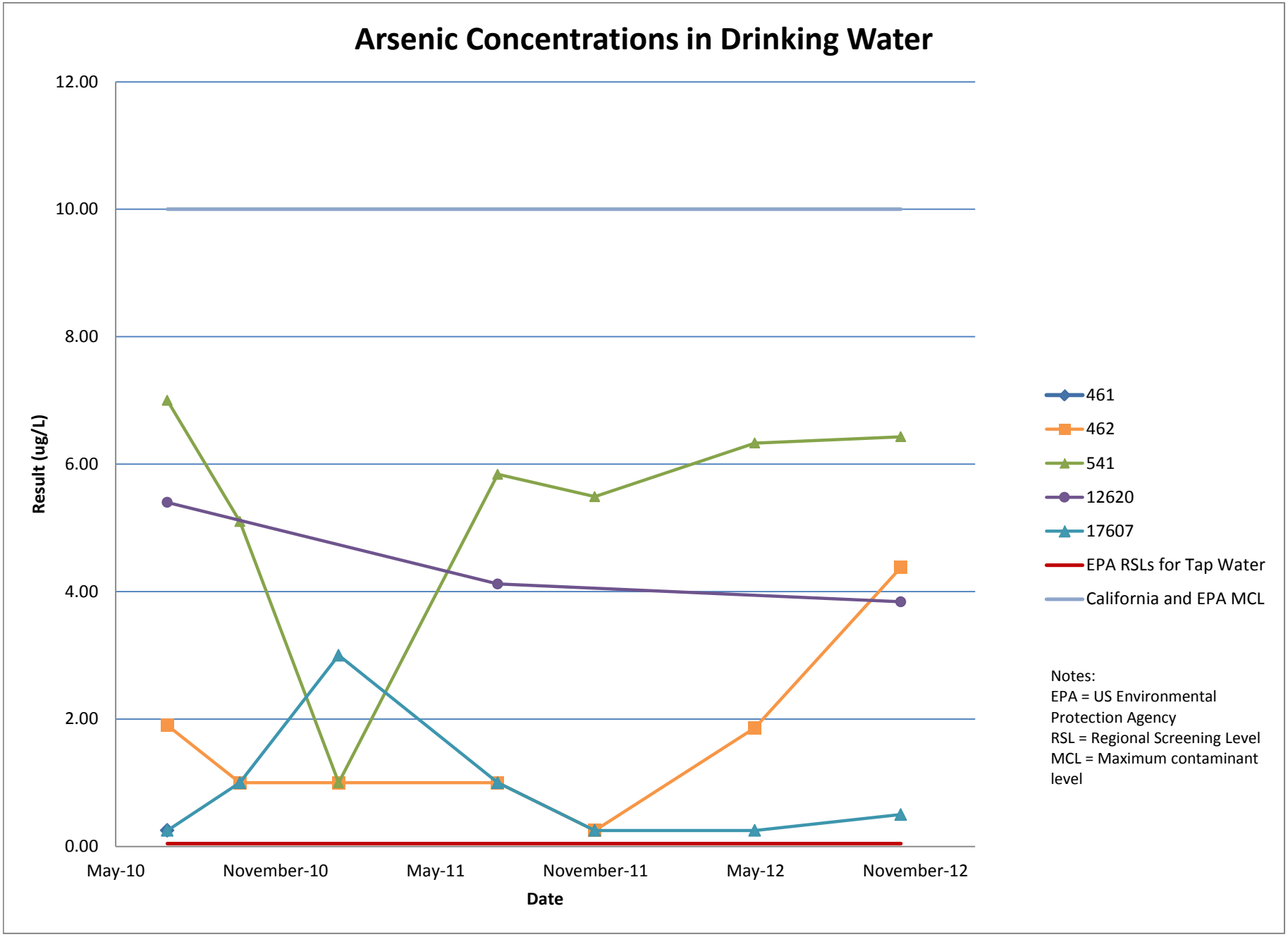
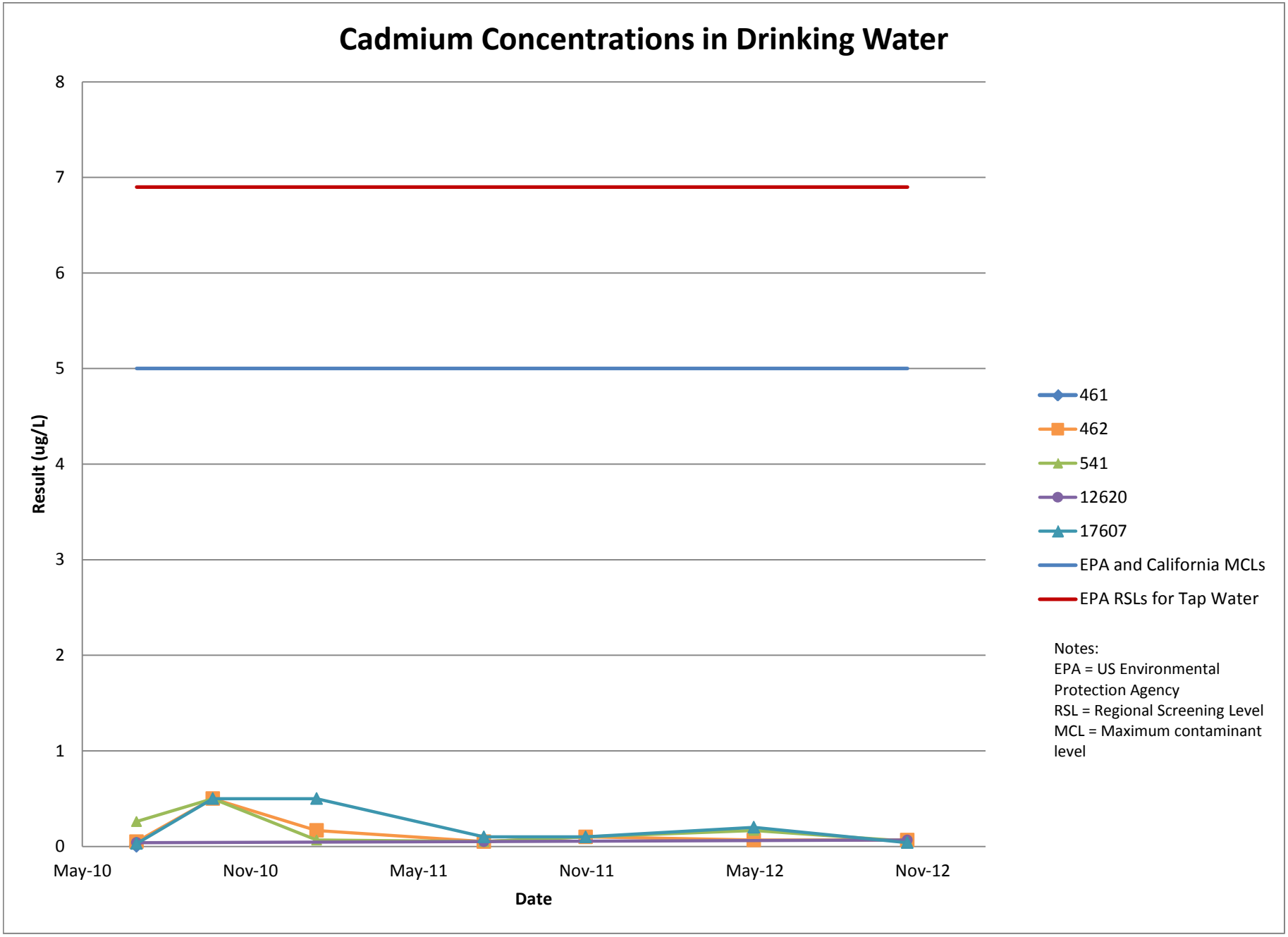
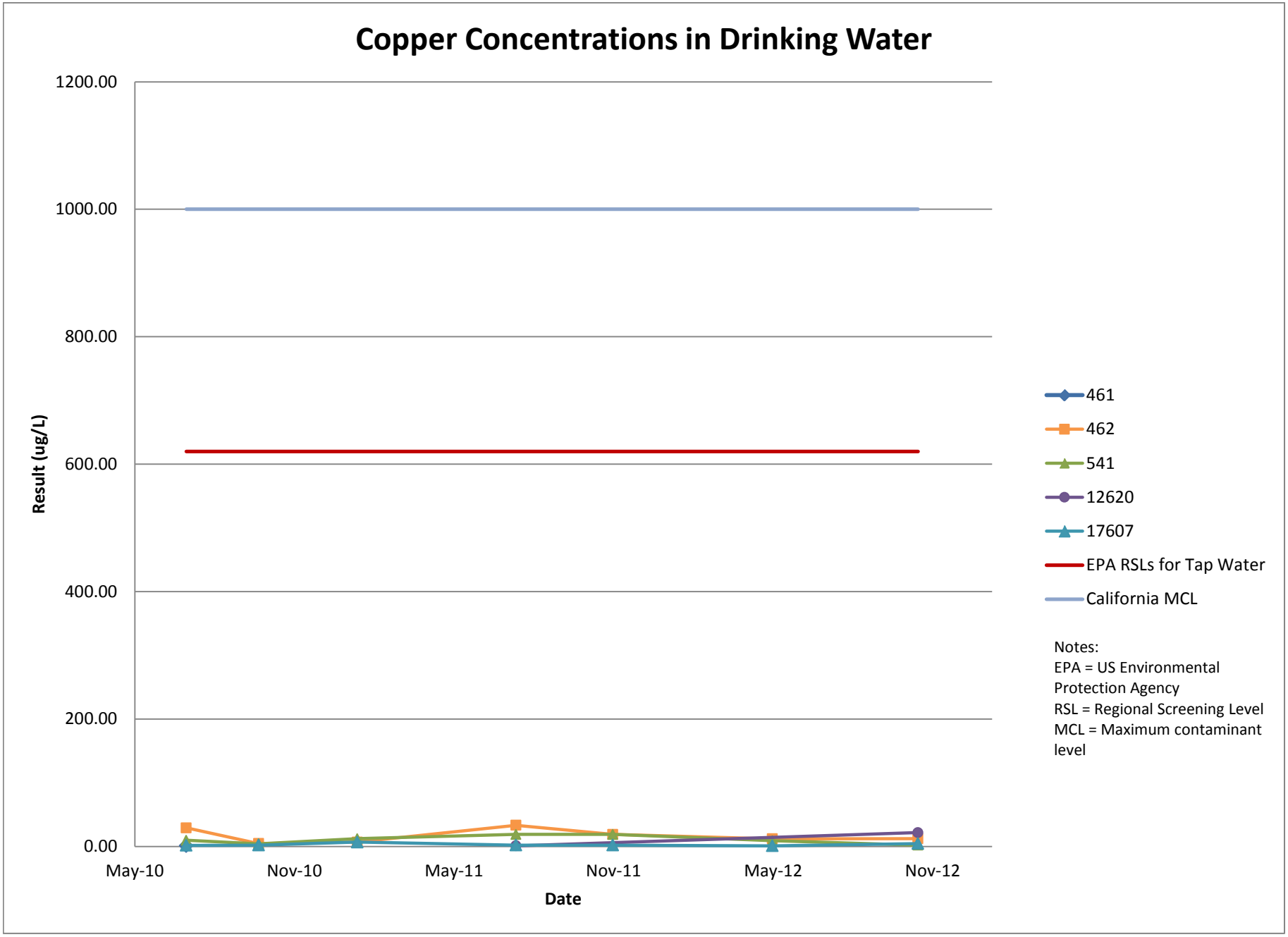
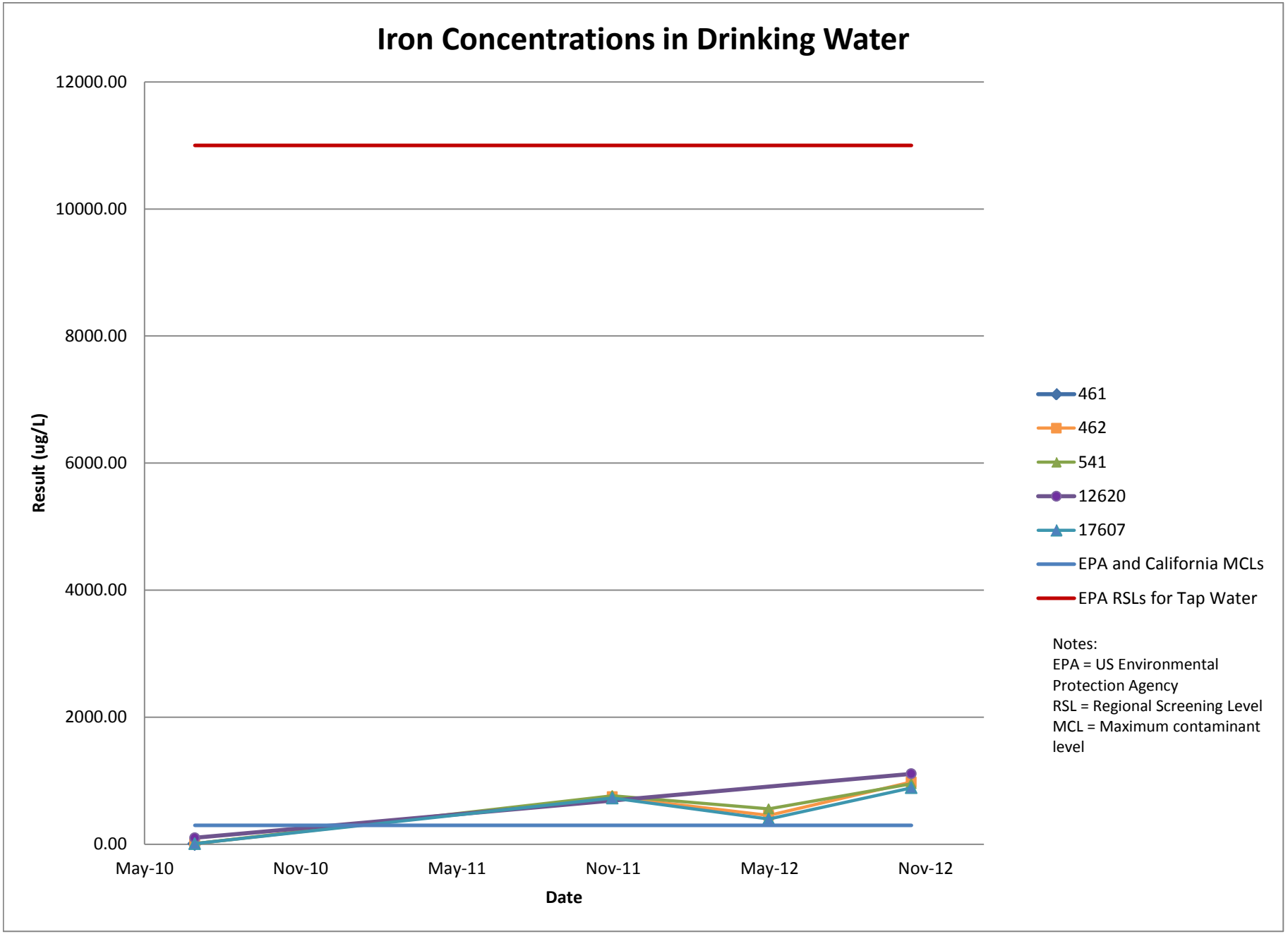
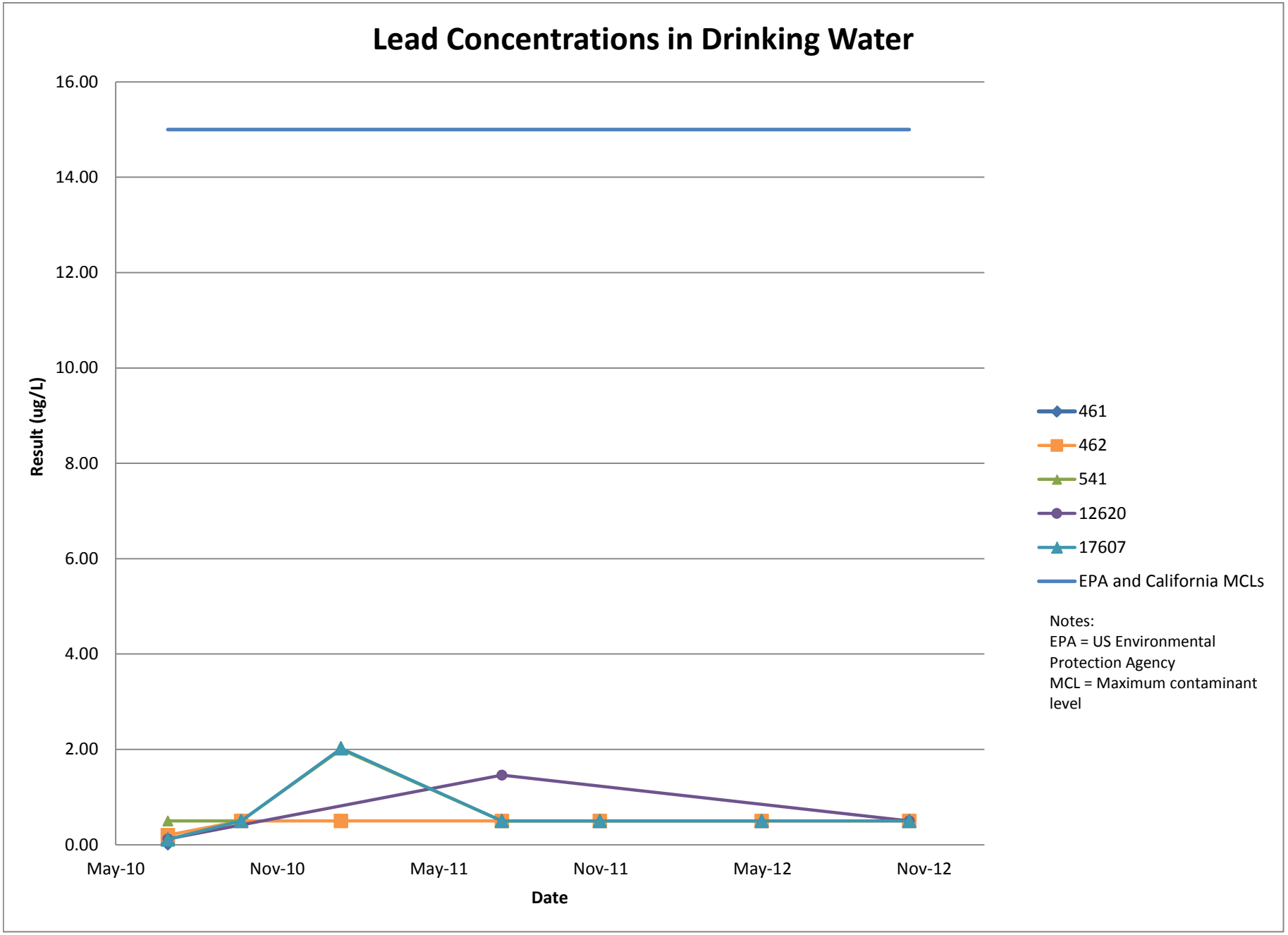
Appendix A. Concentration Trend Graphs


Arsenic Concentrations in Drinking Water
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Result (ug/L)
May-10
November-10
May-11
November-11
May-12
November-12
Date
461
462
541
12620
17607
EPA RSLs for Tap Water
California and EPA MCL
Notes:
EPA = US Environmental Protection Agency
RSL = Regional Screening Level
MCL = Maximum contaminant level

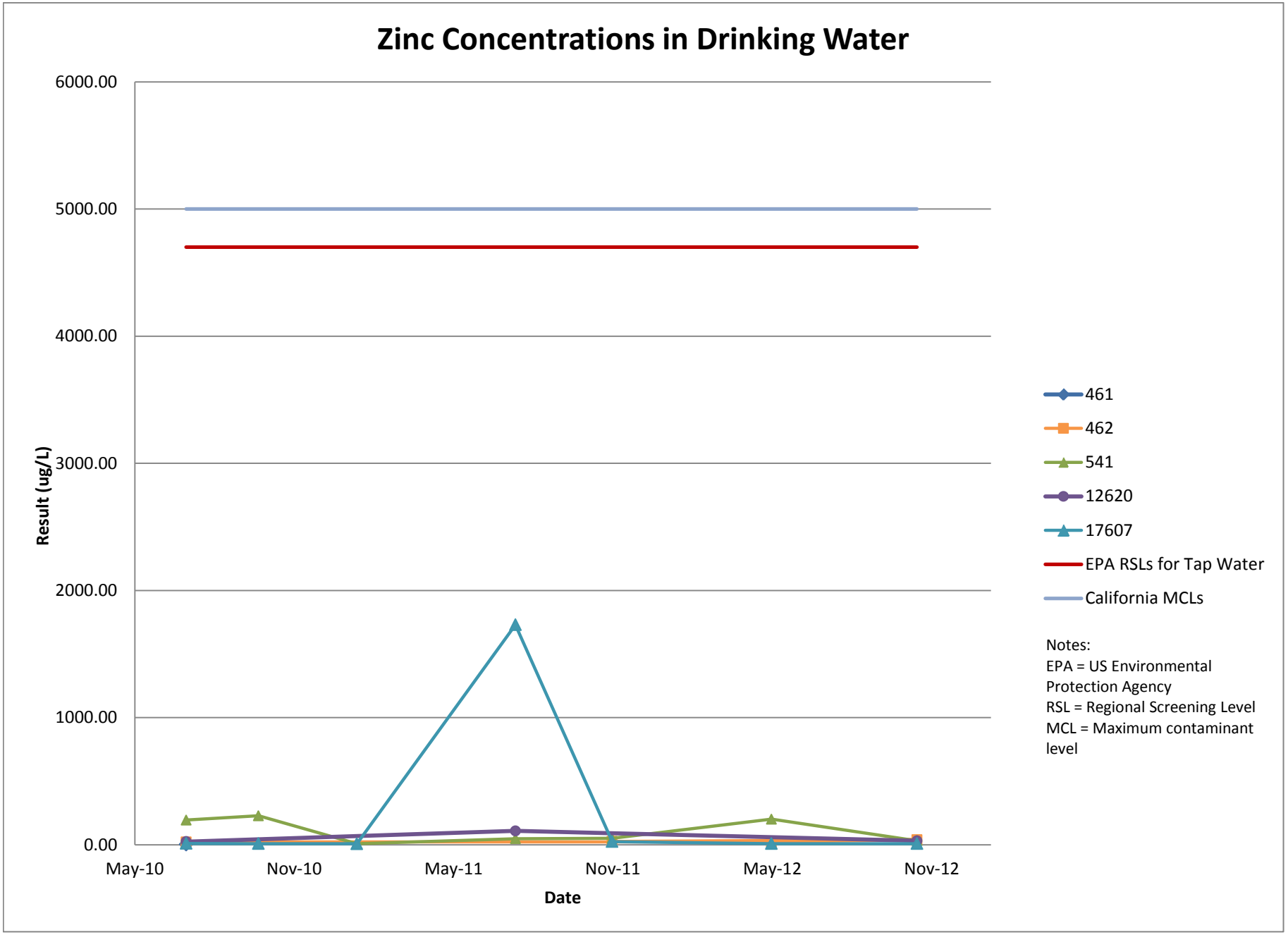

Cadmium Concentrations in Drinking Water
Result (ug/L)
8
7
6
5
4
3
2
1
0
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
461
462
541
12620
17607
EPA and California MCLs
EPA RSLs for Tap Water
Notes:
EPA = US Environmental Protection Agency
RSL = Regional Screening Level
MCL = Maximum contaminant level

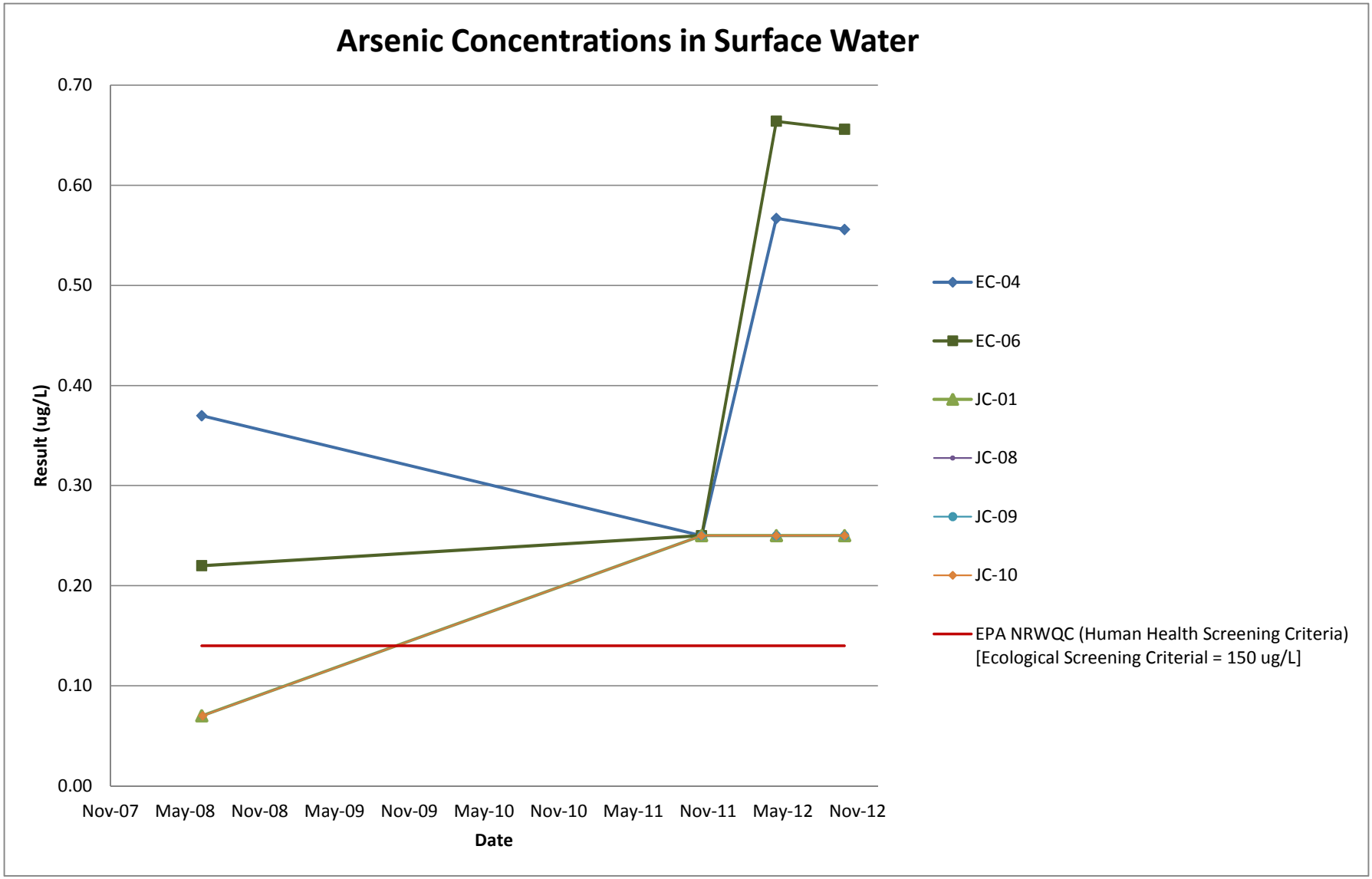

Copper Concentrations in Drinking Water
1200.00
1000.00
800.00
600.00
400.00
200.00
0.00
Result (ug/L)
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
461
462
541
12620
17607
EPA RSLs for Tap Water
California MCL
Notes:
EPA = US Environmental Protection Agency
RSL = Regional Screening Level
MCL = Maximum contaminant level

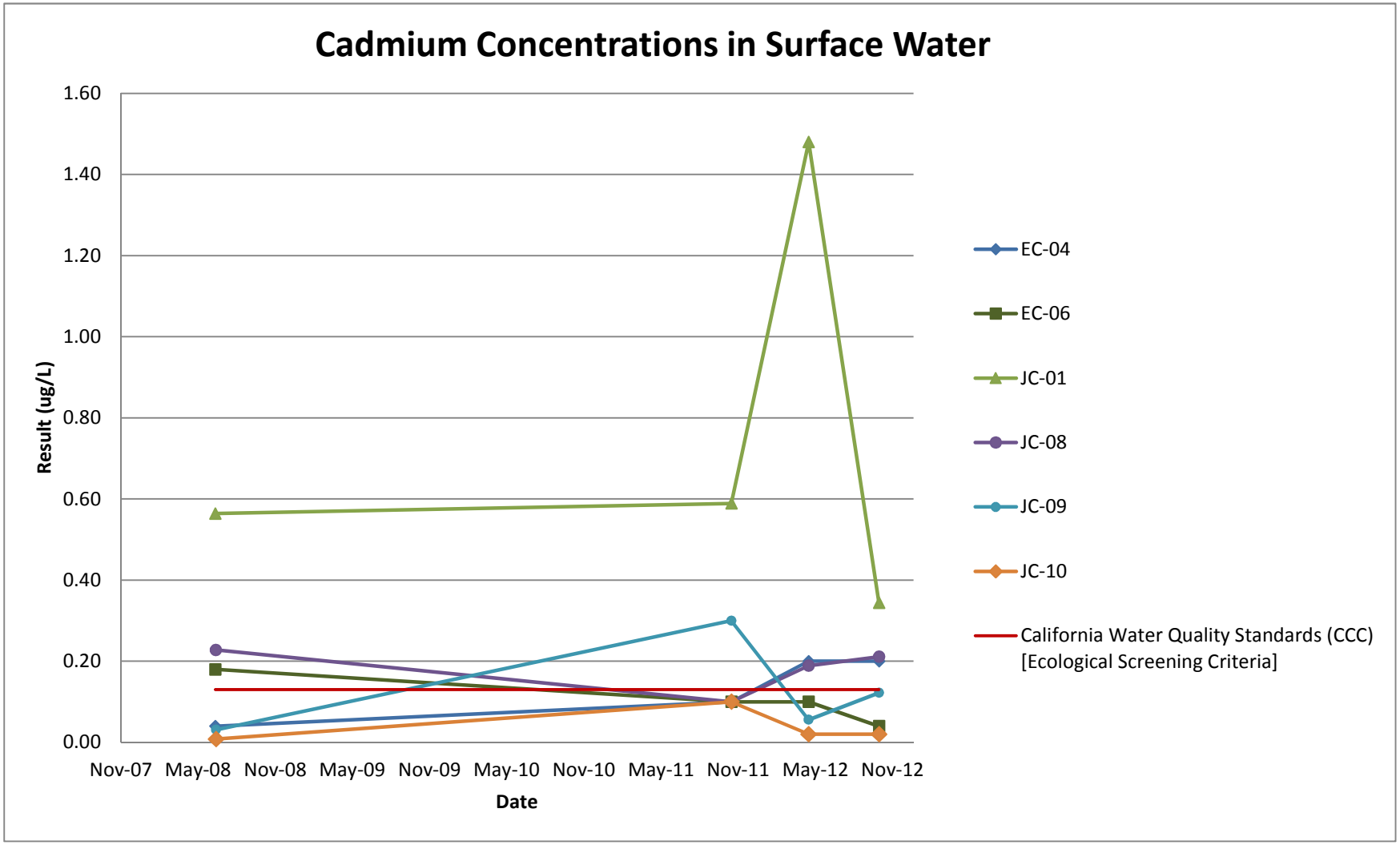

Iron Concentrations in Drinking Water
12000.00
10000.00
8000.00
6000.00
4000.00
2000.00
0.00
Result (ug/L)
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
461
462
541
12620
17607
EPA and California MCLs
EPA RSLs for Tap Water
Notes:
EPA = US Environmental Protection Agency
RSL = Regional Screening Level
MCL = Maximum contaminant level

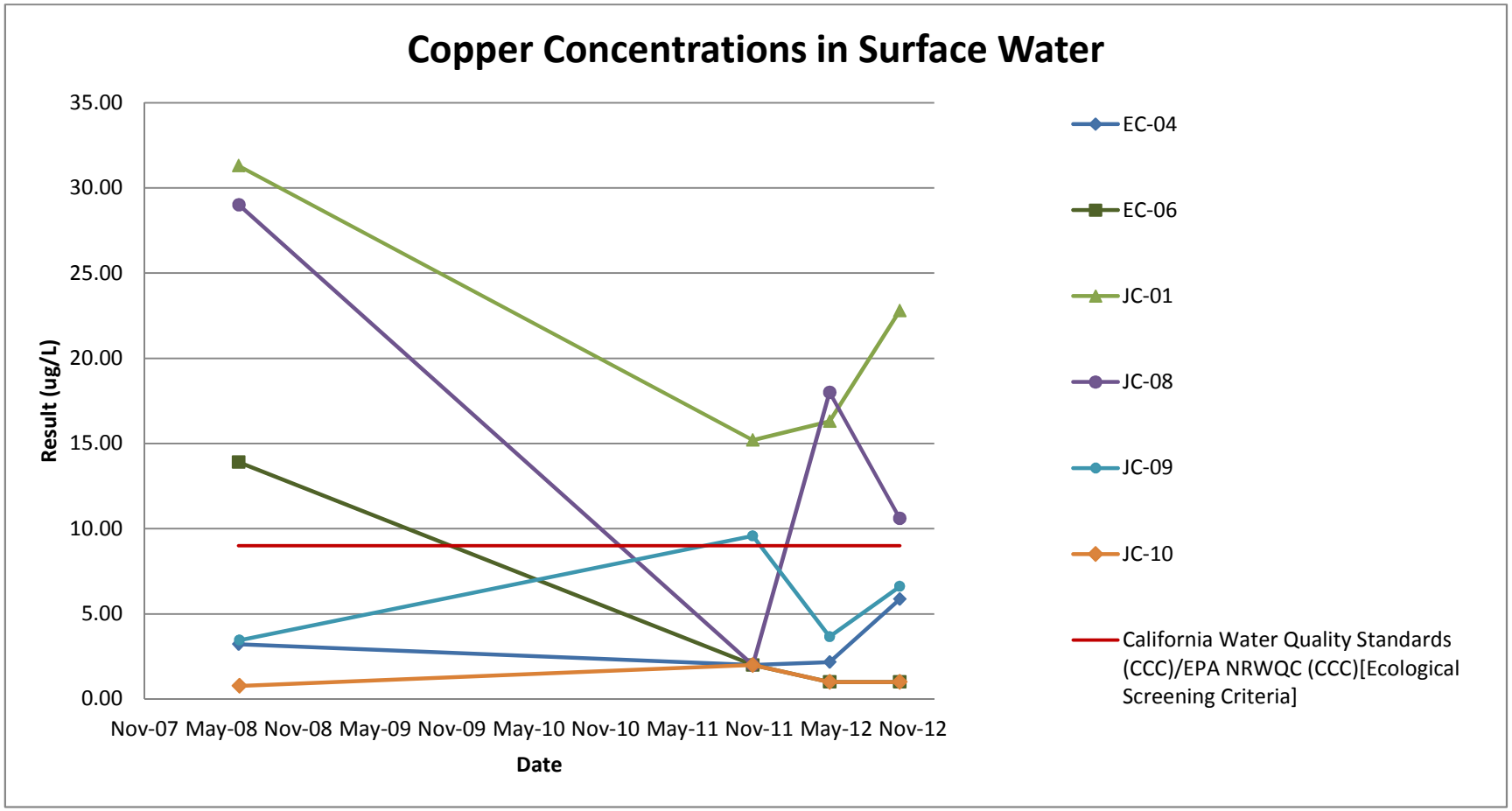

Lead Concentrations in Drinking Water
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Result (ug/L)
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
461
462
541
12620
17607
EPA and California MCLs
Notes:
EPA = US Environmental Protection Agency
MCL = Maximum contaminant level

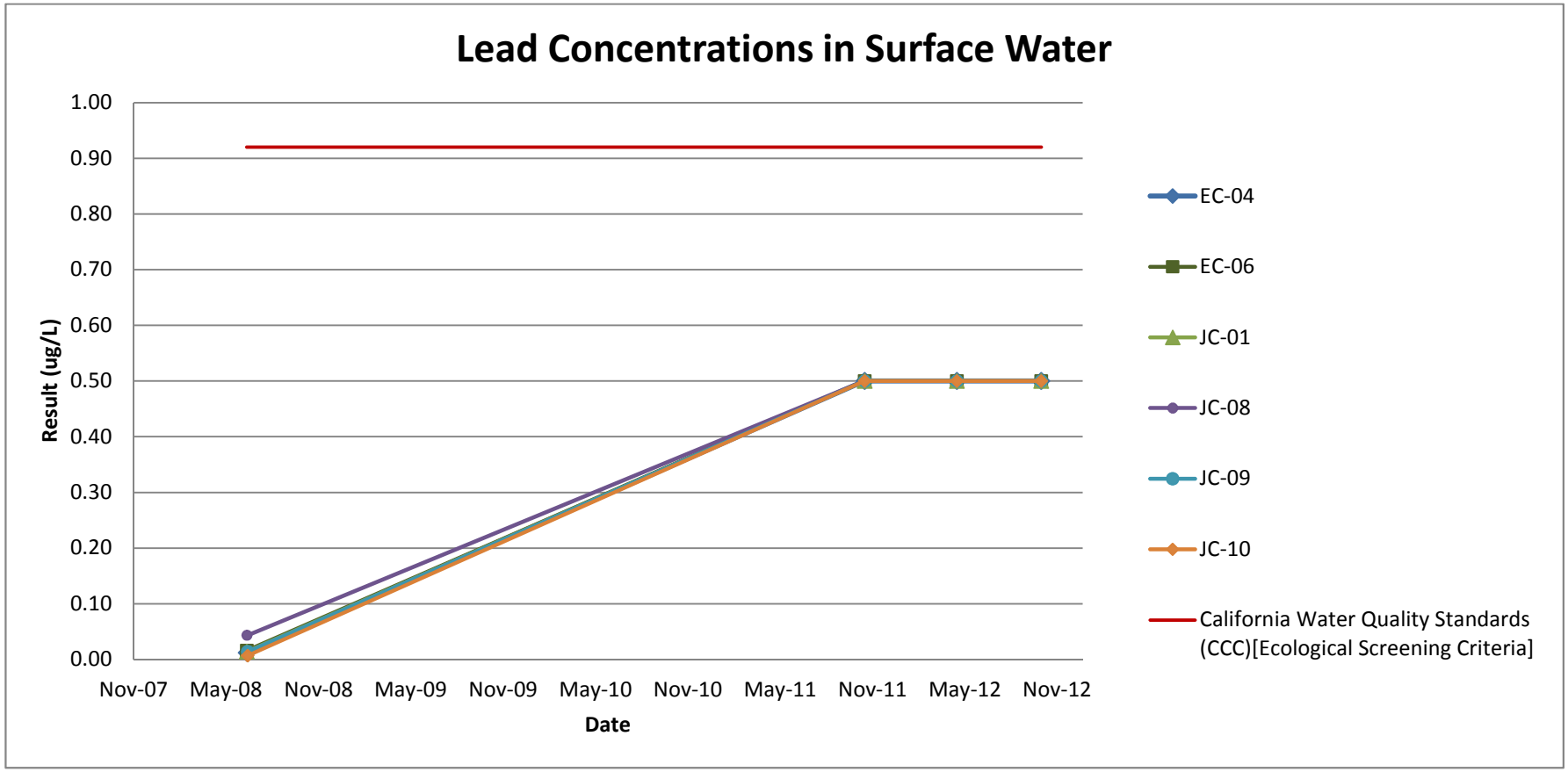
ERRG

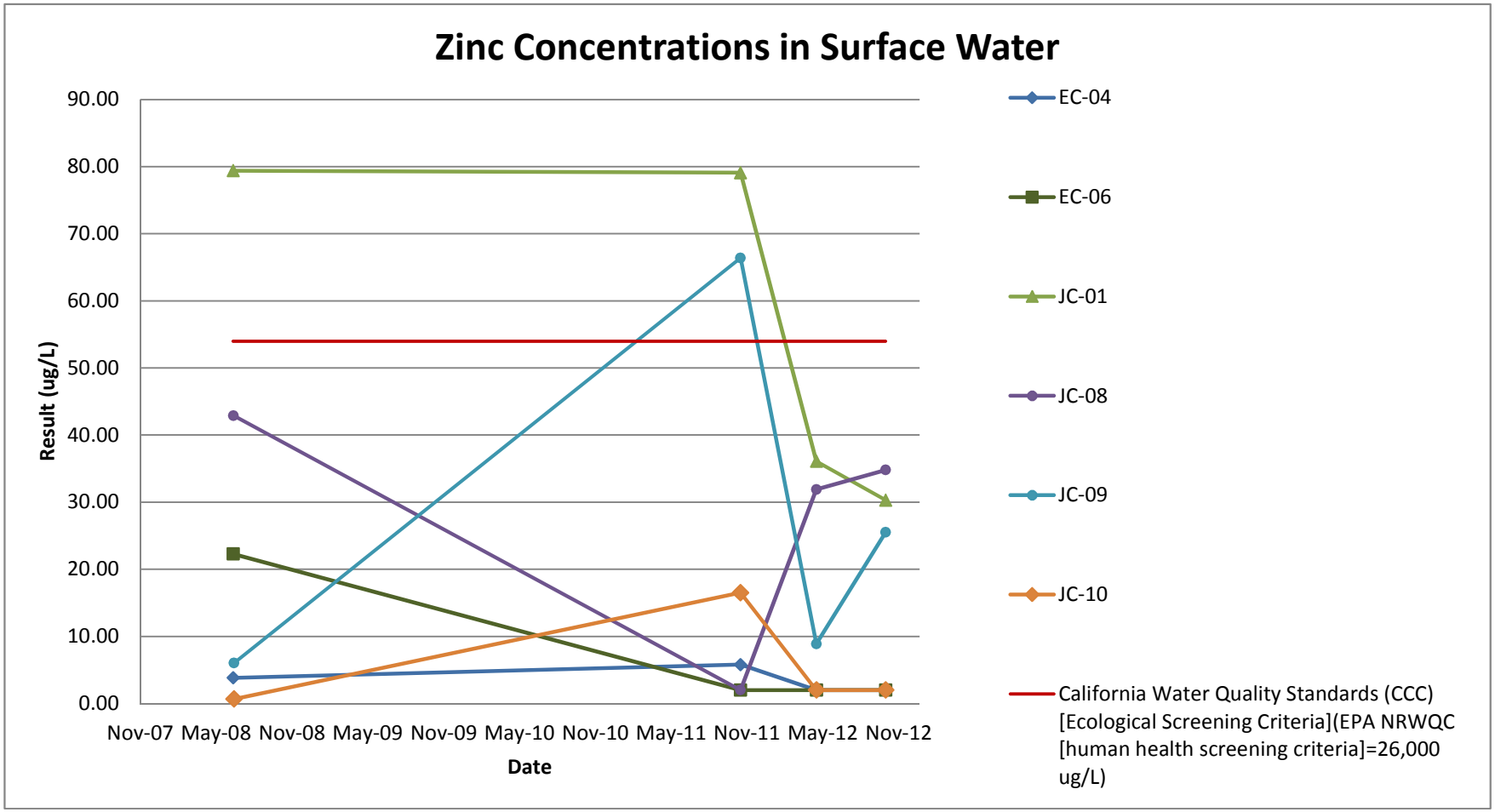

Zinc Concentrations in Drinking Water
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
Result (ug/L)
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
461
462
541
12620
17607
EPA RSLs for Tap Water
California MCLs
Notes:
EPA = US Environmental Protection Agency
RSL = Regional Screening Level
MCL = Maximum contaminant level

