Appendix F

Geochemical Data Summary Technical Memorandum

Technical Memorandum

Yankee Fork Habitat Improvement Projects: Pond Series 2 and Pond Series 3

Geochemical Data Summary

Prepared for

Bureau of Reclamation

December 2011

Boise, Idaho

Prepared by

CH2MHILL®

Contents

Acronyms and Abbreviations

BPA	Bonneville Power Administration
BRL	Brooks Rand Labs
COPC	constituent of potential concern
DEQ	Idaho Department of Environmental Quality
EC	environmental characterization
GPS	global position system
GS	grain size
Hg	mercury
meHg	methylmercury
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
ng/g	nanograms per gram
ng/L	nanograms per liter
QA/QC	quality assurance and quality control
Reclamation	Bureau of Reclamation
RPD	relative percent difference
Se	selenium
Simplot	Simplot Corporation
Tribes	Shoshone Bannock Tribes
TSS	total suspended solids
TU	Trout Unlimited
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

TECHNICAL MEMORANDUM

Geochemical Data Summary

1. Purpose and Scope

The Bureau of Reclamation (Reclamation) and Bonneville Power Administration (BPA), in conjunction with Simplot Corporation (Simplot), Trout Unlimited (TU), and the Shoshone-Bannock Tribes (Tribes), are working together to implement habitat improvement projects on the Yankee Fork, a tributary to the Salmon River in central Idaho. Two projects, Pond Series 2 and Pond Series 3, are the focus of the current efforts. The primary goal of the proposed projects is to provide high-flow refuge and year-round rearing habitat for juvenile Snake River Chinook salmon (*Oncorhynchus tshawytscha*). The projects are also expected to improve holding and spawning habitat for returning adult Chinook salmon as well as habitat for Snake River steelhead (*O. mykiss*) and other native salmonids, including bull trout (*Salvelinus confluentus*).

This geochemical data summary technical memorandum describes the sampling and analysis methodology and results for surface water and sediment samples collected by CH2M HILL at Pond Series 2, Pond Series 3, and tributaries of these waterways on October 12 and 13, 2011. CH2M HILL collected surface water samples at 15 locations and sediment samples at 15 locations. These samples were collected to characterize current environmental conditions and to inform decisions regarding the potential environmental risks associated with the proposed habitat improvement projects. Based on previous investigations conducted by the United States Geological Survey (USGS), Reclamation and Idaho Department of Environmental Quality (DEQ) considered the constituents of potential concern (COPCs) in the Yankee Fork to be selenium (Se), mercury (Hg), and methylmercury (meHg). Specifically, the following sampling objectives developed collaboratively by CH2M HILL, Reclamation, and DEQ describe the purpose and scope of the geochemical sampling and subsequent analyses:

- Collect and analyze sediment samples in the ponds, connecting channels, and main stem of the Yankee Fork immediately upstream and downstream of the proposed pond series connections (Pond Series 2 and Pond Series 3). Additionally, collect and analyze surface water samples colocated with sediment sample locations and in tributaries to each pond series.
- Characterize Hg, meHg, and Se concentrations in water and sediment in Pond Series 2 and Pond Series 3 representing “baseline” conditions.
- Provide data to augment previous USGS studies (Rhea, 2008; Frost and Box, 2009) with information specific to Pond Series 2 and Pond Series 3.
- Demonstrate due diligence necessary for permitting each of the two habitat improvement projects.
- Use these data, along with the relationship between metals and grain size from the previous USGS studies (Rhea, 2008; Frost and Box, 2009), to evaluate (to the extent possible with the available data) the potential mobility of sediment-bound COPCs in Pond Series 2 and Pond Series 3.
- Use these data to evaluate (to the extent possible with the available data) the potential risk to human and ecological receptors anticipated to use Pond Series 2 and Pond Series 3. Specifically, evaluate the potential exposure to Se, Hg, and meHg by aquatic resources (fish and invertebrates), wildlife (birds and mammals), and human (recreational users) receptors.

This technical memorandum summarizes the analytical results for surface water and colocated sediment sample locations; this information is intended to document existing (i.e., baseline) conditions at Pond Series 2 and Pond Series 3. The geochemical data collection methods and results are presented in this technical memorandum, and the associated analyses of the potential risk from COPC exposure and the fate and transport of COPCs are described in the *Yankee Fork Habitat Improvement Projects: Pond Series 2 and Pond Series 3, Geochemical Data Characterization Technical Memorandum* (CH2MHILL, 2011 in progress) and the *Yankee Fork Habitat Improvement Projects: Pond Series 2 and Pond Series 3, Hydraulics, Sediment Transport, and Habitat Suitability Analyses Technical Memorandum* (CH2M HILL, 2011 in progress).

2. Field Sampling Methods

This section summarizes the field sampling methods used to collect the surface water and sediment samples. CH2M HILL collected grab surface water and surface sediment (0 to 6 inches) samples using methods consistent with those described in *Method 1669, Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels* (United States Environmental Protection Agency [USEPA], 1996). These methods are intended for low-level metals analysis and are often referred to as the "clean hands" and "dirty hands" sampling methods.

Exhibits 1 and 2 identify the sample locations collected in Pond Series 2 and Pond Series 3, respectively. CH2M HILL sampled a total of 15 surface water and 15 sediment locations. These locations were selected in collaboration with Reclamation and intended to meet the following criteria:

- Locations need to be representative of sediments occurring in ponds, connecting channels, and in the main stem of the Yankee Fork immediately upstream and downstream of the proposed pond series reconnections.
- Locations need to be representative of surface water at the colocated sediment sample locations and in tributaries (i.e., Cearley Creek for Pond Series 3 and an unnamed creek for Pond Series 2) to each pond series.

We collected an additional field duplicate at one surface water and sediment sampling location. We also collected one equipment blank by capturing ultra pure reagent water used as a final rinse of the Petite Ponar® following sampling and decontamination of the equipment. Exhibits 3 through 6 include photographs of some of the pond and channel sample locations, as well as sampling collection methods. Exhibit 7 lists the locations where sediment and surface water samples were collected, provides field descriptions of the samples, and identifies the analytes conducted at each sampling location. Attachment A describes the surface water and sediment sampling and shipment methods in detail.

3. Laboratory Chemical Analysis Methods

CH2M HILL submitted the sediment and surface water samples they collected to Brooks Rand Labs, Inc. (BRL) in Seattle, Washington, for analytical tests. BRL received the samples in good condition on October 13 and 19, 2011. Exhibit 7 lists the constituents for which the samples were analyzed. Detailed descriptions of the test methods used are provided in Attachment C. The following provides a summary of the test methods used by BRL**:**

- **Surface Water**
  - Se by ICP-MS: EPA 1638, Modified
  - Total Hg: EPA 1631E
  - meHg: EPA 1630
  - Total suspended solids (TSS): EPA 160.2 or SM2540D
- **Sediment**
  - Total recoverable Se by ICP-DRC-MS: Method 3051, Modified
  - Total Hg: EPA 1631E, Appendix
  - meHg: EPA 1630, Modified
  - TSS (for reporting sediment results on dry weight basis): SM2540G

BRL provided CH2M HILL with analytical data for the October 2011 sampling event on November 29, 2011. Attachment B describes the BRL quality assessment and data quality summary, and Attachment C is the BRL report that includes analytical results, quality assurance (QA)/quality control (QC) results, and chain-of-custody records.

3. Results

This section summarizes analytical results for the surface water and sediment samples.

3.1 Data Quality

CH2M HILL collected samples for Pond Series 2 and Pond Series 3 on October 12 and 13, 2011. Hg, meHg, and Se analyses were conducted by BRL of Seattle, Washington in November 2011. No deviations or significant QA/QC issues were noted that would restrict using the data. As noted in the field notes in Exhibit 7, at the time of sample collection, the turbidity in the surface water sample collected at EC04 was elevated because of recent survey crew activity (i.e., as a result of a partial breach of a beaver dam) upstream of the sample location. The field team determined it was necessary to take the sample to ensure all samples could be delivered to BRL within the holding time restrictions for meHg. TSS results for EC04 were approximately an order of magnitude higher than levels measured at other surface water locations. Therefore, the surface water results for this sample are an anomaly and are considered to be biased high because of the measurement of particulate bound constituents. As a whole, the data set appears to be of sufficient quality to meet the purpose and scope described previously in this technical memorandum.

3.2 Surface Water

This section summarizes the analytical results of surface water samples collected from Yankee Fork tributaries and Pond Series 2 and Pond Series 3. Attachment C provides the complete data set of analytical results, Exhibit 8 summarizes surface water results, and Exhibit 9 displays the results graphically.

- **Selenium**
  - Se concentrations in the mainstem range from 0.072 micrograms per liter (µg/L) (EC10-W) to 0.20 µg/L (EC09-W).
  - Se concentrations in tributaries range from 0.044 µg/L (EC12-W) to 3.2 µg/L (EC02-W).
  - Se concentrations in Pond Series 2 range from 0.032 µg/L (EC11-W) to 0.13 µg/L (EC16-W).
  - Se concentrations in Pond Series 3 range from 0.89 µg/L (EC04-W) to 1.1 µg/L (EC06-W).
- **Mercury**
  - Hg concentrations in the mainstem range from 1.8 nanograms per liter (ng/L) (EC01-W) to 2.1 ng/L (EC10-W).
  - Hg concentrations in tributaries range from 0.30 ng/L (EC02-W) to 0.71 ng/L (EC12-W).
  - Hg concentrations in Pond Series 2 range from 0.089 ng/L (EC11-W) to 4.1 ng/L (EC14-W).
  - Hg concentrations in Pond Series 3 range from 1.6 ng/L (EC06-W) to 8.1 ng/L (EC04-W).
- **Methylmercury**
  - MeHg concentrations in the mainstem range from 0.029 ng/L (EC10-W) to 0.55 ng/L (EC09-W).
  - MeHg concentrations in Pond Series 2 range from 0.024 ng/L (EC11-W) to 0.11 ng/L (EC15-W).
  - MeHg concentrations in Pond Series 3 range from 0.098 ng/L (EC07-W) to 0.39 ng/L (EC04-W).

3.3 Sediment

This section summarizes the analytical results of sediment samples collected from Yankee Fork tributaries and Pond Series 2 and Pond Series 3. Attachment C provides the complete data set of analytical results, Exhibit 10 summarizes the sediment results, and Exhibit 9 displays the results graphically.

- **Selenium**
  - Se concentrations in the mainstem range from 1.5 milligrams per kilogram (mg/kg) (EC01-Sd) to 2.0 mg/kg (EC09-W).
  - Se concentration in up-gradient soil (near Cearley Creek) is 7.7 mg/kg (EC03-Sd).
  - Se concentrations in Pond Series 2 range from 0.94 mg/kg (EC11-Sd) to 2.4 mg/kg (EC15-Sd).
  - Se concentrations in Pond Series 3 range from 2.5 mg/kg (EC04-Sd) to 4.8 mg/kg (EC05-Sd).

- **Mercury**
  - Hg concentrations in the mainstem range from 44 nanograms per gram (ng/g) (EC17-Sd) to 126 ng/g (EC09-Sd).
  - Hg concentration in up-gradient soil (near Cearley Creek) is 139 ng/g (EC03-Sd).
  - Hg concentrations in Pond Series 2 range from 21 ng/g (EC14-Sd) to 235 ng/g (EC15-Sd).
  - Hg concentrations in Pond Series 3 range from 163 ng/g (EC06-Sd) to 437 ng/g (EC08-Sd).
- **Methylmercury**
  - MeHg concentrations in the mainstem range from 0.17 ng/g (EC10-Sd) to 0.59 ng/g (EC17-Sd).
  - MeHg concentrations in Pond Series 2 range from 0.024 ng/g (EC11-Sd) to 0.39 ng/g (EC13-Sd).
  - MeHg concentrations in Pond Series 3 range from 0.98 ng/g (EC08-Sd) to 1.9 ng/g (EC06-Sd).

3.4 Particle Size Evaluation

Exhibit 11 summarizes sediment particle size data for Pond Series 2 and Pond Series 3. More detailed particle size results are included in the *Yankee Fork Habitat Improvement Projects: Pond Series 2 and Pond Series 3, Geotechnical and Biotechnical Data Summary Technical Memorandum* (CH2M HILL, 2011 in progress). Results suggest that sediment in the large ponds is predominantly comprised of fines, and sediment in connecting channels is coarser material. The particle sizes appear finer in Pond Series 3 compared with those in channels and ponds in Pond Series 2.

