





September 27, 2017

Mr. Joseph T. Martella II, Senior Engineer  
Rhode Island Department of Environmental Management  
Office of Waste Management  
Site Remediation Program  
235 Promenade Street  
Providence, Rhode Island 02908

**RE: Parcel C Groundwater Sampling  
Former Gorham Manufacturing Facility  
333 Adelaide Avenue, Providence, Rhode Island  
AMEC Project No. 3652150005**

Dear Mr. Martella:

This letter summarizes the September 6, 2017 collection of groundwater samples from Parcel C/C-1 at the Former Gorham Manufacturing Site in Providence, Rhode Island (Figure 1). This activity was performed to supplement groundwater testing done in July and December 2015, and February, April, July, September and December 2016 and March 2017. This groundwater sampling was conducted in accordance with the Remedial Action Work Plan (RAWP) dated March 11, 2015 and the corresponding Rhode Island Department of Environmental Management (RIDEM) July 9, 2015 Order of Approval (Order of Approval).

## **Background**

Extensive groundwater investigations were previously conducted throughout the upland portions of the Former Gorham Manufacturing Site property, including Parcel C, and within the Mashapaug Inner and Outer Coves (MACTEC, 2006a). The groundwater investigations identified low levels of volatile organic compounds (VOCs) in groundwater immediately upgradient of and along the southern shore of the Inner Cove (Parcels C and C-1).

Based on 2006-2010 groundwater data low-level tetrachloroethylene and trichloroethylene (PCE/TCE) groundwater impacts were present in the northwestern corner of Parcel C. Groundwater and Inner Cove sediment data collected during the same period (2006-2010) demonstrated that a clear trend of decreasing contaminant concentrations within the groundwater had occurred over time (AMEC 2014, 2015).

RIDEM's Order of Approval requires Textron to monitor Parcel C/C-1 groundwater following completion of the remedial action in December 2015, by sampling six wells (MW-235S, MW-236S, MW-237S, MW-D, MW-241, and MW-FS) until data from three consecutive sampling rounds demonstrate that Parcel C groundwater is compliant with RIDEM's GB Groundwater Objectives with no increasing concentrations of VOCs, and that Parcel C-1 groundwater is compliant with the Massachusetts Department of Environmental Protection (MassDEP) GW-3 Standards with no increasing concentrations of VOCs. The April 2016 sampling event confirmed that both MW-FS and MW-237S met the required criteria of three consecutive decreasing rounds of groundwater

data and data below the MassDEP GW-3 Standards. These two wells were eliminated from the groundwater monitoring program (April 2016 groundwater monitoring report). Three more wells were eliminated from monitoring following the July 2016 sampling round, including MW-235S, MW-236S, and MW-241, in accordance with the Order of Approval. The September and December 2016, and March and September 2017 rounds of groundwater sampling were exclusive to the one remaining groundwater monitoring well MW-D located on Parcel C.

### **Work Activities Conducted**

Amec Foster Wheeler Environment & Infrastructure, Inc., (Amec Foster Wheeler) gauged the depth to water in 13 monitoring wells located along the southern shoreline of the Inner Cove on September 6, 2017. These well locations and the associated groundwater contours are shown on Figure 2 and include MW-235S, MW-236S, MW-237S, MW-238S/D, MW-231S/D, MW-244, MW-D, MW-241, MW-FS, GZA-3 and MW-109D.

Amec Foster Wheeler then sampled the one remaining groundwater monitoring well, MW-D (Figure 2), using the U.S. Environmental Protection Agency (USEPA) low-flow methodology. Sample collection included a duplicate groundwater sample from MW-D. Samples from this September 6, 2017 round were submitted under chain-of-custody control to an off-site laboratory for VOC analysis by USEPA Method 8260B. Field data records for this groundwater sampling event are included in Appendix A.

### **Groundwater Sampling Results**

Table 1 summarizes the historic VOC concentrations detected in MW-D including the September 2017 groundwater sampling event. VOC concentrations detected in Parcel C (MW-D) are measured against the RIDEM GB standards. The analytical laboratory report for the September 2017 groundwater sampling event is included in Appendix B.

As shown in Table 1, both 1,1-dichloroethene (DCE) and TCE exceeded the GB criteria in September 2017. 1,1-DCE was below the GB criteria through July 2016, but the concentration increased in September 2016 during the drought conditions. Since peaking in September 2016 (0.0148 mg/L), the concentration has continued to drop so that it is now at or below the GB criteria (0.0071/0.0064 vs 0.007 mg/L).

The concentration of TCE within MW-D was at its highest concentration in September 2016 (2.81D/3.32D mg/L) during the drought conditions. Since December 2016, the concentration has continued to drop to 1.71 mg/L (vs 0.54 mg/L). The December 2016, March 2017 and September 2017 concentrations of 1,1-DCE and TCE are lower than those measured in MW-D in December 2015 that followed the completion of the Parcel C construction.