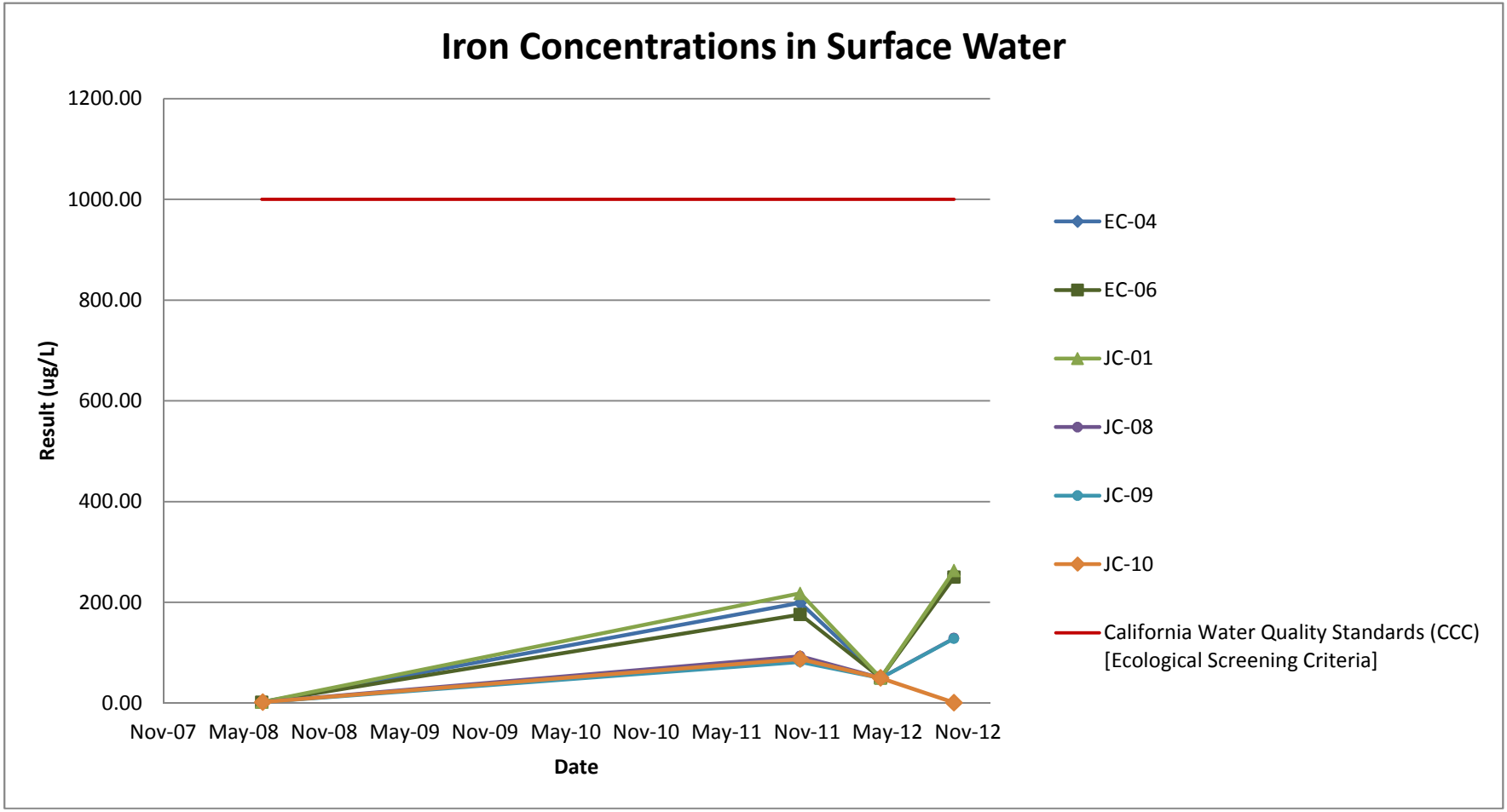

Arsenic Concentrations in Surface Water
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Result (ug/L)
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
EPA NRWQC (Human Health Screening Criteria)
[Ecological Screening Criterial = 150 ug/L]

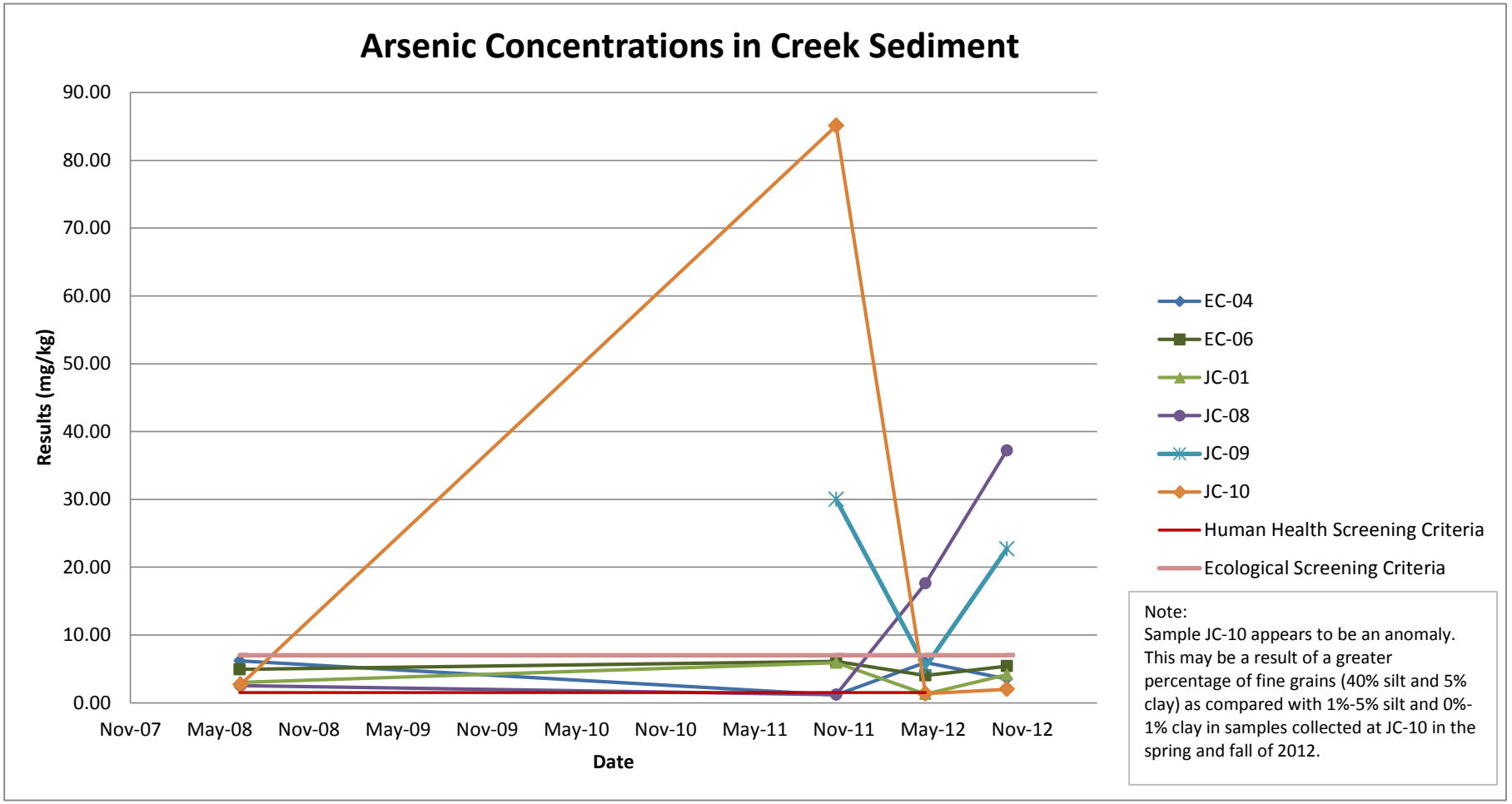

Cadmium Concentrations in Surface Water
Result (ug/L)
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
California Water Quality Standards (CCC) [Ecological Screening Criteria]

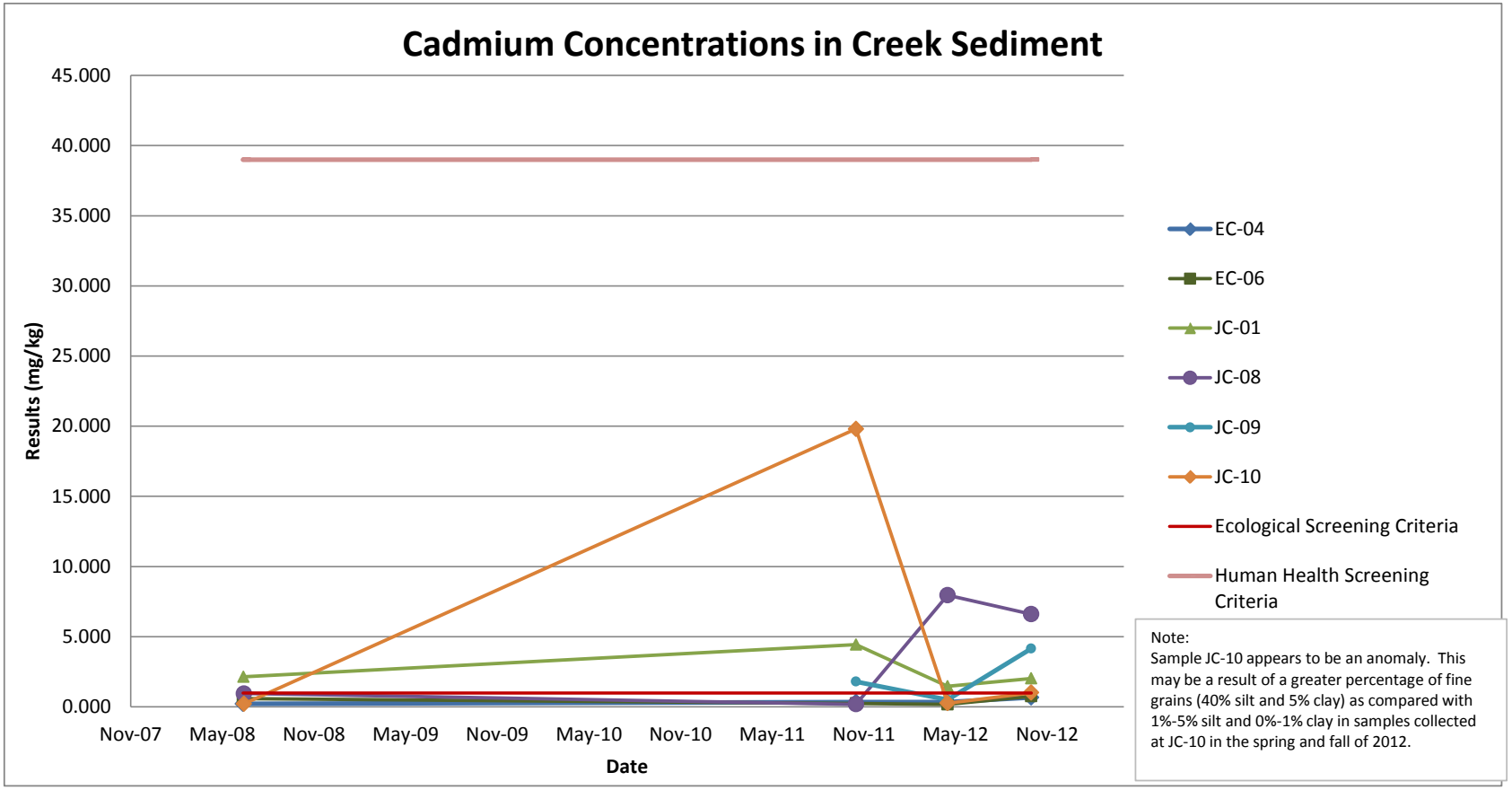

Copper Concentrations in Surface Water
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Result (ug/L)
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
California Water Quality Standards (CCC)/EPA NRWQC (CCC)[Ecological Screening Criteria]


Lead Concentrations in Surface Water
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Result (ug/L)
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
California Water Quality Standards (CCC)[Ecological Screening Criteria]

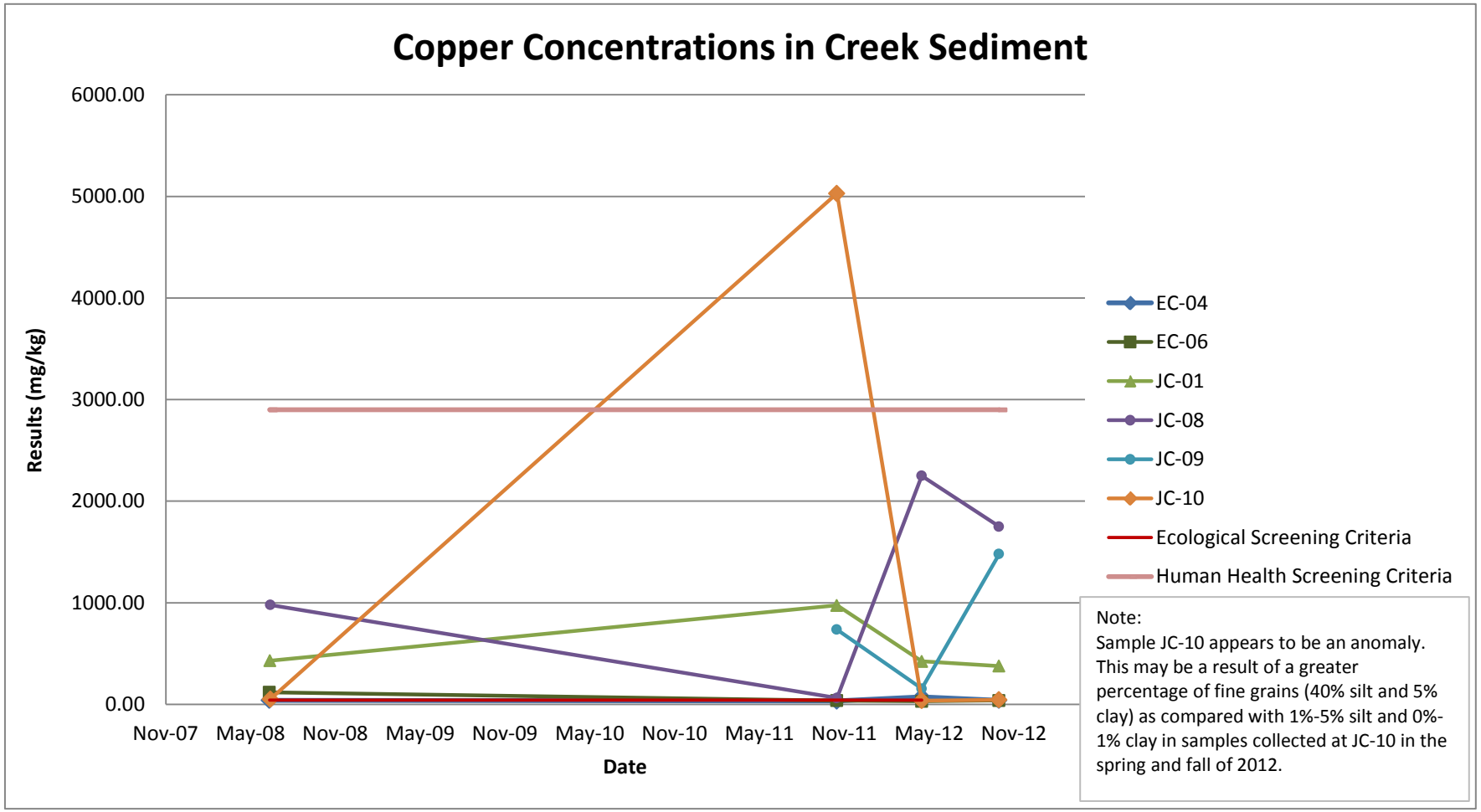

Zinc Concentrations in Surface Water
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Result (ug/L)
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
California Water Quality Standards (CCC) [Ecological Screening Criteria](EPA NRWQC [human health screening criteria]=26,000 ug/L)

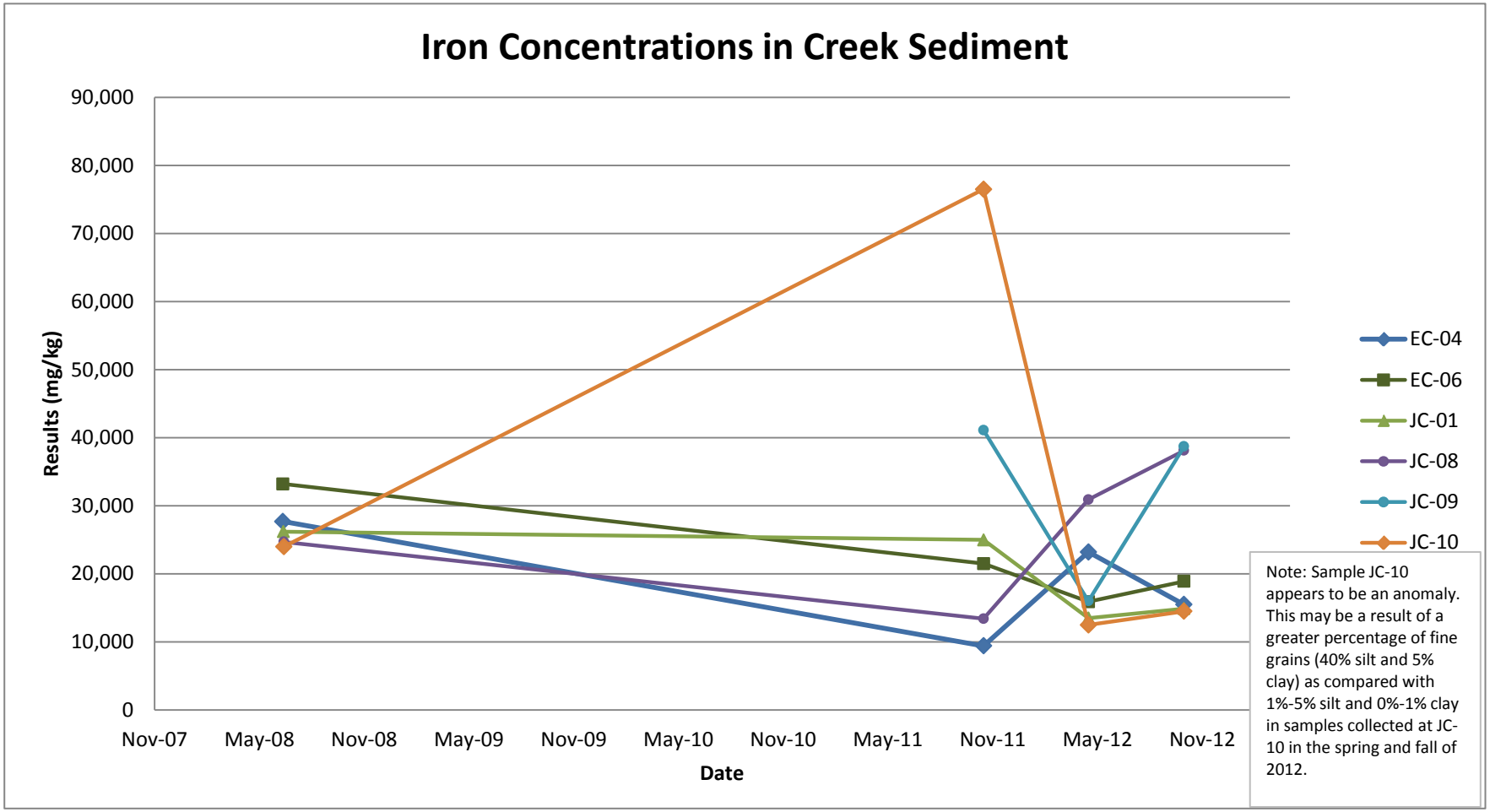

Iron Concentrations in Surface Water
1200.00
1000.00
800.00
600.00
400.00
200.00
0.00
Result (ug/L)
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
California Water Quality Standards (CCC) [Ecological Screening Criteria]

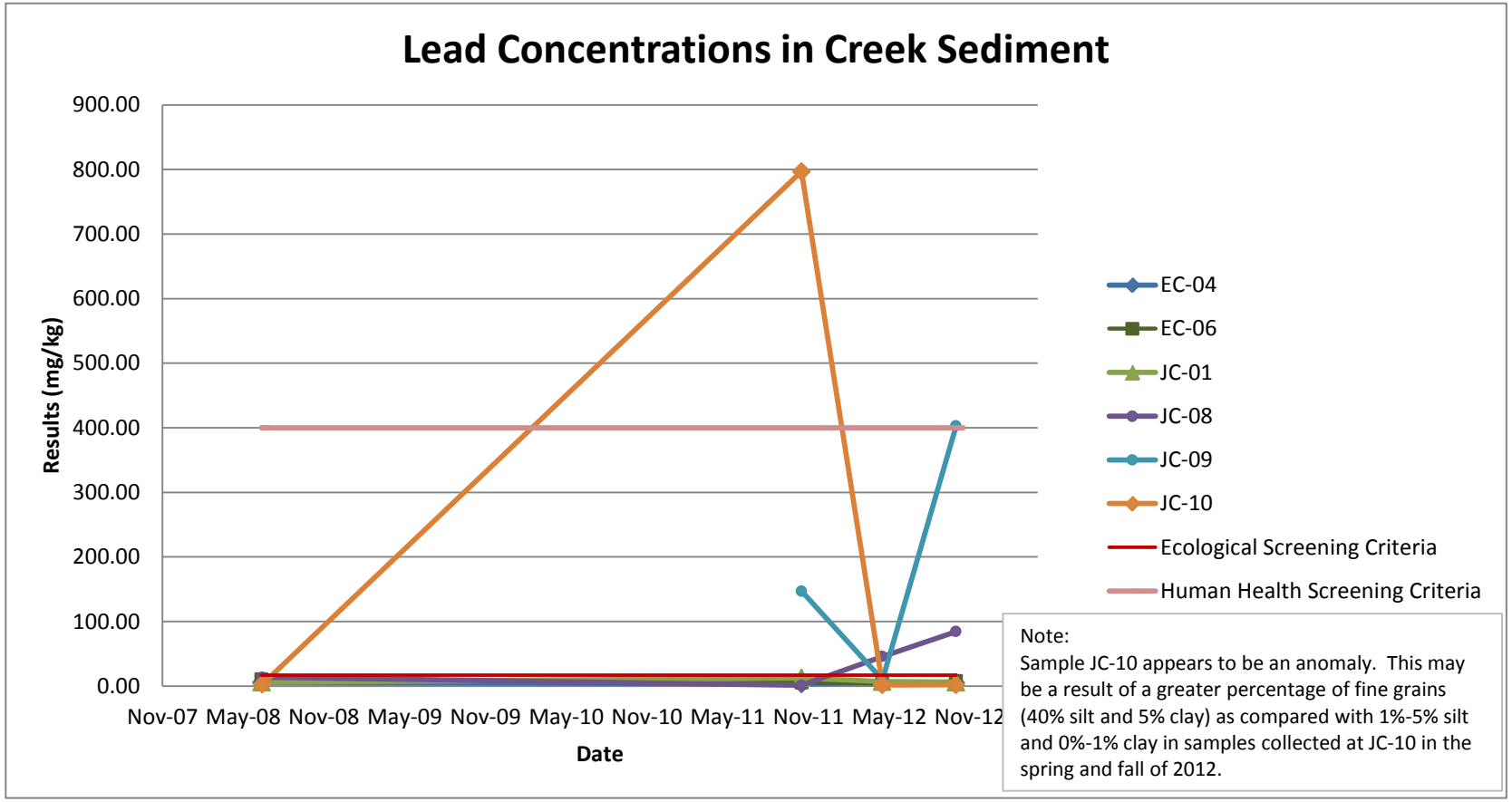

Arsenic Concentrations in Creek Sediment
Results (mg/kg)
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
Human Health Screening Criteria
Ecological Screening Criteria
Note:
Sample JC-10 appears to be an anomaly. This may be a result of a greater percentage of fine grains (40% silt and 5% clay) as compared with 1%-5% silt and 0%-1% clay in samples collected at JC-10 in the spring and fall of 2012.



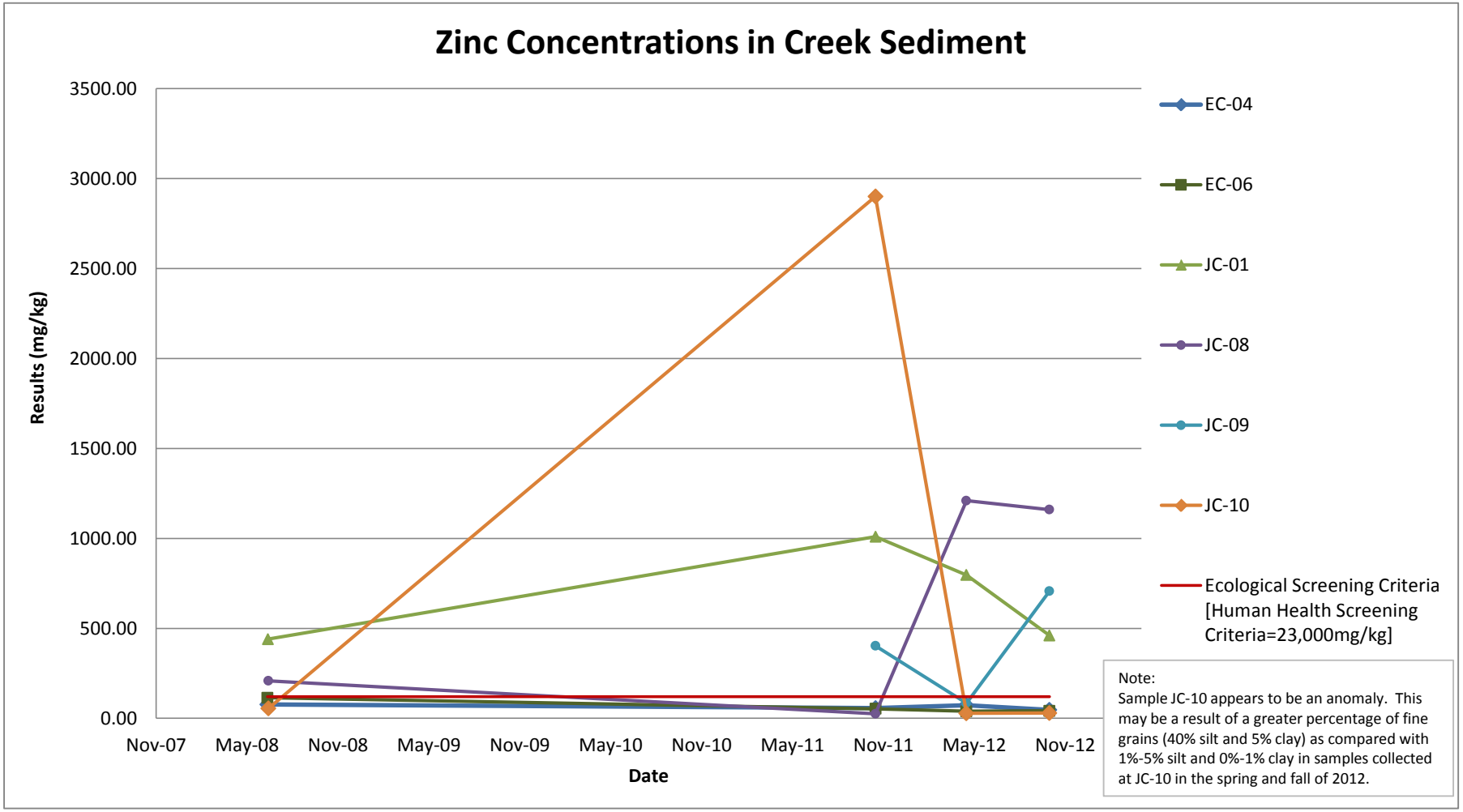
Note:
Sample JC-10 appears to be an anomaly. This may be a result of a greater percentage of fine grains (40% silt and 5% clay) as compared with 1%-5% silt and 0%-1% clay in samples collected at JC-10 in the spring and fall of 2012.

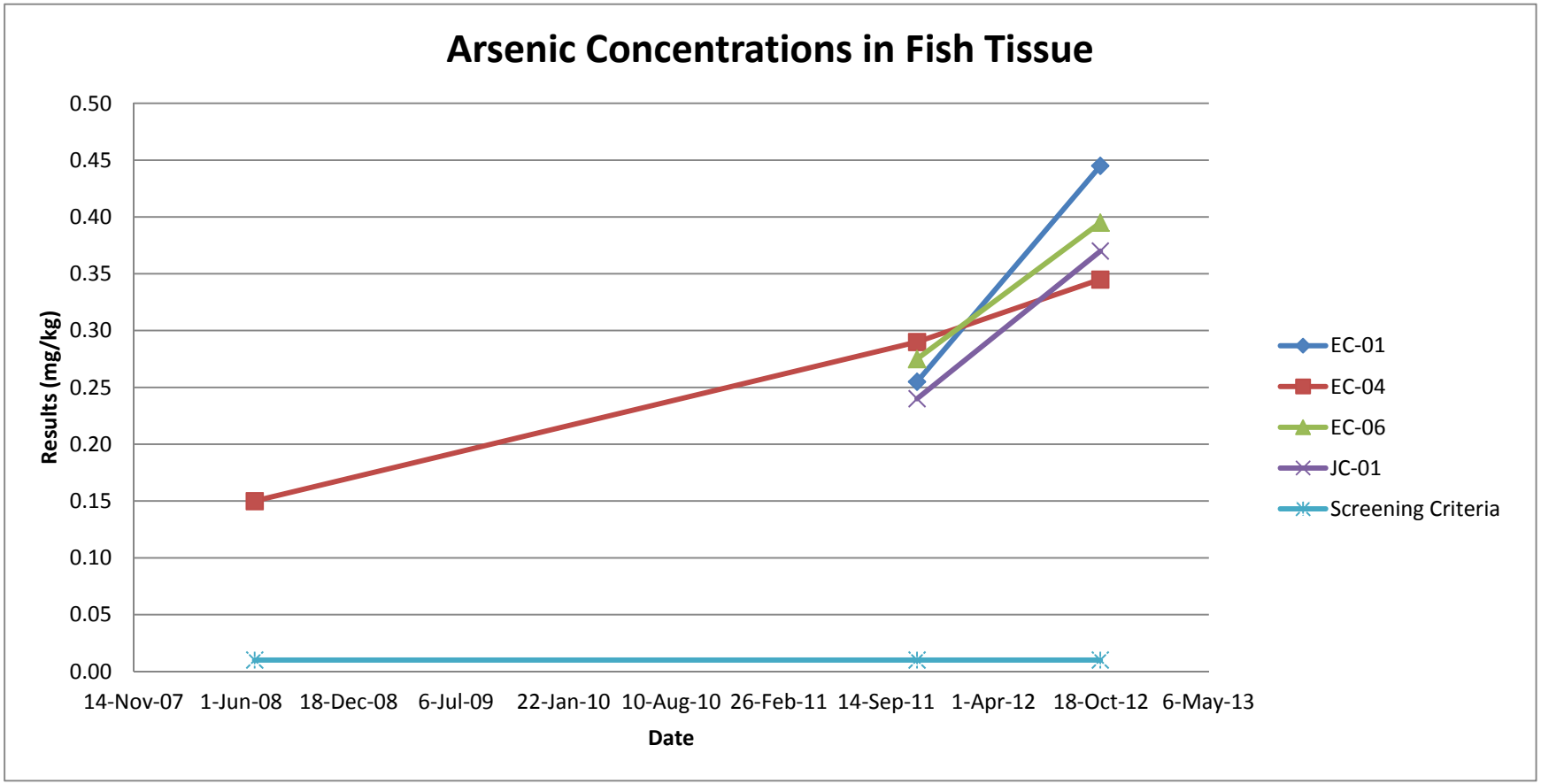

Copper Concentrations in Creek Sediment
6000.00
5000.00
4000.00
3000.00
2000.00
1000.00
0.00
Results (mg/kg)
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
Ecological Screening Criteria
Human Health Screening Criteria
Note:
Sample JC-10 appears to be an anomaly. This may be a result of a greater percentage of fine grains (40% silt and 5% clay) as compared with 1%-5% silt and 0%-1% clay in samples collected at JC-10 in the spring and fall of 2012.

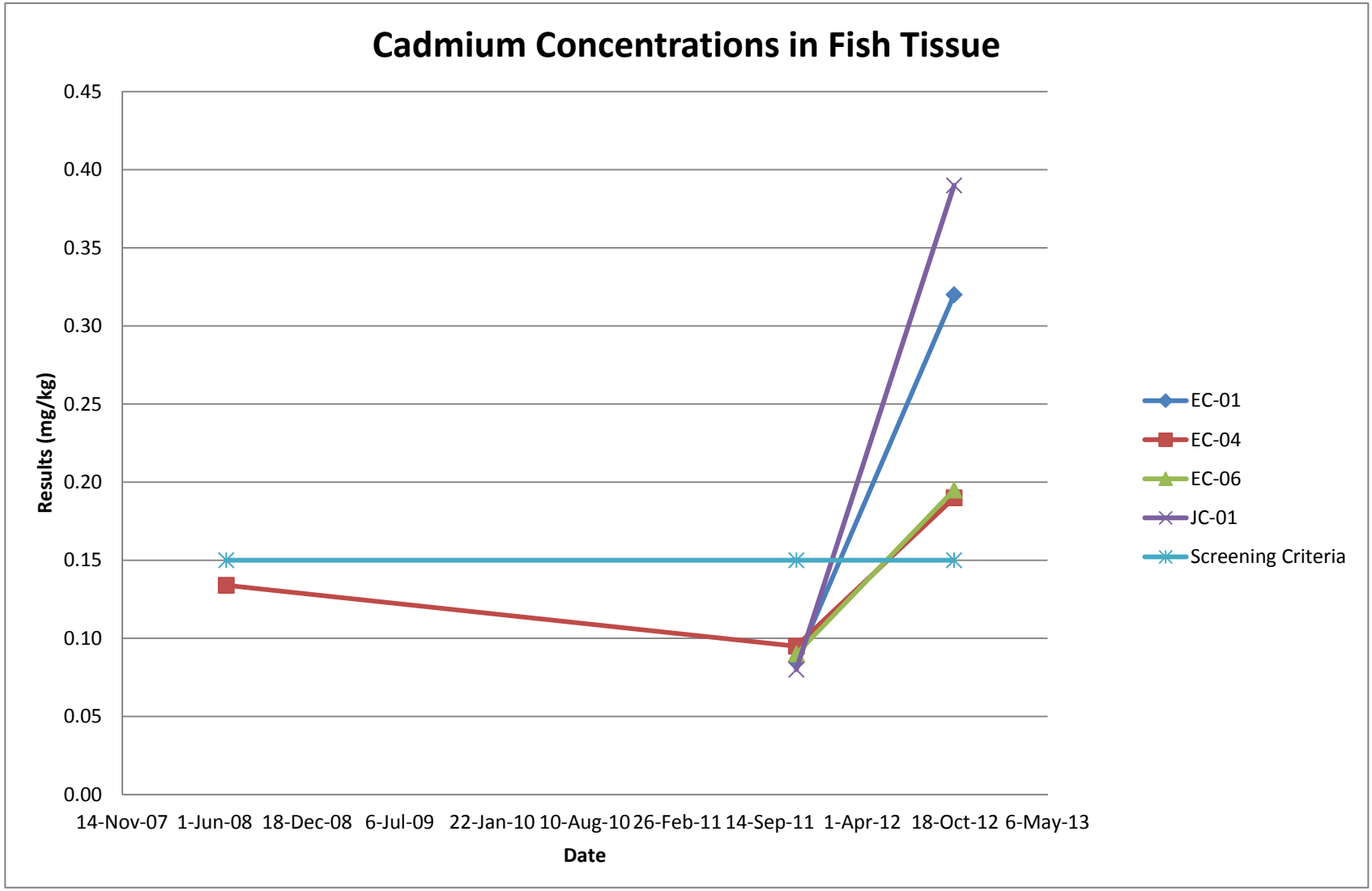

Iron Concentrations in Creek Sediment
Results (mg/kg)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
Note: Sample JC-10 appears to be an anomaly. This may be a result of a greater percentage of fine grains (40% silt and 5% clay) as compared with 1%-5% silt and 0%-1% clay in samples collected at JC-10 in the spring and fall of 2012.