3.5 General Patterns

Exhibit 12 presents average results from the channels and pools of each pond series, providing a comparison of conditions in both pond series, as well as between channels and pools. Although only a few data points are available at some locations, the following general patterns can be observed:

- **Surface Water**
  - Average Se concentrations between channels and pools are fairly consistent.
  - Average Se concentrations at Pond Series 3 are over 10-fold greater than at Pond Series 2.
  - Average Hg concentrations between channels and pools are fairly consistent.
  - Average Hg concentrations are consistent among Pond Series 2, Pond Series 3, and the main stem.
  - Average meHg concentrations between channels and pools are fairly consistent.
  - Average meHg concentrations are slightly greater in Pond Series 3 compared with Pond Series 2.
- **Sediment**
  - Average Se concentrations between channels and pools are fairly consistent.
  - Average Se concentrations at Pond Series 3 are approximately two times those measured in Pond Series 2.
  - Average Hg concentrations between channels and pools are fairly consistent, although slightly higher in pools.
  - Average Hg concentrations are slightly greater in Pond Series 3 when compared with Pond Series 2.
  - Average meHg concentrations between channels and pools are fairly consistent.
  - Average meHg concentrations are greater in Pond Series 3 compared with Pond Series 2.

Notably, the highest Se levels in both surface water (Exhibit 8) and sediment (Exhibit 10) occur at locations not impacted by the historical dredging activities; these occur at Cearley Creek (EC02) and at the upgradient soil location near Cearley Creek (EC03). This likely explains the difference in Se concentrations between the two pond series. Frost and Box (2009) observed a similar pattern with Se at an undisturbed location farther downstream in the Yankee Fork.

4. References

CH2M HILL. 2011 in progress. *Yankee Fork Habitat Improvement Projects: Pond Series 2 and Pond Series 3, Geochemical Data Characterization Technical Memorandum*. Prepared for United States Department of Interior, Bureau of Reclamation, Pacific Northwest Region, 10 Pacific Northwest Regional Office, Boise, Idaho.

CH2M HILL. 2011 in progress. *Yankee Fork Habitat Improvement Projects: Pond Series 2 and Pond Series 3, Geotechnical and Biotechnical Data Summary Draft Technical Memorandum*. Prepared for United States Department of Interior, Bureau of Reclamation, Pacific Northwest Region, 10 Pacific Northwest Regional Office, Boise, Idaho.

CH2M HILL. 2011 in progress. *Yankee Fork Habitat Improvement Projects: Pond Series 2 and Pond Series 3, Hydraulics, Sediment Transport, and Habitat Suitability Analyses Technical Memorandum*. Prepared for United States Department of Interior, Bureau of Reclamation, Pacific Northwest Region, 10 Pacific Northwest Regional Office, Boise, Idaho.

Frost, T.P. and Box, S.E. 2009. *Stream-Sediment Geochemistry in Mining-Impacted Drainages of the Yankee Fork of the Salmon River, Custer County, Idaho.* United States Geological Survey Scientific Investigations Report 2009-5115.

Rhea, D. T., Farag, A.M. , McConnell, E., and Brumbaugh, W.G. 2008. *Mercury and selenium concentrations in biofilm, macroinvertebrates, and fish collected in the Yankee Fork of the Salmon River, Idaho.* United States Geological Survey Final Report Agreement No. 01-IA-11041303-090.

USEPA. 1996. *Method 1669, Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels.* United States Environmental Protection Agency, Washington, D.C.

Exhibits

BASE

Approximate Ownership Boundary

ENVIRONMENTAL CHARACTERIZATION SAMPLES

Sediment/Soil Sample Labeled as "ECXX"

Surface Water Sample Labeled as "ECXX"

Notes:
1. Ownership Boundary (Shoshone-Bannock Tribes 2007) based on University of Idaho Inside Idaho data layers and digitized from Custer County records. All boundaries approximate.

NORTH

0 100 200 400

Feet

Source: Aerial (CH2M HILL 2007); Ownership Boundary (Shoshone-Bannock Tribes 2008); Sampling Plan (CH2M HILL and Reclamation 2011).

Exhibit 1. **Environmental Characterization Sampling Locations Pond Series 2**
December 2011
Geochemical Data Summary
Upper Salmon Subbasin
Yankee Fork Project

CH2MHILL

BASE

Approximate Ownership Boundary

ENVIRONMENTAL CHARACTERIZATION SAMPLES

Sediment/Soil Sample Labeled as "ECXX"

Surface Water Sample Labeled as "ECXX"

Notes:
1. Ownership Boundary (Shoshone-Bannock Tribes 2007) based on University of Idaho Inside Idaho data layers and digitized from Custer County records. All boundaries approximate.

NORTH

0 100 200 400

Feet

Source: Aerial (CH2M HILL 2007); Ownership Boundary (Shoshone-Bannock Tribes 2008); Sampling Plan (CH2M HILL and Reclamation 2011).

Exhibit 2. **Environmental Chraracterization Sampling Locations - Pond Series 3**
December 2011
Geochemical Data Summary
Upper Salmon Subbasin
Yankee Fork Project

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EXHIBIT 3
Channel (near EC14) Typical of Pond Series 2

EXHIBIT 4
Pond Series 2 near EC16

EXHIBIT 5

Beaver Dams along the Upper Segments of Pond Series 3

EXHIBIT 6

Sampling Sediment Using the Petite Ponar® Dredge in Large Pond No. 2 of Pond Series 3

Note: Because of water depths, sediment sampling via a Petite Ponar® dredge and raft was required at sampling locations EC05, EC06, and EC08.

EXHIBIT 7
Summary of Samples Collected and Analyses Conducted

Field ID	Medium	Sample Location Description	Field Notes/Sample Description	Sample Type	Sample Date	Sample Time	Analyses Conducted				
							Mercury	Methylmercury	Selenium	Total Suspended Solids	Percent Total Solids
EC01-W	Surface water	Main Stem: upstream of Pond Series 3		N	10/12/2011	12:30	X	X	X	X	
EC02-W	Surface water	Cearly Creek		N	10/12/2011	17:20	X		X	X	
EC04-W	Surface water	Pond Series 3: Channel	Sample turbidity was anomalously high because of survey crew disturbance immediately upstream	N	10/12/2011	12:20	X	X	X	X	
EC06-W	Surface water	Pond Series 3: Large Pond No.1 (near outflow)		N	10/12/2011	12:05	X	X	X	X	
EC07-W	Surface water	Pond Series 3: Channel		N	10/12/2011	11:50	X	X	X	X	
EC08-W	Surface water	Pond Series 3: Large Pond No. 2		N	10/12/2011	11:35	X	X	X	X	
EC09-W	Surface water	Main stem: downstream of Pond Series 3		N	10/12/2011	11:20	X	X	X	X	
EC10-W	Surface water	Main stem: upstream of Pond Series 2		N	10/12/2011	11:15	X	X	X	X	
EC11-W	Surface water	Pond Series 2: Channel		N	10/12/2011	11:05	X	X	X	X	
EC111-W	Surface water	Pond Series 2: Channel	Field duplicate of EC11-W	FD	10/12/2011	12:40	X	X	X	X	
EC12-W	Surface water	Unnamed Tributary		N	10/12/2011	18:00	X		X	X	
EC13-W	Surface water	Pond Series 2: Large Pond No. 3		N	10/12/2011	10:50	X	X	X	X	
EC14-W	Surface water	Pond Series 2: Channel		N	10/12/2011	10:10	X	X	X	X	
EC15-W	Surface water	Pond Series 2: Large Pond No. 4		N	10/12/2011	10:00	X	X	X	X	
EC16-W	Surface water	Pond Series 2: Channel		N	10/12/2011	9:45	X	X	X	X	
EC17-W	Surface water	Main Stem: downstream of Pond Series 2		N	10/12/2011	9:35	X	X	X	X	
EC-EQB	Surface water	Equipment Blank	Ultra-Pure water collected following rinse of Ponar®	N	10/13/2011	14:00	X		X		
EC01-Sd	Sediment	Main Stem - upstream of Pond Series 3	Sandy	N	10/13/2011	12:10	X	X	X		X

EXHIBIT 7
Summary of Samples Collected and Analyses Conducted

Field ID	Medium	Sample Location Description	Field Notes/Sample Description	Sample Type	Sample Date	Sample Time	Analyses Conducted				
							Mercury	Methylmercury	Selenium	Total Suspended Solids	Percent Total Solids
EC03-Sd	Soil	Up-gradient soil (near Cearley Creek)	Topsoil	N	10/12/2011	17:40	X		X		X
EC04-Sd	Sediment	Pond Series 3: Channel	Unconsolidated fines with sulfur odor	N	10/13/2011	11:40	X	X	X		X
EC05-Sd	Sediment	Pond Series 3: Large Pond No. 1 (near inflow)	Fine sand	N	10/13/2011	14:45	X	X	X		X
EC06-Sd	Sediment	Pond Series 3: Large Pond No. 1 (near outflow)	Unconsolidated fines with sulfur odor	N	10/13/2011	14:25	X	X	X		X
EC061-Sd	Sediment	Pond Series 3: Large Pond No. 1	Field duplicate of EC06-Sd	FD	10/13/2011	14:35	X	X	X		X
EC07-Sd	Sediment	Pond Series 3: Channel	Unconsolidated fines with sulfur odor	N	10/13/2011	11:25	X	X	X		X
EC08-Sd	Sediment	Pond Series 3: Large Pond No. 2	Unconsolidated fines and sand with slight sulfur odor	N	10/13/2011	15:10	X	X	X		X
EC09-Sd	Sediment	Main Stem: downstream of Pond Series 3	Mostly sand and gravel	N	10/13/2011	10:50	X	X	X		X
EC10-Sd	Sediment	Main Stem: upstream of Pond Series 2	Mostly sand and gravel	N	10/13/2011	10:30	X	X	X		X
EC11-Sd	Sediment	Pond Series 2: Channel	Fine sand	N	10/13/2011	10:20	X	X	X		X
EC13-Sd	Sediment	Pond Series 2: Large Pond No. 3	Unconsolidated fines with sulfur odor	N	10/13/2011	09:55	X	X	X		X
EC14-Sd	Sediment	Pond Series 2: Channel	Sandy	N	10/12/2011	16:10	X	X	X		X
EC15-Sd	Sediment	Pond Series 2: Large Pond No. 4	Unconsolidated fines with sulfur odor	N	10/12/2011	15:55	X	X	X		X
EC16-Sd	Sediment	Pond Series 2: Channel	Fine sand	N	10/12/2011	15:40	X	X	X		X
EC17-Sd	Sediment	Main Stem: downstream of Pond Series 2	Mostly sand and gravel	N	10/13/2011	09:25	X	X	X		X

Notes:
FD field duplicate
N normal sample

EXHIBIT 8
Surface Water Data for Pond Series 2 and 3

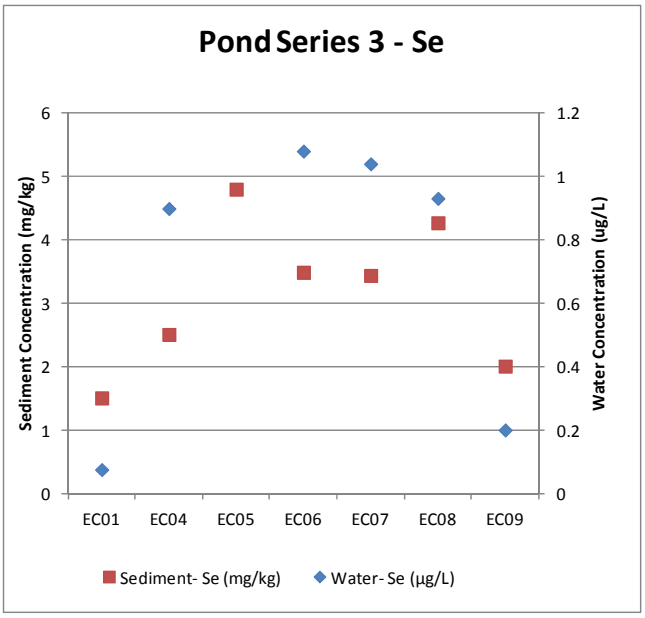
Field ID	Sample Location Description	Total Suspended Solids (mg/L)	Selenium (µg/L)	Mercury (ng/L)	Methylmercury (ng/L)	Methylmercury-to-Mercury Ratio
EC01-W	Main Stem: upstream of Pond Series 3	1.0 J	0.076	1.81	0.033 J	0.018
EC02-W	Cearly Creek	0.9 J	3.23	0.3 J	---	---
EC04-W	Pond Series 3: Channel[a]	15.8	0.899	8.08	0.385	0.048
EC06-W	Pond Series 3: Large Pond No. 1 (near outflow)	0.9 J	1.08	1.55	0.138	0.089
EC07-W	Pond Series 3: Channel	0.8 J	1.04	1.85	0.098	0.053
EC08-W	Pond Series 3: Large Pond No. 2	2.8	0.931	2.01	0.187	0.093
EC09-W	Main Stem: downstream of Pond Series 3	2.8	0.201	2.08	0.055	0.026
EC10-W	Main Stem: upstream of Pond Series 2	1.1	0.072	2.09	0.029 J	0.014
EC11-W	Pond Series 2: Channel	1.4	0.032 J	0.89	0.024 J	0.027
EC111-W	Pond Series 2: Channel	0.9 J	0.045 J	1.13	0.026 J	0.023
EC12-W	Unnamed Tributary	3.4 J	0.044 J	0.71 J	---	---
EC13-W	Pond Series 2: Large Pond No. 3	0.6 J	0.035 J	1.94	0.032 J	0.016
EC14-W	Pond Series 2: Channel	0.9 J	0.041 J	4.11	0.069	0.017
EC15-W	Pond Series 2: Large Pond No. 4	0.6 J	0.117	1.87	0.105	0.056
EC16-W	Pond Series 2: Channel	1.2 J	0.134	1.24	0.084	0.068
EC17-W	Main Stem: downstream of Pond Series 2	1.1	0.083	2.04	0.032 J	0.016
EC-EQB	Equipment Blank	---	0.024 U	0.55	---	---

