

Eagle Brook Trout Tissue Metals Survey for Fall 2011

February 20, 2012

Prepared for:

Kennecott Eagle Minerals Company

Prepared by:

ADVANCED ECOLOGICAL MANAGEMENT

AeM

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MANAGEMENT**

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List of Abbreviations, Acronyms, and Symbols

AEM	Advanced Ecological Management LLC
$\bar{x}$	Average
CAS No.	Chemical abstract service number
°C	Degrees Celcius
ft	Feet
e.g.	For example
gpm	Gallons per minute
KEMC	Kennecott Eagle Minerals Company
pH	Measure of acidity or alkalinity of a solution
MDEQ	Michigan Department of Environmental Quality
MNFI	Michigan Natural Features Inventory
µS/cm	Microsiemens per centimeter
mg/L	Milligrams per liter of water
mg/kg	Milligrams per kilogram
ml	Milliliters
MDL	Minimum detection limit
N	North
n.m.	Not measured
n.s.	Not sampled
<i>n</i>	Sample size
<i>s</i>	Standard deviation
Sec.	Section
T	Township
W	West

1.0 EXECUTIVE SUMMARY

A total of 128 brook trout were collected within the vicinity of stations sampled from 7 October 2011 through 9 October 2011 as part of the fall 2011 tissue survey (Table 4-1). Of the fish collected, 25 brook trout, including 13 males and 12 females, were selected for metals analyses from Stations 1, 3, 4, 6, 8, 9, and 10.

Among all brook trout collected during the fall survey, lengths ranged from 50 millimeters (2.0 inches) to 308 millimeters (12.1 inches), and average length was 137 millimeters (5.4 inches; $s = 1.9$ inches; $n = 126$). These length statistics also include brook trout collected from locations that were adjacent to the stations (upstream or downstream of stations) that are typically surveyed during annual summer aquatic surveys. AEM selected brook trout that ranged from 139 millimeters (5.5 inches) to 229 millimeters (9.0 inches) in length for conducting metals analyses. Scale sample analyses indicated that 24 brook trout were at least one to two years old, with one brook trout of least three years old (Table 4-3).

Among all 25 brook trout that were selected for metals analyses, copper concentrations within fillets ranged from 0.35 mg/kg to 0.84 mg/kg ($\bar{x} = 0.57$ mg/kg; $s = 0.12$ mg/kg), and from 1.4 mg/kg to 40.3 mg/kg ($\bar{x} = 10.6$ mg/kg; $s = 8.8$ mg/kg) in livers (Tables 4-7 through 4-10). Nickel concentrations ranged from less than 0.015 mg/kg to 0.17 mg/kg ($\bar{x} = 0.044$ mg/kg; $s = 0.033$ mg/kg) in fillets, and ranged from less than 0.017 mg/kg to 0.12 mg/kg ($\bar{x} = 0.040$ mg/kg; $s = 0.026$ mg/kg) in livers. Mercury levels in fillets ranged from 0.023 mg/kg to 0.320 mg/kg ($\bar{x} = 0.105$ mg/kg; $s = 0.073$ mg/kg).

2.0 INTRODUCTION

This memo provides a summary of metals content data in brook trout (*Salvelinus fontinalis*) collected from streams in the vicinity of the Eagle Project as part of the fall 2011 fish tissue metals survey. Brook trout collections for metals analyses were conducted by Advanced Ecological Management, LLC (AEM) in accordance with the MDEQ Nonferrous Metallic Mineral Mining Permit Number: MP O1 2007, following the GLEAS *Procedure #31 Fish Collection and Processing Procedure* (MDEQ, 1997). Information from this survey is intended to provide an additional year of baseline data regarding metals concentrations within brook trout that were collected from the project vicinity.

3.0 METHODS

The 2011 brook trout metals survey was conducted in locations that were sampled in the summer of 2011 using the P-51 survey protocol (Figure 1-1, Exhibit A). These sample stations are situated in the same sample locations, or close to the sample locations that were surveyed by AEM during the 2008 fall brook trout tissue survey and during the 2011 annual aquatic survey.

3.1 Fish Collection

Survey stations were blocked at upstream and downstream extents using seines that measured 4 feet by 50 feet, with a 0.19-inch mesh size. A backpack electroshocker was used in narrow (approximately ≤ 10 feet), or difficult-to-access stations (e.g., areas with abundant woody debris). A barge-mounted electroshocker was used to sample stations that were deep (approximately 2 to 3 feet), wide (approximately >10 feet), and where woody debris was sparse enough to permit the passage of the barge unit. Three consecutive passes were conducted, each in an upstream direction. The duration of electroshocking was recorded for each pass and stunned fish were placed in a live-well for identification and enumeration. Following the third pass and subsequent fish identification, fish were released within the station.

As part of the enumeration process, the number of each species present was recorded. One representative of each species that was not identifiable in the field was placed in a voucher jar containing 10% formalin for later identification. Each voucher jar was labeled according to the sample location and date. Fish were identified to species using various taxonomic references (Bailey et al., 2003; Coon, 2001; Becker, 1983).

3.2 Stream Habitat Conditions

Habitat conditions, water quality, and stream dimensions were documented during the aquatic survey. Photographs were taken at each station to illustrate conditions during the sampling period (Exhibit C). Water temperature, dissolved oxygen, pH, and conductivity were measured as part of the stream habitat evaluation. These water quality parameters were measured using a Yellow Springs Instrument Professional Plus water quality meter.

Wetted stream width was measured at the lower, middle, and upper extent of each sample station. Depth was measured in the center, and at 20% and 80% of each stream width cross section. Stream flow was measured with a Marsh-McBirney Flo-Mate 2000®.

3.3 Fish Tissue Analyses

Consistent with the methodology described in the 8 August 2011 Eagle Brook Trout Metals Analyses Plan that was submitted to the MDEQ, AEM followed the GLEAS, Procedure 31 protocol to collect and handle brook trout (AEM, 2011). A total of ten stream stations were surveyed by AEM fisheries personnel as part of the fall survey using a backpack electro-shocker, or a barge electro-shocking unit (Figure 1-1, Exhibit A). Brook trout were collected for metals analyses during the fall aquatic survey within, or in the nearby vicinity of established stream stations. All collected fish were placed immediately in water-filled tubs to keep collected fish alive. Tubs contained portable battery-operated aerators, and were placed in the stream shocking unit or along the stream banks.

Upon completion of the fish survey within each station, and in accordance with the 2011 Eagle Brook Trout Metals Analyses Plan, the number of brook trout was recorded. Based on sample size, a determination was made to keep approximately 20% of the brook trout collected from the sample station, or release all if five or fewer brook trout were collected. For several sites where more than five brook trout greater than two inches in length were collected, AEM sampled beyond the typical station length in an attempt to provide additional data for metals analyses. Additional sampling beyond the established station length was conducted once the survey of the station area was complete.

3.3.1 Tissue Processing

The processing area and all processing materials (e.g., knives, table, and balance tray) were rinsed with de-ionized water prior to fish processing. Photographs of each fish labeled with date, length, weight, and sample location information were collected (Exhibit B). Working from the smallest specimen to the largest specimen, each fish was weighed, measured, and sex was determined as they were processed. Scale samples were taken and placed in aging sample envelopes labeled with date, body of water, station number, personnel, sample identification number, fish length, and fish weight.

Fillet tissue samples were processed according to guidance provided in Attachment 10 of GLEAS Procedure 31. The edible portion samples (left and right fillets) were wrapped in aluminum foil with dull side to fillet. Aluminum foil packages for each fish were placed in a separate clear plastic bag and labeled with the following information: date, water

body, station number, species, fillet weights, and sample identification number. Liver samples from each fish were wrapped in aluminum foil with dull side to liver and placed in a separate clear plastic bag. Each liver package was labeled with the following information: date, water body, station number, species, liver weight, and sample identification number. Fillet and liver packages for each fish were placed in specimen packages and labeled with the following information: date, water body, station number, species, sample identification number, fish length, and fish weight.

All bags from a given sample station were placed in a large plastic bag and labeled with station number and water body. All bags were placed on ice and samples were frozen daily until all ten sample stations were surveyed. Chain of Custody forms provided by the laboratory were completed where processing was conducted. All samples were placed in a cooler provided by the laboratory, along with completed Chain of Custody forms and ice, and sent to Pace Analytical Services, Inc via next-day courier service following the completion of surveying all ten stations.

Fillets and livers were processed by Pace Analytical Services, Inc. using the Inductively Coupled Plasma-Mass-Spectrometry Method 6020. Fillets were processed for the following metals: aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, molybdenum, nickel, selenium, silver, strontium, and zinc. Livers were processed for divalent metals, including cadmium, copper, lead, nickel, silver, and zinc.

Average metals contents presented in Table 4-7 and Table 4-8 were calculated based on laboratory results provided by Pace Analytical Services, Inc. Reported Minimum Detectable Limit (MDL) varied according to the amount of tissue that was available for analyses. Typically, larger tissue amounts allowed for a lower detectable limit (T. Noltemeyer, Pace Analytical Services, personal communication, February 15, 2012). MDL values were used in the calculation of average statistics for samples that were recorded as non-detect in Table 4-7 and Table 4-8.

4.0 RESULTS

A total of 128 brook trout were collected within the vicinity of stations sampled from 7 October 2011 through 9 October 2011 as part of the fall 2011 tissue survey (Table 4-1). Of the fish collected, 25 brook trout, including 13 males and 12 females, were selected

for metals analyses from Stations 1, 3, 4, 6, 8, 9, and 10. Sample station locations are described in Table 4-2 (Exhibit B).

Among all brook trout collected during the fall survey, lengths ranged from 50 millimeters (2.0 inches) to 308 millimeters (12.1 inches), and average length was 137 millimeters (5.4 inches; standard deviation - $s = 1.9$ inches; sample size - $n = 126$). These length statistics also include brook trout collected from locations that were adjacent to the stations (upstream or downstream of stations) that are typically surveyed. AEM selected brook trout that ranged from 139 millimeters (5.5 inches) to 229 millimeters (9.0 inches) in length for conducting metals analyses. Scale sample analyses indicated that 24 brook trout were at least one to two years old, with one brook trout at least three years old (Table 4-3). Photographs of individually labeled brook trout collected for metals analyses are presented in Exhibit D.

4.1 Stream Habitat Conditions

Sample station locations during the 2011 fall fish tissue metals survey were consistent with locations surveyed during the 2011 summer aquatic survey conducted by AEM.

Average sample station depth ranged from 0.3 feet in Station 3 to 2.3 feet in Station 6 during the October survey, and discharge ranged from 224 gallons per minute in Station 10 to 7,102 gallons per minute in Station 5 (Table 4-4). The water levels of Station 6 and Station 7 were influenced by nearby beaver dams and were the only sample stations that had water elevations at bank-full levels during the October survey.

Average water temperature ranged from 12.2°C in Station 3 to 16.3°C in Station 6, and varied little among measurements within each station (Table 4-5). Dissolved oxygen levels were the lowest in Station 6 and Station 7 among all sample stations. The average pH ranged from 6.7 in Station 7 to 8.1 in Station 9, and conductivity was low among all sample stations (Table 4-5).

4.2 Metals Concentration in Tissues

Copper, mercury, and nickel concentrations are summarized within the text of this report, and all other metals data are summarized within Tables 4-7 through 4-10. Chain of Custody forms are presented in Exhibit E.

4.2.1 Salmon Trout River:

Station 1

A total of 16 brook trout were collected from Station 1 and the nearby vicinity (Table 4-1). An additional 100 feet of stream upstream of Station 1 and an additional 250 feet downstream of Station 1 were sampled to increase the sample size for metals analyses. A total of three brook trout, including two males that were at least two years old and one female that was at least one year old were selected from Station 1 for metals analyses (Table 4-3). Brook trout selected for metals analyses from Station 1 ranged in length from 180 millimeters (7.0 inches) to 192 millimeters (7.6 inches; $\bar{x}$ = 184 millimeters; s = 6.9 millimeters), and ranged in weight from 54.1 grams (1.9 ounces) to 67.3 grams (2.4 ounces; $\bar{x}$ = 60.8 grams; s = 6.6 grams).

Copper concentrations of brook trout fillets ranged from 0.52 mg/kg to 0.71 mg/kg ($\bar{x}$ = 0.62 mg/kg, s = 0.10 mg/kg), and from 2.3 mg/kg to 13.2 mg/kg ($\bar{x}$ = 8.0 mg/kg, s = 5.47 mg/kg) in livers (Tables 4-7 through 4-10). Nickel concentrations of brook trout fillets ranged from 0.026 mg/kg to 0.037 mg/kg ($\bar{x}$ = 0.030 mg/kg, s = 0.006 mg/kg). Two of the three liver samples were non-detectable for nickel and one was 0.021 mg/kg. Mercury levels were only measured in brook trout fillets and ranged from 0.035 mg/kg to 0.046 mg/kg ($\bar{x}$ = 0.042 mg/kg; s = 0.006 mg/kg). See Tables 4-7 through 4-10 for additional data on metals contents observed in brook trout collected from Station 1 and adjacent reaches.

Stations 2 and 3

No brook trout were collected from Station 2 or upstream of the station during the October 2011 survey. A total of six northern redbelly dace (*Phoxinus eos*) were collected from Station 2 (Table 4-6).