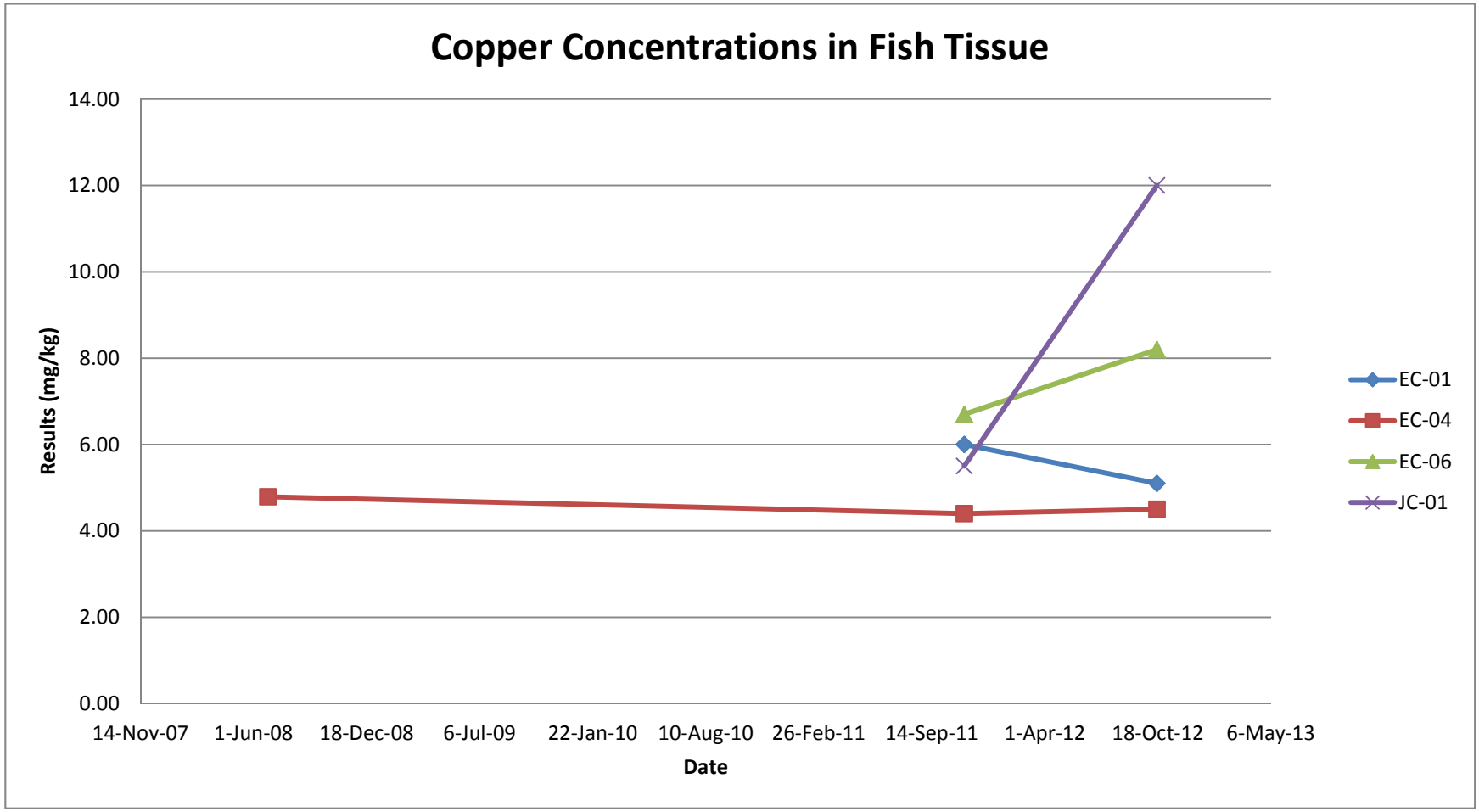


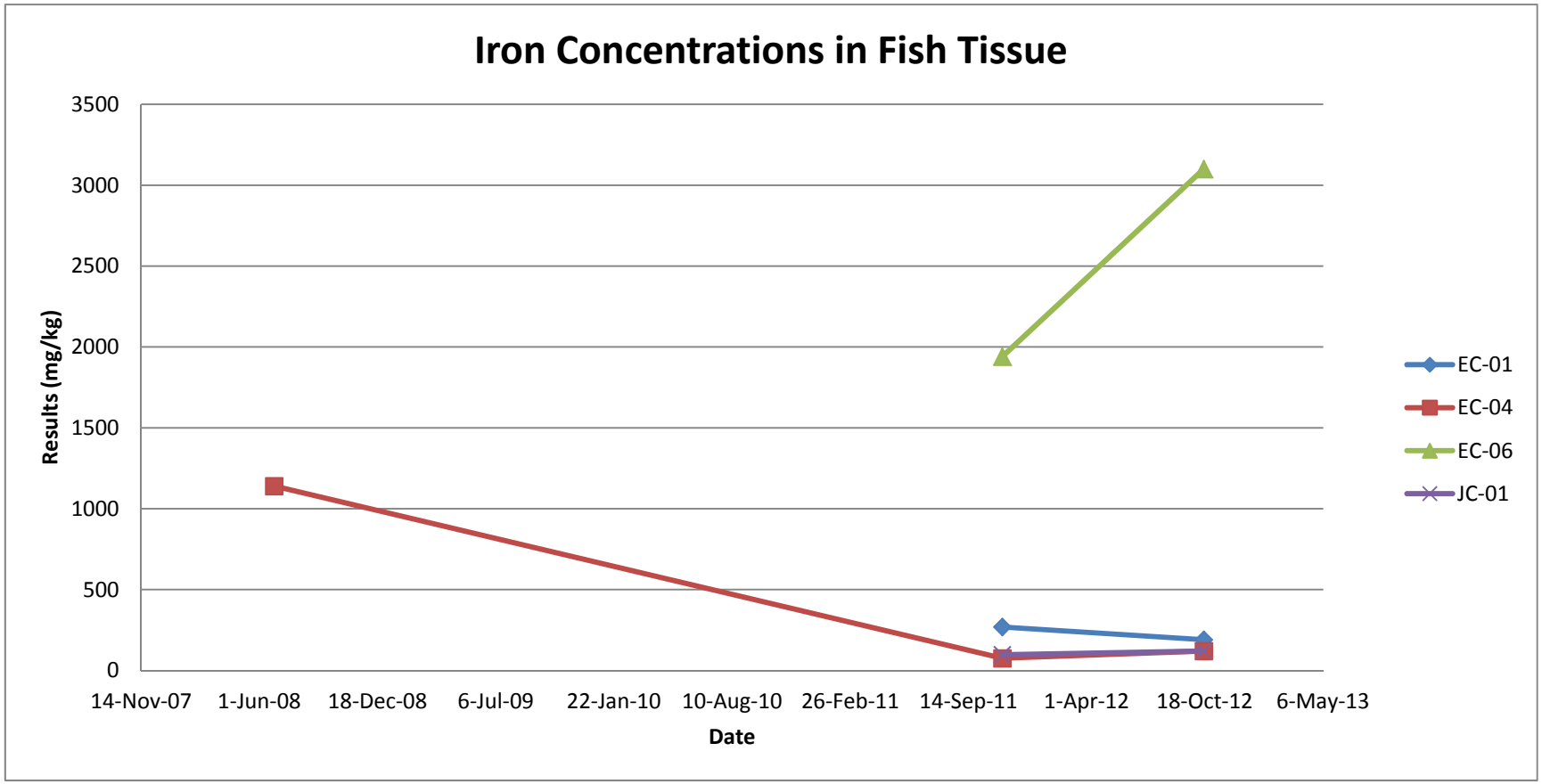
Note:
Sample JC-10 appears to be an anomaly. This may be a result of a greater percentage of fine grains (40% silt and 5% clay) as compared with 1%-5% silt and 0%-1% clay in samples collected at JC-10 in the spring and fall of 2012.

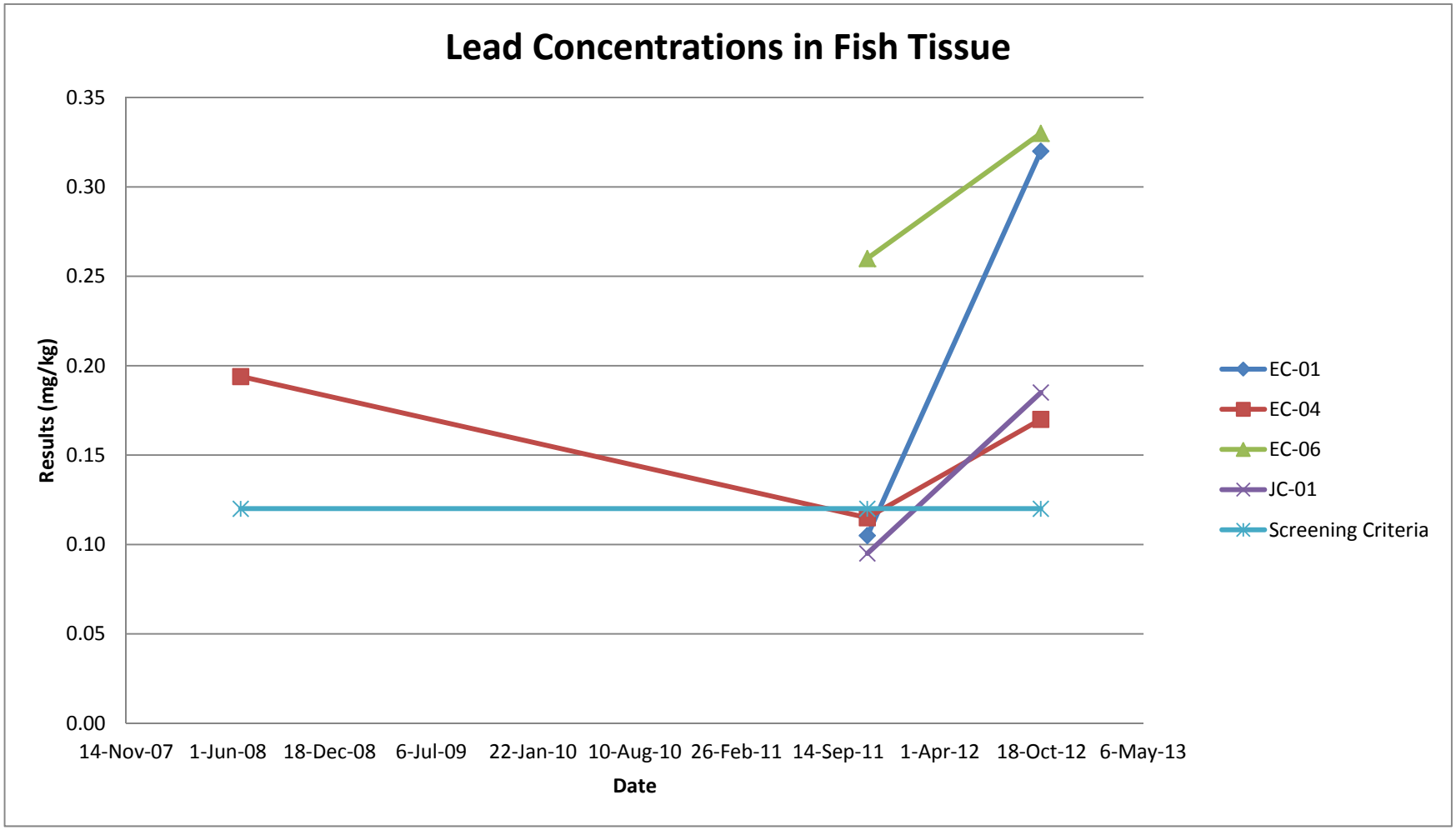

Zinc Concentrations in Creek Sediment
Results (mg/kg)
3500.00
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
Nov-07
May-08
Nov-08
May-09
Nov-09
May-10
Nov-10
May-11
Nov-11
May-12
Nov-12
Date
EC-04
EC-06
JC-01
JC-08
JC-09
JC-10
Ecological Screening Criteria [Human Health Screening Criteria=23,000mg/kg]
Note:
Sample JC-10 appears to be an anomaly. This may be a result of a greater percentage of fine grains (40% silt and 5% clay) as compared with 1%-5% silt and 0%-1% clay in samples collected at JC-10 in the spring and fall of 2012.

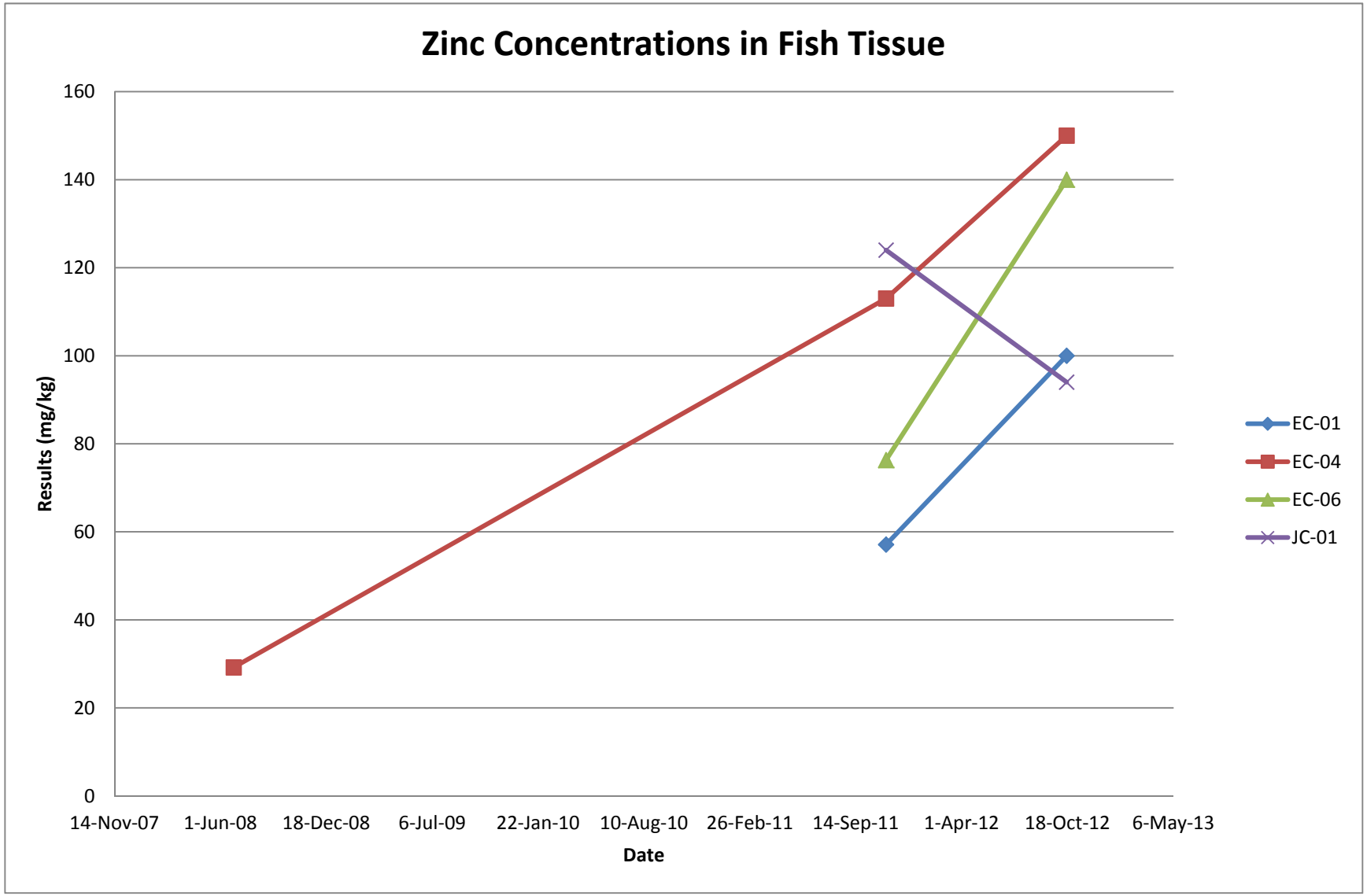

Arsenic Concentrations in Fish Tissue
Results (mg/kg)
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
14-Nov-07
1-Jun-08
18-Dec-08
6-Jul-09
22-Jan-10
10-Aug-10
26-Feb-11
14-Sep-11
1-Apr-12
18-Oct-12
6-May-13
Date
EC-01
EC-04
EC-06
JC-01
Screening Criteria


Cadmium Concentrations in Fish Tissue
Results (mg/kg)
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
14-Nov-07
1-Jun-08
18-Dec-08
6-Jul-09
22-Jan-10
10-Aug-10
26-Feb-11
14-Sep-11
1-Apr-12
18-Oct-12
6-May-13
Date
EC-01
EC-04
EC-06
JC-01
Screening Criteria


Copper Concentrations in Fish Tissue
Results (mg/kg)
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
14-Nov-07
1-Jun-08
18-Dec-08
6-Jul-09
22-Jan-10
10-Aug-10
26-Feb-11
14-Sep-11
1-Apr-12
18-Oct-12
6-May-13
Date
EC-01
EC-04
EC-06
JC-01


Iron Concentrations in Fish Tissue
Results (mg/kg)
3500
3000
2500
2000
1500
1000
500
0
14-Nov-07
1-Jun-08
18-Dec-08
6-Jul-09
22-Jan-10
10-Aug-10
26-Feb-11
14-Sep-11
1-Apr-12
18-Oct-12
6-May-13
Date
EC-01
EC-04
EC-06
JC-01


Lead Concentrations in Fish Tissue
Results (mg/kg)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
14-Nov-07
1-Jun-08
18-Dec-08
6-Jul-09
22-Jan-10
10-Aug-10
26-Feb-11
14-Sep-11
1-Apr-12
18-Oct-12
6-May-13
Date
EC-01
EC-04
EC-06
JC-01
Screening Criteria


Zinc Concentrations in Fish Tissue
Results (mg/kg)
160
140
120
100
80
60
40
20
0
14-Nov-07
1-Jun-08
18-Dec-08
6-Jul-09
22-Jan-10
10-Aug-10
26-Feb-11
14-Sep-11
1-Apr-12
18-Oct-12
6-May-13
Date
EC-01
EC-04
EC-06
JC-01

Appendix B. Fall 2012 Laboratory Analytical Reports

EcoAnalysts, Inc.
1420 South Blaine Street, Suite 14
Moscow, Idaho 83843 U.S.A.
(208) 882 - 2588

Taxonomy ID QC Percent Similarity

5895.3-2

Comparison Date: 01/22/2013 10:32:23

Component: Chironomidae

Waterbody	Site ID	Device	Habitat	Time
Joe Creek	JC-08-M-101712	D-Net	Riffle	10:20

		Original Taxonomist - Charles Watson					QC Taxonomist - Gregory Wallace					
TIN	TAXON	NOTE	AB	L	P	A	AB	L	P	A	NOTE	DIFF.
838	Corynoneura		0	0	0	0	0	0	0	0		0
853	Cricotopus		8	4	4	0	8	4	4	0	partial agg. (thor horn0	0
1031	Orthocladius Complex		0	0	0	0	0	0	0	0		0
898	Parorthocladius		2	2	0	0	2	2	0	0		0
2271	Tokunagaia		1	2	0	0	0	0	0	0		1
			11				10				Difference =	1
											Percent Similarity =	90.91

EcoAnalysts, Inc.
1420 South Blaine Street, Suite 14
Moscow, Idaho 83843 U.S.A.
(208) 882 - 2588

Taxonomy ID QC Percent Similarity

5895.3-2

Comparison Date: 01/22/2013 12:02:21

Component: General

Waterbody	Site ID	Device	Habitat	Time
Joe Creek	JC-08-M-101712	D-Net	Riffle	10:20

		Original Taxonomist - Jon Pfeiffer					QC Taxonomist - William LaVoie					
TIN	TAXON	NOTE	AB	L	P	A	AB	L	P	A	NOTE	DIFF.
166	Drunella doddsii		1	1	0	0	1	1	0	0		0
154	Ephemerellidae		0	0	0	0	0	0	0	0		0
587	Lepidostoma		1	1	0	0	1	1	0	0		0
391	Megarcys		2	2	0	0	2	2	0	0		0
678	Rhyacophila		0	0	0	0	0	0	0	0		0
661	Rhyacophila arnaudi		0	0	0	0	0	0	0	0		0
662	Rhyacophila betteni gr.		3	3	0	0	3	3	0	0		0
1410	Rhyacophila grandis gr.		0	0	0	0	0	0	0	0		0
1552	Sierraperla cora		1	1	0	0	1	1	0	0		0
3003	Sperchonopsis		0	0	0	0	0	0	0	0		0
410	Taeniopterygidae		13	13	0	0	13	13	0	0		0
			21				21				Difference =	0
											Percent Similarity =	100.00

EcoAnalysts, Inc.
1420 South Blaine Street, Suite 14
Moscow, Idaho 83843 U.S.A.
(208) 882 - 2588

Taxonomy ID QC Percent Similarity

5895.3-2

Comparison Date: 01/22/2013 11:39:10

Component: Oligochaete

Waterbody	Site ID	Device	Habitat	Time
Joe Creek	JC-08-M-101712	D-Net	Riffle	10:20

		Original Taxonomist - Charles Watson					QC Taxonomist - Chip Barrett					
TIN	TAXON	NOTE	AB	L	P	A	AB	L	P	A	NOTE	DIFF.
											Difference =	
											Percent Similarity =	N/A

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica West Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-1024-1
Client Project/Site: Blue Ledge Mine

For:
EcoAnalysts, Inc.
1420 Blaine Street
Suite 14
Moscow, Idaho 83843

Attn: Sandra McGraw

Authorized for release by:
12/17/2012 4:08:16 PM

Linda C. Laver
Project Manager I
linda.laver@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F	MS or MSD exceeds the control limits
F	RPD of the MS and MSD exceeds the control limits

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

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

Job ID: 320-1024-1

Laboratory: TestAmerica West Sacramento

Narrative

Job Narrative
320-1024-1

Receipt
The samples were received on 10/24/2012 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8º C.

Metals
Method 6020:
The matrix spike/matrix spike duplicate (MS/MSD) recoveries for some analytes in Prep Batch 7201 were outside control limits. The associated laboratory control sample (LCS) recoveries met acceptance criteria.

No other analytical or quality issues were noted.

General Chemistry
The percent moisture analyses is qualified as being analyzed outside the method recommended holding time (HT). There is not an establish HT for this method on fish tissue. TestAmerica West Sacramento operates under a 14 day HT, thus the "H" qualifier has been applied to this data.

No other analytical or quality issues were noted.

Detection Summary

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Client Sample ID: JC-01-TS-101612 — Lab Sample ID: 320-1024-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.39		0.37	0.19	mg/Kg	1	☼	6020	Total/NA
Copper	12		0.74	0.037	mg/Kg	1	☼	6020	Total/NA
Iron	120		19	9.3	mg/Kg	1	☼	6020	Total/NA
Zinc	94	B	3.9	2.3	mg/Kg	1	☼	6020	Total/NA

Client Sample ID: EC-06-TS-101612 — Lab Sample ID: 320-1024-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Copper	8.2		0.79	0.039	mg/Kg	1	☼	6020	Total/NA
Iron	3100		20	9.9	mg/Kg	1	☼	6020	Total/NA
Lead	0.33	J	0.39	0.24	mg/Kg	1	☼	6020	Total/NA
Zinc	140	B	4.0	2.4	mg/Kg	1	☼	6020	Total/NA

Client Sample ID: EC-04-TS-101612 — Lab Sample ID: 320-1024-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.19	J	0.34	0.17	mg/Kg	1	☼	6020	Total/NA
Copper	4.5		0.69	0.034	mg/Kg	1	☼	6020	Total/NA
Iron	120		17	8.6	mg/Kg	1	☼	6020	Total/NA
Zinc	150	B	3.5	2.1	mg/Kg	1	☼	6020	Total/NA

Client Sample ID: EC-04-TSD-101612 — Lab Sample ID: 320-1024-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.21	J	0.42	0.21	mg/Kg	1	☼	6020	Total/NA
Copper	8.6		0.85	0.042	mg/Kg	1	☼	6020	Total/NA
Iron	190		21	11	mg/Kg	1	☼	6020	Total/NA
Zinc	100	B	3.9	2.4	mg/Kg	1	☼	6020	Total/NA

Client Sample ID: EC-01-TS-101612 — Lab Sample ID: 320-1024-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cadmium	0.32	J	0.44	0.22	mg/Kg	1	☼	6020	Total/NA
Copper	5.1		0.89	0.044	mg/Kg	1	☼	6020	Total/NA
Iron	190		22	11	mg/Kg	1	☼	6020	Total/NA
Lead	0.32	J	0.44	0.27	mg/Kg	1	☼	6020	Total/NA
Zinc	100	B	4.6	2.8	mg/Kg	1	☼	6020	Total/NA

Client Sample Results

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Client Sample ID: JC-01-TS-101612

Lab Sample ID: 320-1024-1
Date Collected: 10/16/12 08:30
Matrix: Tissue
Date Received: 10/24/12 09:30
Percent Solids: 25.6

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.74	0.56	mg/Kg	☼	11/27/12 07:56	12/07/12 20:51	1
Cadmium	0.39		0.37	0.19	mg/Kg	☼	11/27/12 07:56	12/07/12 20:51	1
Copper	12		0.74	0.037	mg/Kg	☼	11/27/12 07:56	12/07/12 20:51	1
Iron	120		19	9.3	mg/Kg	☼	11/27/12 07:56	12/07/12 20:51	1
Lead	ND		0.37	0.22	mg/Kg	☼	11/27/12 07:56	12/07/12 20:51	1
Zinc	94	B	3.9	2.3	mg/Kg	☼	12/13/12 07:05	12/13/12 19:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	74	H	0.10	0.10	%			11/30/12 15:53	1
Percent Solids	26	H	0.10	0.10	%			11/30/12 15:53	1

Client Sample ID: EC-06-TS-101612

Lab Sample ID: 320-1024-2
Date Collected: 10/16/12 09:40
Matrix: Tissue
Date Received: 10/24/12 09:30
Percent Solids: 24.2

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.79	0.59	mg/Kg	☼	11/27/12 07:56	12/07/12 21:12	1
Cadmium	ND		0.39	0.20	mg/Kg	☼	11/27/12 07:56	12/07/12 21:12	1
Copper	8.2		0.79	0.039	mg/Kg	☼	11/27/12 07:56	12/07/12 21:12	1
Iron	3100		20	9.9	mg/Kg	☼	11/27/12 07:56	12/07/12 21:12	1
Lead	0.33	J	0.39	0.24	mg/Kg	☼	11/27/12 07:56	12/07/12 21:12	1
Zinc	140	B	4.0	2.4	mg/Kg	☼	12/13/12 07:05	12/13/12 19:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	76	H	0.10	0.10	%			11/30/12 15:53	1
Percent Solids	24	H	0.10	0.10	%			11/30/12 15:53	1

Client Sample ID: EC-04-TS-101612

Lab Sample ID: 320-1024-3
Date Collected: 10/16/12 10:45
Matrix: Tissue
Date Received: 10/24/12 09:30
Percent Solids: 28.5

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.69	0.52	mg/Kg	☼	11/27/12 07:56	12/07/12 21:14	1
Cadmium	0.19	J	0.34	0.17	mg/Kg	☼	11/27/12 07:56	12/07/12 21:14	1
Copper	4.5		0.69	0.034	mg/Kg	☼	11/27/12 07:56	12/07/12 21:14	1
Iron	120		17	8.6	mg/Kg	☼	11/27/12 07:56	12/07/12 21:14	1
Lead	ND		0.34	0.21	mg/Kg	☼	11/27/12 07:56	12/07/12 21:14	1
Zinc	150	B	3.5	2.1	mg/Kg	☼	12/13/12 07:05	12/13/12 20:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	72	H	0.10	0.10	%			11/30/12 15:53	1
Percent Solids	28	H	0.10	0.10	%			11/30/12 15:53	1

Client Sample Results

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Client Sample ID: EC-04-TSD-101612

Lab Sample ID: 320-1024-4
Date Collected: 10/16/12 11:00
Matrix: Tissue
Date Received: 10/24/12 09:30
Percent Solids: 24.6

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.85	0.63	mg/Kg	☼	11/27/12 07:56	12/07/12 21:17	1
Cadmium	0.21	J	0.42	0.21	mg/Kg	☼	11/27/12 07:56	12/07/12 21:17	1
Copper	8.6		0.85	0.042	mg/Kg	☼	11/27/12 07:56	12/07/12 21:17	1
Iron	190		21	11	mg/Kg	☼	11/27/12 07:56	12/07/12 21:17	1
Lead	ND		0.42	0.25	mg/Kg	☼	11/27/12 07:56	12/07/12 21:17	1
Zinc	100	B	3.9	2.4	mg/Kg	☼	12/13/12 07:05	12/14/12 11:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	75	H	0.10	0.10	%			11/30/12 15:53	1
Percent Solids	25	H	0.10	0.10	%			11/30/12 15:53	1

Client Sample ID: EC-01-TS-101612

Lab Sample ID: 320-1024-5
Date Collected: 10/16/12 12:30
Matrix: Tissue
Date Received: 10/24/12 09:30
Percent Solids: 22.7

Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.89	0.67	mg/Kg	☼	11/27/12 07:56	12/07/12 21:19	1
Cadmium	0.32	J	0.44	0.22	mg/Kg	☼	11/27/12 07:56	12/07/12 21:19	1
Copper	5.1		0.89	0.044	mg/Kg	☼	11/27/12 07:56	12/07/12 21:19	1
Iron	190		22	11	mg/Kg	☼	11/27/12 07:56	12/07/12 21:19	1
Lead	0.32	J	0.44	0.27	mg/Kg	☼	11/27/12 07:56	12/07/12 21:19	1
Zinc	100	B	4.6	2.8	mg/Kg	☼	12/13/12 07:05	12/13/12 20:18	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	77	H	0.10	0.10	%			11/30/12 15:53	1
Percent Solids	23	H	0.10	0.10	%			11/30/12 15:53	1

QC Sample Results

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 320-6352/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7102 — **Prep Batch: 6352**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.20	0.15	mg/Kg		11/27/12 07:56	12/07/12 20:46	1
Cadmium	ND		0.10	0.050	mg/Kg		11/27/12 07:56	12/07/12 20:46	1
Copper	ND		0.20	0.010	mg/Kg		11/27/12 07:56	12/07/12 20:46	1
Iron	ND		5.0	2.5	mg/Kg		11/27/12 07:56	12/07/12 20:46	1
Lead	ND		0.10	0.060	mg/Kg		11/27/12 07:56	12/07/12 20:46	1

Lab Sample ID: LCS 320-6352/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7102 — **Prep Batch: 6352**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	20.0	18.9		mg/Kg		95	80 - 120
Cadmium	20.0	19.2		mg/Kg		96	80 - 120
Copper	20.0	20.2		mg/Kg		101	80 - 120
Iron	100	105		mg/Kg		105	80 - 120
Lead	20.0	20.3		mg/Kg		102	80 - 120

Lab Sample ID: 320-1024-A-1-B MS — **Client Sample ID: 320-1024-A-1-B MS**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7102 — **Prep Batch: 6352**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	-0.116		75.0	74.7		mg/Kg	☼	100	80 - 120
Cadmium	0.392		75.0	69.7		mg/Kg	☼	92	80 - 120
Copper	12.1		75.0	76.8		mg/Kg	☼	86	80 - 120
Iron	123		375	520		mg/Kg	☼	106	80 - 120
Lead	0.0855		75.0	70.7		mg/Kg	☼	94	80 - 120

Lab Sample ID: 320-1024-A-1-C MSD — **Client Sample ID: 320-1024-A-1-C MSD**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7102 — **Prep Batch: 6352**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	-0.116		76.5	74.9		mg/Kg	☼	98	80 - 120	0	35
Cadmium	0.392		76.5	70.6		mg/Kg	☼	92	80 - 120	1	35
Copper	12.1		76.5	119	F	mg/Kg	☼	140	80 - 120	43	35
Iron	123		383	509		mg/Kg	☼	101	80 - 120	2	35
Lead	0.0855		76.5	72.3		mg/Kg	☼	94	80 - 120	2	35

Lab Sample ID: MB 320-7201/1-A — **Client Sample ID: Method Blank**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7411 — **Prep Batch: 7201**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	0.908	J	1.0	0.60	mg/Kg		12/13/12 07:05	12/13/12 19:48	1

QC Sample Results

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 320-7201/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7411 — **Prep Batch: 7201**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Zinc			20.0	20.6		mg/Kg		103	80 - 120		

Lab Sample ID: 320-1024-2 MS — **Client Sample ID: EC-06-TS-101612**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7411 — **Prep Batch: 7201**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Zinc	140	B	80.3	184	F	mg/Kg	☼	59	80 - 120		

Lab Sample ID: 320-1024-2 MSD — **Client Sample ID: EC-06-TS-101612**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 7411 — **Prep Batch: 7201**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	140	B	82.7	198	F	mg/Kg	☼	75	80 - 120	8	35

Method: D 2216 - Percent Moisture

Lab Sample ID: 640-41081-A-2 DU — **Client Sample ID: Duplicate**
Matrix: Tissue — **Prep Type: Total/NA**
Analysis Batch: 6702

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Moisture	14			14		%				0.8	20
Percent Solids	86			86		%				0.1	20

QC Association Summary

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Metals

Prep Batch: 6352

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-1024-1	JC-01-TS-101612	Total/NA	Tissue	3050B	
320-1024-2	EC-06-TS-101612	Total/NA	Tissue	3050B	
320-1024-3	EC-04-TS-101612	Total/NA	Tissue	3050B	
320-1024-4	EC-04-TSD-101612	Total/NA	Tissue	3050B	
320-1024-5	EC-01-TS-101612	Total/NA	Tissue	3050B	
320-1024-A-1-B MS	320-1024-A-1-B MS	Total/NA	Tissue	3050B	
320-1024-A-1-C MSD	320-1024-A-1-C MSD	Total/NA	Tissue	3050B	
LCS 320-6352/2-A	Lab Control Sample	Total/NA	Tissue	3050B	
MB 320-6352/1-A	Method Blank	Total/NA	Tissue	3050B	

Analysis Batch: 7102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-1024-1	JC-01-TS-101612	Total/NA	Tissue	6020	6352
320-1024-2	EC-06-TS-101612	Total/NA	Tissue	6020	6352
320-1024-3	EC-04-TS-101612	Total/NA	Tissue	6020	6352
320-1024-4	EC-04-TSD-101612	Total/NA	Tissue	6020	6352
320-1024-5	EC-01-TS-101612	Total/NA	Tissue	6020	6352
320-1024-A-1-B MS	320-1024-A-1-B MS	Total/NA	Tissue	6020	6352
320-1024-A-1-C MSD	320-1024-A-1-C MSD	Total/NA	Tissue	6020	6352
LCS 320-6352/2-A	Lab Control Sample	Total/NA	Tissue	6020	6352
MB 320-6352/1-A	Method Blank	Total/NA	Tissue	6020	6352

Prep Batch: 7201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-1024-1	JC-01-TS-101612	Total/NA	Tissue	3050B	
320-1024-2	EC-06-TS-101612	Total/NA	Tissue	3050B	
320-1024-2 MS	EC-06-TS-101612	Total/NA	Tissue	3050B	
320-1024-2 MSD	EC-06-TS-101612	Total/NA	Tissue	3050B	
320-1024-3	EC-04-TS-101612	Total/NA	Tissue	3050B	
320-1024-4	EC-04-TSD-101612	Total/NA	Tissue	3050B	
320-1024-5	EC-01-TS-101612	Total/NA	Tissue	3050B	
LCS 320-7201/2-A	Lab Control Sample	Total/NA	Tissue	3050B	
MB 320-7201/1-A	Method Blank	Total/NA	Tissue	3050B	

Analysis Batch: 7411

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-1024-1	JC-01-TS-101612	Total/NA	Tissue	6020	7201
320-1024-2	EC-06-TS-101612	Total/NA	Tissue	6020	7201
320-1024-2 MS	EC-06-TS-101612	Total/NA	Tissue	6020	7201
320-1024-2 MSD	EC-06-TS-101612	Total/NA	Tissue	6020	7201
320-1024-3	EC-04-TS-101612	Total/NA	Tissue	6020	7201
320-1024-5	EC-01-TS-101612	Total/NA	Tissue	6020	7201
LCS 320-7201/2-A	Lab Control Sample	Total/NA	Tissue	6020	7201
MB 320-7201/1-A	Method Blank	Total/NA	Tissue	6020	7201

Analysis Batch: 7412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-1024-4	EC-04-TSD-101612	Total/NA	Tissue	6020	7201

QC Association Summary

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

General Chemistry

Analysis Batch: 6702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-1024-1	JC-01-TS-101612	Total/NA	Tissue	D 2216	
320-1024-2	EC-06-TS-101612	Total/NA	Tissue	D 2216	
320-1024-3	EC-04-TS-101612	Total/NA	Tissue	D 2216	
320-1024-4	EC-04-TSD-101612	Total/NA	Tissue	D 2216	
320-1024-5	EC-01-TS-101612	Total/NA	Tissue	D 2216	
640-41081-A-2 DU	Duplicate	Total/NA	Tissue	D 2216	
640-41140-A-8 MSD	Matrix Spike Duplicate	Total/NA	Tissue	D 2216	
640-41140-B-8 MS	Matrix Spike	Total/NA	Tissue	D 2216	

Lab Chronicle

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Client Sample ID: JC-01-TS-101612 — Lab Sample ID: 320-1024-1

Date Collected: 10/16/12 08:30 — **Matrix: Tissue**
Date Received: 10/24/12 09:30 — **Percent Solids: 25.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.05 g	100 mL	6352	11/27/12 07:56	NM	TAL WSC
Total/NA	Analysis	6020		1			7102	12/07/12 20:51		TAL WSC
Total/NA	Prep	3050B			1.0 g	100 mL	7201	12/13/12 07:05	NM	TAL WSC
Total/NA	Analysis	6020		1			7411	12/13/12 19:52	TP	TAL WSC
Total/NA	Analysis	D 2216		1			6702	11/30/12 15:53	AH	TAL WSC

Client Sample ID: EC-06-TS-101612 — Lab Sample ID: 320-1024-2

Date Collected: 10/16/12 09:40 — **Matrix: Tissue**
Date Received: 10/24/12 09:30 — **Percent Solids: 24.2**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.05 g	100 mL	6352	11/27/12 07:56	NM	TAL WSC
Total/NA	Analysis	6020		1			7102	12/07/12 21:12		TAL WSC
Total/NA	Prep	3050B			1.04 g	100 mL	7201	12/13/12 07:05	NM	TAL WSC
Total/NA	Analysis	6020		1			7411	12/13/12 19:54	TP	TAL WSC
Total/NA	Analysis	D 2216		1			6702	11/30/12 15:53	AH	TAL WSC

Client Sample ID: EC-04-TS-101612 — Lab Sample ID: 320-1024-3

Date Collected: 10/16/12 10:45 — **Matrix: Tissue**
Date Received: 10/24/12 09:30 — **Percent Solids: 28.5**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.02 g	100 mL	6352	11/27/12 07:56	NM	TAL WSC
Total/NA	Analysis	6020		1			7102	12/07/12 21:14		TAL WSC
Total/NA	Prep	3050B			1.0 g	100 mL	7201	12/13/12 07:05	NM	TAL WSC
Total/NA	Analysis	6020		1			7411	12/13/12 20:13	TP	TAL WSC
Total/NA	Analysis	D 2216		1			6702	11/30/12 15:53	AH	TAL WSC

Client Sample ID: EC-04-TSD-101612 — Lab Sample ID: 320-1024-4

Date Collected: 10/16/12 11:00 — **Matrix: Tissue**
Date Received: 10/24/12 09:30 — **Percent Solids: 24.6**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.96 g	100 mL	6352	11/27/12 07:56	NM	TAL WSC
Total/NA	Analysis	6020		1			7102	12/07/12 21:17		TAL WSC
Total/NA	Prep	3050B			1.03 g	100 mL	7201	12/13/12 07:05	NM	TAL WSC
Total/NA	Analysis	6020		1			7412	12/14/12 11:42	TP	TAL WSC
Total/NA	Analysis	D 2216		1			6702	11/30/12 15:53	AH	TAL WSC

Lab Chronicle

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Client Sample ID: EC-01-TS-101612

Lab Sample ID: 320-1024-5

Date Collected: 10/16/12 12:30

Matrix: Tissue

Date Received: 10/24/12 09:30

Percent Solids: 22.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.99 g	100 mL	6352	11/27/12 07:56	NM	TAL WSC
Total/NA	Analysis	6020		1			7102	12/07/12 21:19		TAL WSC
Total/NA	Prep	3050B			0.95 g	100 mL	7201	12/13/12 07:05	NM	TAL WSC
Total/NA	Analysis	6020		1			7411	12/13/12 20:18	TP	TAL WSC
Total/NA	Analysis	D 2216		1			6702	11/30/12 15:53	AH	TAL WSC

Laboratory References:

TAL WSC = TestAmerica West Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Laboratory: TestAmerica West Sacramento

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

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-14
Alaska (UST)	State Program	10	UST-055	12-18-12
Arizona	State Program	9	AZ0708	08-11-13
Arkansas DEQ	State Program	6	88-0691	06-17-13
California	NELAC	9	1119CA	01-31-13
Colorado	State Program	8	N/A	08-31-13
Connecticut	State Program	1	PH-0691	06-30-13
Florida	NELAC	4	E87570	06-30-13
Guam	State Program	9	N/A	08-31-13
Hawaii	State Program	9	N/A	01-31-13
Illinois	NELAC	5	200060	03-17-13
Kansas	NELAC	7	E-10375	10-31-13
Louisiana	NELAC	6	30612	06-30-13
Michigan	State Program	5	9947	01-31-13
Nevada	State Program	9	CA44	07-31-13
New Jersey	NELAC	2	CA005	06-30-13
New York	NELAC	2	11666	04-01-13
Northern Mariana Islands	State Program	9	MP0007	01-31-13
Oregon	NELAC	10	CA200005	03-28-13
Pennsylvania	NELAC	3	68-01272	03-31-13
South Carolina	State Program	4	87014	06-30-13
Texas	NELAC	6	T104704399-08-TX	05-31-13
US Fish & Wildlife	Federal		LE148388-0	02-28-13
USDA	Federal		P330-11-00436	12-30-14
Utah	NELAC	8	QUAN1	01-31-13
Washington	State Program	10	C581	05-05-13
West Virginia	State Program	3	9930C	12-31-12
West Virginia DEP	State Program	3	334	07-31-13
Wyoming	State Program	8	8TMS-Q	01-31-13

Method Summary

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL WSC
D 2216	Percent Moisture	ASTM	TAL WSC

Protocol References:

ASTM = ASTM International

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

Laboratory References:

TAL WSC = TestAmerica West Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: EcoAnalysts
Project/Site: Blue Ledge Mine

TestAmerica Job ID: 320-1024-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-1024-1	JC-01-TS-101612	Tissue	10/16/12 08:30	10/24/12 09:30
320-1024-2	EC-06-TS-101612	Tissue	10/16/12 09:40	10/24/12 09:30
320-1024-3	EC-04-TS-101612	Tissue	10/16/12 10:45	10/24/12 09:30
320-1024-4	EC-04-TSD-101612	Tissue	10/16/12 11:00	10/24/12 09:30
320-1024-5	EC-01-TS-101612	Tissue	10/16/12 12:30	10/24/12 09:30

EcoAnalysts, Inc.

