AR-1339

GZA
GeoEnvironmental, Inc.

Engineers and Scientists

VIA EMAIL

April 6, 2012
File No. 04.0029307.00

Mr. Bruce Kudrick
Superintendent, Hooksett Sewer Commission
Town of Hooksett
1 Egawes Drive
Hooksett, New Hampshire 03106

Re: Wastewater Discharge Monitoring Report
Treated Wastewater
Merrimack Station
Public Service of New Hampshire
Bow, New Hampshire

380 Harvey Road
Manchester
New Hampshire
03103-3347
603-623-3600
FAX 603-624-9463
www.gza.com

Dear Bruce:

On behalf of Public Service of New Hampshire (PSNH), GZA GeoEnvironmental, Inc. is pleased to submit the attached **Wastewater Discharge Monitoring Report** and **Analytical Data Report** for sampling conducted on March 2, 2012.

The analysis on samples collected on March 2, 2012 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 interference for certain analysis of 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.

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 FDG wastewater, we recommend any analysis on FGD wastewater be conducted in accordance with the EPA draft SOP for trace metals analysis of FGD wastewater.

Should you have any questions concerning this report, please do not hesitate to contact me at (603) 232-8744.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Ronald A. Breton, P.E.
Principal

Michael P. North, P.E.
Consultant/Review

RAB:tmd
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Attachments: Wastewater Discharge Monitoring Report
Analytical Data Report

WASTEWATER DISCHARGE MONITORING REPORT

WASTEWATER DISCHARGE MONITORING REPORT
HOOKSETT WASTEWATER TREATMENT PLANT

Public Service of New Hampshire - Merrimack Station
Waste Disposal Agreement No. WDA-001
Issued October 1, 2011
Expires September 30, 2012

Permitted Flow 70,000 gallons per day

FLOW DATA

Daily Flow Rate	12,808 gallons	(average of 11 actual discharge days)
Monitoring Period Flow	140,890 gallons	(3/01/12 - 3/31/12)

FACILITY INFORMATION

Company Name: Public Service Company of New Hampshire - Merrimack Station
Company Owner: Public Service Company of New Hampshire
Facility Address: 97 River Road
Facility Contact: Harold Keyes
Telephone: (603) 224-4081

MONITORING REPORT

Submittal Date: 4/6/2012
Monitoring Point: End of treatment process
Reporting Period: First Month

SAMPLE ANALYSIS

Certified Analytical Laboratory: Eastern Analytical Inc. (EAI) Certification Number: 1012
Authorized Representative: Lorraine Olashaw
Analytical Subcontractor: Frontier Global Sciences Certification Number: E87575

SAMPLE COLLECTION

Sampler: Jim Blackwell, Gregg Thompson, EAI
Sample Type: Grab
Sample Date: 3/2/2012 Sample Time: 11:00 AM
pH: 7.1

CATEGORICAL PRETREATMENT STANDARDS

40 CFR 423.16: Steam Electric Power Generating Category
NOTE: There are no numerical pretreatment standards for this source

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."

Harold Keyes	Station Manager
Printed Name of Authorized Representative	Title
Harold Keyes	4/6/2012
Signature of Authorized Representative	Date

ANALYTICAL DATA REPORT

eastern analytical

professional laboratory services

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

Subject: Laboratory Report
Eastern Analytical, Inc. ID: 108078
Client Identification: Wastewater Analysis
Date Received: 3/2/2012

Report revision/reissue: Revision, replaces report dated 3/29/2012

Revision information: Per customer request, TSS has been rerun.

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 — 4.5.12 Date — 29 # of pages (excluding cover letter)

SAMPLE CONDITIONS PAGE

EAI ID#: 108078

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

Client Designation: **Wastewater Analysis**

Temperature upon receipt (°C): 21 **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)
108078.01	Effluent Field Blank B-3621	3/2/12	3/2/12	aqueous		Adheres to Sample Acceptance Policy
108078.02	Final Effluent B-3625, B-3727, B-3722	3/2/12	3/2/12	aqueous		Adheres to Sample Acceptance Policy
108078.03	Final Effluent B-3625, B-3727, B-3722 Rerun	3/2/12	3/2/12	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

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

Client Designation: **Wastewater Analysis**

Sample ID:	Final Effluent B-3625, B-3727, B-3722
Lab Sample ID:	108078.02
Matrix:	aqueous
Date Sampled:	3/2/12
Date Received:	3/2/12
Units:	ug/l
Date of Analysis:	3/7/12
Analyst:	BAM
Method:	624
Dilution Factor:	1

Chloromethane	< 5
Vinyl chloride	< 2
Bromomethane	< 2
Chloroethane	< 5
Trichlorofluoromethane	< 5
Acrolein	< 50
Acetone	< 50
1,1-Dichloroethene	< 1
Methylene chloride	< 5
Carbon disulfide	< 5
Acrylonitrile	< 50
Methyl-t-butyl ether(MTBE)	< 10
trans-1,2-Dichloroethene	< 2
Vinyl acetate	< 10
1,1-Dichloroethane	< 2
cis-1,2-Dichloroethene	< 2
2-Butanone(MEK)	< 10
Chloroform	< 2
1,1,1-Trichloroethane	< 2
Carbon tetrachloride	< 2
Benzene	< 1
1,2-Dichloroethane	< 2
Trichloroethene	< 2
1,2-Dichloropropane	< 2
Bromodichloromethane	< 2
2-Chloroethylvinylether	< 2
4-Methyl-2-pentanone(MIBK)	< 10
cis-1,3-Dichloropropene	< 2
Toluene	< 1
trans-1,3-Dichloropropene	< 2
1,1,2-Trichloroethane	< 2
2-Hexanone	< 10
Tetrachloroethene	< 2
Dibromochloromethane	< 2
Chlorobenzene	< 2
Ethylbenzene	< 1
mp-Xylene	< 1
o-Xylene	< 1
Styrene	< 1
Bromoform	< 2
1,1,2,2-Tetrachloroethane	< 2
1,3-Dichlorobenzene	< 1
1,4-Dichlorobenzene	< 1
1,2-Dichlorobenzene	< 1
4-Bromofluorobenzene (surr)	93 %R
1,2-Dichlorobenzene-d4 (surr)	99 %R

