STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, ID 83706 • (208) 373-0502

C. L. "Butch" Otter, Governor
Curt Fransen, Director

March 4, 2014

Mr. Ken Marcy
U.S. Environmental Protection Agency
12928 SW 276th Street
Vashon, WA 98070

Subject: Addendum to the Preliminary Assessment and Site Inspection Report for Bimetallic Ridge Mines, Bonner County, Idaho

Dear Mr. Marcy:

The Idaho Department of Environmental Quality (DEQ) completed and submitted the Preliminary Assessment and Site Inspection (PA/SI) Report for Bimetallic Ridge Mines to the United States Environmental Protection Agency (EPA) on January 10, 2013. The following addendum is being submitted to clarify the location and site conditions for adit 3 of the Iron Mask Mine which was incorrectly identified in the original PA/SI.

This addendum does not change the findings of the original PA/SI and a No Remedial Action Planned (NRAP) designation continues to be DEQ's recommendation for the Bimetallic Ridge Mines. This addendum can also be found on the DEQ Preliminary Assessment web page: http://www.deq.idaho.gov/preliminary-assessments.

If you have any questions, please feel free to give me a call at (208) 373-2096 or email dana.swift@deq.idaho.gov.

Sincerely,

Dana Swift

Dana Swift
Mine Waste Project Coordinator

Attachment

cc: Jim Brady, Idaho Department of Lands, Coeur d'Alene Office
Eric Wilson, Idaho Department of Lands, Boise Office
Robert Eachon, Idaho Department of Environmental Quality, Coeur d'Alene Office

1 Introduction

Bimetallic Ridge is part of the Pend Oreille Mining District located in Township 56 North, Range 2 West, Section 36 of Bonner County, Idaho. The section is owned by the state and managed by the Idaho Department of Lands (IDL). Bimetallic Ridge includes Catherine Mine, Brown Bear Mine, Hope and Faith Shaft, and Iron Mask Mine. DEQ inspected the site on July 25-26, 2012 and completed the PA/SI on January 10, 2013 (DEQ, 2013). Following completion of the report, IDL notified DEQ that the Iron Mask adit 3 referenced in Section 8.3 of the PA/SI report is incorrectly identified.

Iron Mask adit 3 is not grouped with Iron Mask adits 1 and 2 as originally reported. Instead, Iron Mask adit 3 is a located 0.3 mile north of Iron Mask adits 1 and 2 (Figure 1). DEQ performed a site visit and collected soil and surface water samples at Iron Mask adit 3 in October 2013. This addendum to the January 2013 report presents the correct information for Iron Mask adit 3 and the results of DEQ's findings.

2 Sample Collection and Analysis

On October 11, 2013, DEQ visited adit 3 of the Iron Mask Mine site and collected surface water and soil samples. All sampling was conducted on IDL property. DEQ did not purposely or knowingly trespass on any private holdings. The sampling processes and protocols described in the January 2013 PA/SI report were followed.

Three surface water samples and one soil sample were collected near Iron Mask adit 3:

- Surface water (Ironmask 3 Sample 1)—Field Blank
- Surface water (Ironmask 3 Sample 2)—Adit Opening
- Surface water (Ironmask 3 Sample 3)—Duplicate Sample at the Adit Opening
- Soil (Ironmask 3)—Waste Dump

3 Iron Mask Adit 3 Site Conditions

Iron Mask adit 3 is a well vegetated site (Photos 1 and 2). Similar to Iron Mask adits 1 and 2, Iron Mask adit 3 has a substantial waste dump (approximately 85 feet by 70 feet; Photos 3 and 4). Iron Mask adit 3 also has an exclusion gate installed by IDL (Photo 5). However, unlike adits 1 and 2, Iron Mask adit 3 has surface water flowing from the adit opening and continuing along an overgrown and apparently abandoned road (Photos 6, 7, 8, and 9).

Results of field measurements using a field portable x-ray fluorescence (FPXRF) and analytical soil sample results are shown in Tables 1, 2, and 3. The mine wastes associated with Iron Mask adit 3 appear to be waste rock since no evidence of milling operations or associated tailings were found on the site. Chemical analysis results from the adit 3 waste material exceed Idaho's initial default target levels (IDTLs) for arsenic, chromium, selenium, silver, and mercury. None of the metals exceeded the EPA Region 6 human health screening levels (HHSLs). These levels, although used for comparison even at remote locations, are more applicable to sites where "unrestricted uses," such as residential development, are expected. The BLM wildlife standards

(BLM, 2004) for arsenic, copper, lead and zinc for robins and lead for the Canada goose were also exceeded. However, given the forested and well-vegetated areas surrounding the waste dump, wildlife use of the unproductive waste rock pile is unlikely.

Surface water analytical results are shown in Table 4. Comparisons of water quality field parameters and chemical analysis results to applicable standards do not indicate any metals of concern within the surface water flowing from the adit opening.

The analytical laboratory report for the soil and surface water samples is included as an attachment to this addendum.

4 Summary and Conclusions

Based on the existing conditions and uses, data observations made during the October 2013 site visit to Iron Mask adit 3, analysis of mine wastes, and potential exposures to ecological and human receptors, this addendum does not change DEQ's original recommendation of a No Remedial Action Planned (NRAP) determination for the Bimetallic Ridge Mines.

5 References

BLM (US Bureau of Land Management). 2004. *Risk Management Criteria for Metals at BLM Mining Sites.* Denver, CO: BLM, National Science and Technology Center. Technical Note 390. BLM/RS/ST-97/001 + 1703.

DEQ (Idaho Department of Environmental Quality). 2013. *Preliminary Assessment and Site Inspection Report for Bimetallic Ridge Mines*. January 2013.