### **Groundwater Monitoring Approach**

Based on the extensive groundwater data collected, VOC concentrations within the northwestern area of Parcel C have been reduced. Only MW-D exceeds the RIDEM GB criteria for TCE, while the 1,1-DCE concentration is just above the GB criteria (0.0071/0.0064 mg/L vs 0.007 mg/L). As shown in Table 1, continued biodegradation of VOCs via natural attenuation is occurring in the groundwater. Planned reuse of the Parcel C/C-1 area by the City of Providence School Department is a soccer field. No buildings are planned in the area of MW-D and it is currently

Textron, Inc.  
Former Gorham Manufacturing Facility, Providence, RI  
Remedial Action Work Plan – Phase II Area- Mashapaug Pond and Cove, Phase III Area – Northeast Upland and Parcel C  
Groundwater Sampling  
September 27, 2017  
Project No.: 3652150040.03

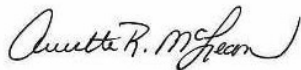
located within the woods on the downhill side of a detention basin. The final Environmental Land Use Restrictions (ELUR) and Soil Management Plan (SMP) has been signed by the City of Providence and filed in the Providence Land Evidence Records. A copy of this signed ELUR and SMP was submitted to RIDEM for their records. This ELUR includes the provision restricting the use of the groundwater for potable and non-potable use, and that no subsurface structures can be constructed over the groundwater without prior approval from RIDEM.

Textron proposes to monitor the groundwater quality at MW-D on a semi-annual basis, pending compliance with RIDEM's GB Groundwater Objectives. The next scheduled sampling event is scheduled for February 2018. A report will be prepared and submitted to the RIDEM in March 2018 to update the status of this one monitoring well.

Please contact the Greg Simpson (401-457-2635) or Tim Regan (401-648-9240, ext 100) if we can provide additional information or answer any questions concerning these groundwater monitoring data and planned sampling of MW-D in September 2017.

Sincerely,

**Amec Foster Wheeler Environment & Infrastructure, Inc.**



Annette McLean  
Project Scientist



David E. Heislein  
Senior Project Manager

Enclosures: Table 1 – Summary of Parcel C/C-1 Groundwater Results 1989 – 2017  
Figure 1 – Site Location Map  
Figure 2 – Parcel C/C-1 Groundwater Contours September 2017  
Appendix A – Field Data Record September 2017 Sampling Event  
Appendix B – Laboratory Reports September 2017 Sampling Event

cc: Robert Azar, Deputy Director - Providence Planning & Development  
G. Simpson, Textron, Inc. (Electronic)  
Knight Memorial Library Repository  
Amec Foster Wheeler Project File

P:\BOS\Textron\3652150005 - Textron Gorham\8.0 Proj Deliverables\8.1 Reports\September 2017 GW Sampling Ltr 092717.docx

## TABLE



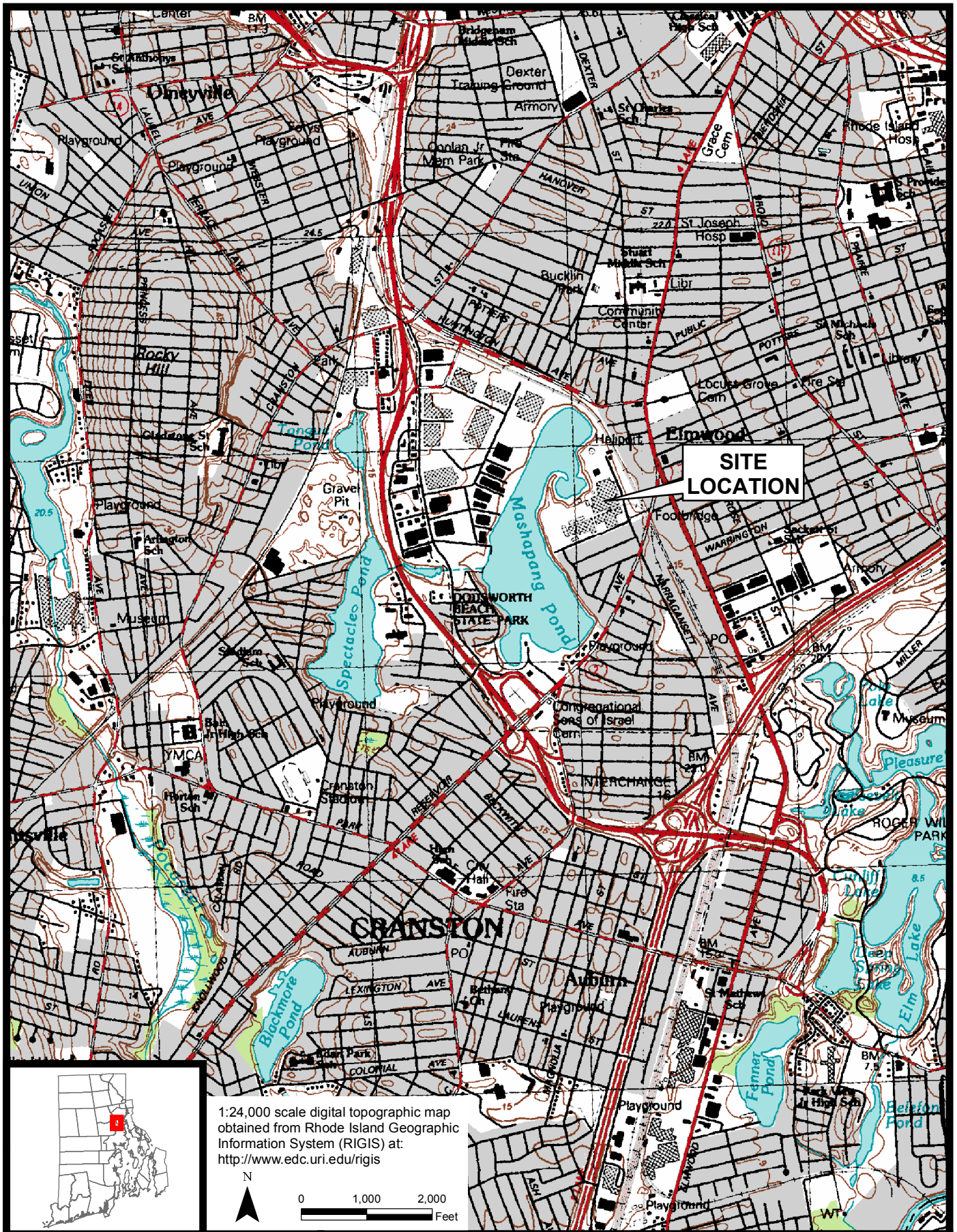
**Table 1**  
**Groundwater Results 1989 - 2017**  
**Former Gorham Manufacturing Site**  
**Providence, RI**

Location:		MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4	MW-D/B-4
Sample ID:		MW-D	GMMWXXDXXX01XX	MW-D	MW-D	GWMWWD	MW-D	DUP-01	MW-D	MW-D	DUP-1	MW-D	Dup-01	MW-D	Dup-01	MW-D	Dup-01	MW-D	Dup-01	MW-D	DUP-1	MW-D	Dup-01	
Sample Date:		4/13/1989	9/21/1994	10/15/1997	12/9/1998	2/19/2010	7/15/2015	7/15/2015	12/17/2015	2/10/2016	2/10/2016	4/28/2016	4/28/2016	7/6/2016	7/6/2016	9/26/2016	9/26/2016	12/9/2016	12/9/2016	3/27/2017	3/27/2017	9/7/2017	9/7/2017	
Parameter Name	Units	GB	GW-3																					
Cobalt	MG/L	NS	NS																					
Copper	MG/L	NS	NS		0.05 U																			
Iron	MG/L	NS	NS		0.02 U																			
Lead	MG/L	NS	0.01		0.1 U																			
Magnesium	MG/L	NS	NS		0.016		0.005 U																	
Manganese	MG/L	NS	NS		15.7																			
Mercury	MG/L	NS	NS		0.47																			
Nickel	MG/L	NS	0.02		0.0005 U																			
Potassium	MG/L	NS	0.2		0.04 U																			
Selenium	MG/L	NS	NS		1.8																			
Silver	MG/L	NS	0.1		0.01 U																			
Sodium	MG/L	NS	0.007		0.01 U																			
Thallium	MG/L	NS	NS		25.1																			
Vanadium	MG/L	NS	3		0.01 U																			
Zinc	MG/L	NS	4		0.05 U																			
Total Cyanide	MG/L	NS	0.9		0.05																			
	MG/L	NS	0.03		0.01 U																			

Notes:  
mg/L - milligrams per liter  
NS - No Standard Established  
U - Not detected  
J - Estimated Value  
D - Dilution  
Ambient Water Quality Criteria (AWQC) does not apply to the above  
volatile organic compounds.  
Yellow highlighted cells exceed the applicable GB Criteria

## FIGURES





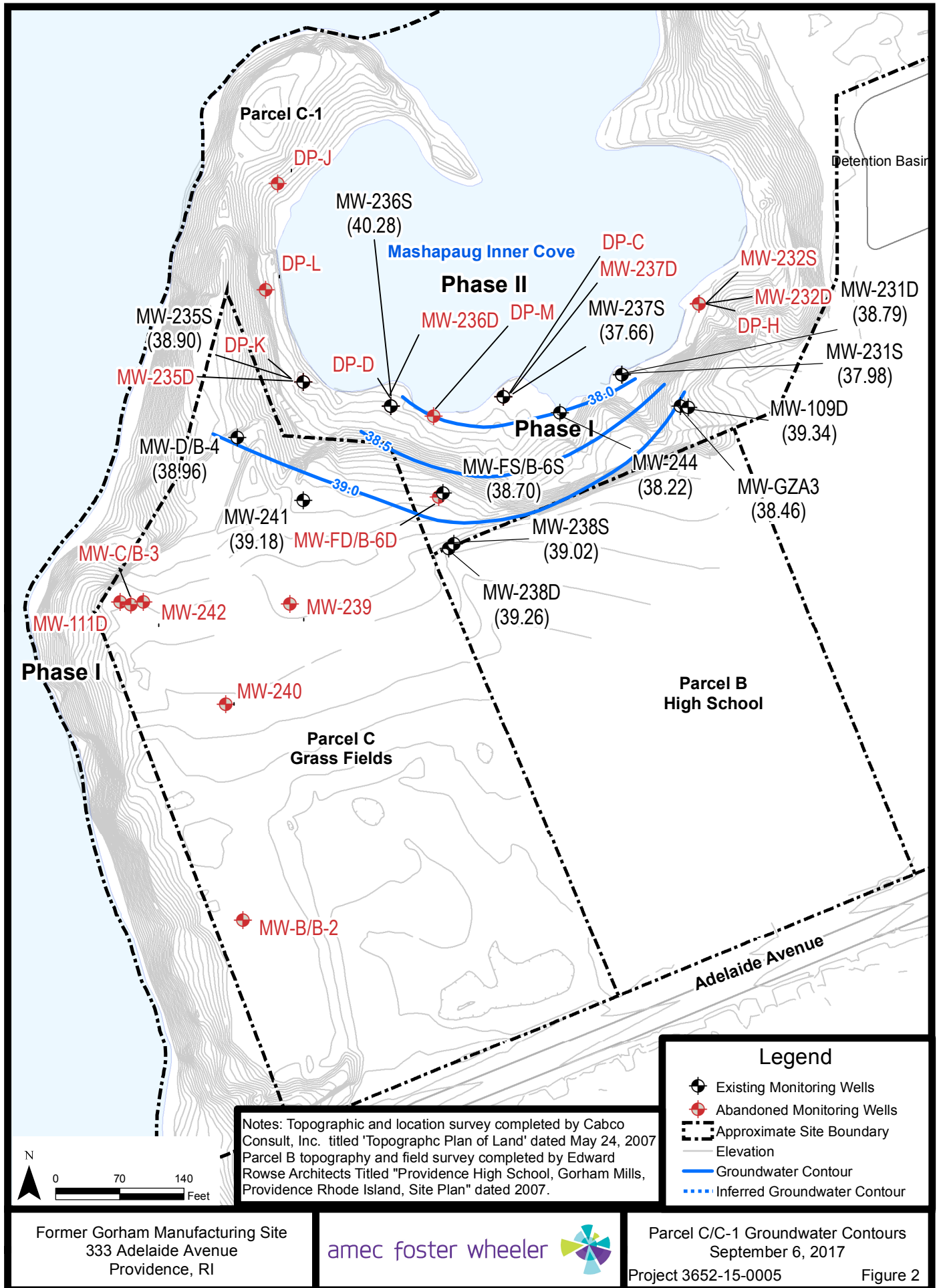
Former Gorham Manufacturing Site  
 333 Adelaide Avenue  
 Providence, RI



Site Location Map

Project 3652-15-0040

Figure 1



## **APPENDIX A**

**FIELD DATA RECORD - LOW FLOW GROUNDWATER SAMPLING**

PROJECT: Textan/Graham WELL ID: MW-10  
 SAMPLE ID: MW-10 SITE TYPE: RI DATE: 9-6-17  
 TIME START: 1300 END: \_\_\_\_\_ JOB NUMBER: 3652150005 BOTTLE TIME: 1335

**WATER LEVEL / PUMP SETTINGS**

QC SAMPLE COLLECTED: Appci / Ms / Msp

MEASUREMENT POINT:  TOP OF WELL RISER,  TOP OF PROTECTIVE CASING,  OTHER \_\_\_\_\_

PROTECTIVE CASING STICKUP (FROM GROUND): \_\_\_\_\_ FT.

PROTECTIVE CASING / WELL DIFFERENCE: \_\_\_\_\_ FT.

INITIAL DEPTH TO WATER: 21.30 FT.

WELL DEPTH (TOR): 32 FT.

PID AMBIENT AIR:  PPMV

WELL DIAMETER: 2 IN.

FINAL DEPTH TO WATER: 21.30 FT.

SCREEN LENGTH: 10 FT.

PID WELL MOUTH:  PPMV

WELL INTEGRITY: CAP  YES  NO  N/A  
 CASING LOCKED  YES  NO  N/A  
 COLLAR  YES  NO  N/A

DRAWDOWN VOLUME: 0 GAL.  
 (initial - final x 0.16 [2-inch] or x 0.65 [4-inch])

RATIO OF DRAWDOWN VOLUME TO TOTAL VOLUME PURGED: 0.01

PRESSURE TO PUMP: \_\_\_\_\_ PSI

TOTAL VOL. PURGED: 1.4 GAL.  
 (purge rate (milliliters per minute) x time duration (minutes) x 0.00026 gal/ml)

REFILL TIMER SETTING:  SEC.

DISCHARGE TIMER SETTING: \_\_\_\_\_ SEC.

**PURGE DATA**

TIME (5 min.)	DEPTH TO WATER (ft.) (0.3 ft.)	PURGE RATE (ml/min) (100-400)	TEMP. (deg. C) (3%)	SPEC. COND. (uS/cm) (3%)	pH (units) (+/- 0.1)	DISS. O2 (mg/L) (10%) (>0.5)	TURBIDITY (NTU) (10%) (>5)	ORP (mV) (+/- 10 mV)	SAMPLE DEPTH	COMMENTS
1300	21.30	150	Start purge						30	
1311	21.30	150	13.13	734	5.15	8.10	14.9	242		
1316	21.30	150	12.96	736	5.58	7.35	9.31	237		
1321	21.30	150	12.93	740	5.60	6.31	7.31	233		
1326	21.30	150	12.95	742	5.62	6.29	7.42	229		
1331	21.30	150	12.95	747	5.64	6.30	7.12	227		
1335	collect sample									

**EQUIPMENT DOCUMENTATION**

TYPE OF PUMP:  QED BLADDER,  SIMCO BLADDER,  GEOPUMP

TYPE OF TUBING:  TEFLON OR TEFLON LINED,  HIGH DENSITY POLYETHYLENE,  LDPE

TYPE OF PUMP MATERIAL:  POLYVINYL CHLORIDE,  STAINLESS STEEL,  SILICON (Dedicated)

TYPE OF BLADDER MATERIAL:  TEFLON,  OTHER \_\_\_\_\_

**ANALYTICAL PARAMETERS**

To Be Collected

<input checked="" type="checkbox"/> VOCs	METHOD NUMBER: 8260B	PRESERVATION METHOD: HCL / 4 DEG. C	VOLUME REQUIRED: 3 X 40 mL. VOA Vial	SAMPLE COLLECTED: <input checked="" type="checkbox"/> VOCs
<input type="checkbox"/>				<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>
<input type="checkbox"/>				<input type="checkbox"/>


**PURGE OBSERVATIONS**

PURGE WATER CONTAINERIZED: YES  NO

NUMBER OF GALLONS GENERATED: \_\_\_\_\_

SIGNATURE: [Signature]

**NOTES:**

amec foster wheeler 

Prepared by: \_\_\_\_\_  
 Checked by: \_\_\_\_\_

## **APPENDIX B**



## CERTIFICATE OF ANALYSIS

Denise King  
AMEC Foster Wheeler  
271 Mill Road  
Chelmsford, MA 01824

**RE: Textron Gorham - Groundwater (3652150005)**  
**ESS Laboratory Work Order Number: 1709149**

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard  
Laboratory Director

**REVIEWED****By ESS Laboratory at 3:55 pm, Sep 14, 2017****Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**SAMPLE RECEIPT**

The following samples were received on September 07, 2017 for the analyses specified on the enclosed Chain of Custody Record.

**The cooler temperature was not within the acceptance limit of <6°C, however, samples were delivered on ice.**

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1709149-01	MW-D	Ground Water	8260B
1709149-02	Dup-01	Ground Water	8260B

CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

PROJECT NARRATIVE

**8260B Volatile Organic Compounds**

CI70825-MS2 [Due to high target values, matrix spike analyte\(s\) is masked \(MT\).](#)  
cis-1,2-Dichloroethene (-140% @ 70-130%), Trichloroethene (-6270% @ 70-130%)

CI70825-MS2 [Matrix Spike recovery is above upper control limit \(M+\).](#)  
1,2-Dichloropropane (134% @ 70-130%)

CI70825-MS2 [Matrix Spike recovery is below lower control limit \(M-\).](#)  
1,1-Dichloroethene (69% @ 70-130%)

CI70825-MSD2 [Due to high target values, matrix spike analyte\(s\) is masked \(MT\).](#)  
cis-1,2-Dichloroethene (-97% @ 70-130%), Trichloroethene (-6020% @ 70-130%)

CI70825-MSD2 [Matrix Spike recovery is above upper control limit \(M+\).](#)  
1,2-Dichloropropane (136% @ 70-130%)

CI70825-MSD2 [Relative percent difference for duplicate is outside of criteria \(D+\).](#)  
1,1-Dichloroethene (35% @ 30%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

*To ensure you are viewing the most current version of the documents below, please clear your internet cookies for [www.ESSLaboratory.com](http://www.ESSLaboratory.com). Consult your IT Support personnel for information on how to clear your internet cookies.*

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)





*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

**Prep Methods**

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
 Client Project ID: Textron Gorham - Groundwater  
 Client Sample ID: MW-D  
 Date Sampled: 09/07/17 13:35  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709149  
 ESS Laboratory Sample ID: 1709149-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MD

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,1-Dichloroethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
<b>1,1-Dichloroethene</b>	<b>0.0071</b> (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,1-Dichloropropene	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2-Dibromoethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2-Dichloroethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,2-Dichloropropane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,3-Dichloropropane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1,4-Dioxane - Screen	ND (0.500)		8260B		1	09/08/17 18:40	C7I0101	CI70825
1-Chlorohexane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
2,2-Dichloropropane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
2-Butanone	ND (0.0100)		8260B		1	09/08/17 18:40	C7I0101	CI70825
2-Chlorotoluene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
2-Hexanone	ND (0.0100)		8260B		1	09/08/17 18:40	C7I0101	CI70825
4-Chlorotoluene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
4-Isopropyltoluene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Acetone	ND (0.0100)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Benzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Bromobenzene	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater  
Client Sample ID: MW-D  
Date Sampled: 09/07/17 13:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1709149  
ESS Laboratory Sample ID: 1709149-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MD

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Bromodichloromethane	ND (0.0006)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Bromoform	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Bromomethane	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Carbon Disulfide	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Carbon Tetrachloride	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Chlorobenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Chloroethane	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Chloroform	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Chloromethane	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825
<b>cis-1,2-Dichloroethene</b>	<b>0.0988</b> (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Dibromochloromethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Dibromomethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Dichlorodifluoromethane	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Diethyl Ether	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Di-isopropyl ether	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Ethylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Hexachlorobutadiene	ND (0.0006)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Hexachloroethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Isopropylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Methylene Chloride	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Naphthalene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
n-Butylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
n-Propylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
sec-Butylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Styrene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
tert-Butylbenzene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
<b>Tetrachloroethene</b>	<b>0.0035</b> (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater  
Client Sample ID: MW-D  
Date Sampled: 09/07/17 13:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1709149  
ESS Laboratory Sample ID: 1709149-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MD

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Toluene	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
<b>trans-1,2-Dichloroethene</b>	<b>0.0029</b> (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	09/08/17 18:40	C7I0101	CI70825
<b>Trichloroethene</b>	<b>1.71</b> (0.100)		8260B		100	09/11/17 17:33	C7I0101	CI70825
Trichlorofluoromethane	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Vinyl Acetate	ND (0.0050)		8260B		1	09/08/17 18:40	C7I0101	CI70825
<b>Vinyl Chloride</b>	<b>0.0054</b> (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Xylene O	ND (0.0010)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Xylene P,M	ND (0.0020)		8260B		1	09/08/17 18:40	C7I0101	CI70825
Xylenes (Total)	ND (0.0020)		8260B		1	09/08/17 18:40		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	96 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	97 %		70-130
<i>Surrogate: Toluene-d8</i>	93 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
 Client Project ID: Textron Gorham - Groundwater  
 Client Sample ID: Dup-01  
 Date Sampled: 09/07/17 00:00  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709149  
 ESS Laboratory Sample ID: 1709149-02  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MD

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,1-Dichloroethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
<b>1,1-Dichloroethene</b>	<b>0.0064</b> (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,1-Dichloropropene	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2-Dibromoethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2-Dichloroethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,2-Dichloropropane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,3-Dichloropropane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1,4-Dioxane - Screen	ND (0.500)		8260B		1	09/08/17 19:06	C7I0101	CI70825
1-Chlorohexane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
2,2-Dichloropropane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
2-Butanone	ND (0.0100)		8260B		1	09/08/17 19:06	C7I0101	CI70825
2-Chlorotoluene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
2-Hexanone	ND (0.0100)		8260B		1	09/08/17 19:06	C7I0101	CI70825
4-Chlorotoluene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
4-Isopropyltoluene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Acetone	ND (0.0100)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Benzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Bromobenzene	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater  
Client Sample ID: Dup-01  
Date Sampled: 09/07/17 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1709149  
ESS Laboratory Sample ID: 1709149-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MD

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Bromodichloromethane	ND (0.0006)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Bromoform	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Bromomethane	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Carbon Disulfide	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Carbon Tetrachloride	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Chlorobenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Chloroethane	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Chloroform	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Chloromethane	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825
<b>cis-1,2-Dichloroethene</b>	<b>0.0984</b> (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Dibromochloromethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Dibromomethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Dichlorodifluoromethane	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Diethyl Ether	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Di-isopropyl ether	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Ethylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Hexachlorobutadiene	ND (0.0006)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Hexachloroethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Isopropylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Methylene Chloride	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Naphthalene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
n-Butylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
n-Propylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
sec-Butylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Styrene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
tert-Butylbenzene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
<b>Tetrachloroethene</b>	<b>0.0038</b> (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
 Client Project ID: Textron Gorham - Groundwater  
 Client Sample ID: Dup-01  
 Date Sampled: 09/07/17 00:00  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709149  
 ESS Laboratory Sample ID: 1709149-02  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MD

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Toluene	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
<b>trans-1,2-Dichloroethene</b>	<b>0.0032</b> (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	09/08/17 19:06	C7I0101	CI70825
<b>Trichloroethene</b>	<b>1.66</b> (0.100)		8260B		100	09/11/17 18:00	C7I0101	CI70825
Trichlorofluoromethane	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Vinyl Acetate	ND (0.0050)		8260B		1	09/08/17 19:06	C7I0101	CI70825
<b>Vinyl Chloride</b>	<b>0.0057</b> (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Xylene O	ND (0.0010)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Xylene P,M	ND (0.0020)		8260B		1	09/08/17 19:06	C7I0101	CI70825
Xylenes (Total)	ND (0.0020)		8260B		1	09/08/17 19:06		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	95 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	102 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	96 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
 Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

