-6	43900	17.2	1.4	mg/kg	*	J	A
Lead	7439-92-1	884	1.7	0.19	mg/kg	*		
Magnesium	7439-95-4	2830	859	3.8	mg/kg	*	J	A
Manganese	7439-96-5	16600	10.3	0.42	mg/kg	D*		
Zinc	7440-66-6	681	10.3	0.45	mg/kg	*		

Lab Sample Name: 6100179-10 **Sample No:** MH1K77 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	21700	30.0	3.0	mg/kg	*	J	A
Arsenic	7440-38-2	59.2	1.5	0.20	mg/kg			
Calcium	7440-70-2	1050	751	8.7	mg/kg	*	J	A
Copper	7440-50-8	59.2	3.8	0.077	mg/kg	*	J	Q, A
Iron	7439-89-6	23000	15.0	1.2	mg/kg	*	J	A
Lead	7439-92-1	487	1.5	0.17	mg/kg	*	J	E
Magnesium	7439-95-4	3800	751	3.3	mg/kg	*	J	A
Manganese	7439-96-5	2710	2.3	0.092	mg/kg	*	J	E, A
Zinc	7440-66-6	818	9.0	0.39	mg/kg	*	J	Q, P

Lab Sample Name: 6100179-11 **Sample No:** MH1K78 **Sample Date:** 10/05/2016 13:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	20500	34.0	3.4	mg/kg	*	J	A
Arsenic	7440-38-2	73.2	1.7	0.22	mg/kg			
Calcium	7440-70-2	552	849	9.9	mg/kg	J*	J	A
Copper	7440-50-8	94.3	4.2	0.087	mg/kg	*		
Iron	7439-89-6	28600	17.0	1.4	mg/kg	*	J	A
Lead	7439-92-1	734	1.7	0.19	mg/kg	*		
Magnesium	7439-95-4	3860	849	3.7	mg/kg	*	J	A
Manganese	7439-96-5	6920	5.1	0.21	mg/kg	D*		
Zinc	7440-66-6	359	10.2	0.44	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100179-12 **Sample No:** MH1K79 **Sample Date:** 10/05/2016 13:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13600	26.1	2.6	mg/kg	*	J	A
Arsenic	7440-38-2	114	1.3	0.17	mg/kg			
Calcium	7440-70-2	431	653	7.6	mg/kg	J*	J	A
Copper	7440-50-8	175	3.3	0.067	mg/kg	*	J	Q, A
Iron	7439-89-6	106000	39.2	3.3	mg/kg	D*	J	A
Lead	7439-92-1	505	1.3	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	1340	653	2.9	mg/kg	*	J	A
Manganese	7439-96-5	7540	5.9	0.24	mg/kg	D*	J	E, A
Zinc	7440-66-6	434	7.8	0.34	mg/kg	*	J	Q, P

Lab Sample Name: 6100179-13 **Sample No:** MH1K80 **Sample Date:** 10/05/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9930	23.7	2.4	mg/kg	*	J	A
Arsenic	7440-38-2	89.8	1.2	0.15	mg/kg			
Calcium	7440-70-2	857	593	6.9	mg/kg	*	J	A
Copper	7440-50-8	17.9	3.0	0.060	mg/kg	*		
Iron	7439-89-6	22400	11.9	0.98	mg/kg	*	J	A
Lead	7439-92-1	369	1.2	0.13	mg/kg	*		
Magnesium	7439-95-4	2160	593	2.6	mg/kg	*	J	A
Manganese	7439-96-5	455	1.8	0.072	mg/kg	*		
Zinc	7440-66-6	134	7.1	0.31	mg/kg	*		

Lab Sample Name: 6100179-14 **Sample No:** MH1K81 **Sample Date:** 10/05/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15600	32.5	3.3	mg/kg	*	J	A
Arsenic	7440-38-2	112	1.6	0.21	mg/kg			
Calcium	7440-70-2	377	813	9.4	mg/kg	J*	J	A
Copper	7440-50-8	34.5	4.1	0.083	mg/kg	*	J	Q, A
Iron	7439-89-6	29000	16.3	1.3	mg/kg	*	J	A
Lead	7439-92-1	280	1.6	0.18	mg/kg	*	J	E
Magnesium	7439-95-4	2680	813	3.6	mg/kg	*	J	A
Manganese	7439-96-5	410	2.4	0.099	mg/kg	*	J	E, A
Zinc	7440-66-6	156	9.8	0.42	mg/kg	*	J	Q, P

Analysis Method ICP_AES

Lab Sample Name: 6100179-15 **Sample No:** MH1K82 **Sample Date:** 10/05/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	18900	28.7	2.9	mg/kg	*	J	A
Arsenic	7440-38-2	70.3	1.4	0.19	mg/kg			
Calcium	7440-70-2	769	719	8.3	mg/kg	*	J	A
Copper	7440-50-8	204	3.6	0.073	mg/kg	*		
Iron	7439-89-6	30000	14.4	1.2	mg/kg	*	J	A
Lead	7439-92-1	1270	1.4	0.16	mg/kg	*		
Magnesium	7439-95-4	2380	719	3.2	mg/kg	*	J	A
Manganese	7439-96-5	17000	10.8	0.44	mg/kg	D*		
Zinc	7440-66-6	706	8.6	0.37	mg/kg	*		

Lab Sample Name: 6100179-16 **Sample No:** MH1K83 **Sample Date:** 10/05/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9890	24.7	2.5	mg/kg	*	J	A
Arsenic	7440-38-2	115	1.2	0.16	mg/kg			
Calcium	7440-70-2	726	616	7.1	mg/kg	*	J	A
Copper	7440-50-8	21.8	3.1	0.063	mg/kg	*	J	Q, A
Iron	7439-89-6	24600	12.3	1.0	mg/kg	*	J	A
Lead	7439-92-1	1490	1.2	0.14	mg/kg	*	J	E
Magnesium	7439-95-4	1680	616	2.7	mg/kg	*	J	A
Manganese	7439-96-5	347	1.8	0.075	mg/kg	*	J	E, A
Zinc	7440-66-6	107	7.4	0.32	mg/kg	*	J	Q, P

Lab Sample Name: 6100179-17 **Sample No:** MH1K84 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	14100	27.1	2.7	mg/kg	*	J	A
Arsenic	7440-38-2	231	1.4	0.18	mg/kg		J	F1
Calcium	7440-70-2	941	678	7.9	mg/kg	*	J	A
Copper	7440-50-8	151	3.4	0.069	mg/kg	*		
Iron	7439-89-6	30400	13.6	1.1	mg/kg	*	J	A
Lead	7439-92-1	1320	1.4	0.15	mg/kg	*	J	F1
Magnesium	7439-95-4	2070	678	3.0	mg/kg	*	J	A
Manganese	7439-96-5	6800	6.1	0.25	mg/kg	D*	J	F1
Zinc	7440-66-6	534	8.1	0.35	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100179-18 **Sample No:** MH1K85 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5910	25.4	2.5	mg/kg	*	J	A, F1
Arsenic	7440-38-2	101	1.3	0.16	mg/kg		J	F1
Calcium	7440-70-2	842	634	7.4	mg/kg	*	J	A
Copper	7440-50-8	28.8	3.2	0.065	mg/kg	*	J	Q, A, F1
Iron	7439-89-6	13000	12.7	1.1	mg/kg	*	J	A, F1
Lead	7439-92-1	1350	1.3	0.14	mg/kg	*	J	E, F1
Magnesium	7439-95-4	1100	634	2.8	mg/kg	*	J	A
Manganese	7439-96-5	484	1.9	0.077	mg/kg	*	J	E, A, F1
Zinc	7440-66-6	123	7.6	0.33	mg/kg	*	J	Q, P, F1

Analysis Method ICP_MS

Lab Sample Name: 6100179-01 **Sample No:** MH1K68 **Sample Date:** 10/07/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	7.3	1.9	0.058	mg/kg	*		
Barium	7440-39-3	147	9.6	0.085	mg/kg	*		
Beryllium	7440-41-7	0.57	0.96	0.077	mg/kg	J	J	
Cadmium	7440-43-9	1.3	0.96	0.081	mg/kg			
Chromium	7440-47-3	3.3	1.9	0.16	mg/kg			
Cobalt	7440-48-4	5.2	0.96	0.058	mg/kg	*		
Molybdenum	7439-98-7	7.1	3.9	0.087	mg/kg			
Nickel	7440-02-0	4.6	0.96	0.087	mg/kg	*	J	A
Selenium	7782-49-2	2.5	4.8	0.13	mg/kg	J	J	
Silver	7440-22-4	4.6	0.96	0.052	mg/kg			
Thallium	7440-28-0	0.96	0.96	0.073	mg/kg	J	U	B
Vanadium	7440-62-2	25.1	4.8	0.16	mg/kg			

Lab Sample Name: 6100179-02 **Sample No:** MH1K69 **Sample Date:** 10/07/2016 10:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.034	mg/kg	J*	UJ	B, Q, A
Barium	7440-39-3	96.0	5.7	0.050	mg/kg	*	J	Q, A
Beryllium	7440-41-7	0.27	0.57	0.046	mg/kg	J	J	
Cadmium	7440-43-9	0.57	0.57	0.048	mg/kg	U	U	
Chromium	7440-47-3	1.9	1.1	0.094	mg/kg			
Cobalt	7440-48-4	3.6	0.57	0.034	mg/kg	*	J	E, A
Molybdenum	7439-98-7	2.3	2.3	0.051	mg/kg	J	U	B

Nickel	7440-02-0	2.6	0.57	0.051	mg/kg	*	J	A
Selenium	7782-49-2	1.2	2.9	0.078	mg/kg	J	J	
Silver	7440-22-4	0.57	0.57	0.031	mg/kg	J	U	B
Thallium	7440-28-0	0.57	0.57	0.043	mg/kg	J	U	B
Vanadium	7440-62-2	14.8	2.9	0.094	mg/kg			

Lab Sample Name: 6100179-03 **Sample No:** MH1K70 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.2	0.82	0.025	mg/kg			
Barium	7440-39-3	56.1	4.1	0.036	mg/kg			
Beryllium	7440-41-7	0.41	0.41	0.033	mg/kg	J	U	B
Cadmium	7440-43-9	7.3	0.41	0.035	mg/kg			
Chromium	7440-47-3	14.4	0.82	0.067	mg/kg			
Cobalt	7440-48-4	3.6	0.41	0.025	mg/kg			
Molybdenum	7439-98-7	2.9	1.6	0.037	mg/kg			
Nickel	7440-02-0	5.5	0.41	0.037	mg/kg		J	A
Selenium	7782-49-2	1.8	2.1	0.056	mg/kg	J	J	
Silver	7440-22-4	2.7	0.41	0.022	mg/kg			
Thallium	7440-28-0	1.1	0.41	0.031	mg/kg			
Vanadium	7440-62-2	41.5	2.1	0.067	mg/kg			