Kauffman, J.D., E.H. Bennett, and V.E. Mitchell. 2003. *Site Inspection Report for the Abandoned and Inactive Mines in Idaho on U.S. Forest Service Lands (Region 1), Idaho Panhandle National Forest: Volume IX, Section A: Sandpoint Ranger District, Bonner and Boundary Counties, Idaho*. Moscow, ID: Idaho Geological Survey. Staff Report 03-12.

GIS Coverages

USGS (US Geological Survey). 24K Quad Map. Using: ArcMap GIS. Version 10. Redlands, CA: Environmental Systems Research Institute, Inc., 1992-1999.

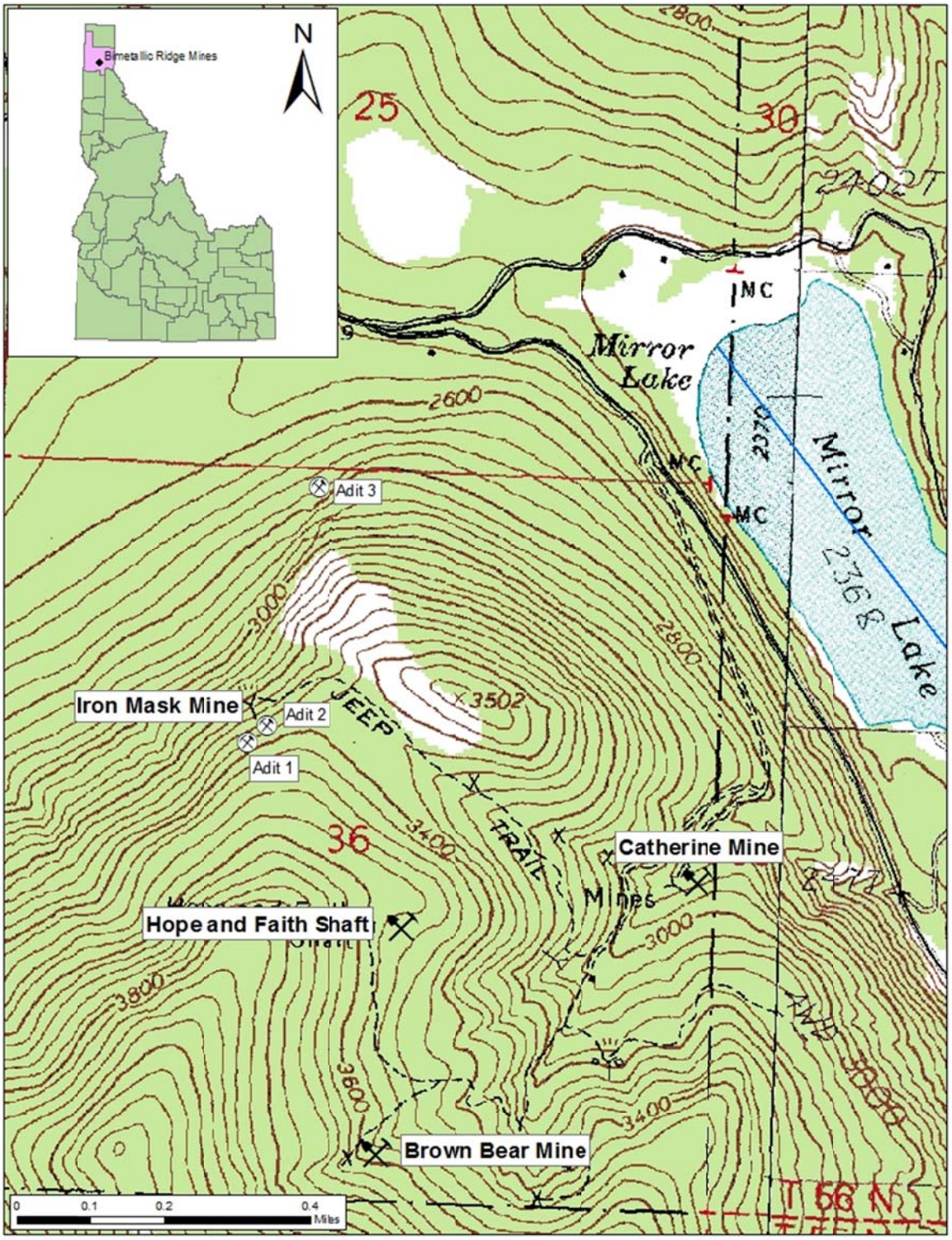


Figure 1. Topographic overview map of the Iron Mask Mine and associated adits in relation to the other Bimetallic Ridge Mines (location information from Kauffman et al., 2003).

Photo Log from DEQ site visit to Iron Mask Mine adit 3 on October 11, 2013.



Photo 1. Vegetation near Iron Mask adit 3.



Photo 2. Vegetation cut on perimeter of Iron Mask adit 3 waste dump.



Photo 3. Iron Mask adit 3 waste dump.



Photo 4. Measuring the Iron Mask adit 3 waste dump.



Photo 5. Iron Mask adit 3 (note exclusion gate).



Photo 6. Close-up view of Iron Mask adit 3 (note surface water).



Photo 7. Looking through the exclusion gate into Iron Mask adit 3.



Photo 8. Surface water originating from Iron Mask adit 3.



Photo 9. Surface water originating from Iron Mask adit 3.

Analytical Results.

Table 1. FPXRF and chemical analysis of Iron Mask Mine adit 3 waste dump.

Iron Mask Adit 3	FPXRF Lead (mg/kg)	FPXRF Arsenic (mg/kg)	FPXRF Zinc (mg/kg)	Analysis of Lead (mg/kg)	Analysis of Arsenic (mg/kg)	Analysis of Zinc (mg/kg)
Reading 1	<LOD	<LOD	<LOD	--	--	--
Reading 2	<LOD	<LOD	<LOD	--	--	--
Reading 3	<LOD	<LOD	53.94	39.1	9.0	58.3

LOD – Level of Detection, FPXRF – Field portable x-ray fluorescence

Table 2. Iron Mask Mine adit 3 soil sample analysis.

