

From: Johnstone, Paul S [mailto:paul.johnstone@woodplc.com]
Sent: Thursday, May 24, 2018 4:53 PM
To: Rahn, Regan D. <rahnrd@dhec.sc.gov>
Subject: FW: Former Vermont Bosch Site (SC Site ID #52309), Fountain Inn, SC

Regan,

Please see e-mail below sent to Shelton Smalls. Based on my phone conversations with Greg Cassidy, he was agreeable to just have us submit a letter report of groundwater sampling (attached) in lieu of revising the RI Report Addendum, since the re-sampling indicated that the wells are suitable for sampling. If you have any questions or wish to discuss the project further, please don't hesitate to give me a call.

Paul S. Johnstone, P.G.

Principal Geologist/Client Account Manager
Environment & Infrastructure Solutions
400 Executive Center Drive, Suite 200
Greenville, SC 29615
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Mobile: +01.864.616.4176
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wood.



December 8, 2017

Mr. Shelton Smalls
Bureau of Land & Waste Management
Site Remediation Section
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

**Subject: Groundwater Sampling Report
Former Vermont Bosch Site
Fountain Inn, South Carolina
SCDHEC Site ID #52309
Amec Foster Wheeler Project 6251161022.02.03**

Dear Mr. Smalls:

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler) is pleased to submit this groundwater sampling report on behalf of the Robert Bosch Tool Corporation (RBTC). The groundwater sampling report has been prepared by Amec Foster Wheeler on behalf of RBTC, in accordance with Voluntary Cleanup Contract (VCC) #05-5613-RP, executed on August 29, 2005. RBTC, a division of Robert Bosch, LLC, is the successor to Vermont American Corporation (VAC), who manufactured screwdrivers and spade bits at the site.

Background

A Remedial Investigation (RI) has been completed at the site. A *Remedial Investigation Report, Former Vermont Bosch Site, Fountain Inn, South Carolina, SCDHEC Site ID #52309* was submitted to the South Carolina Department of Health and Environmental Control (SCDHEC) on March 18, 2016 (RI Report). Following submission of the RI Report, groundwater field screening, monitoring well installation, and groundwater sampling activities were conducted in response to comments on the RI Report from SCDHEC in a letter dated April 20, 2016. The results of the additional investigation activities were documented in Amec Foster Wheeler's *Remedial Investigation Report Addendum, Former Vermont Bosch Site, Fountain Inn, South Carolina, SCDHEC Site ID #52309*, dated July 25, 2017 (RI Addendum).

In the RI Addendum, Amec Foster Wheeler noted that according to the laboratory narrative, residual chlorine or another oxidizing agent was present in samples MW-09-26 and MW-09-27. The presence of free chlorine in aqueous samples can cause formation of trihalomethanes and other chemical reactions when preserved with hydrochloric acid (HCl). These two samples had detections of chloroform, which is a trihalomethane. Therefore, this detection of chloroform could be a byproduct of residual chlorine in the groundwater and HCl preservation. Potable water was used for the drilling fluid of these deep, cased wells. The pH of the water in these wells was elevated (10-13 s.u.) during sampling. It's possible that some of the drilling fluid seeped through

the casing into the formation during installation of the wells and resulted in residual chlorine being captured during sampling.

In a letter dated September 21, 2017 from Mr. Greg Cassidy of SCDHEC following submission of the RI Addendum, SCDHEC requested that monitoring wells MW-09-26 and MW-09-27 be evaluated and assessed for their ability to yield representative groundwater samples. SCDHEC generally agreed with Amec Foster Wheeler's discussion of the potential source of chloroform in the groundwater samples collected from these two wells. SCDHEC further requested that if it is determined that the wells can produce representative groundwater, the wells should be resampled and the RI Report Addendum should be revised with the new results.

This groundwater sampling report presents the results of the additional groundwater sampling conducted in monitoring wells MW-09-26 and MW-09-27.

Monitoring Well Purging and Sampling

On November 1, 2017, prior to purging and sampling each well, the depth to groundwater and total well depth were measured using an electronic water level indicator to calculate well and borehole volumes. The water level meter was decontaminated with an Alconox® and water mixture and rinsed with potable water prior to starting activities and between each well. The depth to groundwater was measured from a marked survey reference point at the top of well casing to the groundwater surface in each monitoring well. Measurements were recorded to the nearest 0.01 foot.

The monitoring wells were purged prior to sampling to provide fresh formation water for analysis. A detailed description of the monitoring well purging and sampling procedures was included in Section B2 (pages B13 thru B16) of the Quality Assurance Project Plan (QAPP) developed for the site activities. Purging was conducted using the low flow/low stress purging method. The low flow/low stress method consists of removing water from a monitoring well at a flow rate that does not exceed the recharge rate of the monitoring well. The monitoring wells were purged with a bladder pump. Purging was conducted until the pH, dissolved oxygen (DO), oxidation reduction potential (ORP), turbidity, and temperature measurements stabilized.

During the November 1, 2017 sampling activities, field water quality parameters (pH, specific conductance, DO, ORP, and temperature) were measured for informational purposes using a YSI Professional Plus multi-meter. Turbidity was measured with a Hach 2100Q turbidity meter. The meters were calibrated daily according to the manufacturer's instructions. Purging was terminated and samples were collected for analysis when all water quality parameters were stabilized. Additionally, to evaluate the potential presence of elevated concentrations of chloroform, total residual chlorine concentrations were measured during purging using an Extech Instruments CL200-ExStik® chlorine meter. To minimize the potential for cross-contamination between sampling locations, all disposable sampling equipment (tubing, gloves, etc.) was changed between each well.

Following completion of purging activities, groundwater samples were collected into laboratory-prepared and preserved sample containers and marked with a unique identifying number. The samples were packed in a cooler with ice and shipped or delivered by courier under chain of custody protocol to Analytical Environmental Services, Inc. (AES) in Atlanta, Georgia for analysis

of volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) Method 8260B. AES is a South Carolina-certified laboratory.

Results

The initial concentration of total residual chlorine was measured at the onset of purging in monitoring well MW-09-26 at 0.29 parts per million (ppm). Total residual chlorine concentrations at the time of sampling were 0.01 ppm (minimum detection limit of the instrument). The pH at the time of sampling was 6.80 standard units (s.u.) In MW-09-27, the initial concentration of total residual chlorine at the onset of purging was 0.02 ppm and at the time of sampling was 0.01 ppm with a pH at the time of sampling of 6.07 s.u. Chloroform was not detected above the laboratory's Reporting Limit (RL) in the groundwater sample from MW-09-26. Chloroform was detected at a concentration of 1.7 micrograms per liter ($\mu\text{g/L}$) in the groundwater sample from MW-09-27. For comparison purposes, chloroform concentrations from the February 2017 sampling of these two wells were 730 $\mu\text{g/L}$ and 1,100 $\mu\text{g/L}$, respectively.