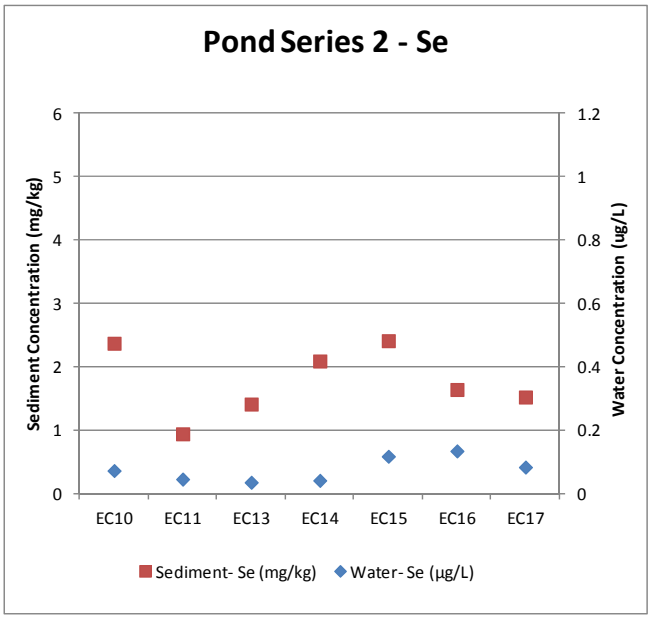
Notes:
[a] TSS biased high because of increased turbidity resulting from survey crew activity immediately upstream at the time of sampling; likely resulted in biased high results for all constituents

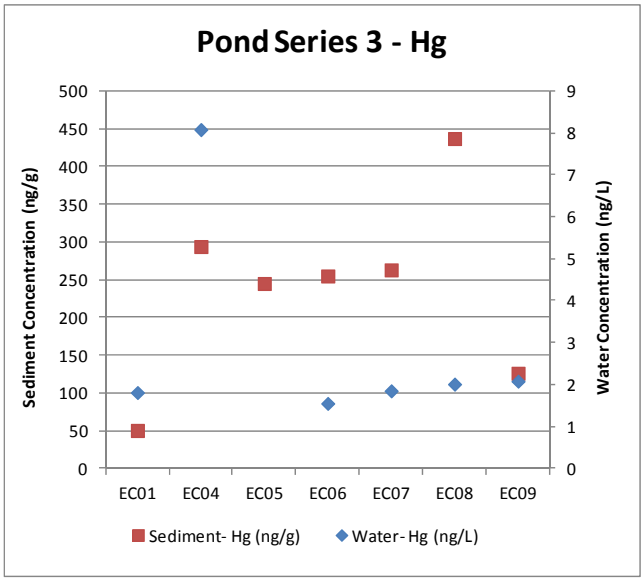
--- not analyzed
µg/L micrograms per liter
J estimated value; positively detected between the method detection limit and the method reporting limit
mg/L milligrams per liter
ng/L nanograms per liter
U not detected; value listed is the method detection limit

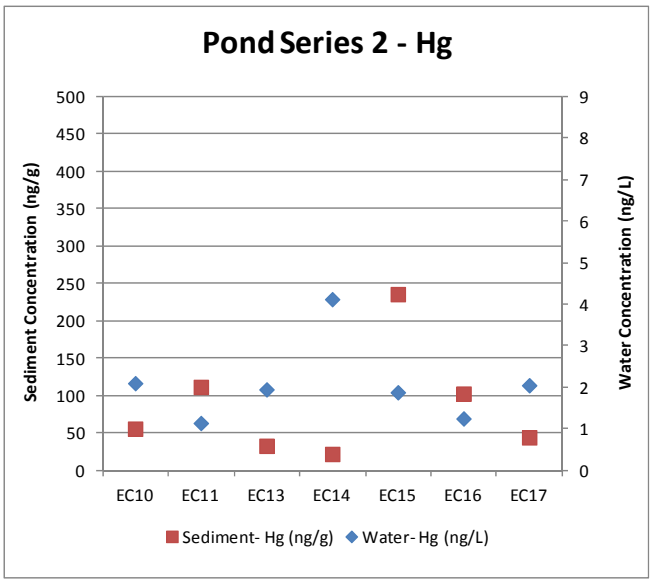
EXHIBIT 9

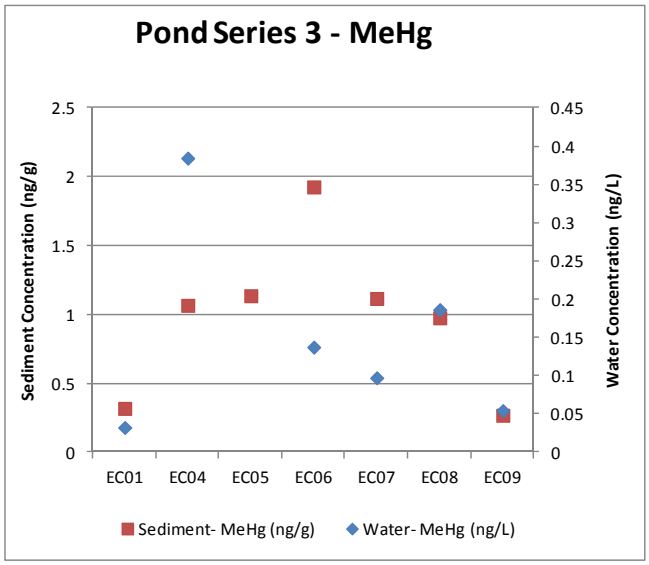
Constituents of Potential Concern Concentration Graphs for Pond Series 2 and Pond Series 3











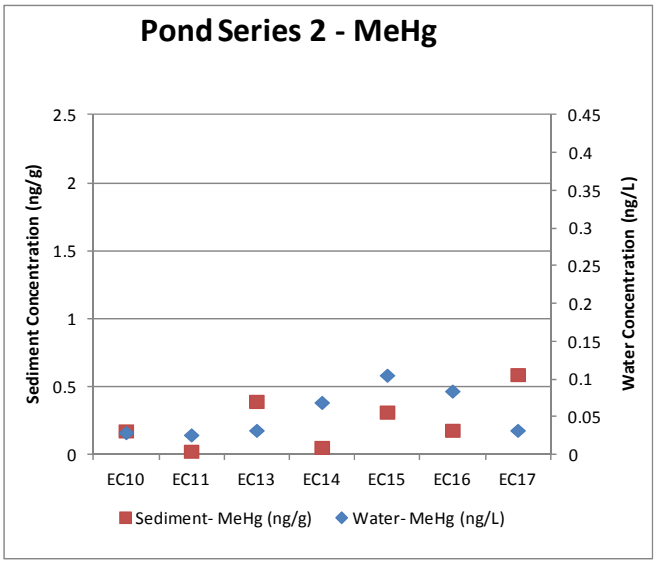


EXHIBIT 10
Surface Sediment Data for Pond Series 2 and Pond Series 3

Sample ID	Sample Location Description	Total Solids (percent)	Selenium (mg/kg)	Mercury (ng/g)	Methylmercury (ng/g)	Methylmercury-to-Mercury Ratio
EC01-Sd	Main Stem: upstream of Pond Series 3	74	1.51	50.3	0.322	0.006
EC03-Sd	Upgradient soil (near Cearley Creek)	76	7.66	139	---	---
EC04-Sd	Pond Series 3: Channel	56	2.51	294	1.07	0.004
EC05-Sd	Pond Series 3: Large Pond No. 1 (near inflow)	36	4.8	245	1.14	0.005
EC06-Sd	Pond Series 3: Large Pond No. 1 (near outflow)	44	2.94	163	1.93	0.012
EC061-Sd	Pond Series 3: Large Pond No. 1	42	3.49 JN	255	1.36	0.005
EC07-Sd	Pond Series 3: Channel	44	3.44	263	1.12	0.004
EC08-Sd	Pond Series 3: Large Pond No. 2	33	4.27	437	0.98	0.002
EC09-Sd	Main Stem: upstream of Pond Series 3	73	2.01	126	0.272	0.002
EC10-Sd	Main Stem: upstream of Pond Series 2	71	2.37	55.2	0.174	0.003
EC11-Sd	Pond Series 2: Channel	77	0.94 J	111	0.024 J	0.0002
EC13-Sd	Pond Series 2: Large Pond No. 3	68	1.41 J	32.4	0.391	0.012
EC14-Sd	Pond Series 2: Channel	83	2.09	21.4	0.052	0.002
EC15-Sd	Pond Series 2: Large Pond No. 4	50	2.41	235	0.312 JM	0.001
EC16-Sd	Pond Series 2: Channel	69	1.64	102	0.178	0.002
EC17-Sd	Main Stem: downstream of Pond Series 2	74	1.52	43.7	0.588	0.013

Notes:
--- not analyzed
J estimated value; positively detected between the method detection limit and the method reporting limit
JM estimated value; lab duplicate yielded low repeatability - highest value reported
JN estimated value; matrix spike yielded higher recovery than acceptance criteria
mg/kg milligram per kilogram
ng/g nanograms per gram

EXHIBIT 11
Grain Size Composition at Selected Environmental Characterization Locations

GS Sample ID	EC Sample ID	Fines (percent)		Medium Fraction (percent)	Coarse Fraction (percent)	
		Less than 0.063 mm	0.063 to 0.125 mm	0.125 to 0.250 mm	0.250 to 2.0 mm	Greater than 2.0 mm
GS-01	EC-01	36	20	35.8	8.2	0
GS-04	EC-05	84.2	9.2	3	3.6	0
GS-04b	EC-06	76.8	19.9	2.5	0.8	0
GS-05	EC-07	84	9	2.2	4.8	0
GS-06	EC-08	76	19.4	2.5	1	1.1
GS-08	EC-11	4.2	4.7	18.3	62.8	10
GS-09	EC-13	26	17.8	41.3	14.9	0
GS-10	EC-14	1.4	3.4	1.6	29.7	63.9
GS-11	EC-15	12.1	0.1	0.2	0.4	87.2
GS-12	EC-16	12	4.6	23.7	57.5	2.2

Notes:
EC environmental characterization
GS grain size
mm millimeter

EXHIBIT 12
Summary of Average Channel and Pool Concentrations

Stream Segment		Sediment				Surface Water			
		Selenium (mg/kg)	Mercury (ng/g)	Methylmercury (ng/g)	Methylmercury to Mercury Ratio	Selenium (µg/L)	Mercury (ng/L)	Methylmercury (ng/L)	Methylmercury to Mercury Ratio
Pond Series 2	Channel (includes EC11, EC14, EC16)	1.6	78	0.085	0.0011	0.073	2.2	0.060	0.028
	Pond (includes EC13 and EC15)	1.9	134	0.35	0.0026	0.076	1.9	0.069	0.036
Pond Series 3	Channel (includes EC04 and EC07)	3.0	279	1.10	0.0039	0.97 (1.0)	5.0 (1.9)	0.242 (0.098)	0.049 (0.052)
	Pond (includes EC05, EC06, EC08)	4.2	312	1.35	0.0043	1.01	1.8	0.163	0.091
Main stem	Channel (includes EC01, EC09, EC10, EC17)	1.9	69	0.34	0.0049	0.108	2.0	0.037	0.019

Notes:
Tributary samples are not included in averages.
Values in parenthesis exclude EC04, which was biased high due to increased turbidity occurring as result of a partial breach of a beaver dam upstream.
mg/kg milligram per kilogram
ng/g nanograms per gram
ng/L nanograms per liter
µg/L micrograms per liter

Attachment A
Field Sampling Methods

Field Sampling Methods

A.1 General Sampling Approach

This section outlines the general field sampling approach used to collect quality data with consideration of logistical constraints.