Lab Sample Name: 6100179-04 **Sample No:** MH1K71 **Sample Date:** 10/07/2016 15:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	1.1	0.033	mg/kg	*	J	Q, A
Barium	7440-39-3	76.8	5.5	0.048	mg/kg	*	J	Q, A
Beryllium	7440-41-7	0.43	0.55	0.044	mg/kg	J	J	
Cadmium	7440-43-9	0.89	0.55	0.046	mg/kg			
Chromium	7440-47-3	2.6	1.1	0.090	mg/kg			
Cobalt	7440-48-4	7.5	0.55	0.033	mg/kg	*	J	E, A
Molybdenum	7439-98-7	2.2	2.2	0.049	mg/kg	J	U	B
Nickel	7440-02-0	4.2	0.55	0.049	mg/kg	*	J	A
Selenium	7782-49-2	1.3	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	0.95	0.55	0.030	mg/kg			
Thallium	7440-28-0	0.55	0.55	0.042	mg/kg	J	U	B
Vanadium	7440-62-2	13.7	2.7	0.090	mg/kg			

Lab Sample Name: 6100179-05 **Sample No:** MH1K72 **Sample Date:** 10/05/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.5	1.3	0.039	mg/kg	*		

Analysis Method ICP_MS

Barium	7440-39-3	48.2	6.4	0.057	mg/kg	*		
Beryllium	7440-41-7	2.2	0.64	0.051	mg/kg			
Cadmium	7440-43-9	8.1	0.64	0.054	mg/kg			
Chromium	7440-47-3	1.6	1.3	0.11	mg/kg			
Cobalt	7440-48-4	27.0	0.64	0.039	mg/kg	*		
Molybdenum	7439-98-7	11.9	2.6	0.058	mg/kg			
Nickel	7440-02-0	5.4	0.64	0.058	mg/kg	*	J	A
Selenium	7782-49-2	1.5	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	1.1	0.64	0.035	mg/kg			
Thallium	7440-28-0	1.3	0.64	0.049	mg/kg			
Vanadium	7440-62-2	7.3	3.2	0.11	mg/kg			

Lab Sample Name: 6100179-06 **Sample No:** MH1K73 **Sample Date:** 10/05/2016 12:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.7	0.051	mg/kg	J*	UJ	B, Q, A
Barium	7440-39-3	78.0	8.6	0.075	mg/kg	*	J	Q, A
Beryllium	7440-41-7	0.91	0.86	0.068	mg/kg			
Cadmium	7440-43-9	1.3	0.86	0.072	mg/kg			
Chromium	7440-47-3	5.6	1.7	0.14	mg/kg			
Cobalt	7440-48-4	7.2	0.86	0.051	mg/kg	*	J	E, A
Molybdenum	7439-98-7	5.5	3.4	0.077	mg/kg			
Nickel	7440-02-0	4.9	0.86	0.077	mg/kg	*	J	A
Selenium	7782-49-2	1.3	4.3	0.12	mg/kg	J	J	
Silver	7440-22-4	1.2	0.86	0.046	mg/kg			
Thallium	7440-28-0	0.86	0.86	0.065	mg/kg	J	U	B
Vanadium	7440-62-2	19.6	4.3	0.14	mg/kg			

Lab Sample Name: 6100179-07 **Sample No:** MH1K74 **Sample Date:** 10/05/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	J*	U	B
Barium	7440-39-3	22.3	6.3	0.055	mg/kg	*		
Beryllium	7440-41-7	0.95	0.63	0.050	mg/kg			
Cadmium	7440-43-9	11.2	0.63	0.053	mg/kg			
Chromium	7440-47-3	1.4	1.3	0.10	mg/kg			
Cobalt	7440-48-4	9.5	0.63	0.038	mg/kg	*		
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	2.6	0.63	0.056	mg/kg	*	J	A
Selenium	7782-49-2	0.90	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	1.6	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B

Vanadium		7440-62-2	5.9	3.1	0.10	mg/kg			

Lab Sample Name: 6100179-08 **Sample No:** MH1K75 **Sample Date:** 10/05/2016 10:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	J*	UJ	B, Q, A
Barium	7440-39-3	75.0	6.3	0.055	mg/kg	*	J	Q, A
Beryllium	7440-41-7	0.46	0.63	0.050	mg/kg	J	J	
Cadmium	7440-43-9	0.99	0.63	0.053	mg/kg			
Chromium	7440-47-3	4.9	1.3	0.10	mg/kg			
Cobalt	7440-48-4	4.4	0.63	0.038	mg/kg	*	J	E, A
Molybdenum	7439-98-7	2.5	2.5	0.057	mg/kg	J	U	B
Nickel	7440-02-0	4.0	0.63	0.057	mg/kg	*	J	A
Selenium	7782-49-2	0.92	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	1.2	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	19.5	3.1	0.10	mg/kg			

Lab Sample Name: 6100179-09 **Sample No:** MH1K76 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	3.3	1.7	0.052	mg/kg	*		
Barium	7440-39-3	66.3	8.6	0.076	mg/kg	*		
Beryllium	7440-41-7	1.0	0.86	0.069	mg/kg			
Cadmium	7440-43-9	5.9	0.86	0.072	mg/kg			
Chromium	7440-47-3	4.7	1.7	0.14	mg/kg			
Cobalt	7440-48-4	55.4	0.86	0.052	mg/kg	*		
Molybdenum	7439-98-7	17.3	3.4	0.077	mg/kg			
Nickel	7440-02-0	4.7	0.86	0.077	mg/kg	*	J	A
Selenium	7782-49-2	2.6	4.3	0.12	mg/kg	J	J	
Silver	7440-22-4	5.9	0.86	0.046	mg/kg			
Thallium	7440-28-0	2.1	0.86	0.065	mg/kg			
Vanadium	7440-62-2	16.6	4.3	0.14	mg/kg			

Lab Sample Name: 6100179-10 **Sample No:** MH1K77 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.5	0.045	mg/kg	J*	UJ	B, Q, A
Barium	7440-39-3	80.1	7.5	0.066	mg/kg	*	J	Q, A
Beryllium	7440-41-7	1.0	0.75	0.060	mg/kg			
Cadmium	7440-43-9	3.2	0.75	0.063	mg/kg			
Chromium	7440-47-3	5.4	1.5	0.12	mg/kg			

Analysis Method ICP_MS

Cobalt	7440-48-4	8.8	0.75	0.045	mg/kg	*	J	E, A
Molybdenum	7439-98-7	3.7	3.0	0.068	mg/kg			
Nickel	7440-02-0	5.2	0.75	0.068	mg/kg	*	J	A
Selenium	7782-49-2	1.9	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	2.0	0.75	0.041	mg/kg			
Thallium	7440-28-0	0.75	0.75	0.057	mg/kg	J	U	B
Vanadium	7440-62-2	16.7	3.8	0.12	mg/kg			

Lab Sample Name: 6100179-11 **Sample No:** MH1K78 **Sample Date:** 10/05/2016 13:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.7	0.051	mg/kg	*		
Barium	7440-39-3	39.5	8.5	0.075	mg/kg	*		
Beryllium	7440-41-7	0.63	0.85	0.068	mg/kg	J	J	
Cadmium	7440-43-9	2.2	0.85	0.071	mg/kg			
Chromium	7440-47-3	4.7	1.7	0.14	mg/kg			
Cobalt	7440-48-4	23.8	0.85	0.051	mg/kg	*		
Molybdenum	7439-98-7	7.5	3.4	0.076	mg/kg			
Nickel	7440-02-0	4.0	0.85	0.076	mg/kg	*	J	A
Selenium	7782-49-2	1.7	4.2	0.12	mg/kg	J	J	
Silver	7440-22-4	6.9	0.85	0.046	mg/kg			
Thallium	7440-28-0	1.2	0.85	0.065	mg/kg			
Vanadium	7440-62-2	14.0	4.2	0.14	mg/kg			

Lab Sample Name: 6100179-12 **Sample No:** MH1K79 **Sample Date:** 10/05/2016 13:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.4	1.3	0.039	mg/kg	*	J	Q, A
Barium	7440-39-3	85.0	6.5	0.057	mg/kg	*	J	Q, A
Beryllium	7440-41-7	1.2	0.65	0.052	mg/kg			
Cadmium	7440-43-9	3.3	0.65	0.055	mg/kg			
Chromium	7440-47-3	6.6	1.3	0.11	mg/kg			
Cobalt	7440-48-4	36.2	0.65	0.039	mg/kg	*	J	E, A
Molybdenum	7439-98-7	29.1	2.6	0.059	mg/kg			
Nickel	7440-02-0	3.4	0.65	0.059	mg/kg	*	J	A
Selenium	7782-49-2	2.5	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	4.1	0.65	0.035	mg/kg			
Thallium	7440-28-0	3.3	0.65	0.050	mg/kg			
Vanadium	7440-62-2	12.4	3.3	0.11	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100179-13 **Sample No:** MH1K80 **Sample Date:** 10/05/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.036	mg/kg	*		
Barium	7440-39-3	79.0	5.9	0.052	mg/kg	*		
Beryllium	7440-41-7	0.25	0.59	0.047	mg/kg	J	J	
Cadmium	7440-43-9	0.59	0.59	0.050	mg/kg	J	U	B
Chromium	7440-47-3	3.0	1.2	0.097	mg/kg			
Cobalt	7440-48-4	3.2	0.59	0.036	mg/kg	*		
Molybdenum	7439-98-7	4.1	2.4	0.053	mg/kg			
Nickel	7440-02-0	2.5	0.59	0.053	mg/kg	*	J	A
Selenium	7782-49-2	1.1	3.0	0.081	mg/kg	J	J	
Silver	7440-22-4	1.7	0.59	0.032	mg/kg			
Thallium	7440-28-0	0.59	0.59	0.045	mg/kg	J	U	B
Vanadium	7440-62-2	11.3	3.0	0.097	mg/kg			