A total of 15 brook trout were collected in the vicinity of Station 3 (Table 4-1). To increase the sample size for metals analyses, an additional 300 feet of stream was sampled immediately downstream of Station 3. A total of three brook trout, including one male and two females were selected for metals analyses from Station 3. Brook trout selected for metals analyses from Stations 2 and 3 ranged in length from 187 millimeters (7.4 inches) to 229 millimeters (9.0 inches; $\bar{x}$ = 208 millimeters; s = 21.0 millimeters), and ranged in weight from 69.9 grams (2.5 ounces) to 124.6 grams (4.4 ounces; $\bar{x}$ =

89.9 grams; $s = 30.2$ grams). All brook trout collected for metals analyses from Station 3 were at least one year old (Table 4-3).

Copper concentrations from brook trout collected within Station 3 ranged from 0.42 mg/kg to 0.84 mg/kg ($\bar{x} = 0.63$ mg/kg; $s = 0.21$ mg/kg) in fillets and from 3.9 mg/kg to 16.6 mg/kg ($\bar{x} = 9.5$ mg/kg; $s = 6.5$ mg/kg) in brook trout livers (Tables 4-7 through 4-10). Nickel concentrations ranged from 0.029 mg/kg to 0.067 mg/kg ($\bar{x} = 0.044$ mg/kg; $s = 0.020$ mg/kg) in brook trout fillets and ranged from 0.02 mg/kg to 0.04 mg/kg ($\bar{x} = 0.027$ mg/kg; $s = 0.011$ mg/kg) in brook trout livers. Mercury levels in brook trout fillets ranged from 0.17 mg/kg to 0.32 mg/kg ($\bar{x} = 0.24$ mg/kg; $s = 0.08$ mg/kg). See Tables 4-7 through 4-10 for additional data on metals contents observed in brook trout collected from Station 3.

Station 6

A total of 6 brook trout were collected in the vicinity of Station 6 (Table 4-1). To increase the sample size for metals analyses, an additional 150 feet of stream was sampled immediately downstream of Station 6, and an additional 200 feet was sampled upstream of the station. One male brook trout that was at least two years old was selected for metals analyses from Station 6 (Table 4-3). The brook trout was 139 millimeters (5.5 inches) in length and weighed 20.3 grams (0.7 ounces).

Copper concentrations from the Station 6 brook trout in fillets tissue was 0.57 mg/kg and in liver tissue was 7.1 (Tables 4-7 through 4-10). Nickel concentration was 0.029 mg/kg in fillets tissue and was less than 0.12 mg/kg liver tissue. Mercury levels in brook trout fillets were 0.250 mg/kg.

Station 7

No brook trout were collected in Station 7 (Table 4-1). Because of low brook trout abundance and high water from beaver activity, additional stream in the vicinity of Station 7 was not sampled. The fish community within Station 7 was comprised of northern redbelly dace and brook sticklebacks (*Culaea inconstans*) during the October 2011 survey (Table 4-6).

4.2.2 Salmon Trout River East Branch

Station 8

A total of 20 brook trout were collected from the vicinity of Station 8 (Table 4-1). Four female brook trout all at least one year old were selected for metals analyses (Table 4-3). One brook trout that was selected for metals analyses was collected within Station 8 and the other three brook trout were collected from a 100-foot long reach located immediately upstream of Station 8. Brook trout selected for metals analyses ranged in length from 171 millimeters (6.7 inches) to 198 millimeters (7.8 inches; $\bar{x}$ = 180 millimeters; s = 12 millimeters), and ranged in weight from 51.6 grams (1.8 ounces) to 82.4 grams (2.9 ounces; $\bar{x}$ = 62.0 grams; s = 13.9 grams).

Copper concentrations from brook trout collected within the vicinity of Station 9 ranged from 0.40 mg/kg to 0.61 mg/kg ($\bar{x}$ = 0.54 mg/kg; s = 0.097 mg/kg) in fillets and from 1.4 mg/kg to 5.1 mg/kg ($\bar{x}$ = 2.6 mg/kg; s = 1.7 mg/kg) in livers (Tables 4-7 through 4-10). Nickel concentrations ranged from 0.038 mg/kg to 0.070 mg/kg ($\bar{x}$ = 0.051 mg/kg; s = 0.014 mg/kg) in fillets. Two of the four liver samples were non-detectable for nickel concentrations, one sample was 0.22 mg/kg, and the other liver sample was 0.28 mg/kg. Mercury levels in fillets ranged from 0.095 mg/kg to 0.160 mg/kg ($\bar{x}$ = 0.119 mg/kg; s = 0.030 mg/kg). See Tables 4-7 through 4-10 for additional data on metals contents observed in brook trout collected in the vicinity of Station 8.

Station 9

A total of 20 brook trout were collected from the vicinity of Station 9 (Table 4-1). To increase the sample size for metals analyses, an additional 350 feet of stream was sampled immediately downstream of Station 9. Four brook trout, including three males and one female, were selected for metals analyses within the vicinity of Station 9. Brook trout selected for metals analyses ranged in length from 141 millimeters (5.6 inches) to 205 millimeters (8.1 inches; $\bar{x}$ = 182.5 millimeters; s = 28.5 millimeters), and ranged in weight from 26.7 grams (0.9 ounces) to 89.1 grams (3.1 ounces; $\bar{x}$ = 68.2 grams; s = 28.9 grams). Two brook trout selected for metals analyses were at least one year old and two brook trout were at least two years old (Table 4-3).

Copper concentrations from brook trout collected within the vicinity of Station 9 ranged from 0.53 mg/kg to 0.62 mg/kg ($\bar{x}$ = 0.58 mg/kg; s = 0.04 mg/kg) in fillets and from 2.5

mg/kg to 19.5 mg/kg ($\bar{x}$ = 13.2 mg/kg; s = 7.5 mg/kg) in livers (Tables 4-7 through 4-10). Two of the four fillet samples were non-detectable for nickel, one sample was 0.025 mg/kg, and the other sample was 0.100 mg/kg. One of the liver samples was recorded as non-detect for nickel. The remaining four livers ranged from 0.025 mg/kg to 0.046 mg/kg ($\bar{x}$ = 0.033 mg/kg; s = 0.011 mg/kg). Mercury levels in fillets ranged from 0.023 mg/kg to 0.130 mg/kg ($\bar{x}$ = 0.098 mg/kg; s = 0.051 mg/kg). See Tables 4-7 through 4-10 for additional data on metals contents observed in brook trout collected in the vicinity of Station 9.

Station 10

A total of 21 brook trout were collected from the vicinity of Station 10 (Table 4-1). An additional 100 feet of stream was surveyed downstream of Station 10 and an additional 75 feet upstream of station 10 was surveyed to increase sample size for metals analyses. Two male and two female brook trout were selected for metals analyses from fish collected within the vicinity of Station 10. Brook trout selected for metals analyses ranged in length from 166 millimeters (6.5 inches) to 211 millimeters (8.3 inches; $\bar{x}$ = 180.3 millimeters; s = 20.8 millimeters), and ranged in weight from 52.6 grams (1.9 ounces) to 118.7 grams (4.2 ounces; $\bar{x}$ = 69.5 grams; s = 32.8 grams). Three brook trout were at least two years old and one was at least three years old (Table 4-3).

Copper concentrations from brook trout collected in Station 10 ranged from 0.46 mg/kg to 0.79 mg/kg in fillets ($\bar{x}$ = 0.58 mg/kg; s = 0.15 mg/kg) and from 5.3 mg/kg to 24.8 mg/kg ($\bar{x}$ = 14.2 mg/kg; s = 9.1 mg/kg) in brook trout livers (Tables 3-7 through 3-10). Nickel concentrations ranged from less than 0.017 mg/kg to 0.170 mg/kg ($\bar{x}$ = 0.070 mg/kg; s = 0.068 mg/kg) in brook trout fillets. Two of the four liver samples were non-detectable for nickel concentrations, one sample was 0.44 mg/kg, and the other liver sample was 0.57 mg/kg. Mercury levels in fillets ranged from 0.040 mg/kg to 0.063 mg/kg ($\bar{x}$ = 0.052 mg/kg; s = 0.009 mg/kg). See Tables 4-7 through 4-10 for additional data on metals contents observed in brook trout collected in the vicinity of Station 10.

4.2.3 Cedar Creek

Station 4

A total of 30 brook trout were collected from Cedar Creek and six were selected for metals analyses (Table 4-1). Four of the brook trout were males and two were females. Brook trout ranged in length from 144 millimeters (5.7 inches) to 215 millimeters (8.5

inches; $\bar{x}$ = 185.5 millimeters; s = 31.3 millimeters) and ranged in weight from 27.5 grams (1.0 ounces) to 89.6 grams (3.2 ounces; $\bar{x}$ = 62.7 grams; s = 27.8 grams). Four of the brook trout collected for metals analyses from Station 4 were at least two years old and two were at least one year old (Table 4-3).

Copper concentrations from brook trout collected within the vicinity of Station 4 ranged from 0.35 mg/kg to 0.83 mg/kg ($\bar{x}$ = 0.53 mg/kg; s = 0.16 mg/kg) in fillets and from 6.2 mg/kg to 40.3 mg/kg ($\bar{x}$ = 14.2 mg/kg; s = 13.0 mg/kg) in livers (Tables 4-7 through 4-10). Nickel concentrations ranged from less than 0.015 mg/kg to 0.070 mg/kg ($\bar{x}$ = 0.036 mg/kg; s = 0.020 mg/kg) in fillets. Two of the six liver samples were non-detectable for nickel and the remaining four ranged from 0.034 mg/kg to 0.100 mg/kg ($\bar{x}$ = 0.052 mg/kg; s = 0.032 mg/kg). Mercury levels in fillets ranged from 0.059 mg/kg to 0.091 mg/kg ($\bar{x}$ = 0.074 mg/kg; s = 0.013 mg/kg) in Station 4. See Tables 4-7 through 4-10 for additional data on metals data observed in brook trout collected from Stations 4.

4.2.4 Yellow Dog River

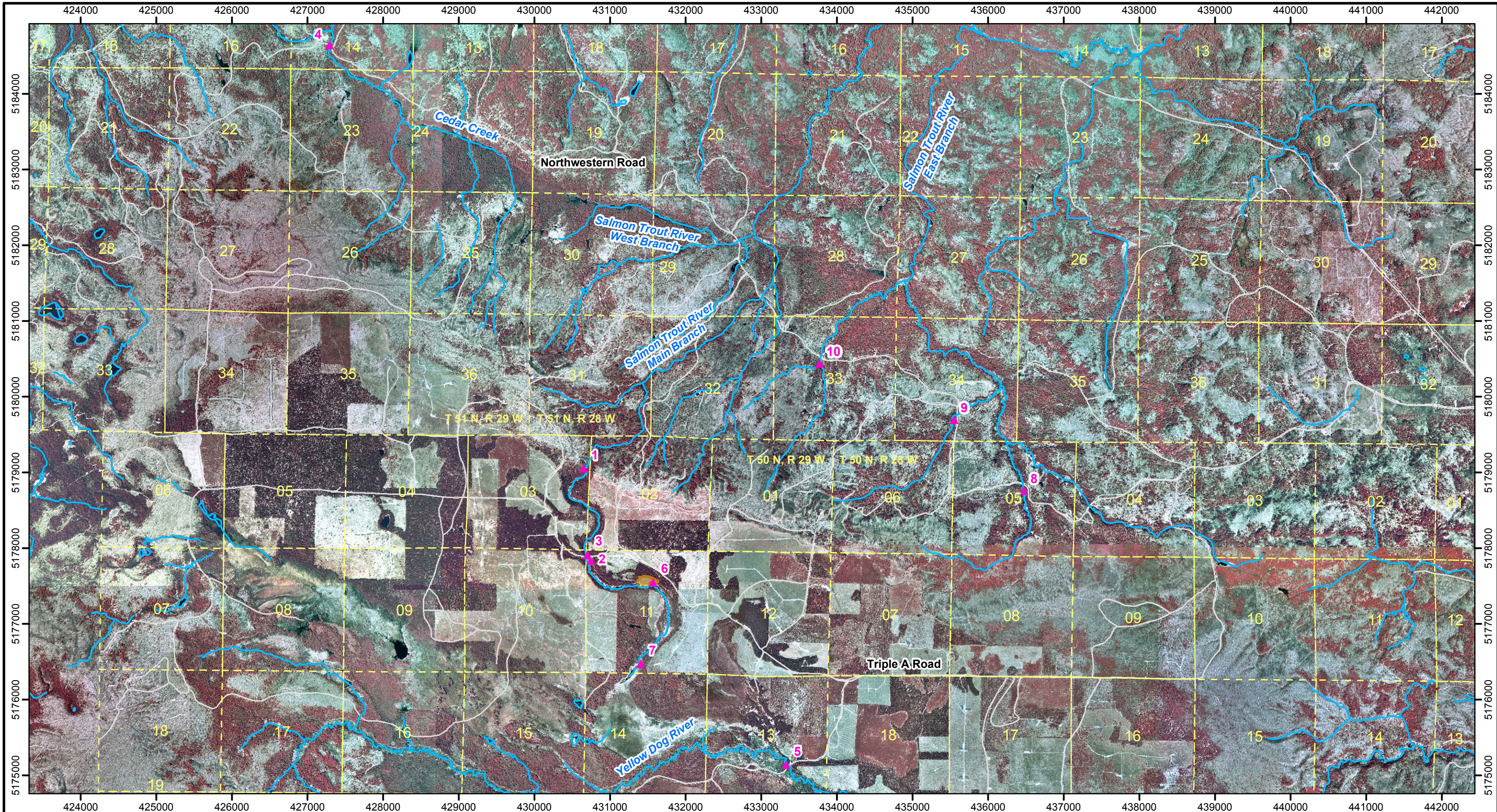
Station 5

No brook trout were collected from Station 5 during the October 2011 survey. The fish community within Station 5 was predominantly comprised of blacknose dace (*Rhinichthys obtusus*) and creek chubs (*Semotilus atromaculatus*) at the time of the fall metals survey (Table 4-6).