1. All sample collection and sample bottle handling was performed by the one designated as the "clean hands" team member until after the sample container lids were sealed. "Dirty hands" team members only had contact with the outside of resealable plastic bags before sampling.
2. We worked from the farthest downstream sample location (EC17) first (to avoid any potential downstream cross-contamination), collecting all water samples in accordance with the planned locations on the maps. We continued working upstream until all surface water samples requiring methylmercury (meHg) analysis were collected (i.e., all locations except the tributaries [EC02 and EC12] were sampled). This sequence was necessary because the holding time for the meHg analysis required overnight shipment to Brooks Rand Labs (BRL), and the nearest Federal Express® (FedEx®) location that would ensure overnight delivery was in Ketchum, Idaho. The field team leader decided to collect all water samples first upon arrival to the site because this was the most efficient approach (fewer trips to FedEx®) and ensured that all samples requiring meHg analysis would arrive within holding times.
3. After all surface water samples requiring meHg analysis were collected, and while one team member was delivering samples to FedEx®, the sampling team returned to the farthest downstream sample location to begin collecting the sediment samples in a similar order. Most sediment samples were collected at the same location as the surface water; however, several locations had to be adjusted slightly to locate a sufficient sediment volume (e.g., EC09). Exhibits 1 and 2 depict the actual sample locations for Pond Series 2 and Pond Series 3, respectively.

A.2 Surface Water Sampling Procedures

At each location, the following procedures were used to collect a direct grab sample:

1. Upon arrival at the site, the "dirty hands" sample team member set up and organized sampling equipment near the first (farthest downstream) sampling location and then arranged sample containers, sampling equipment, and decontaminated equipment on a plastic sheet. (Note: sample containers remained in the resealable plastic bags and were not directly handled during this process.) The team member was careful not to step on or otherwise contaminate this clean working surface.
2. At each location, the "clean hands" team member put on ultra trace clean sample gloves (supplied by BRL) before handling sampling equipment and bottles. With minimum surface disturbance and while facing upstream, the team member then submerged the unpreserved sample bottle with the mouth of the container facing upstream—allowing water to flow gently into the bottle—and then secured the container lid below the surface.
3. The "dirty hands" team member labeled the sample bottle with appropriate label.
4. The "dirty hands" team member placed the sample container in resealable plastic bags and labeled the outside of the bag.
5. One team member recorded applicable information (e.g., date and time of collection) on the chain-of-custody form.
6. One team member collected global position system (GPS) coordinates and recorded any observations in the field notebook.
7. One team member placed the sample on ice in a cooler in a secure vehicle.

A.3 Sediment Sampling Procedures

CH2M HILL collected surface sediment samples from the top 6 inches of the sediment using direct-grab sampling or a Petite Ponar® dredge sampler, depending on the water depth at the sampling time. When feasible and safe, the team member accessed the sample locations by wading. Direct-grab sampling was preferred to avoid additional decontamination procedures and to reduce the potential for cross-contamination, but a raft was used to collect the EC05-Sd, EC06-Sd, and EC08-Sd samples because the water depth precluded direct-grab sampling.

At each location, the following procedures were used to collect a direct-grab sample:

1. On arrival at the site, the "dirty hands" team member set up and organized sampling equipment near the first (farthest downstream) sampling location and arranged sample containers, sampling equipment, and decontaminated equipment on a plastic sheet. (Note: sample containers remained in the resealable plastic bags and were not directly handled during this process.) The team member was careful not to step on or otherwise contaminate this clean working surface.
2. At each location, "clean hands" team member put on ultra trace clean sample gloves (supplied by BRL) before handling sampling equipment and bottles. With minimum surface disturbance and while facing upstream, the team member submerged the unpreserved sample bottle to the substrate, directly collected the sediment sample, and slowly removed the sample.
3. The "dirty hands" team member slowly decanted excess water and secured the lid.
4. The "dirty hands" team member wiped the outside of the container and labeled the sample bottle with appropriate label.
5. One team member placed the sample containers in resealable plastic bags and labeled the outside of the bag.
6. One team member recorded applicable information (e.g., date and time of collection) on the chain-of-custody form.
7. One team member collected GPS coordinates and recorded any observations in the field notebook.
8. One team member placed the sample on ice in a cooler in a secure vehicle.

In deeper water conditions and/or where wading was not safe, surface sediment samples were collected from a raft and using a stainless-steel Petite Ponar® dredge grab sampler. A Petite Ponar® grab sampler has a jaw-type mechanism that is tripped from above to close the jaws and collect the sample. The dredge was lowered slowly through the water to the sediment with the jaws in the open position. As the dredge was retrieved, the jaws closed, and the isolated sediment was brought to the surface and placed in a plastic-lined aluminum bowl. Samples were then processed as described in Steps 2 through 8 above.

A.4 Sample Shipment

Because of the 48-hour holding time limit required for meHg analysis in water, the water samples requiring meHg analysis were driven on the sampling day to the nearest FedEx® office in Ketchum, Idaho. These samples were shipped overnight to BRL in Seattle, Washington. Sediment samples were kept on ice until the sampling team returned to Boise, Idaho, where they were frozen before shipping. Sediment samples were shipped overnight via FedEx® to BRL. BRL received all samples within the required holding time limit.

Attachment B
Laboratory Chemical Analysis Methods

Laboratory Chemical Analysis Methods

B.1 Quality Assessment

The quality assurance (QA)/quality control (QC) data associated with analyzing the sediment, water, and blank samples were reviewed to assess the usability of the analytical data. The data were evaluated using the following QA/QC parameters:

- Holding times
- Method blanks
- Sensitivity and reporting limits
- Chain-of-custody
- Temperature and preservation
- Precision and accuracy of the laboratory control samples, surrogates, and other parameters
- Field QA/QC associated with the field duplicates and field blank (equipment blank)

Attachment C includes the laboratory reports with the QA/QC data. Qualifying flags were assigned to data as appropriate based on this review. For example, if a constituent was detected below the method reporting limit but above the method detection limit, then the value was qualified as an estimated value.

B.2 Data Quality Summary

With respect to the QA/QC parameters listed above, the samples met all holding times (for selenium [Se], methylmercury [meHg], and mercury [Hg]), temperature, preservation, reporting limits, and chain-of-custody requirements. Following are the precision and sensitivity deviations noted by the laboratory:

- The meHg analysis of matrix spike (MS) performed on the water sample EC01 produced a recovery (60 percent) not within the acceptance criteria range, which also caused the relative percent difference (RPD) between the MS and the matrix spike duplicate (MSD) to be elevated (55 percent). As such, the meHg result for sample EC01 was qualified for accuracy imprecision and should be considered an estimate.

- The Hg analysis of one method blank produced an abnormal peak shape. The method blank was omitted and was not used to method blank-correct any results. All results were blank-corrected with the average of the three remaining method blanks.

- Total suspended solids (TSS) for the two surface water samples were prepared outside of the 1-week holding time; therefore, the TSS results were qualified for holding-time requirements not being met.

- The equipment blank for the Petite Ponar® (EC-EQB) produced a low, detectable total Hg concentration of 0.55 nanograms per liter (ng/L). The total Hg result for few relevant samples (i.e., those where the Petite Ponar® was used) might be minimally biased high.

- The meHg result for sample EC15-Sd and the associated laboratory duplicate result yielded a 63-percent RPD, not meeting the acceptance criteria. Both the sample result and duplicate result were confirmed by reanalysis. As such, the meHg result for sample EC15-Sd was qualified for laboratory duplicate imprecision and should be considered an estimate.

- The Se analysis of the MS performed on sample EC061-Sd, recovered at 142 percent, is above the acceptance criteria range. The Se result for sample EC061-Sd was qualified for potential inaccuracy and should be considered an estimate.

Aside from concentration qualifiers (e.g., estimated values), all data were reported without further qualification, and all other associated QC sample results met the acceptance criteria.

Attachment C
Brooks Rand Labs Analytical Laboratory Report

November 29, 2011

CH2M HILL - Boise
ATTN: Steve Clayton
322 East Front Street
Boise, ID 83702-7359
steve.clayton@ch2m.com

RE: Project CHM-BE1101 Client Project: Yankee Fork

Dear Mr. Clayton

On October 13, 2011, Brooks Rand Labs (BRL) received fourteen (14) water samples. On October 19, 2011, BRL received three (3) water samples and sixteen (16) sediment samples. The samples were logged-in for the contracted analyses of total mercury (Hg), methyl mercury (MeHg), selenium (Se), percent total solids (%TS), and total suspended solids (TSS) according to the chain-of-custody (COC) forms. The samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

All samples for TSS that were received on October 19 were prepared outside of the one week holding time. On this basis, the TSS results were qualified **H** for holding time requirements not being met.

The results were blank-corrected as described in the calculations section of the relevant SOP(s) and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

The MeHg analysis of matrix spike (MS) B111729-MS2, performed on sample *EC01-W* (1142034-13), produced a recovery (60%) not within the acceptance criteria range, which also caused the relative percent difference (RPD) between the MS and the matrix spike duplicate (MSD) to be elevated (55%). As such, the MeHg result for sample *EC01-W* (1142034-13) was qualified **N** for accuracy imprecision and should be considered an estimate.

The Hg analysis of method blank B111639-BLK2 produced an abnormal peak shape. The method blank was omitted and was not used to method blank-correct the results. All results were blank-corrected with the average of the three remaining method blanks.

Sample *EC-EQB* (1143019-19) was identified as an equipment blank and produced a detectable Hg concentration of 0.55 ng/L. The sample was re-analyzed and confirmed the initial result. The results for the samples may demonstrate possible contamination through field sample collection techniques employed.

The MeHg result for sample *EC15-Sd* (1143019-05) and the associated duplicate (DUP) result yielded a 63% RPD, not meeting the acceptance criteria. Both the sample result and duplicate result were confirmed by re-analysis. As such, the MeHg result for sample *EC15-Sd* (1143019-05) was qualified **M** for duplicate imprecision and should be considered an estimate.

The Se analysis of matrix spike (MS) B111732-MS3, performed on sample *EC061-Sd* (1143019-18), recovered at 142%, above the acceptance criteria range. The Se result for sample *EC061-Sd* (1143019-18) was qualified **N** for inaccuracy and should be considered an estimate.

Aside from concentration qualifiers, all data was reported without further qualification and all other associated quality control sample results met the acceptance criteria.

BRL, an accredited laboratory, certifies that the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more information please see the *Report Information* page in your report. Please feel free to contact us if you have any questions regarding this report.

Sincerely,

Lydia Greaves
Project Manager
lydia@brooksrand.com

Tiffany Stilwater
Project Manager
tiffany@brooksrand.com

Report Information

Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations /certifications, please visit our website at <http://www.brooksrand.com/default.asp?contentID=586>. Results reported relate only to the samples listed in the report.

Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

Common Abbreviations

BLK	method blank	**MS**	matrix spike
BRL	Brooks Rand Labs	**MSD**	matrix spike duplicate
BS	laboratory fortified blank	**ND**	non-detect
CAL	calibration standard	**NR**	non-reportable
CCV	continuing calibration verification	**PS**	post preparation spike
COC	chain of custody record	**REC**	percent recovery
CRM	certified reference material	**RPD**	relative percent difference
D	dissolved fraction	**RSD**	relative standard deviation
DUP	duplicate	**SCV**	secondary calibration verification
ICV	initial calibration verification	**SOP**	standard operating procedure
MDL	method detection limit	**SRM**	standard reference material
MRL	method reporting limit	**T**	total recoverable fraction

Definition of Data Qualifiers

(Effective 9/23/09)

B Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Result is estimated.
J Estimated value. A full explanation is presented in the narrative.
J-M Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
J-N Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
M Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
N Spike recovery was not within acceptance criteria. Result is estimated.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand, Ltd., those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses; USEPA; July 2002. These supersede all previous qualifiers ever employed by BRL.