Lab Sample Name: 6100179-14 **Sample No:** MH1K81 **Sample Date:** 10/05/2016 15:15:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.7	1.6	0.049	mg/kg	*	J	Q, A
Barium	7440-39-3	59.7	8.1	0.072	mg/kg	*	J	Q, A
Beryllium	7440-41-7	0.34	0.81	0.065	mg/kg	J	J	
Cadmium	7440-43-9	0.68	0.81	0.068	mg/kg	J	J	
Chromium	7440-47-3	2.6	1.6	0.13	mg/kg			
Cobalt	7440-48-4	2.5	0.81	0.049	mg/kg	*	J	E, A
Molybdenum	7439-98-7	6.5	3.3	0.073	mg/kg			
Nickel	7440-02-0	1.9	0.81	0.073	mg/kg	*	J	A
Selenium	7782-49-2	1.4	4.1	0.11	mg/kg	J	J	
Silver	7440-22-4	2.8	0.81	0.044	mg/kg			
Thallium	7440-28-0	0.81	0.81	0.062	mg/kg	J	U	B
Vanadium	7440-62-2	11.2	4.1	0.13	mg/kg			

Lab Sample Name: 6100179-15 **Sample No:** MH1K82 **Sample Date:** 10/05/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	2.3	1.4	0.043	mg/kg	*		
Barium	7440-39-3	41.2	7.2	0.063	mg/kg	*		
Beryllium	7440-41-7	1.1	0.72	0.057	mg/kg			
Cadmium	7440-43-9	5.5	0.72	0.060	mg/kg			
Chromium	7440-47-3	2.5	1.4	0.12	mg/kg			
Cobalt	7440-48-4	46.2	0.72	0.043	mg/kg	*		

Analysis Method ICP_MS

Molybdenum	7439-98-7	7.4	2.9	0.065	mg/kg			
Nickel	7440-02-0	5.7	0.72	0.065	mg/kg	*	J	A
Selenium	7782-49-2	2.5	3.6	0.098	mg/kg	J	J	
Silver	7440-22-4	3.2	0.72	0.039	mg/kg			
Thallium	7440-28-0	3.7	0.72	0.055	mg/kg			
Vanadium	7440-62-2	10.5	3.6	0.12	mg/kg			

Lab Sample Name: 6100179-16 **Sample No:** MH1K83 **Sample Date:** 10/05/2016 16:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.0	1.2	0.037	mg/kg	*	J	Q, A
Barium	7440-39-3	60.4	6.2	0.054	mg/kg	*	J	Q, A
Beryllium	7440-41-7	0.24	0.62	0.049	mg/kg	J	J	
Cadmium	7440-43-9	0.62	0.62	0.052	mg/kg	J	U	B
Chromium	7440-47-3	3.5	1.2	0.10	mg/kg			
Cobalt	7440-48-4	2.6	0.62	0.037	mg/kg	*	J	E, A
Molybdenum	7439-98-7	8.7	2.5	0.055	mg/kg			
Nickel	7440-02-0	2.5	0.62	0.055	mg/kg	*	J	A
Selenium	7782-49-2	0.77	3.1	0.084	mg/kg	J	J	
Silver	7440-22-4	6.6	0.62	0.033	mg/kg			
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	12.3	3.1	0.10	mg/kg			

Lab Sample Name: 6100179-17 **Sample No:** MH1K84 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.041	mg/kg	*		
Barium	7440-39-3	32.9	6.8	0.060	mg/kg	*		
Beryllium	7440-41-7	1.3	0.68	0.054	mg/kg			
Cadmium	7440-43-9	3.1	0.68	0.057	mg/kg			
Chromium	7440-47-3	1.9	1.4	0.11	mg/kg			
Cobalt	7440-48-4	12.9	0.68	0.041	mg/kg	*		
Molybdenum	7439-98-7	4.0	2.7	0.061	mg/kg			
Nickel	7440-02-0	3.6	0.68	0.061	mg/kg	*	J	A
Selenium	7782-49-2	1.5	3.4	0.092	mg/kg	J	J	
Silver	7440-22-4	1.6	0.68	0.037	mg/kg		J	F1
Thallium	7440-28-0	0.68	0.68	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	6.5	3.4	0.11	mg/kg			

Lab Sample Name: 6100179-18 **Sample No:** MH1K85 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	7.6	1.3	0.038	mg/kg	*	**J**	**Q, A**
Barium	7440-39-3	80.1	6.3	0.056	mg/kg	*	**J**	**Q, A**
Beryllium	7440-41-7	0.20	0.63	0.051	mg/kg	J	**J**	
Cadmium	7440-43-9	0.63	0.63	0.053	mg/kg	J	**U**	**B**
Chromium	7440-47-3	2.0	1.3	0.10	mg/kg		**J**	**F1**
Cobalt	7440-48-4	3.0	0.63	0.038	mg/kg	*	**J**	**E, A, F1**
Molybdenum	7439-98-7	39.6	2.5	0.057	mg/kg		**J**	**F1**
Nickel	7440-02-0	1.6	0.63	0.057	mg/kg	*	**J**	**A, F1**
Selenium	7782-49-2	1.4	3.2	0.086	mg/kg	J	**J**	
Silver	7440-22-4	5.1	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	6.9	3.2	0.10	mg/kg		**J**	**F1**

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1K86

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1K86
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	18
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1K86	6100180-01	Sediment	10/06/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1K87	6100180-02	Sediment	10/06/2016 11:35:00	Hg, ICP-AES, ICP-MS
MH1K88	6100180-03	Sediment	10/06/2016 10:40:00	Hg, ICP-AES, ICP-MS
MH1K89	6100180-04	Sediment	10/06/2016 09:30:00	Hg, ICP-AES, ICP-MS
MH1K90	6100180-05	Sediment	10/06/2016 15:50:00	Hg, ICP-AES, ICP-MS
MH1K91	6100180-06	Soil	10/06/2016 15:50:00	Hg, ICP-AES, ICP-MS
MH1K92	6100180-07	Sediment	10/06/2016 17:25:00	Hg, ICP-AES, ICP-MS
MH1K93	6100180-08	Soil	10/06/2016 17:25:00	Hg, ICP-AES, ICP-MS
MH1K94	6100180-09	Sediment	10/06/2016 17:50:00	Hg, ICP-AES, ICP-MS
MH1K95	6100180-10	Soil	10/06/2016 17:50:00	Hg, ICP-AES, ICP-MS
MH1K96	6100180-11	Sediment	10/04/2016 16:40:00	Hg, ICP-AES, ICP-MS
MH1K97	6100180-12	Soil	10/04/2016 16:40:00	Hg, ICP-AES, ICP-MS
MH1K98	6100180-13	Sediment	10/04/2016 16:50:00	Hg, ICP-AES, ICP-MS
MH1K99	6100180-14	Soil	10/04/2016 16:50:00	Hg, ICP-AES, ICP-MS
MH1L01	6100180-15	Sediment	10/05/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1L02	6100180-16	Soil	10/05/2016 15:40:00	Hg, ICP-AES, ICP-MS
MH1L03	6100180-17	Sediment	10/04/2016 16:40:00	Hg, ICP-AES, ICP-MS
MH1L04	6100180-18	Soil	10/04/2016 16:40:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states "QC to be determined by lab". The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.
- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 18, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. Detected results less than the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied.

Analyte	Calibration blank concentration (µg/L)	Method blank concentration (mg/Kg)	Qualified Samples
antimony	0.48	ND	MH1K86, MH1K87, MH1K88, MH1K89, MH1K90, MH1K91, MH1K94, MH1K95, MH1K98, MH1K99, MH1L01, MH1L04
cadmium	0.11	ND	MH1K88, MH1K94, MH1K98, MH1K99
silver	0.32	ND	MH1K99
thallium	0.15	ND	All site samples
molybdenum	0.67	0.049	MH1K87, MH1K88, MH1K96, MH1K98, MH1K99, MH1L03, MH1L04
beryllium	0.11	ND	MH1K94, MH1K96, MH1K97, MH1K99, MH1L02, MH1L03, MH1L04

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury
- Laboratory Duplicates: Laboratory duplicate analyses were performed on sample MH1K97 for all methods. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when the parent and/or duplicate results were <5xRL with the exception of zinc (47%). All soil results for zinc were detected and were qualified as estimated (J).
- Matrix Spike: Matrix spike analyses were performed on sample MH1K97 for all methods. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of copper (333%) and antimony (62%). Antimony results in soil samples were qualified as estimated with low potential bias (UJ for nondetects and U-qualified results, J- for detects). Copper results in soil samples were all detected and were qualified as estimated with high potential bias (J+). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.
- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1K97 for ICP-AES and ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes. Bias was removed from antimony and copper due to the acceptable PDS recoveries.
- Serial Dilution: Serial dilution analysis was performed on sample MH1K97 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of chromium (13%) and magnesium (11%). All associated soil sample results were detected and were qualified as estimated (J).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range. Detected results for dilutions were flagged with “D” by the laboratory. Reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: Samples MH1L01/MH1K84 and MH1L02/MH1K85 were identified as field duplicate pairs. RPDs were ≤50% or ±RL for all analytes with the exception of silver (61%),

arsenic (113%), lead (88%), manganese and (74%) in pair MH1L01/MH1K84 and chromium (84%), cobalt (52%), nickel (81%), vanadium (62%), molybdenum (87%), aluminum (71%), arsenic (51%), copper (76%), iron (63%), lead (70%), manganese (79%) and zinc (61%) in pair MH1L02/MH1K85. These elements were qualified as estimated in the field duplicate pairs.