Tetrachloroethene (perchloroethylene, or PCE) was detected above the laboratory's RL in the groundwater sample from MW-09-27 at a concentration of 2.2 $\mu\text{g/L}$. This concentration is below SCDHEC's promulgated maximum concentration level (MCL) for PCE of 5 $\mu\text{g/L}$. Other than chloroform and PCE in the sample from MW-09-27, no other VOCs were detected in either of the two monitoring wells. The laboratory analytical results for these two wells, both from February 14, 2017 and November 1, 2017, are summarized on the attached table (**Table 1**). The laboratory's report of analysis is attached.

Investigative Derived Waste

Investigative derived waste (IDW) generated during the groundwater sampling event consisted of monitoring well purge water and decontamination fluids that were containerized in a polyethylene tank, labeled, dated, and staged on the site pending disposal. On November 21, 2017, A&D Environmental Services (SC), LLC (A&D) pumped out the polyethylene tank and transported 15 gallons of non-hazardous purge water and decontamination fluids to its facility in Lexington, South Carolina for disposal. A waste disposal manifest for IDW generated during the groundwater sampling event is attached.

Findings

The monitoring of total residual chlorine concentrations and pH during monitoring well purging activities, coupled with the chloroform results from the groundwater samples, indicate that monitoring wells MW-09-26 and MW-09-27 are capable of providing representative groundwater samples.

Based on the results of the November 1, 2017 groundwater sampling, the interpretation of the PCE-impacted groundwater plume has not changed significantly. However, **Figure 7** and **Figure 10** of the RI Addendum have been revised and attached to this report.

Recommendations

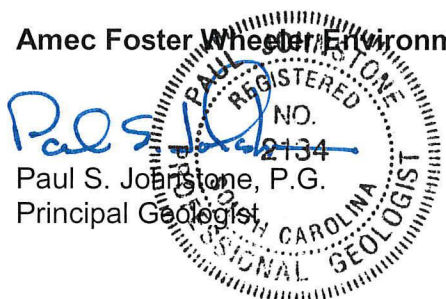
Based on the results of this additional groundwater sampling requested by SCDHEC, the RI Report, and the RI Addendum, Amec Foster Wheeler recommends that SCDHEC provide final approval of the RI and approve the preparation of the draft Feasibility Study.

Closing

We appreciate the opportunity to work with SCDHEC on this project. Should you have any questions, please do not hesitate to contact Paul S. Johnstone via e-mail at paul.johnstone@amecfw.com or by telephone at (864) 458-3707.

Sincerely,

Amec Foster Wheeler Environment & Infrastructure, Inc.



Paul S. Johnstone, P.G.
Principal Geologist

Zachery J. Downes
Technical Professional

for Zachery J. Downes with permission

Attachments: Table 1
Laboratory Report of Analysis
Waste Manifest
Figure 7
Figure 10

Cc: Mr. Greg Cassidy – SCDHEC, Columbia, SC
Mr. Scott Pihlaja – RBTC, Mount Prospect, IL
Ms. Rachael Remmers – Robert Bosch, LLC, Farmington Hills, MI

TABLE 1

Summary of Monitoring Well Groundwater Sample Laboratory Analytical Results
 MW-09-26 and MW-09-27
 Former Vermont Bosch Site
 Fountain Inn, South Carolina
 Amec Foster Wheeler Project 6251161022.02.03

Constituents	Laboratory Method	Units	SCDHEC MCL	MW-09-26		MW-09-27	
				2/14/17	11/1/17	2/14/17	11/1/17
Benzene	8260	µg/L	5	<50	<1.0	<50	<1.0
Chloroform	8260	µg/L	80*	730	<1.0	1100	1.7
Methylene Chloride	8260	µg/L	5	<250	<5.0	<250	<5.0
Tetrachloroethene	8260	µg/L	5	<50	<1.0	<50	2.2
Toluene	8260	µg/L	1,000	<50	<1.0	<50	<1.0

Notes:

µg/L = micrograms per liter

SCDHEC = South Carolina Department of Health and Environmental Control

MCL = Maximum Contaminant Level (State Primary Drinking Water Regulations: R.61-58, October 2014)

* MCL for trihalomethanes

Bold values indicate detections above the Reporting Limit

Italic values are estimated between the Method Detection Limit and Reporting Limit ("J" Flag)

Yellow shaded values exceed MCL





ANALYTICAL ENVIRONMENTAL SERVICES, INC.

November 09, 2017

Paul Johnstone
AMEC Foster Wheeler
400 Executive Center Drive, Suite 200
Greenville SC 29615

RE: RBTC - Ft. Inn

Dear Paul Johnstone:

Order No: 1711209

Analytical Environmental Services, Inc. received 3 samples on 11/2/2017 10:25:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative. AES' certifications are as follows:

-South Carolina Certification number 98016003 for Clean Water Act and for Solid and Hazardous Waste, effective until 6/30/18.

These results relate only to the items tested. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Ioana Pacurar
Project Manager



CHAIN OF CUSTODY

COMPANY: AMEC Foster Wheeler ADDRESS: 400 Executive Center Dr. Suite 200 Greenville, SC 29615

PHONE: EMAIL: SIGNATURE: [Signature]

SAMPLED BY: Zach Downes

ANALYSIS REQUESTED: Trip Blank 8260 VOC

Visit our website www.aesatlanta.com for downloadable COCs and to log in to your AESAccess account.

#	SAMPLE ID	SAMPLED:		GRAB	COMPOSITE	MATRIX (see codes)	PRESERVATION (see codes)		REMARKS
		DATE	TIME				H+I	H+I	
1	TB-01	11-1-17	1000	X		WB	X		
2	MW-09-26	11-1-17	1100	X		BTW	X		
3	MW-09-27	11-1-17	1140	X		BTW	X		
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

RELINQUISHED BY: Zach Downes 11-1-17 1300 RECEIVED BY: Fed Ex 11-1-17 1300 PROJECT INFORMATION: PROJECT NAME: RBTC - Ft. Inn PROJECT #: 6251161022 SITE ADDRESS: SEND REPORT TO: Paul Johnstone INVOICE TO: (IF DIFFERENT FROM ABOVE) QUOTE #: PO#:

RECEIPT: Total # of Containers Turnaround Time (TAT) Request: Standard 5 Business Days 2 Business Day Rush Next Business Day Rush Same-Day Rush (auth req.) Other STATE PROGRAM (if any): E-mail? Fax? DATA PACKAGE: I II III IV

SPECIAL INSTRUCTIONS/COMMENTS: SHIPMENT METHOD: OUT: / / VIA: IN: / / VIA: client FedEx UPS US mail courier Greyhound other: 1.9

Submission of samples to the laboratory constitutes acceptance of AES's Terms & Conditions. Samples received after 3PM or on Saturday are considered as received the following business day. If no TAT is marked on COC, AES will proceed with standard TAT. Samples are disposed of 30 days after completion of report unless other arrangements are made.