EcoAnalysts, Inc.
1420 S. Blaine St., Suite 14
Moscow, ID 83843
(208) 882-2588

320-1024 Chain of

5895.4

EcoAnalysts Project# :	
Company:	Engineering Remediation Resource Group
Total # of Samples this project:	5
# of Samples Shipped this shipment:	5

	# Containers	Site #	Date	Device	Habitat	Notes:
1	1 bag	Joe Creek	10/16/12	Electrofish	Riffle	Collected @ 0830 (JC-01-TS-101612)
2	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-06-TS-101612 @ 0940
3	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-04-TS-101612 @ 1045
4	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-04-TSD-101612 @ 1100
5	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-01-TS-101612 @ 1230
						Analyze for Metals:
						- Arsenic
						- Cadmium
						- Copper
						- Iron
						- Lead
						- Zinc
						- Analyze for % Moisture

Relinquished By: Date: Company:	Greg N. Jacobsen / 10/18/12 EIG	Condition: Frozen / on ice
Received By: Date: Company:	Jennifer Reynolds 10/19/12 EcoAnalysts, Inc.	Condition:
Relinquished By: Date: Company:	Jennifer Reynolds 10/22/2012 EcoAnalysts, Inc.	Condition: Good
Received By: Date: Company:	Mark Barnett 10/24/12 1320 TAL-WS	Condition: 1.8°
Relinquished By: Date: Company:		Condition:
Received By: Date: Company:		Condition:

Login Sample Receipt Checklist

Client: EcoAnalysts

Job Number: 320-1024-1

Login Number: 1024

List Source: TestAmerica West Sacramento

List Number: 1

Creator: Hytrek, Cheryl

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

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, December 12, 2012

Kim Jones
Engineering/Remediation Resource Group, Inc
4585 Pacheco Blvd, Suite 200 (Corporate address)
Martinez, CA 94553

RE: Blue Ledge Mine / 2010-084

Enclosed are the results of analyses for work order A12J470, which was received by the laboratory on 10/18/2012 at 10:30:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Darwin Thomas, Business Development Director

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503-718-2323 Phone
503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BL-DW-541-101612	A12J470-01	Water	10/16/12 11:20	10/18/12 10:30
BL-DW-541-101612MSMSD	A12J470-02	Water	10/16/12 11:20	10/18/12 10:30
BL-DW-17607-101612	A12J470-03	Water	10/16/12 11:35	10/18/12 10:30
BL-DW-17607-101612DUP	A12J470-04	Water	10/16/12 11:35	10/18/12 10:30
BL-DW-462-101612	A12J470-05	Water	10/16/12 13:03	10/18/12 10:30
BL-DW-12620-101612	A12J470-06	Water	10/16/12 11:00	10/18/12 10:30
BL-DW-12620Irrig-101612	A12J470-07	Water	10/16/12 11:05	10/18/12 10:30
BL-SW-JC10-101612	A12J470-08	Water	10/16/12 13:39	10/18/12 10:30
BL-SW-JC10-101612MSMSD	A12J470-09	Water	10/16/12 13:39	10/18/12 10:30
BL-SW-JC09-101612	A12J470-10	Water	10/16/12 14:09	10/18/12 10:30
BL-SW-JC08-101612	A12J470-11	Water	10/16/12 14:25	10/18/12 10:30
BL-SW-JC08-101612DUP	A12J470-12	Water	10/16/12 14:25	10/18/12 10:30
BL-SW-JC01-101612	A12J470-13	Water	10/16/12 09:10	10/18/12 10:30
BL-SW-EC06-101612	A12J470-14	Water	10/16/12 09:30	10/18/12 10:30
BL-SW-EC04-101612	A12J470-15	Water	10/16/12 11:50	10/18/12 10:30
BL-CS-JC10-101612	A12J470-16	Soil	10/16/12 13:55	10/18/12 10:30
BL-CS-JC09-101612	A12J470-17	Soil	10/16/12 14:12	10/18/12 10:30
BL-CS-JC09-101612DUP	A12J470-18	Soil	10/16/12 14:12	10/18/12 10:30
BL-CS-JC08-101612	A12J470-19	Soil	10/16/12 14:22	10/18/12 10:30
BL-CS-JC01-101612	A12J470-20	Soil	10/16/12 09:15	10/18/12 10:30
BL-CS-JC01-101612MSMSD	A12J470-21	Soil	10/16/12 09:15	10/18/12 10:30
BL-CS-EC06-101612	A12J470-22	Soil	10/16/12 09:45	10/18/12 10:30
BL-CS-EC04-101612	A12J470-23	Soil	10/16/12 12:00	10/18/12 10:30

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-541-101612 (A12J470-01)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**17.6**	---	1.00	mg/L	1	10/23/12 16:46	EPA 300.0	
BL-DW-541-101612MSMSD (A12J470-02)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**17.6**	---	1.00	mg/L	1	10/23/12 17:07	EPA 300.0	
BL-DW-17607-101612 (A12J470-03)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**22.6**	---	1.00	mg/L	1	10/23/12 17:27	EPA 300.0	
BL-DW-17607-101612DUP (A12J470-04)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**22.7**	---	1.00	mg/L	1	10/23/12 17:47	EPA 300.0	
BL-DW-462-101612 (A12J470-05RE1)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**70.6**	---	5.00	mg/L	5	10/24/12 00:46	EPA 300.0	
BL-DW-12620-101612 (A12J470-06)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**21.9**	---	1.00	mg/L	1	10/23/12 18:28	EPA 300.0	
BL-DW-12620Irrig-101612 (A12J470-07)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**9.95**	---	1.00	mg/L	1	10/23/12 19:29	EPA 300.0	
BL-SW-JC10-101612 (A12J470-08)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**4.85**	---	1.00	mg/L	1	10/23/12 19:50	EPA 300.0	
BL-SW-JC10-101612MSMSD (A12J470-09)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**4.89**	---	1.00	mg/L	1	10/23/12 20:21	EPA 300.0	
BL-SW-JC09-101612 (A12J470-10)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**5.26**	---	1.00	mg/L	1	10/23/12 21:22	EPA 300.0	
BL-SW-JC08-101612 (A12J470-11)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**6.01**	---	1.00	mg/L	1	10/23/12 21:43	EPA 300.0	
BL-SW-JC08-101612DUP (A12J470-12)			**Matrix: Water**					

Apex Laboratories

Darwin Thomas, Business Development Director

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503-718-2323 Phone
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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-SW-JC08-101612DUP (A12J470-12)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**6.00**	---	1.00	mg/L	1	10/23/12 22:03	EPA 300.0	
BL-SW-JC01-101612 (A12J470-13)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**12.8**	---	1.00	mg/L	1	10/23/12 22:23	EPA 300.0	
BL-SW-EC06-101612 (A12J470-14)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**6.15**	---	1.00	mg/L	1	10/23/12 22:44	EPA 300.0	
BL-SW-EC04-101612 (A12J470-15)			**Matrix: Water**					
Batch: 1210693								
Sulfate	**6.75**	---	1.00	mg/L	1	10/23/12 23:45	EPA 300.0	

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Hardness (Calculated) by EPA 6020

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-541-101612 (A12J470-01)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**252**	---	1.45	mg CaCO3/L	5	10/30/12 09:53	6020 Calc	
BL-DW-541-101612MSMSD (A12J470-02)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**253**	---	1.45	mg CaCO3/L	5	10/30/12 09:56	6020 Calc	
BL-DW-17607-101612 (A12J470-03)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**275**	---	1.45	mg CaCO3/L	5	10/30/12 10:02	6020 Calc	
BL-DW-17607-101612DUP (A12J470-04)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**271**	---	1.45	mg CaCO3/L	5	10/30/12 10:05	6020 Calc	
BL-DW-462-101612 (A12J470-05)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**223**	---	1.45	mg CaCO3/L	5	10/30/12 10:12	6020 Calc	
BL-DW-12620-101612 (A12J470-06)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**269**	---	1.45	mg CaCO3/L	5	11/01/12 21:07	6020 Calc	
BL-DW-12620Irrig-101612 (A12J470-07)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**210**	---	1.45	mg CaCO3/L	5	11/01/12 21:20	6020 Calc	
BL-SW-JC10-101612 (A12J470-08)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**38.5**	---	0.456	mg CaCO3/L	1	10/27/12 12:10	6020 Calc	
BL-SW-JC10-101612MSMSD (A12J470-09)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**38.6**	---	0.456	mg CaCO3/L	1	10/27/12 12:13	6020 Calc	
BL-SW-JC09-101612 (A12J470-10)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**35.1**	---	0.456	mg CaCO3/L	1	10/27/12 12:26	6020 Calc	
BL-SW-JC08-101612 (A12J470-11)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**34.6**	---	0.456	mg CaCO3/L	1	10/27/12 12:29	6020 Calc	
BL-SW-JC08-101612DUP (A12J470-12)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**34.7**	---	0.456	mg CaCO3/L	1	10/27/12 12:32	6020 Calc	

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Darwin Thomas, Business Development Director

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503-718-2323 Phone
503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Hardness (Calculated) by EPA 6020

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-SW-JC01-101612 (A12J470-13)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**68.5**	---	0.456	mg CaCO3/L	1	10/27/12 12:35	6020 Calc	
BL-SW-EC06-101612 (A12J470-14)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**72.8**	---	0.456	mg CaCO3/L	1	10/27/12 12:38	6020 Calc	
BL-SW-EC04-101612 (A12J470-15)			**Matrix: Water**		**Batch: [CALC]**			
Hardness (Calc by 6020) - Dissolved	**72.8**	---	0.456	mg CaCO3/L	1	10/27/12 12:41	6020 Calc	

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Darwin Thomas, Business Development Director

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503-718-2323 Phone
503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-JC10-101612 (A12J470-16)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**2.23**	0.655	2.62	mg/kg dry	10	10/26/12 19:06	EPA 6020	J
Cadmium	ND	0.655	1.31	"	"	"	"	
Copper	**45.1**	---	2.62	"	"	"	"	
Iron	**14500**	---	65.5	"	"	"	"	
Lead	**1.90**	---	1.31	"	"	"	"	
Zinc	**29.3**	---	5.24	"	"	"	"	
BL-CS-JC09-101612 (A12J470-17)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**22.7**	0.688	2.75	mg/kg dry	10	10/26/12 19:19	EPA 6020	
Cadmium	**4.14**	0.688	1.38	"	"	"	"	
Copper	**1480**	---	2.75	"	"	"	"	
Iron	**38700**	---	68.8	"	"	"	"	
Lead	**403**	---	1.38	"	"	"	"	
Zinc	**707**	---	5.50	"	"	"	"	
BL-CS-JC09-101612DUP (A12J470-18)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**14.4**	0.636	2.54	mg/kg dry	10	10/26/12 19:22	EPA 6020	
Cadmium	**2.77**	0.636	1.27	"	"	"	"	
Copper	**1170**	---	2.54	"	"	"	"	
Iron	**29200**	---	63.6	"	"	"	"	
Lead	**43.4**	---	1.27	"	"	"	"	
Zinc	**463**	---	5.09	"	"	"	"	
BL-CS-JC08-101612 (A12J470-19)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**37.2**	0.684	2.74	mg/kg dry	10	10/26/12 19:25	EPA 6020	
Cadmium	**6.61**	0.684	1.37	"	"	"	"	
Copper	**1750**	---	2.74	"	"	"	"	
Iron	**38100**	---	68.4	"	"	"	"	
Lead	**84.4**	---	1.37	"	"	"	"	
Zinc	**1160**	---	5.47	"	"	"	"	
BL-CS-JC01-101612 (A12J470-20)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**1.12**	0.600	2.40	mg/kg dry	10	10/26/12 19:34	EPA 6020	J
Cadmium	**1.60**	0.600	1.20	"	"	"	"	

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-JC01-101612 (A12J470-20)			**Matrix: Soil**					
Copper	**271**	---	2.40	mg/kg dry	10	"	EPA 6020	
Iron	**10300**	---	60.0	"	"	"	"	
Lead	**2.57**	---	1.20	"	"	"	"	
Zinc	**314**	---	4.80	"	"	"	"	
BL-CS-JC01-101612MSMSD (A12J470-21)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**4.13**	0.604	2.42	mg/kg dry	10	10/26/12 19:37	EPA 6020	
Cadmium	**2.02**	0.604	1.21	"	"	"	"	
Copper	**377**	---	2.42	"	"	"	"	
Iron	**14900**	---	60.4	"	"	"	"	
Lead	**6.01**	---	1.21	"	"	"	"	
Zinc	**460**	---	4.83	"	"	"	"	
BL-CS-EC06-101612 (A12J470-22)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**5.41**	0.753	3.01	mg/kg dry	10	10/26/12 19:40	EPA 6020	
Cadmium	ND	0.753	1.51	"	"	"	"	
Copper	**38.5**	---	3.01	"	"	"	"	
Iron	**18900**	---	75.3	"	"	"	"	
Lead	**7.58**	---	1.51	"	"	"	"	
Zinc	**42.2**	---	6.03	"	"	"	"	
BL-CS-EC04-101612 (A12J470-23)			**Matrix: Soil**					
Batch: 1210803								
Arsenic	**3.53**	0.669	2.68	mg/kg dry	10	10/26/12 19:43	EPA 6020	
Cadmium	ND	0.669	1.34	"	"	"	"	
Copper	**39.2**	---	2.68	"	"	"	"	
Iron	**15500**	---	66.9	"	"	"	"	
Lead	**5.03**	---	1.34	"	"	"	"	
Zinc	**47.0**	---	5.35	"	"	"	"	

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-541-101612 (A12J470-01)			**Matrix: Water**					
Batch: 1210787								
Arsenic	**6.43**	0.500	2.00	ug/L	1	10/27/12 11:34	EPA 6020 (Diss)	FILT1
Cadmium	**0.0556**	0.0400	0.200	"	"	"	"	FILT1, J
Calcium	**72200**	---	500	"	5	10/30/12 09:53	"	
Copper	**9.70**	---	2.00	"	1	10/27/12 11:34	"	B-02, FILT1
Iron	**953**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**17500**	---	50.0	"	"	"	"	FILT1
Zinc	**32.2**	---	4.00	"	"	"	"	FILT1
BL-DW-541-101612MSMSD (A12J470-02)			**Matrix: Water**					
Batch: 1210787								
Arsenic	**5.86**	0.500	2.00	ug/L	1	10/27/12 11:46	EPA 6020 (Diss)	FILT1
Cadmium	ND	0.0400	0.200	"	"	"	"	FILT1
Calcium	**73000**	---	500	"	5	10/30/12 09:56	"	
Copper	**8.44**	---	2.00	"	1	10/27/12 11:46	"	B-02, FILT1
Iron	**938**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**17200**	---	50.0	"	"	"	"	FILT1
Zinc	**34.5**	---	4.00	"	"	"	"	FILT1
BL-DW-17607-101612 (A12J470-03)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 11:52	EPA 6020 (Diss)	FILT1
Cadmium	ND	0.0400	0.200	"	"	"	"	FILT1
Calcium	**67000**	---	500	"	5	10/30/12 10:02	"	
Copper	**4.50**	---	2.00	"	1	10/27/12 11:52	"	B-02, FILT1
Iron	**890**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**26100**	---	50.0	"	"	"	"	FILT1
Zinc	**8.72**	---	4.00	"	"	"	"	FILT1
BL-DW-17607-101612DUP (A12J470-04)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 11:55	EPA 6020 (Diss)	FILT1
Cadmium	ND	0.0400	0.200	"	"	"	"	FILT1

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-17607-101612DUP (A12J470-04)			**Matrix: Water**					
Calcium	**65400**	---	500	ug/L	5	10/30/12 10:05	EPA 6020 (Diss)	
Copper	**5.89**	---	2.00	"	1	10/27/12 11:55	"	B-02, FILT1
Iron	**909**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**26200**	---	50.0	"	"	"	"	FILT1
Zinc	**12.8**	---	4.00	"	"	"	"	FILT1
BL-DW-462-101612 (A12J470-05)			**Matrix: Water**					
Batch: 1210787								
Arsenic	**4.38**	0.500	2.00	ug/L	1	10/27/12 12:01	EPA 6020 (Diss)	FILT1
Cadmium	**0.0667**	0.0400	0.200	"	"	"	"	FILT1, J
Calcium	**71800**	---	500	"	5	10/30/12 10:12	"	
Copper	**29.1**	---	2.00	"	1	10/27/12 12:01	"	B-02, FILT1
Iron	**981**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**10700**	---	50.0	"	"	"	"	FILT1
Zinc	**1210**	---	4.00	"	"	"	"	FILT1
BL-DW-12620-101612 (A12J470-06)			**Matrix: Water**					
Batch: 1210787								
Arsenic	**3.84**	0.500	2.00	ug/L	1	10/27/12 12:04	EPA 6020 (Diss)	FILT1
Cadmium	**0.0667**	0.0400	0.200	"	"	"	"	FILT1, J
Calcium	**88100**	---	500	"	5	11/01/12 21:07	"	
Copper	**4.83**	---	2.00	"	1	10/27/12 12:04	"	B-02, FILT1
Iron	**1110**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**12000**	---	50.0	"	"	"	"	FILT1
Zinc	**30.7**	---	4.00	"	"	"	"	FILT1
BL-DW-12620Irrig-101612 (A12J470-07)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 12:07	EPA 6020 (Diss)	FILT1
Cadmium	**0.0667**	0.0400	0.200	"	"	"	"	FILT1, J
Calcium	**64200**	---	500	"	5	11/01/12 21:20	"	
Copper	ND	---	2.00	"	1	10/27/12 12:07	"	FILT1
Iron	**845**	---	100	"	"	"	"	FILT1

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Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-12620Irrig-101612 (A12J470-07)			**Matrix: Water**					
Lead	ND	---	1.00	ug/L	1	"	EPA 6020 (Diss)	FILT1
Magnesium	**12100**	---	50.0	"	"	"	"	FILT1
Zinc	**19.5**	---	4.00	"	"	"	"	FILT1
BL-SW-JC10-101612 (A12J470-08)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 12:10	EPA 6020 (Diss)	FILT1
Cadmium	ND	0.0400	0.200	"	"	"	"	FILT1
Calcium	**11600**	---	100	"	"	"	"	FILT1
Copper	ND	---	2.00	"	"	"	"	FILT1
Iron	**138**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**2300**	---	50.0	"	"	"	"	FILT1
Zinc	ND	---	4.00	"	"	"	"	FILT1
BL-SW-JC10-101612MSMSD (A12J470-09)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 12:13	EPA 6020 (Diss)	FILT1
Cadmium	ND	0.0400	0.200	"	"	"	"	FILT1
Calcium	**11600**	---	100	"	"	"	"	FILT1
Copper	ND	---	2.00	"	"	"	"	FILT1
Iron	**139**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**2320**	---	50.0	"	"	"	"	FILT1
Zinc	ND	---	4.00	"	"	"	"	FILT1
BL-SW-JC09-101612 (A12J470-10)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 12:26	EPA 6020 (Diss)	FILT1
Cadmium	**0.122**	0.0400	0.200	"	"	"	"	FILT1, J
Calcium	**10800**	---	100	"	"	"	"	FILT1
Copper	**6.61**	---	2.00	"	"	"	"	B-02, FILT1
Iron	**128**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**1990**	---	50.0	"	"	"	"	FILT1
Zinc	**25.5**	---	4.00	"	"	"	"	FILT1
BL-SW-JC08-101612 (A12J470-11)			**Matrix: Water**					

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-SW-JC08-101612 (A12J470-11)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 12:29	EPA 6020 (Diss)	FILT1
Cadmium	**0.211**	0.0400	0.200	"	"	"	"	FILT1
Calcium	**10600**	---	100	"	"	"	"	FILT1
Copper	**10.6**	---	2.00	"	"	"	"	FILT1, B-02
Iron	**129**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**1970**	---	50.0	"	"	"	"	FILT1
Zinc	**34.8**	---	4.00	"	"	"	"	FILT1
BL-SW-JC08-101612DUP (A12J470-12)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 12:32	EPA 6020 (Diss)	FILT1
Cadmium	**0.233**	0.0400	0.200	"	"	"	"	FILT1
Calcium	**10700**	---	100	"	"	"	"	FILT1
Copper	**10.2**	---	2.00	"	"	"	"	B-02, FILT1
Iron	**118**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**1970**	---	50.0	"	"	"	"	FILT1
Zinc	**33.8**	---	4.00	"	"	"	"	FILT1
BL-SW-JC01-101612 (A12J470-13)			**Matrix: Water**					
Batch: 1210787								
Arsenic	ND	0.500	2.00	ug/L	1	10/27/12 12:35	EPA 6020 (Diss)	FILT1
Cadmium	**0.344**	0.0400	0.200	"	"	"	"	FILT1
Calcium	**21000**	---	100	"	"	"	"	FILT1
Copper	**22.8**	---	2.00	"	"	"	"	B-02, FILT1
Iron	**263**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**3910**	---	50.0	"	"	"	"	FILT1
Zinc	**30.3**	---	4.00	"	"	"	"	FILT1
BL-SW-EC06-101612 (A12J470-14)			**Matrix: Water**					
Batch: 1210787								
Arsenic	**0.656**	0.500	2.00	ug/L	1	10/27/12 12:38	EPA 6020 (Diss)	FILT1, J
Cadmium	ND	0.0400	0.200	"	"	"	"	FILT1

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503-718-0333 Fax

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-SW-EC06-101612 (A12J470-14)			**Matrix: Water**					
Calcium	**18800**	---	100	ug/L	1	"	EPA 6020 (Diss)	FILT1
Copper	ND	---	2.00	"	"	"	"	FILT1
Iron	**250**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**6250**	---	50.0	"	"	"	"	FILT1
Zinc	ND	---	4.00	"	"	"	"	FILT1
BL-SW-EC04-101612 (A12J470-15)			**Matrix: Water**					
Batch: 1210787								
Arsenic	**0.556**	0.500	2.00	ug/L	1	10/27/12 12:41	EPA 6020 (Diss)	FILT1, J
Cadmium	ND	0.0400	0.200	"	"	"	"	FILT1
Calcium	**19100**	---	100	"	"	"	"	FILT1
Copper	**5.87**	---	2.00	"	"	"	"	B-02, FILT1
Iron	**257**	---	100	"	"	"	"	FILT1
Lead	ND	---	1.00	"	"	"	"	FILT1
Magnesium	**6080**	---	50.0	"	"	"	"	FILT1
Zinc	ND	---	4.00	"	"	"	"	FILT1

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Tigard, OR 97223
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503-718-0333 Fax

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Dissolved Arsenic by ICPMS with Hydride Preparation

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-17607-101612 (A12J470-03RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.188**	0.0200	0.0500	ug/L	1	11/13/12 10:14	HG-ICPMS (Diss)	FILT1
BL-DW-17607-101612DUP (A12J470-04RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.188**	0.0200	0.0500	ug/L	1	11/13/12 10:18	HG-ICPMS (Diss)	FILT1
BL-DW-12620Irrig-101612 (A12J470-07RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.104**	0.0200	0.0500	ug/L	1	11/13/12 10:21	HG-ICPMS (Diss)	FILT1
BL-SW-JC10-101612 (A12J470-08RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.0538**	0.0200	0.0500	ug/L	1	11/13/12 10:23	HG-ICPMS (Diss)	FILT1
BL-SW-JC10-101612MSMSD (A12J470-09RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.0488**	0.0200	0.0500	ug/L	1	11/13/12 10:49	HG-ICPMS (Diss)	FILT1, J
BL-SW-JC09-101612 (A12J470-10RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.0484**	0.0200	0.0500	ug/L	1	11/13/12 10:28	HG-ICPMS (Diss)	FILT1, J
BL-SW-JC08-101612 (A12J470-11RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.0521**	0.0200	0.0500	ug/L	1	11/13/12 10:32	HG-ICPMS (Diss)	FILT1
BL-SW-JC08-101612DUP (A12J470-12RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.0475**	0.0200	0.0500	ug/L	1	11/13/12 10:51	HG-ICPMS (Diss)	FILT1, J
BL-SW-JC01-101612 (A12J470-13RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.0689**	0.0200	0.0500	ug/L	1	11/13/12 10:39	HG-ICPMS (Diss)	FILT1
BL-SW-EC06-101612 (A12J470-14RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.450**	0.0200	0.0500	ug/L	1	11/13/12 10:42	HG-ICPMS (Diss)	FILT1
BL-SW-EC04-101612 (A12J470-15RE1)			**Matrix: Water**		**Batch: 1211275**			
Arsenic	**0.399**	0.0200	0.0500	ug/L	1	11/13/12 11:28	HG-ICPMS (Diss)	FILT1

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-541-101612 (A12J470-01)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**272**	---	20.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**234**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**234**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-DW-541-101612MSMSD (A12J470-02)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**282**	---	20.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**235**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**235**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-DW-17607-101612 (A12J470-03)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**354**	---	20.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**254**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**254**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-DW-17607-101612DUP (A12J470-04)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**306**	---	20.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**251**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	

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503-718-2323 Phone
503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-DW-17607-101612DUP (A12J470-04)			**Matrix: Water**					
Bicarbonate Alkalinity	**251**	---	20.0	mg CaCO3/L	1	"	SM 2320 B	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-DW-462-101612 (A12J470-05)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**348**	---	20.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**157**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**157**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-DW-12620-101612 (A12J470-06)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**300**	---	20.0	"	"	10/25/12 11:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**244**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**244**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-DW-12620Irrig-101612 (A12J470-07)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**231**	---	10.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**197**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**197**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-JC10-101612 (A12J470-08)			**Matrix: Water**					
Batch: 1210680								

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-SW-JC10-101612 (A12J470-08)			**Matrix: Water**					
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**50.0**	---	10.0	"	"	10/25/12 12:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**33.6**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**33.6**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-JC10-101612MSMSD (A12J470-09)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**51.0**	---	10.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**33.2**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**33.2**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-JC09-101612 (A12J470-10)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**44.0**	---	10.0	"	"	10/25/12 11:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**28.8**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**28.8**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-JC08-101612 (A12J470-11)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	**6.00**	---	5.00	mg/L	1	10/23/12 18:15	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**50.0**	---	10.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**28.4**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**28.4**	---	20.0	"	"	"	"	

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-SW-JC08-101612 (A12J470-11)			**Matrix: Water**					
Carbonate Alkalinity	ND	---	20.0	mg CaCO3/L	1	"	SM 2320 B	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-JC08-101612DUP (A12J470-12)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	**9.00**	---	5.00	mg/L	1	10/23/12 18:15	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**46.0**	---	10.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**28.6**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**28.6**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-JC01-101612 (A12J470-13)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**91.0**	---	10.0	"	"	10/25/12 09:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**55.2**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**55.2**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-EC06-101612 (A12J470-14)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	
Batch: 1210683								
Total Dissolved Solids	**98.0**	---	10.0	"	"	10/25/12 12:00	SM 2540 C	
Batch: 1210833								
Total Alkalinity	**67.8**	---	20.0	mg CaCO3/L	"	10/29/12 16:53	SM 2320 B	
Bicarbonate Alkalinity	**67.8**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	
BL-SW-EC04-101612 (A12J470-15)			**Matrix: Water**					
Batch: 1210680								
Total Suspended Solids	ND	---	5.00	mg/L	1	10/23/12 16:00	SM 2540 D	

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-SW-EC04-101612 (A12J470-15)			**Matrix: Water**					
Batch: 1210683								
Total Dissolved Solids	**101**	---	10.0	mg/L	1	10/25/12 09:00	SM 2540 C	
Batch: 1210851								
Total Alkalinity	**66.2**	---	20.0	mg CaCO3/L	"	10/29/12 16:58	SM 2320 B	
Bicarbonate Alkalinity	**66.2**	---	20.0	"	"	"	"	
Carbonate Alkalinity	ND	---	20.0	"	"	"	"	
Hydroxide Alkalinity	ND	---	20.0	"	"	"	"	

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Grain Size by ASTM D 422

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-JC10-101612 (A12J470-16)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**23.76**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**14.04**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**18.00**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**18.82**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**10.97**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**5.77**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**2.20**	---		"	"	"	"	GS-01
Percent Retained 0.075 mm sieve (#200)	**1.68**	---		"	"	"	"	GS-01
Percent Retained 0.063 mm sieve (#230)	**0.70**	---		"	"	"	"	GS-01
Silt (> 0.005 mm < 0.063 mm)	**4.00**	---		"	"	"	"	GS-01
Clay (< 0.005 mm)	**0.80**	---		"	"	"	"	GS-01
BL-CS-JC09-101612 (A12J470-17)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**13.17**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**17.80**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**22.67**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**19.77**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**9.34**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**4.59**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**1.99**	---		"	"	"	"	GS-01
Percent Retained 0.075 mm sieve (#200)	**1.87**	---		"	"	"	"	GS-01
Percent Retained 0.063 mm sieve (#230)	**0.98**	---		"	"	"	"	GS-01
Silt (> 0.005 mm < 0.063 mm)	**7.80**	---		"	"	"	"	GS-01
Clay (< 0.005 mm)	**1.00**	---		"	"	"	"	GS-01

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503-718-0333 Fax

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Grain Size by ASTM D 422

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-JC09-101612DUP (A12J470-18)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**27.35**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**25.71**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**15.56**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**10.55**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**7.31**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**5.12**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**2.08**	---		"	"	"	"	GS-01
Percent Retained 0.075 mm sieve (#200)	**1.66**	---		"	"	"	"	GS-01
Percent Retained 0.063 mm sieve (#230)	**0.74**	---		"	"	"	"	GS-01
Silt (> 0.005 mm < 0.063 mm)	**4.20**	---		"	"	"	"	GS-01
Clay (< 0.005 mm)	**0.50**	---		"	"	"	"	GS-01
BL-CS-JC08-101612 (A12J470-19)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**23.57**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**28.60**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**22.89**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**14.75**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**4.64**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**1.86**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**0.66**	---		"	"	"	"	GS-01
Percent Retained 0.075 mm sieve (#200)	**0.57**	---		"	"	"	"	GS-01
Percent Retained 0.063 mm sieve (#230)	**0.29**	---		"	"	"	"	GS-01
Silt (> 0.005 mm < 0.063 mm)	**2.20**	---		"	"	"	"	GS-01

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Grain Size by ASTM D 422

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-JC08-101612 (A12J470-19)			**Matrix: Soil**		**Batch: 1210927**			
Clay (< 0.005 mm)	**0.30**	---		% of Total	1	"	ASTM D 422m	GS-01
BL-CS-JC01-101612 (A12J470-20)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**29.30**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**42.73**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**21.36**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**4.43**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**0.76**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**0.33**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**0.15**	---		"	"	"	"	GS-01
Percent Retained 0.075 mm sieve (#200)	**0.13**	---		"	"	"	"	GS-01
Percent Retained 0.063 mm sieve (#230)	**0.07**	---		"	"	"	"	GS-01
Silt (> 0.005 mm < 0.063 mm)	**0.70**	---		"	"	"	"	GS-01
Clay (< 0.005 mm)	**0.10**	---		"	"	"	"	GS-01
BL-CS-JC01-101612MSMSD (A12J470-21)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**24.25**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**48.67**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**18.87**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**4.92**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**1.17**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**0.57**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**0.25**	---		"	"	"	"	GS-01
Percent Retained 0.075 mm sieve (#200)	**0.22**	---		"	"	"	"	GS-01

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Grain Size by ASTM D 422

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-JC01-101612MSMSD (A12J470-21)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 0.063 mm sieve (#230)	**0.11**	---		% of Total	1	"	ASTM D 422m	GS-01
Silt (> 0.005 mm < 0.063 mm)	**1.00**	---		"	"	"	"	GS-01
Clay (< 0.005 mm)	**0.10**	---		"	"	"	"	GS-01
BL-CS-EC06-101612 (A12J470-22)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**0.20**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**0.28**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**1.18**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**8.50**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**22.80**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**32.04**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**14.17**	---		"	"	"	"	GS-01
Percent Retained 0.075 mm sieve (#200)	**8.47**	---		"	"	"	"	GS-01
Percent Retained 0.063 mm sieve (#230)	**2.89**	---		"	"	"	"	GS-01
Silt (> 0.005 mm < 0.063 mm)	**10.30**	---		"	"	"	"	GS-01
Clay (< 0.005 mm)	**2.10**	---		"	"	"	"	GS-01
BL-CS-EC04-101612 (A12J470-23)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 4.75 mm sieve (#4)	**2.95**	---		% of Total	1	11/02/12 10:14	ASTM D 422m	GS-01
Percent Retained 2.00 mm sieve (#10)	**7.29**	---		"	"	"	"	GS-01
Percent Retained 0.85 mm sieve (#20)	**21.39**	---		"	"	"	"	GS-01
Percent Retained 0.425 mm sieve (#40)	**36.46**	---		"	"	"	"	GS-01
Percent Retained 0.250 mm sieve (#60)	**19.66**	---		"	"	"	"	GS-01
Percent Retained 0.150 mm sieve (#100)	**6.82**	---		"	"	"	"	GS-01
Percent Retained 0.106 mm sieve (#140)	**1.62**	---		"	"	"	"	GS-01

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Grain Size by ASTM D 422

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-EC04-101612 (A12J470-23)			**Matrix: Soil**		**Batch: 1210927**			
Percent Retained 0.075 mm sieve (#200)	**1.00**	---		% of Total	1	"	ASTM D 422m	GS-01
Percent Retained 0.063 mm sieve (#230)	**0.37**	---		"	"	"	"	GS-01
Silt (> 0.005 mm < 0.063 mm)	**2.00**	---		"	"	"	"	GS-01
Clay (< 0.005 mm)	**0.80**	---		"	"	"	"	GS-01

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
BL-CS-JC10-101612 (A12J470-16)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**78.2**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	
BL-CS-JC09-101612 (A12J470-17)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**77.5**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	
BL-CS-JC09-101612DUP (A12J470-18)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**84.4**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	
BL-CS-JC08-101612 (A12J470-19)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**75.8**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	
BL-CS-JC01-101612 (A12J470-20)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**84.3**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	
BL-CS-JC01-101612MSMSD (A12J470-21)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**82.9**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	
BL-CS-EC06-101612 (A12J470-22)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**69.0**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	
BL-CS-EC04-101612 (A12J470-23)			**Matrix: Soil**		**Batch: 1210667**			
% Solids	**74.9**	---	1.00	% by Weight	1	10/23/12 10:41	Apex SOP	

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Anions by EPA 300.0/9056A (Ion Chromatography)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210693 - Method Prep: Aq							**Water**					
Blank (1210693-BLK1)					Prepared: 10/23/12 10:20		Analyzed: 10/23/12 14:03					
EPA 300.0												
Sulfate	ND	---	1.00	mg/L	1	---	---	---	---	---	---	
LCS (1210693-BS1)					Prepared: 10/23/12 10:20		Analyzed: 10/23/12 14:24					
EPA 300.0												
Sulfate	3.92	---	1.00	mg/L	1	4.00	---	98	90-110%	---	---	
Duplicate (1210693-DUP2)					Prepared: 10/23/12 10:20		Analyzed: 10/23/12 20:42					
QC Source Sample: BL-SW-JC10-101612MSMSD (A12J470-09)												
EPA 300.0												
Sulfate	**4.88**	---	1.00	mg/L	1	---	4.89	---	---	0.2	15%	
Matrix Spike (1210693-MS2)					Prepared: 10/23/12 10:20		Analyzed: 10/23/12 21:02					
QC Source Sample: BL-SW-JC10-101612MSMSD (A12J470-09)												
EPA 300.0												
Sulfate	9.21	---	1.11	mg/L	1	4.44	4.89	97	80-120%	---	---	

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210803 - EPA 3051A							**Soil**					
Blank (1210803-BLK1)					Prepared: 10/26/12 11:35		Analyzed: 10/26/12 19:00					
EPA 6020												
Arsenic	ND	0.500	2.00	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Copper	ND	---	2.00	"	"	---	---	---	---	---	---	
Iron	ND	---	50.0	"	"	---	---	---	---	---	---	
Lead	ND	---	1.00	"	"	---	---	---	---	---	---	
Zinc	ND	---	4.00	"	"	---	---	---	---	---	---	
LCS (1210803-BS1)					Prepared: 10/26/12 11:35		Analyzed: 10/26/12 19:03					
EPA 6020												
Arsenic	49.0	0.500	2.00	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Cadmium	48.7	0.500	1.00	"	"	"	---	97	"	---	---	
Copper	49.8	---	2.00	"	"	"	---	100	"	---	---	
Iron	4810	---	50.0	"	"	5000	---	96	"	---	---	
Lead	48.2	---	1.00	"	"	50.0	---	96	"	---	---	
Zinc	49.8	---	4.00	"	"	"	---	100	"	---	---	
Duplicate (1210803-DUP1)					Prepared: 10/26/12 11:35		Analyzed: 10/26/12 19:28					
QC Source Sample: BL-CS-JC08-101612 (A12J470-19)												
EPA 6020												
Arsenic	**36.5**	0.640	2.56	mg/kg dry	10	---	37.2	---	---	2	40%	
Cadmium	**3.60**	0.640	1.28	"	"	---	6.61	---	---	59	40%	Q-04
Copper	**1720**	---	2.56	"	"	---	1750	---	---	1	40%	
Iron	**34100**	---	64.0	"	"	---	38100	---	---	11	40%	
Lead	**141**	---	1.28	"	"	---	84.4	---	---	50	40%	Q-04
Zinc	**680**	---	5.12	"	"	---	1160	---	---	52	40%	Q-04
Matrix Spike (1210803-MS1)					Prepared: 10/26/12 11:35		Analyzed: 10/26/12 19:31					
QC Source Sample: BL-CS-JC08-101612 (A12J470-19)												
EPA 6020												
Arsenic	98.3	0.686	2.74	mg/kg dry	10	68.6	37.2	89	75-125%	---	---	
Cadmium	69.7	0.686	1.37	"	"	"	6.61	92	"	---	---	
Copper	861	---	2.74	"	"	"	1750	-1290	"	---	---	Q-04
Iron	31200	---	68.6	"	"	6860	38100	-101	"	---	---	Q-04
Lead	179	---	1.37	"	"	68.6	84.4	138	"	---	---	Q-04

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210803 - EPA 3051A							**Soil**					
Matrix Spike (1210803-MS1)					Prepared: 10/26/12 11:35		Analyzed: 10/26/12 19:31					
QC Source Sample: BL-CS-JC08-101612 (A12J470-19)												
Zinc	639	---	5.49	mg/kg dry	"	"	1160	-759	"	---	---	Q-04
Post Spike (1210803-PS1)					Prepared: 10/30/12 09:58		Analyzed: 10/30/12 10:31					
QC Source Sample: BL-CS-JC08-101612 (A12J470-19)												
EPA 6020												
Lead	1030	---		ug/L	10	472	582	96	80-120%		---	
Post Spike (1210803-PS2)					Prepared: 10/30/12 09:58		Analyzed: 10/30/12 10:34					
QC Source Sample: BL-CS-JC08-101612 (A12J470-19)												
EPA 6020												
Copper	10400	---		ug/L	50	1430	9120	91	80-120%		---	
Iron	348000	---		"	"	143000	199000	104	"		---	Q-31
Zinc	7760	---		"	"	1430	6060	119	"		---	

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210787 - Matrix Matched Direct Inject							**Water**					
Blank (1210787-BLK1)					Prepared: 10/26/12 07:00		Analyzed: 10/27/12 11:28					
EPA 6020 (Diss)												
Arsenic	ND	0.500	2.00	ug/L	1	---	---	---	---	---	---	FILT3
Cadmium	ND	0.0400	0.200	"	"	---	---	---	---	---	---	FILT3
Calcium	ND	---	100	"	"	---	---	---	---	---	---	FILT3
Copper	ND	---	2.00	"	"	---	---	---	---	---	---	B-02, FILT3
Iron	ND	---	100	"	"	---	---	---	---	---	---	FILT3
Lead	ND	---	1.00	"	"	---	---	---	---	---	---	FILT3
Magnesium	ND	---	50.0	"	"	---	---	---	---	---	---	FILT3
Zinc	ND	---	4.00	"	"	---	---	---	---	---	---	FILT3
LCS (1210787-BS1)					Prepared: 10/26/12 07:00		Analyzed: 10/27/12 11:31					
EPA 6020 (Diss)												
Arsenic	53.9	0.500	2.00	ug/L	1	55.6	---	97	80-120%	---	---	
Cadmium	54.4	0.0400	0.200	"	"	"	---	98	"	---	---	
Calcium	5430	---	100	"	"	5560	---	98	"	---	---	
Copper	56.7	---	2.00	"	"	55.6	---	102	"	---	---	B-02
Iron	5640	---	100	"	"	5560	---	102	"	---	---	
Lead	53.8	---	1.00	"	"	55.6	---	97	"	---	---	
Magnesium	5630	---	50.0	"	"	5560	---	101	"	---	---	
Zinc	54.7	---	4.00	"	"	55.6	---	98	"	---	---	
Duplicate (1210787-DUP1)					Prepared: 10/26/12 07:00		Analyzed: 10/27/12 11:49					
QC Source Sample: BL-DW-541-101612MSMSD (A12J470-02)												
EPA 6020 (Diss)												
Arsenic	**6.13**	0.500	2.00	ug/L	1	---	5.86	---	---	5	20%	
Cadmium	ND	0.0400	0.200	"	"	---	ND	---	---	---	20%	
Copper	**8.62**	---	2.00	"	"	---	8.44	---	---	2	20%	B-02
Iron	**958**	---	100	"	"	---	938	---	---	2	20%	
Lead	ND	---	1.00	"	"	---	ND	---	---	---	20%	
Magnesium	**17400**	---	50.0	"	"	---	17200	---	---	1	20%	
Zinc	**34.9**	---	4.00	"	"	---	34.5	---	---	1	20%	
Duplicate (1210787-DUP2)					Prepared: 10/26/12 07:00		Analyzed: 10/30/12 09:59					
QC Source Sample: BL-DW-541-101612MSMSD (A12J470-02)												
EPA 6020 (Diss)												

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210787 - Matrix Matched Direct Inject							**Water**					
Duplicate (1210787-DUP2)					Prepared: 10/26/12 07:00		Analyzed: 10/30/12 09:59					
QC Source Sample: BL-DW-541-101612MSMSD (A12J470-02)												
Calcium	**71200**	---	500	ug/L	5	---	73000	---	---	3	20%	
Matrix Spike (1210787-MS1)					Prepared: 10/26/12 07:00		Analyzed: 10/27/12 11:58					
QC Source Sample: BL-DW-17607-101612DUP (A12J470-04)												
EPA 6020 (Diss)												
Arsenic	56.1	0.500	2.00	ug/L	1	55.6	ND	101	75-125%	---	---	
Cadmium	56.6	0.0400	0.200	"	"	"	ND	102	"	---	---	
Copper	59.9	---	2.00	"	"	"	5.89	97	"	---	---	B-02
Iron	6500	---	100	"	"	5560	909	101	"	---	---	
Lead	53.4	---	1.00	"	"	55.6	ND	96	"	---	---	
Magnesium	31600	---	50.0	"	"	5560	26200	98	"	---	---	
Zinc	66.8	---	4.00	"	"	55.6	12.8	97	"	---	---	
Matrix Spike (1210787-MS2)					Prepared: 10/26/12 07:00		Analyzed: 10/27/12 12:44					
QC Source Sample: BL-SW-EC04-101612 (A12J470-15)												
EPA 6020 (Diss)												
Arsenic	56.6	0.500	2.00	ug/L	1	55.6	0.556	101	75-125%	---	---	
Cadmium	55.4	0.0400	0.200	"	"	"	ND	100	"	---	---	
Calcium	24200	---	100	"	"	5560	19100	92	"	---	---	
Copper	61.9	---	2.00	"	"	55.6	5.87	101	"	---	---	B-02
Iron	5920	---	100	"	"	5560	257	102	"	---	---	
Lead	54.3	---	1.00	"	"	55.6	ND	98	"	---	---	
Magnesium	11400	---	50.0	"	"	5560	6080	97	"	---	---	
Zinc	58.7	---	4.00	"	"	55.6	3.28	100	"	---	---	
Matrix Spike (1210787-MS3)					Prepared: 10/26/12 07:00		Analyzed: 10/30/12 10:08					
QC Source Sample: BL-DW-17607-101612DUP (A12J470-04)												
EPA 6020 (Diss)												
Calcium	71200	---	500	ug/L	5	5560	65400	103	75-125%	---	---	