Validated Sample Result Forms MH1K86

Analysis Method Hg

Lab Sample Name: 6100180-01 **Sample No:** MH1K86 **Sample Date:** 10/06/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.021	0.14	0.0044	mg/kg	J	J	

Lab Sample Name: 6100180-02 **Sample No:** MH1K87 **Sample Date:** 10/06/2016 11:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.020	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100180-03 **Sample No:** MH1K88 **Sample Date:** 10/06/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0078	0.13	0.0042	mg/kg	J	J	

Lab Sample Name: 6100180-04 **Sample No:** MH1K89 **Sample Date:** 10/06/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.13	0.13	0.0042	mg/kg	U	U	

Lab Sample Name: 6100180-05 **Sample No:** MH1K90 **Sample Date:** 10/06/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0050	0.12	0.0039	mg/kg	J	J	

Lab Sample Name: 6100180-06 **Sample No:** MH1K91 **Sample Date:** 10/06/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.040	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100180-07 **Sample No:** MH1K92 **Sample Date:** 10/06/2016 17:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0053	0.13	0.0041	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100180-08 **Sample No:** MH1K93 **Sample Date:** 10/06/2016 17:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.031	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100180-09 **Sample No:** MH1K94 **Sample Date:** 10/06/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.12	0.12	0.0039	mg/kg	U	U	

Lab Sample Name: 6100180-10 **Sample No:** MH1K95 **Sample Date:** 10/06/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.11	0.11	0.0035	mg/kg	U	U	

Lab Sample Name: 6100180-11 **Sample No:** MH1K96 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.025	0.12	0.0040	mg/kg	J	J	

Lab Sample Name: 6100180-12 **Sample No:** MH1K97 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.032	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100180-13 **Sample No:** MH1K98 **Sample Date:** 10/04/2016 16:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.16	0.16	0.0053	mg/kg	U	U	

Lab Sample Name: 6100180-14 **Sample No:** MH1K99 **Sample Date:** 10/04/2016 16:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0069	0.11	0.0035	mg/kg	J	J	

Lab Sample Name: 6100180-15 **Sample No:** MH1L01 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.019	0.13	0.0042	mg/kg	J	J	

Analysis Method Hg

Lab Sample Name: 6100180-16 **Sample No:** MH1L02 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.029	0.13	0.0041	mg/kg	J	J	

Lab Sample Name: 6100180-17 **Sample No:** MH1L03 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.14	0.14	0.0044	mg/kg	U	U	

Lab Sample Name: 6100180-18 **Sample No:** MH1L04 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.052	0.13	0.0041	mg/kg	J	J	

Analysis Method ICP_AES

Lab Sample Name: 6100180-01 **Sample No:** MH1K86 **Sample Date:** 10/06/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15900	27.8	2.8	mg/kg			
Arsenic	7440-38-2	19.8	1.4	0.18	mg/kg			
Calcium	7440-70-2	1480	695	8.1	mg/kg			
Copper	7440-50-8	120	3.5	0.071	mg/kg	*		
Iron	7439-89-6	35400	13.9	1.2	mg/kg			
Lead	7439-92-1	85.9	1.4	0.15	mg/kg			
Magnesium	7439-95-4	8010	695	3.1	mg/kg	*		
Manganese	7439-96-5	2660	2.1	0.085	mg/kg			
Zinc	7440-66-6	323	8.3	0.36	mg/kg	*		

Lab Sample Name: 6100180-02 **Sample No:** MH1K87 **Sample Date:** 10/06/2016 11:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15900	26.4	2.6	mg/kg			
Arsenic	7440-38-2	11.6	1.3	0.17	mg/kg			
Calcium	7440-70-2	1410	660	7.7	mg/kg			
Copper	7440-50-8	99.7	3.3	0.067	mg/kg	*		
Iron	7439-89-6	24500	13.2	1.1	mg/kg			
Lead	7439-92-1	59.8	1.3	0.15	mg/kg			
Magnesium	7439-95-4	8350	660	2.9	mg/kg	*		
Manganese	7439-96-5	2590	2.0	0.081	mg/kg			

Zinc	7440-66-6	271	7.9	0.34	mg/kg	*	

Lab Sample Name: 6100180-03 **Sample No:** MH1K88 **Sample Date:** 10/06/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	16400	26.2	2.6	mg/kg			
Arsenic	7440-38-2	12.2	1.3	0.17	mg/kg			
Calcium	7440-70-2	1790	656	7.6	mg/kg			
Copper	7440-50-8	94.3	3.3	0.067	mg/kg	*		
Iron	7439-89-6	30400	13.1	1.1	mg/kg			
Lead	7439-92-1	64.7	1.3	0.14	mg/kg			
Magnesium	7439-95-4	7630	656	2.9	mg/kg	*		
Manganese	7439-96-5	2660	2.0	0.080	mg/kg			
Zinc	7440-66-6	303	7.9	0.34	mg/kg	*		

Lab Sample Name: 6100180-04 **Sample No:** MH1K89 **Sample Date:** 10/06/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17800	26.0	2.6	mg/kg			
Arsenic	7440-38-2	17.0	1.3	0.17	mg/kg			
Calcium	7440-70-2	1820	651	7.5	mg/kg			
Copper	7440-50-8	123	3.3	0.066	mg/kg	*		
Iron	7439-89-6	32900	13.0	1.1	mg/kg			
Lead	7439-92-1	77.5	1.3	0.14	mg/kg			
Magnesium	7439-95-4	7000	651	2.9	mg/kg	*		
Manganese	7439-96-5	5010	3.9	0.16	mg/kg	D		
Zinc	7440-66-6	390	7.8	0.34	mg/kg	*		

Lab Sample Name: 6100180-05 **Sample No:** MH1K90 **Sample Date:** 10/06/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5420	24.5	2.4	mg/kg			
Arsenic	7440-38-2	22.4	1.2	0.16	mg/kg			
Calcium	7440-70-2	756	612	7.1	mg/kg			
Copper	7440-50-8	110	3.1	0.062	mg/kg	*		
Iron	7439-89-6	8430	12.2	1.0	mg/kg			
Lead	7439-92-1	264	1.2	0.13	mg/kg			
Magnesium	7439-95-4	1450	612	2.7	mg/kg	*		
Manganese	7439-96-5	1550	1.8	0.075	mg/kg			
Zinc	7440-66-6	18200	73.4	3.2	mg/kg	D*		

Analysis Method ICP_AES

Lab Sample Name: 6100180-06 **Sample No:** MH1K91 **Sample Date:** 10/06/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11200	30.7	3.1	mg/kg			
Arsenic	7440-38-2	27.7	1.5	0.20	mg/kg			
Calcium	7440-70-2	2830	769	8.9	mg/kg			
Copper	7440-50-8	19.1	3.8	0.078	mg/kg	*	J	Q
Iron	7439-89-6	13700	15.4	1.3	mg/kg			
Lead	7439-92-1	142	1.5	0.17	mg/kg			
Magnesium	7439-95-4	3940	769	3.4	mg/kg	*	J	A
Manganese	7439-96-5	868	2.3	0.094	mg/kg			
Zinc	7440-66-6	293	9.2	0.40	mg/kg	*	J	E

Lab Sample Name: 6100180-07 **Sample No:** MH1K92 **Sample Date:** 10/06/2016 17:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	8220	25.5	2.6	mg/kg			
Arsenic	7440-38-2	43.9	1.3	0.17	mg/kg			
Calcium	7440-70-2	2640	638	7.4	mg/kg			
Copper	7440-50-8	147	3.2	0.065	mg/kg	*		
Iron	7439-89-6	19000	12.8	1.1	mg/kg			
Lead	7439-92-1	719	1.3	0.14	mg/kg			
Magnesium	7439-95-4	4590	638	2.8	mg/kg	*		
Manganese	7439-96-5	4240	3.8	0.16	mg/kg	D		
Zinc	7440-66-6	1220	7.7	0.33	mg/kg	*		

Lab Sample Name: 6100180-08 **Sample No:** MH1K93 **Sample Date:** 10/06/2016 17:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	10900	25.6	2.6	mg/kg			
Arsenic	7440-38-2	93.8	1.3	0.17	mg/kg			
Calcium	7440-70-2	2440	639	7.4	mg/kg			
Copper	7440-50-8	330	3.2	0.065	mg/kg	*	J	Q
Iron	7439-89-6	25800	12.8	1.1	mg/kg			
Lead	7439-92-1	1180	1.3	0.14	mg/kg			
Magnesium	7439-95-4	5470	639	2.8	mg/kg	*	J	A
Manganese	7439-96-5	6810	5.8	0.23	mg/kg	D		
Zinc	7440-66-6	1770	7.7	0.33	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100180-09 **Sample No:** MH1K94 **Sample Date:** 10/06/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	5800	24.6	2.5	mg/kg			
Arsenic	7440-38-2	9.2	1.2	0.16	mg/kg			
Calcium	7440-70-2	3290	614	7.1	mg/kg			
Copper	7440-50-8	47.4	3.1	0.063	mg/kg	*		
Iron	7439-89-6	11100	12.3	1.0	mg/kg			
Lead	7439-92-1	38.6	1.2	0.14	mg/kg			
Magnesium	7439-95-4	4010	614	2.7	mg/kg	*		
Manganese	7439-96-5	865	1.8	0.075	mg/kg			
Zinc	7440-66-6	195	7.4	0.32	mg/kg	*		

Lab Sample Name: 6100180-10 **Sample No:** MH1K95 **Sample Date:** 10/06/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7920	21.6	2.2	mg/kg			
Arsenic	7440-38-2	16.3	1.1	0.14	mg/kg			
Calcium	7440-70-2	2710	539	6.3	mg/kg			
Copper	7440-50-8	77.0	2.7	0.055	mg/kg	*	J	Q
Iron	7439-89-6	16600	10.8	0.90	mg/kg			
Lead	7439-92-1	182	1.1	0.12	mg/kg			
Magnesium	7439-95-4	5190	539	2.4	mg/kg	*	J	A
Manganese	7439-96-5	1240	1.6	0.066	mg/kg			
Zinc	7440-66-6	192	6.5	0.28	mg/kg	*	J	E

Lab Sample Name: 6100180-11 **Sample No:** MH1K96 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	6240	24.9	2.5	mg/kg			
Arsenic	7440-38-2	4.5	1.2	0.16	mg/kg			
Calcium	7440-70-2	2150	623	7.2	mg/kg			
Copper	7440-50-8	46.2	3.1	0.064	mg/kg	*		
Iron	7439-89-6	15700	12.5	1.0	mg/kg			
Lead	7439-92-1	77.1	1.2	0.14	mg/kg			
Magnesium	7439-95-4	3070	623	2.7	mg/kg	*		
Manganese	7439-96-5	1520	1.9	0.076	mg/kg			
Zinc	7440-66-6	625	7.5	0.32	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100180-12 **Sample No:** MH1K97 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9370	25.5	2.6	mg/kg			
Arsenic	7440-38-2	13.1	1.3	0.17	mg/kg			
Calcium	7440-70-2	15300	638	7.4	mg/kg			
Copper	7440-50-8	84.6	3.2	0.065	mg/kg	*	J	Q
Iron	7439-89-6	25700	12.8	1.1	mg/kg			
Lead	7439-92-1	222	1.3	0.14	mg/kg			
Magnesium	7439-95-4	4500	638	2.8	mg/kg	*	J	A
Manganese	7439-96-5	1940	1.9	0.078	mg/kg			
Zinc	7440-66-6	801	7.7	0.33	mg/kg	*	J	E