Metals	IDTLs (mg/kg)	HHSLs (mg/kg)	Adit 3 Waste Dump Soil Sample (mg/kg)
Antimony	4.77	31	<2.0
Arsenic	**0.391**	23	9.0
Barium	896	1,600	317
Cadmium	1.35	39	<0.20
Chromium	**7.9**	210	47.8
Copper	921	2,900	25.9
Iron	—	55,000	13500
Lead	49.6	—	39.1
Manganese	223	3,600	717
Selenium	**2.03**	23	<4.0
Silver	**0.189**	390	<0.50
Zinc	886	390	58.3
Mercury	**0.00509**	23	<0.033

Note: **Orange** shaded values exceeded Idaho initial default target levels (IDTLs); **yellow** shaded values exceeded human health screening levels (HHSLs); and **pink** shaded values exceeded both IDTLs and HHSLs. Limits exceeded are indicated in **bold**.

Table 3. Wildlife and livestock risk management criteria for metals in soils (all in milligrams per kilogram [mg/kg]).

Metals	Elk	Mule Deer	Deer Mice	Cottontail Rabbits	Canada Goose	Mallard	Robin	Cattle	Sheep	Median Values	Iron Mask Adit 3 Soil Sample
Antimony											<2.0
Arsenic	328	200	230	438	61	116	**4**	419	275	275	9.0
Barium											317
Cadmium	3	3	7	6	2	1	0.3	15	12	8	<0.20
Chromium											47.8
Copper	131	102	640	358	161	141	**7**	413	136	136	25.9
Iron											13500
Lead	127	106	142	172	**34**	59	**6**	244	125	125	39.1
Manganese											717
Selenium											<4.0
Silver											<0.50
Zinc	275	222	419	373	271	196	**43**	1,082	545	307	58.3
Mercury	11	11	2	15	6	4	1	45	8	8	<0.033

Source: BLM 2004
Note: Shaded values indicate metals concentrations exceeded a BLM risk management criteria. Criteria exceeded are indicated in **bold**.

Table 4. Total recoverable metals analysis for Iron Mask adit 3. (Concentrations expressed in milligrams per liter [mg/L] unless otherwise noted.)

Description	DEQ Ground Water Standard (T)	DEQ Drinking Water Standard MCL	DEQ Cold Water Biota Standard Acute	DEQ Cold Water Biota Standard Chronic	Sample 1 Field Blank	Sample 2 Adit Opening	Sample 3 Adit Opening Duplicate
Antimony	0.006	0.006	—	—	<0.020	<0.020	<0.020
Arsenic	0.05	0.01	0.34	0.15	<0.025	<0.025	<0.025
Barium	2	2	—	—	<0.0020	0.181	0.181
Cadmium	0.005	0.005	0.00013 (H)	0.0006 (H)	<0.0020	<0.0020	<0.0020
Chromium (Total)	0.1	0.1	—	—	<0.0060	<0.0060	<0.0060
Copper	1.3[a]	1.3[b]	0.017 (H)	0.0011 (H)	<0.010	<0.010	<0.010
Iron	0.3[a]	0.3[a]	—	—	<0.060	<0.060	<0.060
Lead	0.015	0.15	0.065 (H)	0.00025 (H)	<0.0075	<0.0075	<0.0075
Manganese	0.05	0.05[a]	—	—	<0.0040	<0.0040	<0.0040
Selenium	0.05	0.05	0.02 (T)	0.005 (T)	<0.040	<0.040	<0.040
Silver	0.1[a]	0.1[a]	0.0034 (H)	—	<0.0050	<0.0050	<0.0050
Zinc	5[a]	5[a]	0.12 (H)	0.12 (H)	<0.0100	<0.0100	<0.0100
pH	6.5 – 8.5[c]	6.5 – 8.5[a]	—	6.5 – 9.0 su	—	7.03	—
Conductivity	—	—	—	—	—	0.070	—
Turbidity	—	[d]	Not >50 NTU instantaneous	Not >50 NTU instantaneous and no >25 NTU over a 10 day period	—	10	—
Dissolved Oxygen	—	—	—	>6 ppm	—	8	—
Temperature	—	—	—	Cold water aquatic life 22°C or less or a maximum daily average not >19°C Salmonid spawning 13°C or less with a maximum daily average not >9°C	—	7.8°C	—
Salinity	—	—	—	—	—	0	—

Note: (T)—Standard in Total, (H)—Hardness dependent Cd, Cu, Pb, Ag, Zn at 100 mg/L
Note: Shaded values indicate exceedances of DEQ's water quality standards. Criteria exceeded are indicated in bold.
[a] Secondary Standard Maximum Contaminant Level (MCL) – non-enforceable guideline.
[b] Action level.
[c] No units apply.
[d] §141.13(a) One turbidity unit (TU), as determined by a monthly average pursuant to §141.22, except that five or fewer turbidity units may be allowed if the supplier of water can demonstrate to the State that the higher turbidity does not do any of the following:

(1) Interfere with disinfection;
(2) Prevent maintenance of an effective disinfectant agent throughout the distribution system; or
(3) Interfere with microbiological determinations.

§141.13(b) Five turbidity units based on an average for two consecutive days pursuant to §141.22.