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Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Arsenic by ICPMS with Hydride Preparation

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1211275 - Matrix Matched Direct Inject / KI Reduction							**Water**					
Blank (1211275-BLK1)					Prepared: 11/09/12 14:02		Analyzed: 11/13/12 10:09					
HG-ICPMS (Diss)												
Arsenic	ND	0.0200	0.0500	ug/L	1	---	---	---	---	---	---	FILT3
LCS (1211275-BS1)					Prepared: 11/09/12 14:02		Analyzed: 11/13/12 10:11					
HG-ICPMS (Diss)												
Arsenic	1.03	0.0200	0.0500	ug/L	1	1.11	---	92	85-115%	---	---	
Duplicate (1211275-DUP1)					Prepared: 11/09/12 14:02		Analyzed: 11/13/12 10:16					
QC Source Sample: BL-DW-17607-101612 (A12J470-03RE1)												
HG-ICPMS (Diss)												
Arsenic	**0.194**	0.0200	0.0500	ug/L	1	---	0.188	---	---	3	20%	
Matrix Spike (1211275-MS1)					Prepared: 11/09/12 14:02		Analyzed: 11/13/12 10:30					
QC Source Sample: BL-SW-JC09-101612 (A12J470-10RE1)												
HG-ICPMS (Diss)												
Arsenic	1.07	0.0200	0.0500	ug/L	1	1.11	0.0484	92	70-130%	---	---	
Matrix Spike (1211275-MS2)					Prepared: 11/09/12 14:02		Analyzed: 11/13/12 10:54					
QC Source Sample: BL-SW-JC08-101612DUP (A12J470-12RE1)												
HG-ICPMS (Diss)												
Arsenic	1.05	0.0200	0.0500	ug/L	1	1.11	0.0475	90	70-130%	---	---	

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210680 - Total Suspended Solids							**Water**					
Blank (1210680-BLK1)					Prepared: 10/23/12 10:40		Analyzed: 10/23/12 16:00					
SM 2540 D												
Total Suspended Solids	ND	---	5.00	mg/L	1	---	---	---	---	---	---	
Duplicate (1210680-DUP1)					Prepared: 10/23/12 10:40		Analyzed: 10/23/12 16:00					
QC Source Sample: BL-DW-17607-101612DUP (A12J470-04)												
SM 2540 D												
Total Suspended Solids	ND	---	5.00	mg/L	1	---	ND	---	---	---	20%	
Duplicate (1210680-DUP2)					Prepared: 10/23/12 10:40		Analyzed: 10/23/12 18:15					
QC Source Sample: BL-SW-JC08-101612DUP (A12J470-12)												
SM 2540 D												
Total Suspended Solids	**7.00**	---	5.00	mg/L	1	---	9.00	---	---	25	20%	Q-05
Reference (1210680-SRM1)					Prepared: 10/23/12 10:40		Analyzed: 10/23/12 18:25					
SM 2540 D												
Total Suspended Solids	102	---		mg/L	1	100		102	90-110%	---	---	

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210683 - Total Dissolved Solids							**Water**					
Blank (1210683-BLK1)					Prepared: 10/23/12 16:20		Analyzed: 10/24/12 13:00					
SM 2540 C												
Total Dissolved Solids	ND	---	10.0	mg/L	1	---	---	---	---	---	---	
Duplicate (1210683-DUP2)					Prepared: 10/23/12 16:20		Analyzed: 10/25/12 11:00					
QC Source Sample: BL-SW-EC04-101612 (A12J470-15)												
SM 2540 C												
Total Dissolved Solids	**106**	---	10.0	mg/L	1	---	101	---	---	5	20%	
Reference (1210683-SRM1)					Prepared: 10/23/12 16:20		Analyzed: 10/25/12 09:00					
SM 2540 C												
Total Dissolved Solids	994	---		mg/L	1	1000		99	90-110%	---	---	

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210833 - Method Prep: Aq							**Water**					
Blank (1210833-BLK1)					Prepared: 10/29/12 09:35		Analyzed: 10/29/12 16:53					
SM 2320 B												
Total Alkalinity	ND	---	20.0	mg CaCO3/L	1	---	---	---	---	---	---	
Bicarbonate Alkalinity	ND	---	20.0	"	"	---	---	---	---	---	---	
Carbonate Alkalinity	ND	---	20.0	"	"	---	---	---	---	---	---	
Hydroxide Alkalinity	ND	---	20.0	"	"	---	---	---	---	---	---	
LCS (1210833-BS1)					Prepared: 10/29/12 09:35		Analyzed: 10/29/12 16:53					
SM 2320 B												
Total Alkalinity	178	---	20.0	mg CaCO3/L	1	191	---	93	85-115%	---	---	
Bicarbonate Alkalinity	ND	---	20.0	"	"	0.000100	---		0-200%	---	---	
Carbonate Alkalinity	170	---	20.0	"	"	191	---	89	"	---	---	
Hydroxide Alkalinity	ND	---	20.0	"	"	0.000100	---		"	---	---	
Duplicate (1210833-DUP2)					Prepared: 10/29/12 09:35		Analyzed: 10/29/12 16:53					
QC Source Sample: BL-DW-462-101612 (A12J470-05)												
SM 2320 B												
Total Alkalinity	**162**	---	20.0	mg CaCO3/L	1	---	157	---	---	3	20%	
Bicarbonate Alkalinity	**162**	---	20.0	"	"	---	157	---	---	3	20%	
Carbonate Alkalinity	ND	---	20.0	"	"	---	ND	---	---	---	20%	
Hydroxide Alkalinity	ND	---	20.0	"	"	---	ND	---	---	---	20%	

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210851 - Method Prep: Aq							**Water**					
Blank (1210851-BLK1)					Prepared: 10/29/12 14:37		Analyzed: 10/29/12 16:58					
SM 2320 B												
Total Alkalinity	ND	---	20.0	mg CaCO3/L	1	---	---	---	---	---	---	
Bicarbonate Alkalinity	ND	---	20.0	"	"	---	---	---	---	---	---	
Carbonate Alkalinity	ND	---	20.0	"	"	---	---	---	---	---	---	
Hydroxide Alkalinity	ND	---	20.0	"	"	---	---	---	---	---	---	
LCS (1210851-BS1)					Prepared: 10/29/12 14:37		Analyzed: 10/29/12 16:58					
SM 2320 B												
Total Alkalinity	180	---	20.0	mg CaCO3/L	1	191	---	94	85-115%	---	---	
Bicarbonate Alkalinity	ND	---	20.0	"	"	0.000100	---		0-200%	---	---	
Carbonate Alkalinity	171	---	20.0	"	"	191	---	89	"	---	---	
Hydroxide Alkalinity	ND	---	20.0	"	"	0.000100	---		"	---	---	

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1210667 - Total Solids (Dry Weight)							**Soil**					
Duplicate (1210667-DUP1)					Prepared: 10/22/12 16:11		Analyzed: 10/23/12 10:41					
QC Source Sample: BL-CS-EC04-101612 (A12J470-23)												
Apex SOP												
% Solids	**76.1**	---	1.00	% by Weight	1	---	74.9	---	---	2	20%	

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

SAMPLE PREPARATION INFORMATION

Anions by EPA 300.0/9056A (Ion Chromatography)

Prep: Method Prep: Aq

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1210693							
A12J470-01	Water	EPA 300.0	10/16/12 11:20	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-02	Water	EPA 300.0	10/16/12 11:20	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-03	Water	EPA 300.0	10/16/12 11:35	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-04	Water	EPA 300.0	10/16/12 11:35	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-05RE1	Water	EPA 300.0	10/16/12 13:03	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-06	Water	EPA 300.0	10/16/12 11:00	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-07	Water	EPA 300.0	10/16/12 11:05	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-08	Water	EPA 300.0	10/16/12 13:39	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-09	Water	EPA 300.0	10/16/12 13:39	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-10	Water	EPA 300.0	10/16/12 14:09	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-11	Water	EPA 300.0	10/16/12 14:25	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-12	Water	EPA 300.0	10/16/12 14:25	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-13	Water	EPA 300.0	10/16/12 09:10	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-14	Water	EPA 300.0	10/16/12 09:30	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00
A12J470-15	Water	EPA 300.0	10/16/12 11:50	10/23/12 10:20	10mL/10mL	10mL/10mL	1.00

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1210803							
A12J470-16	Soil	EPA 6020	10/16/12 13:55	10/26/12 11:35	0.488g/50mL	0.5g/50mL	1.02
A12J470-17	Soil	EPA 6020	10/16/12 14:12	10/26/12 11:35	0.469g/50mL	0.5g/50mL	1.07
A12J470-18	Soil	EPA 6020	10/16/12 14:12	10/26/12 11:35	0.466g/50mL	0.5g/50mL	1.07
A12J470-19	Soil	EPA 6020	10/16/12 14:22	10/26/12 11:35	0.482g/50mL	0.5g/50mL	1.04
A12J470-20	Soil	EPA 6020	10/16/12 09:15	10/26/12 11:35	0.494g/50mL	0.5g/50mL	1.01
A12J470-21	Soil	EPA 6020	10/16/12 09:15	10/26/12 11:35	0.499g/50mL	0.5g/50mL	1.00
A12J470-22	Soil	EPA 6020	10/16/12 09:45	10/26/12 11:35	0.481g/50mL	0.5g/50mL	1.04
A12J470-23	Soil	EPA 6020	10/16/12 12:00	10/26/12 11:35	0.499g/50mL	0.5g/50mL	1.00

Dissolved Metals by EPA 6020 (ICPMS)

Prep: Matrix Matched Direct Inject

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1210787							

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

SAMPLE PREPARATION INFORMATION

Dissolved Metals by EPA 6020 (ICPMS)

Prep: Matrix Matched Direct Inject

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A12J470-01	Water	EPA 6020 (Diss)	10/16/12 11:20	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-02	Water	EPA 6020 (Diss)	10/16/12 11:20	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-03	Water	EPA 6020 (Diss)	10/16/12 11:35	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-04	Water	EPA 6020 (Diss)	10/16/12 11:35	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-05	Water	EPA 6020 (Diss)	10/16/12 13:03	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-06	Water	EPA 6020 (Diss)	10/16/12 11:00	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-07	Water	EPA 6020 (Diss)	10/16/12 11:05	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-08	Water	EPA 6020 (Diss)	10/16/12 13:39	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-09	Water	EPA 6020 (Diss)	10/16/12 13:39	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-10	Water	EPA 6020 (Diss)	10/16/12 14:09	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-11	Water	EPA 6020 (Diss)	10/16/12 14:25	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-12	Water	EPA 6020 (Diss)	10/16/12 14:25	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-13	Water	EPA 6020 (Diss)	10/16/12 09:10	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-14	Water	EPA 6020 (Diss)	10/16/12 09:30	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00
A12J470-15	Water	EPA 6020 (Diss)	10/16/12 11:50	10/26/12 07:00	45mL/50mL	45mL/50mL	1.00

Dissolved Arsenic by ICPMS with Hydride Preparation

Prep: Matrix Matched Direct Inject / KI Reduction

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1211275							
A12J470-03RE1	Water	HG-ICPMS (Diss)	10/16/12 11:35	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-04RE1	Water	HG-ICPMS (Diss)	10/16/12 11:35	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-07RE1	Water	HG-ICPMS (Diss)	10/16/12 11:05	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-08RE1	Water	HG-ICPMS (Diss)	10/16/12 13:39	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-09RE1	Water	HG-ICPMS (Diss)	10/16/12 13:39	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-10RE1	Water	HG-ICPMS (Diss)	10/16/12 14:09	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-11RE1	Water	HG-ICPMS (Diss)	10/16/12 14:25	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-12RE1	Water	HG-ICPMS (Diss)	10/16/12 14:25	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-13RE1	Water	HG-ICPMS (Diss)	10/16/12 09:10	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-14RE1	Water	HG-ICPMS (Diss)	10/16/12 09:30	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00
A12J470-15RE1	Water	HG-ICPMS (Diss)	10/16/12 11:50	11/09/12 14:02	45mL/50mL	45mL/50mL	1.00

Conventional Chemistry Parameters

Prep: Method Prep: Aq

Sample	Default	RL Prep

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4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor
Batch: 1210833							
A12J470-01	Water	SM 2320 B	10/16/12 11:20	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-02	Water	SM 2320 B	10/16/12 11:20	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-03	Water	SM 2320 B	10/16/12 11:35	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-04	Water	SM 2320 B	10/16/12 11:35	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-05	Water	SM 2320 B	10/16/12 13:03	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-06	Water	SM 2320 B	10/16/12 11:00	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-07	Water	SM 2320 B	10/16/12 11:05	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-08	Water	SM 2320 B	10/16/12 13:39	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-09	Water	SM 2320 B	10/16/12 13:39	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-10	Water	SM 2320 B	10/16/12 14:09	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-11	Water	SM 2320 B	10/16/12 14:25	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-12	Water	SM 2320 B	10/16/12 14:25	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-13	Water	SM 2320 B	10/16/12 09:10	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
A12J470-14	Water	SM 2320 B	10/16/12 09:30	10/29/12 09:35	50mL/50mL	50mL/50mL	NA
Batch: 1210851							
A12J470-15	Water	SM 2320 B	10/16/12 11:50	10/29/12 14:37	50mL/50mL	50mL/50mL	NA

Prep: Total Dissolved Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1210683							
A12J470-01	Water	SM 2540 C	10/16/12 11:20	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-02	Water	SM 2540 C	10/16/12 11:20	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-03	Water	SM 2540 C	10/16/12 11:35	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-04	Water	SM 2540 C	10/16/12 11:35	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-05	Water	SM 2540 C	10/16/12 13:03	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-06	Water	SM 2540 C	10/16/12 11:00	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-07	Water	SM 2540 C	10/16/12 11:05	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-08	Water	SM 2540 C	10/16/12 13:39	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-09	Water	SM 2540 C	10/16/12 13:39	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-10	Water	SM 2540 C	10/16/12 14:09	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-11	Water	SM 2540 C	10/16/12 14:25	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-12	Water	SM 2540 C	10/16/12 14:25	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-13	Water	SM 2540 C	10/16/12 09:10	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-14	Water	SM 2540 C	10/16/12 09:30	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA
A12J470-15	Water	SM 2540 C	10/16/12 11:50	10/23/12 16:20	1N/A/1N/A	1N/A/1N/A	NA

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1210680							
A12J470-01	Water	SM 2540 D	10/16/12 11:20	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-02	Water	SM 2540 D	10/16/12 11:20	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-03	Water	SM 2540 D	10/16/12 11:35	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-04	Water	SM 2540 D	10/16/12 11:35	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-05	Water	SM 2540 D	10/16/12 13:03	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-06	Water	SM 2540 D	10/16/12 11:00	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-07	Water	SM 2540 D	10/16/12 11:05	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-08	Water	SM 2540 D	10/16/12 13:39	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-09	Water	SM 2540 D	10/16/12 13:39	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-10	Water	SM 2540 D	10/16/12 14:09	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-11	Water	SM 2540 D	10/16/12 14:25	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-12	Water	SM 2540 D	10/16/12 14:25	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-13	Water	SM 2540 D	10/16/12 09:10	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-14	Water	SM 2540 D	10/16/12 09:30	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA
A12J470-15	Water	SM 2540 D	10/16/12 11:50	10/23/12 10:40	1N/A/1N/A	1N/A/1N/A	NA

Grain Size by ASTM D 422

Prep: ASTM D 421

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1210927							
A12J470-16	Soil	ASTM D 422m	10/16/12 13:55	10/30/12 11:12	1N/A/1N/A	1N/A/1N/A	NA
A12J470-17	Soil	ASTM D 422m	10/16/12 14:12	10/30/12 11:33	1N/A/1N/A	1N/A/1N/A	NA
A12J470-18	Soil	ASTM D 422m	10/16/12 14:12	10/30/12 11:58	1N/A/1N/A	1N/A/1N/A	NA
A12J470-19	Soil	ASTM D 422m	10/16/12 14:22	10/30/12 12:19	1N/A/1N/A	1N/A/1N/A	NA
A12J470-20	Soil	ASTM D 422m	10/16/12 09:15	10/30/12 12:39	1N/A/1N/A	1N/A/1N/A	NA
A12J470-21	Soil	ASTM D 422m	10/16/12 09:15	10/30/12 13:14	1N/A/1N/A	1N/A/1N/A	NA
A12J470-22	Soil	ASTM D 422m	10/16/12 09:45	10/30/12 13:42	1N/A/1N/A	1N/A/1N/A	NA
A12J470-23	Soil	ASTM D 422m	10/16/12 12:00	10/30/12 14:21	1N/A/1N/A	1N/A/1N/A	NA

Lab Filtration

Prep: Lab Filtration

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1210578							

Apex Laboratories

Darwin Thomas, Business Development Director

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

SAMPLE PREPARATION INFORMATION

Lab Filtration

Prep: Lab Filtration

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A12J470-01	Water	NA	10/16/12 11:20	10/18/12 16:46	150mL/150mL		NA
A12J470-02	Water	NA	10/16/12 11:20	10/18/12 16:51	200mL/200mL		NA
A12J470-03	Water	NA	10/16/12 11:35	10/18/12 16:54	200mL/200mL		NA
A12J470-04	Water	NA	10/16/12 11:35	10/18/12 16:57	200mL/200mL		NA
A12J470-05	Water	NA	10/16/12 13:03	10/18/12 17:00	200mL/200mL		NA
A12J470-06	Water	NA	10/16/12 11:00	10/18/12 18:26	200mL/200mL		NA
A12J470-07	Water	NA	10/16/12 11:05	10/18/12 18:30	200mL/200mL		NA
A12J470-08	Water	NA	10/16/12 13:39	10/18/12 18:31	200mL/200mL		NA
A12J470-09	Water	NA	10/16/12 13:39	10/18/12 18:33	200mL/200mL		NA
A12J470-10	Water	NA	10/16/12 14:09	10/18/12 18:36	200mL/200mL		NA
A12J470-11	Water	NA	10/16/12 14:25	10/18/12 18:38	200mL/200mL		NA
A12J470-12	Water	NA	10/16/12 14:25	10/18/12 18:40	200mL/200mL		NA
A12J470-13	Water	NA	10/16/12 09:10	10/18/12 18:43	200mL/200mL		NA
A12J470-14	Water	NA	10/16/12 09:30	10/18/12 18:45	200mL/200mL		NA
A12J470-15	Water	NA	10/16/12 11:50	10/18/12 18:48	200mL/200mL		NA

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

Notes and Definitions

Qualifiers:

B-02	Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
FILT1	Sample was lab filtered and acid preserved prior to analysis. See sample preparation section of report for date and time of filtration.
FILT3	This is a laboratory filtration blank, associated with filtration batch 1210578.
GS-01	See detailed Particle Size Analysis results, accumulation curves, and Case Narratives at the end of this report. Report PDF is bookmarked for ease of use.
J	Estimated Result . Result detected below the lowest point of the calibration curve, but above the specified MDL.
Q-04	Percent recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-05	Analyses are not controlled on RPD values from sample or duplicate concentrations near or below the reporting level.
Q-31	Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Data is likely biased low.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepency with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

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Engineering/Remediation Resource Group, Inc	Project: **Blue Ledge Mine**	
4585 Pacheco Blvd, Suite 200 (Corporate address)	Project Number: 2010-084	**Reported:**
Martinez, CA 94553	Project Manager: Kim Jones	12/12/12 13:29

APEX LABS — **CHAIN OF CUSTODY**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A12J470 COC 1 of 3

Company: ERRG | Project Mgr: Brian Wetzsteon | Project Name: Blue Ledge Mine | Project # 2010-084

Address: 4585 Pacheco Blvd. #200 | Phone: (925)969-0750 | Fax: (925)969-0751 | Email: brian.wetzsteon@errg.com

Sampled by: Kim Jones

Site Location: OR WA Other: CA

ANALYSIS REQUEST

	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOC	8260 RBDM VOCs	8260 BTEX	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Hg, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL/DISS TCLP	1200-COLS	1200-Z	Hardness SM 2340B	Alkalinity SM 2320B	TDS SM 2540C	TSS SM 2540D	Sulfate EPA 300				
1	BL-DW-541-101612		10/16/12	11:20	W	2													X			X	X	X	X	X					
2	BL-DW-541-101612MSMSD		10/16/12	11:20	W	2													X			X	X	X	X	X					
3	BL-DW-17607-101612		10/16/12	11:35	W	2													X			X	X	X	X	X					
4	BL-DW-17607-101612 DUP		10/16/12	11:35	W	2													X			X	X	X	X	X					
5	BL-DW-462-101612		10/16/12	13:03	W	2													X			X	X	X	X	X					
6	BL-DW-1262-101612		10/16/12	11:00	W	2													X			X	X	X	X	X					
7	BL-DW-12620-Irrig-101612		10/16/12	11:05	W	2													X			X	X	X	X	X					
8																															
9																															
10																															

Normal Turn Around Time (TAT) = 7-10 Business Days YES NO

TAT Requested (circle): 1 Day 2 Day 3 Day 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS: Please analyze for metals (As, Cd, Cu, Fe, Pb, Zn) using Cd-TL 6020, Samples have not been field filtered.

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: [signature] Date: 10/17/12 Time: 13:00 Printed Name: Kim Jones Company: ERRG

RECEIVED BY: Signature: [signature] Date: 10-18-12 Time: 10:30 Printed Name: Kendra Hinckley Company: Apex

shipped via FedEx

RELINQUISHED BY: Signature: Date: Time: Printed Name: Company:

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

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503-718-0333 Fax

Engineering/Remediation Resource Group, Inc 4585 Pacheco Blvd, Suite 200 (Corporate address) Martinez, CA 94553	Project: **Blue Ledge Mine** Project Number: 2010-084 Project Manager: Kim Jones	**Reported:** 12/12/12 13:29

APEX LABS — **CHAIN OF CUSTODY** — Lab # A12J470 — COC 3 of 3

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: ERRG — Project Mgr: Brian Webstean — Project Name: Blue Ledge Mine — Project #: 2010-084

Address: 4585 Pacheco Blvd, #200 — Phone: (925) 969-0750 — Fax: (925) 969-0751 — Email: brian.webstean@errg.com

Sampled by: Kim Jones

Site Location: OR WA — Other: CA

ANALYSIS REQUEST

#	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	BTEX	8260 RBDX VOCs	8260 Halo VOCs	8260 VOCs	8270 SIM PAHs	8082 PCBs	8081 Chlor. Pest	RCRA Metals (8)	Priority Metals (13)	As, Sb, Ba, Be, Cd, Cr, Co, Cu, Hg, Mo, Ni, Se, Ag, Tl, V, Zn (Diss)	TCLP Metals (8)	1380-COLS	1380-Z	Hardness SM 2340B	Alkalinity SM 2320B	TDS SM 2540C	TSS SM 2540D	Sulfate EPA 300
1	BL-SW-3C10-101612		10/16/12	13:39	W	2													X				X	X	X	X	X
2	BL-SW-3C10-101612 MS/MSD		10/16/12	13:39	W	2													X				X	X	X	X	X
3	BL-SW-3C09-101612		10/16/12	14:09	W	2													X				X	X	X	X	X
4	BL-SW-3C08-101612		10/16/12	14:25	W	2													X				X	X	X	X	X
5	BL-SW-3C08-101612 DUP		10/16/12	14:25	W	2													X				X	X	X	X	X
6	BL-SW-3C01-101612		10/16/12	09:10	W	2													X				X	X	X	X	X
7	BL-SW-EC06-101612		10/16/12	09:30	W	2													X				X	X	X	X	X
8	BL-SW-EC04-101612		10/16/12	11:50	W	2													X				X	X	X	X	X
9																											
10																											

Normal Turn Around Time (TAT) = 7-10 Business Days — YES — NO

TAT Requested (circle): 1 Day, 2 Day, 3 Day, 4 DAY, 5 DAY, Other: ____

SPECIAL INSTRUCTIONS: Please analyze for diss. metals (As, Cd, Cu, Fe, Pb, Zn) using 6020 Cd-TL. Samples have not been field filtered.

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Date: 10/17/12 Signature: [signature] Date: 10-16-12	Signature:	Date: Signature: Date:
Printed Name: Kim Jones	Time: 13:00 Printed Name: [signature] Time: 09:30	Printed Name:	Time: Printed Name: Time:
Company: ERRG	shipped via Fed Ex Company: Apex	Company:	Company:

Apex Laboratories

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Darwin Thomas, Business Development Director

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Engineering/Remediation Resource Group, Inc
4585 Pacheco Blvd, Suite 200 (Corporate address)
Martinez, CA 94553

Project: **Blue Ledge Mine**
Project Number: 2010-084
Project Manager: Kim Jones

Reported:
12/12/12 13:29

APEX LABS — 12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY — Lab #: A12J470 — COC 3 of 3

Company: ERRG — Project Mgr: Brian Wetzsteon — Project Name: Blue Ledge Mine — Project #: 2010-084
Address: 4585 Pacheco Blvd. #200 — Phone: (925) 969-0750 — Fax: (925) 969-0751 — Email: brianwetzsteon@errg.com
Sampled by: Kim Jones

Site Location: OR WA Other: CA

ANALYSIS REQUEST

#	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	BTEX	8260 RBDM VOCs	8260 High VOCs	8260 VOCs	8270 SIM PAHs	8082 PCBs	8081 Chlor. Pest	RCRA Metals (8)	Priority Metals (13)	As, Sb, Cr, Cu, Ni, Pb, Zn, Hg, Se, Ag, Be, Cd, Ni, Tl, V, Sn	TCLP Metals (8)	1200-COLS	1200-Z	% Moisture ASTM	Particle Size ASTM D422
1	BL-CS-3C10-101612		10/16/12	13:55	S	3													X				X	X
2	BL-CS-3C09-101612		10/16/12	14:12	S	3													X				X	X
3	BL-CS-3C04-101612 DUP		10/16/12	14:12	S	3													X				X	X
4	BL-CS-3C08-101612		10/16/12	14:22	S	3													X				X	X
5	BL-CS-3C01-101612		10/16/12	09:15	S	3													X				X	X
6	BL-CS-3C01-101612 MS/MSD		10/16/12	09:15	S	3													X				X	X
7	BL-CS-EC06-101612		10/16/12	09:45	S	3													X				X	X
8	BL-CS-~~3C06~~ EC04-101612		10/16/12	12:00	S	3													X				X	X
9																								
10																								

Normal Turn Around Time (TAT) = 7-10 Business Days — YES NO

TAT Requested (circle): 1 Day, 2 Day, 3 Day, 4 DAY, 5 DAY, Other: _____

SPECIAL INSTRUCTIONS: Please analyze for metals (As, Cd, Cu, Fe, Pb, Zn) using 6020 Cd-LL

SAMPLES ARE HELD FOR 30 DAYS			
RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature]	Date: 10/17/12 Signature: [signature]	Signature: [signature]	Date: 10-18-12 Signature: Date:
Printed Name: Kim Jones	Time: 13:00 Printed Name: Kevin Hinkelman	Printed Name:	Time: 10:30 Printed Name: Time:
Company: ERRG	Shipped via FedEx Company: Apex	Company:	Company:

Apex Laboratories

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Darwin Thomas, Business Development Director

Apex Laboratories, LLC

Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-16		Client Sample ID:	BL-CS-JC10-101612		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with some gravel and trace silt			Max Particle Size:	Gravel		
Particle Shape:	Angular to sub-rounded			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	9.263	331.385	322.12	0.60	320.2

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	6.272	82.353	76.08	76.08	23.8	76.2
10	2.00	6.277	51.238	44.96	121.04	14.0	62.2
Pan		4.656	204.184	199.53	320.57	61.9	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9941		J47016	1.341	26.949	26.797	0.60

Hydrometer Analysis

Start Date/Time	10/30/2012	11:12	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	105.887		G_s Correction Factor (a)	1.000
Percent Passing No.10 Sieve	62.2		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	105.26		Corrected Dry Weight of Soil Tested (g) (W)	169.23

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	12.5	21.6	5.81	3.4	15.5	0.01332	0.052	2.13
2	11.5	21.6	4.81	2.8	15.6	0.01332	0.037	1.77
4	11.5	21.6	4.81	2.8	15.6	0.01332	0.026	1.77
8	10	21.6	3.31	2.0	15.8	0.01332	0.019	1.22
15	10	21.5	3.27	1.9	15.8	0.01332	0.014	1.20
30	10	21.4	3.24	1.9	15.8	0.01348	0.010	1.19
60	9.5	21.2	2.67	1.6	16	0.01348	0.007	0.98
90	9	21.1	2.14	1.3	16	0.01348	0.006	0.78
120	9	21	2.1	1.2	16	0.01348	0.005	0.77
240	8.5	20.9	1.57	0.9	16.1	0.01348	0.003	0.58
360	8.5	21.1	1.64	1.0	16.1	0.01348	0.003	0.60
1440	8.5	21.2	1.67	1.0	16.1	0.01348	0.001	0.61

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.329	31.797	30.47	178.45	18.0	44.2
40	0.425	1.339	33.192	31.85	238.48	18.8	25.4
60	0.250	1.340	19.909	18.57	273.47	11.0	14.4
100	0.150	1.334	11.099	9.77	291.87	5.8	8.6
140	0.105	1.335	5.058	3.72	298.88	2.2	6.4
200	0.075	1.344	4.195	2.85	304.26	1.7	4.7
230	0.063	1.338	2.530	1.19	306.50	0.7	4.0
			Sum	98.42	230 Minus	6.84	

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-JC10-101612 (A12J470-16)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				*23.76*
Retained on No. 4 sieve		4.75	76.24	23.76
Sand				*71.5*
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	62.2	14.04
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	44.2	18
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	25.37	18.82
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	14.4	10.97
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	8.63	5.77
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	6.43	2.2
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	4.74	1.68
Silt and Clay (Measurements in the Clay fraction are noted)				*4.78*
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	4.04	0.7
Hydrometer Test		0.0524	2.13	1.91
Hydrometer Test		0.0372	1.77	0.37
Hydrometer Test		0.0263	1.77	0
Hydrometer Test		0.0187	1.22	0.55
Hydrometer Test		0.0137	1.2	0.01
Hydrometer Test		0.0098	1.19	0.01
Hydrometer Test		0.0070	0.98	0.21
Hydrometer Test		0.0057	0.78	0.2
Hydrometer Test	Clay	0.0049	0.77	0.01
Hydrometer Test	Clay	0.0035	0.58	0.2
Hydrometer Test	Clay	0.0029	0.6	0
Hydrometer Test	Clay	0.0014	0.61	0

Grain Size Summary	Percent of Total Sample
Gravel	23.8
Sand	71.5
Coarse sand	32.0
Medium sand	35.6
Fine sand	3.9
Silt	4.0
Clay	0.8

Case Narrative for Sample ID: BL-CS-JC10-101612 (A12J470-16)

No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

Trace organic debris (roots) present in +4 fraction.

Hydrometer readings for 1, 2, and 4 minutes are estimated due to the presence of foam.

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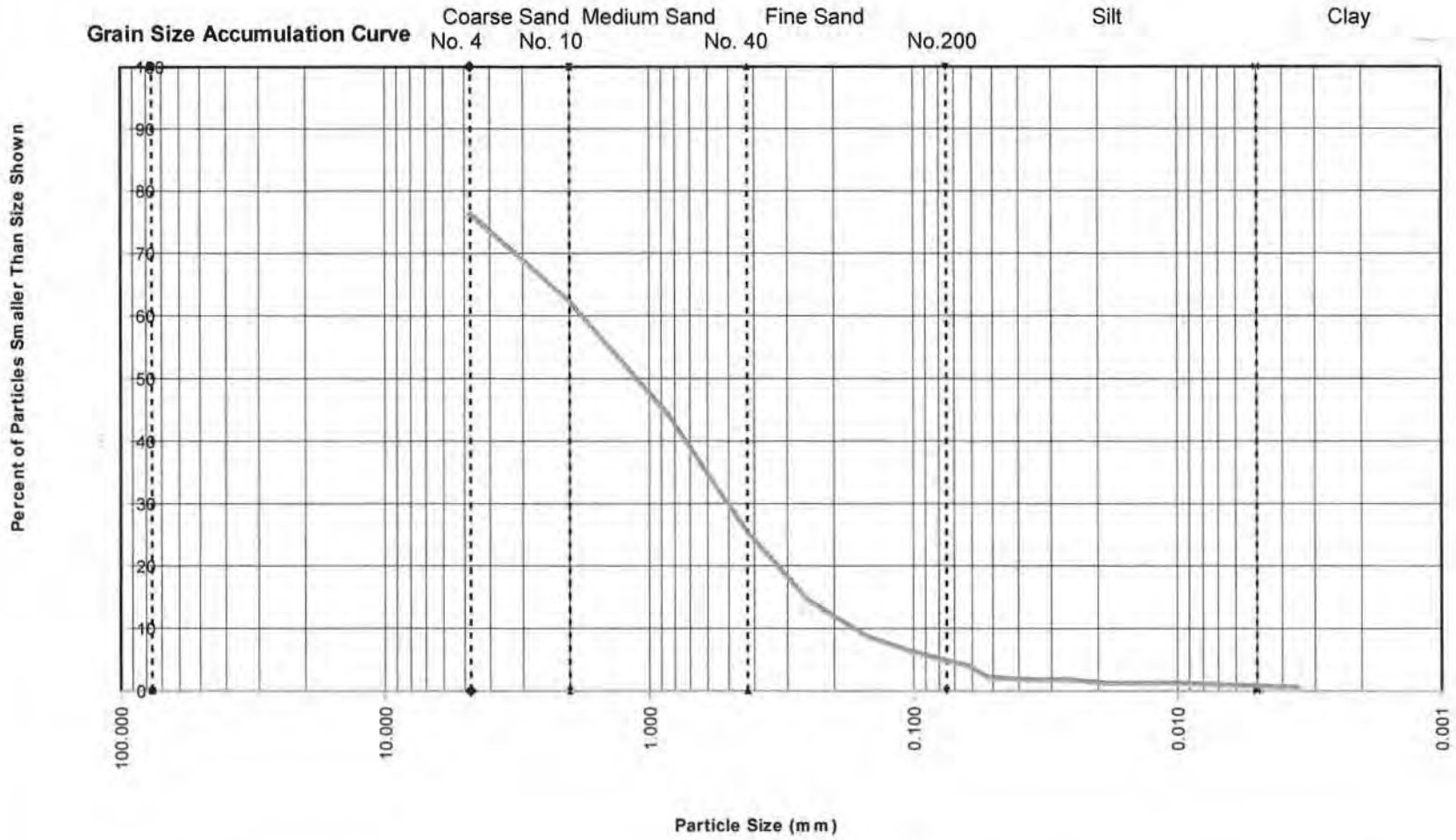
Particle Size Analysis of Soil by ASTM D 422 Modified



Sample ID:	BL-CS-JC10-101612 (A12J470-16)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Gravel	Angular to sub-rounded	Hard and durable	SAND with some gravel and trace silt

Apex Laboratories, LLC

Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-17		Client Sample ID:	BL-CS-JC09-101612		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with some silt and trace gravel			Max Particle Size:	Gravel		
Particle Shape:	Angular to sub-angular			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	5.545	237.588	232.04	1.31	229.0

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	6.288	36.444	30.16	30.16	13.2	86.8
10	2.00	6.317	47.079	40.76	70.92	17.6	69.0
Pan		5.570	162.454	156.88	227.80	67.6	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9871		J47017	1.345	21.484	21.224	1.31

Hydrometer Analysis

Start Date/Time	10/30/2012	11:33	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	103.368		G_s Correction Factor (a)	1.000
Percent Passing No.10 Sieve	69.0		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	102.03		Corrected Dry Weight of Soil Tested (g) (W)	147.79

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	17.5	21.5	10.77	7.3	14.7	0.01332	0.051	5.03
2	15.5	21.5	8.77	5.9	15	0.01332	0.036	4.10
4	13.5	21.5	6.77	4.6	15.3	0.01332	0.026	3.16
8	11	21.5	4.27	2.9	15.6	0.01332	0.019	2.00
15	10.5	21.4	3.74	2.5	15.8	0.01348	0.014	1.75
30	10	21.2	3.17	2.1	15.8	0.01348	0.010	1.48
60	9	21.2	2.17	1.5	16	0.01348	0.007	1.01
90	9	21.2	2.17	1.5	16	0.01348	0.006	1.01
120	9	21.3	2.2	1.5	16	0.01348	0.005	1.03
240	8.5	21	1.6	1.1	16.1	0.01348	0.003	0.75
360	8	21.1	1.14	0.8	16.1	0.01348	0.003	0.53
1440	8	21.1	1.14	0.8	16.1	0.01348	0.001	0.53

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.330	34.841	33.51	121.78	22.7	46.4
40	0.425	1.350	30.569	29.22	166.12	19.8	26.6
60	0.250	1.338	15.144	13.81	187.08	9.3	17.3
100	0.150	1.341	8.122	6.78	197.37	4.6	12.7
140	0.105	1.343	4.280	2.94	201.83	2.0	10.7
200	0.075	1.345	4.113	2.77	206.03	1.9	8.8
230	0.063	1.334	2.782	1.45	208.23	1.0	7.8
			Sum	90.47	230 Minus	11.56	

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Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-JC09-101612 (A12J470-17)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				*13.17*
Retained on No. 4 sieve		4.75	86.83	13.17
Sand				*78.03*
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	69.04	17.8
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	46.36	22.67
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	26.59	19.77
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	17.25	9.34
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	12.66	4.59
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	10.68	1.99
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	8.8	1.87
Silt and Clay (Measurements in the Clay fraction are noted)				*8.8*
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	7.82	0.98
Hydrometer Test		0.0511	5.03	2.79
Hydrometer Test		0.0365	4.1	0.93
Hydrometer Test		0.0261	3.16	0.93
Hydrometer Test		0.0186	2	1.17
Hydrometer Test		0.0138	1.75	0.25
Hydrometer Test		0.0098	1.48	0.27
Hydrometer Test		0.0070	1.01	0.47
Hydrometer Test		0.0057	1.01	0
Hydrometer Test	Clay	0.0049	1.03	0
Hydrometer Test	Clay	0.0035	0.75	0.27
Hydrometer Test	Clay	0.0029	0.53	0.22
Hydrometer Test	Clay	0.0014	0.53	0

Grain Size Summary	Percent of Total Sample
Gravel	13.2
Sand	78.0
Coarse sand	40.5
Medium sand	33.7
Fine sand	3.9
Silt	7.8
Clay	1.0

Case Narrative for Sample ID: BL-CS-JC09-101612 (A12J470-17)

No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

Organic debris (wood fragments) present in +4 and +10 fractions.

Hydrometer readings for 1, 2, and 4 minutes are estimated due to the presence of foam.