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

Client Designation: **Wastewater Analysis**

Sample ID:	Final Effluent B-3625, B-3727, B-3722
Lab Sample ID:	108078.02
Matrix:	aqueous
Date Sampled:	3/2/12
Date Received:	3/2/12
Units:	ug/l
Date of Analysis:	3/7/12
Analyst:	BAM
Method:	624
Dilution Factor:	1
Toluene-d8 (surr)	**94 %R**

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Wastewater Analysis**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Chloromethane	< 5	20 (99 %R)	20 (101 %R) (2 RPD)	3/7/2012	ug/l	0 - 273	20	624
Vinyl chloride	< 2	20 (102 %R)	21 (106 %R) (4 RPD)	3/7/2012	ug/l	0 - 251	20	624
Bromomethane	< 2	19 (93 %R)	21 (103 %R) (10 RPD)	3/7/2012	ug/l	0 - 242	20	624
Chloroethane	< 5	23 (113 %R)	22 (110 %R) (3 RPD)	3/7/2012	ug/l	14 - 230	20	624
Trichlorofluoromethane	< 5	22 (108 %R)	22 (108 %R) (0 RPD)	3/7/2012	ug/l	17 - 181	20	624
Acrolein	< 50	* < 50 (%R	* < 50 (%R N/A) (RPD N/A)	3/7/2012	ug/l	40 - 160	20	624
Acetone	< 50	* < 50 (188 %R)	< 50 (114 %R) (49 RPD) !	3/7/2012	ug/l	40 - 160	20	624
1,1-Dichloroethene	< 1	19 (97 %R)	19 (95 %R) (2 RPD)	3/7/2012	ug/l	0 - 234	20	624
Methylene chloride	< 5	22 (110 %R)	22 (108 %R) (2 RPD)	3/7/2012	ug/l	0 - 221	20	624
Carbon disulfide	< 5	17 (85 %R)	17 (83 %R) (2 RPD)	3/7/2012	ug/l	70 - 130	20	624
Acrylonitrile	< 50	< 50 (109 %R)	< 50 (104 %R) (5 RPD)	3/7/2012	ug/l	40 - 160	20	624
Methyl-t-butyl ether(MTBE)	< 10	20 (114 %R)	20 (113 %R) (1 RPD)	3/7/2012	ug/l	70 - 130	20	624
trans-1,2-Dichloroethene	< 2	19 (96 %R)	19 (96 %R) (0 RPD)	3/7/2012	ug/l	54 - 156	20	624
Vinyl acetate	< 10	30 (137 %R)	30 (134 %R) (2 RPD)	3/7/2012	ug/l	40 - 160	20	624
1,1-Dichloroethane	< 2	21 (106 %R)	21 (104 %R) (2 RPD)	3/7/2012	ug/l	59 - 155	20	624
cis-1,2-Dichloroethene	< 2	20 (101 %R)	20 (99 %R) (2 RPD)	3/7/2012	ug/l	70 - 130	20	624
2-Butanone(MEK)	< 10	30 (130 %R)	20 (100 %R) (26 RPD) !	3/7/2012	ug/l	40 - 160	20	624
Chloroform	< 2	21 (104 %R)	21 (104 %R) (0 RPD)	3/7/2012	ug/l	51 - 138	20	624
1,1,1-Trichloroethane	< 2	22 (111 %R)	22 (110 %R) (1 RPD)	3/7/2012	ug/l	52 - 162	20	624
Carbon tetrachloride	< 2	24 (122 %R)	24 (121 %R) (1 RPD)	3/7/2012	ug/l	70 - 140	20	624
Benzene	< 1	20 (100 %R)	20 (100 %R) (0 RPD)	3/7/2012	ug/l	37 - 151	20	624
1,2-Dichloroethane	< 2	22 (111 %R)	22 (110 %R) (1 RPD)	3/7/2012	ug/l	49 - 155	20	624
Trichloroethene	< 2	21 (105 %R)	20 (102 %R) (3 RPD)	3/7/2012	ug/l	71 - 157	20	624
1,2-Dichloropropane	< 2	21 (103 %R)	21 (103 %R) (0 RPD)	3/7/2012	ug/l	0 - 210	20	624
Bromodichloromethane	< 2	22 (110 %R)	22 (110 %R) (0 RPD)	3/7/2012	ug/l	35 - 155	20	624
2-Chloroethylvinylether	< 2	29 (143 %R)	29 (144 %R) (1 RPD)	3/7/2012	ug/l	0 - 305	20	624
4-Methyl-2-pentanone(MIBK)	< 10	20 (107 %R)	20 (105 %R) (2 RPD)	3/7/2012	ug/l	40 - 160	20	624
cis-1,3-Dichloropropene	< 2	23 (115 %R)	23 (115 %R) (0 RPD)	3/7/2012	ug/l	0 - 227	20	624
Toluene	< 1	20 (98 %R)	20 (98 %R) (0 RPD)	3/7/2012	ug/l	47 - 150	20	624
trans-1,3-Dichloropropene	< 2	22 (110 %R)	22 (108 %R) (2 RPD)	3/7/2012	ug/l	17 - 183	20	624
1,1,2-Trichloroethane	< 2	19 (95 %R)	19 (94 %R) (1 RPD)	3/7/2012	ug/l	52 - 150	20	624
2-Hexanone	< 10	20 (120 %R)	20 (101 %R) (17 RPD)	3/7/2012	ug/l	40 - 160	20	624
Tetrachloroethene	< 2	20 (102 %R)	20 (102 %R) (0 RPD)	3/7/2012	ug/l	64 - 148	20	624
Dibromochloromethane	< 2	22 (110 %R)	22 (109 %R) (1 RPD)	3/7/2012	ug/l	53 - 149	20	624
Chlorobenzene	< 2	20 (100 %R)	20 (99 %R) (1 RPD)	3/7/2012	ug/l	37 - 160	20	624
Ethylbenzene	< 1	20 (102 %R)	20 (101 %R) (1 RPD)	3/7/2012	ug/l	37 - 162	20	624
mp-Xylene	< 1	40 (99 %R)	40 (100 %R) (1 RPD)	3/7/2012	ug/l	70 - 130	20	624
o-Xylene	< 1	20 (100 %R)	20 (100 %R) (0 RPD)	3/7/2012	ug/l	70 - 130	20	624
Styrene	< 1	20 (102 %R)	20 (102 %R) (0 RPD)	3/7/2012	ug/l	70 - 130	20	624
Bromoform	< 2	19 (96 %R)	19 (95 %R) (1 RPD)	3/7/2012	ug/l	45 - 169	20	624
1,1,2,2-Tetrachloroethane	< 2	19 (94 %R)	19 (97 %R) (3 RPD)	3/7/2012	ug/l	46 - 157	20	624
1,3-Dichlorobenzene	< 1	20 (102 %R)	21 (106 %R) (4 RPD)	3/7/2012	ug/l	59 - 156	20	624
1,4-Dichlorobenzene	< 1	20 (102 %R)	21 (105 %R) (3 RPD)	3/7/2012	ug/l	18 - 190	20	624
1,2-Dichlorobenzene	< 1	20 (102 %R)	21 (105 %R) (3 RPD)	3/7/2012	ug/l	18 - 190	20	624
4-Bromofluorobenzene (surr)	93 %R	98 %R	99 %R	3/7/2012	% Rec	70 - 130		624