CHAIN OF CUSTODY RECORD

SVL Analytical, Inc. • One Government Gulch • Kellogg, ID 83837 • (208) 784-1258 • FAX: (208) 783-0891

Page 1 of 1

FOR SVL USE ONLY
SVL JOB #

TEMP on Receipt: 6°C

Report to Company: DEQ RE
Contact: Rob Eachon
Address: 2110 Ironwood Parkway
Coeur d'Alene, Id.
Phone Number: (208) 769-1422
FAX Number:
E-mail: robert.eachon@deq.id.gov

Invoice Sent To: SAME
Contact:
Address:
Phone Number:
FAX Number:
PO#:

Table 1. -- Matrix Type
1 = Surface Water, 2 = Ground Water
3 = Soil/Sediment, 4 = Rinsate, 5 = Oil
6 = Waste, 7 = Other

Project Name: Ironmask 3
Sampler's Signature: Rd. Eachon

Indicate State of sample origination: ID **USACE?** ☐ Yes ☒ No

Please take care to distinguish between:
1 and I
2 and Z
5 and S
ø and O
Thanks!

	Sample ID	Collection Date	Collection Time	Collected by: (Init.)	Misc. Matrix Type (From Table 1)	Misc. No. of Containers	Preservative(s) Unpreserved	HNO_3 Filtered	HNO_3 Unfiltered	HCl	H_2SO_4	NaOH	Other (Specify)	Analyses Required: Tom Metals: Ag Cr Cd Cr Cu Be Ni Sb Zn As Pb Se Tl (all sample, all analytes)	Rush Instructions (Days)	Comments
1	Ironmask 3 ①	10/11	10:58	RE	1	1		X	1					✓ ✓ ✓ ✓		Dried & Sieve 80
2	Ironmask 3 ②	10/11	11:00		1	1		X	1					✓ ✓ ✓ ✓		
3	Ironmask 3 ③	10/11	11:14		1	1		X	1					✓ ✓ ✓ ✓		
4	Ironmask 3	10/11	11:30	↓	3	1	1							✓ ✓ ✓ ✓		
5																
6																
7																
8																
9																
10																

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	1:30				
R Eachon	10/11		Jallam	10/11/13	1330

* Sample Reject: ☐ Return ☐ Dispose ☐ Store (30 Days)

White: LAB COPY Yellow: CUSTOMER COPY

SVL-COC 9/05

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Sampled By	Date Received
Ironmask 3 Sample 1	W3J0300-01	Surface Water	11-Oct-13 10:58	Rob Eachor	11-Oct-2013
Ironmask 3 Sample 2	W3J0300-02	Surface Water	11-Oct-13 11:00	Rob Eachor	11-Oct-2013
Ironmask 3 Sample 3	W3J0300-03	Surface Water	11-Oct-13 11:14	Rob Eachor	11-Oct-2013
Ironmask 3	W3J0300-04	Soil	11-Oct-13 11:30	Rob Eachor	11-Oct-2013

Solid samples are analyzed on an as-received, wet-weight basis, unless otherwise requested.
Sample preparation is defined by the client as per their Data Quality Objectives.
This report supercedes any previous reports for this Work Order. The complete report includes pages for each sample, a full QC report, and a notes section.
The results presented in this report relate only to the samples, and meet all requirements of the NELAC Standards unless otherwise noted.

Case Narrative

02/07/14 (jk) - Report reissued - Client requested Ba, Fe, and Mn be added to samples.

The client list for analytes (Total Metals)has a duplicate entry. Cr is listed twice; client contacted to correct. Client requests analysis for Hg and Cr in addition to other analytes listed.

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Client Sample ID: **Ironmask 3 Sample 1**
SVL Sample ID: **W3J0300-01 (Surface Water)**

Sampled: 11-Oct-13 10:58
Received: 11-Oct-13
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000045		W342293	STA	10/18/13 16:37	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.009		W342120	TJK	10/23/13 14:30	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.011		W342120	TJK	10/23/13 14:30	
EPA 6010B	Barium	< 0.0020	mg/L	0.0020	0.0005		W342120	TJK	10/23/13 14:30	
EPA 6010B	Beryllium	< 0.0020	mg/L	0.0020	0.0004		W342120	TJK	10/23/13 14:30	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0007		W342120	TJK	10/23/13 14:30	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0015		W342120	TJK	10/23/13 14:30	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.006		W342120	TJK	10/23/13 14:30	
EPA 6010B	Iron	< 0.060	mg/L	0.060	0.023		W342120	TJK	10/23/13 14:30	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0023		W342120	TJK	10/23/13 14:30	
EPA 6010B	Manganese	< 0.0040	mg/L	0.0040	0.0013		W342120	TJK	10/23/13 14:30	
EPA 6010B	Nickel	< 0.010	mg/L	0.010	0.003		W342120	TJK	10/23/13 14:30	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W342120	TJK	10/23/13 14:30	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0016		W342120	TJK	10/23/13 14:30	
EPA 6010B	Thallium	< 0.015	mg/L	0.015	0.006		W342120	AS	10/23/13 15:31	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0023		W342120	TJK	10/23/13 14:30	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.



John Kern
Laboratory Director

One Government Gulch - PO Box 929 Kellogg ID 83837-0929 (208) 784-1258 Fax (208) 783-0891

IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Client Sample ID: **Ironmask 3 Sample 2**
SVL Sample ID: **W3J0300-02 (Surface Water)**

Sampled: 11-Oct-13 11:00
Received: 11-Oct-13
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000045		W342293	STA	10/18/13 16:38	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.009		W342120	TJK	10/23/13 14:36	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.011		W342120	TJK	10/23/13 14:36	
EPA 6010B	**Barium**	0.181	mg/L	0.0020	0.0005		W342120	TJK	10/23/13 14:36	
EPA 6010B	Beryllium	< 0.0020	mg/L	0.0020	0.0004		W342120	TJK	10/23/13 14:36	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0007		W342120	TJK	10/23/13 14:36	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0015		W342120	TJK	10/23/13 14:36	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.006		W342120	TJK	10/23/13 14:36	
EPA 6010B	Iron	< 0.060	mg/L	0.060	0.023		W342120	TJK	10/23/13 14:36	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0023		W342120	TJK	10/23/13 14:36	
EPA 6010B	Manganese	< 0.0040	mg/L	0.0040	0.0013		W342120	TJK	10/23/13 14:36	
EPA 6010B	Nickel	< 0.010	mg/L	0.010	0.003		W342120	TJK	10/23/13 14:36	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W342120	TJK	10/23/13 14:36	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0016		W342120	TJK	10/23/13 14:36	
EPA 6010B	Thallium	< 0.015	mg/L	0.015	0.006		W342120	AS	10/23/13 15:33	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0023		W342120	TJK	10/23/13 14:36	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.