Lab Sample Name: 6100180-13 **Sample No:** MH1K98 **Sample Date:** 10/04/2016 16:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17300	33.0	3.3	mg/kg			
Arsenic	7440-38-2	1.1	1.6	0.21	mg/kg	J	J	
Calcium	7440-70-2	36900	824	9.6	mg/kg			
Copper	7440-50-8	11.5	4.1	0.084	mg/kg	*		
Iron	7439-89-6	22000	16.5	1.4	mg/kg			
Lead	7439-92-1	11.7	1.6	0.18	mg/kg			
Magnesium	7439-95-4	10200	824	3.6	mg/kg	*		
Manganese	7439-96-5	323	2.5	0.10	mg/kg			
Zinc	7440-66-6	65.9	9.9	0.43	mg/kg	*		

Lab Sample Name: 6100180-14 **Sample No:** MH1K99 **Sample Date:** 10/04/2016 16:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7970	21.7	2.2	mg/kg			
Arsenic	7440-38-2	1.7	1.1	0.14	mg/kg			
Calcium	7440-70-2	51600	1090	12.6	mg/kg	D		
Copper	7440-50-8	6.6	2.7	0.055	mg/kg	*	J	Q
Iron	7439-89-6	11600	10.9	0.90	mg/kg			
Lead	7439-92-1	9.7	1.1	0.12	mg/kg			
Magnesium	7439-95-4	7610	543	2.4	mg/kg	*	J	A
Manganese	7439-96-5	271	1.6	0.066	mg/kg			
Zinc	7440-66-6	39.0	6.5	0.28	mg/kg	*	J	E

Analysis Method ICP_AES

Lab Sample Name: 6100180-15 **Sample No:** MH1L01 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	11200	26.1	2.6	mg/kg			
Arsenic	7440-38-2	63.9	1.3	0.17	mg/kg		J	F1
Calcium	7440-70-2	813	652	7.6	mg/kg			
Copper	7440-50-8	94.2	3.3	0.066	mg/kg	*		
Iron	7439-89-6	18500	13.0	1.1	mg/kg			
Lead	7439-92-1	514	1.3	0.14	mg/kg		J	F1
Magnesium	7439-95-4	2300	652	2.9	mg/kg	*		
Manganese	7439-96-5	3110	2.0	0.080	mg/kg		J	F1
Zinc	7440-66-6	390	7.8	0.34	mg/kg	*		

Lab Sample Name: 6100180-16 **Sample No:** MH1L02 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	2810	25.6	2.6	mg/kg		J	F1
Arsenic	7440-38-2	60.2	1.3	0.17	mg/kg		J	F1
Calcium	7440-70-2	477	640	7.4	mg/kg	J	J	
Copper	7440-50-8	12.9	3.2	0.065	mg/kg	*	J	Q, F1
Iron	7439-89-6	6740	12.8	1.1	mg/kg		J	F1
Lead	7439-92-1	649	1.3	0.14	mg/kg		J	F1
Magnesium	7439-95-4	555	640	2.8	mg/kg	J*	J	A
Manganese	7439-96-5	209	1.9	0.078	mg/kg		J	F1
Zinc	7440-66-6	65.4	7.7	0.33	mg/kg	*	J	E, F1

Lab Sample Name: 6100180-17 **Sample No:** MH1L03 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	7460	27.2	2.7	mg/kg			
Arsenic	7440-38-2	9.3	1.4	0.18	mg/kg			
Calcium	7440-70-2	2710	681	7.9	mg/kg			
Copper	7440-50-8	62.4	3.4	0.069	mg/kg	*		
Iron	7439-89-6	21300	13.6	1.1	mg/kg			
Lead	7439-92-1	141	1.4	0.15	mg/kg			
Magnesium	7439-95-4	3240	681	3.0	mg/kg	*		
Manganese	7439-96-5	2340	2.0	0.083	mg/kg			
Zinc	7440-66-6	848	8.2	0.35	mg/kg	*		

Analysis Method ICP_AES

Lab Sample Name: 6100180-18 **Sample No:** MH1L04 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9790	25.8	2.6	mg/kg			
Arsenic	7440-38-2	11.7	1.3	0.17	mg/kg			
Calcium	7440-70-2	18700	646	7.5	mg/kg			
Copper	7440-50-8	81.9	3.2	0.066	mg/kg	*	J	Q
Iron	7439-89-6	25400	12.9	1.1	mg/kg			
Lead	7439-92-1	210	1.3	0.14	mg/kg			
Magnesium	7439-95-4	4760	646	2.8	mg/kg	*	J	A
Manganese	7439-96-5	1890	1.9	0.079	mg/kg			
Zinc	7440-66-6	791	7.7	0.34	mg/kg	*	J	E

Analysis Method ICP_MS

Lab Sample Name: 6100180-01 **Sample No:** MH1K86 **Sample Date:** 10/06/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	J*	U	B
Barium	7440-39-3	36.8	6.9	0.061	mg/kg			
Beryllium	7440-41-7	3.2	0.69	0.056	mg/kg			
Cadmium	7440-43-9	1.0	0.69	0.058	mg/kg			
Chromium	7440-47-3	5.9	1.4	0.11	mg/kg	*		
Cobalt	7440-48-4	13.5	0.69	0.042	mg/kg			
Molybdenum	7439-98-7	3.0	2.8	0.063	mg/kg			
Nickel	7440-02-0	8.0	0.69	0.063	mg/kg			
Selenium	7782-49-2	2.0	3.5	0.094	mg/kg	J	J	
Silver	7440-22-4	0.37	0.69	0.038	mg/kg	J	J	
Thallium	7440-28-0	0.69	0.69	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	37.5	3.5	0.11	mg/kg			

Lab Sample Name: 6100180-02 **Sample No:** MH1K87 **Sample Date:** 10/06/2016 11:35:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.040	mg/kg	J*	U	B
Barium	7440-39-3	36.2	6.6	0.058	mg/kg			
Beryllium	7440-41-7	4.1	0.66	0.053	mg/kg			
Cadmium	7440-43-9	0.90	0.66	0.055	mg/kg			
Chromium	7440-47-3	6.4	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	15.0	0.66	0.040	mg/kg			
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J	U	B

Nickel	7440-02-0	7.7	0.66	0.059	mg/kg			
Selenium	7782-49-2	2.1	3.3	0.090	mg/kg	J	J	
Silver	7440-22-4	0.59	0.66	0.036	mg/kg	J	J	
Thallium	7440-28-0	0.66	0.66	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	36.7	3.3	0.11	mg/kg			

Lab Sample Name: 6100180-03 **Sample No:** MH1K88 **Sample Date:** 10/06/2016 10:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.039	mg/kg	J*	U	B
Barium	7440-39-3	29.3	6.6	0.058	mg/kg			
Beryllium	7440-41-7	2.7	0.66	0.052	mg/kg			
Cadmium	7440-43-9	0.66	0.66	0.055	mg/kg	J	U	B
Chromium	7440-47-3	6.1	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	12.0	0.66	0.039	mg/kg			
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg	J	U	B
Nickel	7440-02-0	7.3	0.66	0.059	mg/kg			
Selenium	7782-49-2	1.7	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	0.34	0.66	0.035	mg/kg	J	J	
Thallium	7440-28-0	0.66	0.66	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	40.1	3.3	0.11	mg/kg			

Lab Sample Name: 6100180-04 **Sample No:** MH1K89 **Sample Date:** 10/06/2016 09:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.039	mg/kg	J*	U	B
Barium	7440-39-3	48.8	6.5	0.057	mg/kg			
Beryllium	7440-41-7	4.3	0.65	0.052	mg/kg			
Cadmium	7440-43-9	1.3	0.65	0.055	mg/kg			
Chromium	7440-47-3	5.6	1.3	0.11	mg/kg	*		
Cobalt	7440-48-4	18.6	0.65	0.039	mg/kg			
Molybdenum	7439-98-7	2.6	2.6	0.059	mg/kg			
Nickel	7440-02-0	7.5	0.65	0.059	mg/kg			
Selenium	7782-49-2	2.0	3.3	0.088	mg/kg	J	J	
Silver	7440-22-4	0.54	0.65	0.035	mg/kg	J	J	
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	36.0	3.3	0.11	mg/kg			

Lab Sample Name: 6100180-05 **Sample No:** MH1K90 **Sample Date:** 10/06/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.037	mg/kg	J*	U	B

Analysis Method ICP_MS

Barium	7440-39-3	30.1	6.1	0.054	mg/kg			
Beryllium	7440-41-7	0.80	0.61	0.049	mg/kg			
Cadmium	7440-43-9	8.2	0.61	0.051	mg/kg			
Chromium	7440-47-3	1.2	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	8.2	0.61	0.037	mg/kg			
Molybdenum	7439-98-7	12.0	2.4	0.055	mg/kg			
Nickel	7440-02-0	3.4	0.61	0.055	mg/kg			
Selenium	7782-49-2	1.4	3.1	0.083	mg/kg	J	J	
Silver	7440-22-4	1.9	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.61	0.61	0.046	mg/kg	J	U	B
Vanadium	7440-62-2	8.2	3.1	0.10	mg/kg			

Lab Sample Name: 6100180-06 **Sample No:** MH1K91 **Sample Date:** 10/06/2016 15:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.5	0.046	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	85.7	7.7	0.068	mg/kg			
Beryllium	7440-41-7	0.68	0.77	0.061	mg/kg	J	J	
Cadmium	7440-43-9	2.0	0.77	0.065	mg/kg			
Chromium	7440-47-3	6.7	1.5	0.13	mg/kg	*	J	A
Cobalt	7440-48-4	4.9	0.77	0.046	mg/kg			
Molybdenum	7439-98-7	4.5	3.1	0.069	mg/kg			
Nickel	7440-02-0	5.5	0.77	0.069	mg/kg			
Selenium	7782-49-2	1.6	3.8	0.10	mg/kg	J	J	
Silver	7440-22-4	1.1	0.77	0.042	mg/kg			
Thallium	7440-28-0	0.77	0.77	0.058	mg/kg	J	U	B
Vanadium	7440-62-2	19.0	3.8	0.13	mg/kg			