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Wastewater Analysis**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
1,2-Dichlorobenzene-d4 (surr)	99 %R	105 %R	103 %R	3/7/2012	% Rec	70 - 130		624
Toluene-d8 (surr)	94 %R	96 %R	96 %R	3/7/2012	% Rec	70 - 130		624

Samples were extracted and analyzed within holding time limits.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
Sample surrogate recoveries met the above stated criteria.
The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.
There were no exceptions in the analyses, unless noted.
*/! Flagged analyte recoveries deviated from the QA/QC limits. Any impact to data is addressed below.

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

Client Designation: **Wastewater Analysis**

Sample ID:	Final Effluent B-3625, B-3727, B-3722
Lab Sample ID:	108078.02
Matrix:	aqueous
Date Sampled:	3/2/12
Date Received:	3/2/12
Units:	mg/L
Date of Extraction/Prep:	3/12/12
Date of Analysis:	3/12/12
Analyst:	LAS
Method:	1664A
Dilution Factor:	1
Oil & Grease (HEM)	< 5

Client: **GZA GeoEnvironmental, Inc. (NH)** **Batch ID:** 734574-36453/A031212OG1661

Client Designation: **Wastewater Analysis**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Oil & Grease (HEM)	< 5	36 (90 %R)	36 (90 %R) (0 RPD)	3/12/2012	mg/L	78 - 114	18	1664A

Samples were extracted and analyzed within holding time limits.
Instrumentation was calibrated in accordance with the method requirements.
The method blanks were free of contamination at the reporting limits.
Sample surrogate recoveries met the above stated criteria.
The associated matrix spikes and/or Laboratory Control Samples met acceptance criteria.
There were no exceptions in the analyses, unless noted.
*/! Flagged analyte recoveries deviated from the QA/QC limits.

LABORATORY REPORT

EAI ID#: 108078

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

Client Designation: **Wastewater Analysis**

Sample ID:	Final Effluent B-3625, B-3727, B-3722
Lab Sample ID:	108078.02
Matrix:	aqueous
Date Sampled:	3/2/12
Date Received:	3/2/12

		Analysis			
	Units	Date	Time	Method	Analyst
Solids Suspended	**43**	mg/L	3/05/12	14:00	2540D	DLS
Solids Dissolved	**24000**	mg/L	3/05/12	15:00	2540C	DLS
Chloride	**11000**	mg/L	3/09/12	11:01	4500CIE	DLS
Cyanide Total	**0.02**	mg/L	3/06/12	9:30	4500CNE	KJR
BOD	**< 6**	mg/L	3/02/12	16:30	5210B	SKC
COD	**170**	mg/L	3/05/12	10:25	H8000	KJR
pH	**7.1**	SU	3/02/12	16:00	4500H+B	NZ

Client: **GZA GeoEnvironmental, Inc. (NH)**
Client Designation: **Wastewater Analysis**

Sample ID:	Final Effluent B-3625, B-3727, B-3722 Rerun
Lab Sample ID:	108078.03
Matrix:	aqueous
Date Sampled:	3/2/12
Date Received:	3/2/12

			Analysis			
		Units	**Date**	**Time**	**Method**	**Analyst**
Solids Suspended	2	mg/L	4/03/12	13:30	2540D	DLS

Solids Suspended: The sample was reanalyzed past the hold time at the request of the client, with an additional 1000 mLs of rinse water.