Matrix Codes: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

Preservative Codes: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

Client: AMEC Foster Wheeler	Client Sample ID: TB-01
Project Name: RBTC - Ft. Inn	Collection Date: 11/1/2017 10:00:00 AM
Lab ID: 1711209-001	Matrix: Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,1,2,2-Tetrachloroethane	BRL		0.34	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,1,2-Trichloroethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,1-Dichloroethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,1-Dichloroethene	BRL		0.40	2.0	ug/L	251057	1	11/07/2017 13:13	NP
1,2,4-Trichlorobenzene	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,2-Dibromo-3-chloropropane	BRL		0.68	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,2-Dibromoethane	BRL		0.57	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,2-Dichlorobenzene	BRL		0.45	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,2-Dichloroethane	BRL		0.37	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,2-Dichloropropane	BRL		0.35	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,3-Dichlorobenzene	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 13:13	NP
1,4-Dichlorobenzene	BRL		0.33	1.0	ug/L	251057	1	11/07/2017 13:13	NP
2-Butanone	BRL		2.5	10	ug/L	251057	1	11/07/2017 13:13	NP
2-Hexanone	BRL		0.67	10	ug/L	251057	1	11/07/2017 13:13	NP
4-Methyl-2-pentanone	BRL		0.44	10	ug/L	251057	1	11/07/2017 13:13	NP
Acetone	BRL		3.6	20	ug/L	251057	1	11/07/2017 13:13	NP
Benzene	BRL		0.37	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Bromodichloromethane	BRL		0.25	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Bromoform	BRL		0.19	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Bromomethane	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Carbon disulfide	BRL		0.74	5.0	ug/L	251057	1	11/07/2017 13:13	NP
Carbon tetrachloride	BRL		0.29	2.0	ug/L	251057	1	11/07/2017 13:13	NP
Chlorobenzene	BRL		0.42	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Chloroethane	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Chloroform	BRL		0.20	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Chloromethane	BRL		0.21	1.0	ug/L	251057	1	11/07/2017 13:13	NP
cis-1,2-Dichloroethene	BRL		0.28	1.0	ug/L	251057	1	11/07/2017 13:13	NP
cis-1,3-Dichloropropene	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Cyclohexane	BRL		1.0	2.0	ug/L	251057	1	11/07/2017 13:13	NP
Dibromochloromethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Dichlorodifluoromethane	BRL		0.15	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Ethylbenzene	BRL		0.26	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Freon-113	BRL		0.32	5.0	ug/L	251057	1	11/07/2017 13:13	NP
Isopropylbenzene	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 13:13	NP
m,p-Xylene	BRL		0.60	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Methyl acetate	BRL		0.42	2.0	ug/L	251057	1	11/07/2017 13:13	NP
Methyl tert-butyl ether	BRL		0.45	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Methylcyclohexane	BRL		0.39	2.0	ug/L	251057	1	11/07/2017 13:13	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Analytical Environmental Services, Inc

Date: 9-Nov-17

Client: AMEC Foster Wheeler	Client Sample ID: TB-01
Project Name: RBTC - Ft. Inn	Collection Date: 11/1/2017 10:00:00 AM
Lab ID: 1711209-001	Matrix: Aqueous

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS		SW8260B		(SW5030B)					
Methylene chloride	BRL		1.2	5.0	ug/L	251057	1	11/07/2017 13:13	NP
o-Xylene	BRL		0.18	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Styrene	BRL		0.15	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Tetrachloroethene	BRL		0.46	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Toluene	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 13:13	NP
trans-1,2-Dichloroethene	BRL		0.30	2.0	ug/L	251057	1	11/07/2017 13:13	NP
trans-1,3-Dichloropropene	BRL		0.32	2.0	ug/L	251057	1	11/07/2017 13:13	NP
Trichloroethene	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Trichlorofluoromethane	BRL		0.18	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Vinyl chloride	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 13:13	NP
Surr: 4-Bromofluorobenzene	90.1		0	70-130	%REC	251057	1	11/07/2017 13:13	NP
Surr: Dibromofluoromethane	110		0	70-130	%REC	251057	1	11/07/2017 13:13	NP
Surr: Toluene-d8	101		0	70-130	%REC	251057	1	11/07/2017 13:13	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Client: AMEC Foster Wheeler	Client Sample ID: MW-09-26
Project Name: RBTC - Ft. Inn	Collection Date: 11/2/2017 11:00:00 AM
Lab ID: 1711209-002	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B				(SW5030B)					
1,1,1-Trichloroethane	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,1,2,2-Tetrachloroethane	BRL		0.34	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,1,2-Trichloroethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,1-Dichloroethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,1-Dichloroethene	BRL		0.40	2.0	ug/L	251057	1	11/07/2017 14:00	NP
1,2,4-Trichlorobenzene	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,2-Dibromo-3-chloropropane	BRL		0.68	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,2-Dibromoethane	BRL		0.57	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,2-Dichlorobenzene	BRL		0.45	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,2-Dichloroethane	BRL		0.37	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,2-Dichloropropane	BRL		0.35	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,3-Dichlorobenzene	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 14:00	NP
1,4-Dichlorobenzene	BRL		0.33	1.0	ug/L	251057	1	11/07/2017 14:00	NP
2-Butanone	BRL		2.5	10	ug/L	251057	1	11/07/2017 14:00	NP
2-Hexanone	BRL		0.67	10	ug/L	251057	1	11/07/2017 14:00	NP
4-Methyl-2-pentanone	BRL		0.44	10	ug/L	251057	1	11/07/2017 14:00	NP
Acetone	BRL		3.6	20	ug/L	251057	1	11/07/2017 14:00	NP
Benzene	BRL		0.37	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Bromodichloromethane	BRL		0.25	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Bromoform	BRL		0.19	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Bromomethane	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Carbon disulfide	BRL		0.74	5.0	ug/L	251057	1	11/07/2017 14:00	NP
Carbon tetrachloride	BRL		0.29	2.0	ug/L	251057	1	11/07/2017 14:00	NP
Chlorobenzene	BRL		0.42	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Chloroethane	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Chloroform	BRL		0.20	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Chloromethane	BRL		0.21	1.0	ug/L	251057	1	11/07/2017 14:00	NP
cis-1,2-Dichloroethene	BRL		0.28	1.0	ug/L	251057	1	11/07/2017 14:00	NP
cis-1,3-Dichloropropene	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Cyclohexane	BRL		1.0	2.0	ug/L	251057	1	11/07/2017 14:00	NP
Dibromochloromethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Dichlorodifluoromethane	BRL		0.15	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Ethylbenzene	BRL		0.26	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Freon-113	BRL		0.32	5.0	ug/L	251057	1	11/07/2017 14:00	NP
Isopropylbenzene	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:00	NP
m,p-Xylene	BRL		0.60	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Methyl acetate	BRL		0.42	2.0	ug/L	251057	1	11/07/2017 14:00	NP
Methyl tert-butyl ether	BRL		0.45	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Methylcyclohexane	BRL		0.39	2.0	ug/L	251057	1	11/07/2017 14:00	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Client: AMEC Foster Wheeler	Client Sample ID: MW-09-26
Project Name: RBTC - Ft. Inn	Collection Date: 11/2/2017 11:00:00 AM
Lab ID: 1711209-002	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B						(SW5030B)			
Methylene chloride	BRL		1.2	5.0	ug/L	251057	1	11/07/2017 14:00	NP
o-Xylene	BRL		0.18	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Styrene	BRL		0.15	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Tetrachloroethene	BRL		0.46	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Toluene	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 14:00	NP
trans-1,2-Dichloroethene	BRL		0.30	2.0	ug/L	251057	1	11/07/2017 14:00	NP
trans-1,3-Dichloropropene	BRL		0.32	2.0	ug/L	251057	1	11/07/2017 14:00	NP
Trichloroethene	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Trichlorofluoromethane	BRL		0.18	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Vinyl chloride	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 14:00	NP
Surr: 4-Bromofluorobenzene	98.9		0	70-130	%REC	251057	1	11/07/2017 14:00	NP
Surr: Dibromofluoromethane	109		0	70-130	%REC	251057	1	11/07/2017 14:00	NP
Surr: Toluene-d8	102		0	70-130	%REC	251057	1	11/07/2017 14:00	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Client: AMEC Foster Wheeler	Client Sample ID: MW-09-27
Project Name: RBTC - Ft. Inn	Collection Date: 11/2/2017 11:40:00 AM
Lab ID: 1711209-003	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B (SW5030B)									
1,1,1-Trichloroethane	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,1,2,2-Tetrachloroethane	BRL		0.34	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,1,2-Trichloroethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,1-Dichloroethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,1-Dichloroethene	BRL		0.40	2.0	ug/L	251057	1	11/07/2017 14:24	NP
1,2,4-Trichlorobenzene	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,2-Dibromo-3-chloropropane	BRL		0.68	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,2-Dibromoethane	BRL		0.57	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,2-Dichlorobenzene	BRL		0.45	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,2-Dichloroethane	BRL		0.37	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,2-Dichloropropane	BRL		0.35	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,3-Dichlorobenzene	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 14:24	NP
1,4-Dichlorobenzene	BRL		0.33	1.0	ug/L	251057	1	11/07/2017 14:24	NP
2-Butanone	BRL		2.5	10	ug/L	251057	1	11/07/2017 14:24	NP
2-Hexanone	BRL		0.67	10	ug/L	251057	1	11/07/2017 14:24	NP
4-Methyl-2-pentanone	BRL		0.44	10	ug/L	251057	1	11/07/2017 14:24	NP
Acetone	BRL		3.6	20	ug/L	251057	1	11/07/2017 14:24	NP
Benzene	BRL		0.37	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Bromodichloromethane	BRL		0.25	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Bromoform	BRL		0.19	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Bromomethane	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Carbon disulfide	BRL		0.74	5.0	ug/L	251057	1	11/07/2017 14:24	NP
Carbon tetrachloride	BRL		0.29	2.0	ug/L	251057	1	11/07/2017 14:24	NP
Chlorobenzene	BRL		0.42	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Chloroethane	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Chloroform	1.7		0.20	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Chloromethane	BRL		0.21	1.0	ug/L	251057	1	11/07/2017 14:24	NP
cis-1,2-Dichloroethene	BRL		0.28	1.0	ug/L	251057	1	11/07/2017 14:24	NP
cis-1,3-Dichloropropene	BRL		0.31	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Cyclohexane	BRL		1.0	2.0	ug/L	251057	1	11/07/2017 14:24	NP
Dibromochloromethane	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Dichlorodifluoromethane	BRL		0.15	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Ethylbenzene	BRL		0.26	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Freon-113	BRL		0.32	5.0	ug/L	251057	1	11/07/2017 14:24	NP
Isopropylbenzene	BRL		0.43	1.0	ug/L	251057	1	11/07/2017 14:24	NP
m,p-Xylene	BRL		0.60	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Methyl acetate	BRL		0.42	2.0	ug/L	251057	1	11/07/2017 14:24	NP
Methyl tert-butyl ether	BRL		0.45	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Methylcyclohexane	BRL		0.39	2.0	ug/L	251057	1	11/07/2017 14:24	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

Client: AMEC Foster Wheeler	Client Sample ID: MW-09-27
Project Name: RBTC - Ft. Inn	Collection Date: 11/2/2017 11:40:00 AM
Lab ID: 1711209-003	Matrix: Groundwater

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	DF	Date Analyzed	Analyst
TCL VOLATILE ORGANICS SW8260B						(SW5030B)			
Methylene chloride	BRL		1.2	5.0	ug/L	251057	1	11/07/2017 14:24	NP
o-Xylene	BRL		0.18	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Styrene	BRL		0.15	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Tetrachloroethene	2.2		0.46	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Toluene	BRL		0.39	1.0	ug/L	251057	1	11/07/2017 14:24	NP
trans-1,2-Dichloroethene	BRL		0.30	2.0	ug/L	251057	1	11/07/2017 14:24	NP
trans-1,3-Dichloropropene	BRL		0.32	2.0	ug/L	251057	1	11/07/2017 14:24	NP
Trichloroethene	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Trichlorofluoromethane	BRL		0.18	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Vinyl chloride	BRL		0.30	1.0	ug/L	251057	1	11/07/2017 14:24	NP
Surr: 4-Bromofluorobenzene	94.6		0	70-130	%REC	251057	1	11/07/2017 14:24	NP
Surr: Dibromofluoromethane	112		0	70-130	%REC	251057	1	11/07/2017 14:24	NP
Surr: Toluene-d8	102		0	70-130	%REC	251057	1	11/07/2017 14:24	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Not detected at MDL
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- NC Not confirmed

- E Estimated value above quantitation range
- S Spike Recovery outside limits due to matrix
- J Estimated value detected below Reporting Limit
- > Greater than Result value
- < Less than Result value
- Narr See case narrative

SUMMARY OF ANALYTES DETECTED

Analyses	Result	Qual	MDL	Reporting Limit	Units	BatchID	Dilution Factor
Client Sample ID: MW-09-27				Lab ID: 1711209-003			
Collection Date: 11/2/2017 11:40:00 AM				Matrix: Groundwater			
TCL VOLATILE ORGANICS SW8260B				(SW5030B)			
Chloroform	1.7		0.20	1.0	ug/L	251057	1
Tetrachloroethene	2.2		0.46	1.0	ug/L	251057	1

Qualifiers:	* Value exceeds maximum contaminant level	E Estimated (value above quantitation range)
	BRL Below reporting limit	S Spike Recovery outside limits due to matrix
	H Holding times for preparation or analysis exceeded	Narr See case narrative
	N Analyte not NELAC certified	NC Not confirmed
	B Analyte detected in the associated method blank	< Less than Result value
	> Greater than Result value	J Estimated value detected below Reporting Limit

SAMPLE/COOLER RECEIPT CHECKLIST

Clear

Save as

1. Client Name: AMEC Foster Wheeler

AES Work Order Number: 1711209

2. Carrier: FedEx UPS USPS Client Courier Other _____

	Yes	No	N/A	Details	Comments
3. Shipping container/cooler received in good condition?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	damaged <input type="checkbox"/> leaking <input type="checkbox"/> other <input type="checkbox"/>	
4. Custody seals present on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
5. Custody seals intact on shipping container?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
6. Temperature blanks present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
7. Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cooling initiated for recently collected samples / ice present <input type="checkbox"/>	
8. Chain of Custody (COC) present?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
9. Chain of Custody signed, dated, and timed when relinquished and received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
10. Sampler name and/or signature on COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
11. Were all samples received within holding time?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
12. TAT marked on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. <input type="checkbox"/>	

13. Cooler 1 Temperature 1.4 °C Cooler 2 Temperature _____ °C Cooler 3 Temperature _____ °C Cooler 4 Temperature _____ °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials). MJ 11/2/17

	Yes	No	N/A	Details	Comments
16. Were sample containers intact upon receipt?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
17. Custody seals present on sample containers?	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>		
18. Custody seals intact on sample containers?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		
19. Do sample container labels match the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	incomplete info <input type="checkbox"/> illegible <input type="checkbox"/> no label <input type="checkbox"/> other <input type="checkbox"/>	
20. Are analyses requested indicated on the COC?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
21. Were all of the samples listed on the COC received?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	samples received but not listed on COC <input type="checkbox"/> samples listed on COC not received <input type="checkbox"/>	
22. Was the sample collection date/time noted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
23. Did we receive sufficient sample volume for indicated analyses?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
24. Were samples received in appropriate containers?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
25. Were VOA samples received without headspace (< 1/4" bubble)?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>		
26. Were trip blanks submitted?	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	listed on COC <input checked="" type="checkbox"/> not listed on COC <input type="checkbox"/>	

27. Comments: _____

I certify that I have completed sections 16-27 (dated initials). BU 11/02/17

This section only applies to samples where pH can be checked at Sample Receipt.

	Yes	No	N/A	Details	Comments
28. Have containers needing chemical preservation been checked? *	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		
29. Containers meet preservation guidelines?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		
30. Was pH adjusted at Sample Receipt?	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH.

I certify that I have completed sections 28-30 (dated initials). BU 11/02/17

Locked

Client: AMEC Foster Wheeler
Project Name: RBTC - Ft. Inn
Workorder: 1711209

ANALYTICAL QC SUMMARY REPORT

BatchID: 251057

Sample ID: MB-251057	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
Sample Type: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845312							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	BRL	1.0									
1,1,2,2-Tetrachloroethane	BRL	1.0									
1,1,2-Trichloroethane	BRL	1.0									
1,1-Dichloroethane	BRL	1.0									
1,1-Dichloroethene	BRL	2.0									
1,2,4-Trichlorobenzene	BRL	1.0									
1,2-Dibromo-3-chloropropane	BRL	1.0									
1,2-Dibromoethane	BRL	1.0									
1,2-Dichlorobenzene	BRL	1.0									
1,2-Dichloroethane	BRL	1.0									
1,2-Dichloropropane	BRL	1.0									
1,3-Dichlorobenzene	BRL	1.0									
1,4-Dichlorobenzene	BRL	1.0									
2-Butanone	BRL	10									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	20									
Benzene	BRL	1.0									
Bromodichloromethane	BRL	1.0									
Bromoform	BRL	1.0									
Bromomethane	BRL	1.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	2.0									
Chlorobenzene	BRL	1.0									
Chloroethane	BRL	1.0									
Chloroform	BRL	1.0									
Chloromethane	BRL	1.0									

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC Foster Wheeler
Project Name: RBTC - Ft. Inn
Workorder: 1711209

ANALYTICAL QC SUMMARY REPORT

BatchID: 251057

Sample ID: MB-251057	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
SampleType: MBLK	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845312							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

cis-1,2-Dichloroethene	BRL	1.0									
cis-1,3-Dichloropropene	BRL	1.0									
Cyclohexane	BRL	2.0									
Dibromochloromethane	BRL	1.0									
Dichlorodifluoromethane	BRL	1.0									
Ethylbenzene	BRL	1.0									
Freon-113	BRL	5.0									
Isopropylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
Methyl acetate	BRL	2.0									
Methyl tert-butyl ether	BRL	1.0									
Methylcyclohexane	BRL	2.0									
Methylene chloride	BRL	5.0									
o-Xylene	BRL	1.0									
Styrene	BRL	1.0									
Tetrachloroethene	BRL	1.0									
Toluene	BRL	1.0									
trans-1,2-Dichloroethene	BRL	2.0									
trans-1,3-Dichloropropene	BRL	2.0									
Trichloroethene	BRL	1.0									
Trichlorofluoromethane	BRL	1.0									
Vinyl chloride	BRL	1.0									
Surr: 4-Bromofluorobenzene	47.81	0	50.00		95.6	70	130				
Surr: Dibromofluoromethane	52.02	0	50.00		104	70	130				
Surr: Toluene-d8	48.44	0	50.00		96.9	70	130				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC Foster Wheeler
Project Name: RBTC - Ft. Inn
Workorder: 1711209

ANALYTICAL QC SUMMARY REPORT

BatchID: 251057

Sample ID: LCS-251057	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845314							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	23.76	1.0	20.00		119	70	130				
1,1,2,2-Tetrachloroethane	17.81	1.0	20.00		89.0	70	130				
1,1,2-Trichloroethane	20.92	1.0	20.00		105	70	130				
1,1-Dichloroethane	20.79	1.0	20.00		104	70	130				
1,1-Dichloroethene	21.85	2.0	20.00		109	60	140				
1,2,4-Trichlorobenzene	21.73	1.0	20.00		109	70	130				
1,2-Dibromo-3-chloropropane	22.75	1.0	20.00		114	70	130				
1,2-Dibromoethane	19.84	1.0	20.00		99.2	70	130				
1,2-Dichlorobenzene	19.40	1.0	20.00		97.0	70	130				
1,2-Dichloroethane	23.30	1.0	20.00		116	70	130				
1,2-Dichloropropane	19.33	1.0	20.00		96.6	70	130				
1,3-Dichlorobenzene	18.61	1.0	20.00		93.0	70	130				
1,4-Dichlorobenzene	18.77	1.0	20.00		93.8	70	130				
Benzene	19.73	1.0	20.00		98.6	70	130				
Bromodichloromethane	20.65	1.0	20.00		103	70	130				
Bromoform	21.21	1.0	20.00		106	70	130				
Carbon tetrachloride	23.65	2.0	20.00		118	70	130				
Chlorobenzene	19.41	1.0	20.00		97.0	70	130				
Chloroform	21.40	1.0	20.00		107	70	130				
cis-1,2-Dichloroethene	19.16	1.0	20.00		95.8	70	130				
cis-1,3-Dichloropropene	21.11	1.0	20.00		106	70	130				
Dibromochloromethane	20.79	1.0	20.00		104	70	130				
Ethylbenzene	19.39	1.0	20.00		97.0	70	130				
Isopropylbenzene	16.38	1.0	20.00		81.9	70	130				
m,p-Xylene	40.88	1.0	40.00		102	70	130				
Methylene chloride	22.07	5.0	20.00		110	70	130				
o-Xylene	20.83	1.0	20.00		104	70	130				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC Foster Wheeler
Project Name: RBTC - Ft. Inn
Workorder: 1711209

ANALYTICAL QC SUMMARY REPORT

BatchID: 251057

Sample ID: LCS-251057	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
SampleType: LCS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845314							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Styrene	23.61	1.0	20.00		118	70	130				
Tetrachloroethene	19.42	1.0	20.00		97.1	70	130				
Toluene	18.85	1.0	20.00		94.2	70	130				
trans-1,2-Dichloroethene	20.07	2.0	20.00		100	70	130				
trans-1,3-Dichloropropene	21.02	2.0	20.00		105	70	130				
Trichloroethene	20.61	1.0	20.00		103	70	130				
Vinyl chloride	22.50	1.0	20.00		112	70	130				
Surr: 4-Bromofluorobenzene	53.38	0	50.00		107	70	130				
Surr: Dibromofluoromethane	51.04	0	50.00		102	70	130				
Surr: Toluene-d8	47.71	0	50.00		95.4	70	130				

Sample ID: 1711040-003AMS	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845319							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

1,1,1-Trichloroethane	30.58	1.0	20.00		153	67.9	140				S
1,1,2,2-Tetrachloroethane	18.58	1.0	20.00		92.9	66.4	132				
1,1,2-Trichloroethane	24.60	1.0	20.00		123	71.6	134				
1,1-Dichloroethane	26.05	1.0	20.00		130	62.5	135				
1,1-Dichloroethene	28.37	2.0	20.00		142	65.7	143				
1,2,4-Trichlorobenzene	19.20	1.0	20.00		96.0	57.6	133				
1,2-Dibromo-3-chloropropane	19.49	1.0	20.00		97.4	55.8	134				
1,2-Dibromoethane	21.84	1.0	20.00		109	75.9	131				
1,2-Dichlorobenzene	20.60	1.0	20.00		103	67.3	128				
1,2-Dichloroethane	26.34	1.0	20.00		132	67	133				
1,2-Dichloropropane	21.88	1.0	20.00		109	70	128				
1,3-Dichlorobenzene	19.83	1.0	20.00		99.2	68.3	125				
1,4-Dichlorobenzene	19.64	1.0	20.00		98.2	68.4	126				

Qualifiers: > Greater than Result value < Less than Result value B Analyte detected in the associated method blank
 BRL Below reporting limit E Estimated (value above quantitation range) H Holding times for preparation or analysis exceeded
 J Estimated value detected below Reporting Limit N Analyte not NELAC certified R RPD outside limits due to matrix
 Rpt Lim Reporting Limit S Spike Recovery outside limits due to matrix

Client: AMEC Foster Wheeler
Project Name: RBTC - Ft. Inn
Workorder: 1711209

ANALYTICAL QC SUMMARY REPORT

BatchID: 251057

Sample ID: 1711040-003AMS	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
SampleType: MS	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845319							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	24.01	1.0	20.00		120	66.1	137				
Bromodichloromethane	25.60	1.0	20.00		128	70.7	132				
Bromoform	21.91	1.0	20.00		110	56.9	134				
Carbon tetrachloride	29.21	2.0	20.00		146	73.9	147				
Chlorobenzene	22.18	1.0	20.00		111	70.9	132				
Chloroform	26.09	1.0	20.00		130	68.3	134				
cis-1,2-Dichloroethene	23.06	1.0	20.00		115	66.1	132				
cis-1,3-Dichloropropene	23.48	1.0	20.00		117	62.6	132				
Dibromochloromethane	22.81	1.0	20.00		114	60.3	143				
Ethylbenzene	22.07	1.0	20.00		110	74	134				
Isopropylbenzene	18.97	1.0	20.00		94.8	65.2	125				
m,p-Xylene	46.08	1.0	40.00		115	73.8	136				
Methylene chloride	26.69	5.0	20.00		133	64.4	133				S
o-Xylene	22.79	1.0	20.00		114	71.6	135				
Styrene	26.26	1.0	20.00		131	73.8	137				
Tetrachloroethene	23.15	1.0	20.00		116	66.1	136				
Toluene	24.66	1.0	20.00		123	63.8	141				
trans-1,2-Dichloroethene	24.65	2.0	20.00		123	63.1	136				
trans-1,3-Dichloropropene	24.90	2.0	20.00		124	60	133				
Trichloroethene	23.65	1.0	20.00		118	70.6	128				
Vinyl chloride	32.23	1.0	20.00		161	60.8	143				S
Surr: 4-Bromofluorobenzene	52.65	0	50.00		105	70	130				
Surr: Dibromofluoromethane	54.79	0	50.00		110	70	130				
Surr: Toluene-d8	51.08	0	50.00		102	70	130				

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: AMEC Foster Wheeler
Project Name: RBTC - Ft. Inn
Workorder: 1711209

ANALYTICAL QC SUMMARY REPORT**BatchID: 251057**

Sample ID: 1711040-003AMSD	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845321							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	30.99	1.0	20.00		155	67.9	140	30.58	1.33	20	S
1,1,2,2-Tetrachloroethane	18.86	1.0	20.00		94.3	66.4	132	18.58	1.50	20	
1,1,2-Trichloroethane	24.65	1.0	20.00		123	71.6	134	24.60	0.203	20	
1,1-Dichloroethane	25.30	1.0	20.00		126	62.5	135	26.05	2.92	20	
1,1-Dichloroethene	27.56	2.0	20.00		138	65.7	143	28.37	2.90	17.7	
1,2,4-Trichlorobenzene	21.45	1.0	20.00		107	57.6	133	19.20	11.1	29	
1,2-Dibromo-3-chloropropane	20.87	1.0	20.00		104	55.8	134	19.49	6.84	21	
1,2-Dibromoethane	21.43	1.0	20.00		107	75.9	131	21.84	1.90	20	
1,2-Dichlorobenzene	20.69	1.0	20.00		103	67.3	128	20.60	0.436	20	
1,2-Dichloroethane	27.87	1.0	20.00		139	67	133	26.34	5.64	20	S
1,2-Dichloropropane	22.00	1.0	20.00		110	70	128	21.88	0.547	20	
1,3-Dichlorobenzene	20.57	1.0	20.00		103	68.3	125	19.83	3.66	20	
1,4-Dichlorobenzene	20.28	1.0	20.00		101	68.4	126	19.64	3.21	20	
Benzene	24.33	1.0	20.00		122	66.1	137	24.01	1.32	20	
Bromodichloromethane	25.55	1.0	20.00		128	70.7	132	25.60	0.196	20	
Bromoform	22.60	1.0	20.00		113	56.9	134	21.91	3.10	20	
Carbon tetrachloride	30.24	2.0	20.00		151	73.9	147	29.21	3.47	20	S
Chlorobenzene	21.95	1.0	20.00		110	70.9	132	22.18	1.04	20	
Chloroform	26.00	1.0	20.00		130	68.3	134	26.09	0.346	20	
cis-1,2-Dichloroethene	22.64	1.0	20.00		113	66.1	132	23.06	1.84	20	
cis-1,3-Dichloropropene	22.97	1.0	20.00		115	62.6	132	23.48	2.20	20	
Dibromochloromethane	24.12	1.0	20.00		121	60.3	143	22.81	5.58	20	
Ethylbenzene	22.29	1.0	20.00		111	74	134	22.07	0.992	20	
Isopropylbenzene	19.19	1.0	20.00		96.0	65.2	125	18.97	1.15	20	
m,p-Xylene	45.73	1.0	40.00		114	73.8	136	46.08	0.762	20	
Methylene chloride	26.07	5.0	20.00		130	64.4	133	26.69	2.35	20	
o-Xylene	22.28	1.0	20.00		111	71.6	135	22.79	2.26	20	

Qualifiers: > Greater than Result value
 BRL Below reporting limit
 J Estimated value detected below Reporting Limit
 Rpt Lim Reporting Limit

< Less than Result value
 E Estimated (value above quantitation range)
 N Analyte not NELAC certified
 S Spike Recovery outside limits due to matrix

B Analyte detected in the associated method blank
 H Holding times for preparation or analysis exceeded
 R RPD outside limits due to matrix

Client: AMEC Foster Wheeler
Project Name: RBTC - Ft. Inn
Workorder: 1711209

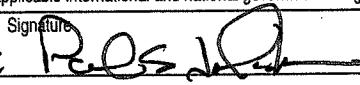
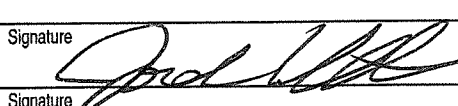
ANALYTICAL QC SUMMARY REPORT

BatchID: 251057

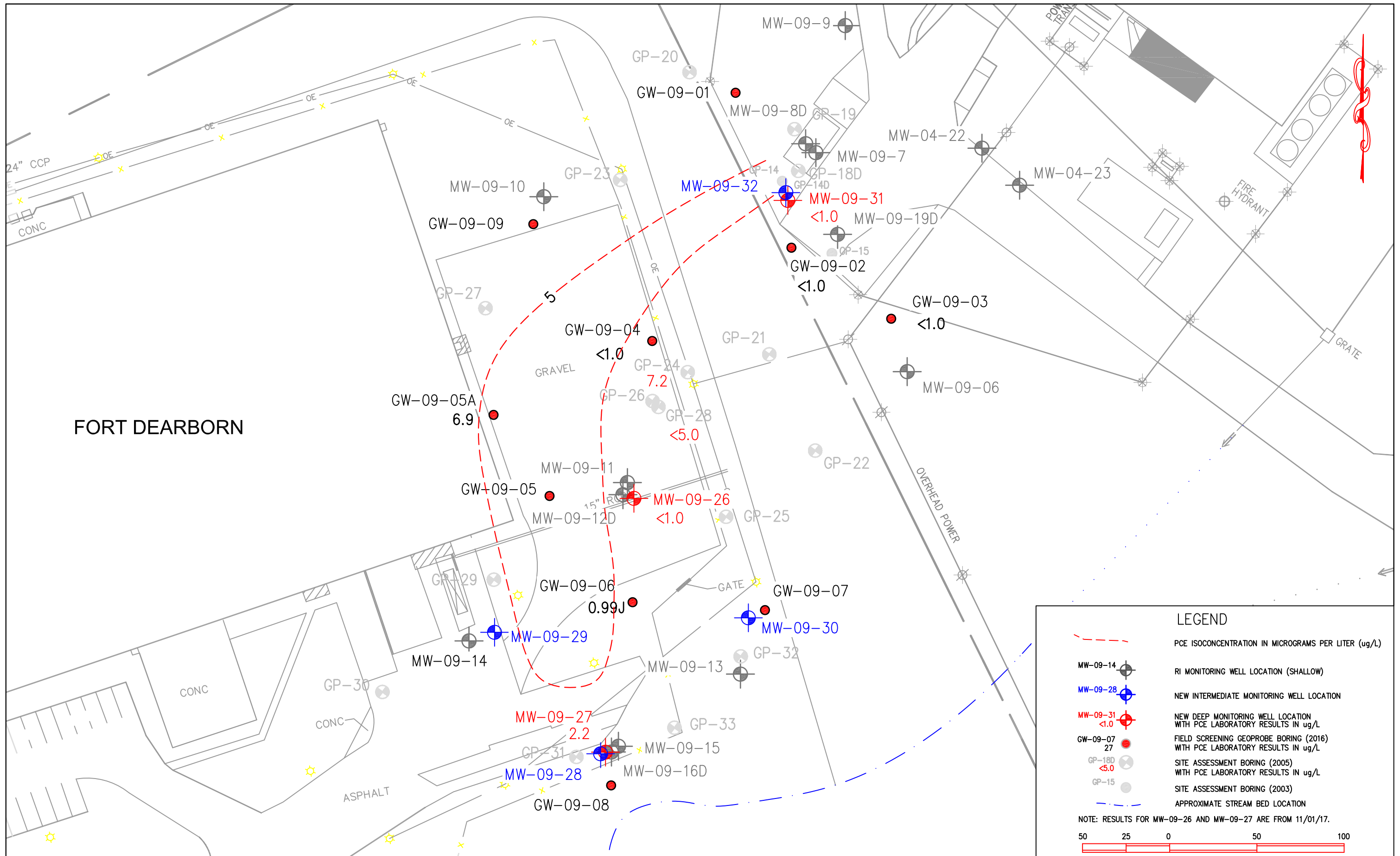
Sample ID: 1711040-003AMSD	Client ID:	Units: ug/L	Prep Date: 11/06/2017	Run No: 356091							
SampleType: MSD	TestCode: TCL VOLATILE ORGANICS SW8260B	BatchID: 251057	Analysis Date: 11/06/2017	Seq No: 7845321							
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual

Styrene	25.07	1.0	20.00		125	73.8	137	26.26	4.64	20	
Tetrachloroethene	23.46	1.0	20.00		117	66.1	136	23.15	1.33	20	
Toluene	24.77	1.0	20.00		124	63.8	141	24.66	0.445	20	
trans-1,2-Dichloroethene	24.28	2.0	20.00		121	63.1	136	24.65	1.51	20	
trans-1,3-Dichloropropene	24.98	2.0	20.00		125	60	133	24.90	0.321	20	
Trichloroethene	24.90	1.0	20.00		124	70.6	128	23.65	5.15	20	
Vinyl chloride	31.84	1.0	20.00		159	60.8	143	32.23	1.22	20.1	S
Surr: 4-Bromofluorobenzene	53.23	0	50.00		106	70	130	52.65	0	0	
Surr: Dibromofluoromethane	55.37	0	50.00		111	70	130	54.79	0	0	
Surr: Toluene-d8	51.79	0	50.00		104	70	130	51.08	0	0	

Qualifiers:	>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
	BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
	J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
	Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number CESQG	2. Page 1 of	3. Emergency Response Phone 803-957-8175	4. Waste Tracking Number SC0095-01	
5. Generator's Name and Mailing Address: CESQG Fort Dearborn Company 100 Northwinds Dr Fountain Inn, SC 29644 Generator's Phone: 478-788-8899 Generator's Site Address (if different than mailing address):					
6. Transporter 1 Company Name A&D ENVIRONMENTAL SERVICES (SC), LLC			U.S. EPA ID Number SCD987598331		
7. Transporter 2 Company Name			U.S. EPA ID Number		
8. Designated Facility Name and Site Address A&D ENVIRONMENTAL SERVICES (GA) LLC 100 WASTE RESEARCH DRIVE MACON, GA 31208 Facility's Phone: 478-788-8899			U.S. EPA ID Number GAR000007484		
9. Waste Shipping Name and Description		10. Containers		11. Total Quantity	12. Unit Wt./Vol.
		No.	Type		
1. NON HAZARDOUS NON RCRA REGULATED MATERIAL purge water		001	DM	015	G
2.					
3.					
4.					
13. Special Handling Instructions and Additional Information A&D (SC) Job # SC0095					
14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					
Generator's/Offoror's Printed/Typed Name Paul S. Johnstone of Amec Fw as agent for RATT				Signature 	Month Day Year 11 21 17
15. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____					
16. Transporter Acknowledgment of Receipt of Materials					
Transporter 1 Printed/Typed Name Jordan Willett			Signature 	Month Day Year 11 21 17	
Transporter 2 Printed/Typed Name			Signature	Month Day Year	
17. Discrepancy					
17a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection					
Manifest Reference Number: _____					
17b. Alternate Facility (or Generator)				U.S. EPA ID Number	
17c. Signature of Alternate Facility (or Generator) _____ Month Day Year					
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a					
Printed/Typed Name			Signature	Month Day Year	

GENERATOR
 TRANSPORTER
 DESIGNATED FACILITY



DRAWN BY: PSJ	DATE: 11/13/17
CHECKED BY: ZJD	DATE: 11/16/17
PROJECT NO: 6251161022.02.03	

REVISIONS		
No.	DESCRIPTION	BY

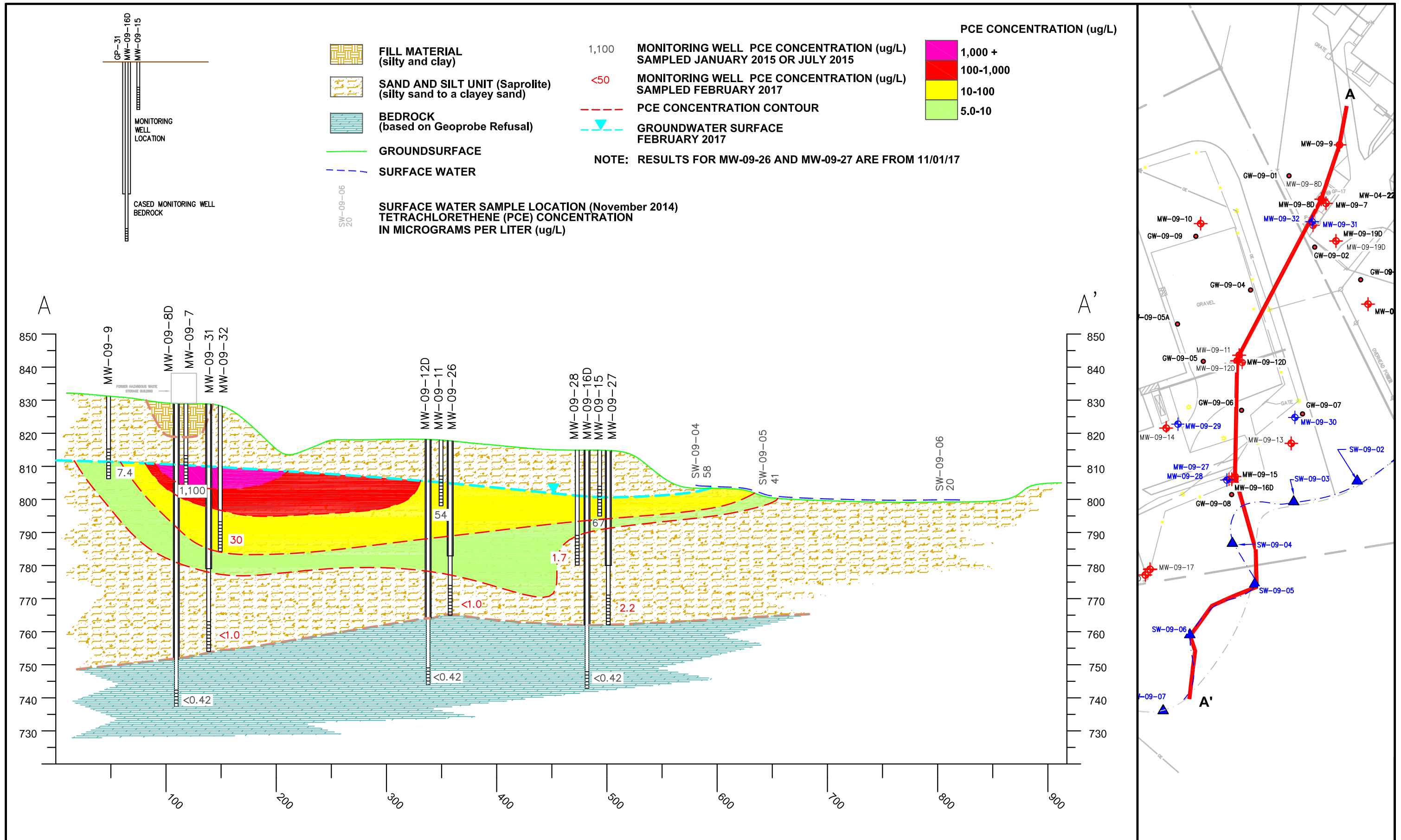
amec foster wheeler



400 EXECUTIVE CENTER DRIVE
SUITE 200
GREENVILLE, S.C. 29615
Phone: (864) 458-3600
Fax: (864) 458-3700

DEEP PCE ISOCONCENTRATION CONTOUR MAP
FORMER VERMONT BOSCH SITE/FORT DEARBORN PROPERTY
FOUNTAIN INN, SOUTH CAROLINA

FIGURE
7



DRAWN BY: PSJ
 CHECKED BY: ZJD
 PROJECT NO: 6251161022.02.03

DATE: 11/13/17
 DATE: 11/16/17

REVISIONS		
No.	DESCRIPTION	BY

amec foster wheeler

400 EXECUTIVE CENTER DRIVE
 SUITE 200
 GREENVILLE, S.C. 29615
 Phone: (864) 458-3600
 Fax: (864) 458-3700

LITHOLOGIC CROSS-SECTION A-A'
 FORMER VERMONT BOSCH SITE/FORT DEARBORN PROPERTY
 FOUNTAIN INN, SOUTH CAROLINA

FIGURE
 10