Lab Sample Name: 6100180-07 **Sample No:** MH1K92 **Sample Date:** 10/06/2016 17:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	7.7	1.3	0.038	mg/kg	*		
Barium	7440-39-3	96.2	6.4	0.056	mg/kg			
Beryllium	7440-41-7	1.8	0.64	0.051	mg/kg			
Cadmium	7440-43-9	10.0	0.64	0.054	mg/kg			
Chromium	7440-47-3	6.3	1.3	0.10	mg/kg	*		
Cobalt	7440-48-4	12.7	0.64	0.038	mg/kg			
Molybdenum	7439-98-7	9.7	2.6	0.057	mg/kg			
Nickel	7440-02-0	7.6	0.64	0.057	mg/kg			
Selenium	7782-49-2	2.0	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	3.2	0.64	0.034	mg/kg			
Thallium	7440-28-0	0.64	0.64	0.048	mg/kg	J	U	B

Vanadium	7440-62-2	25.9	3.2	0.10	mg/kg			

Lab Sample Name: 6100180-08 **Sample No:** MH1K93 **Sample Date:** 10/06/2016 17:25:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	9.6	1.3	0.038	mg/kg	*	J	Q
Barium	7440-39-3	60.8	6.4	0.056	mg/kg			
Beryllium	7440-41-7	1.5	0.64	0.051	mg/kg			
Cadmium	7440-43-9	7.9	0.64	0.054	mg/kg			
Chromium	7440-47-3	4.7	1.3	0.10	mg/kg	*	J	A
Cobalt	7440-48-4	10.8	0.64	0.038	mg/kg			
Molybdenum	7439-98-7	6.8	2.6	0.058	mg/kg			
Nickel	7440-02-0	6.7	0.64	0.058	mg/kg			
Selenium	7782-49-2	1.6	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	2.2	0.64	0.035	mg/kg			
Thallium	7440-28-0	0.64	0.64	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	21.5	3.2	0.10	mg/kg			

Lab Sample Name: 6100180-09 **Sample No:** MH1K94 **Sample Date:** 10/06/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.2	1.2	0.037	mg/kg	J*	U	B
Barium	7440-39-3	6.3	6.1	0.054	mg/kg			
Beryllium	7440-41-7	0.61	0.61	0.049	mg/kg	J	U	B
Cadmium	7440-43-9	0.61	0.61	0.052	mg/kg	J	U	B
Chromium	7440-47-3	1.1	1.2	0.10	mg/kg	J*	J	
Cobalt	7440-48-4	3.7	0.61	0.037	mg/kg			
Molybdenum	7439-98-7	2.8	2.5	0.055	mg/kg			
Nickel	7440-02-0	1.7	0.61	0.055	mg/kg			
Selenium	7782-49-2	0.64	3.1	0.084	mg/kg	J	J	
Silver	7440-22-4	1.3	0.61	0.033	mg/kg			
Thallium	7440-28-0	0.61	0.61	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	6.7	3.1	0.10	mg/kg			

Lab Sample Name: 6100180-10 **Sample No:** MH1K95 **Sample Date:** 10/06/2016 17:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.032	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	27.6	5.4	0.047	mg/kg			
Beryllium	7440-41-7	0.80	0.54	0.043	mg/kg			
Cadmium	7440-43-9	1.0	0.54	0.045	mg/kg			
Chromium	7440-47-3	4.9	1.1	0.088	mg/kg	*	J	A

Analysis Method ICP_MS

Cobalt	7440-48-4	6.9	0.54	0.032	mg/kg			
Molybdenum	7439-98-7	5.6	2.2	0.049	mg/kg			
Nickel	7440-02-0	3.3	0.54	0.049	mg/kg			
Selenium	7782-49-2	1.3	2.7	0.073	mg/kg	J	J	
Silver	7440-22-4	1.2	0.54	0.029	mg/kg			
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	13.8	2.7	0.088	mg/kg			

Lab Sample Name: 6100180-11 **Sample No:** MH1K96 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.0	1.2	0.037	mg/kg	*		
Barium	7440-39-3	120	6.2	0.055	mg/kg			
Beryllium	7440-41-7	0.62	0.62	0.050	mg/kg	J	U	B
Cadmium	7440-43-9	1.9	0.62	0.052	mg/kg			
Chromium	7440-47-3	4.6	1.2	0.10	mg/kg	*		
Cobalt	7440-48-4	10.3	0.62	0.037	mg/kg			
Molybdenum	7439-98-7	2.5	2.5	0.056	mg/kg	J	U	B
Nickel	7440-02-0	6.9	0.62	0.056	mg/kg			
Selenium	7782-49-2	1.1	3.1	0.085	mg/kg	J	J	
Silver	7440-22-4	0.54	0.62	0.034	mg/kg	J	J	
Thallium	7440-28-0	0.62	0.62	0.047	mg/kg	J	U	B
Vanadium	7440-62-2	16.9	3.1	0.10	mg/kg			

Lab Sample Name: 6100180-12 **Sample No:** MH1K97 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	*	J	Q
Barium	7440-39-3	140	6.4	0.056	mg/kg			
Beryllium	7440-41-7	0.64	0.64	0.051	mg/kg	J	U	B
Cadmium	7440-43-9	1.9	0.64	0.054	mg/kg			
Chromium	7440-47-3	8.7	1.3	0.10	mg/kg	*	J	A
Cobalt	7440-48-4	9.4	0.64	0.038	mg/kg			
Molybdenum	7439-98-7	2.8	2.6	0.057	mg/kg			
Nickel	7440-02-0	8.5	0.64	0.057	mg/kg			
Selenium	7782-49-2	1.5	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	0.79	0.64	0.034	mg/kg			
Thallium	7440-28-0	0.64	0.64	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	21.7	3.2	0.10	mg/kg			

Analysis Method ICP_MS

Lab Sample Name: 6100180-13 **Sample No:** MH1K98 **Sample Date:** 10/04/2016 16:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.6	1.6	0.049	mg/kg	J*	U	B
Barium	7440-39-3	107	8.2	0.073	mg/kg			
Beryllium	7440-41-7	0.73	0.82	0.066	mg/kg	J	J	
Cadmium	7440-43-9	0.82	0.82	0.069	mg/kg	J	U	B
Chromium	7440-47-3	23.0	1.6	0.14	mg/kg	*		
Cobalt	7440-48-4	7.0	0.82	0.049	mg/kg			
Molybdenum	7439-98-7	3.3	3.3	0.074	mg/kg	J	U	B
Nickel	7440-02-0	15.0	0.82	0.074	mg/kg			
Selenium	7782-49-2	2.4	4.1	0.11	mg/kg	J	J	
Silver	7440-22-4	0.82	0.82	0.045	mg/kg	U	U	
Thallium	7440-28-0	0.82	0.82	0.063	mg/kg	J	U	B
Vanadium	7440-62-2	29.9	4.1	0.14	mg/kg			

Lab Sample Name: 6100180-14 **Sample No:** MH1K99 **Sample Date:** 10/04/2016 16:50:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.1	1.1	0.033	mg/kg	J*	UJ	B, Q
Barium	7440-39-3	99.2	5.4	0.048	mg/kg			
Beryllium	7440-41-7	0.54	0.54	0.043	mg/kg	J	U	B
Cadmium	7440-43-9	0.54	0.54	0.046	mg/kg	J	U	B
Chromium	7440-47-3	11.6	1.1	0.089	mg/kg	*	J	A
Cobalt	7440-48-4	3.5	0.54	0.033	mg/kg			
Molybdenum	7439-98-7	2.2	2.2	0.049	mg/kg	J	U	B
Nickel	7440-02-0	8.0	0.54	0.049	mg/kg			
Selenium	7782-49-2	0.92	2.7	0.074	mg/kg	J	J	
Silver	7440-22-4	0.54	0.54	0.029	mg/kg	J	U	B
Thallium	7440-28-0	0.54	0.54	0.041	mg/kg	J	U	B
Vanadium	7440-62-2	16.8	2.7	0.089	mg/kg			

Lab Sample Name: 6100180-15 **Sample No:** MH1L01 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.039	mg/kg	J*	U	B
Barium	7440-39-3	33.6	6.5	0.057	mg/kg			
Beryllium	7440-41-7	1.0	0.65	0.052	mg/kg			
Cadmium	7440-43-9	4.6	0.65	0.055	mg/kg			
Chromium	7440-47-3	0.86	1.3	0.11	mg/kg	J*	J	
Cobalt	7440-48-4	11.7	0.65	0.039	mg/kg			

Molybdenum	7439-98-7	4.2	2.6	0.059	mg/kg			
Nickel	7440-02-0	3.3	0.65	0.059	mg/kg			
Selenium	7782-49-2	1.4	3.3	0.089	mg/kg	J	J	
Silver	7440-22-4	0.85	0.65	0.035	mg/kg		J	F1
Thallium	7440-28-0	0.65	0.65	0.050	mg/kg	J	U	B
Vanadium	7440-62-2	4.2	3.3	0.11	mg/kg			

Lab Sample Name: 6100180-16 **Sample No:** MH1L02 **Sample Date:** 10/05/2016 15:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	5.5	1.3	0.038	mg/kg	*	J	Q
Barium	7440-39-3	65.5	6.4	0.056	mg/kg			
Beryllium	7440-41-7	0.64	0.64	0.051	mg/kg	J	U	B
Cadmium	7440-43-9	0.94	0.64	0.054	mg/kg			
Chromium	7440-47-3	4.9	1.3	0.11	mg/kg	*	J	A, F1
Cobalt	7440-48-4	5.1	0.64	0.038	mg/kg		J	F1
Molybdenum	7439-98-7	15.5	2.6	0.058	mg/kg		J	F1
Nickel	7440-02-0	3.8	0.64	0.058	mg/kg		J	F1
Selenium	7782-49-2	1.8	3.2	0.087	mg/kg	J	J	
Silver	7440-22-4	3.5	0.64	0.035	mg/kg			
Thallium	7440-28-0	0.64	0.64	0.049	mg/kg	J	U	B
Vanadium	7440-62-2	13.1	3.2	0.11	mg/kg		J	F1

Lab Sample Name: 6100180-17 **Sample No:** MH1L03 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	6.5	1.4	0.041	mg/kg	*		
Barium	7440-39-3	399	6.8	0.060	mg/kg			
Beryllium	7440-41-7	0.68	0.68	0.054	mg/kg	J	U	B
Cadmium	7440-43-9	2.0	0.68	0.057	mg/kg			
Chromium	7440-47-3	5.7	1.4	0.11	mg/kg	*		
Cobalt	7440-48-4	11.6	0.68	0.041	mg/kg			
Molybdenum	7439-98-7	2.7	2.7	0.061	mg/kg	J	U	B
Nickel	7440-02-0	7.7	0.68	0.061	mg/kg			
Selenium	7782-49-2	1.5	3.4	0.093	mg/kg	J	J	
Silver	7440-22-4	0.61	0.68	0.037	mg/kg	J	J	
Thallium	7440-28-0	0.68	0.68	0.052	mg/kg	J	U	B
Vanadium	7440-62-2	23.1	3.4	0.11	mg/kg			