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

Client Designation: **Wastewater Analysis**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended	< 5	100 (101 %R)	NA	mg/L	3/5/12	90 - 110	20	2540D
Solids Suspended	< 2	92 (92 %R)	93 (93 %R) (1 RPD)	mg/L	4/3/12	90 - 110	20	2540D
Solids Dissolved	< 5	920 (92 %R)	NA	mg/L	3/5/12	85 - 115	20	2540C
Chloride	< 1	26 (102 %R)	26 (102 %R) (0 RPD)	mg/L	3/9/12	90 - 110	20	4500CIE
Cyanide Total	< 0.02	0.26 (104 %R)	NA	mg/L	3/6/12	85 - 115	20	4500CNE
BOD	< 6	360 (91 %R)	380 (96 %R) (5 RPD)	mg/L	3/2/12	84 - 115	20	5210B
COD	< 10	110 (109 %R)	110 (106 %R) (3 RPD)	mg/L	3/5/12	85 - 115	20	H8000
pH		6.0 (100 %R)	6.0 (99 %R) (1 RPD)	SU	3/2/12	5.95 - 6.07	10	4500H+B

Parameter Name	MS/MSD Parent ID	MS/MSD Parent	Matrix Spike	MSD	Units	Date of Analysis	Limits	RPD	Method
Solids Suspended		NA	NA	NA	mg/L	3/5/12		20	2540D
Solids Suspended		NA	NA	NA	mg/L	4/3/12		20	2540D
Solids Dissolved		NA	NA	NA	mg/L	3/5/12		20	2540C
Chloride		NA	NA	NA	mg/L	3/9/12		20	4500CIE
Cyanide Total	108078.02	0.02	0.29 (109 %R)	0.28 (104 %R) (5 RPD)	mg/L	3/6/12	75-125	20	4500CNE
BOD	108053.01	< 6	44 (110 %R)	NA	mg/L	3/2/12	75-125	20	5210B
COD	108069.07	60	110 (101 %R)	110 (89 %R) (13 RPD)	mg/L	3/5/12	80-120	20	H8000
pH		NA	NA	NA	SU	3/2/12		10	4500H+B

Parameter Name	Duplicate Parent ID	Duplicate Parent	Duplicate	Units	Date of Analysis	RPD	Method
Solids Suspended	108054.01	290	320 (10 RPD)	mg/L	3/5/12	20	2540D
Solids Suspended	108826.01	17	19 (14 RPD)	mg/L	4/3/12	20	2540D
Solids Dissolved	108078.02	24000	21000 (10 RPD)	mg/L	3/5/12	20	2540C
Chloride		NA	NA	mg/L	3/9/12	20	4500CIE
Cyanide Total		NA	NA	mg/L	3/6/12	20	4500CNE
BOD	108053.01	< 6	< 6 (RPD N/A)	mg/L	3/2/12	20	5210B
COD		NA	NA	mg/L	3/5/12	20	H8000
pH	108078.02	7.1	7.1 (0 RPD)	SU	3/2/12	10	4500H+B

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

27 March 2012

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

FRONTIER
GLOBAL SCIENCES

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

ANALYTICAL REPORT FOR SAMPLES

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

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

Sample ID	Lab ID	Matrix	Date Sampled	Date Received
B-3621 Effluent Field Blank	1203055-01	Water	02-Mar-12 11:00	05-Mar-12 08:51
Final Effluent	1203055-02	Water	02-Mar-12 11:00	05-Mar-12 08:51

Frontier Global Sciences, Inc.

Liz Siska, Project Manager

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

CASE NARRATIVE

Revised Report 03/26/2012- Client requested Pb be added to the work order.

SAMPLE RECEIPT

Samples were received at Frontier Global Sciences (FGS) on March 15th, 2012. The samples were received intact, on-ice with temperatures measured at 13.2 degrees Celsius.

SAMPLE PREPARATION AND ANALYSIS

Samples were prepared and analyzed for total metals in accordance with EPA Method 200.8 (modified).

Samples were prepared and analyzed for total mercury in accordance with EPA Method 1631E.

ANALYTICAL ISSUES

The Zn result for Effluent Field Blank (1203055-01) was greater than the MRL, the sample was re-digested and re-analyzed for confirmation.

As an additional measure of the accuracy of the methods utilized for analysis 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 with the exception of any QC flagged and described in the notes and definitions section of the following report.

A reasonable measure of the precision of the analytical methods utilized for analysis is the relative percent difference (RPD) between matrix spike and matrix spike duplicate recoveries and between laboratory control sample and laboratory control sample duplicate recoveries. All of the relative percent differences were within the control limits with the exception of any QC flagged and described in the notes and definitions section of the following report.