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Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
EC17-W	1142034-01	Water	Sample	10/12/2011	10/13/2011
EC16-W	1142034-02	Water	Sample	10/12/2011	10/13/2011
EC15-W	1142034-03	Water	Sample	10/12/2011	10/13/2011
EC14-W	1142034-04	Water	Sample	10/12/2011	10/13/2011
EC13-W	1142034-05	Water	Sample	10/12/2011	10/13/2011
EC11-W	1142034-06	Water	Sample	10/12/2011	10/13/2011
EC09-W	1142034-07	Water	Sample	10/12/2011	10/13/2011
EC10-W	1142034-08	Water	Sample	10/12/2011	10/13/2011
EC08-W	1142034-09	Water	Sample	10/12/2011	10/13/2011
EC07-W	1142034-10	Water	Sample	10/12/2011	10/13/2011
EC06-W	1142034-11	Water	Sample	10/12/2011	10/13/2011
EC04-W	1142034-12	Water	Sample	10/12/2011	10/13/2011
EC01-W	1142034-13	Water	Sample	10/12/2011	10/13/2011
EC111-W	1142034-14	Water	Sample	10/12/2011	10/13/2011

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Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
EC02-W	1143019-01	Water	Sample	10/12/2011	10/19/2011
EC03-Sd	1143019-02	Soil/Sediment	Sample	10/12/2011	10/19/2011
EC12-W	1143019-03	Water	Sample	10/12/2011	10/19/2011
EC14-Sd	1143019-04	Soil/Sediment	Sample	10/12/2011	10/19/2011
EC15-Sd	1143019-05	Soil/Sediment	Sample	10/12/2011	10/19/2011
EC16-Sd	1143019-06	Soil/Sediment	Sample	10/12/2011	10/19/2011
EC17-Sd	1143019-07	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC13-Sd	1143019-08	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC11-Sd	1143019-09	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC10-Sd	1143019-10	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC09-Sd	1143019-11	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC08-Sd	1143019-12	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC07-Sd	1143019-13	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC06-Sd	1143019-14	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC04-Sd	1143019-15	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC01-Sd	1143019-16	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC05-Sd	1143019-17	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC061-Sd	1143019-18	Soil/Sediment	Sample	10/13/2011	10/19/2011
EC-EQB	1143019-19	DIW	Equip. Blank	10/13/2011	10/19/2011

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Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
%TS	Soil/Sediment	SM 2540G	11/03/2011	11/08/2011	B111711	N/A
%TS	Soil/Sediment	SM 2540G	11/15/2011	11/18/2011	B111783	N/A
Hg	Soil/Sediment	EPA 1631 Appendix	11/15/2011	11/16/2011	B111782	1100812
Hg	Soil/Sediment	EPA 1631 Appendix	11/15/2011	11/17/2011	B111782	1100815
Hg	Soil/Sediment	EPA 1631 Appendix	11/07/2011	11/18/2011	B111953	1100817
MeHg	Soil/Sediment	EPA 1630	11/15/2011	11/16/2011	B111786	1100811
MeHg	Soil/Sediment	EPA 1630	11/21/2011	11/22/2011	B111981	1100823
Se	Soil/Sediment	EPA 1638 DRC	10/24/2011	10/31/2011	B111732	1100764
Hg	Water	EPA 1631	10/30/2011	11/01/2011	B111639	1100765
Hg	Water	EPA 1631	11/08/2011	11/10/2011	B111764	1100796
Hg	Water	EPA 1631	11/11/2011	11/14/2011	B111787	1100803
MeHg	Water	EPA 1630	10/25/2011	10/26/2011	B111729	1100746
Se	Water	EPA 1638 DRC	10/26/2011	11/04/2011	B111742	1100781
TSS	Water	EPA 160.2	10/18/2011	10/24/2011	B111717	N/A
TSS	Water	EPA 160.2	10/25/2011	11/05/2011	B111744	N/A

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Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
EC01-Sd										
1143019-16	%TS	Soil/Sediment	N/A	73.75		0.06	0.20	%	B111783	N/A
1143019-16	Hg	Soil/Sediment	N/A	50.3		1.22	3.66	ng/g dry	B111782	1100815
1143019-16	MeHg	Soil/Sediment	N/A	0.322		0.011	0.036	ng/g dry	B111786	1100811
1143019-16	Se	Soil/Sediment	N/A	1.51		0.22	1.37	mg/kg dry	B111732	1100764
EC01-W										
1142034-13	Hg	Water	T	1.81		0.15	0.40	ng/L	B111639	1100765
1142034-13	MeHg	Water	T	0.033	N, B	0.020	0.050	ng/L	B111729	1100746
1142034-13	Se	Water	T	0.076		0.024	0.072	µg/L	B111742	1100781
1142034-13	TSS	Water	N/A	1.0	B	0.3	1.0	mg/L	B111717	N/A
EC02-W										
1143019-01	Hg	Water	T	0.30	B	0.15	0.40	ng/L	B111764	1100796
1143019-01	Se	Water	T	3.23		0.024	0.072	µg/L	B111742	1100781
1143019-01	TSS	Water	N/A	0.9	H, B	0.3	1.0	mg/L	B111744	N/A
EC03-Sd										
1143019-02	%TS	Soil/Sediment	N/A	75.95		0.07	0.22	%	B111711	N/A
1143019-02	Hg	Soil/Sediment	N/A	139		1.20	3.60	ng/g dry	B111953	1100817
1143019-02	Se	Soil/Sediment	N/A	7.66		0.20	1.28	mg/kg dry	B111732	1100764
EC04-Sd										
1143019-15	%TS	Soil/Sediment	N/A	56.03		0.06	0.20	%	B111783	N/A
1143019-15	Hg	Soil/Sediment	N/A	294		39.6	119	ng/g dry	B111782	1100812
1143019-15	MeHg	Soil/Sediment	N/A	1.07		0.015	0.047	ng/g dry	B111786	1100811
1143019-15	Se	Soil/Sediment	N/A	2.51		0.28	1.76	mg/kg dry	B111732	1100764
EC04-W										
1142034-12	Hg	Water	T	8.08		0.15	0.41	ng/L	B111639	1100765
1142034-12	MeHg	Water	T	0.385		0.020	0.050	ng/L	B111729	1100746
1142034-12	Se	Water	T	0.899		0.024	0.072	µg/L	B111742	1100781
1142034-12	TSS	Water	N/A	15.8		0.3	1.0	mg/L	B111717	N/A

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Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
EC05-Sd										
1143019-17	%TS	Soil/Sediment	N/A	36.24		0.06	0.20	%	B111783	N/A
1143019-17	Hg	Soil/Sediment	N/A	245		74.1	222	ng/g dry	B111782	1100812
1143019-17	MeHg	Soil/Sediment	N/A	1.14		0.023	0.071	ng/g dry	B111786	1100811
1143019-17	Se	Soil/Sediment	N/A	4.80		0.44	2.73	mg/kg dry	B111732	1100764
EC061-Sd										
1143019-18	%TS	Soil/Sediment	N/A	42.22		0.06	0.20	%	B111783	N/A
1143019-18	Hg	Soil/Sediment	N/A	255		53.5	160	ng/g dry	B111782	1100812
1143019-18	MeHg	Soil/Sediment	N/A	1.36		0.020	0.061	ng/g dry	B111786	1100811
1143019-18	Se	Soil/Sediment	N/A	3.49	N	0.37	2.31	mg/kg dry	B111732	1100764
EC06-Sd										
1143019-14	%TS	Soil/Sediment	N/A	43.81		0.06	0.20	%	B111783	N/A
1143019-14	Hg	Soil/Sediment	N/A	163		51.5	154	ng/g dry	B111782	1100812
1143019-14	MeHg	Soil/Sediment	N/A	1.93		0.019	0.061	ng/g dry	B111786	1100811
1143019-14	Se	Soil/Sediment	N/A	2.94		0.36	2.27	mg/kg dry	B111732	1100764
EC06-W										
1142034-11	Hg	Water	T	1.55		0.15	0.41	ng/L	B111639	1100765
1142034-11	MeHg	Water	T	0.138		0.020	0.050	ng/L	B111729	1100746
1142034-11	Se	Water	T	1.08		0.024	0.072	µg/L	B111742	1100781
1142034-11	TSS	Water	N/A	0.9	B	0.3	1.0	mg/L	B111717	N/A
EC07-Sd										
1143019-13	%TS	Soil/Sediment	N/A	44.14		0.06	0.20	%	B111783	N/A
1143019-13	Hg	Soil/Sediment	N/A	263		56.6	170	ng/g dry	B111782	1100812
1143019-13	MeHg	Soil/Sediment	N/A	1.12		0.019	0.059	ng/g dry	B111786	1100811
1143019-13	Se	Soil/Sediment	N/A	3.44		0.36	2.24	mg/kg dry	B111732	1100764
EC07-W										
1142034-10	Hg	Water	T	1.85		0.15	0.40	ng/L	B111639	1100765
1142034-10	MeHg	Water	T	0.098		0.020	0.049	ng/L	B111729	1100746
1142034-10	Se	Water	T	1.04		0.024	0.072	µg/L	B111742	1100781
1142034-10	TSS	Water	N/A	0.8	B	0.3	1.0	mg/L	B111717	N/A

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Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
EC08-Sd										
1143019-12	%TS	Soil/Sediment	N/A	33.29		0.06	0.20	%	B111783	N/A
1143019-12	Hg	Soil/Sediment	N/A	437		82.3	247	ng/g dry	B111782	1100812
1143019-12	MeHg	Soil/Sediment	N/A	0.980		0.024	0.074	ng/g dry	B111786	1100811
1143019-12	Se	Soil/Sediment	N/A	4.27		0.48	3.01	mg/kg dry	B111732	1100764
EC08-W										
1142034-09	Hg	Water	T	2.01		0.15	0.40	ng/L	B111639	1100765
1142034-09	MeHg	Water	T	0.187		0.020	0.049	ng/L	B111729	1100746
1142034-09	Se	Water	T	0.931		0.024	0.072	µg/L	B111742	1100781
1142034-09	TSS	Water	N/A	2.8		0.6	1.8	mg/L	B111717	N/A
EC09-Sd										
1143019-11	%TS	Soil/Sediment	N/A	72.62		0.06	0.20	%	B111783	N/A
1143019-11	Hg	Soil/Sediment	N/A	126		33.8	101	ng/g dry	B111782	1100812
1143019-11	MeHg	Soil/Sediment	N/A	0.272		0.011	0.036	ng/g dry	B111786	1100811
1143019-11	Se	Soil/Sediment	N/A	2.01		0.22	1.38	mg/kg dry	B111732	1100764
EC09-W										
1142034-07	Hg	Water	T	2.08		0.15	0.40	ng/L	B111639	1100765
1142034-07	MeHg	Water	T	0.055		0.020	0.050	ng/L	B111729	1100746
1142034-07	Se	Water	T	0.201		0.024	0.072	µg/L	B111742	1100781
1142034-07	TSS	Water	N/A	2.8		0.3	1.0	mg/L	B111717	N/A
EC10-Sd										
1143019-10	%TS	Soil/Sediment	N/A	71.45		0.06	0.20	%	B111783	N/A
1143019-10	Hg	Soil/Sediment	N/A	55.2		1.40	4.21	ng/g dry	B111782	1100815
1143019-10	MeHg	Soil/Sediment	N/A	0.174		0.011	0.035	ng/g dry	B111786	1100811
1143019-10	Se	Soil/Sediment	N/A	2.37		0.22	1.38	mg/kg dry	B111732	1100764
EC10-W										
1142034-08	Hg	Water	T	2.09		0.15	0.40	ng/L	B111639	1100765
1142034-08	MeHg	Water	T	0.029	B	0.020	0.049	ng/L	B111729	1100746
1142034-08	Se	Water	T	0.072	B	0.024	0.072	µg/L	B111742	1100781
1142034-08	TSS	Water	N/A	1.1		0.3	1.0	mg/L	B111717	N/A

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Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
EC111-W										
1142034-14	Hg	Water	T	1.13		0.15	0.40	ng/L	B111639	1100765
1142034-14	MeHg	Water	T	0.026	B	0.020	0.050	ng/L	B111729	1100746
1142034-14	Se	Water	T	0.045	B	0.024	0.072	µg/L	B111742	1100781
1142034-14	TSS	Water	N/A	0.9	B	0.3	1.0	mg/L	B111717	N/A
EC11-Sd										
1143019-09	%TS	Soil/Sediment	N/A	76.95		0.06	0.20	%	B111783	N/A
1143019-09	Hg	Soil/Sediment	N/A	111		30.5	91.4	ng/g dry	B111782	1100812
1143019-09	MeHg	Soil/Sediment	N/A	0.024	B	0.010	0.032	ng/g dry	B111981	1100823
1143019-09	Se	Soil/Sediment	N/A	0.94	B	0.20	1.28	mg/kg dry	B111732	1100764
EC11-W										
1142034-06	Hg	Water	T	0.89		0.15	0.40	ng/L	B111639	1100765
1142034-06	MeHg	Water	T	0.024	B	0.020	0.050	ng/L	B111729	1100746
1142034-06	Se	Water	T	0.032	B	0.024	0.072	µg/L	B111742	1100781
1142034-06	TSS	Water	N/A	1.4		0.3	1.0	mg/L	B111717	N/A
EC12-W										
1143019-03	Hg	Water	T	0.71		0.15	0.40	ng/L	B111764	1100796
1143019-03	Se	Water	T	0.044	B	0.024	0.072	µg/L	B111742	1100781
1143019-03	TSS	Water	N/A	3.4	H	0.8	2.8	mg/L	B111744	N/A
EC13-Sd										
1143019-08	%TS	Soil/Sediment	N/A	68.29		0.06	0.20	%	B111783	N/A
1143019-08	Hg	Soil/Sediment	N/A	32.4		1.35	4.06	ng/g dry	B111782	1100815
1143019-08	MeHg	Soil/Sediment	N/A	0.391		0.012	0.037	ng/g dry	B111786	1100811
1143019-08	Se	Soil/Sediment	N/A	1.41	B	0.24	1.48	mg/kg dry	B111732	1100764
EC13-W										
1142034-05	Hg	Water	T	1.94		0.15	0.40	ng/L	B111639	1100765
1142034-05	MeHg	Water	T	0.032	B	0.020	0.049	ng/L	B111729	1100746
1142034-05	Se	Water	T	0.035	B	0.024	0.072	µg/L	B111742	1100781
1142034-05	TSS	Water	N/A	0.6	B	0.3	1.0	mg/L	B111717	N/A