John Kern
Laboratory Director

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Client Sample ID: **Ironmask 3 Sample 3**
SVL Sample ID: **W3J0300-03 (Surface Water)**

Sampled: 11-Oct-13 11:14
Received: 11-Oct-13
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	< 0.00020	mg/L	0.00020	0.000045		W342293	STA	10/18/13 16:40	
Metals (Total Recoverable)										
EPA 6010B	Antimony	< 0.020	mg/L	0.020	0.009		W342120	TJK	10/23/13 14:41	
EPA 6010B	Arsenic	< 0.025	mg/L	0.025	0.011		W342120	TJK	10/23/13 14:41	
EPA 6010B	**Barium**	0.181	mg/L	0.0020	0.0005		W342120	TJK	10/23/13 14:41	
EPA 6010B	Beryllium	< 0.0020	mg/L	0.0020	0.0004		W342120	TJK	10/23/13 14:41	
EPA 6010B	Cadmium	< 0.0020	mg/L	0.0020	0.0007		W342120	TJK	10/23/13 14:41	
EPA 6010B	Chromium	< 0.0060	mg/L	0.0060	0.0015		W342120	TJK	10/23/13 14:41	
EPA 6010B	Copper	< 0.010	mg/L	0.010	0.006		W342120	TJK	10/23/13 14:41	
EPA 6010B	Iron	< 0.060	mg/L	0.060	0.023		W342120	TJK	10/23/13 14:41	
EPA 6010B	Lead	< 0.0075	mg/L	0.0075	0.0023		W342120	TJK	10/23/13 14:41	
EPA 6010B	Manganese	< 0.0040	mg/L	0.0040	0.0013		W342120	TJK	10/23/13 14:41	
EPA 6010B	Nickel	< 0.010	mg/L	0.010	0.003		W342120	TJK	10/23/13 14:41	
EPA 6010B	Selenium	< 0.040	mg/L	0.040	0.013		W342120	TJK	10/23/13 14:41	
EPA 6010B	Silver	< 0.0050	mg/L	0.0050	0.0016		W342120	TJK	10/23/13 14:41	
EPA 6010B	Thallium	< 0.015	mg/L	0.015	0.006		W342120	AS	10/23/13 15:36	
EPA 6010B	Zinc	< 0.0100	mg/L	0.0100	0.0023		W342120	TJK	10/23/13 14:41	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.

John Kern
Laboratory Director

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Client Sample ID: **Ironmask 3**
SVL Sample ID: **W3J0300-04 (Soil)**

Sampled: 11-Oct-13 11:30
Received: 11-Oct-13
Sampled By: Rob Eachon

Method	Analyte	Result	Units	RL	MDL	Dilution	Batch	Analyst	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods (Sieved)										
EPA 6010B	Antimony	< 2.0	mg/kg Dry	2.0	0.8		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Arsenic**	9.0	mg/kg Dry	2.5	0.8		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Barium**	317	mg/kg Dry	0.200	0.038		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Beryllium**	0.903	mg/kg Dry	0.200	0.027		W343341	TJK	10/25/13 14:55	
EPA 6010B	Cadmium	< 0.20	mg/kg Dry	0.20	0.04		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Chromium**	47.8	mg/kg Dry	0.60	0.06		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Copper**	25.9	mg/kg Dry	1.00	0.35		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Iron**	13500	mg/kg Dry	6.0	2.7		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Lead**	39.1	mg/kg Dry	0.75	0.25		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Manganese**	717	mg/kg Dry	0.40	0.10		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Nickel**	34.5	mg/kg Dry	1.00	0.31		W343341	TJK	10/25/13 14:55	
EPA 6010B	Selenium	< 4.0	mg/kg Dry	4.0	0.9		W343341	TJK	10/25/13 14:55	
EPA 6010B	Silver	< 0.50	mg/kg Dry	0.50	0.08		W343341	TJK	10/25/13 14:55	
EPA 6010B	Thallium	< 1.5	mg/kg Dry	1.5	0.7		W343341	TJK	10/25/13 14:55	
EPA 6010B	**Zinc**	58.3	mg/kg Dry	1.00	0.18		W343341	TJK	10/25/13 14:55	
EPA 7471A	Mercury	< 0.033	mg/kg Dry	0.033	0.004		W342346	STA	10/21/13 14:16	

This data has been reviewed for accuracy and has been authorized for release by the Laboratory Director or designee.