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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Ph: 425-686-1996
Fx: 425-686-3096

CHAIN OF CUSTODY FORMS

FRONTIER GLOBAL SCIENCES

414 Pontius Ave. N. Seattle WA 98109
Phone: 206-622-6960
Fax: 206-622-6870
Info@FrontierGS.com
http://www.FrontierGS.com

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

1203055 Page 1 of 1

Client: Eastern Analytical Inc.	Contact: Jeff Engel		FGS PM: Liz Siska
Address: 25 Chenell Drive Concord NH 03301	Phone: 228-0525 Fax: 228-4571		Date: 3/2/2012
	E-mail: jengel@eailabs.com		TAT (business days): 20 (std) 15 10 5 4 3 2 24 hrs. (For TAT < 10 days, contact PM. Surcharges apply for expedited TAT)
Project Name: Merrimack Station	Contract/PO:		Saturday delivery? ☐ Y ☐ N (if yes, please contact PM)
Report To: Same	Invoice To: Same PO 27842		EDD ☒ Y ☐ N
Address:	Address:		QA ☐ Standard ☐ High
Phone: Fax:	Phone: Fax:		
E-mail: Customerservice@eailabs.com	E-mail: customerservice@eailabs.com		

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	Comments
1	B-3621	Effluent Field Blank	1	AQ	3/2/2012 11:00	GT/SB	-	-		Metals include Se, Hg, As, Fe, Cd, Cr, Cu, Ni, Mo, Ag, Zn 200.8 Fed FGD WW
2										
3	B-3625 B-3727 B-3722	Final Effluent	3	WW	3/2/2012 11:00	GT/SB	-	-		
4										
5										
6										
7										
8										
9										
10										108078
11										
12										

For Laboratory Use Only		Matrix Codes:	Relinquished By:	Received By:	Received By:
COC Seal: N/A	Comments:	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			
Cooler Temp: 6.2°C	TID 360		Name: Jim Blackwell	Name: Deana Zink	Name:
Carrier: UPS			Organization: Eastern Analytical Inc.	Organization: EAI	Organization:
VTSR: 0851			Date & Time: 3/2/2012 13:50	Date & Time: 3/2/12 13:50	Date & Time:
# of Coolers:			Tracking number: 1Z X46599 15 9152 8312		

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: D. Zink-MacCord Date: 3/2/12

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Liz Siska

Liz Siska, Project Manager

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CHAIN OF CUSTODY FORMS

FGS Work Order: 1205059, 1205055 Sample Receipt Checklist

Client: Eastern Analytical Date & Time Received: 3/5/12 0851 Date Logged In: 3/5/12
Project: Merrimack Station Received By: Owen Valentine Logged In By: Owen Valentine
SDG: # of Coolers Received: 1 FGS PM: Liz

Samples Arrived By: UPS Shipping Service ____Courier ____Hand ____Other (specify)
Tracking/Airbill Number(s): 1Z x46 599 13 9052 8312

Cooler Information

	Yes	No	NA	Comments
The coolers do not appear to be tampered with:	X			
Custody seals are present and intact:		X		
Custody seals signed by:			X	

Thermal Preservation: ____Loose Ice __X__Gel/Blue Ice ____None (Ambient) ____Other (specify)
Thermometer ID: 3180 Correction Factor (CF): + 0.3 degrees C

Cooler 1:	13.2 °C	Cooler 6:	°C	Cooler 11:	°C
Cooler 2:	°C	Cooler 7:	°C	Cooler 12:	°C
Cooler 3:	°C	Cooler 8:	°C	Cooler 13:	°C
Cooler 4:	°C	Cooler 9:	°C	Cooler 14:	°C
Cooler 5:	°C	Cooler 10:	°C	Cooler 15:	°C

Chain of Custody
COC is present and includes the following information for each sample:

	Yes	No	NA	Comments
Sample ID/Sample Description:	X			
Date and Time of Sample Collection:	X			
Sampled By:	X			
Preservation Type:			X	
Requested Analyses:	X			
Required Signatures:	X			
Internal chain of custody required:		X		

Sample Condition/Integrity

	Yes	No	NA	Comments
Sample containers were received intact:	X			
Sample labels are present and legible:	X			
Sample ID on container matches COC:	X			
Correct sample containers used for requested analyses:	X			
Samples received within holding time:	X			
Sample volume sufficient for requested analysis:				Less than ideal volume received
Correct preservative used for requested analyses:			X	
pH of samples checked and within method requirements:			X	
If pH adjusted by laboratory, noted in logbook:	X			

Anomalies/Non-conformances:

Client Communication Person Contacted: _____ Date/Time: _____ Method: _____
Discussion/Resolution:

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ANALYTICAL RESULTS

B-3621 Effluent Field Blank

Matrix: Water **Laboratory ID:** 1203055-01

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Arsenic	ND	0.05	0.15	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Cadmium	ND	0.004	0.020	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	QM-12, U
Chromium	ND	0.009	0.10	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Copper	ND	0.01	0.10	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Iron	ND	1.3	10.0	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Lead	ND	0.004	0.040	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Mercury	ND	0.08	0.50	ng/L	1	F203099	2C08017	03/08/12	EPA 1631E	U
Molybdenum	ND	0.006	0.06	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Nickel	ND	0.008	0.10	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Selenium	ND	0.19	0.60	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Silver	ND	0.006	0.020	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Zinc	**0.50**	0.02	0.20	µg/L	1	F203108	2C12010	03/09/12	EPA 200.8 Mod	

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Fx: 425-686-3096

ANALYTICAL RESULTS

Final Effluent

Matrix: Water **Laboratory ID:** 1203055-02

Analyte	Result	MDL	MRL	Units	Dilution	Batch	Sequence	Analyzed	Method	Notes
Arsenic	**8.12**	1.02	3.00	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	
Cadmium	ND	0.083	0.400	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	QM-12, U
Chromium	ND	0.18	2.00	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Copper	ND	0.20	2.00	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Iron	ND	26.0	200	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Lead	ND	0.078	0.800	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Mercury	**17.2**	0.83	5.00	ng/L	10	F203099	2C08017	03/08/12	EPA 1631E	
Molybdenum	**419**	0.12	1.20	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	
Nickel	**29.1**	0.16	2.00	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	
Selenium	**109**	3.88	12.0	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	
Silver	ND	0.120	0.400	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	U
Zinc	ND	0.33	4.00	µg/L	20	F203108	2C12010	03/09/12	EPA 200.8 Mod	U

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MATRIX DUPLICATES/TRIPLICATES

SOURCE: 1203016-05

Batch: F203099 **Sequence:** 2C08017

Preparation: BrCl Oxidation **Lab Number:** F203099-DUP1

Analyte	Sample Concentration ng/L	Duplicate Concentration ng/L	MRL	% RPD	RPD Limit	Method	Notes
Mercury	2.48	2.44	1.01	1.48	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1203014-01

Batch: F203099 **Sequence:** 2C08017

Preparation: BrCl Oxidation **Lab Number:** F203099-MS/MSD1

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	7.38	25.500	32.34	97.9	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	25.500	32.44	98.3	0.314	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1203055-02

Batch: F203099 **Sequence:** 2C08017

Preparation: BrCl Oxidation **Lab Number:** F203099-MS/MSD2

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	17.16	45.450	63.67	102	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	45.450	61.91	98.4	2.81	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1203016-01

Batch: F203099 **Sequence:** 2C08017

Preparation: BrCl Oxidation **Lab Number:** F203099-MS/MSD3

Analyte	Sample Concentration (ng/L)	Spike Added (ng/L)	MS Concentration (ng/L)	MS % Recovery	Recovery Limits	Method	Notes
Mercury	19.64	51.000	70.79	100	71 - 125	EPA 1631E	

Analyte	Spike Added (ng/L)	MSD Concentration (ng/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	51.000	72.43	104	2.30	71 - 125	24	EPA 1631E	

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MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1203055-02

Batch: F203108 **Sequence:** 2C12010

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F203108-MS/MSD1

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Chromium	0.31	7.0700	7.78	106	70 - 130	EPA 200.8 Mod	
Iron	ND	505.00	522.4	103	70 - 130	EPA 200.8 Mod	
Nickel	29.14	4.0400	30.61	36.6	70 - 130	EPA 200.8 Mod	QM-02
Copper	0.41	4.0400	4.22	94.2	70 - 130	EPA 200.8 Mod	
Zinc	2.75	10.100	18.93	160	70 - 130	EPA 200.8 Mod	QM-07
Arsenic	8.12	15.150	25.50	115	70 - 130	EPA 200.8 Mod	
Selenium	109.3	30.300	136.9	91.2	70 - 130	EPA 200.8 Mod	
Molybdenum	418.6	2.0200	416.5	-105	70 - 130	EPA 200.8 Mod	QM-02
Silver	ND	1.5150	1.450	95.7	70 - 130	EPA 200.8 Mod	
Cadmium	0.379	0.80800	1.335	118	70 - 130	EPA 200.8 Mod	
Lead	ND	1.5150	1.636	108	70 - 130	EPA 200.8 Mod	

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Chromium	7.0700	7.64	104	1.78	70 - 130	20	EPA 200.8 Mod	
Iron	505.00	521.1	103	0.257	70 - 130	20	EPA 200.8 Mod	
Nickel	4.0400	32.86	92.1	7.07	70 - 130	20	EPA 200.8 Mod	QM-02
Copper	4.0400	4.31	96.6	2.26	70 - 130	20	EPA 200.8 Mod	
Zinc	10.100	11.07	82.4	52.4	70 - 130	20	EPA 200.8 Mod	QM-07, QR-08
Arsenic	15.150	25.03	112	1.87	70 - 130	20	EPA 200.8 Mod	
Selenium	30.300	134.1	82.0	2.07	70 - 130	20	EPA 200.8 Mod	
Molybdenum	2.0200	416.8	-89.3	0.0753	70 - 130	20	EPA 200.8 Mod	QM-02
Silver	1.5150	1.361	89.8	6.34	70 - 130	20	EPA 200.8 Mod	
Cadmium	0.80800	1.278	111	4.34	70 - 130	20	EPA 200.8 Mod	
Lead	1.5150	1.487	98.2	9.53	70 - 130	20	EPA 200.8 Mod	