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Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
EC14-Sd										
1143019-04	%TS	Soil/Sediment	N/A	82.53		0.07	0.22	%	B111711	N/A
1143019-04	Hg	Soil/Sediment	N/A	21.4		1.08	3.24	ng/g dry	B111953	1100817
1143019-04	MeHg	Soil/Sediment	N/A	0.052		0.010	0.031	ng/g dry	B111786	1100811
1143019-04	Se	Soil/Sediment	N/A	2.09		0.19	1.21	mg/kg dry	B111732	1100764
EC14-W										
1142034-04	Hg	Water	T	4.11		0.15	0.41	ng/L	B111639	1100765
1142034-04	MeHg	Water	T	0.069		0.020	0.050	ng/L	B111729	1100746
1142034-04	Se	Water	T	0.041	B	0.024	0.072	µg/L	B111742	1100781
1142034-04	TSS	Water	N/A	0.9	B	0.3	1.0	mg/L	B111717	N/A
EC15-Sd										
1143019-05	%TS	Soil/Sediment	N/A	50.05		0.07	0.22	%	B111711	N/A
1143019-05	Hg	Soil/Sediment	N/A	235		9.74	29.2	ng/g dry	B111953	1100817
1143019-05	MeHg	Soil/Sediment	N/A	0.312	M	0.016	0.051	ng/g dry	B111786	1100811
1143019-05	Se	Soil/Sediment	N/A	2.41		0.32	2.01	mg/kg dry	B111732	1100764
EC15-W										
1142034-03	Hg	Water	T	1.87		0.15	0.40	ng/L	B111639	1100765
1142034-03	MeHg	Water	T	0.105		0.020	0.050	ng/L	B111729	1100746
1142034-03	Se	Water	T	0.117		0.024	0.072	µg/L	B111742	1100781
1142034-03	TSS	Water	N/A	0.6	B	0.3	1.0	mg/L	B111717	N/A
EC16-Sd										
1143019-06	%TS	Soil/Sediment	N/A	69.40		0.07	0.22	%	B111711	N/A
1143019-06	Hg	Soil/Sediment	N/A	102		1.36	4.07	ng/g dry	B111953	1100817
1143019-06	MeHg	Soil/Sediment	N/A	0.178		0.012	0.037	ng/g dry	B111786	1100811
1143019-06	Se	Soil/Sediment	N/A	1.64		0.22	1.39	mg/kg dry	B111732	1100764
EC16-W										
1142034-02	Hg	Water	T	1.24		0.15	0.41	ng/L	B111639	1100765
1142034-02	MeHg	Water	T	0.084		0.020	0.051	ng/L	B111729	1100746
1142034-02	Se	Water	T	0.134		0.024	0.072	µg/L	B111742	1100781
1142034-02	TSS	Water	N/A	1.2	B	0.6	2.1	mg/L	B111717	N/A

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Sample Results

Sample	Analyte	Report Matrix	Fraction	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
EC17-Sd										
1143019-07	%TS	Soil/Sediment	N/A	73.53		0.07	0.22	%	B111711	N/A
1143019-07	Hg	Soil/Sediment	N/A	43.7		1.47	4.41	ng/g dry	B111953	1100817
1143019-07	MeHg	Soil/Sediment	N/A	0.588		0.011	0.035	ng/g dry	B111786	1100811
1143019-07	Se	Soil/Sediment	N/A	1.52		0.21	1.33	mg/kg dry	B111732	1100764
EC17-W										
1142034-01	Hg	Water	T	2.04		0.15	0.40	ng/L	B111639	1100765
1142034-01	MeHg	Water	T	0.032	B	0.020	0.049	ng/L	B111729	1100746
1142034-01	Se	Water	T	0.083		0.024	0.072	µg/L	B111742	1100781
1142034-01	TSS	Water	N/A	1.1		0.3	1.0	mg/L	B111717	N/A
EC-EQB										
1143019-19	Hg	DIW	T	0.55		0.15	0.40	ng/L	B111787	1100803
1143019-19	Se	DIW	T	0.024	U	0.024	0.072	µg/L	B111742	1100781

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Accuracy & Precision Summary

Batch: B111639
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111639-SRM1	**Certified Reference Material (1145032, NIST 1641d 1000x dilution)**						
	Hg		15.68	16.06	ng/L	102% 85-115	
B111639-MS4	**Matrix Spike (1141037-08)**						
	Hg	6.31	30.74	34.38	ng/L	91% 71-125	
B111639-MSD4	**Matrix Spike Duplicate (1141037-08)**						
	Hg	6.31	30.39	38.50	ng/L	106% 71-125	11% 24
B111639-MS3	**Matrix Spike (1141051-01)**						
	Hg	1.93	10.03	12.59	ng/L	106% 71-125	
B111639-MSD3	**Matrix Spike Duplicate (1141051-01)**						
	Hg	1.93	10.17	13.10	ng/L	110% 71-125	4% 24

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Accuracy & Precision Summary

Batch: B111711
Lab Matrix: Soil/Sediment
Method: SM 2540G

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111711-DUP3	**Duplicate (1142023-06)**						
	%TS	34.62		35.44	%		2% 15
B111711-DUP4	**Duplicate (1143019-05)**						
	%TS	50.05		51.09	%		2% 15

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Accuracy & Precision Summary

Batch: B111717
Lab Matrix: Water
Method: EPA 160.2

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111717-DUP1	**Duplicate (1142034-02)**						
	TSS	1.2		1.3	mg/L		7% 15
B111717-DUP2	**Duplicate (1142034-09)**						
	TSS	2.8		2.9	mg/L		6% 15

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Accuracy & Precision Summary

Batch: B111729
Lab Matrix: Water
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111729-BS1	**Laboratory Fortified Blank (1142030)**						
	MeHg		1.002	1.010	ng/L	101% 67-133	
B111729-BS2	**Laboratory Fortified Blank (1142030)**						
	MeHg		0.9960	1.053	ng/L	106% 67-133	
B111729-MS1	**Matrix Spike (1141051-01)**						
	MeHg	0.499	1.006	1.657	ng/L	115% 65-135	
B111729-MSD1	**Matrix Spike Duplicate (1141051-01)**						
	MeHg	0.499	1.006	1.707	ng/L	120% 65-135	3% 35
B111729-MS2	**Matrix Spike (1142034-13)**						
	MeHg	0.033	0.9952	0.633	ng/L	*60%* 65-135	
B111729-MSD2	**Matrix Spike Duplicate (1142034-13)**						
	MeHg	0.033	0.9919	1.110	ng/L	109% 65-135	*55%* 35

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Accuracy & Precision Summary

Batch: B111732
Lab Matrix: Soil/Sediment
Method: EPA 1638 DRC

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111732-BS1	**Laboratory Fortified Blank (1144014)**						
	Se		10.00	11.36	mg/kg	114% 75-125	
B111732-DUP2	**Duplicate (1143019-02)**						
	Se	7.66		6.20	mg/kg dry		21% 30
B111732-MS2	**Matrix Spike (1143019-02)**						
	Se	7.66	10.01	17.47	mg/kg dry	98% 70-130	
B111732-MSD2	**Matrix Spike Duplicate (1143019-02)**						
	Se	7.66	10.01	17.90	mg/kg dry	102% 70-130	2% 30
B111732-DUP3	**Duplicate (1143019-18)**						
	Se	3.49		4.12	mg/kg dry		17% 30
B111732-MS3	**Matrix Spike (1143019-18)**						
	Se	3.49	18.07	29.14	mg/kg dry	*142%* 70-130	
B111732-MSD3	**Matrix Spike Duplicate (1143019-18)**						
	Se	3.49	17.68	26.04	mg/kg dry	128% 70-130	11% 30

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Accuracy & Precision Summary

Batch: B111742
Lab Matrix: Water
Method: EPA 1638 DRC

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111742-BS1	**Laboratory Fortified Blank (1143011)**						
	Se		0.7158	0.602	µg/L	84% 75-125	
B111742-SRM1	**Certified Reference Material (1132016, NIST 1643e)**						
	Se		11.97	12.95	µg/L	108% 75-125	
B111742-DUP1	**Duplicate (1142034-01)**						
	Se	0.083		0.081	µg/L		2% 20
B111742-MS1	**Matrix Spike (1142034-01)**						
	Se	0.083	5.263	5.401	µg/L	101% 75-125	
B111742-MSD1	**Matrix Spike Duplicate (1142034-01)**						
	Se	0.083	5.263	5.545	µg/L	104% 75-125	3% 20
B111742-DUP2	**Duplicate (1142034-02)**						
	Se	0.134		0.123	µg/L		9% 20
B111742-MS2	**Matrix Spike (1142034-02)**						
	Se	0.134	5.263	5.504	µg/L	102% 75-125	
B111742-MSD2	**Matrix Spike Duplicate (1142034-02)**						
	Se	0.134	5.263	5.439	µg/L	101% 75-125	1% 20

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Accuracy & Precision Summary

Batch: B111744
Lab Matrix: Water
Method: EPA 160.2

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111744-DUP1	**Duplicate (1143019-03)**						
	TSS	3.4		3.8	mg/L		10% 15

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Accuracy & Precision Summary

Batch: B111764
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111764-SRM1	**Certified Reference Material (1145032, NIST 1641d 1000x dilution)**						
	Hg		15.68	16.22	ng/L	103% 85-115	
B111764-MS3	**Matrix Spike (1143004-01)**						
	Hg	137.2	526.3	688.7	ng/L	105% 71-125	
B111764-MSD3	**Matrix Spike Duplicate (1143004-01)**						
	Hg	137.2	526.3	713.8	ng/L	110% 71-125	4% 24
B111764-MS1	**Matrix Spike (1143007-25)**						
	Hg	0.24	2.023	2.33	ng/L	103% 71-125	
B111764-MSD1	**Matrix Spike Duplicate (1143007-25)**						
	Hg	0.24	2.014	2.12	ng/L	93% 71-125	10% 24

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Accuracy & Precision Summary

Batch: B111782
Lab Matrix: Soil/Sediment
Method: EPA 1631 Appendix

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111782-SRM1	**Certified Reference Material (1103012, MESS-3)**						
	Hg		91.00	83.27	ng/g	92% 75-125	
B111782-SRM2	**Certified Reference Material (1103012, MESS-3)**						
	Hg		91.00	84.94	ng/g	93% 75-125	
B111782-DUP3	**Duplicate (1143024-07)**						
	Hg	3284		3112	ng/g dry		5% 30
B111782-MS3	**Matrix Spike (1143024-07)**						
	Hg	3284	14960	18180	ng/g dry	100% 70-130	
B111782-MSD3	**Matrix Spike Duplicate (1143024-07)**						
	Hg	3284	13250	18040	ng/g dry	111% 70-130	0.7% 30
B111782-DUP6	**Duplicate (1143024-15)**						
	Hg	1560		2083	ng/g dry		29% 30
B111782-MS6	**Matrix Spike (1143024-15)**						
	Hg	1560	9018	10380	ng/g dry	98% 70-130	
B111782-MSD6	**Matrix Spike Duplicate (1143024-15)**						
	Hg	1560	10670	12550	ng/g dry	103% 70-130	19% 30

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Accuracy & Precision Summary

Batch: B111783
Lab Matrix: Soil/Sediment
Method: SM 2540G

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111783-DUP3	**Duplicate (1143024-07)**						
	%TS	59.49		64.74	%		8% 15
B111783-DUP4	**Duplicate (1143024-15)**						
	%TS	74.86		74.26	%		0.8% 15

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Accuracy & Precision Summary