5.0 REFERENCES

- AEM, 2011. Memo: Long Term Brook Trout Tissue Survey Protocol. August 8, 2011. Memo to Kennecott Eagle Minerals Company.
- Bailey, R. M., W. C. Latta, and G. R. Smith. 2003. An atlas of Michigan fishes with keys and illustrations for their identification. Miscellaneous Publications, Museum of Zoology, No. 192, University of Michigan, Ann Arbor, MI.
- Becker, G. C. 1983. Fishes of Wisconsin. The University of Wisconsin Press, Madison, WI.
- Coon, T. G. 2001. Key to the fishes of Michigan. Michigan State University. East Lansing, MI.
- MDEQ (Michigan Department of Environmental Quality). 1997. Revised GLEAS Procedure #31, Fish Contaminant Monitoring Program, Fish Collection and Processing Procedure. Website, <<http://www.deq.state.mi.us/documents/deq-swq-gleas-proc31.pdf>>. (Accessed 11/18/2008).
- MNFI (Michigan Natural Features Inventory). 2008. Marquette County Element Data. Michigan State University. East Lansing, MI.

EXHIBIT A
REPORT FIGURES



NOTES

1. Surface Property Boundary, Ore Body, and Orthophotography supplied by Kennecott via Golder Associates Inc., August, 2005.

2. Horizontal datum based on NAD 83/94.
Horizontal coordinates based on UTM Zone 16.

3. Site Location - Project Site within Sections 11 & 12, T50N, R29W, Town of Michigamme, Marquette County, Michigan.

LEGEND

6 ▲ Aquatic Sampling Location and Number

— River

Orange Box Ore Body



ADVANCED ECOLOGICAL MANAGEMENT

Foth
Foth Infrastructure & Environment, LLC

Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION
CHECKED BY: DM		DATE: NOV '08	
APPROVED BY: RDW		DATE: NOV '08	
APPROVED BY:		DATE:	

FIGURE 1-1

KENNECOTT EAGLE PROJECT

AQUATIC SAMPLING LOCATIONS

Scale: 0 600 1,200 Meters

Prepared by: DAT

Scope: 04W018

Date: NOVEMBER 2008

EXHIBIT B
REPORT TABLES

Table 4-1. 2011 Brook Trout Collection Data.

	Station									
	1	2	3	4*	5**	6	7	8	9	10
Number collected in station	8	0	11	30	0	3	0	9	5	11
Number collected adjacent to station	8	0	4	ns	ns	3	ns	11	15	10
Number selected for metals analyses	3	0	3	6	0	1	0	4	4	4
Total collected from station vicinity	16	0	15	30	0	6	0	20	20	21

* - Cedar Creek

** - Yellow Dog River

ns – Not sampled

Table 4-2. Sample Station Location Description.

Station Number	Stream Name	Latitude/Longitude NAD 1983	Township/Range/ Section	Location Description
1	Salmon Trout River Main Branch	N 46.76130 W 87.90807	Michigamme Twp. T50N, R29W, Sec 3	Approximately 5,220 feet S of AAA Road and continuing S 120 feet.
2	Salmon Trout River Main Branch	N 46.75059 W 87.90720	Michigamme Twp. T50N, R29W, Sec. 11	Upstream extent located immediately S of AAA Road and continuing upstream 100 feet.
3	Salmon Trout River Main Branch	N 46.75148 W 87.90736	Michigamme Twp. T50N, R29W, Sec. 11	Downstream extent located immediately N of AAA Road and continuing downstream 200 feet.
4	Cedar Creek	N 46.81066 W 87.95323	Powell Twp. T51N, R29W, Sec. 14	Downstream extent located 300 feet N of Northwestern Road and continuing upstream to road crossing.
5	Yellow Dog River	N 46.72694 W 87.87268	Michigamme Twp. T50N, R29W, Sec. 13	Downstream extent located immediately upstream of unnamed road and continuing upstream 300 feet.
6	Salmon Trout River Main Branch	N 46.74793 W 89.89584	Michigamme Twp. T50N, R29W, Sec. 11	Downstream extent located approximately 4,600 feet upstream of AAA Road and continuing upstream 300 feet.
7	Salmon Trout River Main Branch	N 46.73808 W 87.89810	Michigamme Twp. T50N, R29W, Sec. 11	Near headwaters and N 100 feet.
8	Tributary to the East Branch of the Salmon Trout River	N 46.760113 W 87.83224	Champion Twp. T50N, R28W, Sec. 5	Upstream extent located 75 feet NE of Northwestern Road and continuing NE for 135 feet.
9	Tributary to the East Branch of the Salmon Trout River	N 46.76862 W 87.84377	Powell Twp. T51N, R28W, Sec. 34	Downstream extent located immediately SW of Northwestern Road and continuing SW for 85 feet.
10	Tributary to the East Branch of the Salmon Trout River	N 46.77471 W 87.86767	Powell Twp. T51N, R29W, Sec. 33	Downstream extent located immediately SW of Northwestern Road and continuing SW for 100 feet.

Table 4-3. Length, Weight, Sex, and Age of Brook Trout Collected for Metals Analyses in October 2011.

Sample Number	Sample Station	Length (mm)	Weight (gm)	Sex	Age
STR-ST6-1	ST6	139	20.3	Male	2+
STR-ST3-2	ST3	229	124.6	Male	1+
STR-ST3-4	ST3	208	75.1	Female	2+
STR-ST3-3	ST3	187	69.9	Female	1+
STR-ST1-5	ST1	180	61.1	Female	1+
STR-ST1-6	ST1	180	54.1	Male	2+
STR-ST1-7	ST1	192	67.3	Male	2+
EBR-ST8-8	ST8	198	82.4	Female	1+
EBR-ST8-9	ST8	171	54.9	Female	1+
EBR-ST8-10	ST8	173	51.6	Female	1+
EBR-ST8-11	ST8	178	59.0	Female	1+
EBR-ST9-12	ST9	205	89.1	Male	2+
EBR-ST9-13	ST9	196	86.9	Male	1+
EBR-ST9-14	ST9	188	69.9	Female	1+
EBR-ST9-15	ST9	141	26.7	Male	2+
EBR-ST10-16	ST10	211	118.7	Male	2+
EBR-ST10-17	ST10	175	52.6	Female	2+
EBR-ST10-18	ST10	169	53.0	Female	3+
EBR-ST10-19	ST10	166	53.8	Male	2+
CCR-ST4-20	ST4	209	89.6	Female	1+
CCR-ST4-21	ST4	196	73.5	Male	2+
CCR-ST4-22	ST4	144	27.5	Male	1+
CCR-ST4-23	ST4	148	28.6	Female	2+
CCR-ST4-24	ST4	215	86.6	Male	2+
CCR-ST4-25	ST4	201	70.2	Male	2+

mm - millimeters**gm - grams****ST1, ST3, and ST6 – Salmon Trout River****ST4 – Cedar Creek****ST8, ST9, and ST10 – Salmon Trout River East Branch**

Table 4-4. 2011 Fall Physical Stream Dimensions – Stations 1-10.

Station	Length (ft)	Wetted width (ft)		Depth (ft)		Discharge (gpm)
		Average*	s	Average	s	
1	120	8.1 (3)	0.7	0.4 (9)	0.1	953
2	100	6.7 (3)	1.9	0.6 (9)	0.2	487
3	200	7.5 (3)	1.4	0.3 (9)	0.1	487
4	300	25.0 (3)	4.2	0.9 (9)	0.4	4,324
5	268	22.5 (3)	2.8	1.8 (9)	0.7	7,102
6	300	19.7 (3)	2.6	2.3 (9)	0.5	613
7	100	8.7 (3)	0.9	1.4 (9)	0.5	n.m.
8	135	9.6 (3)	0.2	0.8 (9)	0.2	1,565
9	85	9.9 (3)	1.8	0.6 (9)	0.2	1,034
10	100	5.4 (3)	0.4	0.6 (9)	0.2	224

Station 4 - Cedar Creek

Station 5 - Yellow Dog River

*sample size is indicated within ()

s = standard deviation

gpm = Gallons per minute

n.m. = Not measured

Table 4-5. Fall 2011 Average Water Quality Parameters – Stations 1-10.

Station Number	Date	Time	Water	Dissolved	Percent	pH	Conductivity (µS/cm)
			Temperature (°C)	Oxygen (mg/L)	Dissolved Oxygen		
1	10/8/2011	15:18	13.6 (0.0)	9.7 (0.5)	93.2 (5.0)	7.7 (0.1)	45 (0.0)
2	10/8/2011	9:13	12.4 (0.2)	7.0 (0.3)	65.7 (2.2)	7.1 (0.2)	36 (0.5)
3	10/8/2011	9:33	12.2 (0.0)	7.5 (0.1)	70.4 (0.7)	7.0 (0.0)	36 (0.2)
4	10/9/2011	16:33	14.1 (0.0)	9.2 (0.4)	90.0 (3.2)	8.0 (0.2)	87 (0.2)
5	10/7/2011	19:05	14.4 (0.0)	8.3 (0.1)	81.2 (1.0)	7.1 (0.1)	37 (0.1)
6	10/8/2011	16:33	16.3 (0.8)	5.8 (0.5)	60.3 (5.2)	6.8 (0.2)	42 (0.3)
7	10/8/2011	13:05	15.5 (0.6)	6.0 (0.7)	60.2 (8.1)	6.7 (0.0)	29 (0.1)
8	10/8/2011	19:01	13.8 (0.0)	8.6 (0.1)	82.7 (0.5)	7.8 (0.1)	71 (0.2)
9	10/8/2011	18:39	12.4 (0.0)	9.6 (0.4)	90.1 (4.7)	8.1 (0.1)	71 (0.2)
10	10/8/2011	18:08	15.6 (0.0)	8.2 (0.1)	82.7 (0.6)	7.8 (0.1)	84 (0.8)

Stations 1, 2, 3, 6, 7 - Salmon Trout River Main Branch

Stations 8, 9, 10 - Salmon Trout River East Branch

Station 4 - Cedar Creek

Station 5 - Yellow Dog River

°C = Degrees Celsius

mg/L = Milligrams per liter

µS/cm = Microsiemens per centimeter

() - Standard deviation

Table 4-6. 2011 Fall Fish Collection Data – Stations 1-10.

Scientific Name	Common Name	Station									
		1	2	3	4*	5**	6	7	8	9	10
<i>Catostomus commersonii</i>	White sucker					3					
<i>Cottus bairdii</i>	Mottled sculpin										
<i>Culaea inconstans</i>	Brook stickleback			1		1	38	2	1		
<i>Margariscus margarita</i>	Pearl dace						4				
<i>Phoxinus eos</i>	Northern redbelly dace		6			1	25	10			1
<i>Phoxinus neogaeus</i>	Finescale dace						5				
<i>Rhinichthys obtusus</i>	Blacknose dace					9					
<i>Salvelinus fontinalis</i>	Brook trout	8		11	30		3		9	5	11
<i>Semotilus atromaculatus</i>	Creek chub					6					
Total Number		8	6	12	30	20	75	12	10	5	12

* - Cedar Creek

** - Yellow Dog River

Table 4-7. Fillet Tissue Average Metals Concentration and Average Fish Size among Stations for Brook Trout (*Salvelinus fontinalis*) Collected in October, 2011.

Parameter	Units	Station						
		1 (3)	3 (3)	4 (6)	6 (1)	8 (4)	9(4)	10 (4)
<i>Fish Length</i>	<i>mm</i>	184	208	186	139	180	183	180
<i>Fish Weight</i>	<i>gm</i>	60.8	89.9	62.7	20.3	62.0	68.2	69.5
Aluminum*	mg/kg	1.7	3.1	1.7	2.3	1.8	1.7	1.9
Antimony*	mg/kg	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Arsenic*	mg/kg	0.357	0.016	0.360	0.066	0.208	0.121	0.500
Barium*	mg/kg	0.07	0.08	0.06	0.16	0.09	0.08	0.07
Beryllium*	mg/kg	0.021	0.021	0.020	0.020	0.021	0.020	0.020
Boron*	mg/kg	0.16	0.16	0.15	0.15	0.16	0.15	0.16
Cadmium*	mg/kg	0.010	0.010	0.009	0.012	0.010	0.010	0.010
Chromium*	mg/kg	0.05	0.09	0.05	0.06	0.07	0.10	0.08
Cobalt*	mg/kg	0.00	0.01	0.01	0.02	0.00	0.00	0.00
Copper	mg/kg	0.62	0.63	0.53	0.57	0.54	0.58	0.58
Iron	mg/kg	5.4	7.5	5.3	6.1	4.5	5.6	6.1
Lead*	mg/kg	0.03	0.06	0.03	0.05	0.03	0.03	0.03
Manganese	mg/kg	0.40	0.59	0.78	0.94	0.81	0.35	0.67
Mercury	mg/kg	0.042	0.240	0.074	0.250	0.119	0.098	0.052
Molybdenum*	mg/kg	0.012	0.012	0.012	0.016	0.012	0.012	0.012
Nickel*	mg/kg	0.03	0.04	0.04	0.03	0.05	0.04	0.07
Selenium	mg/kg	0.37	0.18	0.44	0.23	0.45	0.33	0.51
Silver*	mg/kg	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Strontium	mg/kg	0.34	0.32	0.17	0.63	0.27	0.33	0.22
Zinc	mg/kg	10.1	13.2	10.4	21.3	11.5	13.1	12.3

* Minimum Detectable Limit used in calculation of average metals concentration for samples that were recorded as non-detectable.

mm - millimeters

gm - grams

mg/kg - milligrams per kilograms

() - sample size

Table 4-8. Liver Average Metals Contents and Average Fish Size among Stations for Brook Trout (*Salvelinus fontinalis*) Collected in October, 2011.