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GEOLOGIST

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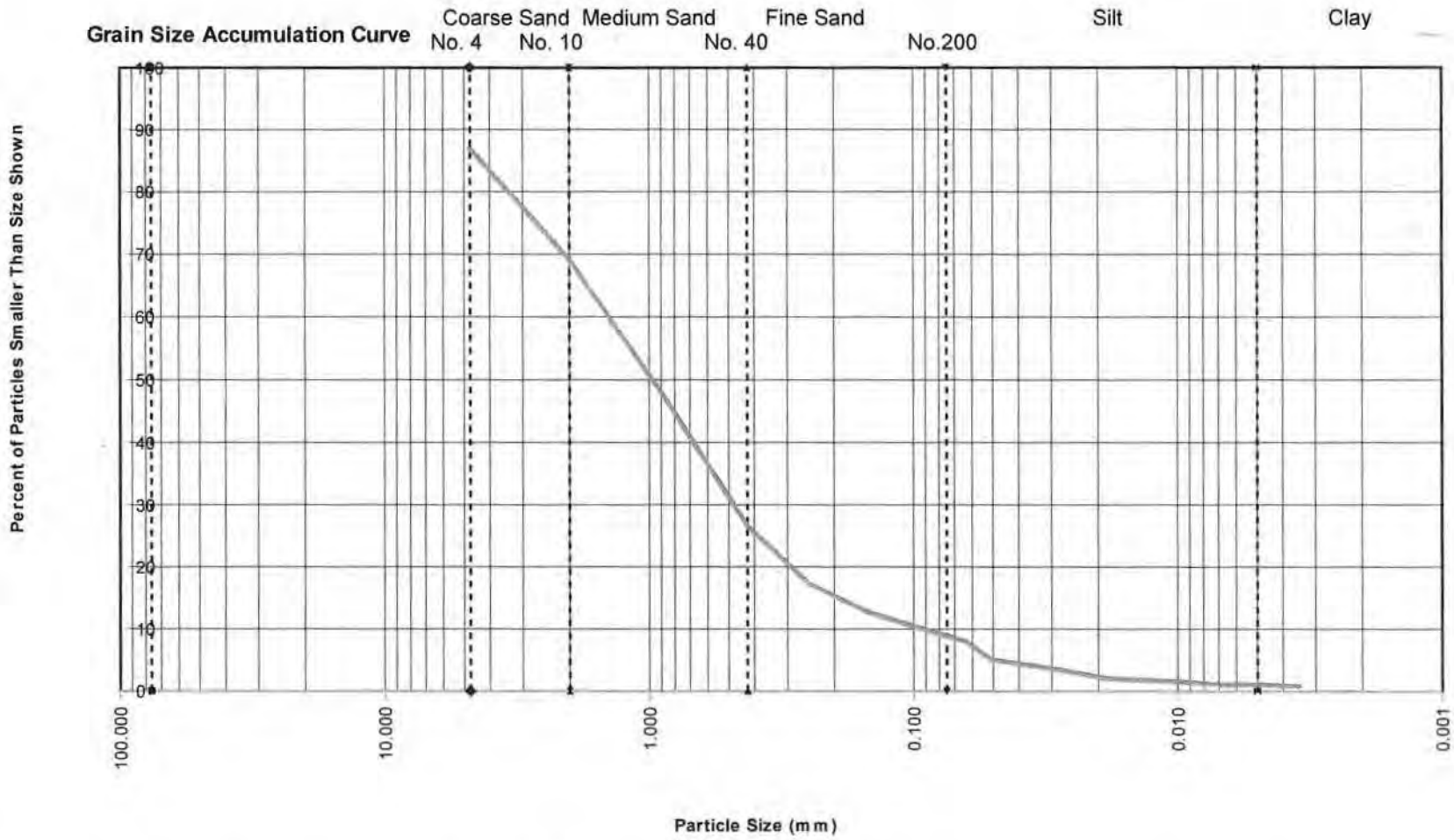

Sample ID:	BL-CS-JC09-101612 (A12J470-17)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Gravel	Angular to sub-angular	Hard and durable	SAND with some silt and trace gravel

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Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-18		Client Sample ID:	BL-CS-JC09-101612DUP		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with some gravel and trace silt			Max Particle Size:	Gravel		
Particle Shape:	Angular to sub-angular			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	9.845	361.906	352.06	0.60	350.0

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	6.313	102.023	95.71	95.71	27.3	72.7
10	2.00	6.333	96.321	89.99	185.70	25.6	46.9
Pan		4.952	171.047	166.10	351.79	47.2	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9940		J47018	1.329	23.404	23.272	0.60

Hydrometer Analysis

Start Date/Time	10/30/2012	11:58	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	103.400		G_a Correction Factor (a)	1.000
Percent Passing No.10 Sieve	46.9		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	102.78		Corrected Dry Weight of Soil Tested (g) (W)	218.98

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	16	21.3	9.2	4.2	14.8	0.01348	0.052	1.97
2	12.5	21.3	5.7	2.6	15.5	0.01348	0.038	1.22
4	12.5	21.3	5.7	2.6	15.5	0.01348	0.027	1.22
8	11	21.3	4.2	1.9	15.6	0.01348	0.019	0.90
15	10	21.2	3.17	1.4	15.8	0.01348	0.014	0.68
30	10	21.2	3.17	1.4	15.8	0.01348	0.010	0.68
60	9	21.2	2.17	1.0	16	0.01348	0.007	0.47
90	9	21.4	2.24	1.0	16	0.01348	0.006	0.48
120	9	21.2	2.17	1.0	16	0.01348	0.005	0.47
240	9	21.1	2.14	1.0	16	0.01348	0.003	0.46
360	9	21	2.1	1.0	16	0.01348	0.003	0.45
1440	8	21	1.1	0.5	16.1	0.01348	0.001	0.24

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.314	35.390	34.08	240.44	15.6	31.4
40	0.425	1.313	24.408	23.10	277.53	10.5	20.8
60	0.250	1.331	17.329	16.00	303.23	7.3	13.5
100	0.150	1.316	12.526	11.21	321.24	5.1	8.4
140	0.105	1.342	5.906	4.56	328.57	2.1	6.3
200	0.075	1.342	4.984	3.64	334.42	1.7	4.7
230	0.063	1.344	2.959	1.62	337.01	0.7	3.9
			Sum	94.20	230 Minus	8.58	

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-JC09-101612DUP (A12J470-18)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				*27.35*
Retained on No. 4 sieve		4.75	72.65	27.35
Sand				*67.99*
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	46.94	25.71
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	31.38	15.56
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	20.83	10.55
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	13.52	7.31
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	8.4	5.12
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	6.32	2.08
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	4.66	1.66
Silt and Clay (Measurements in the Clay fraction are noted)				*4.66*
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	3.92	0.74
Hydrometer Test		0.0519	1.97	1.95
Hydrometer Test		0.0375	1.22	0.75
Hydrometer Test		0.0265	1.22	0
Hydrometer Test		0.0188	0.9	0.32
Hydrometer Test		0.0138	0.68	0.22
Hydrometer Test		0.0098	0.68	0
Hydrometer Test		0.0070	0.47	0.21
Hydrometer Test		0.0057	0.48	0
Hydrometer Test	Clay	0.0049	0.47	0
Hydrometer Test	Clay	0.0035	0.46	0.01
Hydrometer Test	Clay	0.0028	0.45	0.01
Hydrometer Test	Clay	0.0014	0.24	0.21

Grain Size Summary	Percent of Total Sample
Gravel	27.3
Sand	68.0
Coarse sand	41.3
Medium sand	23.0
Fine sand	3.7
Silt	4.2
Clay	0.5

Case Narrative for Sample ID: BL-CS-JC09-101612DUP (A12J470-18)

No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

Hydrometer readings for 1, 2, and 4 minutes are estimated due to the presence of foam.

Organic debris (wood fragments) present in +4 and +10 fractions.

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G2218
GEOLOGIST

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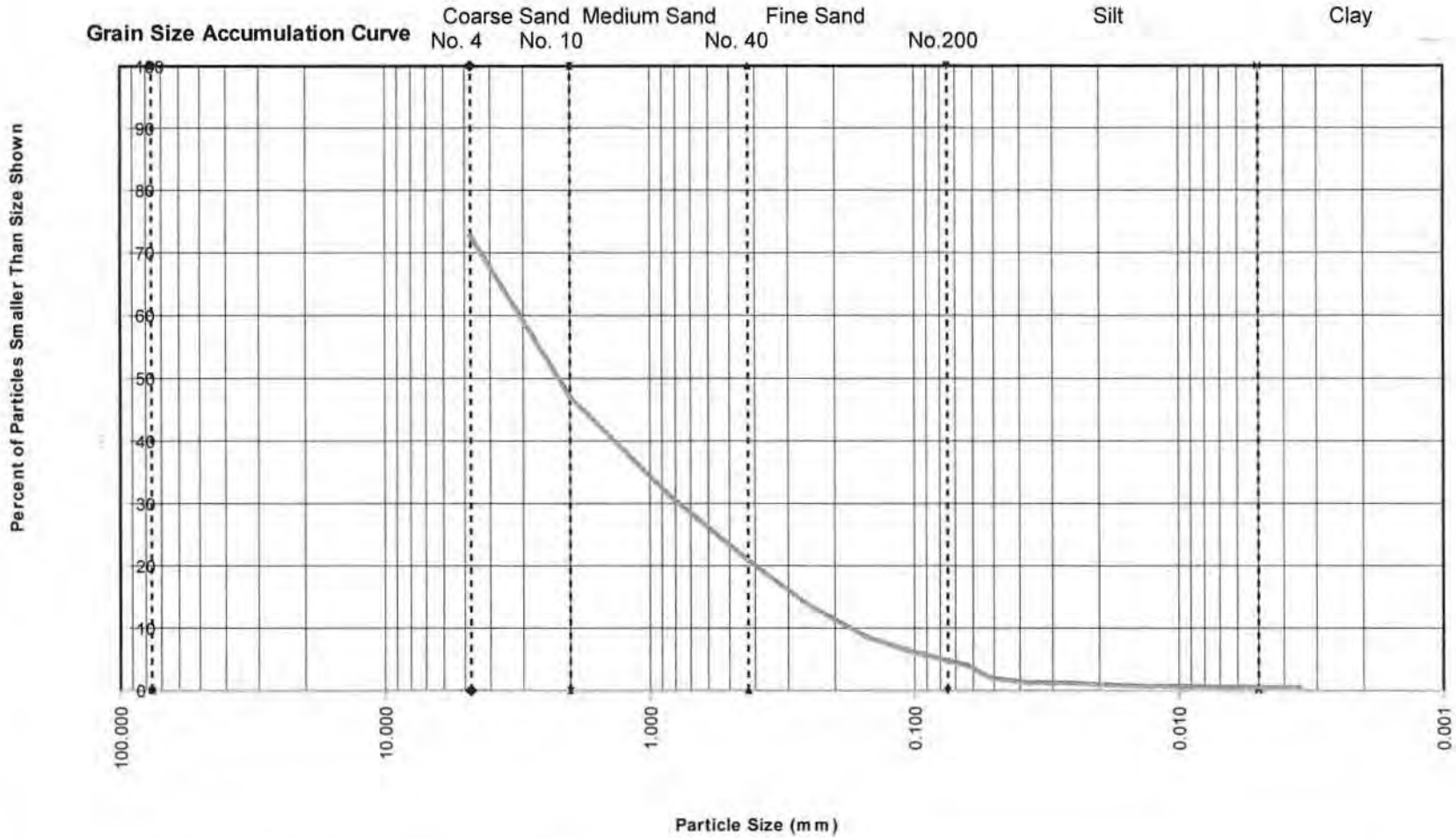

Sample ID:	BL-CS-JC09-101612DUP (A12J470-18)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Gravel	Angular to sub-angular	Hard and durable	SAND with some gravel and trace silt

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Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-19		Client Sample ID:	BL-CS-JC08-101612		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with some gravel and trace silt			Max Particle Size:	Gravel		
Particle Shape:	Angular to sub-angular			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	8.954	386.754	377.80	0.63	375.4

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	6.289	94.793	88.50	88.50	23.6	76.4
10	2.00	6.299	113.691	107.39	195.90	28.4	47.8
Pan		5.822	186.653	180.83	376.73	47.9	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9937		J47019	1.357	21.495	21.369	0.63

Hydrometer Analysis

Start Date/Time	10/30/2012	12:19	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	105.715		G_s Correction Factor (a)	1.000
Percent Passing No.10 Sieve	47.8		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	105.05		Corrected Dry Weight of Soil Tested (g) (W)	219.68

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	12.5	21.7	5.84	2.7	15.5	0.01332	0.052	1.27
2	10.5	21.7	3.84	1.7	15.8	0.01332	0.037	0.84
4	9.5	21.7	2.84	1.3	16	0.01332	0.027	0.62
8	8	21.7	1.34	0.6	16.1	0.01332	0.019	0.29
15	8	21.6	1.31	0.6	16.1	0.01332	0.014	0.28
30	8	21.5	1.27	0.6	16.1	0.01332	0.010	0.28
60	8	21.5	1.27	0.6	16.1	0.01332	0.007	0.28
90	8	21.3	1.2	0.5	16.1	0.01348	0.006	0.26
120	8	21.2	1.17	0.5	16.1	0.01348	0.005	0.25
240	8	21.3	1.2	0.5	16.1	0.01348	0.003	0.26
360	8	21	1.1	0.5	16.1	0.01348	0.003	0.24
1440	7	21.1	0.14	0.1	16.3	0.01348	0.001	0.03

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.339	51.629	50.29	281.92	22.9	24.9
40	0.425	1.342	33.742	32.40	337.34	14.7	10.2
60	0.250	1.333	11.530	10.20	354.78	4.6	5.5
100	0.150	1.339	5.421	4.08	361.77	1.9	3.7
140	0.105	1.342	2.782	1.44	364.23	0.7	3.0
200	0.075	1.316	2.558	1.24	366.35	0.6	2.5
230	0.063	1.341	1.982	0.64	367.45	0.3	2.2
			Sum	100.29	230 Minus	4.76	

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-JC08-101612 (A12J470-19)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				*23.57*
Retained on No. 4 sieve		4.75	76.43	23.57
Sand				*73.97*
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	47.82	28.6
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	24.93	22.89
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	10.18	14.75
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	5.54	4.64
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	3.68	1.86
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	3.02	0.66
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	2.46	0.57
Silt and Clay (Measurements in the Clay fraction are noted)				*2.46*
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	2.17	0.29
Hydrometer Test		0.0524	1.27	0.9
Hydrometer Test		0.0374	0.84	0.44
Hydrometer Test		0.0266	0.62	0.22
Hydrometer Test		0.0189	0.29	0.33
Hydrometer Test		0.0138	0.28	0.01
Hydrometer Test		0.0098	0.28	0.01
Hydrometer Test		0.0069	0.28	0
Hydrometer Test		0.0057	0.26	0.01
Hydrometer Test	Clay	0.0049	0.25	0.01
Hydrometer Test	Clay	0.0035	0.26	0
Hydrometer Test	Clay	0.0029	0.24	0.01
Hydrometer Test	Clay	0.0014	0.03	0.21

Grain Size Summary		Percent of Total Sample
Gravel		23.6
Sand		74.0
	Coarse sand	51.5
	Medium sand	21.2
	Fine sand	1.2
Silt		2.2
Clay		0.3

Case Narrative for Sample ID: BL-CS-JC08-101612 (A12J470-19)

No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

Hydrometer readings for 1, 2, and 4 minutes are estimated due to the presence of foam.

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OREGON
JASON P. WOODCOCK
12/31/2012
G2218
GEOLOGIST

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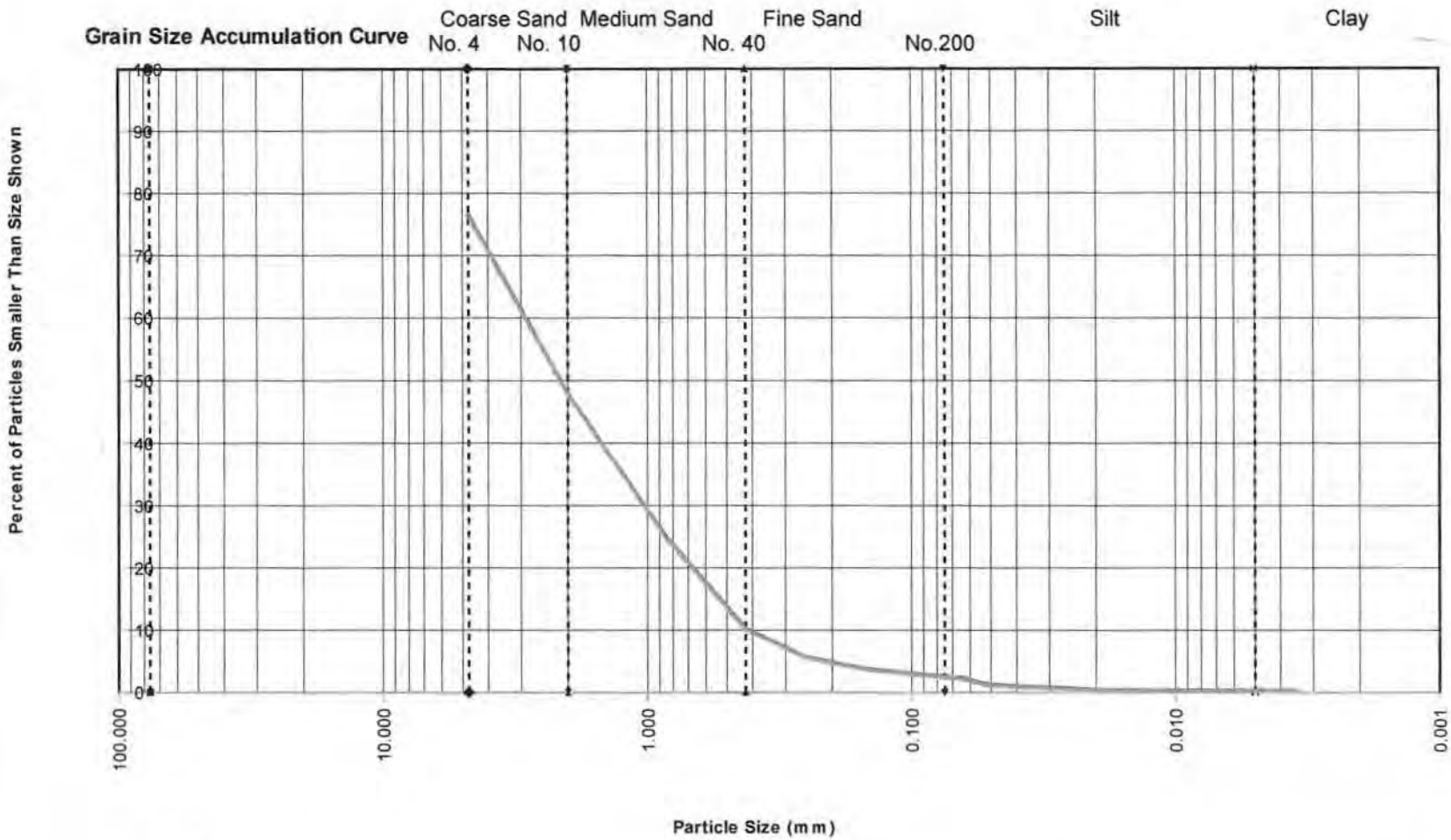

Sample ID:	BL-CS-JC08-101612 (A12J470-19)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Gravel	Angular to sub-angular	Hard and durable	SAND with some gravel and trace silt

Apex Laboratories, LLC

Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-20		Client Sample ID:	BL-CS-JC01-101612		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with some gravel and trace silt			Max Particle Size:	Gravel		
Particle Shape:	Angular to sub-rounded			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	10.047	351.962	341.92	0.43	340.4

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	6.358	106.121	99.76	99.76	29.3	70.7
10	2.00	6.292	151.764	145.47	245.24	42.5	28.0
Pan		6.346	102.232	95.89	341.12	28.0	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9957		J47020	1.342	14.583	14.526	0.43

Hydrometer Analysis

Start Date/Time	10/30/2012	12:39	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	82.429		G_s Correction Factor (a)	1.000
Percent Passing No.10 Sieve	28.0		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	82.07		Corrected Dry Weight of Soil Tested (g) (W)	293.48

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	9	21.6	2.31	0.8	16	0.01332	0.053	0.22
2	9	21.6	2.31	0.8	16	0.01332	0.038	0.22
4	8	21.6	1.31	0.4	16.1	0.01332	0.027	0.12
8	8	21.6	1.31	0.4	16.1	0.01332	0.019	0.12
15	8	21.5	1.27	0.4	16.1	0.01332	0.014	0.12
30	8	21.5	1.27	0.4	16.1	0.01332	0.010	0.12
60	8	21.4	1.24	0.4	16.1	0.01348	0.007	0.12
90	8	21.1	1.14	0.4	16.1	0.01348	0.006	0.11
120	8	21	1.1	0.4	16.1	0.01348	0.005	0.10
240	8	21.2	1.17	0.4	16.1	0.01348	0.003	0.11
360	8	20.9	1.07	0.4	16.1	0.01348	0.003	0.10
1440	8	21.1	1.14	0.4	16.1	0.01348	0.001	0.11

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.327	64.028	62.70	318.17	21.4	6.6
40	0.425	1.346	14.340	12.99	333.29	4.4	2.2
60	0.250	1.344	3.582	2.24	335.89	0.8	1.4
100	0.150	1.343	2.298	0.96	337.00	0.3	1.1
140	0.105	1.344	1.784	0.44	337.51	0.1	0.9
200	0.075	1.329	1.724	0.40	337.97	0.1	0.8
230	0.063	1.324	1.517	0.19	338.20	0.1	0.7
			Sum	79.92	230 Minus	2.16	

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-JC01-101612 (A12J470-20)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				*29.3*
Retained on No. 4 sieve		4.75	70.7	29.3
Sand				*69.89*
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	27.97	42.73
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	6.6	21.36
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	2.17	4.43
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	1.41	0.76
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	1.09	0.33
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	0.94	0.15
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	0.8	0.13
Silt and Clay (Measurements in the Clay fraction are noted)				*0.81*
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	0.74	0.07
Hydrometer Test		0.0533	0.22	0.52
Hydrometer Test		0.0377	0.22	0
Hydrometer Test		0.0267	0.12	0.1
Hydrometer Test		0.0189	0.12	0
Hydrometer Test		0.0138	0.12	0
Hydrometer Test		0.0098	0.12	0
Hydrometer Test		0.0070	0.12	0
Hydrometer Test		0.0057	0.11	0.01
Hydrometer Test	Clay	0.0049	0.1	0
Hydrometer Test	Clay	0.0035	0.11	0
Hydrometer Test	Clay	0.0029	0.1	0
Hydrometer Test	Clay	0.0014	0.11	0

Grain Size Summary	Percent of Total Sample
Gravel	29.3
Sand	69.9
Coarse sand	64.1
Medium sand	5.5
Fine sand	0.3
Silt	0.7
Clay	0.1

Case Narrative for Sample ID: BL-CS-JC01-101612 (A12J470-20)

No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

Hydrometer readings for 1 and 2 minutes are estimated due to the presence of foam.

Trace organic debris (pine needle) present in +10 fraction.

Samples that are mainly sand require 100g of sample for hydrometer analysis.

Only 82.429 g were used due to limited sample in the -10 fraction.

Silt and clay results may be slightly biased due to this deviation.

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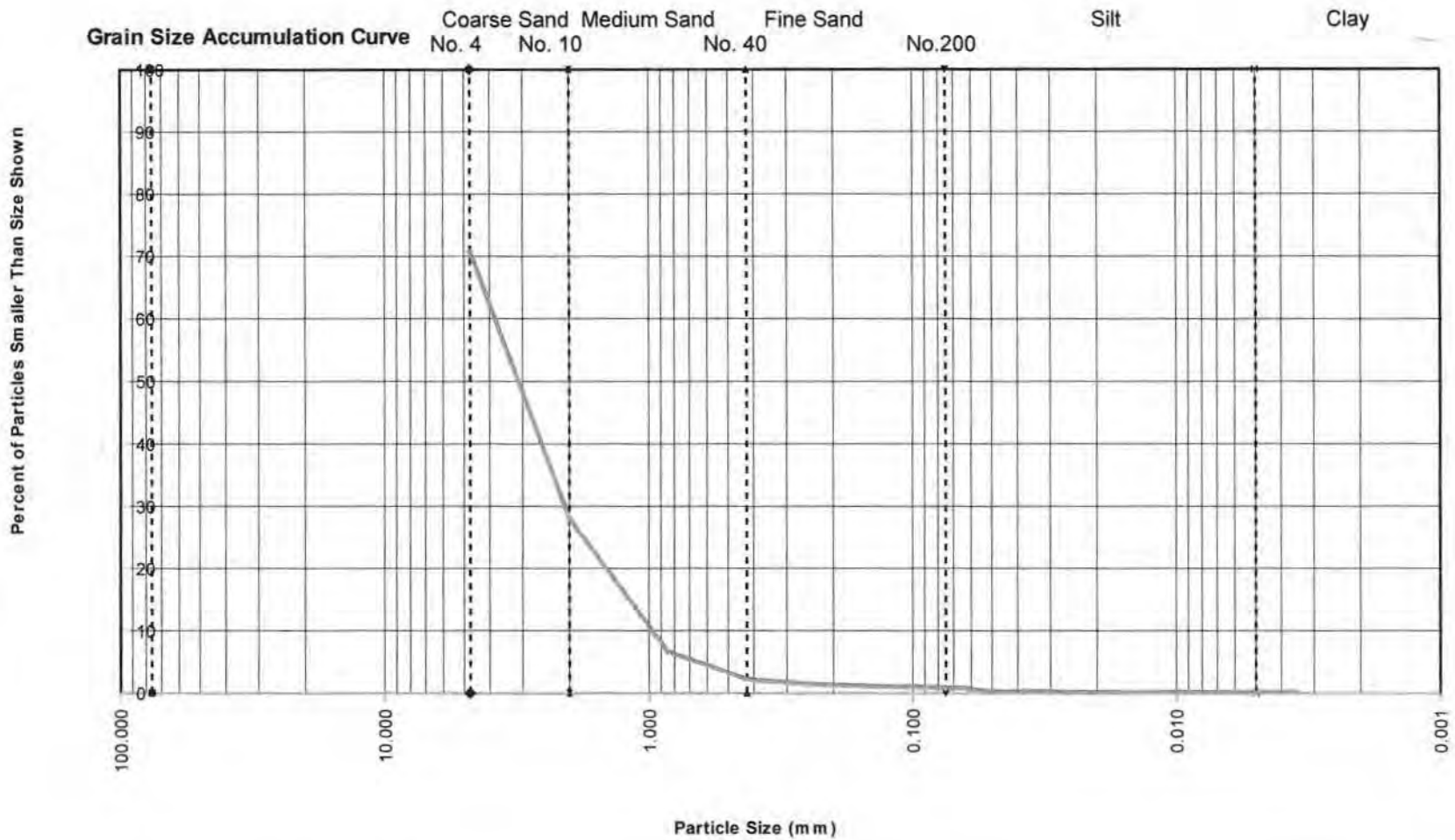
OREGON
JASON P. WOODCOCK
12/31/2012
G2218
GEOLOGIST

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified



Sample ID:	BL-CS-JC01-101612 (A12J470-20)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Gravel	Angular to sub-rounded	Hard and durable	SAND with some gravel and trace silt

Apex Laboratories, LLC

Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-21		Client Sample ID:	BL-CS-JC01-101612MSMSD		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with some gravel and trace silt			Max Particle Size:	Gravel		
Particle Shape:	Angular to sub-rounded			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	10.780	363.300	352.52	0.48	350.8

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	6.285	91.372	85.09	85.09	24.3	75.7
10	2.00	6.301	177.063	170.76	255.85	48.4	27.1
Pan		5.402	101.225	95.82	351.67	27.2	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9953		J47021	1.331	16.926	16.852	0.48

Hydrometer Analysis

Start Date/Time	10/30/2012	13:14	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	79.971		G_s Correction Factor (a)	1.000
Percent Passing No.10 Sieve	27.1		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	79.59		Corrected Dry Weight of Soil Tested (g) (W)	293.95

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	10	21.8	3.38	1.1	15.8	0.01332	0.053	0.31
2	9	21.8	2.38	0.8	16	0.01332	0.038	0.22
4	9	21.8	2.38	0.8	16	0.01332	0.027	0.22
8	8	21.8	1.38	0.5	16.1	0.01332	0.019	0.13
15	8	21.7	1.34	0.5	16.1	0.01332	0.014	0.12
30	8	21.6	1.31	0.4	16.1	0.01332	0.010	0.12
60	8	21.4	1.24	0.4	16.1	0.01348	0.007	0.11
90	8	21.1	1.14	0.4	16.1	0.01348	0.006	0.10
120	8	20.9	1.07	0.4	16.1	0.01348	0.005	0.10
240	8	21.1	1.14	0.4	16.1	0.01348	0.003	0.10
360	8	21	1.1	0.4	16.1	0.01348	0.003	0.10
1440	8	21.1	1.14	0.4	16.1	0.01348	0.001	0.10

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.312	56.786	55.47	322.32	18.9	8.2
40	0.425	1.339	15.805	14.47	339.65	4.9	3.3
60	0.250	1.326	4.755	3.43	343.76	1.2	2.1
100	0.150	1.330	3.001	1.67	345.76	0.6	1.5
140	0.105	1.343	2.078	0.74	346.64	0.3	1.3
200	0.075	1.326	1.977	0.65	347.42	0.2	1.1
230	0.063	1.349	1.676	0.33	347.82	0.1	1.0
			Sum	76.75	230 Minus	2.84	

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-JC01-101612MSMSD (A12J470-21)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				*24.25*
Retained on No. 4 sieve		4.75	75.75	24.25
Sand				*74.67*
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	27.08	48.67
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	8.2	18.87
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	3.28	4.92
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	2.12	1.17
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	1.55	0.57
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	1.3	0.25
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	1.08	0.22
Silt and Clay (Measurements in the Clay fraction are noted)				*1.08*
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	0.97	0.11
Hydrometer Test		0.0529	0.31	0.65
Hydrometer Test		0.0377	0.22	0.09
Hydrometer Test		0.0266	0.22	0
Hydrometer Test		0.0189	0.13	0.09
Hydrometer Test		0.0138	0.12	0
Hydrometer Test		0.0098	0.12	0
Hydrometer Test		0.0070	0.11	0.01
Hydrometer Test		0.0057	0.1	0.01
Hydrometer Test	Clay	0.0049	0.1	0.01
Hydrometer Test	Clay	0.0035	0.1	0
Hydrometer Test	Clay	0.0029	0.1	0
Hydrometer Test	Clay	0.0014	0.1	0

Grain Size Summary	Percent of Total Sample
Gravel	24.3
Sand	74.7
Coarse sand	67.5
Medium sand	6.7
Fine sand	0.5
Silt	1.0
Clay	0.1

Case Narrative for Sample ID: BL-CS-JC01-101612MSMSD (A12J470-21)

No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

Hydrometer readings for 1, 2, and 4 minutes are estimated due to the presence of foam.

Samples that are mainly sand require 100g of sample for hydrometer analysis.

Only79.971 g were used due to limited sample in the -10 fraction.

Silt and clay results may be slightly biased due to this deviation.

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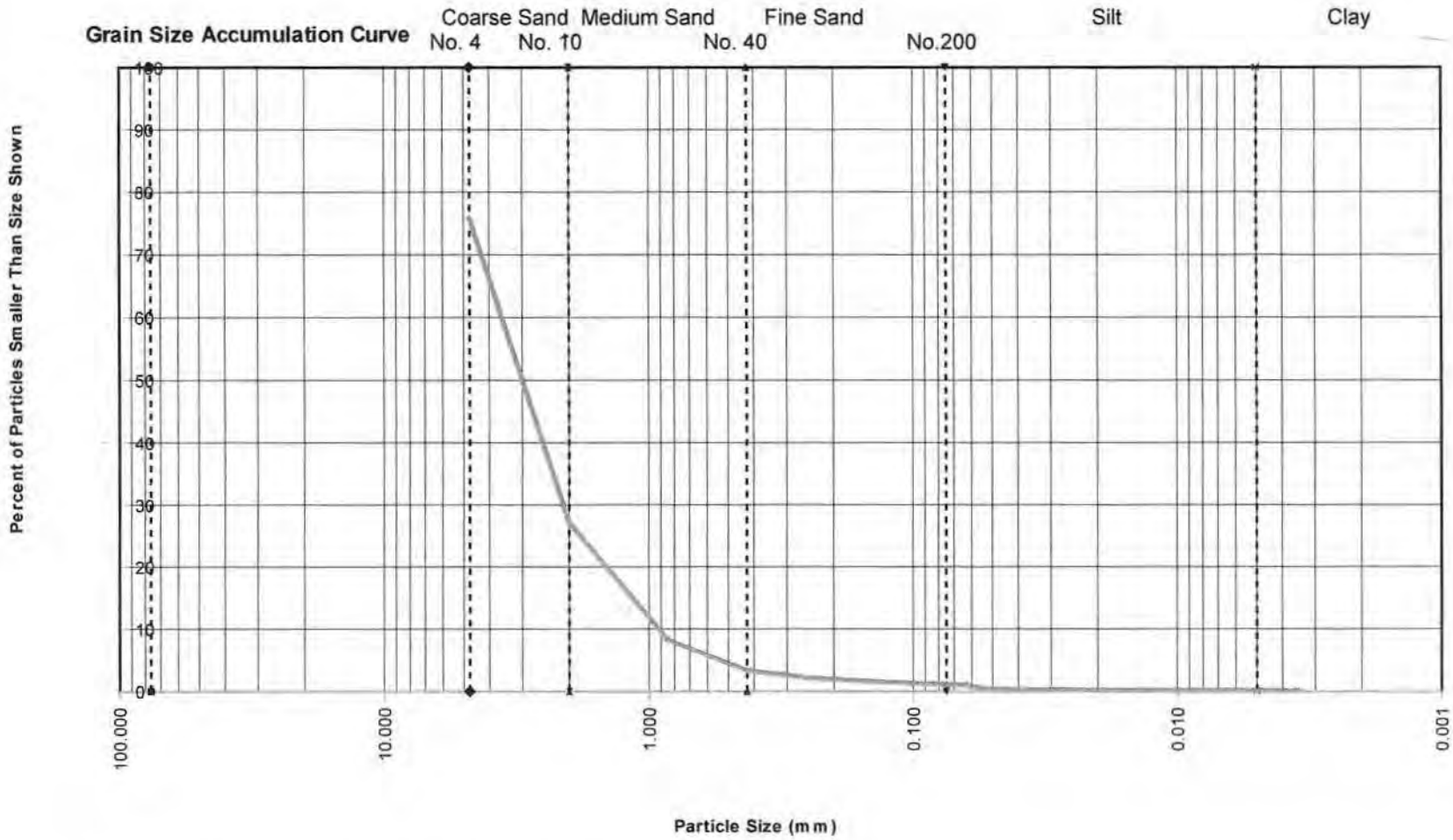
OREGON
JASON P. WOODCOCK
12/31/2012
G2218
GEOLOGIST

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified



Sample ID:	BL-CS-JC01-101612MSMSD (A12J470-21)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Gravel	Angular to sub-rounded	Hard and durable	SAND with some gravel and trace silt

Apex Laboratories, LLC

Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-22		Client Sample ID:	BL-CS-EC06-101612		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with some silt and trace clay			Max Particle Size:	Coarse sand		
Particle Shape:	Sub-angular to sub-rounded			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	5.297	291.760	286.46	0.30	285.6

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	1.316	1.883	0.57	0.57	0.2	99.8
10	2.00	1.342	2.149	0.81	1.37	0.3	99.5
Pan		5.339	290.503	285.16	286.54	99.5	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9970		J47022	1.353	29.937	29.852	0.30

Hydrometer Analysis

Start Date/Time	10/30/2012	13:42	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	103.040		G_s Correction Factor (a)	1.000
Percent Passing No.10 Sieve	99.5		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	102.73		Corrected Dry Weight of Soil Tested (g) (W)	103.23

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	16.5	22	9.94	9.6	14.8	0.01332	0.051	9.59
2	13.5	22	6.94	6.7	15.3	0.01332	0.037	6.69
4	11	22	4.44	4.3	15.6	0.01332	0.026	4.28
8	10	21.8	3.38	3.3	15.8	0.01332	0.019	3.25
15	10	21.7	3.34	3.2	15.8	0.01332	0.014	3.22
30	10	21.6	3.31	3.2	15.8	0.01332	0.010	3.19
60	9	21.3	2.2	2.1	16	0.01348	0.007	2.12
90	9	21.2	2.17	2.1	16	0.01348	0.006	2.09
120	9	21.1	2.14	2.1	16	0.01348	0.005	2.06
240	8.5	21	1.6	1.6	16.1	0.01348	0.003	1.54
360	8.5	21	1.6	1.6	16.1	0.01348	0.003	1.54
1440	8	20.8	1.03	1.0	16.1	0.01348	0.001	1.00

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.342	2.564	1.22	4.76	1.2	98.3
40	0.425	1.348	10.124	8.78	29.04	8.5	89.8
60	0.250	1.341	24.877	23.54	94.18	22.8	67.0
100	0.150	1.344	34.424	33.08	185.73	32.0	35.0
140	0.105	1.348	15.980	14.63	226.22	14.2	20.8
200	0.075	1.340	10.086	8.75	250.43	8.5	12.3
230	0.063	1.348	4.331	2.98	258.68	2.9	9.5
			Sum	92.98	230 Minus	9.76	

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-EC06-101612 (A12J470-22)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				*0.2*
Retained on No. 4 sieve		4.75	99.8	0.2
Sand				*87.46*
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	99.52	0.28
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	98.34	1.18
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	89.83	8.5
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	67.03	22.8
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	34.99	32.04
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	20.82	14.17
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	12.34	8.47
Silt and Clay (Measurements in the Clay fraction are noted)				*12.34*
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	9.45	2.89
Hydrometer Test		0.0512	9.59	0
Hydrometer Test		0.0368	6.69	2.76
Hydrometer Test		0.0263	4.28	2.41
Hydrometer Test		0.0187	3.25	1.03
Hydrometer Test		0.0137	3.22	0.03
Hydrometer Test		0.0097	3.19	0.03
Hydrometer Test		0.0070	2.12	1.06
Hydrometer Test		0.0057	2.09	0.03
Hydrometer Test	Clay	0.0049	2.06	0.03
Hydrometer Test	Clay	0.0035	1.54	0.52
Hydrometer Test	Clay	0.0029	1.54	0
Hydrometer Test	Clay	0.0014	1	0.55

Grain Size Summary	Percent of Total Sample
Gravel	0.2
Sand	87.5
Coarse sand	1.5
Medium sand	63.3
Fine sand	22.6
Silt	10.3
Clay	2.1

Case Narrative for Sample ID: BL-CS-EC06-101612 (A12J470-22)

No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

The +4 fraction was entirely composed of organic material.

Organic debris (wood fragments) present in +10 fraction.

Hydrometer readings for 1and 2 minutes are estimated due to the presence of foam.