Batch: B111786
Lab Matrix: Soil/Sediment
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111786-SRM1	**Certified Reference Material (1103013, SRM SQC-1238 MeHg in Sediment)**						
	MeHg		10.00	10.36	ng/g	104% 65-135	
B111786-SRM2	**Certified Reference Material (1103013, SRM SQC-1238 MeHg in Sediment)**						
	MeHg		10.00	9.730	ng/g	97% 65-135	
B111786-DUP4	**Duplicate (1142023-06)**						
	MeHg	1.699		1.495	ng/g dry		13% 35
B111786-MS4	**Matrix Spike (1142023-06)**						
	MeHg	1.699	70.35	57.90	ng/g dry	80% 65-135	
B111786-MSD4	**Matrix Spike Duplicate (1142023-06)**						
	MeHg	1.699	73.65	62.42	ng/g dry	82% 65-135	8% 35
B111786-DUP1	**Duplicate (1143019-05)**						
	MeHg	0.312		0.600	ng/g dry		*63%* 35
B111786-MS1	**Matrix Spike (1143019-05)**						
	MeHg	0.312	3.965	4.079	ng/g dry	95% 65-135	
B111786-MSD1	**Matrix Spike Duplicate (1143019-05)**						
	MeHg	0.312	4.058	3.792	ng/g dry	86% 65-135	7% 35

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Accuracy & Precision Summary

Batch: B111787
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111787-SRM1	**Certified Reference Material (1145032, NIST 1641d 1000x dilution)**						
	Hg		15.68	17.19	ng/L	110% 85-115	
B111787-MS3	**Matrix Spike (1144022-02)**						
	Hg	41.97	208.9	261.3	ng/L	105% 71-125	
B111787-MSD3	**Matrix Spike Duplicate (1144022-02)**						
	Hg	41.97	204.8	219.0	ng/L	86% 71-125	18% 24
B111787-MS2	**Matrix Spike (1146014-03)**						
	Hg	141.8	707.1	815.4	ng/L	95% 71-125	
B111787-MSD2	**Matrix Spike Duplicate (1146014-03)**						
	Hg	141.8	707.1	953.6	ng/L	115% 71-125	16% 24

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Accuracy & Precision Summary

Batch: B111953
Lab Matrix: Soil/Sediment
Method: EPA 1631 Appendix

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111953-SRM1	**Certified Reference Material (1103012, MESS-3)**						
	Hg		91.00	105.1	ng/g	116% 75-125	
B111953-SRM2	**Certified Reference Material (1103012, MESS-3)**						
	Hg		91.00	94.41	ng/g	104% 75-125	
B111953-DUP4	**Duplicate (1143019-05)**						
	Hg	234.7		274.0	ng/g dry		15% 30
B111953-MS4	**Matrix Spike (1143019-05)**						
	Hg	234.7	1932	2435	ng/g dry	114% 70-130	
B111953-MSD4	**Matrix Spike Duplicate (1143019-05)**						
	Hg	234.7	1734	1998	ng/g dry	102% 70-130	20% 30

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Accuracy & Precision Summary

Batch: B111981
Lab Matrix: Soil/Sediment
Method: EPA 1630

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B111981-SRM1	**Certified Reference Material (1103013, SRM SQC-1238 MeHg in Sediment)**						
	MeHg		10.00	10.73	ng/g	107% 65-135	
B111981-SRM2	**Certified Reference Material (1103013, SRM SQC-1238 MeHg in Sediment)**						
	MeHg		10.00	11.00	ng/g	110% 65-135	
B111981-DUP1	**Duplicate (1143019-09)**						
	MeHg	0.024		0.025	ng/g dry		4% 35
B111981-MS1	**Matrix Spike (1143019-09)**						
	MeHg	0.024	1.994	1.383	ng/g dry	68% 65-135	
B111981-MSD1	**Matrix Spike Duplicate (1143019-09)**						
	MeHg	0.024	1.907	1.558	ng/g dry	80% 65-135	12% 35

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Method Blanks & Reporting Limits

Batch: B111639
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B111639-BLK1	0.05	ng/L
B111639-BLK3	0.08	ng/L
B111639-BLK4	0.06	ng/L

Average: 0.06 **Standard Deviation:** 0.02 **MDL:** 0.15
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.41

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Method Blanks & Reporting Limits

Batch: B111711
Matrix: Soil/Sediment
Method: SM 2540G
Analyte: %TS

Sample	Result	Units
B111711-BLK1	0.00	%
B111711-BLK2	0.00	%

Average: 0.00
Limit: 0.22

MDL: 0.07
MRL: 0.22

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Method Blanks & Reporting Limits

Batch: B111717
Matrix: Water
Method: EPA 160.2
Analyte: TSS

Sample	Result	Units
B111717-BLK1	0.0	mg/L
B111717-BLK2	0.1	mg/L

Average: 0.1
Limit: 0.8

MDL: 0.4
MRL: 1.3

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Method Blanks & Reporting Limits

Batch: B111729
Matrix: Water
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B111729-BLK1	0.015	ng/L
B111729-BLK2	0.011	ng/L
B111729-BLK3	0.010	ng/L
B111729-BLK4	0.013	ng/L

Average: 0.012 **Standard Deviation:** 0.002 **MDL:** 0.020
Limit: 0.045 **Limit:** 0.015 **MRL:** 0.049

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Method Blanks & Reporting Limits

Batch: B111732
Matrix: Soil/Sediment
Method: EPA 1638 DRC
Analyte: Se 78

Sample	Result	Units
B111732-BLK1	-0.05	mg/kg
B111732-BLK2	-0.05	mg/kg
B111732-BLK3	-0.03	mg/kg
B111732-BLK4	-0.07	mg/kg

Average: -0.05 **Standard Deviation:** 0.02 **MDL:** 0.16
Limit: 1.00 **Limit:** 0.16 **MRL:** 1.00

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Method Blanks & Reporting Limits

Batch: B111742
Matrix: Water
Method: EPA 1638 DRC
Analyte: Se 78

Sample	Result	Units
B111742-BLK1	0.004	µg/L
B111742-BLK2	0.005	µg/L
B111742-BLK3	0.004	µg/L
B111742-BLK4	0.006	µg/L

Average: 0.005 **Standard Deviation:** 0.001 **MDL:** 0.024
Limit: 0.072 **Limit:** 0.024 **MRL:** 0.072

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Method Blanks & Reporting Limits

Batch: B111744
Matrix: Water
Method: EPA 160.2
Analyte: TSS

Sample	Result	Units
B111744-BLK1	0.0	mg/L
B111744-BLK2	0.0	mg/L

Average: 0.0
Limit: 1.0

MDL: 0.5
MRL: 1.6

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Method Blanks & Reporting Limits

Batch: B111764
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B111764-BLK1	0.07	ng/L
B111764-BLK2	0.03	ng/L
B111764-BLK3	0.04	ng/L
B111764-BLK4	0.06	ng/L

Average: 0.05 **Standard Deviation:** 0.02 **MDL:** 0.15
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.40

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Method Blanks & Reporting Limits

Batch: B111782
Matrix: Soil/Sediment
Method: EPA 1631 Appendix
Analyte: Hg

Sample	Result	Units
B111782-BLK1	0.007	ng/g
B111782-BLK2	0.01	ng/g
B111782-BLK3	0.007	ng/g
B111782-BLK4	0.05	ng/g

Average: 0.02 **Standard Deviation:** 0.02 **MDL:** 0.05
Limit: 0.10 **Limit:** 0.03 **MRL:** 0.15

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Method Blanks & Reporting Limits

Batch: B111783
Matrix: Soil/Sediment
Method: SM 2540G
Analyte: %TS

Sample	Result	Units
B111783-BLK1	0.00	%
B111783-BLK2	-0.08	%

Average: -0.04
Limit: 0.20

MDL: 0.06
MRL: 0.20

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Method Blanks & Reporting Limits

Batch: B111786
Matrix: Soil/Sediment
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B111786-BLK1	-0.0002	ng/g
B111786-BLK2	-0.0003	ng/g
B111786-BLK3	-0.0008	ng/g
B111786-BLK4	-0.0006	ng/g

Average: 0.000 **Standard Deviation:** 0.000 **MDL:** 0.008
Limit: 0.016 **Limit:** 0.005 **MRL:** 0.024

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Method Blanks & Reporting Limits

Batch: B111787
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B111787-BLK1	0.05	ng/L
B111787-BLK2	0.08	ng/L
B111787-BLK3	0.009	ng/L
B111787-BLK4	0.04	ng/L

Average: 0.04 **Standard Deviation:** 0.03 **MDL:** 0.15
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.40

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Method Blanks & Reporting Limits

Batch: B111953
Matrix: Soil/Sediment
Method: EPA 1631 Appendix
Analyte: Hg

Sample	Result	Units
B111953-BLK1	0.02	ng/g
B111953-BLK2	0.004	ng/g
B111953-BLK3	0.001	ng/g
B111953-BLK4	0.06	ng/g

Average: 0.02 **Standard Deviation:** 0.03 **MDL:** 0.05
Limit: 0.10 **Limit:** 0.03 **MRL:** 0.15

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Method Blanks & Reporting Limits

Batch: B111981
Matrix: Soil/Sediment
Method: EPA 1630
Analyte: MeHg

Sample	Result	Units
B111981-BLK1	0.0009	ng/g
B111981-BLK2	0.0008	ng/g
B111981-BLK3	0.0005	ng/g
B111981-BLK4	0.0006	ng/g

Average: 0.001 **Standard Deviation:** 0.000 **MDL:** 0.008
Limit: 0.016 **Limit:** 0.005 **MRL:** 0.024

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Sample Containers

Lab ID: 1142034-01 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC17-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#1
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#1
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#1
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#1

Lab ID: 1142034-02 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC16-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#1
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#1
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#1
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#1

Lab ID: 1142034-03 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC15-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#1
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#1
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#1
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#1

Lab ID: 1142034-04 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC14-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#1
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#1
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#1
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#1

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Sample Containers

Lab ID: 1142034-05 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC13-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#2
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#2
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#2
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#2

Lab ID: 1142034-06 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC11-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#2
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#2
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#2
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#2

Lab ID: 1142034-07 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC09-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#2
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#2
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#2
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#2

Lab ID: 1142034-08 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC10-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#2
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#2
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#2
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#2

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Sample Containers

Lab ID: 1142034-09 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC08-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#2
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#2
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#2
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#2

Lab ID: 1142034-10 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC07-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#3
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#3
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#3
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#3

Lab ID: 1142034-11 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC06-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#3
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#3
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#3
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#3

Lab ID: 1142034-12 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC04-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#3
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#3
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#3
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#3

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Sample Containers

Lab ID: 1142034-13 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC01-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#3
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#3
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#3
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#3

Lab ID: 1142034-14 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC111-W **Sample Type:** Sample **Received:** 10/13/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	none	n/a		Cooler#3
B	Bottle FLPE Hg-SP	250mL	7147016010	1mL HCL	1138015	<2	Cooler#3
C	Bottle HDPE ICP-W	125mL	1048890	none	n/a		Cooler#3
D	Bottle HDPE TSS	1L	1047303	none	n/a		Cooler#3

Lab ID: 1143019-01 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC02-W **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	0.5% HCl (BRL)	1138015	<2	Cooler
B	Bottle HDPE ICP-W	125 mL	1048890	none	n/a		Cooler
C	Bottle HDPE TSS	1 L	1047303	none	n/a		Cooler

Lab ID: 1143019-02 **Report Matrix:** Soil/Sediment **Collected:** 10/12/2011
Sample: EC03-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

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Sample Containers

Lab ID: 1143019-03 **Report Matrix:** Water **Collected:** 10/12/2011
Sample: EC12-W **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	0.5% HCl (BRL)	1138015	<2	Cooler
B	Bottle HDPE ICP-W	125 mL	1048890	none	n/a		Cooler
C	Bottle HDPE TSS	1 L	1047303	none	n/a		Cooler

Lab ID: 1143019-04 **Report Matrix:** Soil/Sediment **Collected:** 10/12/2011
Sample: EC14-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-05 **Report Matrix:** Soil/Sediment **Collected:** 10/12/2011
Sample: EC15-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-06 **Report Matrix:** Soil/Sediment **Collected:** 10/12/2011
Sample: EC16-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-07 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC17-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-08 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC13-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-09 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC11-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

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Sample Containers

Lab ID: 1143019-10 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC10-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-11 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC09-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-12 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC08-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-13 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC07-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-14 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC06-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-15 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC04-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-16 **Report Matrix:** Soil/Sediment **Collected:** 10/13/2011
Sample: EC01-Sd **Sample Type:** Sample **Received:** 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

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Sample Containers

Lab ID: 1143019-17
Sample: EC05-Sd
Report Matrix: Soil/Sediment
Sample Type: Sample
Collected: 10/13/2011
Received: 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-18
Sample: EC061-Sd
Report Matrix: Soil/Sediment
Sample Type: Sample
Collected: 10/13/2011
Received: 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Jar HDPE	4 oz.	040301	none	n/a		Cooler