Lab Sample Name: 6100180-18 **Sample No:** MH1L04 **Sample Date:** 10/04/2016 16:40:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes

Analysis Method ICP_MS

Antimony	7440-36-0	1.3	1.3	0.039	mg/kg	J*	**UJ**	**B, Q**
Barium	7440-39-3	111	6.5	0.057	mg/kg			
Beryllium	7440-41-7	0.65	0.65	0.052	mg/kg	J	**U**	**B**
Cadmium	7440-43-9	1.4	0.65	0.054	mg/kg			
Chromium	7440-47-3	9.2	1.3	0.11	mg/kg	*	**J**	**A**
Cobalt	7440-48-4	7.5	0.65	0.039	mg/kg			
Molybdenum	7439-98-7	2.6	2.6	0.058	mg/kg	J	**U**	**B**
Nickel	7440-02-0	8.5	0.65	0.058	mg/kg			
Selenium	7782-49-2	1.4	3.2	0.088	mg/kg	J	**J**	
Silver	7440-22-4	0.52	0.65	0.035	mg/kg	J	**J**	
Thallium	7440-28-0	0.65	0.65	0.049	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	19.0	3.2	0.11	mg/kg			

DATA VALIDATION REPORT

Bonita Peak DV Case 46282

SAMPLE DELIVERY GROUP: MH1L05

Prepared by

MEC^X
12269 East Vassar Drive
Aurora, CO 80014

I. INTRODUCTION

Task Order Title:	Bonita Peak DV Case 46282
Contract Task Order:	20408.012.004.0436.00
Sample Delivery Group:	MH1L05
Weston Project Manager:	Natalie Quiet
EPA Project Manager:	Don Goodrich
TDD No.:	0004/1612-06
Case No.:	46282
Matrix:	Soil/Sediment
QC Level:	Stage 2B
No. of Samples:	5
No. of Reanalyses/Dilutions:	0
Laboratory:	Bonner Analytical Testing Co.

Table 1. Sample Identification

Sample No.	*Lab Sample Name*	*Matrix Type*	*Collection Date*	*Method*
MH1L05	6100181-01	Soil	10/05/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1L06	6100181-02	Sediment	10/05/2016 12:00:00	Hg, ICP-AES, ICP-MS
MH1L07	6100181-03	Soil	10/06/2016 12:30:00	Hg, ICP-AES, ICP-MS
MH1L08	6100181-04	Sediment	09/28/2016 08:45:00	Hg, ICP-AES, ICP-MS
MH1L09	6100181-05	Soil	09/28/2016 08:45:00	Hg, ICP-AES, ICP-MS

II. Sample Management

Anomalies with sample management are noted below. The samples were received within the temperature limits of >0°C to <6°C. According to the Sample Receipt Form (SRF) the samples were received intact and properly preserved. The chain of custody (COC) was signed and dated by field and/or laboratory personnel except as noted below. Custody seals were present and intact. Sample tags were absent.

The following issues were noted:

- There was no relinquished time on any of the 24 pages of the Case 46282 COCs. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.
- The COCs list the Case as 46382 in the instruction box; however, these samples are for Case 46282. Per Region 8, the laboratory will note the issue in the SDG Narrative and proceed with analysis of the samples.
- The COC states “QC to be determined by lab”. The laboratory provided to Region 8 a list of the QC samples selected for each SDG. The list of designated QC samples was accepted by the region.

- There were no temperature blanks in any of the coolers received for the case. A thermometer was inserted into each cooler, allowed to stabilize, and the temperature was recorded. All coolers were received at 0°C.
- The laboratory inquired on whether the sediment samples should be decanted or homogenized and were instructed per Region 8 to decant the samples.
- A metals analysis modification was performed to analyze soil/sediment samples by ICP-MS with the addition of the non-routine analyte molybdenum (Mo). The molybdenum CRQL is 2.0 mg/kg.

Data Qualifier Reference Table

Qualifier	Organics	Inorganics
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners.	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential positive bias.
J-	Not applicable	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, and may have a potential negative bias.
UJ	The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.	The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."	Not applicable.

Qualifier	Organics	Inorganics
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.	Not applicable.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified.

Qualification Code Reference Table

Qualifier	Organics	Inorganics
H	Holding times were exceeded.	Holding times were exceeded.
S	Surrogate recovery was outside QC limits.	The sequence or number of standards used for the calibration was incorrect
C	Calibration %RSD or %D was noncompliant.	Correlation coefficient is <0.995 or calibration was noncompliant.
R	Calibration RRF was <0.05.	%R for calibration is not within control limits.
B	Presumed contamination as indicated by the preparation (method) blank results.	Presumed contamination as indicated by the preparation (method) or calibration blank results.
L	Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits.	Laboratory Control Sample %R was not within control limits.
L1	LCS/LCSD RPD was outside control limits.	LCS/LCSD RPD was outside control limits.
Q	MS/MSD recovery was poor.	MS recovery was poor.
Q1	MS/MSD RPD was outside control limits.	MS/MSD RPD was outside control limits.
E	Not applicable.	Duplicates showed poor agreement.
I	Internal standard performance was unsatisfactory.	ICP ICS results were unsatisfactory.
A	Not applicable.	ICP Serial Dilution %D were not within control limits.
M	Tuning (BFB or DFTPP) was noncompliant.	ICPMS tune was not compliant.
T	Presumed contamination as indicated by the trip blank results.	Not applicable.
+	False positive – reported compound was not present.	Not applicable.
-	False negative – compound was present but not reported.	Not applicable.
F	Presumed contamination as indicated by the FB or ER results.	Presumed contamination as indicated by the FB or ER results.
F1	Field duplicate results were outside the control limit.	Field duplicate results were outside the control limit.
$	Reported result or other information was incorrect.	Reported result or other information was incorrect.
?	TIC identity or reported retention time has been changed.	Not applicable.

Qualifier	Organics	Inorganics
D	The analysis with this flag should not be used because another more technically sound analysis is available.	The analysis with this flag should not be used because another more technically sound analysis is available.
P	Instrument performance for pesticides was poor.	Post Digestion Spike recovery was not within control limits.
*II, *III	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.	Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found.

III. Method Analyses

A. Methods ICP-AES, ICP-MS, Hg —Metals and Mercury

Reviewed By: M. Hilchey
Date Reviewed: January 19, 2017

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *Quality Assurance Project Plan for U. S. EPA Region 8 CERCLA Site Assessment* (Rev. 2015); *United States Environmental Protection Agency Method 200.7, 200.8 and 7471B;* and the *National Functional Guidelines for Inorganic Superfund Data Review* (2014).

- Holding Times: The analytical holding times, 28 days for mercury and six months for the remaining metals, were met.
- Instrument tune: All ICPMS tuning requirements were met.
- Calibration: The initial calibration summaries indicated that the method calibration criteria were met. Initial (ICV) and continuing calibration (CCV) frequency requirements were met. ICV and CCV recoveries were within 90-110% for ICP-AES and ICP-MS, and within 85-115% for mercury.
- Method Blanks: No target analytes were reported in the method blanks or calibration blanks of sufficient concentration to qualify site sample results except as noted in the table below. For sample results associated with a positive blank contamination: detected results less than the reporting limit (RL) were qualified as nondetect (U). Based on professional judgement, when sample results associated with a detected blank value were below the RL and >10x the blank value, qualification was not applied. For mercury sample results associated with a negative blank value, detected results <5x the absolute value of the negative blank result were qualified as estimated with low potential bias (J-).

Analyte	Calibration blank concentration (µg/L)	Method blank concentration (mg/Kg)	Qualified Samples
cadmium	0.093	ND	MH1L08, MH1L09
beryllium	0.13	ND	
thallium	0.20	ND	All site samples except MH1L05
mercury	-0.044	-0.0044	MH1L07, MH1L09

- Interference Check Samples (ICSA/B): ICSA/B results are not evaluated at a Stage 2B validation.
- Laboratory Control Samples (LCS): The ICP-AES and ICP-MS LCS recoveries were within the laboratory control limits of for all target analytes. LCS analysis was not performed for mercury.
- Laboratory Duplicates Laboratory duplicate analyses were performed on sample MH1L08. All RPDs met the laboratory control limit of ≤20% for sample results <5x RL and results were within ±RL when

the parent and/or duplicate results were <5xRL with the exception of aluminum (21%), copper (>RL) and manganese (23%). Associated soil sample results were detected and were qualified as estimated (J).

- Matrix Spike: Matrix spike analyses were performed on sample MH1L08. Recoveries were not assessed when the parent sample concentrations were more than 4× the spike amount. Recoveries for all target analytes met laboratory control limits of 75-125% with the exceptions of antimony (45%) and selenium (73%). Associated soil sample results were detected and were qualified as estimated with low potential bias (J-). It should be noted that matrix spike results were not reported for aluminum, iron, manganese or calcium.
- Post Digestion Spike: Post digestion spike analysis was performed on sample MH1L08 for ICP-AES and ICP-MS. Recoveries met the laboratory control limit of 75-125% for all reported analytes; therefore bias was removed from antimony and selenium qualification.
- Serial Dilution: Serial dilution analysis was performed on sample MH1L08 for ICP-AES and ICP-MS. Results were not assessed unless the parent sample concentration was >50× the MDL. The control limit of ≤10% difference (%D) of the original sample results was met for all target analytes with the exceptions of arsenic (18%), zinc (12%) and vanadium (11%). All associated soils sample results were detected and were qualified as estimated (J).
- Internal Standards: All site sample ICPMS internal standard (IS) intensities were within 60-125% of the response in the calibration blank for reported target analytes.
- Sample Result Verification: Analyte quantification was not verified at a Stage 2B validation. Detects below the reporting limit were qualified as estimated (J). Nondetects are valid to the RL.

  Several samples were diluted due to exceeded linear range. Detected results for dilutions were flagged with “D” by the laboratory. Reporting limits were adjusted accordingly.
- Field QC Samples: MEC^X evaluated field QC samples, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. MEC^X used the remaining detects to evaluate the associated site samples. Findings associated with field QC samples are summarized below.
  - Field Blanks and Equipment Blanks: No field blanks or equipment blank samples were identified for this SDG.
  - Field Duplicates: There were no field duplicate samples identified for this SDG.