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Fx: 425-686-3096

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY AND RPD

SOURCE: 1203055-02

Batch: F203108 **Sequence:** 2C12010

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F203108-MS/MSD2

Analyte	Sample Concentration (µg/L)	Spike Added (µg/L)	MS Concentration (µg/L)	MS % Recovery	Recovery Limits	Method	Notes
Chromium	0.31	404.00	425.2	105	70 - 130	EPA 200.8 Mod	AS
Iron	ND	2020.0	2097	104	70 - 130	EPA 200.8 Mod	AS
Nickel	29.14	505.00	530.8	99.3	70 - 130	EPA 200.8 Mod	AS
Copper	0.41	505.00	465.9	92.2	70 - 130	EPA 200.8 Mod	AS
Zinc	2.75	1010.0	898.3	88.7	70 - 130	EPA 200.8 Mod	AS
Arsenic	8.12	404.00	429.4	104	70 - 130	EPA 200.8 Mod	AS
Selenium	109.3	404.00	534.6	105	70 - 130	EPA 200.8 Mod	AS
Molybdenum	418.6	202.00	623.4	101	70 - 130	EPA 200.8 Mod	AS
Silver	ND	20.200	18.02	89.2	70 - 130	EPA 200.8 Mod	AS
Cadmium	0.379	40.400	37.46	91.8	70 - 130	EPA 200.8 Mod	AS
Lead	ND	101.00	98.25	97.3	70 - 130	EPA 200.8 Mod	AS

Analyte	Spike Added (µg/L)	MSD Concentration (µg/L)	MSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Chromium	404.00	425.2	105	0.00134	70 - 130	20	EPA 200.8 Mod	AS
Iron	2020.0	2093	104	0.171	70 - 130	20	EPA 200.8 Mod	AS
Nickel	505.00	531.3	99.4	0.0878	70 - 130	20	EPA 200.8 Mod	AS
Copper	505.00	469.4	92.9	0.751	70 - 130	20	EPA 200.8 Mod	AS
Zinc	1010.0	898.8	88.7	0.0641	70 - 130	20	EPA 200.8 Mod	AS
Arsenic	404.00	439.2	107	2.27	70 - 130	20	EPA 200.8 Mod	AS
Selenium	404.00	497.7	96.1	7.14	70 - 130	20	EPA 200.8 Mod	AS
Molybdenum	202.00	616.1	97.8	1.18	70 - 130	20	EPA 200.8 Mod	AS
Silver	20.200	17.84	88.3	1.01	70 - 130	20	EPA 200.8 Mod	AS
Cadmium	40.400	37.27	91.3	0.512	70 - 130	20	EPA 200.8 Mod	AS
Lead	101.00	98.44	97.5	0.193	70 - 130	20	EPA 200.8 Mod	AS

Frontier Global Sciences, Inc.

Liz Siska

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F203099 **Sequence:** 2C08017

Preparation: BrCl Oxidation **Lab Number:** F203099-BS/BSD1

LCS Source: LCS

Analyte	Spike Added (ng/L)	LCS Concentration (ng/L)	LCS % Recovery	Recovery Limits	Method	Notes
Mercury	15.679	15.62	99.6	80 - 120	EPA 1631E	

Analyte	Spike Added (ng/L)	LCSD Concentration (ng/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Mercury	15.679	15.74	100	0.806	80 - 120	24	EPA 1631E	

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LABORATORY CONTROL SAMPLE/ LABORATORY CONTROL SAMPLE DUPLICATE

RECOVERY AND RPD

Batch: F203108 **Sequence:** 2C12010

Preparation: Closed Vessel Nitric Oven Digestion **Lab Number:** F203108-BS/BSD1

LCS Source: Blank Spike

Analyte	Spike Added (µg/L)	LCS Concentration (µg/L)	LCS % Recovery	Recovery Limits	Method	Notes
Chromium	7.0000	6.67	95.3	85 - 115	EPA 200.8 Mod	
Iron	500.00	468.9	93.8	85 - 115	EPA 200.8 Mod	
Nickel	4.0000	4.07	102	85 - 115	EPA 200.8 Mod	
Copper	4.0000	4.22	106	85 - 115	EPA 200.8 Mod	
Zinc	10.000	10.42	104	85 - 115	EPA 200.8 Mod	
Arsenic	15.000	14.44	96.3	85 - 115	EPA 200.8 Mod	
Selenium	30.000	29.84	99.5	85 - 115	EPA 200.8 Mod	
Molybdenum	2.0000	1.80	90.0	85 - 115	EPA 200.8 Mod	
Silver	1.5000	1.476	98.4	85 - 115	EPA 200.8 Mod	
Cadmium	0.80000	0.918	115	85 - 115	EPA 200.8 Mod	
Lead	1.5000	1.542	103	85 - 115	EPA 200.8 Mod	

Analyte	Spike Added (µg/L)	LCSD Concentration (µg/L)	LCSD % Recovery	% RPD	Recovery Limits	RPD Limit	Method	Notes
Chromium	7.0000	6.57	93.9	1.48	85 - 115	20	EPA 200.8 Mod	
Iron	500.00	465.2	93.0	0.801	85 - 115	20	EPA 200.8 Mod	
Nickel	4.0000	4.00	99.9	1.86	85 - 115	20	EPA 200.8 Mod	
Copper	4.0000	4.17	104	1.17	85 - 115	20	EPA 200.8 Mod	
Zinc	10.000	10.17	102	2.38	85 - 115	20	EPA 200.8 Mod	
Arsenic	15.000	14.25	95.0	1.37	85 - 115	20	EPA 200.8 Mod	
Selenium	30.000	30.40	101	1.84	85 - 115	20	EPA 200.8 Mod	
Molybdenum	2.0000	1.78	88.8	1.40	85 - 115	20	EPA 200.8 Mod	
Silver	1.5000	1.458	97.2	1.26	85 - 115	20	EPA 200.8 Mod	
Cadmium	0.80000	0.933	117	1.56	85 - 115	20	EPA 200.8 Mod	QM-12
Lead	1.5000	1.522	101	1.31	85 - 115	20	EPA 200.8 Mod	

Frontier Global Sciences, Inc.