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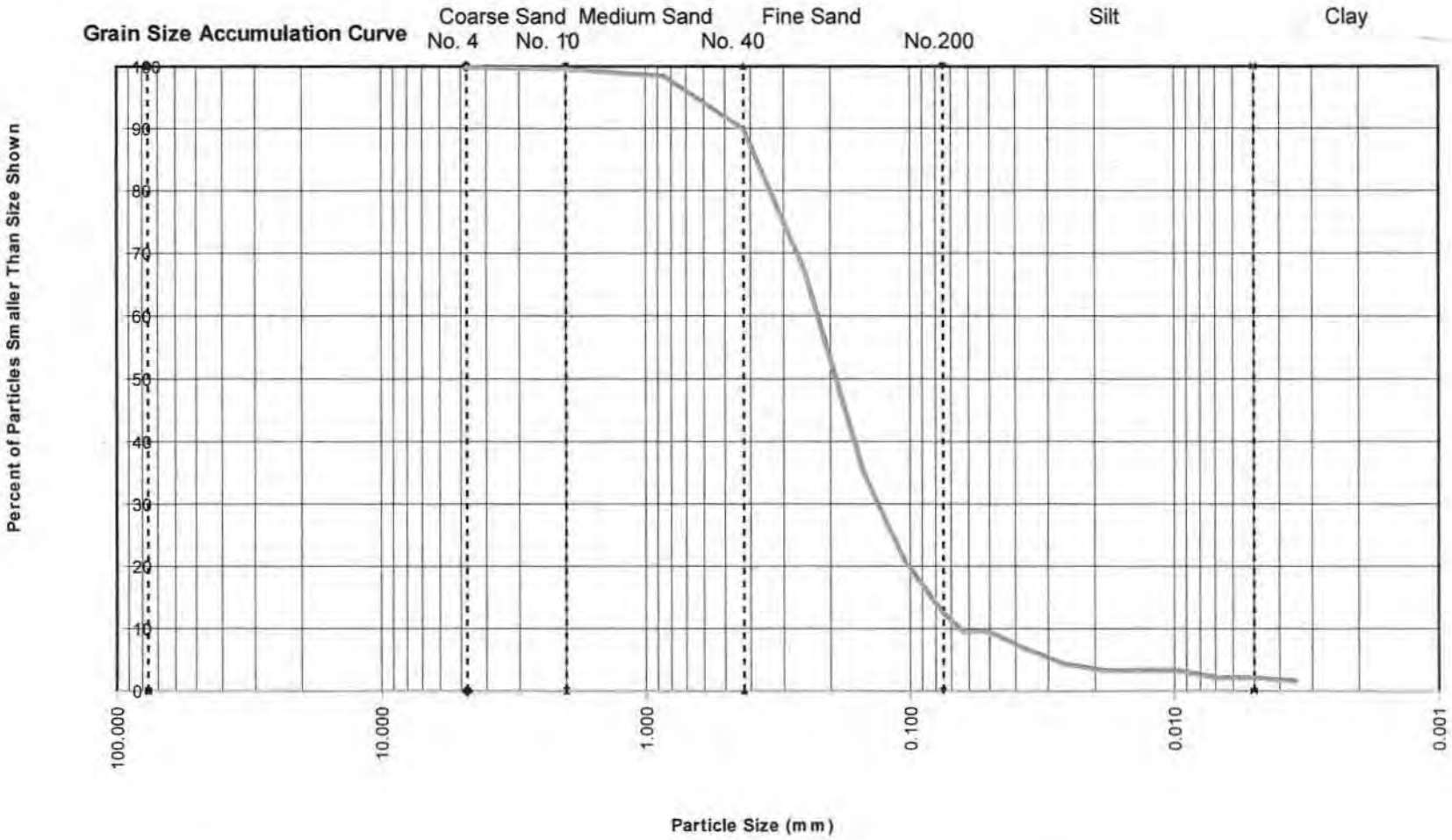
OREGON
JASON P. WOODCOCK
12/31/2012
G2218
GEOLOGIST

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified



Sample ID:	BL-CS-EC06-101612 (A12J470-22)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Coarse sand	Sub-angular to sub-rounded	Hard and durable	SAND with some silt and trace clay

Apex Laboratories, LLC

Particle Size Analysis of Soil by ASTM D 422

Sample ID:	A12J470-23		Client Sample ID:	BL-CS-EC04-101612		Batch Number:	1210927
Data Entered by:	JSJ	Date:	11/01/12	Data Reviewed by:	JPW	Date:	11/02/12
Sample Description:	SAND with trace silt and clay			Max Particle Size:	Gravel		
Particle Shape:	Sub-angular to sub-rounded			Hardness	Hard and durable		

Whole Sample	Tare	Air Dry + Tare	Air Dry	Moisture	Dry Wt.
	10.403	393.410	383.01	0.29	381.9

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Wt. Retained	% Retained	% Passing
4	4.75	1.317	12.597	11.28	11.28	3.0	97.0
10	2.00	1.339	29.194	27.86	39.14	7.3	89.8
Pan		10.481	354.185	343.70	382.84	89.7	

Hygroscopic Moisture Correction

	Hygroscopic Correction Factor	Oven Sample	Pan No.	Tare	Air Dry + Tare	Oven Dry + Tare	Moisture
	0.9971		J47023	1.338	24.046	23.981	0.29

Hydrometer Analysis

Start Date/Time	10/30/2012	14:21	Dispersing Agent	$NaPO_3$
Air Dry Sample Wt. for Hydrometer Test (g)	104.592		G_s Correction Factor (a)	1.000
Percent Passing No.10 Sieve	89.8		Specific Gravity (G_s)	2.65
Dry Weight of Soil Tested (g)	104.29		Corrected Dry Weight of Soil Tested (g) (W)	116.20

Elapsed Time (min)	Hydrometer Reading	Temperature (°C)	Corrected Hydrometer Reading [R]	% Finer of Hydrometer Sample	L	K	Particle Diameter (mm)	Percent Passing
1	9	21.6	2.31	2.0	16	0.01332	0.053	1.78
2	9	21.6	2.31	2.0	16	0.01332	0.038	1.78
4	9	21.6	2.31	2.0	16	0.01332	0.027	1.78
8	9	21.5	2.27	2.0	16	0.01332	0.019	1.76
15	8	21.3	1.2	1.0	16.1	0.01348	0.014	0.93
30	8	21.1	1.14	1.0	16.1	0.01348	0.010	0.88
60	8	20.9	1.07	0.9	16.1	0.01348	0.007	0.82
90	8	21.1	1.14	1.0	16.1	0.01348	0.006	0.88
120	8	21.2	1.17	1.0	16.1	0.01348	0.005	0.90
240	7.5	20.8	0.53	0.5	16.3	0.01348	0.004	0.41
360	7.5	21.1	0.64	0.5	16.3	0.01348	0.003	0.49
1440	7	20.8	0.03	0.0	16.3	0.01348	0.001	0.02

Sieve Analysis of Portion Finer Than No. 10 Sieve

Sieve Number	Opening (mm)	Tare	Dry + Tare	Weight Retained	Cumulative Retained	% Retained	% Passing
20	0.850	1.313	26.172	24.86	120.83	21.4	68.4
40	0.425	1.328	43.696	42.37	260.05	36.5	31.9
60	0.250	1.331	24.172	22.84	335.11	19.7	12.2
100	0.150	1.334	9.255	7.92	361.14	6.8	5.4
140	0.105	1.335	3.217	1.88	367.33	1.6	3.8
200	0.075	1.335	2.494	1.16	371.13	1.0	2.8
230	0.063	1.331	1.759	0.43	372.54	0.4	2.4
			Sum	101.46	230 Minus	2.83	

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified

Sample ID: BL-CS-EC04-101612 (A12J470-23)

Grain Size Analysis Summary from Sieving and Hydrometer Testing		Particle Size (mm)	Percent Finer	Total Percent of Sample
Gravel				2.95
Retained on No. 4 sieve		4.75	97.05	2.95
Sand				94.24
Coarse sand, passing No. 4 sieve and retained on No. 10 sieve		2.00	89.75	7.29
Coarse sand, passing No.10 sieve and retained on No. 20 sieve		0.8500	68.36	21.39
Medium sand, passing No.20 sieve and retained on No. 40 sieve		0.4250	31.9	36.46
Medium sand, passing No.40 sieve and retained on No. 60 sieve		0.2500	12.24	19.66
Medium sand, passing No. 60 sieve and retained on No.100 sieve		0.1500	5.42	6.82
Fine sand, passing No. 100 sieve and retained on No.140 sieve		0.1060	3.81	1.62
Fine sand passing No. 140 sieve and retained on No. 200 sieve		0.0750	2.81	1
Silt and Clay (Measurements in the Clay fraction are noted)				2.81
Silt passing No. 200 sieve and retained on No. 230 sieve		0.0630	2.44	0.37
Hydrometer Test		0.0533	1.78	0.66
Hydrometer Test		0.0377	1.78	0
Hydrometer Test		0.0266	1.78	0
Hydrometer Test		0.0188	1.76	0.03
Hydrometer Test		0.0140	0.93	0.83
Hydrometer Test		0.0099	0.88	0.05
Hydrometer Test		0.0070	0.82	0.05
Hydrometer Test		0.0057	0.88	0
Hydrometer Test	Clay	0.0049	0.9	0
Hydrometer Test	Clay	0.0035	0.41	0.41
Hydrometer Test	Clay	0.0029	0.49	0
Hydrometer Test	Clay	0.0014	0.02	0.39

Grain Size Summary	Percent of Total Sample
Gravel	3.0
Sand	94.2
Coarse sand	28.7
Medium sand	62.9
Fine sand	2.6
Silt	2.0
Clay	0.8

Case Narrative for Sample ID: BL-CS-EC04-101612 (A12J470-23)

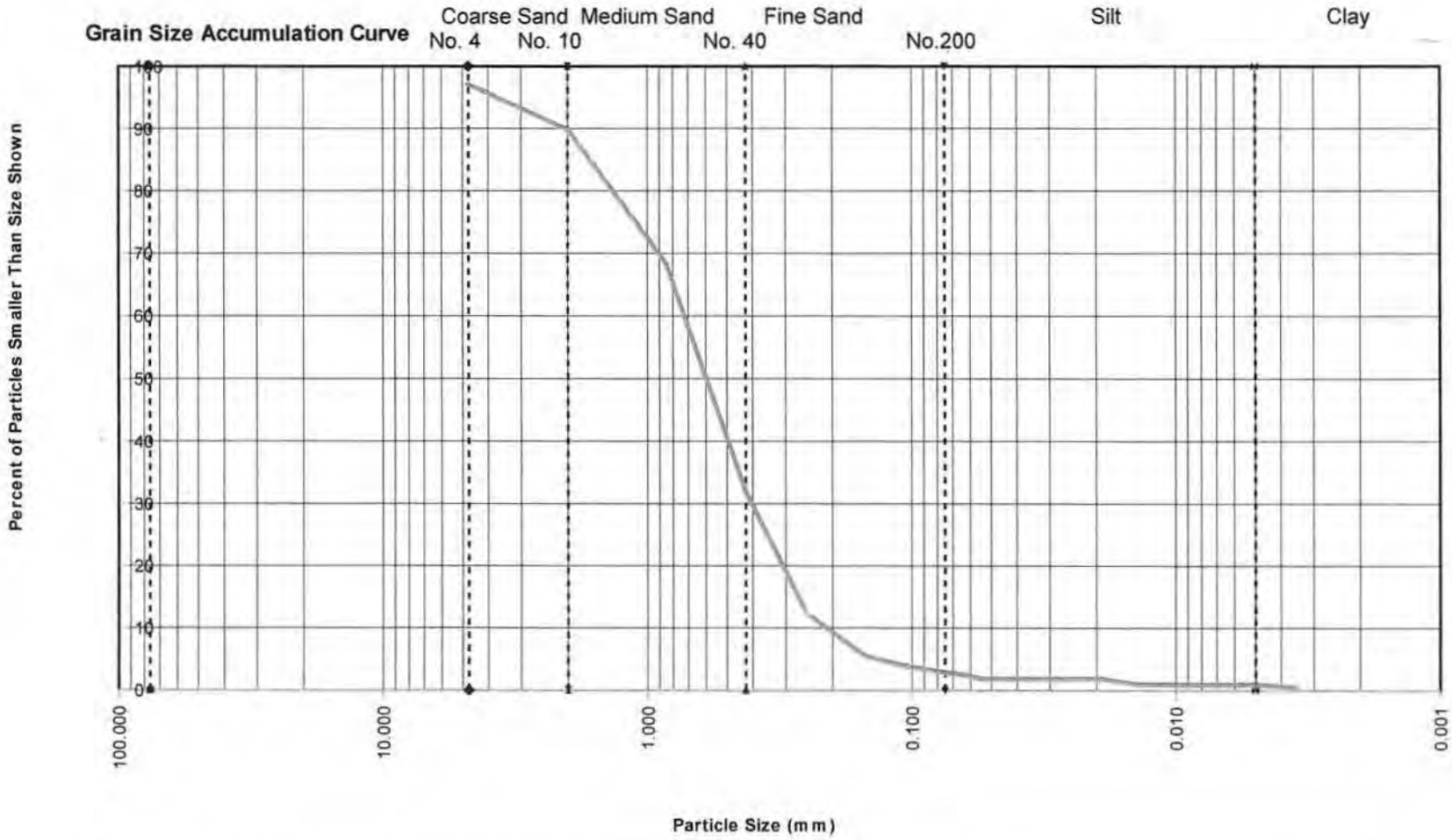
No difficulty dispersing the fraction passing the No. 10 sieve.

Dispersion device used: Commercial drink mixer operating at least 10,000 rpm for one minute.

The assumed specific gravity used in the calculations was 2.65.

REGISTERED
OREGON
JASON P. WOODCOCK
12/31/2012
G2218
GEOLOGIST

Apex Laboratories, LLC
Particle Size Analysis of Soil by ASTM D 422 Modified



Sample ID:	BL-CS-EC04-101612 (A12J470-23)			
Specific Gravity	MAXIMUM PARTICLE SIZE	GRAVEL & SAND		SOIL DESCRIPTION
		PARTICLE SHAPE	HARDNESS	
2.65	Gravel	Sub-angular to sub-rounded	Hard and durable	SAND with trace silt and clay

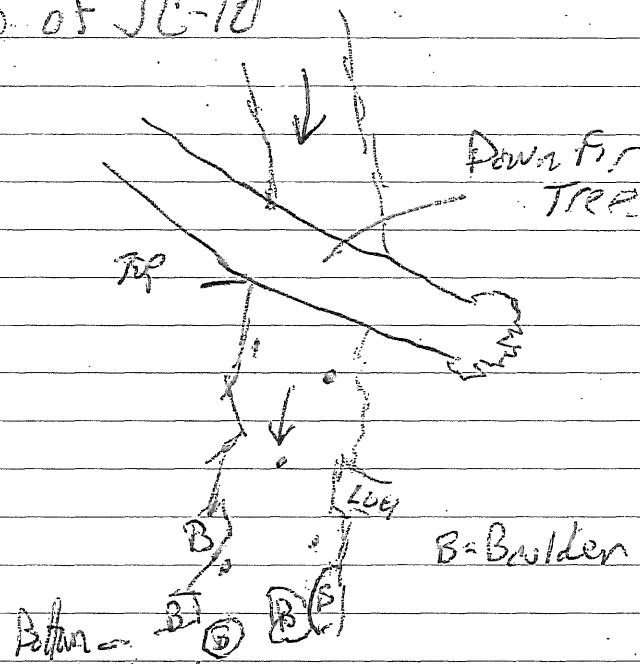
Appendix C. Fall 2011 and Fall 2012 Biannual Monitoring Field Notes

11/9/2011 Craig Jacobsen

- On site w/ Steve McCray & Sally Buck of JBR Environmental.
- Sally Buck drives the site and explains significant details.
- 1130 arrive @ the mine near JC-10 & JC-08 sample locations.
- 1145 arrive @ JC-10 location. Approximately 4 to 6 inches of snow on the ground.
- Mark location w/ Aluminum Tag on a downed tree @ the top of the unit. Orange flagging placed @ the top & bottom of the unit. JC-10 is located 15' above 1st unlabeled pink flag.
- Riffle is 4½' in width and 11½' in length. 6-inches deep.
- Weather is cloudy and the temperature is approximately 40°F.
- 1215 Collect 3 photos of habitat unit.
- Location: N 41° 57.715'
  W 123° 06.264'
  @ bottom of JC-10.
- 1230 Begin subsample of macroinvertebrates.
- 1250 Complete sample of JC-10.

CWJ

Map of JC-10



- Subsample locations.

Substrate: 50% Boulder
30% Cobble
20% Gravel
10% Sand

Sample: JC-10-M-110911
@ 1230

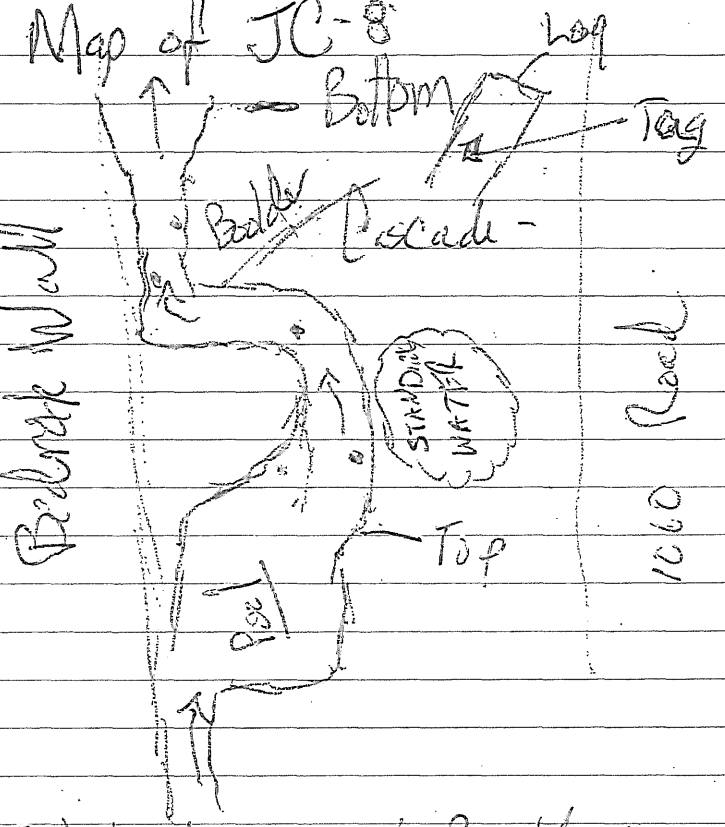
CWJ

11/9/2011

- 1310 arrive @ JC-8
  Cascade habitat type / Bedrock Canyon.
- Aluminum Tag, attached to old log on roadside bank facing stream. Orange flagging marks the top + bottom of the unit.
- Location: N 41° 57.768'
  W 123° 06.362'
  @ road side bank near top of unit.
  3,975' elevation
- Unit: Cascade
  29.5' in length x
  14.25' in width
  6 inches to 18 inches in depth
- 1330 Begin subsample collection of Macroinvertebrates.
- 1400 Complete Macroinvertebrate Sample of JC-08.
- 1410 Move to JC-01

aos

Map of JC-8



Substrate: 70% Boulder
20% Cobble
10% Gravel

Sample: JC-08-M-110911
@ 1330

aos

11/9/2011 JC-01

- 1430 onsite
  Riffle habitat.
- JC-01 is approximately 400 feet upstream of the Joe Creek bridge.
- Aluminum tag attached to small fir (~6 inches in diameter) on roadside bank @ bottom of pit
- Top and Bottom of unit marked with orange flagging

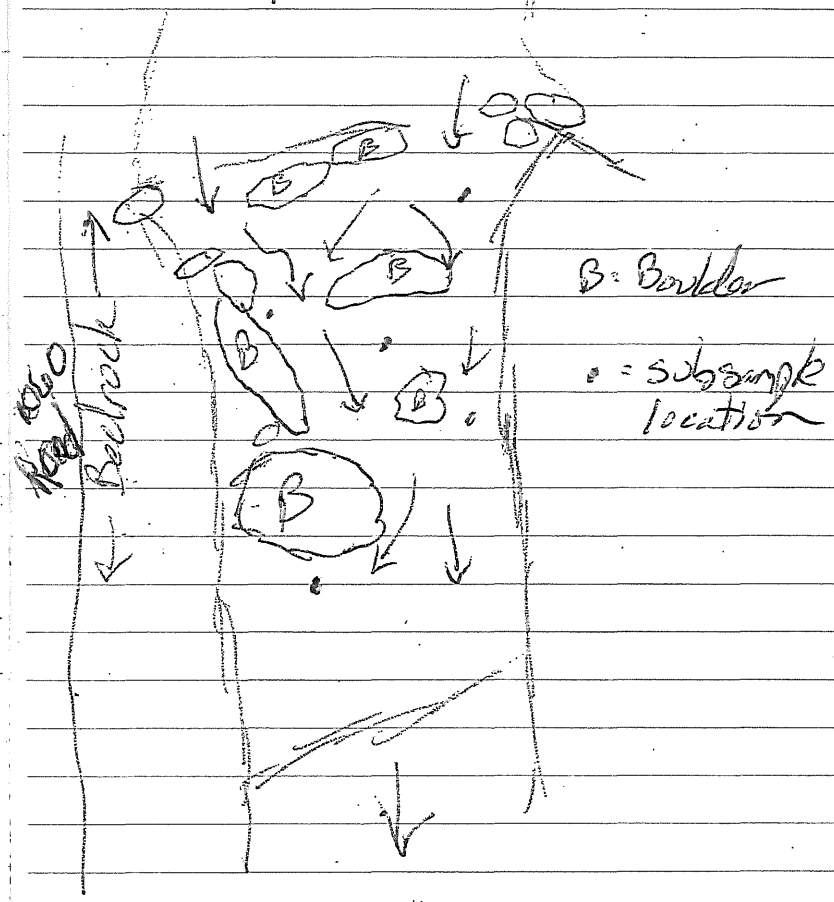
Unit: Riffle
14'5" in Width x 292" Length
Unit = 12 inches in depth

Location: N 41°59.868'
W 123°07.690'
elevation - 2,524 ft.

- 1455 Begin Sampling
- 1520 Complete Sampling

aws

Map of JC-01



Substrate: Boulder: 25%
Cobble 45%
Gravel 20%
Sand 10%

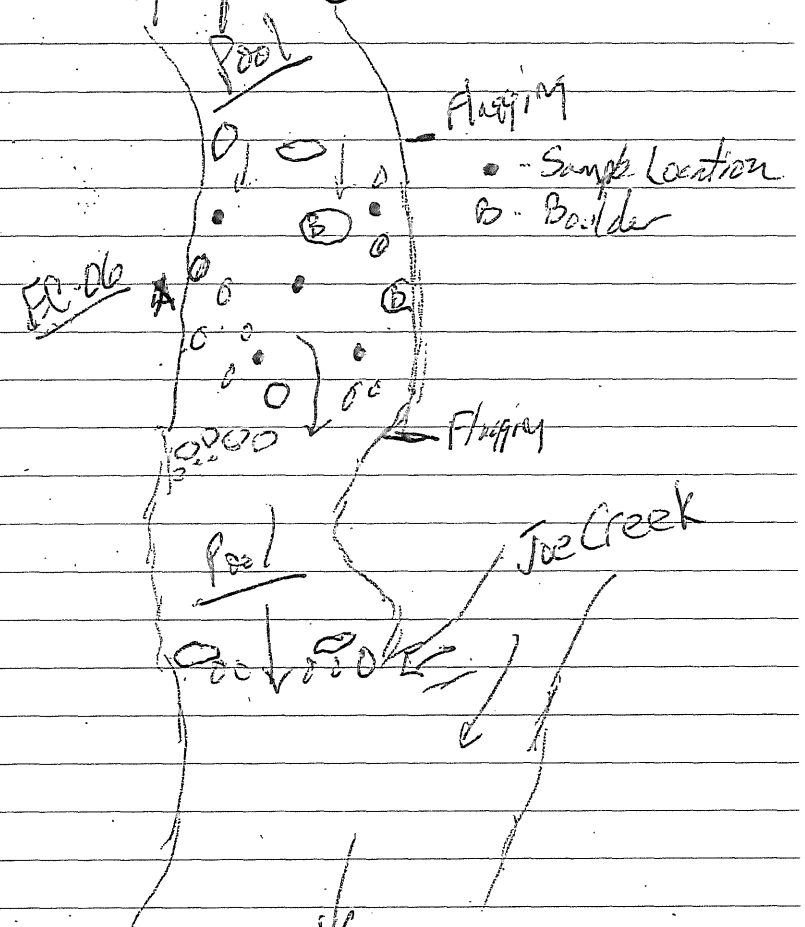
Sample: JC-01-M-110911 @ 1445

11/9/2011 EC-06

- 1530 arrive @ EC-06
  Riffle habitat
- EC-01 is approximately 150 feet upstream of confluence.
- Aluminum tag located on dead tree opposite bank from the road
  Orange flagging placed on the top and bottom of the unit
- Riffle is 49' Long x 26.5' wide
  Average depth 8 inches.
- Location:
  N 41° 59.886'
  W 123° 07.635'
  elevation 2434

- 1600 Begin subsampling.
  1620 Complete
  Note: Stonefly + Mayfly larvae noted in sample.

Map of EC-06 Location



Substrates
15% Boulder
45% Cobble
25% Gravel
15% Sand

11/9/2011 EC-04

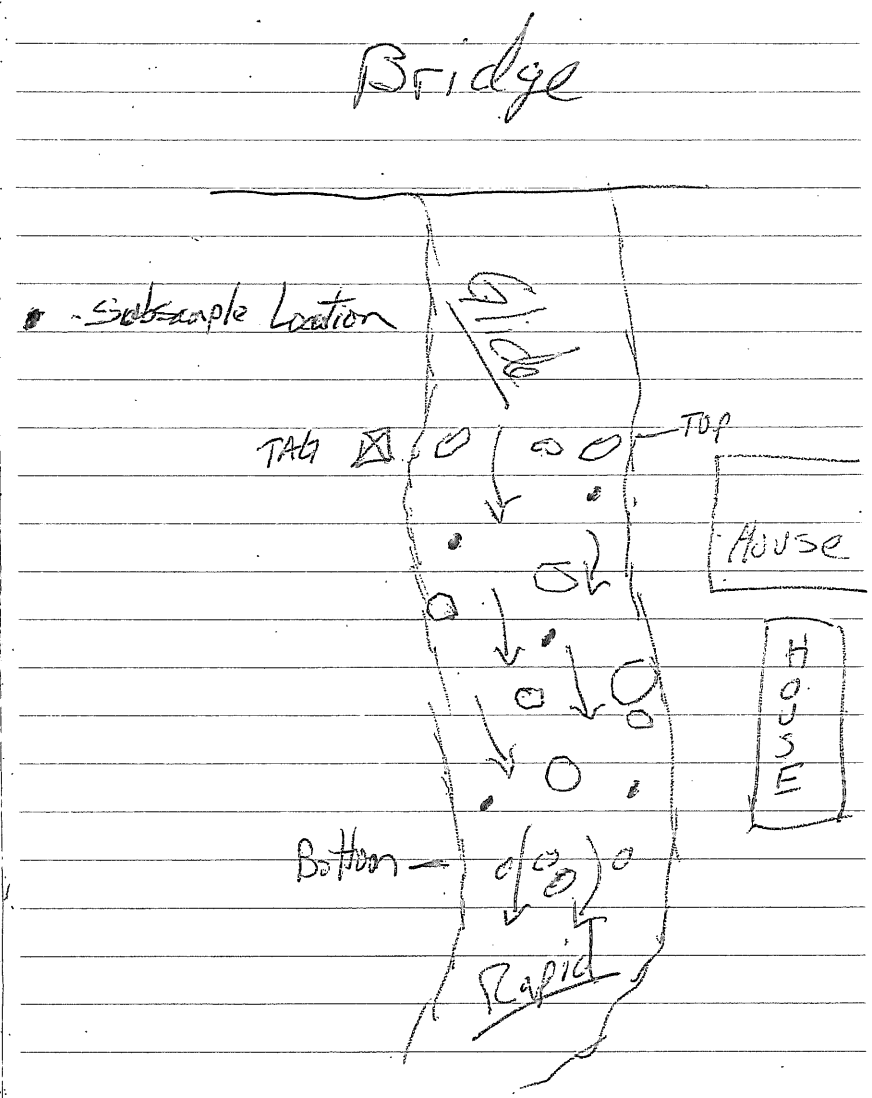
- 1635 arrive @ EC-04 Location below (downstream) of Joe Bar Bridge ~ 75 feet
- EC-04 marked w/ an aluminum tag + orange flagging @ the top and bottom of the unit.
- Unit 1 Riffle

Location: N 41° 59.946'
W 123° 07.832'
Elevation: 2235 feet

- Riffle: 65½' Length
31' Width
1' Depth
- 1655 Begin Subsampling
- 1715 Complete Sampling
Load up + Leave Site

Cont

11/9/2011 EC-04 Map



Samples:

- JC-10-M-110911 @ 1250
- JC-08-M-110911 @ 1400
- JC-01-M-110911 @ 1520
- EC-08-M-110911 @ 1620
- EC-04-M-110911 @ 1715

CWS

CWS

11/10/2011 C. Jacobsen

- 0800 onsite
- Steve McCray (JBR), Randy West (ERRG) + Cray Jacobsen (ETG) onsite
- 35° F and clear weather.
- 0840 Setup @ JC-01 + mark unit.
- Pool Located 20 feet below Joe Creek bridge to the top of the pool.
- Bottom of pool is located 15 feet from the ~~mouth~~ @ confluence of Elliott and Joe Creeks.
- Bottom of pool is marked with an Aluminum Tag on a 4-inch diameter Alder. Top + Bottom of pool are marked with orange flagging and labeled.
- 0930 Completed 3 passes through unit. One sculpin noted but not captured due to sediment and leaf abundance.
- Attempt another pass
- Move above Joe Creek bridge
- Capture Rainbow Trout in riffle 70 feet upstream of bridge

1050

Location: N 41°59.889'
W 123°07.675'

- Marked w/ Orange Flagging
- Abandoned initial pool below bridge to work riffle above Joe Creek bridge. Captured Rainbow Trout @ 1045.
- Location also marked w/ Aluminum Tag on 6-inch diameter Alder opposite Road 1060.
- 3 photos taken of location.
- Pulled Flagging + TAG from pool below bridge.

1 6 3/4" O. mykiss captured
1 escaped in pool below Joe Creek Bridge!

- 5 passes through pool below bridge nothing noticed accept 1 escaped sculpin
- Moved to riffle above bridge where R. Trout was captured.

11/10/11 EC-06

- 1120 Setup @ pool located directly above confluence of Joe + Elliott Creeks.
- Set block net
- List Block net. Unit too deep to effect. Veley electrofish.
- Mobilize pool directly upstream
- Set Block Net
- 1205 Begin electrofishing from top of pool.
- 1220 complete event.

Captured: 5 Rainbow Trout
1 Adult x 4 Juvenile

Length:

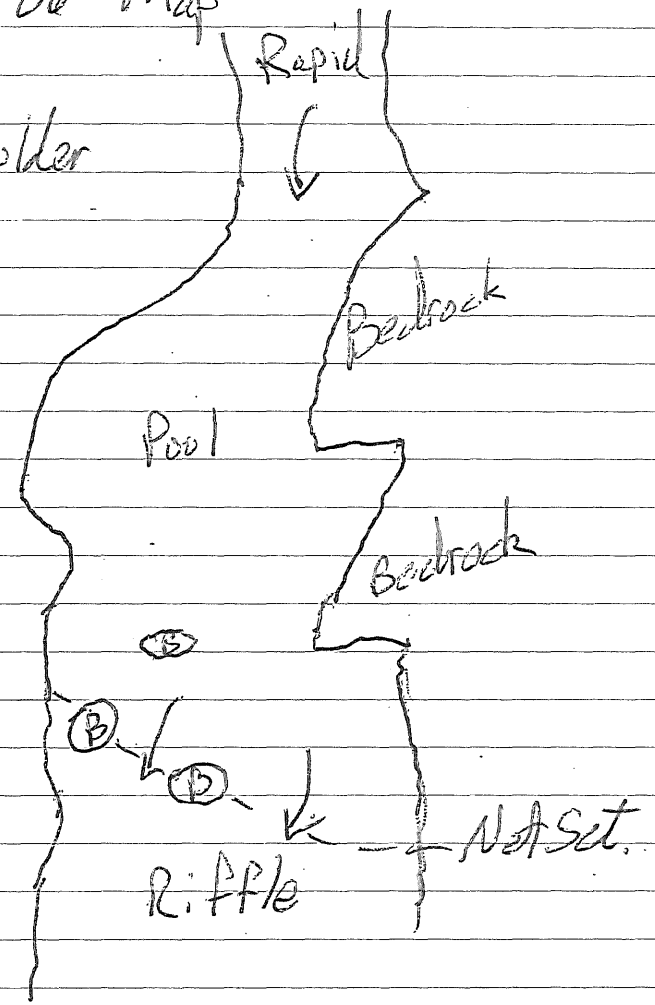
Adult:	9 1/4"	Captured
Juvenile:	3 1/4"	Released
	3 1/2"	Released
	3 3/8"	Released
	3 1/4"	Incidental

~~Location~~ GPS

Location: N 41° 59.891'
W 123° 07.430' el. 239'
to Bottom of Unit

Avg Depth 24" - 30"
Length: 102 ft Width: 25 ft.

EC-06 Map



- Pool Marked @ Bottom of unit w/ Orange Flagging + Aluminum TAG w/ Sample + Date Scribed into it (TAG).

11/10/2011 EC-04

1250 Arrive @ unit.

Electrofish Glide above the riffle ~~unit~~ sampled for macroinvertebrates including the riffle. Both units directly below Joe Bar Bridge.

- Glide = 64' L x 31' W 1' Deep
  riffle = 65½' L x 31' W 1' Deep

Total Habitat Sampled:

129½' L x 31' W x 1' Deep

Total Captured: 1 Trout + 5 sculpin

- R. Trout Length = 8½"
- Sculpin Lengths = ~~4", 4¼", 4", + 3¾", + 4½"~~ out

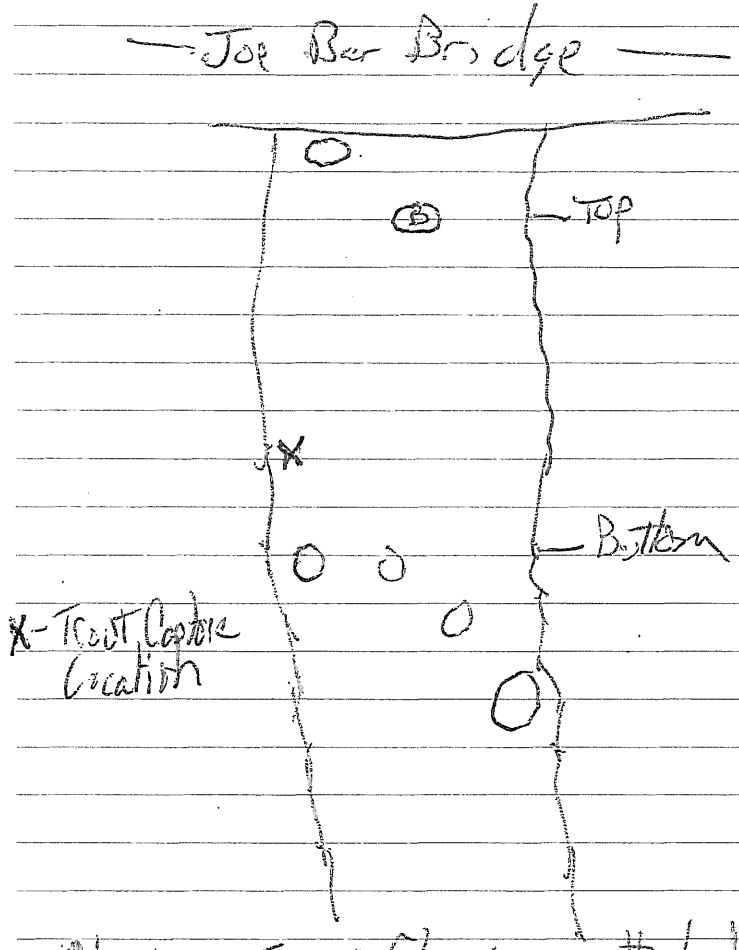
6 Total Sculpin:

① 3½" ② 3" ③ 3¼" ④ 3" ⑤ 3¾" ⑥ 3½"

- Rainbow Trout Location marked w/ Orange Flagging (2 Strands) & labeled.
- Rainbow Trout on North Bank near bottom of Glide
- Sculpins were captured throughout unit.

Location: N 41° 59.957'
W 123° 07.871'

Map of EC-04



Aluminum Tag & Flagging attached to Alder ~10" Diameter North Bank ~50' Downstream of Joe Bar Bridge

11/10/11 EC-01

- Arrive @ 1415
  - Electrofish riffle above bridge.
  - Captured 1 Adult Trout & 12 sculpin

Length:

Rainbow Trout = 7 1/2"
1 Sculpin = 3 1/4"
2 Sculpin = 3 5/4"

- Electrofished below unit + to the bridge. Fish not present.
- 1515 Return to EC-04 in an attempt to capture a Rainbow trout. Duplicate.
- Unable to locate the unit or fish capture location.

Location

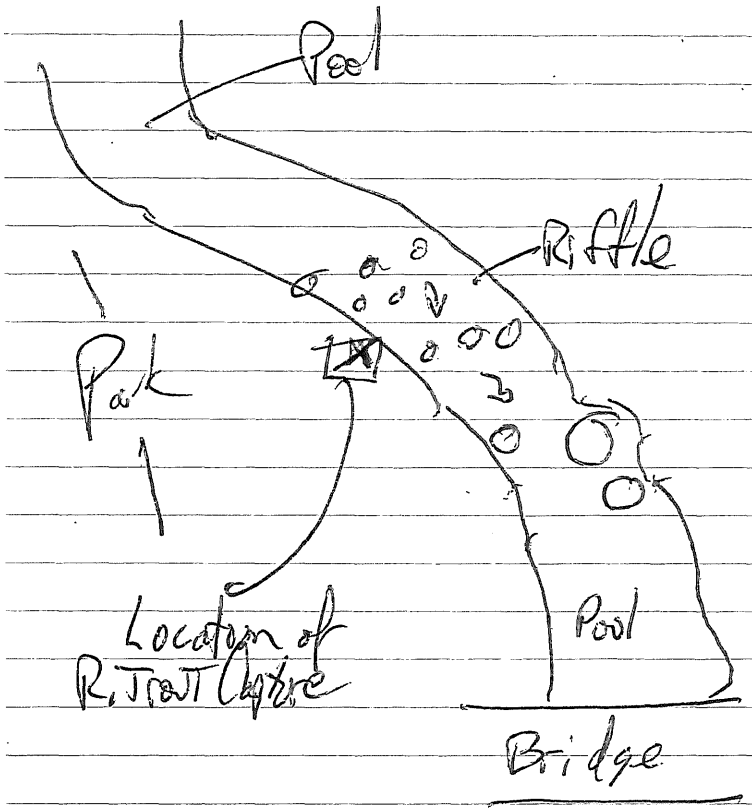
N 42° 00.724'
W 123° 02.214'

Unit: Riffle

Unable to mark/tag the point of R. Trout Capture location.

- Mob to EC-04.

Map of EC-01



11/10/11 Duplicate @ EC-04

-1530 Arrive back @ EC-04 to collect (Attempt) a Rainbow Trout duplicate sample

~~-1600~~

-1600 Capture 8 sculpin & 3 Rainbow Trout.

Length: R. Trout - 5½" Juv.
- 3" Juv.
- Adult

Sculpin - 5", 3", 2¾", 3", 3½", 2¼", 3½", & 5¼"

All specimens released alive except for Adult Rainbow Trout

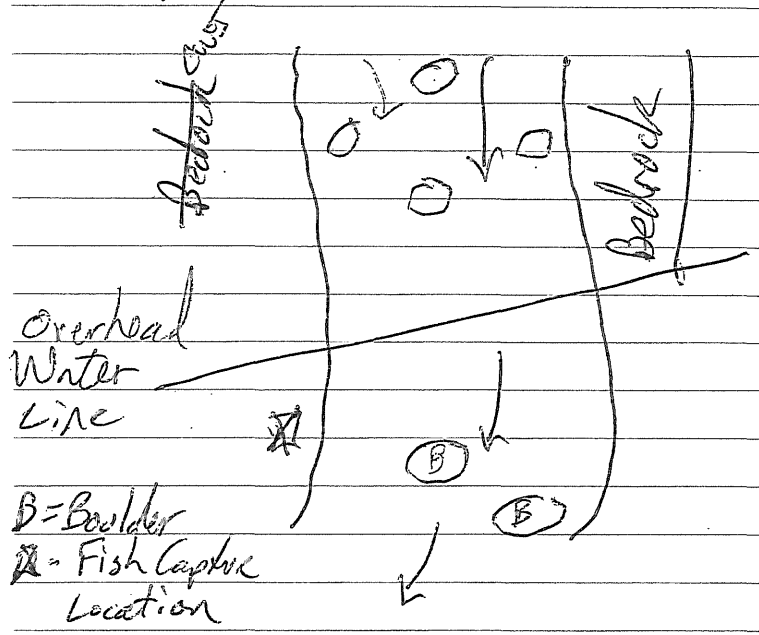
Sample No. EC-04-TJD-111011

Habitat: Rapid
- directly below riffle habitat that captured EC-04-TS-111011

Length - 57' Width - 31'
~ 10 inches deep.

CUT

Map of ECTJD



- Aluminum Tag is anchored to Alder w/ Flagging on North Bank

CUT

Samples:

- JC-01-TS-111011 @ 1050
- EC-06-TS-111011 @ 1220
- EC-04-TS-111011 @ 1320
- EC-01-TS-111011 @ 1440
- EC-04-TSD-111011 @ 1600

CWJ

EcoANALYSTS, INC.

EcoAnalysts, Inc.
1420 S. Blaine St., Suite 14
Moscow, ID 83843
(208) 882-2588

EcoAnalysts Project# :	(EcoA use)
Company:	Engineering / Remediation Resources Group
Total # of Samples this project:	5
# of Samples Shipped this shipment:	5

	#of Containers	Stream	Site #	Rep	Device Type	Device Dimensions	Habitat	Collection Date	Notes
example	2jars	Burro Creek	36554	T2	Kick	N/A	Riffle	4/26/2005	Priority Sample.
1	1 bag	Joe Creek	JC-01-TS-111011		Electrofish		Riffle	11/10/11	Collected @ 1050
2	1 bag	Elliott Creek	EC-06-TS-111011		Electrofish		Pool	11/10/11	@ 1320
3	1 bag	Elliott Creek	EC-04-TS-111011		Electrofish		Riffle	11/10/11	@ 1520
4	1 bag	Elliott Creek	EC-01-TS-111011		Electrofish		Riffle	11/10/11	@ 1440
5	1 bag	Elliott Creek	EC-04-TSD-111011		Electrofish		Rapid	11/10/11	@ 1600
6									- Analyze for Metals:
7									- Arsenic
8									- Cadmium
9									- Copper
10									- Iron
etc.									- Lead
									- Zinc.
									- Analyze for % Moisture
Insert more rows here.									

Relinquished By/ Date:	Craig N. Jacobson / 11/14/2011	Condition:	Frozen / On Ice
Company:	Environmental Technologies Group Inc.		
Received By/ Date:		Condition:	
Company:			
Relinquished By/ Date:		Condition:	
Company:			
Received By/ Date:		Condition:	
Company:			
Relinquished By/ Date:		Condition:	
Company:			
Received By/ Date:		Condition:	
Company:			

EcoAnalysts, Inc.

EcoAnalysts, Inc.
1420 S. Blaine St., Suite 14
Moscow, ID 83843
(208) 882-2588

EcoAnalysts Project# :	(EcoA use)
Company:	Engineering / Remediation Resources Group
Total # of Samples this project:	5
# of Samples Shipped this shipment:	5

	#of Containers	Stream	Site #	Rep	Device Type	Device Dimensions	Habitat	Collection Date	Notes
example	2jars	Burro Creek	36554	T2	Kick	N/A	Riffle	4/26/2005	Priority Sample.
1	1 Jar	Joe Creek	Blueledge Mine	JC-10-M-110911	D-Net / Kick		Riffle	11/09/11	
2	1 Jar	Joe Creek		JC-08-M-110911	D-Net		Cascade	11/09/11	
3	1 Jar	~~Elliott~~ Creek		JC-01-M-110911	D-Net		Riffle	11/09/11	
4	1 Jar	Elliott Creek		EC-06-M-110911	D-Net		Riffle	11/09/11	
5	1 Jar	Elliott Creek	Blueledge Mine	EC-04-M-110911	D-Net		Riffle	11/09/11	
6									
7									
8									
9									
10									
etc.									
Insert more rows here.									

Relinquished By/ Date: [signature] 11/10/2011 Condition: In Tact.
Company: Environmental Technologies Group Inc.

Received By/ Date: Condition:
Company:

Relinquished By/ Date: Condition:
Company:

Received By/ Date: Condition:
Company:

Relinquished By/ Date: Condition:
Company:

Received By/ Date: Condition:
Company:

10/16/12

Blue Ledge Fall 2012 O+M Sampling

08.30 BW+KJ onsite

08.40 JBR+ETG onsite, TG safety meeting

09.00 Start sampling @ JC01

Weather is overcast ~52°F

- stream flow is low, water is clear. 0.55" rain yesterday + overnight. Rain stopped around 06.30 this morning

1) JC01 [stream water + creek sediment sample]

ETG taking fish samples

YSI Data

54.62°F (12.57°C)			
122 µs/cm	0.085 ms/cm	BL-SW-JC01-101612	09.10
16.28 DO mg/L	157.1 % DO	BL-CS-JC01-101612	09.15
7.87 pH	-56.1 pHmV	BL-CS-JC01-101612MSMSD	09.15
76.2 ORP	1.9 NTU		

2) EC06 [SW + CS sample]

ETG taking fish samples

YSI Data

53.16°F (11.76°C)			
143 µs/cm	0.103 ms/cm	BL-SW-EC06-101612	09.30
13.03 DO mg/L	133.9 % DO	BL-CS-EC06-101612	09.45
7.89 pH	-63.3 pHmV		
90.9 ORP	1.7 NTU		

10/16/12 (2)

10.00 ETG moving to EC04

Started drinking water sampling at Mr. James' house. Also sampled an additional source that is not used for drinking water (12620 Irrig) at the request of our client Mr. Pete Jones (USFS).

10.30 EPA onsite. BW talked with Bonnie (EPA) and discussed the current O+M sampling. Bonnie + her colleagues went to observe ETG perform the fish tissue sampling.

3) 12620 [Drinking Water sample]

YSI

53.04°F (12.12°C)			
261 µs/cm	0.202 ms/cm	BL-DW-12620-101612	11.00
12.19 DO mg/L	239.2 % DO		
7.50 pH	-45.1 pHmV		
76.0 ORP	1.8 NTU		

Because the irrigation well had not been used for an extended period of time, water was allowed to run for 10 minutes prior to samples being collected. The additional time running prior to sampling was to comply with our client's wishes.

4) 12620 Irrig [DW sample]

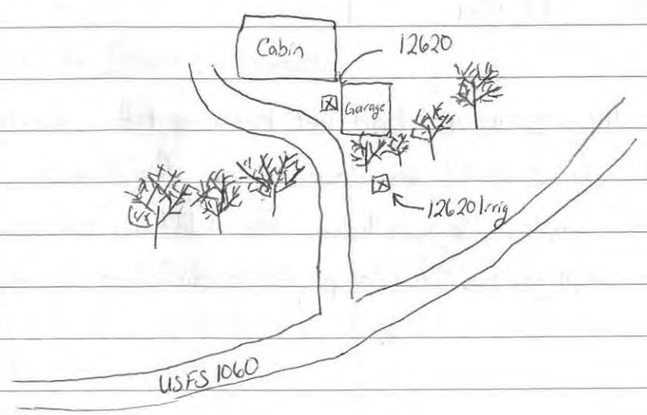
Well not used for drinking water. Sampled at the request of Pete Jones (USFS).

YSI Data

53.81°F (12.12°C)		
289 µS/cm	0.202 mS/cm	BL-DW-12620 Irrig-101612 11.05
24.13 DO mg/L	239.2 % DO	
7.77 pH	-45.1 pHmV	
89.8 ORP	1.8 NTU	

The irrigation well is located in the front yard, ~10' off the driveway on the tree line.

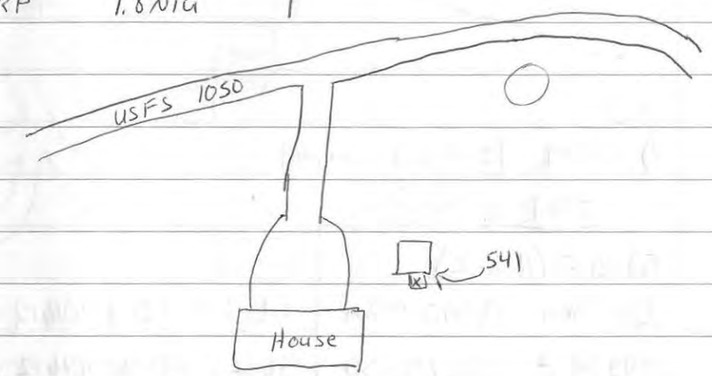
This location was named 12620 Irrig to ensure the property owner could identify it on the report easily and be able to differentiate between wells.



5) 541 DW Sample

YSI Data

56.23°F (13.46°C)		
390 µS/cm	0.277 mS/cm	BL-DW-541-101612 11.20
23.90 DO mg/L	231.3 % DO	BL-DW-541-101612 MSMSD 11.20
7.72 pH	-28.3 pHmV	
111.2 ORP	1.8 NTU	



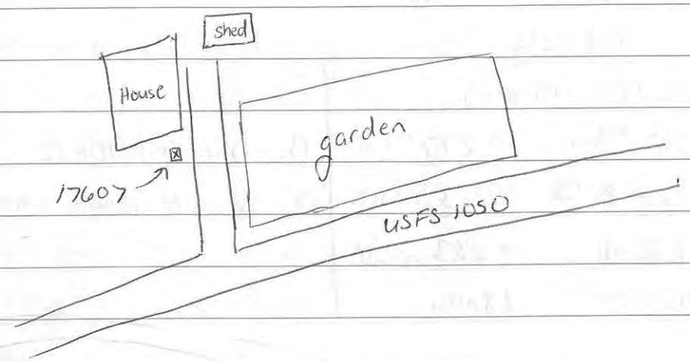
6) 17607

YSI Data

59.50°F (15.28°C)		
227 µS/cm	0.164 mS/cm	BL-DW-17607-101612 11.35
10.05 DO mg/L	99.8 % DO	BL-DW-17607-101612 DUP 11.35
8.02 pH	-60.0 pHmV	
70.5 ORP	1.7 NTU	

Sketch of 17607 sample location on p.5.

17607 sample location



7) EC04 [SW + CS sample]

YSI Data

53.35°F (11.86°C)			
128 µS/cm	0.090 mS/cm	BL-SW-EC04-101612	11.50
13.93 DO mg/L	135.7 % DO	BL-CS-EC04-101612	12.00
8.34 pH	-68.1 pHmV		
76.0 ORP	1.3 NTU		

12.00 Lunch

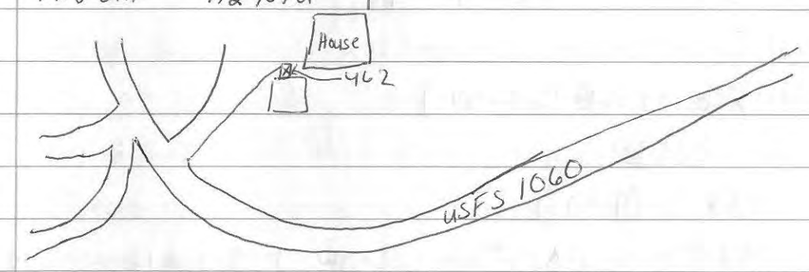
12.30 QC samples already collected + compare to CoC to make sure all sample labels are identical and match the information on the CoC.

12.50 Resume sampling

8) 462 [DW Sample]

YSI Data

58.29°F (14.61°C)			
407 µS/cm	0.289 mS/cm	BL-DW-462-101612	13.03
11.58 DO mg/L	112.9 % DO		
7.63 pH	-47.6 pHmV		
94.8 ORP	1.2 NTU		



9) JC10 [SW+CS sample]

YSI Data

48.37°F (9.09°C)			
57 µS/cm	0.042 mS/cm	BL-SW-JC10-101612	13.39
22.05 DO mg/L	218.4 % DO	BL-SW-JC10-101612MSMSD	13.39
8.63 pH	-38.5 pHmV	BL-CS-JC10-101612	13.55
71.3 ORP	2.6 NTU		

10) JC09 [SW + CS sample]

YSI Data

48.62°F (9.23°C)			
53 µS/cm	0.038 mS/cm	BL-SW-JC09-101612	14.09
14.40 DO mg/L	143.8 % DO	BL-CS-JC09-101612	14.12
7.76 pH	-43.2 pHmV	BL-CS-JC09-101612DUP	14.12
113.4 ORP	3.8 NTU		

11) JC08 [SW + CS sample]

YSI Data

48.82°F (9.34°C)			
52 µS/cm	0.036 mS/cm	BL-SW-JC08-101612	14.25
19.27 DO mg/L	192.6% DO	BL-SW-JC08-101612 DUP	14.25
7.99 pH	-44.8 pHmV	BL-CS-JC08-101612	14.22
102.0 ORP	5.1 NTU		

14.30 All samples collected + on ice in coolers

14.45 Accompanied BW + EPA on informal site walk. Walked up HR3 to EPA's treatment shed. Observed abundant grass growth on WRP4. Slash + straw remains on the road. Waterbars in very good condition. Sediment basins have remained empty since being cleaned out in the spring.

16.45 Offsite

General Notes

With the addition of 12620 Irrig, we have five sources for drinking water sampling. Location 461 (Bob's Cabin) was only sampled for the June 2010 event. The cabin currently has no water supply and there do not appear to be any plans to restore water to this structure during the O+M period.

Per the field sampling plan, the required field parameters pH, specific conductivity, and temperature need to be measured for all the drinking water samples. Additional characteristics are recorded merely because they are available on the YSI. Stream water samples are also required to have field parameters measured. Specific conductivity, temperature, and pH are required for stream water samples. Additional characteristics are recorded because they are recorded by the YSI.

The stream was clear in all locations sampled. Low flow was observed in both Elliott + Joe creeks. None of the drinking water samples were field filtered. Stream water samples were also not field filtered. All water samples were filtered at the lab, if required for the analysis. Stream water samples were collected directly rather than with bailers. This is done for 2 reasons: during low flow the sample locations are too shallow for a bailer to be tossed out to the middle of the stream. During high flow the velocity of the stream is very fast + it is hard to maintain footing on the slippery rocks. For safety reasons

10/10/12 (9)

(ie to keep the sampler from falling into the stream) it was determined that the samples should be collected directly. Pete was told of change to direct collection rather than collection using bailers on 10/31/11. Pete also ok'd the change from field filtration to laboratory filtration on 10/31/11.

I consulted Darwin Thomas (Apex Laboratories) about the difference between field + lab filtration on 10/31/11. Darwin told me that results for dissolved metals are not affected + the primary difference between the two is that filtered samples need to be preserved with HNO_3 + unfiltered do not. Switching to unfiltered samples allows us to keep sample containers onsite that are not ruined by the very cold environment.

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME Joe Creek	LOCATION JC-01	
GPS N 41 59 835	STREAM CLASS	
GPS W 123 07 474	RIVER BASIN Applegate River	
LAT _____ LONG _____	AGENCY USFS	
GEAR Electrofisher		INVESTIGATORS Craig Jacobsen
FORM COMPLETED BY Craig Jacobsen	DATE 10/16/2012 TIME 0830 AM PM	REASON FOR SURVEY

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 20 % **Cobble** 40 % **Gravel** 25 % **Sand** 15 % **Submerged Macrophytes** ____ % **Other (**) ____ %
SAMPLE COLLECTION	**How were the fish captured Back pack** ✓ **tote barge** ____ **other** ____ **Block nets used?** No **Sampling Duration Start time** 0830 **End time** 0900 **Duration** 1/2 hr **Stream width (in meters) Max** ____ **Mean** ____
GENERAL COMMENTS	Sample ID: JC-01-TS-10/16/12

SPECIES	TOTAL	AGE	LENGTH	STATUS (C,R,I)
Rainbow Trout (O. mykiss)	1	2+	6"	Captured

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME Elliott Creek	LOCATION EC-06	
GPS N 41 59 53.4	STREAM CLASS	
GPS W 123 07 39.8	RIVER BASIN Applegate River	
LAT _____ LONG _____	AGENCY USFS	
GEAR Electrofish		INVESTIGATORS
FORM COMPLETED BY C Jacobson	DATE 10/16/12 TIME 0930 AM PM	REASON FOR SURVEY

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 20 % **Cobble** 40 % **Gravel** 30 % **Sand** 10 % **Submerged Macrophytes**_____% **Other (** **)**_____%
SAMPLE COLLECTION	**How were the fish captured Back pack** ✓ **tote barge**_____ **other**_____ **Block nets used?** No **Sampling Duration Start time** 0920 **End time** 0945 **Duration** 25 min **Stream width (in meters) Max** _____ **Mean** _____
GENERAL COMMENTS	Sample ID: EC-06-TS-101612

SPECIES	TOTAL	AGE	LENGTH	STATUS (C,R,I)
R. Trout	1	2+	9 1/2"	C
Torrent Sculpin	1	1	3 1/4"	C

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME Elliott Creek	LOCATION EC-04	
GPS N 41 59' 57.2"	STREAM CLASS	
GPS W 123 07' 49.6"	RIVER BASIN Applegate River	
LAT _____ LONG _____	AGENCY USFS	
GEAR Electrofisher		INVESTIGATORS C. Jacobson
FORM COMPLETED BY C. Jacobson	DATE _____ TIME _____ AM PM	REASON FOR SURVEY

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 25 % **Cobble** 30 % **Gravel** 20 % **Sand** 25 % **Submerged Macrophytes**_____% **Other (** **)**_____%
SAMPLE COLLECTION	**How were the fish captured Back pack**✓ **tote barge**_____ **other**_____ **Block nets used?** No **Sampling Duration Start time** 1030 **End time** 1115 **Duration** 45 min **Stream width (in meters) Max** _____ **Mean** _____
GENERAL COMMENTS	Sample ID: EC-04-TS-101612 EC-04-TSD-101612

SPECIES	TOTAL	AGE	LENGTH	STATUS (C,R,I)
R. Trout	4	1+ 2+	4 1/4" 5" 2 3/4" 2 1/2"	C, R
T. Sculpin	3	1+	2 3/4" 2 1/2" 2 1/2"	Released

FISH SAMPLING FIELD DATA SHEET (FRONT)

STREAM NAME Elliott Creek	LOCATION EC-01
GPS N 42 00 42.9	STREAM CLASS
GPS W 123 09 14.1	RIVER BASIN Applegate River
LAT _____ LONG _____	AGENCY USFS
GEAR Electrofisher	INVESTIGATORS C. Jacobsen
FORM COMPLETED BY C. Jacobsen	DATE 10/16/12 TIME 1230 AM PM / REASON FOR SURVEY

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 40 % **Cobble** 35 % **Gravel** 15 % **Sand** 10 % **Submerged Macrophytes** _____ % **Other (** **)** _____ %
SAMPLE COLLECTION	**How were the fish captured Back pack** — **tote barge** _____ **other** _____ **Block nets used?** No **Sampling Duration** **Start time** 1215 **End time** 1250 **Duration** 35 min **Stream width (in meters)** **Max** _____ **Mean** _____
GENERAL COMMENTS	Sample ID: EC-01-TS-101612

SPECIES	TOTAL	AGE	LENGTH	STATUS (C,R,I)
T. Sculpin	7	1+	2 3/4" 3/4" 3/4" 2 1/4" 2" 1 1/2" 1 1/4" 1 1/2"	C
R. Giant Sal	2	1	4 1/4" 5"	R

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME Joe Creek	LOCATION JC-10		
GPS N 41 57 715'	STREAM CLASS		
GPS W 123 06 264	RIVER BASIN	Applegate River	
LAT _____ LONG _____	AGENCY USFS		
INVESTIGATORS Craig Jacobsen		LOT NUMBER	
FORM COMPLETED BY Craig Jacobsen	DATE 10/17/12 TIME 0910 AM PM	REASON FOR SURVEY	

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 50 % **Cobble** 35 % **Gravel** 10 % **Sand** 5 % **Submerged Macrophytes**_____% **Other (** **)**_____%
SAMPLE COLLECTION	**Gear used** D-Net **How were the samples collected?** Kick Sample **Indicate the number of jabs/kicks taken in each habitat type.** **Boulder** 50 % **Cobble** 35 % **Gravel** 10 % **Sand** 5 % **Submerged Macrophytes**_____% **Other (** **)**_____%
GENERAL COMMENTS	

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observesd, 1 = Rare (1-3 organisms), 2 = Common (3-9) organisms, 3 = Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Chironomidae	0	1	2	3	4
Ephemeroptera	0	1	2	3	4
Plecoptera	0	1	2	3	4
Trichoptera	0	1	2	3	4
Other	0	1	2	3	4

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME Joe Creek	LOCATION JC-08-		
GPS N 41 57 760	STREAM CLASS		
GPS W 123 06 360	RIVER BASIN	Applegate River	
LAT _____ LONG _____	AGENCY USFS		
INVESTIGATORS Craig Jacobson		LOT NUMBER	
FORM COMPLETED BY Craig W Jacobson	DATE 10/17/16 TIME 1020 AM PM	REASON FOR SURVEY	

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 70 % **Cobble** 20 % **Gravel** 10 % **Sand** _____% **Submerged Macrophytes**_____% **Other (** **)**_____%
SAMPLE COLLECTION	**Gear used** D-Net **How were the samples collected?** Kick Sample **Indicate the number of jabs/kicks taken in each habitat type.** **Boulder** 70 % **Cobble** 20 % **Gravel** 10 % **Sand** _____% **Submerged Macrophytes**_____% **Other (** **)**_____%
GENERAL COMMENTS	

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observesd, 1 = Rare (1-3 organisms), 2 = Common (3-9) organisms, 3 = Abundant (>10 organisms). 4 = Dominant (>50 organisms)

Chironomidae	0	1	2	3	4
Ephemeroptera	0	1	2	3	4
Plecoptera	0	1	2	3	4
Trichoptera	0	1	2	3	4
Other	0	1	2	3	4

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME Joe Creek	LOCATION JC-01		
GPS N 41 59 868	STREAM CLASS		
GPS W 125 07 692	RIVER BASIN	Applegate River	
LAT _____ LONG _____	AGENCY USFS		
INVESTIGATORS C Jacobson		LOT NUMBER	
FORM COMPLETED BY [illegible]	DATE 12/18/12 TIME 1115 AM PM	REASON FOR SURVEY	

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 25 % **Cobble** 45 % **Gravel** 20 % **Sand** 10 % **Submerged Macrophytes**_____% **Other (** **)**_____%
SAMPLE COLLECTION	**Gear used** D-Net **How were the samples collected?** Kick Sample **Indicate the number of jabs/kicks taken in each habitat type.** **Boulder** 25 % **Cobble** 45 % **Gravel** 20 % **Sand** 10 % **Submerged Macrophytes**_____% **Other (** **)**_____%
GENERAL COMMENTS	

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observesd, 1 = Rare (1-3 organisms), 2 = Common (3-9) organisms, 3 = Abundant (>10 organisms). 4 = Dominant (>50 organisms)

Chironomidae	0	1	2	3	4
Ephemeroptera	0	1	2	3	4
Plecoptera	0	1	2	3	4
Trichoptera	0	1	2	3	4
Other	0	1	2	3	4

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME Elliott Creek	LOCATION EC-06		
GPS N 41 59 886	STREAM CLASS		
GPS W 123 07 685	RIVER BASIN	Applegate River	
LAT _____ LONG _____	AGENCY USFS		
INVESTIGATORS C Jacobson		LOT NUMBER	
FORM COMPLETED BY Cindy W	DATE 10/17/12 TIME 1200 AM PM	REASON FOR SURVEY	

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 20 % **Cobble** 40 % **Gravel** 25 % **Sand** 15 % **Submerged Macrophytes**_____% **Other (** **)**_____%
SAMPLE COLLECTION	**Gear used** D-Net **How were the samples collected?** Kick Sample **Indicate the number of jabs/kicks taken in each habitat type.** **Boulder** 20 % **Cobble** 40 % **Gravel** 25 % **Sand** 15 % **Submerged Macrophytes**_____% **Other (** **)**_____%
GENERAL COMMENTS	

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observesd, 1 = Rare (1-3 organisms), 2 = Common (3-9) organisms, 3 = Abundant (>10 organisms). 4 = Dominant (>50 organisms)

Chironomidae	0	1	2	3	4
Ephemeroptera	0	1	2	3	4
Plecoptera	0	1	2	3	4
Trichoptera	0	1	2	3	4
Other	0	1	2	3	4

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME Elliott Creek	LOCATION EC-04		
GPS N 41 59 946	STREAM CLASS		
GPS W 123 07 832	RIVER BASIN	Applegate River	
LAT _____ LONG _____	AGENCY USFS		
INVESTIGATORS Craig Jager		LOT NUMBER	
FORM COMPLETED BY Craig W	DATE 12/17/12 TIME 1245 AM PM	REASON FOR SURVEY	

HABITIT TYPES	**Indicate the percentage of each habitat type present** **Boulder** 20 % **Cobble** 45 % **Gravel** 20 % **Sand** 15 % **Submerged Macrophytes**_____% **Other (** **)**_____%
SAMPLE COLLECTION	**Gear used** D-Net **How were the samples collected?** Kick Sample **Indicate the number of jabs/kicks taken in each habitat type.** **Boulder** 20 % **Cobble** 45 % **Gravel** 20 % **Sand** 15 % **Submerged Macrophytes**_____% **Other (** **)**_____%
GENERAL COMMENTS	

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observesd, 1 = Rare (1-3 organisms), 2 = Common (3-9) organisms, 3 = Abundant (>10 organisms). 4 = Dominant (>50 organisms)

Chironomidae	0	1	2	3	4
Ephemeroptera	0	1	2	3	4
Plecoptera	0	1	2	3	4
Trichoptera	0	1	2	3	4
Other	0	1	2	3	4

EcoAnalysts, Inc.

EcoAnalysts, Inc.
1420 S. Blaine St., Suite 14
Moscow, ID 83843
(208) 882-2588

EcoAnalysts Project# :	
Company:	Engineering Remediation Resource Group
Total # of Samples this project:	5
# of Samples Shipped this shipment:	5

	# Containers	Site #	Date	Device	Habitat	Notes:
1	1 bag	Joe Creek	10/16/12	Electrofish	Riffle	Collected @ 0830 (JC-01-TS-101612)
2	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-06-TS-101612 @ 0940
3	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-04-TS-101612 @ 1045
4	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-04-TSD-101612 @ 1100
5	1 bag	Elliott Creek	10/16/12	Electrofish	Riffle	EC-01-TS-101612 @ 1230
						Analyze for Metals:
						- Arsenic
						- Cadmium
						- Copper
						- Iron
						- Lead
						- Zinc
						- Analyze for % Moisture

Relinquished By/ Date:	Aring N. Jacobsen / 10/18/12	Condition:	Frozen / on ice
Company:	ETG		
Received By/ Date:		Condition:	
Company:			
Relinquished By/ Date:		Condition:	
Company:			
Received By/ Date:		Condition:	
Company:			
Relinquished By/ Date:		Condition:	
Company:			
Received By/ Date:		Condition:	
Company:			

10/16/2012

- Arrive on site @ 0800
- Steve McCray (JBR) Dan Landry (ETG) & Craig Jacobsen (ETG) on site
  Brian Wetstrong & Kim Jones (ERRG)
- Tailgate Safety meeting 0815
- Arrive @ JC-01 Sample Location @ 0835
- JC-01
  N 41° 59' 52.8"
  W 123° 07' 41.4"

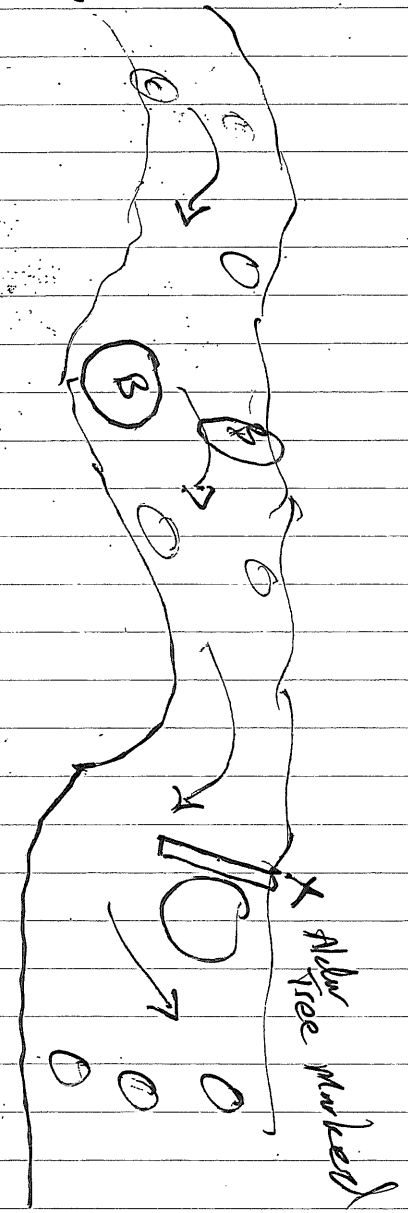
TAG on Alder "JC-01-TS"
across river from parking area. Road 7060. Dated 11/10/11

Total Fish Captured:
1 Rainbow Trout O. mykiss
6" length. 2+ Age Class

Habitat: Riffle

Sample: JC-01-TS-1016

Map JC-01



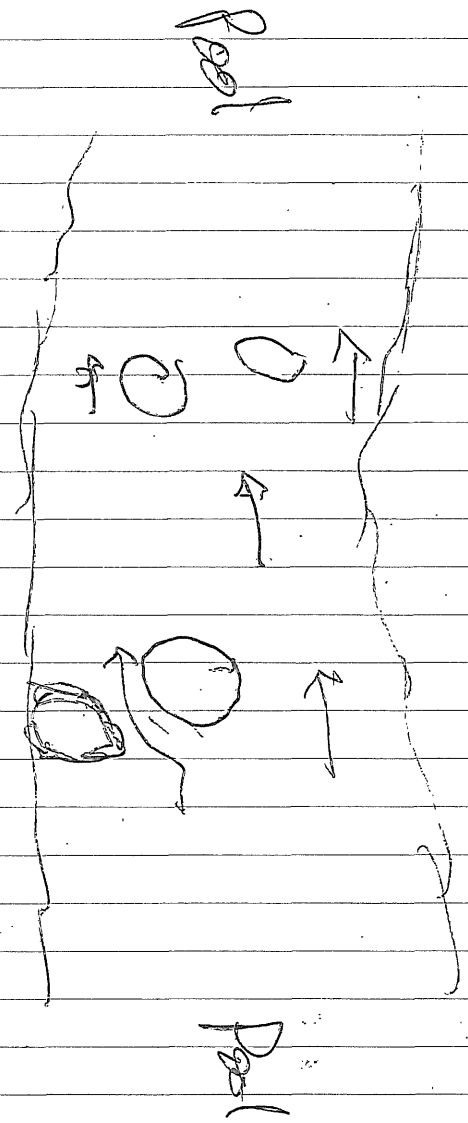
EC-06 10/16/2012

- N 41° 59' 53.4
  W 123° 07' 39.8
- Yellow flag placed @ bottom of unit

Habitat: Riffle

- 0945 attempt to set block net
- removed net
- two fish captured
- 1 Adult Rainbow 2", 9 1/2"
- 1 Torrent Sculpin 3 1/4"

Sample ID: EC-06-TS-101612



EC-04 10/16/12

-N 41° 59' 57.2"

-W 123° 07' 49.6"

Habitat: Riffle

7 fish captured

- 4 Rainbow Trout
- 3 Sculpin (Torrent)

Rainbow:

1 - 4 1/4" Dup EC-04-TSD-101612

1 - 5" EC-04-TS-101612

1 - 2 3/4"

1 - 2 1/2"

Sculpin: 3 fish

1 - 2 3/4"

1 - 2 1/2"

1 - 2 1/2"

-2 stonefly nymphs

EC-01 10/16/12 1230

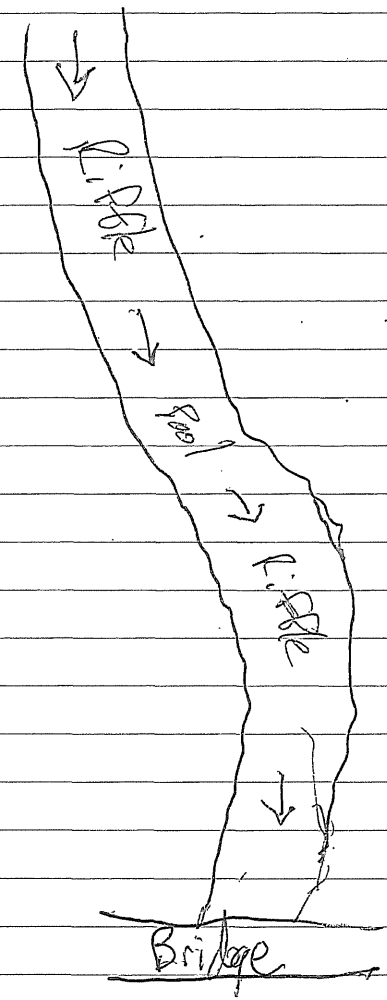
Habitat: Riffle / Pool

N 42° 00' 42.9"
W 123° 09' 14.1"

7 Torrent Sculpin
2 NW Pacific Giant Salamanders
1 - 4 1/4" P.G.
1 - 5" P.G

Sculpins
1 - 2 3/4"
1 - 1 3/4"
1 - 1 3/4"
1 - 2 1/4"
1 - 2"
1 - 1 1/2"
1 - 1 1/4"
1 - 1 1/2"

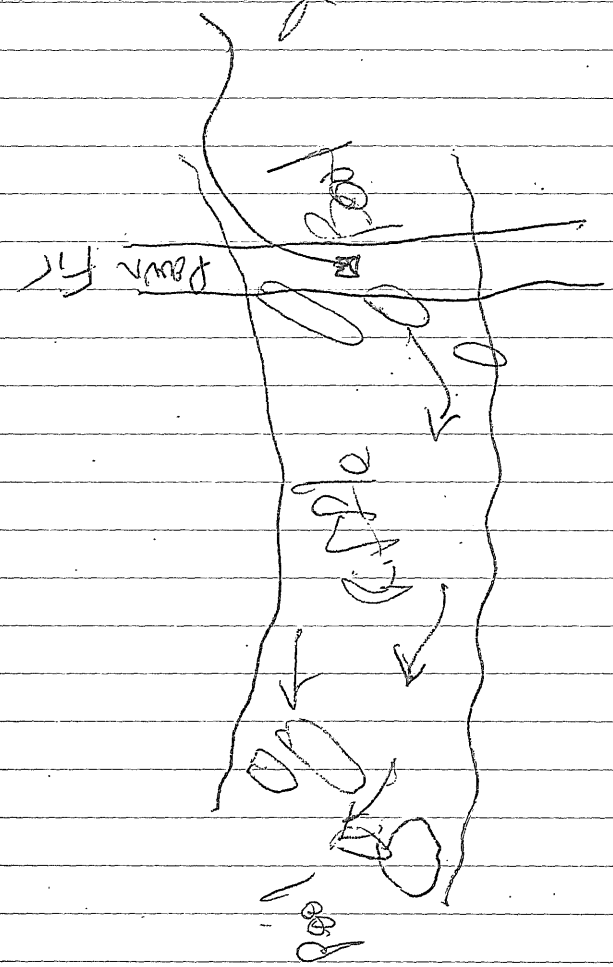
8 Sculpins
Sample ID: EC-01-TS-101612



JC-10 10/17/12 0910

- Onsite
- Kim Jones & Brian Whitestone (ERRG) Steve McCray (JBR) Craig Jacobson (ETG) & Paul (ETSC) onsite
- Macroinvertebrate Sampling.
- Sample ID - JC-10-MA-101712
- Aluminum Tag ID: JC-10, Macro Sample
- Flagging in place @ top & bottom of unit.

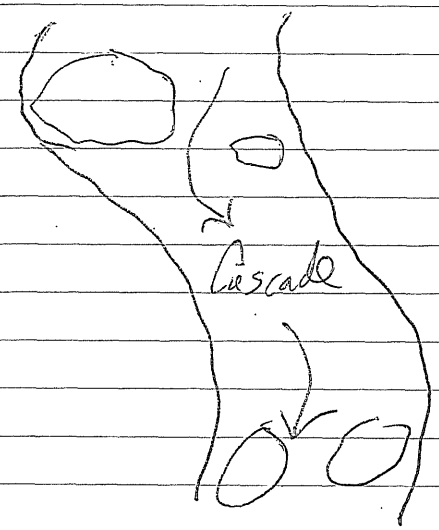
Aluminum Tag



JC-08 10/17/12 1020

- Aluminum tag 11/9/2011 JC-08
- Macroinvertebrate Sampling
- Sample ID: JC-08-M-101712
- Flaging Top + Bottom of unit.

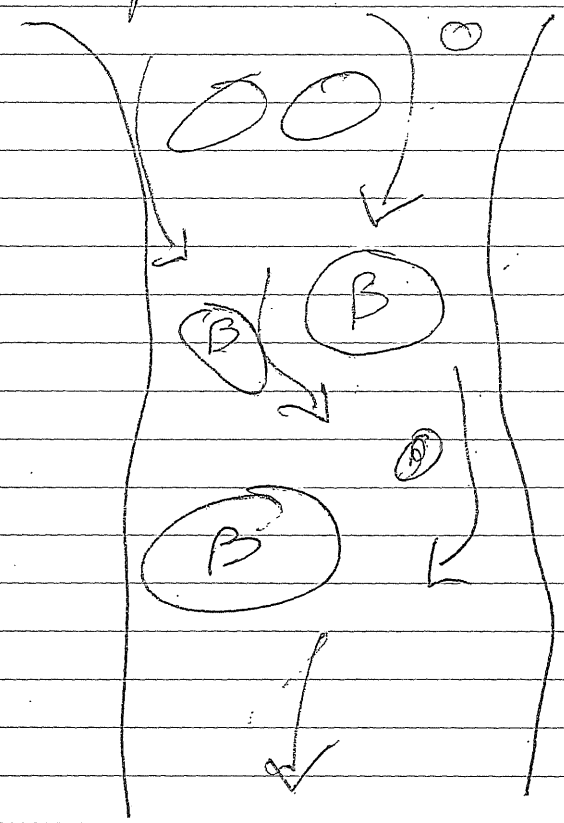
Map of Unit



JC-01 10/17/12 1115

- Unit Flagged @ top + bottom of unit.
- Aluminum tag @ bottom of unit 11/9/2011 JC-01
- Macroinvertebrate Sampling

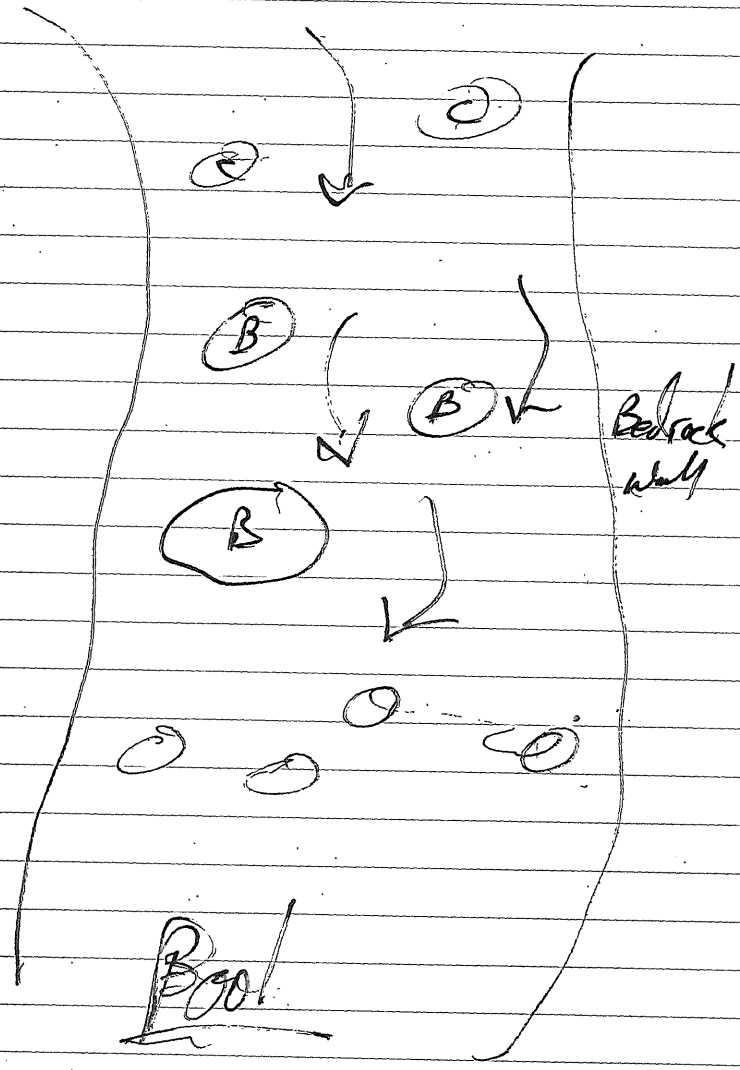
Map of Unit



EC-06 10/17/12

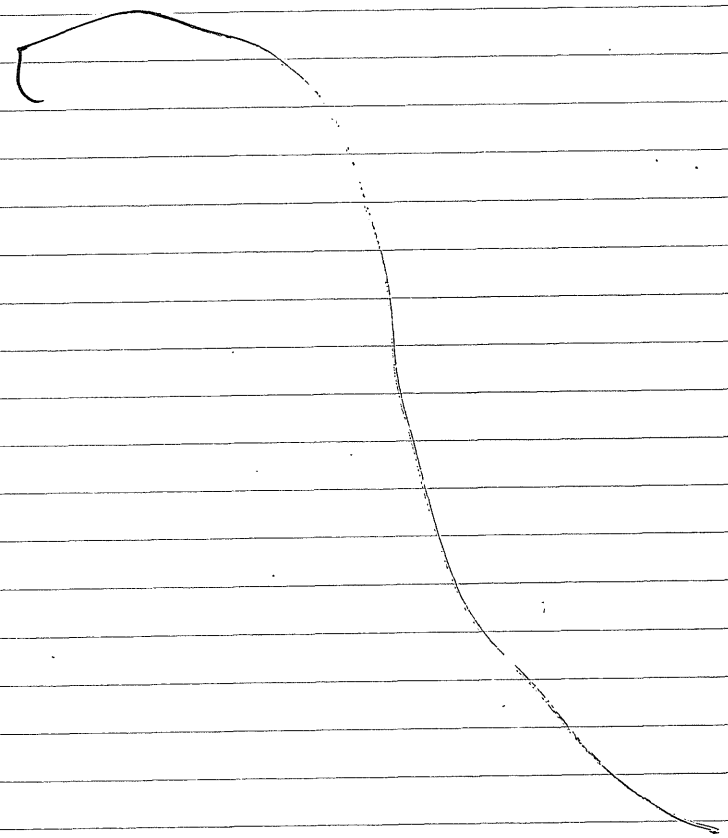
- Tag + Flagging Top + Bottom of Unit
- Noted Stoneflies + Mayflies
- Macroinvertebrate Sampling
- Sample ID: EC-06-MS-101712

Map of Unit

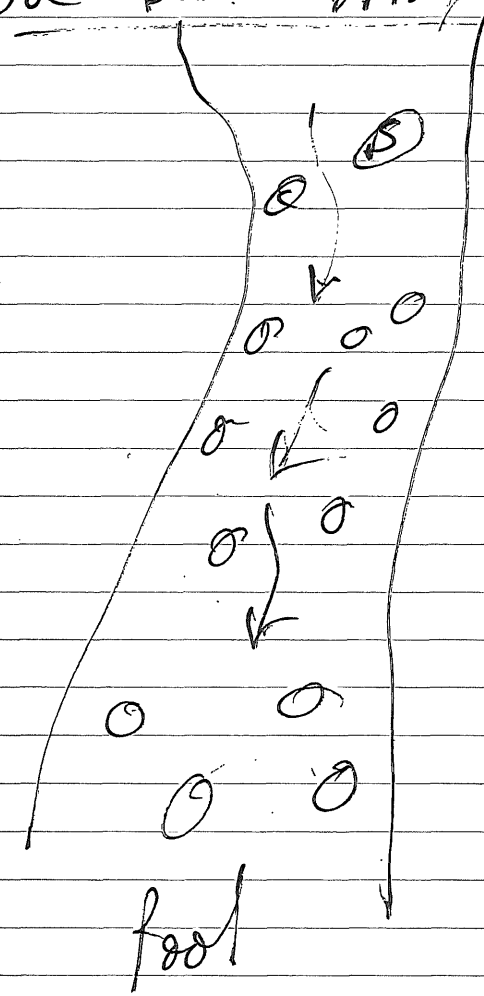


EC-04 10/17/12

- Tag + Flagging @ top + bottom of unit.
- B stonefly noted
- Sample ID: EC-04-M-101712
-



Joe Bar Bridge



Appendix D. Waste Disposal Documentation

Please print or type
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.
Manifest Doc. No.
2. Page 1 of

GENERATOR

3. Generator's Name and Mailing Address
USDA FOREST SERVICE, BLUE LEDGE MINE SITE
6 MILES UP FOREST ROAD 1060, ROGUE RIVER - SISKIYOU
NATIONAL FOREST, CA

PROFILE NUMBER:
611289CA

4. Generator's Phone (541) 951-1429

5. Transporter 1 Company Name
ENGINEERING/REMEDIATION RESOURCES GROUP

6. US EPA ID Number

A. Transporter's Phone
707-624-6073

7. Transporter 2 Company Name

8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address
ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY
10840 ALTAMONT PASS RD, LIVERMORE CA 94550

10. US EPA ID Number
CAD 981382732

C. Facility's Phone
925-455-7313

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. SUMP WATER	2	TOTE	500 ~~Water~~ G.S.	G
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: JESSUP SWANEY AGENT FOR USDA FOREST SERVICE
Signature:
Month 9 Day 24 Year 12

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Ted Hugel
Signature:
Month 9 Day 25 Year 12

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: PAT RATO
Signature:
Month 9 Day 25 Year 12

Printed by J. J. KELLER & ASSOCIATES, INC.
Neenah, WI 54957-0368

TRANSPORTER #1

WASTE MANAGEMENT

WEIGHMASTER-Altamont Landfill & RRF
10840 Altamont Pass Road
Livermore, CA, 94551
Ph: (925)455-7300

Original
Ticket# 976536

Customer Name EngineeringRe Engineering Rem
Ticket Date 09/25/2012
Payment Type Credit Account
Manual Ticket#
Billing # 0037943

Carrier BEN Altamont Generic
Vehicle# 40321HI
Container
License#

Manifest NA
PO 2010-084
Profile 611289CA (SOLIDIFY CLASS II DISPOSALBENGINEERING REMEDIATION RESOURCES GROUP
Generator 164-USDAFORESTSERVICE ROGUERIV USDA FOREST SERVICE BLUE LEDGE MINE SITE (6 M

Time	Scale	Deputy Weighmaster	Inbound		
In 09/25/2012 11:56:57	Scale 3	P Ratto		Gross	16880 lbs
Out09/25/2012 11:56:57		P Ratto		Tare	15000 lbs
				Net	1880 lb
		* Manual Weight		Tons	0.94

Comments

	Product	LD%	Qty	UOM	Rate	Tax	Amount	Origin
1	C2 Sol Disp SPW-To	100	0.94	Tons				Weed
2	FUEL-Fuel Surcharg	100		%				Weed
3	ENV-L-Standard Env	100	1	Load				Weed
4	OFF-Off Loading As	100	1	Each				

DRIVER: Sol Vargl

Total Tax
Total Ticket

WEIGHMASTER CERTIFICATE

THIS IS TO CERTIFY that the following described commodity was weighed, measured or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

404WMCA