Parameter	Units	Station						
		1 (3)	3 (3)	4 (6)	6 (1)	8 (4)	9(4)	10 (4)
<i>Fish Length</i>	<i>mm</i>	184	208	186	139	180	183	180
<i>Fish Weight</i>	<i>gm</i>	60.8	89.9	62.7	20.3	62.0	68.2	69.5
Cadmium*	mg/kg	0.183	0.048	0.196	0.072	0.047	0.043	0.483
Copper	mg/kg	8.0	9.5	14.2	7.1	2.6	13.2	14.2
Lead*	mg/kg	0.04	0.03	0.07	0.20	0.03	0.05	0.05
Nickel*	mg/kg	0.02	0.03	0.05	0.12	0.02	0.04	0.04
Silver*	mg/kg	0.114	0.036	0.132	0.026	0.005	0.117	0.380
Zinc	mg/kg	26.4	43.8	38.9	40.3	25.8	31.9	35.3

* Minimum Detectable Limit used in calculation of average metals concentration for samples that were recorded as non-detectable.

mm = millimeters

gm = grams

mg/kg = milligrams per kilograms

() - sample size

Table 4-9. Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102001	STR-ST6-01	ST6	Aluminum	2.3	1.7	22.9	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Antimony	0.012	0.0059	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Arsenic	0.066	0.013	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Barium	0.16	0.035	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Beryllium	<0.020	0.02	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Boron	<0.15	0.15	1.8	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Cadmium	0.012	0.0096	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Chromium	0.056	0.035	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Cobalt	0.016	0.0031	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Copper	0.57	0.059	0.46	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Iron	6.1	3.1	22.9	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Lead	0.05	0.026	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Manganese	0.94	0.16	0.46	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Mercury	0.25	0.0074	0.018	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Molybdenum	0.016	0.012	0.91	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Nickel	0.029	0.016	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Selenium	0.23	0.074	0.18	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Silver	0.0045	0.0013	0.046	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Strontium	0.63	0.021	0.091	mg/kg	10/07/2011	10/20/2011
4052102001	STR-ST6-01	ST6	Zinc	21.3	0.81	1.8	mg/kg	10/07/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Aluminum	5.5	1.8	25	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Antimony	<0.0064	0.0064	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Arsenic	<0.014	0.014	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Barium	0.084	0.038	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Beryllium	<0.021	0.021	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Boron	<0.16	0.16	2	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Cadmium	<0.010	0.01	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Chromium	0.07	0.039	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Cobalt	0.0083	0.0034	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Copper	0.84	0.064	0.5	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Iron	10.6	3.4	25	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Lead	0.12	0.029	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Manganese	0.48	0.17	0.5	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Mercury	0.17	0.0081	0.02	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Molybdenum	<0.013	0.013	1	mg/kg	10/08/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST6 and ST3 - Sample stations within the Salmon Trout River

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102002	STR-ST3-02	ST3	Nickel	0.029	0.018	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Selenium	0.18	0.081	0.2	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Silver	0.0035	0.0014	0.05	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Strontium	0.28	0.023	0.1	mg/kg	10/08/2011	10/20/2011
4052102002	STR-ST3-02	ST3	Zinc	12.4	0.89	2	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Aluminum	2.2	1.8	24.7	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Antimony	<0.0063	0.0063	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Arsenic	<0.014	0.014	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Barium	0.086	0.038	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Beryllium	<0.021	0.021	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Boron	<0.16	0.16	2	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Cadmium	<0.010	0.01	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Chromium	0.088	0.038	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Cobalt	0.0053	0.0034	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Copper	0.63	0.063	0.49	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Iron	6.7	3.4	24.7	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Lead	<0.028	0.028	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Manganese	0.3	0.17	0.49	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Mercury	0.32	0.008	0.02	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Molybdenum	<0.012	0.012	0.99	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Nickel	0.037	0.017	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Selenium	0.15	0.08	0.2	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Silver	<0.0014	0.0014	0.049	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Strontium	0.35	0.023	0.099	mg/kg	10/08/2011	10/20/2011
4052102003	STR-ST3-03	ST3	Zinc	13.2	0.88	2	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Aluminum	<1.7	1.7	23.2	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Antimony	<0.0059	0.0059	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Arsenic	0.02	0.013	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Barium	0.081	0.035	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Beryllium	<0.020	0.02	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Boron	<0.15	0.15	1.9	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Cadmium	<0.0098	0.0098	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Chromium	0.1	0.036	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Cobalt	0.0062	0.0032	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Copper	0.42	0.059	0.46	mg/kg	10/08/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST3 – Sample station within the Salmon Trout River

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102004	STR-ST3-04	ST3	Iron	5.3	3.2	23.2	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Lead	<0.027	0.027	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Manganese	1	0.16	0.46	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Mercury	0.23	0.0075	0.019	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Molybdenum	<0.012	0.012	0.93	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Nickel	0.067	0.016	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Selenium	0.2	0.076	0.19	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Silver	<0.0013	0.0013	0.046	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Strontium	0.33	0.022	0.093	mg/kg	10/08/2011	10/20/2011
4052102004	STR-ST3-04	ST3	Zinc	14.1	0.83	1.9	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Aluminum	<1.8	1.8	24.5	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Antimony	<0.0063	0.0063	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Arsenic	0.3	0.014	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Barium	0.071	0.037	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Beryllium	<0.021	0.021	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Boron	<0.16	0.16	2	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Cadmium	<0.010	0.01	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Chromium	0.045	0.038	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Cobalt	0.0037	0.0033	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Copper	0.52	0.063	0.49	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Iron	4.2	3.3	24.5	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Lead	<0.028	0.028	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Manganese	0.49	0.17	0.49	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Mercury	0.046	0.0079	0.02	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Molybdenum	<0.012	0.012	0.98	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Nickel	0.026	0.017	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Selenium	0.36	0.08	0.2	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Silver	<0.0014	0.0014	0.049	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Strontium	0.35	0.023	0.098	mg/kg	10/08/2011	10/20/2011
4052102005	STR-ST1-05	ST1	Zinc	14.9	0.87	2	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Aluminum	<1.7	1.7	23.9	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Antimony	<0.0061	0.0061	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Arsenic	0.34	0.013	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Barium	0.081	0.036	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Beryllium	<0.021	0.021	0.095	mg/kg	10/08/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST3 and ST1 - Sample stations within the Salmon Trout River

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102006	STR-ST1-06	ST1	Boron	<0.16	0.16	1.9	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Cadmium	<0.010	0.01	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Chromium	0.052	0.037	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Cobalt	0.0037	0.0032	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Copper	0.64	0.061	0.48	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Iron	5.7	3.3	23.9	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Lead	<0.027	0.027	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Manganese	0.38	0.16	0.48	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Mercury	0.044	0.0077	0.019	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Molybdenum	<0.012	0.012	0.95	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Nickel	0.028	0.017	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Selenium	0.38	0.078	0.19	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Silver	<0.0013	0.0013	0.048	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Strontium	0.33	0.022	0.095	mg/kg	10/08/2011	10/20/2011
4052102006	STR-ST1-06	ST1	Zinc	9.3	0.85	1.9	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Aluminum	<1.7	1.7	23.7	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Antimony	<0.0061	0.0061	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Arsenic	0.43	0.013	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Barium	0.068	0.036	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Beryllium	<0.020	0.02	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Boron	<0.16	0.16	1.9	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Cadmium	<0.0099	0.0099	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Chromium	0.053	0.037	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Cobalt	0.0033	0.0032	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Copper	0.71	0.061	0.47	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Iron	6.3	3.2	23.7	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Lead	<0.027	0.027	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Manganese	0.32	0.16	0.47	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Mercury	0.035	0.0077	0.019	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Molybdenum	<0.012	0.012	0.95	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Nickel	0.037	0.017	0.095	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Selenium	0.38	0.077	0.19	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Silver	<0.0013	0.0013	0.047	mg/kg	10/08/2011	10/20/2011
4052102007	STR-ST1-07	ST1	Strontium	0.33	0.022	0.095	mg/kg	10/08/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST1 – Sample station within the Salmon Trout River

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102007	STR-ST1-07	ST1	Zinc	6.2	0.84	1.9	mg/kg	10/08/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Aluminum	<1.8	1.8	24	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Antimony	<0.0062	0.0062	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Arsenic	0.19	0.013	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Barium	0.056	0.037	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Beryllium	<0.021	0.021	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Boron	<0.16	0.16	1.9	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Cadmium	<0.010	0.01	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Chromium	0.088	0.037	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Cobalt	0.0067	0.0033	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Copper	0.57	0.062	0.48	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Iron	5.8	3.3	24	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Lead	<0.028	0.028	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Manganese	0.62	0.16	0.48	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Mercury	0.12	0.0078	0.019	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Molybdenum	<0.012	0.012	0.96	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Nickel	0.043	0.017	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Selenium	0.53	0.078	0.19	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Silver	<0.0013	0.0013	0.048	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Strontium	0.22	0.023	0.096	mg/kg	10/09/2011	10/20/2011
4052102008	EBR-ST8-08	ST8	Zinc	10.8	0.86	1.9	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Aluminum	<1.7	1.7	22.7	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Antimony	<0.0058	0.0058	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Arsenic	0.17	0.013	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Barium	0.094	0.035	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Beryllium	<0.020	0.02	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Boron	<0.15	0.15	1.8	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Cadmium	<0.0095	0.0095	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Chromium	0.041	0.035	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Cobalt	0.0057	0.0031	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Copper	0.57	0.058	0.45	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Iron	4.5	3.1	22.7	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Lead	<0.026	0.026	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Manganese	1.2	0.15	0.45	mg/kg	10/09/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST1 – Sample station within the Salmon Trout River, ST8 – Sample station within Salmon Trout River East Branch

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102009	EBR-ST8-09	ST8	Mercury	0.16	0.0074	0.018	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Molybdenum	<0.011	0.011	0.91	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Nickel	0.038	0.016	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Selenium	0.47	0.074	0.18	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Silver	<0.0013	0.0013	0.045	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Strontium	0.28	0.021	0.091	mg/kg	10/09/2011	10/20/2011
4052102009	EBR-ST8-09	ST8	Zinc	14.7	0.81	1.8	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Aluminum	<1.8	1.8	24.2	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Antimony	<0.0062	0.0062	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Arsenic	0.31	0.014	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Barium	0.14	0.037	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Beryllium	<0.021	0.021	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Boron	<0.16	0.16	1.9	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Cadmium	<0.010	0.01	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Chromium	0.065	0.038	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Cobalt	<0.0033	0.0033	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Copper	0.4	0.062	0.48	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Iron	3.3	3.3	24.2	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Lead	<0.028	0.028	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Manganese	0.91	0.16	0.48	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Mercury	0.1	0.0078	0.019	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Molybdenum	<0.012	0.012	0.97	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Nickel	0.07	0.017	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Selenium	0.38	0.079	0.19	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Silver	<0.0014	0.0014	0.048	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Strontium	0.46	0.023	0.097	mg/kg	10/09/2011	10/20/2011
4052102010	EBR-ST8-10	ST8	Zinc	11.8	0.86	1.9	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Aluminum	<1.7	1.7	23.8	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Antimony	<0.0061	0.0061	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Arsenic	0.16	0.013	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Barium	0.064	0.036	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Beryllium	<0.020	0.02	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Boron	<0.16	0.16	1.9	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Cadmium	<0.010	0.01	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Chromium	0.092	0.037	0.095	mg/kg	10/09/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST8 – Sample station within Salmon Trout River East Branch

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102011	EBR-ST8-11	ST8	Cobalt	0.0038	0.0032	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Copper	0.61	0.061	0.48	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Iron	4.3	3.2	23.8	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Lead	<0.027	0.027	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Manganese	0.52	0.16	0.48	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Mercury	0.095	0.0077	0.019	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Molybdenum	<0.012	0.012	0.95	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Nickel	0.054	0.017	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Selenium	0.42	0.078	0.19	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Silver	0.0019	0.0013	0.048	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Strontium	0.13	0.022	0.095	mg/kg	10/09/2011	10/20/2011
4052102011	EBR-ST8-11	ST8	Zinc	8.7	0.85	1.9	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Aluminum	<1.7	1.7	23	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Antimony	<0.0059	0.0059	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Arsenic	0.084	0.013	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Barium	0.1	0.035	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Beryllium	<0.020	0.02	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Boron	<0.15	0.15	1.8	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Cadmium	<0.0097	0.0097	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Chromium	0.062	0.036	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Cobalt	<0.0031	0.0031	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Copper	0.62	0.059	0.46	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Iron	6.1	3.1	23	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Lead	<0.026	0.026	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Manganese	0.33	0.16	0.46	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Mercury	0.13	0.0074	0.018	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Molybdenum	<0.012	0.012	0.92	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Nickel	0.025	0.016	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Selenium	0.29	0.075	0.18	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Silver	<0.0013	0.0013	0.046	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Strontium	0.33	0.022	0.092	mg/kg	10/09/2011	10/20/2011
4052102012	EBR-ST9-12	ST9	Zinc	13.3	0.82	1.8	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Aluminum	<1.8	1.8	24	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Antimony	<0.0061	0.0061	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Arsenic	0.083	0.013	0.096	mg/kg	10/09/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST8 and ST9 – Sample stations within Salmon Trout River East Branch

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102013	EBR-ST9-13	ST9	Barium	0.087	0.036	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Beryllium	<0.021	0.021	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Boron	<0.16	0.16	1.9	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Cadmium	<0.010	0.01	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Chromium	0.23	0.037	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Cobalt	0.0034	0.0033	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Copper	0.59	0.061	0.48	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Iron	5.8	3.3	24	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Lead	<0.027	0.027	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Manganese	0.32	0.16	0.48	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Mercury	0.13	0.0078	0.019	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Molybdenum	<0.012	0.012	0.96	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Nickel	0.1	0.017	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Selenium	0.31	0.078	0.19	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Silver	<0.0013	0.0013	0.048	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Strontium	0.43	0.023	0.096	mg/kg	10/09/2011	10/20/2011
4052102013	EBR-ST9-13	ST9	Zinc	11.7	0.85	1.9	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Aluminum	<1.8	1.8	24.9	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Antimony	<0.0064	0.0064	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Arsenic	0.22	0.014	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Barium	0.094	0.038	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Beryllium	<0.021	0.021	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Boron	<0.16	0.16	2	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Cadmium	<0.010	0.01	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Chromium	0.081	0.039	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Cobalt	<0.0034	0.0034	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Copper	0.57	0.064	0.5	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Iron	5.4	3.4	24.9	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Lead	<0.028	0.028	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Manganese	0.37	0.17	0.5	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Mercury	0.11	0.0081	0.02	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Molybdenum	<0.013	0.013	0.99	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Nickel	<0.017	0.017	0.099	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Selenium	0.4	0.081	0.2	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Silver	<0.0014	0.0014	0.05	mg/kg	10/09/2011	10/20/2011
4052102014	EBR-ST9-14	ST9	Strontium	0.41	.023	.099	mg/kg	10/09/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST9 – Sample station within Salmon Trout River East Branch

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102014	EBR-ST9-14	ST9	Zinc	18.2	0.88	2	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Aluminum	<1.6	1.6	21.7	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Antimony	<0.0055	0.0055	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Arsenic	0.097	0.012	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Barium	0.036	0.033	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Beryllium	<0.019	0.019	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Boron	<0.14	0.14	1.7	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Cadmium	<0.0091	0.0091	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Chromium	<0.034	0.034	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Cobalt	<0.0029	0.0029	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Copper	0.53	0.055	0.43	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Iron	5.2	3	21.7	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Lead	<0.025	0.025	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Manganese	0.38	0.15	0.43	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Mercury	0.023	0.007	0.017	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Molybdenum	<0.011	0.011	0.87	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Nickel	<0.015	0.015	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Selenium	0.31	0.071	0.17	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Silver	0.0012	0.0012	0.043	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Strontium	0.13	0.02	0.087	mg/kg	10/09/2011	10/20/2011
4052102015	EBR-ST9-15	ST9	Zinc	9.1	0.77	1.7	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Aluminum	<1.8	1.8	24.9	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Antimony	<0.0064	0.0064	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Arsenic	0.33	0.014	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Barium	0.039	0.038	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Beryllium	<0.021	0.021	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Boron	<0.16	0.16	2	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Cadmium	<0.010	0.01	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Chromium	<0.039	0.039	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Cobalt	<0.0034	0.0034	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Copper	0.56	0.064	0.5	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Iron	5.6	3.4	24.9	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Lead	<0.028	0.028	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Manganese	0.51	0.17	0.5	mg/kg	10/09/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST9 and ST10 – Sample stations within Salmon Trout River East Branch

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102016	EBR-ST10-16	ST10	Mercury	0.063	0.0081	0.02	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Molybdenum	<0.013	0.013	1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Nickel	0.043	0.018	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Selenium	0.55	0.081	0.2	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Silver	<0.0014	0.0014	0.05	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Strontium	0.11	0.023	0.1	mg/kg	10/09/2011	10/20/2011
4052102016	EBR-ST10-16	ST10	Zinc	9.2	0.89	2	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Aluminum	2.3	1.7	23.8	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Antimony	<0.0061	0.0061	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Arsenic	0.61	0.013	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Barium	0.061	0.036	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Beryllium	<0.020	0.02	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Boron	<0.16	0.16	1.9	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Cadmium	<0.010	0.01	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Chromium	<0.037	0.037	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Cobalt	<0.0032	0.0032	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Copper	0.49	0.061	0.48	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Iron	6.9	3.2	23.8	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Lead	0.043	0.027	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Manganese	0.74	0.16	0.48	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Mercury	0.054	0.0077	0.019	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Molybdenum	<0.012	0.012	0.95	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Nickel	0.048	0.017	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Selenium	0.49	0.078	0.19	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Silver	<0.0013	0.0013	0.048	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Strontium	0.23	0.022	0.095	mg/kg	10/09/2011	10/20/2011
4052102017	EBR-ST10-17	ST10	Zinc	11.4	0.85	1.9	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Aluminum	<1.7	1.7	23.5	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Antimony	<0.0060	0.006	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Arsenic	0.61	0.013	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Barium	0.11	0.036	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Beryllium	<0.020	0.02	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Boron	<0.16	0.16	1.9	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Cadmium	<0.0098	0.0098	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Chromium	0.05	0.036	0.094	mg/kg	10/09/2011	10/20/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST10 – Sample station within Salmon Trout River East Branch

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102018	EBR-ST10-18	ST10	Cobalt	0.0051	0.0032	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Copper	0.46	0.06	0.47	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Iron	4.7	3.2	23.5	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Lead	<0.027	0.027	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Manganese	0.69	0.16	0.47	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Mercury	0.04	0.0076	0.019	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Molybdenum	<0.012	0.012	0.94	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Nickel	<0.017	0.017	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Selenium	0.61	0.076	0.19	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Silver	<0.0013	0.0013	0.047	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Strontium	0.36	0.022	0.094	mg/kg	10/09/2011	10/20/2011
4052102018	EBR-ST10-18	ST10	Zinc	13.5	0.83	1.9	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Aluminum	<1.7	1.7	23.8	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Antimony	<0.0061	0.0061	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Arsenic	0.45	0.013	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Barium	0.057	0.036	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Beryllium	<0.020	0.02	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Boron	<0.16	0.16	1.9	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Cadmium	<0.010	0.01	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Chromium	0.21	0.037	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Cobalt	0.0078	0.0032	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Copper	0.79	0.061	0.48	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Iron	7.1	3.2	23.8	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Lead	<0.027	0.027	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Manganese	0.73	0.16	0.48	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Mercury	0.052	0.0077	0.019	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Molybdenum	<0.012	0.012	0.95	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Nickel	0.17	0.017	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Selenium	0.38	0.078	0.19	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Silver	<0.0013	0.0013	0.048	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Strontium	0.16	0.022	0.095	mg/kg	10/09/2011	10/20/2011
4052102019	EBR-ST10-19	ST10	Zinc	14.9	0.85	1.9	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Aluminum	<1.6	1.6	21.6	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Antimony	<0.0055	0.0055	0.086	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Arsenic	0.4	0.012	0.086	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST10 – Sample station within Salmon Trout River East Branch, ST4 – Sample station with Cedar Creek

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102020	CCR-ST4-20	ST4	Barium	0.046	0.033	0.086	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Beryllium	<0.019	0.019	0.086	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Boron	<0.14	0.14	1.7	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Cadmium	<0.0091	0.0091	0.086	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Chromium	0.049	0.034	0.086	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Cobalt	0.0054	0.0029	0.086	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Copper	0.5	0.055	0.43	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Iron	7.7	2.9	21.6	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Lead	<0.025	0.025	0.086	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Manganese	0.38	0.15	0.43	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Mercury	0.087	0.007	0.017	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Molybdenum	<0.011	0.011	0.86	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Nickel	0.038	0.015	0.086	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Selenium	0.43	0.07	0.17	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Silver	<0.0012	0.0012	0.043	mg/kg	10/09/2011	10/20/2011
4052102020	CCR-ST4-20	ST4	Strontium	0.17	0.02	0.086	mg/kg	10/09/2011	10/21/2011
4052102020	CCR-ST4-20	ST4	Zinc	9.2	0.77	1.7	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Aluminum	<1.8	1.8	25	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Antimony	<0.0064	0.0064	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Arsenic	0.26	0.014	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Barium	0.059	0.038	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Beryllium	<0.022	0.022	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Boron	<0.17	0.17	2	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Cadmium	<0.010	0.01	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Chromium	<0.039	0.039	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Cobalt	0.0067	0.0034	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Copper	0.53	0.064	0.5	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Iron	4.7	3.4	25	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Lead	<0.029	0.029	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Manganese	0.89	0.17	0.5	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Mercury	0.059	0.0081	0.02	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Molybdenum	<0.013	0.013	1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Nickel	0.039	0.018	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Selenium	0.37	0.081	0.2	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST4 – Sample station with Cedar Creek

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102021	CCR-ST4-21	ST4	Silver	0.0024	0.0014	0.05	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Strontium	0.18	0.024	0.1	mg/kg	10/09/2011	10/21/2011
4052102021	CCR-ST4-21	ST4	Zinc	13.0	0.89	2	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Aluminum	<1.7	1.7	23	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Antimony	0.0073	0.0059	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Arsenic	0.3	0.013	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Barium	<0.035	0.035	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Beryllium	<0.020	0.02	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Boron	<0.15	0.15	1.8	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Cadmium	<0.0097	0.0097	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Chromium	<0.036	0.036	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Cobalt	0.014	0.0031	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Copper	0.35	0.059	0.46	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Iron	4.9	3.1	23	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Lead	<0.026	0.026	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Manganese	0.33	0.16	0.46	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Mercury	0.064	0.0074	0.018	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Molybdenum	0.013	0.012	0.92	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Nickel	0.018	0.016	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Selenium	0.36	0.075	0.18	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Silver	0.0036	0.0013	0.046	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Strontium	0.088	0.022	0.092	mg/kg	10/09/2011	10/21/2011
4052102022	CCR-ST4-22	ST4	Zinc	7.4	0.82	1.8	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Aluminum	<1.6	1.6	21.9	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Antimony	<0.0056	0.0056	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Arsenic	0.88	0.012	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Barium	0.068	0.033	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Beryllium	<0.019	0.019	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Boron	<0.14	0.14	1.8	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Cadmium	<0.0092	0.0092	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Chromium	<0.034	0.034	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Cobalt	0.0081	0.003	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Copper	0.45	0.056	0.44	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Iron	4.2	3	21.9	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Lead	<0.025	0.025	0.088	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST4 – Sample station with Cedar Creek

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102023	CCR-ST4-23	ST4	Manganese	0.77	0.15	0.44	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Mercury	0.091	0.0071	0.018	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Molybdenum	<0.011	0.011	0.88	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Nickel	<0.015	0.015	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Selenium	0.6	0.071	0.18	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Silver	<0.0012	0.0012	0.044	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Strontium	0.17	0.021	0.088	mg/kg	10/09/2011	10/21/2011
4052102023	CCR-ST4-23	ST4	Zinc	8.3	0.78	1.8	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Aluminum	<1.7	1.7	22.6	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Antimony	<0.0058	0.0058	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Arsenic	0.15	0.013	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Barium	0.039	0.034	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Beryllium	<0.019	0.019	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Boron	<0.15	0.15	1.8	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Cadmium	<0.0095	0.0095	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Chromium	0.042	0.035	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Cobalt	0.0048	0.0031	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Copper	0.83	0.058	0.45	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Iron	5.4	3.1	22.6	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Lead	<0.026	0.026	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Manganese	0.49	0.15	0.45	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Mercury	0.076	0.0073	0.018	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Molybdenum	<0.011	0.011	0.9	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Nickel	0.035	0.016	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Selenium	0.33	0.074	0.18	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Silver	<0.0013	0.0013	0.045	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Strontium	0.14	0.021	0.09	mg/kg	10/09/2011	10/21/2011
4052102024	CCR-ST4-24	ST4	Zinc	10.6	0.8	1.8	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Aluminum	<1.6	1.6	21.7	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Antimony	<0.0055	0.0055	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Arsenic	0.17	0.012	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Barium	0.11	0.033	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Beryllium	<0.019	0.019	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Boron	<0.14	0.14	1.7	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Cadmium	<0.0091	0.0091	0.087	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST4 – Sample station with Cedar Creek

Table 4-9 (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Fillets - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102025	CCR-ST4-25	ST4	Chromium	0.07	0.034	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Cobalt	0.0071	0.0029	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Copper	0.52	0.055	0.43	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Iron	4.8	3	21.7	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Lead	<0.025	0.025	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Manganese	1.8	0.15	0.43	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Mercury	0.068	0.007	0.017	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Molybdenum	<0.011	0.011	0.87	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Nickel	0.07	0.015	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Selenium	0.56	0.071	0.17	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Silver	<0.0012	0.0012	0.043	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Strontium	0.26	0.02	0.087	mg/kg	10/09/2011	10/21/2011
4052102025	CCR-ST4-25	ST4	Zinc	14.1	0.77	1.7	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST4 – Sample station with Cedar Creek

Table 4-10. Metals Contents of Brook Trout (*Salvelinus fontinalis*) Livers - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102026	STR-ST6-01	ST6	Cadmium	<0.072	0.072	0.68	mg/kg	10/07/2011	10/21/2011
4052102026	STR-ST6-01	ST6	Copper	7.1	0.44	3.4	mg/kg	10/07/2011	10/21/2011
4052102026	STR-ST6-01	ST6	Lead	<0.20	0.2	0.68	mg/kg	10/07/2011	10/21/2011
4052102026	STR-ST6-01	ST6	Nickel	<0.12	0.12	0.68	mg/kg	10/07/2011	10/21/2011
4052102026	STR-ST6-01	ST6	Silver	0.026	0.0096	0.34	mg/kg	10/07/2011	10/21/2011
4052102026	STR-ST6-01	ST6	Zinc	40.3	6.1	13.7	mg/kg	10/07/2011	10/21/2011
4052102027	STR-ST3-02	ST3	Cadmium	0.017	0.013	0.12	mg/kg	10/08/2011	10/21/2011
4052102027	STR-ST3-02	ST3	Copper	16.6	0.077	0.6	mg/kg	10/08/2011	10/21/2011
4052102027	STR-ST3-02	ST3	Lead	<0.034	0.034	0.12	mg/kg	10/08/2011	10/21/2011
4052102027	STR-ST3-02	ST3	Nickel	0.04	0.021	0.12	mg/kg	10/08/2011	10/21/2011
4052102027	STR-ST3-02	ST3	Silver	0.074	0.0017	0.06	mg/kg	10/08/2011	10/21/2011
4052102027	STR-ST3-02	ST3	Zinc	40.4	1.1	2.4	mg/kg	10/08/2011	10/21/2011
4052102028	STR-ST3-03	ST3	Cadmium	0.038	0.011	0.11	mg/kg	10/08/2011	10/21/2011
4052102028	STR-ST3-03	ST3	Copper	3.9	0.068	0.53	mg/kg	10/08/2011	10/21/2011
4052102028	STR-ST3-03	ST3	Lead	<0.030	0.03	0.11	mg/kg	10/08/2011	10/21/2011
4052102028	STR-ST3-03	ST3	Nickel	0.02	0.019	0.11	mg/kg	10/08/2011	10/21/2011
4052102028	STR-ST3-03	ST3	Silver	0.0042	0.0015	0.053	mg/kg	10/08/2011	10/21/2011
4052102028	STR-ST3-03	ST3	Zinc	44.7	0.95	2.1	mg/kg	10/08/2011	10/21/2011
4052102029	STR-ST3-04	ST3	Cadmium	0.088	0.012	0.12	mg/kg	10/08/2011	10/21/2011
4052102029	STR-ST3-04	ST3	Copper	8	0.075	0.59	mg/kg	10/08/2011	10/21/2011
4052102029	STR-ST3-04	ST3	Lead	<0.034	0.034	0.12	mg/kg	10/08/2011	10/21/2011
4052102029	STR-ST3-04	ST3	Nickel	0.021	0.021	0.12	mg/kg	10/08/2011	10/21/2011
4052102029	STR-ST3-04	ST3	Silver	0.031	0.0016	0.059	mg/kg	10/08/2011	10/21/2011
4052102029	STR-ST3-04	ST3	Zinc	46.2	1	2.4	mg/kg	10/08/2011	10/21/2011
4052102030	STR-ST1-05	ST1	Cadmium	0.14	0.01	0.098	mg/kg	10/08/2011	10/21/2011
4052102030	STR-ST1-05	ST1	Copper	2.3	0.063	0.49	mg/kg	10/08/2011	10/21/2011
4052102030	STR-ST1-05	ST1	Lead	<0.028	0.028	0.098	mg/kg	10/08/2011	10/21/2011
4052102030	STR-ST1-05	ST1	Nickel	<0.017	0.017	0.098	mg/kg	10/08/2011	10/21/2011
4052102030	STR-ST1-05	ST1	Silver	0.011	0.0014	0.049	mg/kg	10/08/2011	10/21/2011
4052102030	STR-ST1-05	ST1	Zinc	23.3	0.87	2	mg/kg	10/08/2011	10/21/2011
4052102031	STR-ST1-06	ST1	Cadmium	0.24	0.019	0.18	mg/kg	10/08/2011	10/21/2011
4052102031	STR-ST1-06	ST1	Copper	13.2	0.12	0.92	mg/kg	10/08/2011	10/21/2011
4052102031	STR-ST1-06	ST1	Lead	<0.053	0.053	0.18	mg/kg	10/08/2011	10/21/2011
4052102031	STR-ST1-06	ST1	Nickel	<0.032	0.032	0.18	mg/kg	10/08/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST1, ST3, and ST6 – Sample stations within the Salmon Trout River

Table 4-10. (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Livers - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102031	STR-ST1-06	ST1	Silver	0.19	0.0026	0.092	mg/kg	10/08/2011	10/21/2011
4052102031	STR-ST1-06	ST1	Zinc	29.5	1.6	3.7	mg/kg	10/08/2011	10/21/2011
4052102032	STR-ST1-07	ST1	Cadmium	0.17	0.012	0.11	mg/kg	10/08/2011	10/21/2011
4052102032	STR-ST1-07	ST1	Copper	8.5	0.071	0.55	mg/kg	10/08/2011	10/21/2011
4052102032	STR-ST1-07	ST1	Lead	<0.032	0.032	0.11	mg/kg	10/08/2011	10/21/2011
4052102032	STR-ST1-07	ST1	Nickel	0.021	0.02	0.11	mg/kg	10/08/2011	10/21/2011
4052102032	STR-ST1-07	ST1	Silver	0.14	0.0016	0.055	mg/kg	10/08/2011	10/21/2011
4052102032	STR-ST1-07	ST1	Zinc	26.4	0.99	2.2	mg/kg	10/08/2011	10/21/2011
4052102033	EBR-ST8-08	ST8	Cadmium	0.093	0.019	0.18	mg/kg	10/09/2011	10/21/2011
4052102033	EBR-ST8-08	ST8	Copper	5.1	0.12	0.91	mg/kg	10/09/2011	10/21/2011
4052102033	EBR-ST8-08	ST8	Lead	<0.052	0.052	0.18	mg/kg	10/09/2011	10/21/2011
4052102033	EBR-ST8-08	ST8	Nickel	<0.032	0.032	0.18	mg/kg	10/09/2011	10/21/2011
4052102033	EBR-ST8-08	ST8	Silver	0.013	0.0025	0.091	mg/kg	10/09/2011	10/21/2011
4052102033	EBR-ST8-08	ST8	Zinc	38.2	1.6	3.6	mg/kg	10/09/2011	10/21/2011
4052102034	EBR-ST8-09	ST8	Cadmium	0.03	0.011	0.1	mg/kg	10/09/2011	10/21/2011
4052102034	EBR-ST8-09	ST8	Copper	1.5	0.066	0.52	mg/kg	10/09/2011	10/21/2011
4052102034	EBR-ST8-09	ST8	Lead	<0.030	0.03	0.1	mg/kg	10/09/2011	10/21/2011
4052102034	EBR-ST8-09	ST8	Nickel	0.022	0.018	0.1	mg/kg	10/09/2011	10/21/2011
4052102034	EBR-ST8-09	ST8	Silver	<0.0015	0.0015	0.052	mg/kg	10/09/2011	10/21/2011
4052102034	EBR-ST8-09	ST8	Zinc	22	0.92	2.1	mg/kg	10/09/2011	10/21/2011
4052102035	EBR-ST8-10	ST8	Cadmium	0.03	0.0091	0.086	mg/kg	10/09/2011	10/21/2011
4052102035	EBR-ST8-10	ST8	Copper	1.4	0.055	0.43	mg/kg	10/09/2011	10/21/2011
4052102035	EBR-ST8-10	ST8	Lead	<0.025	0.025	0.086	mg/kg	10/09/2011	10/21/2011
4052102035	EBR-ST8-10	ST8	Nickel	0.028	0.015	0.086	mg/kg	10/09/2011	10/21/2011
4052102035	EBR-ST8-10	ST8	Silver	<0.0012	0.0012	0.043	mg/kg	10/09/2011	10/21/2011
4052102035	EBR-ST8-10	ST8	Zinc	21.3	0.77	1.7	mg/kg	10/09/2011	10/21/2011
4052102036	EBR-ST8-11	ST8	Cadmium	0.035	0.01	0.096	mg/kg	10/09/2011	10/21/2011
4052102036	EBR-ST8-11	ST8	Copper	2.2	0.062	0.48	mg/kg	10/09/2011	10/21/2011
4052102036	EBR-ST8-11	ST8	Lead	<0.028	0.028	0.096	mg/kg	10/09/2011	10/21/2011
4052102036	EBR-ST8-11	ST8	Nickel	<0.017	0.017	0.096	mg/kg	10/09/2011	10/21/2011
4052102036	EBR-ST8-11	ST8	Silver	0.0024	0.0013	0.048	mg/kg	10/09/2011	10/21/2011
4052102036	EBR-ST8-11	ST8	Zinc	21.7	0.86	1.9	mg/kg	10/09/2011	10/21/2011
4052102037	EBR-ST9-12	ST9	Cadmium	0.018	0.0095	0.09	mg/kg	10/09/2011	10/21/2011
4052102037	EBR-ST9-12	ST9	Copper	14.1	0.058	0.45	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST1 – Sample station within Salmon Trout River

ST8 and ST9 – Sample stations within Salmon Trout River East Branch

Table 4-10. (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Livers - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102037	EBR-ST9-12	ST9	Lead	<0.026	0.026	0.09	mg/kg	10/09/2011	10/21/2011
4052102037	EBR-ST9-12	ST9	Nickel	0.025	0.016	0.09	mg/kg	10/09/2011	10/21/2011
4052102037	EBR-ST9-12	ST9	Silver	0.072	0.0013	0.045	mg/kg	10/09/2011	10/21/2011
4052102037	EBR-ST9-12	ST9	Zinc	33.8	0.8	1.8	mg/kg	10/09/2011	10/21/2011
4052102038	EBR-ST9-13	ST9	Cadmium	0.013	0.012	0.12	mg/kg	10/09/2011	10/21/2011
4052102038	EBR-ST9-13	ST9	Copper	19.5	0.074	0.58	mg/kg	10/09/2011	10/21/2011
4052102038	EBR-ST9-13	ST9	Lead	<0.033	0.033	0.12	mg/kg	10/09/2011	10/21/2011
4052102038	EBR-ST9-13	ST9	Nickel	0.046	0.02	0.12	mg/kg	10/09/2011	10/21/2011
4052102038	EBR-ST9-13	ST9	Silver	0.11	0.0016	0.058	mg/kg	10/09/2011	10/21/2011
4052102038	EBR-ST9-13	ST9	Zinc	34.4	1	2.3	mg/kg	10/09/2011	10/21/2011
4052102039	EBR-ST9-14	ST9	Cadmium	0.022	0.01	0.1	mg/kg	10/09/2011	10/21/2011
4052102039	EBR-ST9-14	ST9	Copper	2.5	0.064	0.5	mg/kg	10/09/2011	10/21/2011
4052102039	EBR-ST9-14	ST9	Lead	<0.029	0.029	0.1	mg/kg	10/09/2011	10/21/2011
4052102039	EBR-ST9-14	ST9	Nickel	0.029	0.018	0.1	mg/kg	10/09/2011	10/21/2011
4052102039	EBR-ST9-14	ST9	Silver	0.0045	0.0014	0.05	mg/kg	10/09/2011	10/21/2011
4052102039	EBR-ST9-14	ST9	Zinc	24.2	0.89	2	mg/kg	10/09/2011	10/21/2011
4052102040	EBR-ST9-15	ST9	Cadmium	0.12	0.036	0.34	mg/kg	10/09/2011	10/21/2011
4052102040	EBR-ST9-15	ST9	Copper	16.6	0.22	1.7	mg/kg	10/09/2011	10/21/2011
4052102040	EBR-ST9-15	ST9	Lead	<0.097	0.097	0.34	mg/kg	10/09/2011	10/21/2011
4052102040	EBR-ST9-15	ST9	Nickel	<0.060	0.06	0.34	mg/kg	10/09/2011	10/21/2011
4052102040	EBR-ST9-15	ST9	Silver	0.28	0.0048	0.17	mg/kg	10/09/2011	10/21/2011
4052102040	EBR-ST9-15	ST9	Zinc	35.2	3	6.8	mg/kg	10/09/2011	10/21/2011
4052102041	EBR-ST10-16	ST10	Cadmium	0.27	0.01	0.096	mg/kg	10/09/2011	10/21/2011
4052102041	EBR-ST10-16	ST10	Copper	5.3	0.062	0.48	mg/kg	10/09/2011	10/21/2011
4052102041	EBR-ST10-16	ST10	Lead	<0.028	0.028	0.096	mg/kg	10/09/2011	10/21/2011
4052102041	EBR-ST10-16	ST10	Nickel	<0.017	0.017	0.096	mg/kg	10/09/2011	10/21/2011
4052102041	EBR-ST10-16	ST10	Silver	0.13	0.0013	0.048	mg/kg	10/09/2011	10/21/2011
4052102041	EBR-ST10-16	ST10	Zinc	27	0.86	1.9	mg/kg	10/09/2011	10/21/2011
4052102042	EBR-ST10-17	ST10	Cadmium	0.64	0.016	0.15	mg/kg	10/09/2011	10/21/2011
4052102042	EBR-ST10-17	ST10	Copper	24.8	0.095	0.74	mg/kg	10/09/2011	10/21/2011
4052102042	EBR-ST10-17	ST10	Lead	<0.043	0.043	0.15	mg/kg	10/09/2011	10/21/2011
4052102042	EBR-ST10-17	ST10	Nickel	0.044	0.026	0.15	mg/kg	10/09/2011	10/21/2011
4052102042	EBR-ST10-17	ST10	Silver	0.55	0.0021	0.074	mg/kg	10/09/2011	10/21/2011
4052102042	EBR-ST10-17	ST10	Zinc	41	1.3	3	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST9 and ST10 – Sample stations within Salmon Trout River East Branch

Table 4-10. (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Livers - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102043	EBR-ST10-17	ST10	Cadmium	0.62	0.019	0.18	mg/kg	10/09/2011	10/21/2011
4052102043	EBR-ST10-18	ST10	Copper	18.5	0.11	0.89	mg/kg	10/09/2011	10/21/2011
4052102043	EBR-ST10-18	ST10	Lead	<0.051	0.051	0.18	mg/kg	10/09/2011	10/21/2011
4052102043	EBR-ST10-18	ST10	Nickel	0.057	0.031	0.18	mg/kg	10/09/2011	10/21/2011
4052102043	EBR-ST10-18	ST10	Silver	0.45	0.0025	0.089	mg/kg	10/09/2011	10/21/2011
4052102043	EBR-ST10-18	ST10	Zinc	41.2	1.6	3.6	mg/kg	10/09/2011	10/21/2011
4052102044	EBR-ST10-19	ST10	Cadmium	0.4	0.022	0.21	mg/kg	10/09/2011	10/21/2011
4052102044	EBR-ST10-19	ST10	Copper	8.1	0.14	1.1	mg/kg	10/09/2011	10/21/2011
4052102044	EBR-ST10-19	ST10	Lead	<0.060	0.06	0.21	mg/kg	10/09/2011	10/21/2011
4052102044	EBR-ST10-19	ST10	Nickel	<0.037	0.037	0.21	mg/kg	10/09/2011	10/21/2011
4052102044	EBR-ST10-19	ST10	Silver	0.39	0.003	0.11	mg/kg	10/09/2011	10/21/2011
4052102044	EBR-ST10-19	ST10	Zinc	31.9	1.9	4.2	mg/kg	10/09/2011	10/21/2011
4052102045	CCR-ST4-20	ST4	Cadmium	0.45	0.017	0.16	mg/kg	10/09/2011	10/21/2011
4052102045	CCR-ST4-20	ST4	Copper	40.3	0.1	0.81	mg/kg	10/09/2011	10/21/2011
4052102045	CCR-ST4-20	ST4	Lead	<0.047	0.047	0.16	mg/kg	10/09/2011	10/21/2011
4052102045	CCR-ST4-20	ST4	Nickel	0.035	0.029	0.16	mg/kg	10/09/2011	10/21/2011
4052102045	CCR-ST4-20	ST4	Silver	0.36	0.0023	0.081	mg/kg	10/09/2011	10/21/2011
4052102045	CCR-ST4-20	ST4	Zinc	49.9	1.4	3.3	mg/kg	10/09/2011	10/21/2011
4052102046	CCR-ST4-21	ST4	Cadmium	0.16	0.022	0.21	mg/kg	10/09/2011	10/21/2011
4052102046	CCR-ST4-21	ST4	Copper	9.7	0.14	1.1	mg/kg	10/09/2011	10/21/2011
4052102046	CCR-ST4-21	ST4	Lead	<0.061	0.061	0.21	mg/kg	10/09/2011	10/21/2011
4052102046	CCR-ST4-21	ST4	Nickel	<0.037	0.037	0.21	mg/kg	10/09/2011	10/21/2011
4052102046	CCR-ST4-21	ST4	Silver	0.085	0.003	0.11	mg/kg	10/09/2011	10/21/2011
4052102046	CCR-ST4-21	ST4	Zinc	34.2	1.9	4.2	mg/kg	10/09/2011	10/21/2011
4052102047	CCR-ST4-22	ST4	Cadmium	0.15	0.047	0.45	mg/kg	10/09/2011	10/21/2011
4052102047	CCR-ST4-22	ST4	Copper	12.1	0.29	2.3	mg/kg	10/09/2011	10/21/2011
4052102047	CCR-ST4-22	ST4	Lead	<0.13	0.13	0.45	mg/kg	10/09/2011	10/21/2011
4052102047	CCR-ST4-22	ST4	Nickel	<0.079	0.079	0.45	mg/kg	10/09/2011	10/21/2011
4052102047	CCR-ST4-22	ST4	Silver	0.15	0.0063	0.23	mg/kg	10/09/2011	10/21/2011
4052102047	CCR-ST4-22	ST4	Zinc	38.4	4	9	mg/kg	10/09/2011	10/21/2011
4052102048	CCR-ST4-23	ST4	Cadmium	0.26	0.035	0.34	mg/kg	10/09/2011	10/21/2011
4052102048	CCR-ST4-23	ST4	Copper	6.2	0.22	1.7	mg/kg	10/09/2011	10/21/2011
4052102048	CCR-ST4-23	ST4	Lead	<0.097	0.097	0.34	mg/kg	10/09/2011	10/21/2011
4052102048	CCR-ST4-23	ST4	Nickel	0.1	0.059	0.34	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST4 – Sample station within Cedar Creek

ST10 – Sample station within Salmon Trout River East Branch

Table 4-10. (continued). Metals Contents of Brook Trout (*Salvelinus fontinalis*) Livers - 2011 Laboratory Data.

Lab Sample Number	Field ID	Sample Station	Parameter	Result	MDL*	EQL**	Units***	Collection Date	Analysis Date
4052102048	CCR-ST4-23	ST4	Silver	0.026	0.0047	0.17	mg/kg	10/09/2011	10/21/2011
4052102048	CCR-ST4-23	ST4	Zinc	40.1	3	6.8	mg/kg	10/09/2011	10/21/2011
4052102049	CCR-ST4-24	ST4	Cadmium	0.14	0.014	0.13	mg/kg	10/09/2011	10/21/2011
4052102049	CCR-ST4-24	ST4	Copper	10	0.086	0.67	mg/kg	10/09/2011	10/21/2011
4052102049	CCR-ST4-24	ST4	Lead	<0.039	0.039	0.13	mg/kg	10/09/2011	10/21/2011
4052102049	CCR-ST4-24	ST4	Nickel	0.038	0.024	0.13	mg/kg	10/09/2011	10/21/2011
4052102049	CCR-ST4-24	ST4	Silver	0.095	0.0019	0.067	mg/kg	10/09/2011	10/21/2011
4052102049	CCR-ST4-24	ST4	Zinc	30.8	1.2	2.7	mg/kg	10/09/2011	10/21/2011
4052102050	CCR-ST4-25	ST4	Cadmium	<0.018	0.018	0.17	mg/kg	10/09/2011	10/21/2011
4052102050	CCR-ST4-25	ST4	Copper	7	0.11	0.87	mg/kg	10/09/2011	10/21/2011
4052102050	CCR-ST4-25	ST4	Lead	<0.049	0.049	0.17	mg/kg	10/09/2011	10/21/2011
4052102050	CCR-ST4-25	ST4	Nickel	0.034	0.03	0.17	mg/kg	10/09/2011	10/21/2011
4052102050	CCR-ST4-25	ST4	Silver	0.075	0.0024	0.087	mg/kg	10/09/2011	10/21/2011
4052102050	CCR-ST4-25	ST4	Zinc	39.8	1.5	3.5	mg/kg	10/09/2011	10/21/2011

*MDL = Minimum detection limit

**EQL = Estimated quantification limit

***mg/kg = Milligrams per kilogram

ST4 – Sample station within Cedar Creek

EXHIBIT C
STATION PHOTOGRAPHS



Photograph C-1. Station 1 – Upstream Extent North View, October, 2011.



Photograph C-2. Station 1 - Downstream Extent View South, October, 2011.



Photograph C-3. Station 2 – Upstream Extent View North, October, 2011.



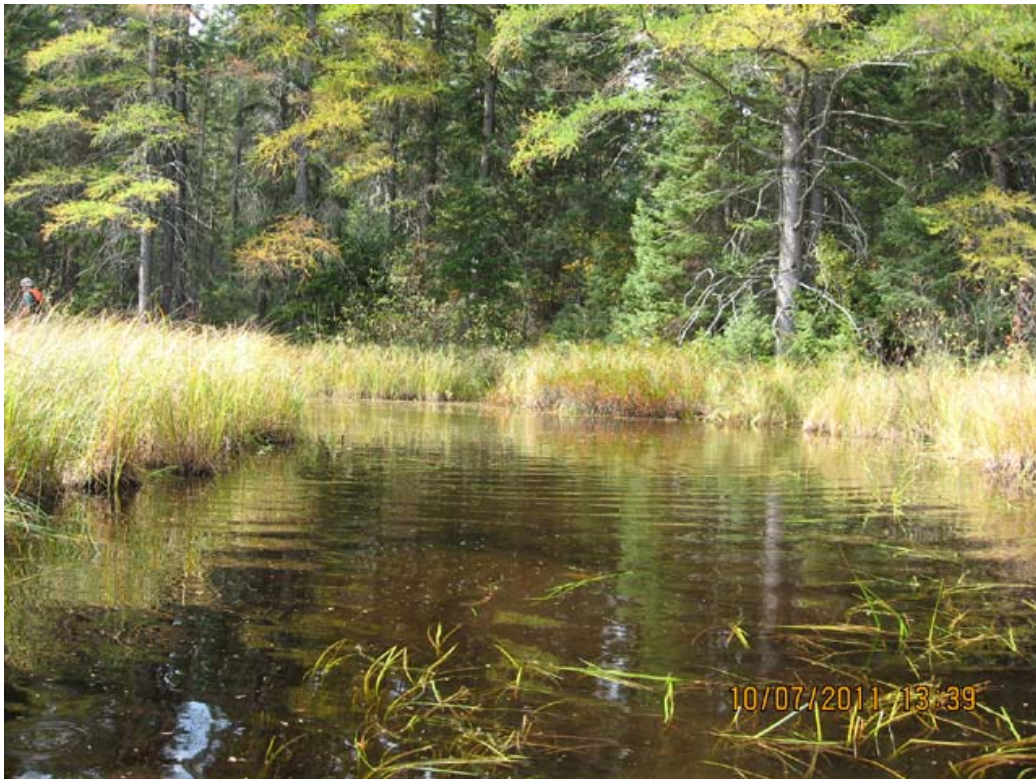
Photograph C-4. Station 2 – Downstream Extent View South, October, 2011.



Photograph C-5. Station 3 – Upstream Extent View North, October, 2011.



Photograph C-6. Station 3 –Downstream Extent View South, October, 2011.



Photograph C-7. Station 6 – Upstream Extent View Southwest, October, 2011.



Photograph C-8. Station 6 – Downstream Extent View Southwest, October, 2011.



Photograph C-9. Station 7 – Downstream Extent View South, October, 2011.



Photograph C-10. Station 8 – Downstream Extent View South, October, 2011.



Photograph C-11. Station 8 – Upstream Extent View North, October, 2011.



Photograph C-12. Station 9 – Downstream Extent View Southwest, October, 2011.



Photograph C-13. Station 9 – Upstream Extent View Northeast, October, 2011.



Photograph C-14. Station 10 – Downstream Extent View Southwest, October, 2011.



Photograph C-15. Station 10 – Upstream Extent View Northeast, October, 2011.



Photograph C-16. Station 5 – Downstream Extent View West, October, 2011.



Photograph C-17. Station 5 – Upstream Extent View East, October, 2011.



Photograph C-18. Station 4 – Downstream Extent View South, October, 2011.



Photograph C-19. Station 4 – Upstream Extent View North, October, 2011.

EXHIBIT D

PHOTOGRAPHS OF BROOK TROUT (*Salvelinus fontinalis*) COLLECTED FOR METALS ANALYSES



Photograph D-1. Brook trout (*Salvelinus fontinalis*) # 1 collected from Station 6 in the Salmon Trout River, October, 2011.



Photograph D-2. Brook trout (*Salvelinus fontinalis*) # 2 collected from Station 3 in the Salmon Trout River, October, 2011.



Photograph D-3. Brook trout (*Salvelinus fontinalis*) # 3 collected from Station 3 in the Salmon Trout River, October, 2011.



Photograph D-4. Brook trout (*Salvelinus fontinalis*) # 4 collected from Station 3 in the Salmon Trout River, October, 2011.



Photograph D-5. Brook trout (*Salvelinus fontinalis*) # 5 collected from Station 1 in the Salmon Trout River, October, 2011.



Photograph D-6. Brook trout (*Salvelinus fontinalis*) # 6 collected from Station 1 in the Salmon Trout River, October, 2011.



Photograph D-7. Brook trout (*Salvelinus fontinalis*) # 7 collected from Station 1 in the Salmon Trout River, October, 2011.



Photograph D-8. Brook trout (*Salvelinus fontinalis*) # 8 collected from Station 8 in the Salmon Trout River East Branch, October, 2011.



Photograph D-9. Brook trout (*Salvelinus fontinalis*) # 9 collected from Station 8 in the Salmon Trout River East Branch, October, 2011.



Photograph D-10. Brook trout (*Salvelinus fontinalis*) # 10 collected from Station 8 in the Salmon Trout River East Branch, October, 2011.



Photograph D-11. Brook trout (*Salvelinus fontinalis*) # 11 collected from Station 8 in the Salmon Trout River East Branch October, 2011.



Photograph D-12. Brook trout (*Salvelinus fontinalis*) # 12 collected from Station 9 in the Salmon Trout River East Branch, October, 2011.



Photograph D-13. Brook trout (*Salvelinus fontinalis*) # 13 collected from Station 9 in the Salmon Trout River East Branch, October, 2011.



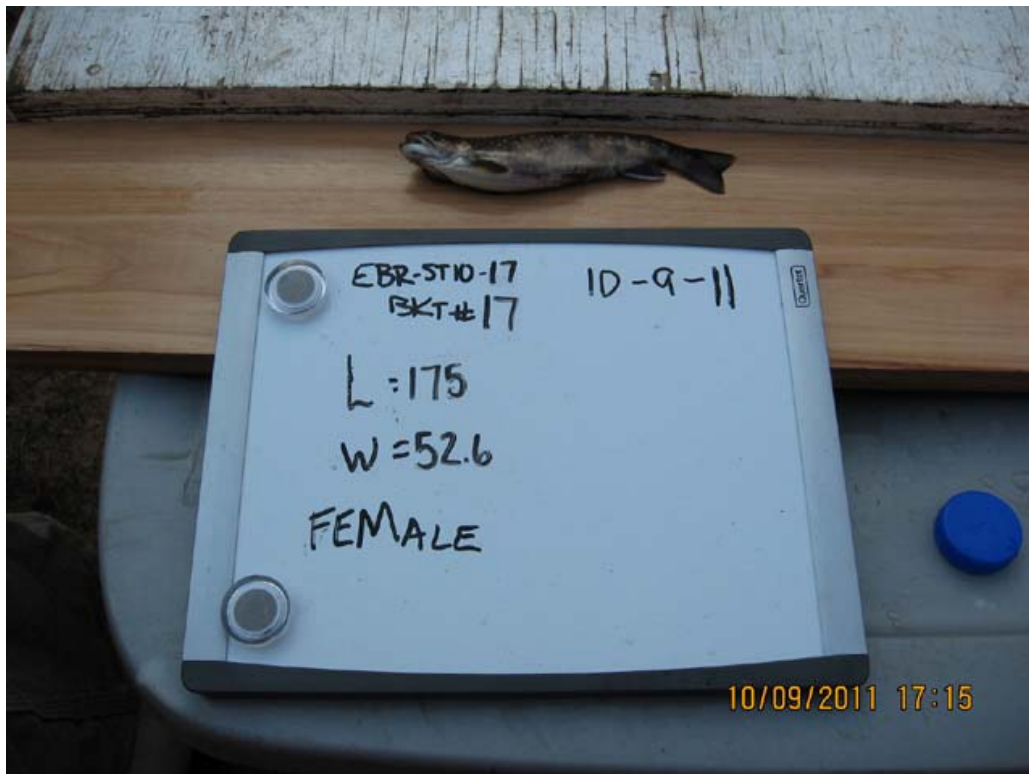
Photograph D-14. Brook trout (*Salvelinus fontinalis*) # 14 collected from Station 9 in the Salmon Trout River East Branch, October, 2011.



Photograph D-15. Brook trout (*Salvelinus fontinalis*) # 15 collected from Station 9 in the Salmon Trout River East Branch, October, 2011.



Photograph D-16. Brook trout (*Salvelinus fontinalis*) # 16 collected from Station 10 in the Salmon Trout River East Branch, October, 2011.



Photograph D-17. Brook trout (*Salvelinus fontinalis*) # 17 collected from Station 10 in the Salmon Trout River East Branch, October, 2011.



Photograph D-18. Brook trout (*Salvelinus fontinalis*) # 18 collected from Station 10 in the Salmon Trout River East Branch, October, 2011.



Photograph D-19. Brook trout (*Salvelinus fontinalis*) # 19 collected from Station 10 in the Salmon Trout River East Branch, October, 2011.



Photograph D-20. Brook trout (*Salvelinus fontinalis*) # 20 collected from Station 4 in Cedar Creek, October, 2011.



Photograph D-21. Brook trout (*Salvelinus fontinalis*) # 21 collected from Station 4 in Cedar Creek, October, 2011.



Photograph D-22. Brook trout (*Salvelinus fontinalis*) # 22 collected from Station 4 in Cedar Creek, October, 2011.



Photograph D-23. Brook trout (*Salvelinus fontinalis*) # 23 collected from Station 4 in Cedar Creek, October, 2011.



Photograph D-24. Brook trout (*Salvelinus fontinalis*) # 24 collected from Station 4 Cedar Creek, October, 2011.



Photograph D-25. Brook trout (*Salvelinus fontinalis*) # 25 collected from Station 4 Cedar Creek, October, 2011.

EXHIBIT E

CHAIN OF CUSTODY FORMS

4052102

Page: 1 of 3

REGULATORY AGENCY	
NPDES	GROUND WATER
DRINKING WATER	
UST	RCRA
OTHER	
SITE	
GA	IL
IN	WI
IC	
LOCATION	
OH	SC
WI	OTHER
Filtered (Y/N)	

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER:	B. Dwyer		
SIGNATURE of SAMPLER:	[Signature]		
DATE Signed (MM/DD/YY)	10-1-11		
Temp in	Received	Custody	Samples In
	Ice	Sealed Co	

Page: 2 of 3

REGULATORY AGENCY										
☐ NPDES	☐ GROUND WATER	☐ DRINKING WATER								
☐ UST	☐ RCRA	☐ OTHER _____								
SITE			☐ GA	☐ IL	☐ IN	☒ MI	☐ IC			
LOCATION			☐ OH	☐ SC	☐ WI	☐ OTHER _____				

Additional Comments: MAT 10.12.11

E-File, (ALLQ020rev.3,31Mar05), 13Jun2005

4052102

Section A
Required Client Information:

Section B
Required Project Information:

Section C
Invoice Information:

Company: Penetration Base Minerals
Address: 504 Spruce St
City: Denver, CO
State: CO
Zip: 80202
Phone: 303.332.3205
Fax: 303.332.3205
Email: info@penetrationbase.com
Report To: Doug Whiteman
Copy To: Advance Environmental Management
Purchase Order No.:
Project Name:
Project Number:
Pace Profile #:
Pace Quote Reference:
Pace Project Manager:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER
SITE ☐ GA ☐ IL ☐ IN ☐ MI ☐ IC
LOCATION ☐ OH ☐ SC ☐ WI ☐ OTHER
Filtered (Y/N)
Requested Analysis:
Residual Chlorine (Y/N)
Pace Project Number
Lab ID

ITEM #	Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9 / -) Samples IDs MUST BE UNIQUE	Valid Matrix Codes		CODE	MATRIX CODE	SAMPLE TYPE G+GRAB C=COMP	COLLECTED				SAMPLE TEMP AT COLLECTION	#OF CONTAINERS	Preservatives							Requested Analysis:	Residual Chlorine (Y/N)		Pace Project Number Lab ID																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		MATRIX	CODE				COMPOSITE START	COMPOSITE END	GRAB	UNPRESERVED			H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Additional Comments:

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
<u>Doug Whiteman</u>	<u>10/11/11</u>	<u>1005</u>	<u> </u>	<u>10/12/11</u>	<u>1005</u>	Temp in °C	Received on Ice
<u>URS</u>	<u>10/11/11</u>	<u>1005</u>	<u> </u>	<u>10/12/11</u>	<u>1005</u>	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE
PRINT NAME OF SAMPLER: R. Dwyer
SIGNATURE OF SAMPLER: R. Dwyer
DATE SIGNED (MM/DD/YY): 10-11-11

2015

Page: 1 of 3

Invoice Information:**Invoice Information:**

Page: 1 of 5

REGULATORY AGENCY

NPDES GROUND WATER DRINKING WATER

☐ UST ☐ RCRA ☐ OTHER_____

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analysis: (N/A)

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DATE	TIME	SAMPLE CONDITIONS
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Y/N
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10/12/11	1005	1	Y/N	Y/N	
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E-File (ALLQ020rev.3.31Mar05). 13Jun2005

Section A Required Client Information: **Section B** Required Project Information: **Section C** Invoice Information:

Company: LEWIS & CLARK MINERALS LP	Report To: Doug Worsman	Attention: Doug Worsman
Address: 504 SOURCE ST	Copy To: Doug Worsman	Company Name: Advanced Environmental Management, Inc.
City: SEBEMO, NJ	Purchase Order No.: 72-071	Address: 72-071 7 MIKE REED LITE WAY
Email To: dworsman@pacelabs.com	Project Name: Project Name:	Pace Quote Reference: 72-071
Phone: 201-332-3242	Project Number: Project Number:	Pace Project Manager: Pace Project Manager:
Fax: 201-332-3242	Project Profile #: Project Profile #:	
Requested Due Date/TAT: Requested Due Date/TAT:		

ITEM #	Section D Required Client Information SAMPLE ID One Character per box. (A-Z, 0-9, -)	Valid Matrix Codes MATRIX DRINKING WATER WATER WASTE WATER WASTEWATER SOLID OIL WIRE AIR TISSUE	CODE DW WT WW WWS SL Q.WP AR OT TS	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP	COLLECTED			SAMPLE TEMP AT COLLECTION	#OF CONTAINERS	Preservatives						Requested Analysis:	Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project Number Lab ID.
						DATE	TIME	DATE	TIME		Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other		
1	EBR-STH-13					12-9	12:29													
2	EBR-STH-14					12-9	12:22													
3	EBR-STH-15					12-9	12:29													
4	EBR-STH-16					12-9	14:12													
5	EBR-STH-17					12-9	14:18													
6	EBR-STH-18					12-9	14:24													
7	EBR-STH-19					12-9	14:30													
8	EBR-STH-20					12-9	17:32													
9	EBR-STH-21					12-9	17:38													
10	EBR-STH-22					12-9	17:45													
11	EBR-STH-23					12-9	17:52													
12	EBR-STH-24					12-9	17:59													

Additional Comments: **WFT 10-12-11**

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	
Doug Worsman	10-11-11	1440	[Signature]	10-12-11	1005	Temp in °C	Received on Ice
UAT	10/12/11	1005	[Signature]	10/12/11	1005	Custody Sealed Cooler	Samples Intact

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: **R. D. Worsman**

SIGNATURE of SAMPLER: **[Signature]**

DATE Signed (MM/DD/YY): **10-12-11**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately

4052102

Section A

Required Client Information:

Section B

Required Project Information:

Section C

Invoice Information

Page: 3 of 3Section D Required Client Information

MATRIX

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PreservativesRequested

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SAMPLER NAME AND SIGNATURE

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Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was plotted against the number of trials for each condition. The number of correct responses increased with the number of trials for all conditions. The number of correct responses was highest for the condition with the highest number of trials (10 trials) and lowest for the condition with the lowest number of trials (2 trials).

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Sample Condition Upon Receipt

Pace Analytical

Client Name: Kerrest

Project # 4052102

Courier: ☐ Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☐ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None Other _____

Thermometer Used JB

Type of Ice: ☒ Wet ☐ Blue ☐ Dry ☐ None

Cooler Temperature 1°

Biological Tissue is Frozen: ☐ yes ☐ no

Temp Blank Present: ☐ yes ☐ no

Temp should be above freezing to 6°C for all sample except Biota.

Biota Samples should be received ≤ 0°C.

Person examining contents:

Date: 10-12-11

Initials: LC

Comments:

Chain of Custody Present:	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out:	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished:	☒ Yes ☐ No ☐ N/A	3.
Sampler Name & Signature on COC:	☒ Yes ☐ No ☐ N/A	4.
Samples Arrived within Hold Time:	☒ Yes ☐ No ☐ N/A	5.
Short Hold Time Analysis (<72hr):	☐ Yes ☒ No ☐ N/A	6.
Rush Turn Around Time Requested:	☐ Yes ☒ No ☐ N/A	7.
Sufficient Volume:	☒ Yes ☐ No ☐ N/A	8.
Correct Containers Used:	☒ Yes ☐ No ☐ N/A	9.
Pace Containers Used:	☒ Yes ☐ No ☐ N/A	
Containers Intact:	☒ Yes ☐ No ☐ N/A	10.
Filtered volume received for Dissolved tests	☐ Yes ☐ No ☒ N/A	11.
Sample Labels match COC:	☒ Yes ☐ No ☐ N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>B</u>		
All containers needing preservation have been checked.	☐ Yes ☐ No ☒ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐ Yes ☐ No ☐ N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐ Yes ☐ No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	☐ Yes ☐ No ☒ N/A	14.
Headspace in VOA Vials (>6mm):	☐ Yes ☐ No ☒ N/A	15.
Trip Blank Present:	☐ Yes ☐ No ☒ N/A	16.
Trip Blank Custody Seals Present	☐ Yes ☐ No ☐ N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Person Contacted: _____

Date/Time: _____

Field Data Required?

Y / N

Comments/ Resolution: Split out fillet & liver & Gase Separate H's per TN

Project Manager Review: _____

Date: 10/12/11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)