Lab ID: 1143019-19
Sample: EC-EQB
Report Matrix: DIW
Sample Type: Equip. Blank
Collected: 10/13/2011
Received: 10/19/2011

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	250mL	7147016010	0.5% HCl (BRL)	1138015	<2	Cooler
B	Bottle HDPE ICP-W	250mL	7147016010	none	n/a		Cooler

Comments: Arrived in 250 mL FLPE container

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Shipping Containers

Cooler#1

Received: October 13, 2011 9:00
Tracking No: 876405136367 via FedEx
Coolant Type: Ice
Temperature: 0.6 °C

Description: Cooler#1
Damaged in transit? No
Returned to client? No

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

Cooler#2

Received: October 13, 2011 9:00
Tracking No: 876405136389 via FedEx
Coolant Type: Ice
Temperature: 1.1 °C

Description: Cooler#2
Damaged in transit? No
Returned to client? No

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

Cooler#3

Received: October 13, 2011 9:00
Tracking No: 876405136378 via FedEx
Coolant Type: Ice
Temperature: 1.2 °C

Description: Cooler#3
Damaged in transit? No
Returned to client? No

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

Cooler

Received: October 19, 2011 8:45
Tracking No: 7953 0791 5374 via FedEx
Coolant Type: Ice
Temperature: 3.3 °C

Description: Cooler
Damaged in transit? No
Returned to client? No

Custody seals present? Yes
Custody seals intact? Yes
COC present? Yes

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Chain of Custody Record

White: LAB COPY
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Client: CH2M Hill	Address: 322 E. Front St. Boise, ID 83702	COC receipt confirmation? Y / N If so, by: email / fax (circle one)
Contact: Jeff. Schut		Email:
Client project ID: CHM-BE1101		
PO #: 427488.03.35.05.01.B1	Phone #: (208) 383-6160	Fax #:

Requested TAT in business days:
- ☐ 20 (standard)
- ☐ 15
- ☐ 10
- ☐ 5
- ☐ Other ____

Surcharges apply for expedited turn around times.

	Sample ID	Collection: Date	Collection: Time	Misc: Sampler (initials)	Misc: Matrix type	Misc: # of containers	Misc: Field filtered? (Y/N)	Field Preservation: Unpreserved / ice only	Field Preservation: HCl / HNO_3 (circle one)	Field Preservation: Other (specify)	Analyses required: Total Hg, EPA 1631	Analyses required: Methyl Hg, EPA 1630	Analyses required: ICP-MS Metals (specify)	Analyses required: As / Se species (specify)	Analyses required: % Solids	Analyses required: Filtration	Analyses required: Other (specify)	Analyses required: Other (specify)	Comments
1	EC17-W	10/12/11	0935	JS	SW	4	N	X			X	X	X	Se	X				ICP-total Selenium
2	EC16-W	10/12/11	0945	JS	SW	4	N	X			X	X	X	Se	X				" "
3	EC15-W	10/12/11	1000	JS	SW	4	N	X			X	X	X	Se	X				" "
4	EC14-W	10/12/11	1010	JS	SW	4	N	X			X	X	X	Se	X				" "
5														Se					
6																			
7																			
8																			
9																			
10																			

Relinquished by: Jimmy Betts	Date: 10/12/11	Time: 1300	Relinquished by:
Received by:	Date:	Time:	Received at BRL by: Sm Da
Shipping carrier:	# of coolers:		BRL work order ID: 114203 4

Date:	Time:
Date: 10/13/11	Time: 9:00
BRL project ID: CHM-BE1101	

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Chain of Custody Record

BRL Report 1142034 & 1143019

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Client: CH2M Hill	Address: 322 E. Front St. Boise, ID 83702	COC receipt confirmation? Y / N If so, by: email / fax (circle one)
Contact: Jeff Schut		Email:
Client project ID: CHM - BE1101		
PO #: 427488.03.35.05.01.BI	Phone #: (208) 383-6160	Fax #:

Requested TAT in business days:
- ☐ 20 (standard)
- ☐ 15
- ☐ 10
- ☐ 5
- ☐ Other ____

Surcharges apply for expedited turn around times.

	Sample ID	Collection: Date	Collection: Time	Misc: Sampler (initials)	Misc: Matrix type	Misc: # of containers	Misc: Field filtered? (Y/N)	Field Preservation: Unpreserved / ice only	Field Preservation: HCl / HNO_3 (circle one)	Field Preservation: Other (specify)	Analyses required: Total Hg, EPA 1631	Analyses required: Methyl Hg, EPA 1630	Analyses required: ICP-MS Metals (specify)	Analyses required: As / Se species (specify)	Analyses required: % Solids	Analyses required: Filtration	Analyses required: Other (specify)	Analyses required: Other (specify)	Comments
1	EC13-W	10/12/11	1050	JS	SW	4	N	X			X	X	X	Se	X				ICP - total Selenium
2	EC11-W	10/12/11	1105	JS	SW	4	N	X			X	X	X	Se	X				" "
3	EC09-W	10/12/11	1120	JS	SW	4	N	X			X	X	X	Se	X				" "
4	EC10-W	10/12/11	1115	JS	SW	4	N	X			X	X	X	Se	X				" "
5	EC08-W	10/12/11	1135	JS	SW	4	N	X			X	X	X	Se	X				" "
6																			
7																			
8																			
9																			
10																			

Relinquished by: Jeremy Buck	Date: 10/12/11	Time: 1300	Relinquished by:	Date:	Time:
Received by:	Date:	Time:	Received at BRL by: [signature]	Date: 10/13/11	Time: 9:00
Shipping carrier:	# of coolers:		BRL work order ID: 1142034	BRL project ID: CHM-BE1101	

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Client: CH2M Hill	Address: 322 E. Front St. Boise, ID 83702	COC receipt confirmation? Y / N If so, by: email / fax (circle one)
Contact: Jeff Schut		Email:
Client project ID: CHM-BE1101		
PO #: 427488.03.35.05.01.B1	Phone #: (208) 383-6160	Fax #:

Requested TAT in business days:
- ☐ 20 (standard)
- ☐ 15
- ☐ 10
- ☐ 5
- ☐ Other ____

Surcharges apply for expedited turn around times.

	Sample ID	Collection: Date	Collection: Time	Miscellaneous: Sampler (initials)	Miscellaneous: Matrix type	Miscellaneous: # of containers	Miscellaneous: Field filtered? (Y/N)	Field Preservation: Unpreserved / ice only	Field Preservation: HCl / HNO_3 (circle one)	Field Preservation: Other (specify)	Analyses required: Total Hg, EPA 1631	Analyses required: Methyl Hg, EPA 1630	Analyses required: ICP-MS Metals (specify)	Analyses required: As / Se species (specify)	Analyses required: % Solids	Analyses required: Filtration	Analyses required: Other (specify)	Analyses required: Other (specify)	Comments
1	EC07-W	10/12/11	1150	JS	SW	4	N	X			X	X	X		X				ICP-total Selenium
2	EC06-W	10/12/11	1205	JS	SW	4	N	X			X	X	X		X				ICP-total Selenium
3	EC04-W	10/12/11	1220	JS	SW	4	N	X			X	X	X		X				ICP-total Selenium
4	EC01-W	10/12/11	1230	JS	SW	4	N	X			X	X	X		X				ICP-total Selenium
5	EC111-W	10/12/11	1240	JS	SW	4	N	X			X	X	X		X				ICP-total Selenium
6																			
7																			
8																			
9																			
10																			

Relinquished by: Jessica Betts	Date: 10/12/11	Time: 1300	Relinquished by:
Received by:	Date:	Time:	Received at BRL by: Sam Dai
Shipping carrier:	# of coolers:		BRL work order ID: 1142034

Date: | Time:
Date: 10/13/11 | Time: 9:00
BRL project ID: CHM-BE1101

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Chain of Custody Record

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Client: CH2M Hill	Address: 322 E. Front St. Boise, ID 83702	COC receipt confirmation? (Y) / N
Contact: Jeff Schut		If so, by: email / fax (circle one)
Client project ID: CHM-BE1101		Email: jeff.schut@ch2m.com
PO #: 427488.03.35.05.01.B1	Phone #: (208) 383-6160	Fax #:

Requested TAT in business days:
- ☐ 20 (standard)
- ☐ 15
- ☐ 10
- ☐ 5
- ☐ Other ____

Surcharges apply for expedited turn around times.

	Sample ID	Collection: Date	Collection: Time	Misc: Sampler (initials)	Misc: Matrix type	Misc: # of containers	Misc: Field filtered? (Y/N)	Field Preservation: Unpreserved / ice only	Field Preservation: HCl / HNO_3 (circle one)	Field Preservation: Other (specify)	Analyses required: Total Hg, EPA 1631	Analyses required: Methyl Hg, EPA 1630	Analyses required: ICP-MS Metals (specify)	Analyses required: As / Se species (specify)	Analyses required: % Solids	Analyses required: Filtration	Analyses required: Other (specify)	Analyses required: Other (specify)	Comments
1	EC02-W	10/12/11	1720	JS	SW	3	N	X			X		X		X				ICP- total Selenium
2	EC03-Sd	10/12/11	1740	JS	SD	1	N	X			X		X						" "
3	EC12-Sd	10/12/11	1800	JS	SW	3	N	X			X		X		X				" "
4	EC14-Sd	10/12/11	1610	JS	SD	1	N	X			X	X	X		X				" "
5	EC15-Sd	10/12/11	1555	JS	SD	1	N	X			X	X	X		X				" "
6	EC16-Sd	10/12/11	1540	JS	SD	1	N	X			X	X	X		X				" "
7	EC17-Sd	10/13/11	0925	JS	SD	1	N	X			X	X	X		X				" "
8	EC13-Sd	10/13/11	0955	JS	SD	1	N	X			X	X	X		X				" "
9	EC11-Sd	10/13/11	1020	JS	SD	1	N	X			X	X	X		X				" "
10	EC10-Sd	10/13/11	1030	JS	SD	1	N	X			X	X	X		X				" "

Relinquished by:	Date:	Time:	Relinquished by: Date: 10/18/11 Time: 1000
Received by:	Date:	Time:	Received at BRL by: Date: 10/19/11 Time: 0845
Shipping carrier:	# of coolers: 1		BRL work order ID: BRL project ID:

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BRL Report 1142034 & 1143019

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Client: CH2M Hill	Address: 322 E. Front St. Boise, ID 83702	COC receipt confirmation? Y / N If so, by: email / fax (circle one)
Contact: Jeff Schut		Email:
Client project ID: CHM-BE1101	Phone #: (208) 383-6160	Fax #:
PO #: 427488.03.35.05.01.B1		

Requested TAT in business days:
☐ 20 (standard)
☐ 15
☐ 10
☐ 5
☐ Other ____

Surcharges apply for expedited turn around times.

	Sample ID	Collection: Date	Collection: Time	Misc: Sampler (initials)	Misc: Matrix type	Misc: # of containers	Misc: Field filtered? (Y/N)	Field Preservation: Unpreserved / ice only	Field Preservation: HCl / HNO_3 (circle one)	Field Preservation: Other (specify)	Analyses required: Total Hg, EPA 1631	Analyses required: Methyl Hg, EPA 1630	Analyses required: ICP-MS Metals (specify)	Analyses required: As / Se species (specify)	Analyses required: % Solids	Analyses required: Filtration	Analyses required: Other (specify)	Analyses required: Other (specify)	Comments
1	EC09-Sd	10/13/11	1050	JS	SD	1	N	X			X	X	X		X				ICP-total Selenium
2	EC08-Sd	10/13/11	1510	JS	SD	1	N	X			X	X	X		X				" "
3	EC07-Sd	10/13/11	1125	JS	SD	1	N	X			X	X	X		X				" "
4	EC06-Sd	10/13/11	1425	JS	SD	1	N	X			X	X	X		X				" "
5	EC04-Sd	10/13/11	1140	JS	SD	1	N	X			X	X	X		X				" "
6	EC01-Sd	10/13/11	1210	JS	SD	1	N	X			X	X	X		X				" "
7	EC05-Sd	10/13/11	1445	JS	SD	1	N	X			X	X	X		X				" "
8	EC06I-Sd	10/13/11	1435	JS	SD	1	N	X			X	X	X		X				" "
9	EC-EQB	10/13/11	1400	JS	W	2	N	X			X		X						" "
10																			

Relinquished by:	Date:	Time:	Relinquished by: Date: 10/18/11 Time: 1000
Received by:	Date:	Time:	Received at BRL by: Date: 10/19/11 Time: 0845
Shipping carrier:	# of coolers: 1		BRL work order ID: BRL project ID: