Northeast
Utilities System

Public Service of New Hampshire
Northeast Utilities System
Merrimack Station
97 River Road
Bow, New Hampshire 03304

Phone (603) 224-4081
Fax (603) 634-2334

Match 29, 2013

Mr. Mike Butler
Staff Engineer
Lowell Regional Wastewater Utility
451 First Street Boulevard (Route 110)
Lowell, Massachusetts 01850

Re: Monthly Self Monitoring Report
February 2013
Merrimack Station
Public Service Company of New Hampshire
Bow, New Hampshire

Dear Mr. Butler:

Public Service Company of New Hampshire (PSNH) is pleased to submit the attached **Self-Monitoring Report** (SMR) for the period February 1, 2013 through February 28, 2013. This SMR is intended to satisfy Conditions 7 and 8 of the Interim Discharge Authorization (IDA) issued to PSNH by the Lowell Regional Wastewater Utility (LRWU), dated October 3, 2012. Softened Stream B Wastewater flow was approximately 144,000 for the monitoring period. Softened Stream B Wastewater was the only approved waste stream discharged to LRWU during the month of February 2013. Wastewater flow was estimated based on the actual number of tanker trucks sent to LRWU in February and tanker capacity.

The attached **SMR Summary Sheet** summarizes the analytical results contained in the attached **Analytical Data Reports** for all required parameters as outlined in Condition 8 of the IDA. The attached **Table 1** compares the results to the LRWU's Local Sewer Discharge Limits. The results indicate that pollutant concentrations were within the limits on the day of sampling. The attached **Table 2** included summarizes wastewater shipments to LRWU in the month of February 2013. The analysis of the Softened Stream B sample collected on February 4, 2013, was performed in accordance with the United States Environmental Protection Agency (EPA) draft Standard Operating Procedure (SOP) for trace metals analysis of flue gas desulfurization (FGD) wastewater. The SOP is described below.

ANALYTICAL DISCUSSION

FGD wastewater requires specialized analytical techniques to overcome matrix interferences for analysis of certain trace metals. To assist you in evaluating this issue further, we offer an excerpt below from the EPA web site and a link to their draft SOP for trace metals analysis of FGD wastewater that contains further guidance.

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LABORATORY ANALYSIS OF FGD WASTEWATER

Wastewater from FGD systems can contain constituents known to cause matrix interferences. EPA has observed that, during inductively coupled plasma–mass spectrometry (ICP-MS) analysis of FGD wastewater, certain elements commonly present in the wastewater may cause polyatomic interferences that bias the detection and/or quantization of certain elements of interest. These potential interferences may become significant when measuring trace elements at concentrations in the low parts-per-billion range.

As part of a recent sampling effort for the steam electric power generating effluent guidelines rulemaking, EPA developed an SOP that was used in conjunction with EPA Method 200.8 to conduct ICP-MS analyses of FGD wastewater. The SOP describes critical technical and quality assurance procedures that were implemented to mitigate anticipated interferences and generate reliable data for FGD wastewater. EPA regulations at 40 CFR 136.6 already allow the analytical community flexibility to modify approved methods to lower the costs of measurements, overcome matrix interferences, or otherwise improve the analysis. The draft SOP developed for FGD wastewater takes a proactive approach toward looking for and taking steps to mitigate matrix interferences, including using specialized interference check solutions (i.e., a synthetic FGD wastewater matrix). EPA's draft SOP is being made available to laboratories contemplating ICP-MS analysis of FGD wastewater, either for adoption as currently written or to serve as a framework for developing their own laboratory-specific SOPs. For further information, see:

- Standard Operating Procedure: Inductively Coupled Plasma/Mass Spectrometry for Trace Element Analysis in Flue Gas Desulfurization Wastewaters (30 pp, 174K), *http://water.epa.gov/scitech/wastetech/guide/upload/steam_draft_sop.pdf*, EPA May 2011.

Considering that specialized analytical techniques are necessary to overcome matrix interference for certain analysis of trace metals in FGD wastewater, we recommend any analysis on FGD wastewater be conducted in accordance with the EPA draft SOP for trace metals analysis of FGD wastewater.

Sincerely,

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

Brad Owens, Station Manager

p:\04jobs\0029300s\04-0029307.00\work\sampling and reporting\reports\lowell\monthly reports\2013\draft lowell feb ltr 032913.docx

Attachments

CONFIDENTIAL BUSINESS INFORMATION

LOWELL REGIONAL WASTEWATER UTILITY
Industrial Sewer User Self-Monitoring Report Summary Sheet

Facility Information: Company Name Public Service Company of New Hampshire

Facility Address 97 River Road Bow, New Hampshire Permit No. NA (Interim Discharge Authorization)

Facility Contact Brad Owens Telephone (603) 224-4081

----------***Use A Separate Summary Sheet For Each Monitoring Point***----------

Monitoring Report: Monitoring Point End of pretreatment process Submittal Date March 29, 2013

Reporting Period (circle applicable): Baseline Annually Semi-Annually Quarterly (Monthly) Re-Sample

Reporting Period Start Date February 1, 2013 Reporting Period End Date February 28, 2013

Sample Analysis: Certified Analytical Lab Eastern Analytical, Inc. (EAI)

Authorized Rep. Lorraine Olashaw Certification No. 1012

Analytical Sub-Contractor Frontier Global Sciences Certification No. E87575

Sample Collection: Sampler (Lab/Self/Other) Paul Pepler, GZA

Sample Type(s) (circle all that apply): (Grab) Time Composite Flow Composite

Grab Sampling: Sample Date 2/04/2013 (Softened Stream B) Sample Time 14:10

pH (Standard Units) 8.31 Instantaneous Flow Rate (GPM) N/A

Composite Sampling: Start Date/Time N/A Stop Date/Time N/A

No. Aliquots N/A Aliquot Volume N/A Sample Volume N/A

Flow Data: Sampling Interval Volume (Gal) 8,000 Daily Flow Rate (GPD) 12,000 (Average of discharge days)

Monitoring Period Industrial Wastewater Flow (Gal) 144,000 [ ] Meter [X] Estimate

Monitoring Period Start Date February 1, 2013 Monitoring Period End Date February 28, 2013

Refer to Self-Monitoring Report Instructions for details on completing this SMR Summary Sheet

LOWELL REGIONAL WASTEWATER UTILITY
Industrial Sewer User Self-Monitoring Report Summary Sheet

Submit All Chains of Custody and Laboratory Result Sheets With SMR Summary Sheet

Analytical Results:

Parameter	Analysis Date	Result (mg/L)	Parameter	Analysis Date	Result (mg/L)
BOD			Copper		
COD	2/07/2013	2,000	Cyanide (Total)		
O & G 413.1 / 1664			Fluoride		
TSS			Lead	2/15/2013	<0.00200
TOC *			Mercury	2/12/2013	0.0000796
TTO ** 624 / 8260B – 625 / 8270			Molybdenum		
Aluminum			Nickel		
Antimony			Nitrogen (Kjeldahl)		
Arsenic	2/15/2013	0.0151	Phenols (Total)		
Barium			Selenium		
Beryllium			Silver	2/15/2013	<0.00100
Cadmium	2/15/2013	<0.00100	Thallium		
Chromium (Hexavalent)			Zinc		
Chromium (Total)			Sodium	2/14/2013	43,500

BOD = Biochemical Oxygen Demand COD = Chemical Oxygen Demand O & G = Oil & Grease TSS = Total Suspended Solids TTO = Total Toxic Organics
**TOC (Total Organic Carbon) = is the amount of carbon bound in an organic compound and is often used as a non-specific indicator of water quality. TOC measures both the total carbon present as well as the inorganic carbon (IC). Subtracting the inorganic carbon from the total carbon yields TOC.*
***TTO's = Summation of all quantifiable values greater than 0.01 mg/L for toxic organics listed in 40 CFR 413.02(i). TTO's include PCB's (Poly-Chlorinated Biphenyls), VOC's (Volatile Organic Compounds), SVOC's (Semi-Volatile Organic Compounds). PCB's, VOC's and SVOC's shall be analyzed using EPA Methods 608, 624, and 625, respectively.*

Zero Discharge / Self-Monitoring (initial if applicable):

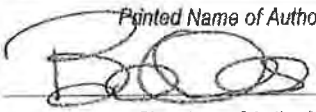
_____ No industrial wastewater from permitted processes has been discharged to sewer during the monitoring period

_____ No sampling has been conducted on permitted sewer discharges during the monitoring period

Certification Statement:

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Brad Owens
Printed Name of Authorized Representative



Signature of Authorized Representative

Station Manager
Title

3/28/2013
Date

TABLE 1
SUMMARY OF SOFTENED STREAM B CONCENTRATIONS
COMPARED TO LOWELL SEWER DISCHARGE LIMITS
FEBRUARY 2013
Public Service Company of New Hampshire
Merrimack Station
Bow, New Hampshire

PARAMETER	LOWELL SEWER DISCHARGE LIMITS (mg/L)	SOFTENED STREAM B RESULTS 2/04/2013 (mg/L)
Arsenic	0.556	0.0151
Cadmium	0.056	<0.00100
COD	-	2,000
Lead	0.857	<0.00200
Mercury	0.004	0.0000796
pH	5.0-9.5	8.31
Silver	0.053	<0.00100

TABLE 2
SUMMARY OF WASTEWATER SHIPMENTS TO LOWELL REGIONAL WASTEWATER UTILITY
FEBRUARY 2013
Public Service Company of New Hampshire
Merrimack Station
Bow, New Hampshire

DATE	DAY	TICKET	TRUCKING COMPANY	pH	SOFTENED STREAM A VOLUME (gallons)	SOFTENED STREAM B VOLUME (gallons)	TOTAL DAILY VOLUME (gallons)
2/1/2013	Friday	1022	O'Brien	-	-	8,000	8,000
2/6/2013	Wednesday	1023	O'Brien	-	-	8,000	8,000
2/7/2013	Thursday	1027	O'Brien	8.41	-	8,000	32,000
		1026	O'Brien	8.43	-	8,000	
		1025	O'Brien	7.71	-	8,000	
		1024	O'Brien	7.53	-	8,000	
2/8/2013	Friday	1028	O'Brien	7.98	-	8,000	16,000
		1029	O'Brien	8.11	-	8,000	
2/13/2013	Wednesday	1030	O'Brien	7.51	-	8,000	8,000
2/15/2013	Friday	1031	O'Brien	7.41	-	8,000	8,000
2/16/2013	Saturday	1419	O'Brien	8.11	-	8,000	16,000
		1418	O'Brien	8.11	-	8,000	
2/18/2013	Monday	1420	O'Brien	7.94	-	8,000	8,000
2/20/2013	Wednesday	1421	O'Brien	7.64	-	8,000	8,000
2/21/2013	Thursday	1422	O'Brien	8.41	-	8,000	8,000
2/25/2013	Monday	1424	O'Brien	7.48	-	8,000	8,000
2/26/2013	Tuesday	1424	O'Brien	7.76	-	8,000	16,000
		1426	O'Brien	7.53	-	8,000	

Shipments (Number of Trucks)	18
Truck Volume (Gallons)	8,000
Total Stream A Volume Discharged (Gallons)	-
Total Stream B Volume Discharged (Gallons)	144,000
Total Volume Discharged (Gallons)	144,000
Maximum Daily Flow (gallons per day)	32,000
Average Daily Flow (gallons per discharge day)	12,000
PERMITTED FLOW (GPD):	70,000

Eastern Analytical, Inc.

professional laboratory & drilling services

Paul Pepler
GZA GeoEnvironmental, Inc. (NH)
380 Harvey Road
Manchester , NH 03103

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID: 118124
Client Identification: PSNH-MK
Date Received: 2/5/2013

Dear Mr. Pepler :

Enclosed please find the laboratory report for the above identified project. All analyses were performed in accordance with our QA/QC Program. Unless otherwise stated, holding times, preservation techniques, container types, and sample conditions adhered to EPA Protocol. Samples which were collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures. Eastern Analytical, Inc. certifies that the enclosed test results meet all requirements of NELAP and other applicable state certifications. Please refer to our website at www.eailabs.com for a copy of our NELAP certificate and accredited parameters.

The following standard abbreviations and conventions apply to all EAI reports:

Solid samples are reported on a dry weight basis, unless otherwise noted
< : "less than" followed by the reporting limit
> : "greater than" followed by the reporting limit
%R : % Recovery

Eastern Analytical Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269) and Vermont (VT1012).

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the the written approval of the laboratory.

If you have any questions regarding the results contained within, please feel free to directly contact me or the chemist(s) who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director

2.22.13
Date

29
# of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **118124**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Temperature upon receipt (°C): 1

Received on ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
118124.01	Softened Stream B WW	2/5/13	2/4/13	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
All results contained in this report relate only to the above listed samples.
References include:

1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater : Inorganics, 19th Edition, 1995; Microbiology, 20th Edition, 1998
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

LABORATORY REPORT

EAI ID#: **118124**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Sample ID:	Softened Stream B WW
Lab Sample ID:	118124.01
Matrix:	aqueous
Date Sampled:	2/4/13
Date Received:	2/5/13

		Analysis			
	Units	**Date**	**Time**	**Method**	**Analyst**
COD	mg/L	2/07/13	9:30	H8000	SCW
2000					

QC REPORT

EAI ID#: **118124**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
COD	< 10	110 (108 %R)	110 (107 %R) (1 RPD)	mg/L	2/7/13	85 - 115	20	H8000

Samples were analyzed within holding times unless noted on the sample results page.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
The associated matrix spikes and/or Laboratory Control Samples met the above stated criteria.
Exceptions to the above statements are flagged or noted above or on the QC Narrative page.
*/! Flagged analyte recoveries deviated from the QA/QC limits.

FRONTIER
GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

20 February 2013

Jeff Gagne
Eastern Analytical, Inc
25 Chenell Drive
Concord, NH 03301

RE: Merrimack Station 200.8

Enclosed are the analytical results for samples received by Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Liz Siska

Liz Siska
Project Manager

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GLOBAL SCIENCES

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Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

ANALYTICAL REPORT FOR SAMPLES

Laboratory: Eurofins Frontier Global Sciences, Inc. **SDG:**

Client: Eastern Analytical, Inc **Project:** Merrimack Station 200.8

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
Softened Stream B WW	1302089-01	Water	04-Feb-13 14:10	06-Feb-13 09:25

Eurofins Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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CASE NARRATIVE

SAMPLE RECEIPT
One (1) water sample was received on February 6th, 2013 at Eurofins Frontier Global Sciences (EFGS). The sample was received intact, on-ice within a cooler at 1.8 degrees Celsius.

SAMPLE PREPARATION AND ANALYSIS
Sample preparation and analysis for trace metals was performed in accordance with EPA Method 200.8 with the use of a collison cell.

Sample preparation and analysis for total mercury was performed in accordance with EPA Method 1631E.

ANALYTICAL ISSUES
The COC stated that a field blank was to be received. There was no field blank present in the shipment and the client was notified of this discrepancey at the time of receipt.

Liquid spikes were prepared for every preparation as a measure of accuracy. All liquid spikes and certified reference material (if applicable) were within the control limits.

As an additional measure of the accuracy of the methods used and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries were within the control limits.

A reasonable measure of the precision of the analytical methods is the relative percent difference (RPD) between a matrix spike recovery and a matrix spike duplicate recovery and between laboratory control sample recovery and laboratory control sample duplicate recoveries. All of the relative percent differences were within the control limits.

Eurofins Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

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CHAIN OF COUSTODY FORMS

FRONTIER GLOBAL SCIENCES

Chain of Custody Record & Laboratory Analysis Request:
Air, Water, Sediments, Plant and Animal Tissue,
Hydrocarbon & Other Samples

Page 1 of 1

1302089

11720 North Creek Parkway N
Bothell, WA 98011
Phone: 425-686-1996
Fax: 425-686-3096
info@FrontierGS.com
http://www.FrontierGS.com

Client: Eastern Analytical, INC
Address: 25 Chenell Drive, Concord, NH 03301
Project Name
Report To: Same as above
Address:
Phone: 228-0525 Fax: 228-4591
E-mail: customerservice@eailabs.com

Contact: Jeff Gosne
Phone: 603/228-0525 Fax: 603/228-0525
E-mail: kfg@eailabs.com
Contract/PO: 39896
Invoice To:
Address: Same
Phone: Fax:
E-mail:

FGS PM:
Date:
TAT (business days): 20 (std) 15 (10) 5 4 3 2 24 hrs. (For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Saturday delivery? ☐ Y ☐ N (If yes, please contact PM)
EDD ☑ Y ☐ N
QA ☐ Standard ☐ High

No.	Engraved Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N)	Field Preserved: HNO_3 HCl BrCl Other (%)	Analyses Requested: Total Metals	Hg					Comments
1	B-6503	Softened Stream BWW	1	AQ	2/4/13 1410	PTP	N	—	✓						metals include As, Ag, Cd, Na, Pb, Hg 200.8 via Collision cell
2	C-4599	Field Blank Hg	1	AQ	2/4/13 1410	PTP	N	—	Hg						
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

For Laboratory Use Only
COC Seal: None
Cooler Temp:
Carrier: UPS
VTSR: 0925
# of Coolers: 1
Comments: TID 3150

Matrix Codes:
FW: Fresh Water
WW: Waste Water
SB: Sea and Brackish Water
SS: Soil and Sediment
TS: Plant and Animal Tissue
HC: Hydrocarbons
TR: Trap
OT: Other

Relinquished By: [signature]
Name: Chris Johnson
Organization: Eastern Analytical
Date & Time: 2/5/13 1530

Received By:
Name: UPS
Organization:
Date & Time:

Received By: [signature]
Name: Conor [illegible]
Organization: EFGS
Date & Time: 2/6/13 0925

Tracking number: 1Z X46 599 01 9642 3957

Sample Disposal:
☐ Return (shipping fees may apply)
☐ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with FGS' terms and conditions, and that you authorize FGS to perform the specified analyses.

Customer Approval: ____________ Date: ______

Eurofins Frontier Global Sciences, Inc.

The results in this report only apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

[signature]

Liz Siska, Project Manager

FRONTIER GLOBAL SCIENCES

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Ph: 425-686-1996
Fx: 425-686-3096

CHAIN OF CUSTODY FORMS

FGS Work Order: 1302089

Sample Receipt Checklist

Frontier Global Sciences

Client: Eastern Analytical Date & Time Received: 2/6/13 0935 Date Logged In: 2/6/13 Date Labeled: 2/6/13

Project: _____ Received By: CD Logged By: CD Labeled By: CD

# of Coolers Received: 1 Samples Arrived By: X Shipping Service ____ Courier ____ Hand ____ Other (Specify: _____)

Tracking/Airbill Number(s): UPS 1Z X46 599 01 9647 3957

Thermal Preservation: ____None (Ambient) X Loose Ice ____Gel/Blue Ice ____Other (Specify: _____) Thermal Preservation Required: (Y)/ N

Cooler Information:	Y/N	Comments
The coolers do not appear to be tampered with:	Y	
Custody Seals are present and intact:	N	None used
Custody seals signed by:	N/A	

Thermometer ID: 3150		CF: ~0.1 °C	
Cooler 1: °C	Cooler 4: °C	Cooler 7: °C	Cooler 10: °C
Cooler 2: °C	Cooler 5: °C	Cooler 8: °C	Cooler 11: °C
Cooler 3: °C	Cooler 6: °C	Cooler 9: °C	Cooler 12: °C

Chain of Custody:	Y/N	Comments
Sample ID/Description:	Y	
Date/Time of collection:	Y	
Sampled by:	Y	
Preservation type:	N/A	
Requested analyses:	Y	
Required signatures:	Y	
Internal COC required:	N	

Sample Condition/Integrity:	Y/N	Comments
Sample containers intact:	Y	
Sample labels are present and legible:	Y	
Sample ID on container matches COC:	N	See below
Correct sample containers used:	Y	
Samples received within holding times:	Y	
Sample volume sufficient for requested analyses:	Y	
Correct preservative used for requested analyses:	N/A	
pH of preserved samples verified and recorded:	N/A	

Client Contacted: _____ Date/Time: _____ Method: _____

Anomalies/Non-conformances (attach additional pages if needed):

Client did not send a field blank bottle. Bottle C-4599, marked as the field blank on the COC, was actually the Tity portion of sample 1. PM confirmed with client that field blank was not collected - CD 2/6/13

Discussion/Resolution:

FGS Sample Receipt Checklist Revision 2; 07/09/2012

Eurofins Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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ANALYTICAL RESULTS

Softened Stream B WW

Matrix: Water **Laboratory ID:** 1302089-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Arsenic	**15.1**	2.14	7.50	µg/L	50	F302060	3B15014	02/15/13	EPA 200.8	R-05
Cadmium	ND	0.160	1.00	µg/L	50	F302060	3B15002	02/15/13	EPA 200.8	R-05, U
Lead	ND	0.160	2.00	µg/L	50	F302060	3B15002	02/15/13	EPA 200.8	R-05, U
Mercury	**79.6**	0.84	5.05	ng/L	10	F302064	3B12020	02/12/13	EPA 1631E	
Silver	ND	0.100	1.00	µg/L	50	F302060	3B15002	02/15/13	EPA 200.8	R-05, U
Sodium	**43500000**	4990	2500000	µg/L	5000	F302060	3B15002	02/14/13	EPA 200.8	

Eurofins Frontier Global Sciences, Inc.

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Liz Siska, Project Manager

FRONTIER
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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1302072-01

Batch: F302064 **Sequence:** 3B12020

Preparation: BrCl Oxidation **Lab Number:** F302064-DUP1

Analyte	Sample Concentration ng/L	Duplicate Concentration ng/L	MRL	% RPD	RPD Limit	Method	Notes
Mercury	5.29	7.11	0.50	29.5	24	EPA 1631E	QR-07

Eurofins Frontier Global Sciences, Inc.

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Liz Siska

Liz Siska, Project Manager

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1302072-01

Batch: F302064
Sequence: 3B12020
Preparation: BrCl Oxidation
Lab Number: F302064-DUP2

Analyte	Sample Concentration ng/L	Duplicate Concentration ng/L	MRL	% RPD	RPD Limit	Method	Notes
Mercury	5.29	5.46	0.50	3.28	24	EPA 1631E	

Eurofins Frontier Global Sciences, Inc.

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Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302089-01

Batch: F302060 **Sequence:** 3B13002

Preparation: No Preparation **Lab Number:** F302060-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Arsenic	13.70	15.000	29.45	105	70 - 130	EPA 200.8	
Lead	0.513	1.5000	1.750	82.4	70 - 130	EPA 200.8	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Arsenic	15.000	31.34	118	6.20	70 - 130	20	EPA 200.8	
Lead	1.5000	1.756	82.9	0.373	70 - 130	20	EPA 200.8	

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Liz Siska, Project Manager

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Fx: 425-686-3096

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302089-01

Batch: F302060 **Sequence:** 3B13002

Preparation: No Preparation **Lab Number:** F302060-MS/MSD3

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Arsenic	13.70	1015.0	1042	101	70 - 130	EPA 200.8	AS
Lead	0.513	253.75	226.0	88.9	70 - 130	EPA 200.8	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Arsenic	1015.0	1053	102	1.11	70 - 130	20	EPA 200.8	AS
Lead	253.75	229.5	90.2	1.53	70 - 130	20	EPA 200.8	AS

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302089-01RE2

Batch: F302060 **Sequence:** 3B15002

Preparation: No Preparation **Lab Number:** F302060-MS/MSD5

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Silver	ND	1.5225	1.287	84.5	70 - 130	EPA 200.8	R-05
Cadmium	0.808	0.81200	2.105	160	70 - 130	EPA 200.8	QM-07, R-05
Lead	0.389	1.5225	1.831	94.7	70 - 130	EPA 200.8	R-05

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Silver	1.5225	1.370	90.0	6.30	70 - 130	20	EPA 200.8	R-05
Cadmium	0.81200	2.019	149	4.18	70 - 130	20	EPA 200.8	QM-07, R-05
Lead	1.5225	1.856	96.4	1.38	70 - 130	20	EPA 200.8	R-05

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Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302089-01RE3

Batch: F302060 **Sequence:** 3B15002

Preparation: No Preparation **Lab Number:** F302060-MS/MSD6

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	43520000	507.50	93800000	9910000	70 - 130	EPA 200.8	QM-02

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	507.50	86990000	8570000	7.53	70 - 130	20	EPA 200.8	QM-02

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302089-01RE2

Batch: F302060 **Sequence:** 3B15002

Preparation: No Preparation **Lab Number:** F302060-MS/MSD7

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Silver	ND	50.750	40.19	79.2	70 - 130	EPA 200.8	AS, R-05
Cadmium	0.808	101.50	84.58	82.5	70 - 130	EPA 200.8	AS, R-05
Lead	0.389	253.75	231.7	91.2	70 - 130	EPA 200.8	AS, R-05

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Silver	50.750	41.53	81.8	3.29	70 - 130	20	EPA 200.8	AS, R-05
Cadmium	101.50	84.56	82.5	0.0216	70 - 130	20	EPA 200.8	AS, R-05
Lead	253.75	246.3	96.9	6.10	70 - 130	20	EPA 200.8	AS, R-05

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302089-01RE3

Batch: F302060 **Sequence:** 3B15002

Preparation: No Preparation **Lab Number:** F302060-MS/MSD8

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Sodium	43520000	10150000	49510000	59.0	70 - 130	EPA 200.8	AS, QM-02

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	10150000	52930000	92.7	6.68	70 - 130	20	EPA 200.8	AS, QM-02

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Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302072-01

Batch: F302064 **Sequence:** 3B12020

Preparation: BrCl Oxidation **Lab Number:** F302064-MS/MSD1

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	5.29	20.200	25.11	98.1	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	20.200	25.01	97.6	0.398	71 - 125	24	EPA 1631E	

Eurofins Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302114-08

Batch: F302064 **Sequence:** 3B12020

Preparation: BrCl Oxidation **Lab Number:** F302064-MS/MSD2

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	5603	10200	15470	96.7	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	10200	15970	102	3.19	71 - 125	24	EPA 1631E	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F302060
Preparation: No Preparation

Sequence: 3B13002
Lab Number: F302060-BS/BSD1
LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Arsenic	15.000	14.71	98.0	85 - 115	EPA 200.8	
Lead	1.5000	1.335	89.0	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Arsenic	15.000	15.46	103	5.03	85 - 115	20	EPA 200.8	
Lead	1.5000	1.424	94.9	6.45	85 - 115	20	EPA 200.8	

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Liz Siska

Liz Siska, Project Manager

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F302060
Preparation: No Preparation
Sequence: 3B15002
Lab Number: F302060-BS/BSD2
LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Silver	1.5000	1.590	106	85 - 115	EPA 200.8	
Cadmium	0.80000	0.842	105	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Silver	1.5000	1.594	106	0.203	85 - 115	20	EPA 200.8	
Cadmium	0.80000	0.895	112	6.08	85 - 115	20	EPA 200.8	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F302060
Preparation: No Preparation

Sequence: 3B20001
Lab Number: F302060-BS/BSD3
LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Sodium	500.00	532	106	85 - 115	EPA 200.8	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Sodium	500.00	577	115	8.20	85 - 115	20	EPA 200.8	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F302064
Preparation: BrCl Oxidation

Sequence: 3B12020
Lab Number: F302064-BS/BSD1
LCS Source: NIST

Analyte	Spike Added (ng/L)	LCS Concentration (ng/L)	LCS % Recovery	Recovery Limits	Method	Notes
Mercury	15.679	15.38	98.1	77 - 123	EPA 1631E	

Analyte	Spike Added (ng/L)	LCSD Concentration (ng/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	15.679	15.29	97.5	0.569	77 - 123	24	EPA 1631E	

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Liz Siska

Liz Siska, Project Manager

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PREPARATION BLANKS

Instrument: Hg2600-2

Sequence: 3B12020

Preparation: BrCl Oxidation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F302064-BLK1	Mercury	-0.02	0.50	ng/L	F302064	EPA 1631E	U
F302064-BLK2	Mercury	-0.02	0.50	ng/L	F302064	EPA 1631E	U
F302064-BLK3	Mercury	-0.02	0.50	ng/L	F302064	EPA 1631E	U
F302064-BLK4	Mercury	-0.02	0.50	ng/L	F302064	EPA 1631E	U, QB-04
F302064-BLK5	Mercury	0.72	9.90	ng/L	F302064	EPA 1631E	U, QB-08

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PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 3B13002

Preparation: No Preparation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F302060-BLK1	Arsenic	-0.02	0.15	µg/L	F302060	EPA 200.8	U
F302060-BLK1	Lead	0.0002	0.040	µg/L	F302060	EPA 200.8	U

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PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 3B15002

Preparation: No Preparation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F302060-BLK2	Silver	0.0003	0.020	µg/L	F302060	EPA 200.8	U
F302060-BLK2	Cadmium	0.003	0.020	µg/L	F302060	EPA 200.8	U

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Fx: 425-686-3096

PREPARATION BLANKS

Instrument: ICPMS-6

Sequence: 3B20001

Preparation: No Preparation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F302060-BLK3	Sodium	0.4	40	µg/L	F302060	EPA 200.8	U

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Notes and Definitions

U	Analyte included in the analysis, but not detected
R-05	The sample was diluted due to the presence of high levels of non-target analytes or particulates resulting in elevated reporting limits.
QR-07	The RPD/RSD value for the matrix duplicate/triplicate was outside of acceptance limits. Batch QC acceptable based on MS/MSD and/or LCS/LCSD RPD values within control limits.
QM-07	The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QM-02	The MS and/or MSD recoveries outside acceptance limits, due to spike concentration less than 1 times the sample concentration. The batch was accepted based on LCS and LCSD recoveries within control limits and, when analysis permits, acceptable AS/ASD.
QB-08	The blank was preserved to 50% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
QB-04	The blank was preserved to 2% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
FB-1631	Required equipment/field/filter blank not submitted by the client. The sample has been analyzed according to 1631E, but does not meet 1631E criteria
AS	This MS and/or MSD is an analytical spike and/or an analytical spike duplicate.
DET	Analyte Detected
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
ND	Analyte Not Detected at or above the reporting limit
wet	Sample results reported on a wet weight basis
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
RSD	Relative Standard Deviation

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Liz Siska

Liz Siska, Project Manager

Page 1 of 1

Chain-of-Custody Record

118124

Bold Fields Required. Please Circle Requested Analysis.

Sample I.D.	Sampling Date/Time *If Composite, Indicate Both Start & Finish Date/Time	Matrix (see below)	Grab/*Composite	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE only	VOC: 8260B / 624 / VTICs / 1,4 Dioxane / EDB / DBCP	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MEGRO MAVPH	SVOC: 8270D 625 SVTICs / ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015B DRO MEDRO MAEPH	SVOC: PEST 608 PCB 608 / PEST 8081A PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals / VOC Pest Herb	Metals: Dissolved Metals (List Below)	Metals: Total Metals (List Below)	Inorganics: TS TSS TDS Spec. Cond.	Inorganics: Br Cl F SO_4 / NO_2 NO_3 NO_3NO_2	Inorganics: BOD CBOD T. Alk	Inorganics: TKN NH_3 T. Phos. O. Phos.	Inorganics: pH T. Res Chlorine	Inorganics: (COD) Phenols TOC DOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide Flashpoint Ignitability	Micro: Total Coliform Fecal Coliform E. Coli	Micro: Enterococci Heterotrophic Plate Count	Other	Other	Other	# of Containers	Notes MeOH Vial #
Softened Stream B WW	02/04/2013: 2:10 pm	X	X												X						X								3	

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste Water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: Paul Pepler

Company: GZA GeoEnvironmental, Inc.

Address: 380 Harvey Road

City: Manchester State: NH Zip: 03103

Phone: 603-232-8717 Ext.:

Fax:

E-Mail: paul.pepler@gza.com

Site Name: PSNH- MK

Project #:

State: (NH) MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #:

Date Needed: Standard TAT

Temp. 6 °C

Ice? (Yes) No

QA/QC Reporting Level

A B C

or

Presumptive Certainty

Reporting Options

Prelims: (Yes) or No

If Yes: Fax or PDF

Electronic Options

No Fax E-Mail (PDF) Equis

Sampler(s): Paul Pepler, GZA

Relinquished By:	Date:	Time:	Received By:
Paul T. Pepler	2/4/13	8:38 am	RQB
RQB	2013.02.05	1420	[signature]

Metals: 8 RCRA 13 PP Fe, Mn Pb, Cu

Other Metals:

Dissolved Metals Field Filtered? Yes No

Notes: (ie: Special Detection Limits, Billing Info, If Different)

As, Ag, Cd, Na, Pb, Hg

FIELD pH: 8.31

Please send metals to Frontier for analysis by Method 200.8 MOD (ICP-MS with Collision cell)

Site History:

Suspected Contamination:

Field Readings:

Eastern Analytical, Inc.
professional laboratory & drilling services

Paul Pepler
GZA GeoEnvironmental, Inc. (NH)
380 Harvey Road
Manchester , NH 03103

ACCREDITED IN ACCORDANCE WITH nelac

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	118260
Client Identification:	PSNH-MK
Date Received:	2/7/2013

Dear Mr. Pepler :

Enclosed please find the report of analysis for the above identified project.
As discussed, analyses were subcontracted and are listed as follows:

Analysis:	Subcontract - Mercury
Subcontractor Lab:	Eurofins / Frontier Global Sciences, Inc

A complete copy of the report is attached. This report may not be reproduced except in full, without the written approval of the laboratory.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Lorraine Olashaw, Lab Director | 3.12.13 Date | 16 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: **118260**

Client: **GZA GeoEnvironmental, Inc. (NH)**

Client Designation: **PSNH-MK**

Temperature upon receipt (°C): 38.3 **Received on ice or cold packs (Yes/No): Y**

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
118260.01	Softened Stream B WW	2/7/13	2/7/13	aqueous		Adheres to Sample Acceptance Policy

Samples were properly preserved and the pH measured when applicable unless otherwise noted. Analysis of solids for pH, Flashpoint, Ignitibility, Paint Filter, Corrosivity, Conductivity and Specific Gravity are reported on an "as received" basis.
Immediate analyses, pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite, performed at the laboratory were run outside of the recommended 15 minute hold time.
All results contained in this report relate only to the above listed samples.
References include:
1) EPA 600/4-79-020, 1983
2) Standard Methods for Examination of Water and Wastewater,20th Edition, 1998 and 22nd Edition, 2012
3) Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
4) Hach Water Analysis Handbook, 2nd edition, 1992

Eastern Analytical, Inc. www.eailabs.com | 800.287.0525 | customerservice@eailabs.com

eurofins | Frontier Global Sciences

11720 North Creek Parkway North, Suite 400
Bothell, WA 98011
Phone: 425-686-1996
www.frontiergs.com

12 March 2013

Jeff Gagne
Eastern Analytical, Inc
25 Chenell Drive
Concord, NH 03301

RE: Merrimack Station 200.8

Enclosed are the analytical results for samples received by Eurofins Frontier Global Sciences. All quality control measurements are within established control limits and there were no analytical difficulties encountered with the exception of those listed in the case narrative section of this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Liz Siska

Liz Siska
Project Manager

eurofins | Frontier Global Sciences

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Bothell, WA 98011
Phone: 425-686-1996
www.frontiergs.com

ANALYTICAL REPORT FOR SAMPLES

Laboratory: Eurofins Frontier Global Sciences, Inc.
Client: Eastern Analytical, Inc

SDG:
Project: Merrimack Station 200.8

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
C-4603 Softened Stream B WW	1302185-01	Water	07-Feb-13 16:15	12-Feb-13 09:30
B-6506 Field Blank	1302185-02	Water	07-Feb-13 16:15	12-Feb-13 09:30

Eurofins Frontier Global Sciences

Liz Siska

Liz Siska, Project Manager

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CASE NARRATIVE

SAMPLE RECEIPT
One (1) water samples was received on February 12th, 2013 at Eurofins Frontier Global Sciences (EFGS). The sample was received intact, on-ice within a cooler at 0.9 degrees Celsius.

SAMPLE PREPARATION AND ANALYSIS
Sample preparation and analysis for total mercury was performed in accordance with EPA Method 1631E.

ANALYTICAL ISSUES
Liquid spikes were prepared for every preparation as a measure of accuracy. All liquid spikes and certified reference material (if applicable) were within the control limits.

As an additional measure of the accuracy of the methods used and to check for matrix interference, matrix spikes (MS) and matrix spike duplicates (MSD) were digested and analyzed. All of the matrix spike recoveries were within the control limits.

A reasonable measure of the precision of the analytical methods is the relative percent difference (RPD) between a matrix spike recovery and a matrix spike duplicate recovery and between laboratory control sample recovery and laboratory control sample duplicate recoveries. All of the relative percent differences were within the control limits.

Eurofins Frontier Global Sciences

Liz Siska

Liz Siska, Project Manager

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Phone: 425-686-1996
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CHAIN OF CUSTODY FORMS

1302185

FRONTIER GLOBAL SCIENCES

Chain of Custody Record & Laboratory Analysis Request:
Air, Water, Sediments, Plant and Animal Tissue,
Hydrocarbon & Other Samples

Page 1 of 1

1302185

11720 North Creek Parkway N
Bothell, WA 98011
Phone: 425-686-1996
Fax: 425-686-3096
info@FrontierGS.com
http://www.FrontierGS.com

Client: Eastern Analytical	Contact:	FGS PM:	
Address: 25 Chenell Dr Concord, NH 03301	Phone: Fax:	Date:	
Project Name: PSNH - MK	E-mail: SAME	TAT (business days): 20 (std)	
Report To:	Contract/PO: 39914	15 10 5 4 3 2 24 hrs. (For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)	
Address: SAME	Invoice To:	Saturday delivery? ☐ Y ☐ N (If yes, please contact PM)	
Phone: Fax:	Address: SAME	EDD ☐ Y ☐ N	
E-mail: customerservice@worldsci	Phone: Fax:	QA ☐ Standard ☐ High	
	E-mail:		

No.	Engrayed Bottle ID	Sample ID	# of Bottles	Matrix	Date & Time	Sampled By	Field Filtered (Y/N)	Field Preserved: HNO_3 HCl BrCl Other (%)	Analyses Requested: Low Level Hg	Comments
1	C-4603	Softened Steam BWW	1	WW	2/7/2013 1615				X	EAI SRB # 118260
2	B-6806	Field Blank	1	FB	↓				X	
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

For Laboratory Use Only

COC Seal: N/A
Cooler Temp: 0.9°C
Carrier: UPS
VTSR: 0930
# of Coolers: 1
Comments: TD: 3150

Matrix Codes:
FW: Fresh Water
WW: Waste Water
SB: Sea and Brackish Water
SS: Soil and Sediment
TS: Plant and Animal Tissue
HC: Hydrocarbons
TR: Trap
OT: Other

Relinquished By:	Received By:	Received By:
Name: Jennifer Lane	Name: UPS	Name: A-BrHM
Organization: EAI	Organization: UPS	Organization: EFGS
Date & Time: 2/11/13 1530	Date & Time: 2/11/13 1530	Date & Time: ~~2/13~~ AMB 2/12/13 2/12/13

Tracking number: 1Z X46 599 13 9334 5453 0930

Sample Disposal:
☐ Return (shipping fees may apply)
☑ Standard Disposal – 30 Days after report
☐ Retain for ____ weeks after report (storage fees may apply)

By signing, you declare that you agree with FGS' terms and conditions, and that you authorize FGS to perform the specified analyses.

Customer Approval: _____ Date: 2/11/13

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Liz Siska

Liz Siska, Project Manager

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CHAIN OF CUSTODY FORMS

FGS Work Order: 1302185

Sample Receipt Checklist

Frontier Global Sciences

Client: Eastern Analy. Date & Time Received: 2/12/13 0930 Date Logged In: 2/12/13 Date Labeled: 2/12/13

Project: _____ Received By: AMB Logged By: AMB Labeled By: AMB

# of Coolers Received: 1 Samples Arrived By: ✓ Shipping Service ____ Courier ____ Hand ____ Other (Specify: _____)

Tracking/Airbill Number(s): 1Z X46 599 13 9334 5453

Thermal Preservation: ____None (Ambient) ✓Loose Ice ____Gel/Blue Ice ____Other (Specify: _____) Thermal Preservation Required: Y (N)

Cooler Information:	Y/N	Comments
The coolers do not appear to be tampered with:	Y	
Custody Seals are present and intact:	N/A	
Custody seals signed by:	N/A	

Thermometer ID: 3150		CF: -0.1°C	
Cooler 1: 1.9 °C	Cooler 4: °C	Cooler 7: °C	Cooler 10: °C
Cooler 2: °C	Cooler 5: °C	Cooler 8: °C	Cooler 11: °C
Cooler 3: °C	Cooler 6: °C	Cooler 9: °C	Cooler 12: °C

Chain of Custody:	Y/N	Comments
Sample ID/Description:	Y	
Date/Time of collection:	Y	
Sampled by:	N	
Preservation type:	N/A	
Requested analyses:	Y	
Required signatures:	Y	
Internal COC required:	N	

Sample Condition/Integrity:	Y/N	Comments
Sample containers intact:	Y	
Sample labels are present and legible:	Y	
Sample ID on container matches COC:	N	
Correct sample containers used:	Y	
Samples received within holding times:	Y	
Sample volume sufficient for requested analyses:	Y	
Correct preservative used for requested analyses:	N/A	
pH of preserved samples verified and recorded:	N/A	

Client Contacted: _____ Date/Time: _____ Method: _____

Anomalies/Non-conformances (attach additional pages if needed):

Both sample containers have "PTO" in the "collected by" field on the labels.
AMB 2/12/13

Discussion/Resolution:

FGS Sample Receipt Checklist Revision 2; 07/09/2012

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CHAIN OF CUSTODY FORMS

WORK ORDER
1302185

Printed: 2/12/2013 11:37:16AM

Eurofins Frontier Global Sciences, Inc.

Client: Eastern Analytical, Inc
Project: Merrimack Station 200.8

Project Manager: Liz Siska

Preservation Label Confirmation

Sample Bottle	Bottle Type	Preservative	Label Color	Labeled By
1302185-01 A	500 mL PETG 1631	BrCl	YELLOW	AMB 2/12/13
1302185-02 A	250 mL PETG 1631	BrCl	YELLOW	AMB "

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ANALYTICAL RESULTS

C-4603 Softened Stream B WW

Matrix: Water **Laboratory ID:** 1302185-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Mercury	162	-	5.05	ng/L	10	F302182	3B25008	02/25/13	EPA 1631E	

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ANALYTICAL RESULTS

B-6506 Field Blank

Matrix: Water **Laboratory ID:** 1302185-02

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Mercury	ND	-	0.50	ng/L	1	F302182	3B25008	02/25/13	EPA 1631E	U

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1302286-06

Batch: F302182 **Sequence:** 3B25008

Preparation: BrCl Oxidation **Lab Number:** F302182-DUP1

Analyte	Sample Concentration ng/L	Duplicate Concentration ng/L	MRL	% RPD	RPD Limit	Method	Notes
Mercury	10.75	10.74	0.50	0.123	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302286-06

Batch: F302182 **Sequence:** 3B25008

Preparation: BrCl Oxidation **Lab Number:** F302182-MS/MSD1

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	10.75	20.400	30.25	95.6	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	20.400	30.91	98.8	2.14	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1302354-01

Batch: F302182 **Sequence:** 3B25008

Preparation: BrCl Oxidation **Lab Number:** F302182-MS/MSD2

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	112.7	255.00	384.9	107	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	255.00	389.4	109	1.18	71 - 125	24	EPA 1631E	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F302182
Preparation: BrCl Oxidation

Sequence: 3B25008
Lab Number: F302182-BS/BSD1
LCS Source: Nist 1641d

Analyte	Spike Added (ng/L)	LCS Concentration (ng/L)	LCS % Recovery	Recovery Limits	Method	Notes
Mercury	15.679	16.36	104	77 - 123	EPA 1631E	

Analyte	Spike Added (ng/L)	LCSD Concentration (ng/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	15.679	16.20	103	0.968	77 - 123	24	EPA 1631E	

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PREPARATION BLANKS

Instrument: Hg2600-1

Sequence: 3B25008

Preparation: BrCl Oxidation

Lab Sample ID	Analyte	Found	MDL	MRL	Units	Batch	Method	Notes
F302182-BLK1	Mercury	-0.002	0.08	0.50	ng/L	F302182	EPA 1631E	U
F302182-BLK2	Mercury	0.11	0.08	0.50	ng/L	F302182	EPA 1631E	U
F302182-BLK3	Mercury	-0.03	0.08	0.50	ng/L	F302182	EPA 1631E	U
F302182-BLK4	Mercury	-0.03	0.08	0.50	ng/L	F302182	EPA 1631E	QB-04, U

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Notes and Definitions

U	Analyte included in the analysis, but not detected
QB-04	The blank was preserved to 2% BrCl rather than 1%. The control limit for blanks preserved to greater than 1% BrCl is the preservation percentage multiplied by the MRL.
DET	Analyte Detected
MDL	Minimum Detection Limit
MRL	Minimum Reporting Limit
ND	Analyte Not Detected at or above the reporting limit
wet	Sample results reported on a wet weight basis
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
RSD	Relative Standard Deviation

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Chain-of-Custody Record

Fo 118260

Bold Fields Required. Please Circle Requested Analysis.

Sample I.D.	Sampling Date/Time *If Composite, Indicate Both Start & Finish Date/Time	Matrix (see below)	Grab/*Composite	VOC: 524.2 / 524.2 BTEX / 524.2 MTBE only	VOC: 8260B 624 VTICs / 1,4 Dioxane EDB DBCP	VOC: 8021B BTEX HALOS	VOC: 8015B GRO MEGRO MAVPH	SVOC: 8270D 625 SVTICs / ABN A BN PAH	SVOC: TPH8100 L1 L2	SVOC: 8015B DRO MEDRO MAEPH	SVOC: PEST 608 PCB 608 / PEST 8081A PCB 8082	SVOC: Oil & Grease 1664 TPH 1664	TCLP: TCLP 1311 ABN Metals / VOC Pest Herb	Metals: Dissolved Metals (list below)	Metals: Total Metals (list below)	Inorganics: TS TSS TDS Spec Con	Inorganics: Br Cl F SO_4 / NO_2 NO_3 NO_3NO_2	Inorganics: BOD CBOD T. Alk	Inorganics: TKN NH_3 T. Phos O. Phos	Inorganics: pH T. Res Chlorine	Inorganics: COD Phenols TOC DOC	Inorganics: Total Cyanide Total Sulfide	Inorganics: Reactive Cyanide Reactive Sulfide / Flashpoint Ignitability	Micro: Total Coliform E. Coli / Fecal Coliform	Micro: Enterococci / Heterotrophic Plate Count	Other	Other	Other	# of Containers	Notes MeOH Vial #
Softened Stream B WW	02/07/2013: 4:50	X	X												X														1	and 1 field blank

Matrix: A-Air; S-Soil; GW-Ground Water; SW-Surface Water; DW-Drinking Water; WW-Waste Water

Preservative: H-HCL; N-HNO_3; S-H_2SO_4; Na-NaOH; M-MEOH

Project Manager: Paul Pepler

Company: GZA GeoEnvironmental, Inc.

Address: 380 Harvey Road

City: Manchester State: NH Zip: 03103

Phone: 603-232-8717 Ext.:

Fax:

E-Mail: paul.pepler@gza.com

Site Name: PSNH- MK

Project #:

State: (NH) MA ME VT Other:

Regulatory Program: NPDES: RGP POTW Stormwater or GWP, Oil Fund, Brownfield or Other:

Quote #: PO #:

Date Needed: Standard TAT

QA/QC Reporting Level A B C OR Presumptive Certainty

Reporting Options Prelims: (Yes) or No. If Yes: Fax or PDF

Electronic Options No Fax E-Mail (PDF) Equis

Temp. 3.8 3 °C Ice? (Yes) No

Sampler(s): Paul Pepler, GZA

Relinquished By: [signature] Date: 2/7/13 Time: 4:53 Received By: [signature]

Relinquished By: Date: Time: Received By:

Relinquished By: Date: Time: Received By:

Metals: 8 RCRA 13 PP Fe, Mn Pb, Cu

Other Metals:

Dissolved Metals Field Filtered? Yes No

Notes: (ie: Special Detection Limits, Billing Info, If Different)

Hg

FIELD pH:

Please send metals to Frontier for analysis

Site History:

Suspected Contamination:

Field Readings:

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