John Kern
Laboratory Director

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IDEQ Coeur d'Alene Regional Office
2110 N. Ironwood Pkwy.
Coeur d'Alene, ID 83814

Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Quality Control - BLANK Data

Method	Analyte	Units	Result	MDL	MRL	Batch ID	Analyzed	Notes
Metals (Total)								
EPA 7470A	Mercury	mg/L	<0.00020	0.000045	0.00020	W342293	18-Oct-13	
Metals (Total) by EPA 6000/7000 Methods								
EPA 6010B	Antimony	mg/kg	<2.0	0.8	2.0	W343341	25-Oct-13	
EPA 6010B	Arsenic	mg/kg	<2.5	0.8	2.5	W343341	25-Oct-13	
EPA 6010B	Barium	mg/kg	<0.200	0.032	0.200	W343341	25-Oct-13	
EPA 6010B	Beryllium	mg/kg	<0.200	0.027	0.200	W343341	25-Oct-13	
EPA 6010B	Cadmium	mg/kg	<0.20	0.04	0.20	W343341	25-Oct-13	
EPA 6010B	Chromium	mg/kg	<0.60	0.06	0.60	W343341	25-Oct-13	
EPA 6010B	Copper	mg/kg	<1.00	0.35	1.00	W343341	25-Oct-13	
EPA 6010B	Iron	mg/kg	<6.0	1.4	6.0	W343341	25-Oct-13	
EPA 6010B	Lead	mg/kg	<0.75	0.25	0.75	W343341	25-Oct-13	
EPA 6010B	Manganese	mg/kg	<0.40	0.10	0.40	W343341	25-Oct-13	
EPA 6010B	Nickel	mg/kg	<1.00	0.31	1.00	W343341	25-Oct-13	
EPA 6010B	Selenium	mg/kg	<4.0	0.9	4.0	W343341	25-Oct-13	
EPA 6010B	Silver	mg/kg	<0.50	0.08	0.50	W343341	25-Oct-13	
EPA 6010B	Thallium	mg/kg	<1.5	0.7	1.5	W343341	25-Oct-13	
EPA 6010B	Zinc	mg/kg	<1.00	0.18	1.00	W343341	25-Oct-13	
EPA 7471A	Mercury	mg/kg	<0.033	0.004	0.033	W342346	21-Oct-13	
Metals (Total Recoverable)								
EPA 6010B	Antimony	mg/L	<0.020	0.009	0.020	W342120	23-Oct-13	
EPA 6010B	Arsenic	mg/L	<0.025	0.011	0.025	W342120	23-Oct-13	
EPA 6010B	Barium	mg/L	<0.0020	0.0005	0.0020	W342120	23-Oct-13	
EPA 6010B	Beryllium	mg/L	<0.0020	0.0004	0.0020	W342120	23-Oct-13	
EPA 6010B	Cadmium	mg/L	<0.0020	0.0007	0.0020	W342120	23-Oct-13	
EPA 6010B	Chromium	mg/L	<0.0060	0.0015	0.0060	W342120	23-Oct-13	
EPA 6010B	Copper	mg/L	<0.010	0.006	0.010	W342120	23-Oct-13	
EPA 6010B	Iron	mg/L	<0.060	0.023	0.060	W342120	23-Oct-13	
EPA 6010B	Lead	mg/L	<0.0075	0.0023	0.0075	W342120	23-Oct-13	
EPA 6010B	Manganese	mg/L	<0.0040	0.0010	0.0040	W342120	23-Oct-13	
EPA 6010B	Nickel	mg/L	<0.010	0.003	0.010	W342120	23-Oct-13	
EPA 6010B	Selenium	mg/L	<0.040	0.013	0.040	W342120	23-Oct-13	
EPA 6010B	Silver	mg/L	<0.0050	0.0016	0.0050	W342120	23-Oct-13	
EPA 6010B	Thallium	mg/L	<0.015	0.006	0.015	W342120	23-Oct-13	
EPA 6010B	Zinc	mg/L	<0.0100	0.0023	0.0100	W342120	23-Oct-13	

Quality Control - LABORATORY CONTROL SAMPLE Data

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total)									
EPA 7470A	Mercury	mg/L	0.00460	0.00500	92.0	80 - 120	W342293	18-Oct-13	
Metals (Total) by EPA 6000/7000 Methods									
EPA 6010B	Antimony	mg/kg	101	100	101	80 - 120	W343341	25-Oct-13	
EPA 6010B	Arsenic	mg/kg	99.7	100	99.7	80 - 120	W343341	25-Oct-13	
EPA 6010B	Barium	mg/kg	106	100	106	80 - 120	W343341	25-Oct-13	
EPA 6010B	Beryllium	mg/kg	100	100	100	80 - 120	W343341	25-Oct-13	
EPA 6010B	Cadmium	mg/kg	98.4	100	98.4	80 - 120	W343341	25-Oct-13	
EPA 6010B	Chromium	mg/kg	103	100	103	80 - 120	W343341	25-Oct-13	
EPA 6010B	Copper	mg/kg	103	100	103	80 - 120	W343341	25-Oct-13	
EPA 6010B	Iron	mg/kg	1050	1000	105	80 - 120	W343341	25-Oct-13	
EPA 6010B	Lead	mg/kg	101	100	101	80 - 120	W343341	25-Oct-13	
EPA 6010B	Manganese	mg/kg	98.7	100	98.7	80 - 120	W343341	25-Oct-13	

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Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Quality Control - LABORATORY CONTROL SAMPLE Data (Continued)

Method	Analyte	Units	LCS Result	LCS True	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods (Continued)									
EPA 6010B	Nickel	mg/kg	100	100	100	80 - 120	W343341	25-Oct-13	
EPA 6010B	Selenium	mg/kg	92.5	100	92.5	80 - 120	W343341	25-Oct-13	
EPA 6010B	Silver	mg/kg	5.06	5.00	101	80 - 120	W343341	25-Oct-13	
EPA 6010B	Thallium	mg/kg	97.2	100	97.2	80 - 120	W343341	25-Oct-13	
EPA 6010B	Zinc	mg/kg	95.7	100	95.7	80 - 120	W343341	25-Oct-13	
EPA 7471A	Mercury	mg/kg	0.818	0.833	98.2	80 - 120	W342346	21-Oct-13	
Metals (Total Recoverable)									
EPA 6010B	Antimony	mg/L	1.02	1.00	102	80 - 120	W342120	23-Oct-13	
EPA 6010B	Arsenic	mg/L	1.02	1.00	102	80 - 120	W342120	23-Oct-13	
EPA 6010B	Barium	mg/L	1.03	1.00	103	80 - 120	W342120	23-Oct-13	
EPA 6010B	Beryllium	mg/L	0.995	1.00	99.5	80 - 120	W342120	23-Oct-13	
EPA 6010B	Cadmium	mg/L	1.03	1.00	103	80 - 120	W342120	23-Oct-13	
EPA 6010B	Chromium	mg/L	1.02	1.00	102	80 - 120	W342120	23-Oct-13	
EPA 6010B	Copper	mg/L	1.02	1.00	102	80 - 120	W342120	23-Oct-13	
EPA 6010B	Iron	mg/L	9.84	10.0	98.4	80 - 120	W342120	23-Oct-13	
EPA 6010B	Lead	mg/L	1.07	1.00	107	80 - 120	W342120	23-Oct-13	
EPA 6010B	Manganese	mg/L	1.01	1.00	101	80 - 120	W342120	23-Oct-13	
EPA 6010B	Nickel	mg/L	0.981	1.00	98.1	80 - 120	W342120	23-Oct-13	
EPA 6010B	Selenium	mg/L	1.01	1.00	101	80 - 120	W342120	23-Oct-13	
EPA 6010B	Silver	mg/L	0.0519	0.0500	104	80 - 120	W342120	23-Oct-13	
EPA 6010B	Thallium	mg/L	0.977	1.00	97.7	80 - 120	W342120	23-Oct-13	
EPA 6010B	Zinc	mg/L	1.03	1.00	103	80 - 120	W342120	23-Oct-13	

Quality Control - MATRIX SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total)										
EPA 7470A	Mercury	mg/L	0.00099	<0.00020	0.00100	99.0	75 - 125	W342293	18-Oct-13	
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Antimony	mg/kg	76.4	<2.0	100	75.1	75 - 125	W343341	25-Oct-13	
EPA 6010B	Arsenic	mg/kg	108	5.7	100	102	75 - 125	W343341	25-Oct-13	
EPA 6010B	Barium	mg/kg	184	65.7	100	118	75 - 125	W343341	25-Oct-13	
EPA 6010B	Beryllium	mg/kg	107	0.317	100	107	75 - 125	W343341	25-Oct-13	
EPA 6010B	Cadmium	mg/kg	98.1	<0.20	100	98.1	75 - 125	W343341	25-Oct-13	
EPA 6010B	Chromium	mg/kg	132	21.3	100	111	75 - 125	W343341	25-Oct-13	
EPA 6010B	Copper	mg/kg	130	17.3	100	112	75 - 125	W343341	25-Oct-13	
EPA 6010B	Iron	mg/kg	16800	13400	1000	R > 4S	75 - 125	W343341	25-Oct-13	M3
EPA 6010B	Lead	mg/kg	105	5.80	100	99.6	75 - 125	W343341	25-Oct-13	
EPA 6010B	Manganese	mg/kg	359	220	100	140	75 - 125	W343341	25-Oct-13	M1
EPA 6010B	Nickel	mg/kg	118	17.4	100	100	75 - 125	W343341	25-Oct-13	
EPA 6010B	Selenium	mg/kg	96.2	<4.0	100	96.2	75 - 125	W343341	25-Oct-13	
EPA 6010B	Silver	mg/kg	5.86	0.50	5.00	107	75 - 125	W343341	25-Oct-13	
EPA 6010B	Thallium	mg/kg	96.1	<1.5	100	96.1	75 - 125	W343341	25-Oct-13	
EPA 6010B	Zinc	mg/kg	140	32.6	100	108	75 - 125	W343341	25-Oct-13	
EPA 7471A	Mercury	mg/kg	0.183	<0.033	0.167	92.1	75 - 125	W342346	21-Oct-13	
Metals (Total Recoverable)										
EPA 6010B	Antimony	mg/L	1.00	<0.020	1.00	100	75 - 125	W342120	23-Oct-13	
EPA 6010B	Arsenic	mg/L	1.01	<0.025	1.00	101	75 - 125	W342120	23-Oct-13	
EPA 6010B	Barium	mg/L	1.14	0.118	1.00	102	75 - 125	W342120	23-Oct-13	
EPA 6010B	Beryllium	mg/L	0.987	<0.0020	1.00	98.7	75 - 125	W342120	23-Oct-13	
EPA 6010B	Cadmium	mg/L	1.01	<0.0020	1.00	101	75 - 125	W342120	23-Oct-13	

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IDEQ Coeur d'Alene Regional Office
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Coeur d'Alene, ID 83814

Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Quality Control - MATRIX SPIKE Data (Continued)

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total Recoverable) (Continued)										
EPA 6010B	Chromium	mg/L	1.01	<0.0060	1.00	101	75 - 125	W342120	23-Oct-13	
EPA 6010B	Copper	mg/L	1.05	0.013	1.00	104	75 - 125	W342120	23-Oct-13	
EPA 6010B	Iron	mg/L	12.3	2.43	10.0	98.2	75 - 125	W342120	23-Oct-13	
EPA 6010B	Lead	mg/L	1.05	<0.0075	1.00	105	75 - 125	W342120	23-Oct-13	
EPA 6010B	Manganese	mg/L	1.04	0.0329	1.00	100	75 - 125	W342120	23-Oct-13	
EPA 6010B	Nickel	mg/L	0.977	<0.010	1.00	97.7	75 - 125	W342120	23-Oct-13	
EPA 6010B	Selenium	mg/L	0.993	<0.040	1.00	99.3	75 - 125	W342120	23-Oct-13	
EPA 6010B	Silver	mg/L	0.0523	<0.0050	0.0500	105	75 - 125	W342120	23-Oct-13	
EPA 6010B	Thallium	mg/L	0.955	<0.015	1.00	95.5	75 - 125	W342120	23-Oct-13	
EPA 6010B	Zinc	mg/L	1.02	<0.0100	1.00	101	75 - 125	W342120	23-Oct-13	

Quality Control - MATRIX SPIKE DUPLICATE Data

Method	Analyte	Units	MSD Result	Spike Result	Spike Level	%R	RPD	RPD Limit	Batch ID	Analyzed	Notes
Metals (Total)											
EPA 7470A	Mercury	mg/L	0.00098	0.00099	0.00100	98.0	1.0	20	W342293	18-Oct-13	
Metals (Total) by EPA 6000/7000 Methods											
EPA 6010B	Antimony	mg/kg	76.4	76.4	100	75.0	0.1	20	W343341	25-Oct-13	
EPA 6010B	Arsenic	mg/kg	106	108	100	100	1.5	20	W343341	25-Oct-13	
EPA 6010B	Barium	mg/kg	173	184	100	107	6.2	20	W343341	25-Oct-13	
EPA 6010B	Beryllium	mg/kg	104	107	100	104	3.1	20	W343341	25-Oct-13	
EPA 6010B	Cadmium	mg/kg	95.6	98.1	100	95.6	2.6	20	W343341	25-Oct-13	
EPA 6010B	Chromium	mg/kg	124	132	100	102	6.6	20	W343341	25-Oct-13	
EPA 6010B	Copper	mg/kg	122	130	100	105	5.6	20	W343341	25-Oct-13	
EPA 6010B	Iron	mg/kg	14900	16800	1000	R > 4S	11.8	20	W343341	25-Oct-13	M3
EPA 6010B	Lead	mg/kg	103	105	100	97.2	2.4	20	W343341	25-Oct-13	
EPA 6010B	Manganese	mg/kg	326	359	100	107	9.7	20	W343341	25-Oct-13	
EPA 6010B	Nickel	mg/kg	113	118	100	95.4	4.4	20	W343341	25-Oct-13	
EPA 6010B	Selenium	mg/kg	95.2	96.2	100	95.2	1.0	20	W343341	25-Oct-13	
EPA 6010B	Silver	mg/kg	5.68	5.86	5.00	104	3.0	20	W343341	25-Oct-13	
EPA 6010B	Thallium	mg/kg	94.0	96.1	100	94.0	2.2	20	W343341	25-Oct-13	
EPA 6010B	Zinc	mg/kg	132	140	100	99.2	6.2	20	W343341	25-Oct-13	
EPA 7471A	Mercury	mg/kg	0.183	0.183	0.167	92.1	0.0	20	W342346	21-Oct-13	
Metals (Total Recoverable)											
EPA 6010B	Antimony	mg/L	1.01	1.00	1.00	101	0.7	20	W342120	23-Oct-13	
EPA 6010B	Arsenic	mg/L	1.00	1.01	1.00	100	0.7	20	W342120	23-Oct-13	
EPA 6010B	Barium	mg/L	1.15	1.14	1.00	103	0.7	20	W342120	23-Oct-13	
EPA 6010B	Beryllium	mg/L	0.980	0.987	1.00	98.0	0.7	20	W342120	23-Oct-13	
EPA 6010B	Cadmium	mg/L	1.02	1.01	1.00	102	0.6	20	W342120	23-Oct-13	
EPA 6010B	Chromium	mg/L	1.02	1.01	1.00	102	0.8	20	W342120	23-Oct-13	
EPA 6010B	Copper	mg/L	1.05	1.05	1.00	104	0.1	20	W342120	23-Oct-13	
EPA 6010B	Iron	mg/L	12.0	12.3	10.0	95.9	1.9	20	W342120	23-Oct-13	
EPA 6010B	Lead	mg/L	1.07	1.05	1.00	107	2.0	20	W342120	23-Oct-13	
EPA 6010B	Manganese	mg/L	1.02	1.04	1.00	98.9	1.5	20	W342120	23-Oct-13	
EPA 6010B	Nickel	mg/L	0.956	0.977	1.00	95.6	2.2	20	W342120	23-Oct-13	
EPA 6010B	Selenium	mg/L	0.995	0.993	1.00	99.5	0.2	20	W342120	23-Oct-13	
EPA 6010B	Silver	mg/L	0.0521	0.0523	0.0500	104	0.4	20	W342120	23-Oct-13	
EPA 6010B	Thallium	mg/L	0.959	0.955	1.00	95.9	0.4	20	W342120	23-Oct-13	
EPA 6010B	Zinc	mg/L	1.02	1.02	1.00	101	0.2	20	W342120	23-Oct-13	

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Project Name: Rob Eachon / **Fill from COC**
Work Order: **W3J0300**
Reported: 07-Feb-14 11:35

Quality Control - POST DIGESTION SPIKE Data

Method	Analyte	Units	Spike Result	Sample Result (R)	Spike Level (S)	% Rec.	Acceptance Limits	Batch ID	Analyzed	Notes
Metals (Total) by EPA 6000/7000 Methods										
EPA 6010B	Manganese	mg/kg	218	220	4.00	-45.3	75 - 125	W343341	25-Oct-13	M2

Notes and Definitions

M1	Matrix spike recovery was high, but the LCS recovery was acceptable.
M2	Matrix spike recovery was low, but the LCS recovery was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to spike level. The LCS was acceptable.
LCS	Laboratory Control Sample (Blank Spike)
RPD	Relative Percent Difference
UDL	A result is less than the detection limit
R > 4S	% recovery not applicable, sample concentration more than four times greater than spike level
<RL	A result is less than the reporting limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
N/A	Not Applicable