Validated Sample Result Forms MH1L05

Analysis Method Hg

Lab Sample Name: 6100181-01 **Sample No:** MH1L05 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.058	0.21	0.0067	mg/kg	J	J	

Lab Sample Name: 6100181-02 **Sample No:** MH1L06 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.055	0.15	0.0049	mg/kg	J	J	

Lab Sample Name: 6100181-03 **Sample No:** MH1L07 **Sample Date:** 10/06/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0072	0.13	0.0040	mg/kg	J	J-	B

Lab Sample Name: 6100181-04 **Sample No:** MH1L08 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.056	0.14	0.0045	mg/kg	J	J	

Lab Sample Name: 6100181-05 **Sample No:** MH1L09 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Mercury	7439-97-6	0.0077	0.14	0.0045	mg/kg	J	J-	B

Analysis Method ICP_AES

Lab Sample Name: 6100181-01 **Sample No:** MH1L05 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	17200	41.8	2.9	mg/kg	*		
Arsenic	7440-38-2	77.2	2.1	0.23	mg/kg	*		
Calcium	7440-70-2	1040	1040	5.8	mg/kg	J	J	
Copper	7440-50-8	136	5.2	0.086	mg/kg	*		
Iron	7439-89-6	36500	20.9	1.0	mg/kg			
Lead	7439-92-1	1020	2.1	0.27	mg/kg			
Magnesium	7439-95-4	2750	1040	4.2	mg/kg			
Manganese	7439-96-5	13700	15.7	0.23	mg/kg	D*		

Analysis Method ICP_AES

Zinc		7440-66-6	582	12.5	0.10	mg/kg	*		

Lab Sample Name: 6100181-02 **Sample No:** MH1L06 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	22000	30.8	2.2	mg/kg	*	J	E
Arsenic	7440-38-2	35.6	1.5	0.17	mg/kg	*	J	A
Calcium	7440-70-2	1150	769	4.3	mg/kg			
Copper	7440-50-8	67.7	3.8	0.063	mg/kg	*	J	E
Iron	7439-89-6	23800	15.4	0.77	mg/kg			
Lead	7439-92-1	528	1.5	0.20	mg/kg			
Magnesium	7439-95-4	3990	769	3.1	mg/kg			
Manganese	7439-96-5	3810	6.9	0.10	mg/kg	D*	J	E
Zinc	7440-66-6	907	9.2	0.075	mg/kg	*	J	A

Lab Sample Name: 6100181-03 **Sample No:** MH1L07 **Sample Date:** 10/06/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	15600	25.2	1.8	mg/kg	*		
Arsenic	7440-38-2	14.4	1.3	0.14	mg/kg	*		
Calcium	7440-70-2	1950	629	3.5	mg/kg			
Copper	7440-50-8	108	3.1	0.052	mg/kg	*		
Iron	7439-89-6	29500	12.6	0.63	mg/kg			
Lead	7439-92-1	95.8	1.3	0.16	mg/kg			
Magnesium	7439-95-4	7860	629	2.5	mg/kg			
Manganese	7439-96-5	2520	5.7	0.083	mg/kg	D*		
Zinc	7440-66-6	302	7.6	0.062	mg/kg	*		

Lab Sample Name: 6100181-04 **Sample No:** MH1L08 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	13400	28.1	2.0	mg/kg	*	J	E
Arsenic	7440-38-2	17.4	1.4	0.15	mg/kg	*	J	A
Calcium	7440-70-2	2610	701	3.9	mg/kg			
Copper	7440-50-8	16.3	3.5	0.058	mg/kg	*	J	E
Iron	7439-89-6	61800	28.1	1.4	mg/kg	D		
Lead	7439-92-1	46.4	1.4	0.18	mg/kg			
Magnesium	7439-95-4	3840	701	2.8	mg/kg			
Manganese	7439-96-5	256	2.1	0.031	mg/kg	*	J	E
Zinc	7440-66-6	57.9	8.4	0.069	mg/kg	*	J	A

Analysis Method ICP_AES

Lab Sample Name: 6100181-05 **Sample No:** MH1L09 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Aluminum	7429-90-5	9830	28.1	2.0	mg/kg	*		
Arsenic	7440-38-2	14.6	1.4	0.15	mg/kg	*		
Calcium	7440-70-2	3110	702	3.9	mg/kg			
Copper	7440-50-8	6.0	3.5	0.058	mg/kg	*		
Iron	7439-89-6	48100	14.0	0.70	mg/kg			
Lead	7439-92-1	66.3	1.4	0.18	mg/kg			
Magnesium	7439-95-4	4430	702	2.8	mg/kg			
Manganese	7439-96-5	428	2.1	0.031	mg/kg	*		
Zinc	7440-66-6	161	8.4	0.069	mg/kg	*		

Analysis Method ICP_MS

Lab Sample Name: 6100181-01 **Sample No:** MH1L05 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	4.0	2.1	0.063	mg/kg	*		
Barium	7440-39-3	74.5	10.4	0.092	mg/kg			
Beryllium	7440-41-7	1.0	1.0	0.084	mg/kg	J	J	
Cadmium	7440-43-9	4.6	1.0	0.088	mg/kg			
Chromium	7440-47-3	4.9	2.1	0.17	mg/kg	*		
Cobalt	7440-48-4	33.6	1.0	0.063	mg/kg			
Molybdenum	7439-98-7	11.6	4.2	0.094	mg/kg			
Nickel	7440-02-0	4.7	1.0	0.094	mg/kg			
Selenium	7782-49-2	1.9	5.2	0.14	mg/kg	J*	J	
Silver	7440-22-4	10.2	1.0	0.056	mg/kg			
Thallium	7440-28-0	1.5	1.0	0.079	mg/kg			
Vanadium	7440-62-2	15.8	5.2	0.17	mg/kg	*		

Lab Sample Name: 6100181-02 **Sample No:** MH1L06 **Sample Date:** 10/05/2016 12:00:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.5	1.5	0.046	mg/kg	J*	J	Q
Barium	7440-39-3	98.1	7.7	0.068	mg/kg			
Beryllium	7440-41-7	1.3	0.77	0.062	mg/kg			
Cadmium	7440-43-9	4.6	0.77	0.065	mg/kg			
Chromium	7440-47-3	5.4	1.5	0.13	mg/kg	*		
Cobalt	7440-48-4	12.4	0.77	0.046	mg/kg			
Molybdenum	7439-98-7	3.9	3.1	0.069	mg/kg			

Analysis Method ICP_MS

Nickel	7440-02-0	5.8	0.77	0.069	mg/kg			
Selenium	7782-49-2	2.3	3.8	0.10	mg/kg	J*	J	Q
Silver	7440-22-4	2.0	0.77	0.042	mg/kg			
Thallium	7440-28-0	0.77	0.77	0.058	mg/kg	J	U	B
Vanadium	7440-62-2	16.6	3.8	0.13	mg/kg	*	J	A

Lab Sample Name: 6100181-03 **Sample No:** MH1L07 **Sample Date:** 10/06/2016 12:30:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.3	1.3	0.038	mg/kg	J*	J	
Barium	7440-39-3	27.7	6.3	0.055	mg/kg			
Beryllium	7440-41-7	2.8	0.63	0.050	mg/kg			
Cadmium	7440-43-9	0.94	0.63	0.053	mg/kg			
Chromium	7440-47-3	4.1	1.3	0.10	mg/kg	*		
Cobalt	7440-48-4	10.1	0.63	0.038	mg/kg			
Molybdenum	7439-98-7	1.8	2.5	0.057	mg/kg	J	J	
Nickel	7440-02-0	6.1	0.63	0.057	mg/kg			
Selenium	7782-49-2	1.6	3.1	0.086	mg/kg	J*	J	
Silver	7440-22-4	1.1	0.63	0.034	mg/kg			
Thallium	7440-28-0	0.63	0.63	0.048	mg/kg	J	U	B
Vanadium	7440-62-2	24.1	3.1	0.10	mg/kg	*		

Lab Sample Name: 6100181-04 **Sample No:** MH1L08 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	J*	J	Q
Barium	7440-39-3	165	7.0	0.062	mg/kg			
Beryllium	7440-41-7	0.70	0.70	0.056	mg/kg	J	U	B
Cadmium	7440-43-9	0.70	0.70	0.059	mg/kg	J	U	B
Chromium	7440-47-3	5.3	1.4	0.12	mg/kg	*		
Cobalt	7440-48-4	4.7	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	3.8	2.8	0.063	mg/kg			
Nickel	7440-02-0	4.2	0.70	0.063	mg/kg			
Selenium	7782-49-2	6.6	3.5	0.095	mg/kg	*	J	Q
Silver	7440-22-4	0.70	0.70	0.038	mg/kg	J	J	
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	U	B
Vanadium	7440-62-2	19.4	3.5	0.12	mg/kg	*	J	A

Lab Sample Name: 6100181-05 **Sample No:** MH1L09 **Sample Date:** 09/28/2016 08:45:00

Matrix Type: Soil

Analyte	CAS No	Result Value	Sample Adjusted CRQL	Sample Adjusted MDL	Result Units	Lab Qualifier	Validation Qualifier	Validation Notes
Antimony	7440-36-0	1.4	1.4	0.042	mg/kg	J*	J	

Analysis Method ICP_MS

Barium	7440-39-3	35.8	7.0	0.062	mg/kg			
Beryllium	7440-41-7	0.70	0.70	0.056	mg/kg	J	**U**	**B**
Cadmium	7440-43-9	0.70	0.70	0.059	mg/kg	J	**U**	**B**
Chromium	7440-47-3	3.9	1.4	0.12	mg/kg	*		
Cobalt	7440-48-4	7.3	0.70	0.042	mg/kg			
Molybdenum	7439-98-7	1.5	2.8	0.063	mg/kg	J	**J**	
Nickel	7440-02-0	7.3	0.70	0.063	mg/kg			
Selenium	7782-49-2	1.5	3.5	0.095	mg/kg	J*	**J**	
Silver	7440-22-4	0.86	0.70	0.038	mg/kg			
Thallium	7440-28-0	0.70	0.70	0.053	mg/kg	J	**U**	**B**
Vanadium	7440-62-2	24.0	3.5	0.12	mg/kg	*		