Liz Siska

Liz Siska, Project Manager

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FRONTIER GLOBAL SCIENCES

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

PREPARATION BLANKS

Instrument: ICPMS-3

Sequence: 2C08017

Preparation: BrCl Oxidation

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F203099-BLK1	Mercury	0.003	0.50	ng/L	F203099	EPA 1631E	U
F203099-BLK2	Mercury	0.009	0.50	ng/L	F203099	EPA 1631E	U
F203099-BLK3	Mercury	0.05	0.50	ng/L	F203099	EPA 1631E	U
F203099-BLK4	Mercury	0.03	0.50	ng/L	F203099	EPA 1631E	QB-04, U

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Liz Siska

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

PREPARATION BLANKS

Instrument: ICPMS-6 **Sequence:** 2C12010

Preparation: Closed Vessel Nitric Oven Digestion

Lab Sample ID	Analyte	Found	MRL	Units	Batch	Method	Notes
F203108-BLK1	Chromium	-0.01	0.10	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Iron	-0.1	10.0	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Nickel	0.01	0.10	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Copper	0.008	0.10	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Zinc	0.08	0.20	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Arsenic	-0.06	0.15	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Selenium	0.03	0.60	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Molybdenum	0.007	0.06	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Silver	-0.003	0.020	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Cadmium	-0.0003	0.020	µg/L	F203108	EPA 200.8 Mod	U
F203108-BLK1	Lead	0.005	0.040	µg/L	F203108	EPA 200.8 Mod	U

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Bothell, WA 98011
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Notes and Definitions

U	Analyte included in the analysis, but not detected
QR-08	The RPD value for the MS/MSD was outside of acceptance limits. Batch QC acceptable based on matrix duplicate and/or LCS/LCSD RPD values within control limits.
QM-12	Initial or continuing calibration verification and/or blank spike/blank spike duplicate recoveries above upper control limits. All reported sample concentrations were below the reporting limit.
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-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.
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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CHAIN-OF-CUSTODY RECORD

108078

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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 BTEX; 524.2 MTBE ONLY; 8260B (624); VTICS; EDB; DBCP; 1, 4 DIOXANE; 8021B BTEX; HALOS; 8015B GRO; MEGRO; MAVPH	SVOC: 8270D 625 SVTICS; ABN A BN PAH; TPH8100 L1 L2; 8015B DRO; MEDRO; MAEPH; PEST 608 PCB 608; PEST 8081A PCB 8082; OIL & GREASE 1664; TPH 1664	TCLP: TCLP 1311 ABN METALS; VOC PEST HERB	METALS: DISSOLVED METALS (LIST BELOW); TOTAL METALS (LIST BELOW)	INORGANICS: TS; SPEC. CON.; TDS; TSS; Br; F; SO4; NO3; NO2; NO3,NO2; BOD; CBOD; T. ALK; TKN; NH3; T. PHOS.; O. PHOS.; T. RES. CHLORINE; pH; PHENOLS; TOC; DOC; COD; TOTAL CYANIDE; TOTAL SULFIDE; REACTIVE CYANIDE; REACTIVE SULFIDE; FLASHPOINT; IGNITABILITY	MICRO: TOTAL COLIFORM; E. COLI; FECAL COLIFORM; ENTEROCOCCI; HETEROTROPHIC PLATE COUNT	# OF CONTAINERS	NOTES MEOH VIAL #
Effluent Field Blank B-3621	3/2/2012 11:00	AQ	G				X				1	
Final Effluent B-3625 B-3727 B-3722	3/2/2012 11:00	WW	G	X	X		X	TS; TDS; Br; NO3; BOD; pH; COD; TOTAL CYANIDE			14	
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				H	S		-	-	-	S	Na	

PROJECT MANAGER: Paul Pepler
COMPANY: GZA GeoEnvironmental
ADDRESS: 380 Harvey Rd
CITY: Manchester STATE: NH ZIP: 03103
PHONE: 232-5717 EXT.:
FAX: 624-9463
E-MAIL: paul.pepler@gza.com
SITE NAME: Wastewater Analysis
PROJECT #:
STATE: (NH) MA ME VT OTHER:
REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR GWP, OIL FUND, BROWNFIELD OR OTHER:
QUOTE #: PO #:

DATE NEEDED:

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. 21 °C
ICE? (YES) NO

SAMPLER(S): Jim Blackwell Gregg Thompson

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
	3/2/2012	13:50	
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:

METALS: 8 RCRA 13 PP Fe, Mn Pb, Cu
Se, Hg, As, Fe, Cd, Cr, Cu, Ni,
OTHER METALS: Mo, Ag, Zn,

DISSOLVED METALS FIELD FILTERED? YES NO

NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)
Subcontract metals to FGS.
Provide project specific MS/MSD for metals.
* AT CUSTOMERS REQUEST, Add head to this Report.

SITE HISTORY:
SUSPECTED CONTAMINATION: PA- 3/29/12
FIELD READINGS:

eastern analytical, inc.
professional laboratory services
25 CHENELL DRIVE | CONCORD, NH 03301 | TEL: 603.228.0525 | 1.800.287.0525 | FAX: 603.228.4591 | E-MAIL: CUSTOMER_SERVICE@EAILABS.COM | WWW.EAILABS.COM

(WHITE: ORIGINAL GREEN: PROJECT MANAGER)