**Batch CI70825 - 5030B**

**Blank**

1,1,1,2-Tetrachloroethane	ND	0.0010	mg/L							
1,1,1-Trichloroethane	ND	0.0010	mg/L							
1,1,2,2-Tetrachloroethane	ND	0.0005	mg/L							
1,1,2-Trichloroethane	ND	0.0010	mg/L							
1,1-Dichloroethane	ND	0.0010	mg/L							
1,1-Dichloroethene	ND	0.0010	mg/L							
1,1-Dichloropropene	ND	0.0020	mg/L							
1,2,3-Trichlorobenzene	ND	0.0010	mg/L							
1,2,3-Trichloropropane	ND	0.0010	mg/L							
1,2,4-Trichlorobenzene	ND	0.0010	mg/L							
1,2,4-Trimethylbenzene	ND	0.0010	mg/L							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/L							
1,2-Dibromoethane	ND	0.0010	mg/L							
1,2-Dichlorobenzene	ND	0.0010	mg/L							
1,2-Dichloroethane	ND	0.0010	mg/L							
1,2-Dichloropropane	ND	0.0010	mg/L							
1,3,5-Trimethylbenzene	ND	0.0010	mg/L							
1,3-Dichlorobenzene	ND	0.0010	mg/L							
1,3-Dichloropropane	ND	0.0010	mg/L							
1,4-Dichlorobenzene	ND	0.0010	mg/L							
1,4-Dioxane - Screen	ND	0.500	mg/L							
1-Chlorohexane	ND	0.0010	mg/L							
2,2-Dichloropropane	ND	0.0010	mg/L							
2-Butanone	ND	0.0100	mg/L							
2-Chlorotoluene	ND	0.0010	mg/L							
2-Hexanone	ND	0.0100	mg/L							
4-Chlorotoluene	ND	0.0010	mg/L							
4-Isopropyltoluene	ND	0.0010	mg/L							
4-Methyl-2-Pentanone	ND	0.0250	mg/L							
Acetone	ND	0.0100	mg/L							
Benzene	ND	0.0010	mg/L							
Bromobenzene	ND	0.0020	mg/L							
Bromochloromethane	ND	0.0010	mg/L							
Bromodichloromethane	ND	0.0006	mg/L							
Bromoform	ND	0.0010	mg/L							
Bromomethane	ND	0.0020	mg/L							
Carbon Disulfide	ND	0.0010	mg/L							
Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							





CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

**Batch CI70825 - 50308**

Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Xylenes (Total)	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0237		mg/L	0.02500		95	70-130			
Surrogate: 4-Bromofluorobenzene	0.0261		mg/L	0.02500		104	70-130			
Surrogate: Dibromofluoromethane	0.0226		mg/L	0.02500		90	70-130			
Surrogate: Toluene-d8	0.0235		mg/L	0.02500		94	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	9.70		ug/L	10.00		97	70-130			
1,1,1-Trichloroethane	9.93		ug/L	10.00		99	70-130			
1,1,2,2-Tetrachloroethane	10.6		ug/L	10.00		106	70-130			
1,1,2-Trichloroethane	10.1		ug/L	10.00		101	70-130			
1,1-Dichloroethane	9.40		ug/L	10.00		94	70-130			
1,1-Dichloroethene	9.98		ug/L	10.00		100	70-130			
1,1-Dichloropropene	10.4		ug/L	10.00		104	70-130			
1,2,3-Trichlorobenzene	10.5		ug/L	10.00		105	70-130			
1,2,3-Trichloropropane	9.97		ug/L	10.00		100	70-130			



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
 Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8260B Volatile Organic Compounds**

**Batch CI70825 - 5030B**

1,2,4-Trichlorobenzene	10.3		ug/L	10.00		103	70-130			
1,2,4-Trimethylbenzene	9.38		ug/L	10.00		94	70-130			
1,2-Dibromo-3-Chloropropane	9.95		ug/L	10.00		100	70-130			
1,2-Dibromoethane	9.85		ug/L	10.00		98	70-130			
1,2-Dichlorobenzene	9.87		ug/L	10.00		99	70-130			
1,2-Dichloroethane	9.69		ug/L	10.00		97	70-130			
1,2-Dichloropropane	9.90		ug/L	10.00		99	70-130			
1,3,5-Trimethylbenzene	9.42		ug/L	10.00		94	70-130			
1,3-Dichlorobenzene	9.56		ug/L	10.00		96	70-130			
1,3-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,4-Dichlorobenzene	9.85		ug/L	10.00		98	70-130			
1,4-Dioxane - Screen	211		ug/L	200.0		106	0-332			
1-Chlorohexane	9.59		ug/L	10.00		96	70-130			
2,2-Dichloropropane	10.0		ug/L	10.00		100	70-130			
2-Butanone	50.9		ug/L	50.00		102	70-130			
2-Chlorotoluene	9.61		ug/L	10.00		96	70-130			
2-Hexanone	52.4		ug/L	50.00		105	70-130			
4-Chlorotoluene	9.80		ug/L	10.00		98	70-130			
4-Isopropyltoluene	9.69		ug/L	10.00		97	70-130			
4-Methyl-2-Pentanone	51.7		ug/L	50.00		103	70-130			
Acetone	52.8		ug/L	50.00		106	70-130			
Benzene	9.59		ug/L	10.00		96	70-130			
Bromobenzene	9.62		ug/L	10.00		96	70-130			
Bromochloromethane	9.84		ug/L	10.00		98	70-130			
Bromodichloromethane	9.55		ug/L	10.00		96	70-130			
Bromoform	9.38		ug/L	10.00		94	70-130			
Bromomethane	11.1		ug/L	10.00		111	70-130			
Carbon Disulfide	9.29		ug/L	10.00		93	70-130			
Carbon Tetrachloride	10.0		ug/L	10.00		100	70-130			
Chlorobenzene	9.68		ug/L	10.00		97	70-130			
Chloroethane	9.52		ug/L	10.00		95	70-130			
Chloroform	9.93		ug/L	10.00		99	70-130			
Chloromethane	10.2		ug/L	10.00		102	70-130			
cis-1,2-Dichloroethene	9.38		ug/L	10.00		94	70-130			
cis-1,3-Dichloropropene	10.1		ug/L	10.00		101	70-130			
Dibromochloromethane	9.53		ug/L	10.00		95	70-130			
Dibromomethane	9.15		ug/L	10.00		92	70-130			
Dichlorodifluoromethane	9.69		ug/L	10.00		97	70-130			
Diethyl Ether	9.17		ug/L	10.00		92	70-130			
Di-isopropyl ether	9.58		ug/L	10.00		96	70-130			
Ethyl tertiary-butyl ether	9.45		ug/L	10.00		94	70-130			
Ethylbenzene	9.66		ug/L	10.00		97	70-130			
Hexachlorobutadiene	11.5		ug/L	10.00		115	70-130			
Hexachloroethane	9.59		ug/L	10.00		96	70-130			
Isopropylbenzene	9.05		ug/L	10.00		90	70-130			



CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

**Batch CI70825 - 50308**

Methyl tert-Butyl Ether	8.92		ug/L	10.00		89	70-130			
Methylene Chloride	9.58		ug/L	10.00		96	70-130			
Naphthalene	10.5		ug/L	10.00		105	70-130			
n-Butylbenzene	9.75		ug/L	10.00		98	70-130			
n-Propylbenzene	9.49		ug/L	10.00		95	70-130			
sec-Butylbenzene	9.78		ug/L	10.00		98	70-130			
Styrene	9.40		ug/L	10.00		94	70-130			
tert-Butylbenzene	9.64		ug/L	10.00		96	70-130			
Tertiary-amyl methyl ether	9.21		ug/L	10.00		92	70-130			
Tetrachloroethene	9.58		ug/L	10.00		96	70-130			
Tetrahydrofuran	10.4		ug/L	10.00		104	70-130			
Toluene	9.75		ug/L	10.00		98	70-130			
trans-1,2-Dichloroethene	10.3		ug/L	10.00		103	70-130			
trans-1,3-Dichloropropene	9.33		ug/L	10.00		93	70-130			
Trichloroethene	9.83		ug/L	10.00		98	70-130			
Trichlorofluoromethane	10.5		ug/L	10.00		105	70-130			
Vinyl Acetate	9.89		ug/L	10.00		99	70-130			
Vinyl Chloride	10.5		ug/L	10.00		105	70-130			
Xylene O	9.98		ug/L	10.00		100	70-130			
Xylene P,M	20.2		ug/L	20.00		101	70-130			
Xylenes (Total)	30.1		mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0258		mg/L	0.02500		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.0265		mg/L	0.02500		106	70-130			
Surrogate: Dibromofluoromethane	0.0246		mg/L	0.02500		99	70-130			
Surrogate: Toluene-d8	0.0255		mg/L	0.02500		102	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.87		ug/L	10.00		99	70-130	2	25	
1,1,1-Trichloroethane	10.1		ug/L	10.00		101	70-130	2	25	
1,1,2,2-Tetrachloroethane	10.9		ug/L	10.00		109	70-130	3	25	
1,1,2-Trichloroethane	10.3		ug/L	10.00		103	70-130	3	25	
1,1-Dichloroethane	9.40		ug/L	10.00		94	70-130	0	25	
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130	0.9	25	
1,1-Dichloropropene	10.5		ug/L	10.00		105	70-130	2	25	
1,2,3-Trichlorobenzene	9.13		ug/L	10.00		91	70-130	14	25	
1,2,3-Trichloropropane	10.6		ug/L	10.00		106	70-130	7	25	
1,2,4-Trichlorobenzene	9.16		ug/L	10.00		92	70-130	12	25	
1,2,4-Trimethylbenzene	9.19		ug/L	10.00		92	70-130	2	25	
1,2-Dibromo-3-Chloropropane	10.4		ug/L	10.00		104	70-130	4	25	
1,2-Dibromoethane	9.98		ug/L	10.00		100	70-130	1	25	
1,2-Dichlorobenzene	9.46		ug/L	10.00		95	70-130	4	25	
1,2-Dichloroethane	9.76		ug/L	10.00		98	70-130	0.7	25	
1,2-Dichloropropane	9.64		ug/L	10.00		96	70-130	3	25	
1,3,5-Trimethylbenzene	9.41		ug/L	10.00		94	70-130	0.1	25	
1,3-Dichlorobenzene	9.58		ug/L	10.00		96	70-130	0.2	25	
1,3-Dichloropropane	10.6		ug/L	10.00		106	70-130	3	25	



CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

**Batch CI70825 - 5030B**

1,4-Dichlorobenzene	9.84		ug/L	10.00		98	70-130	0.1	25	
1,4-Dioxane - Screen	231		ug/L	200.0		116	0-332	9	200	
1-Chlorohexane	9.56		ug/L	10.00		96	70-130	0.3	25	
2,2-Dichloropropane	10.1		ug/L	10.00		101	70-130	0.7	25	
2-Butanone	52.8		ug/L	50.00		106	70-130	4	25	
2-Chlorotoluene	9.47		ug/L	10.00		95	70-130	1	25	
2-Hexanone	54.4		ug/L	50.00		109	70-130	4	25	
4-Chlorotoluene	9.88		ug/L	10.00		99	70-130	0.8	25	
4-Isopropyltoluene	8.74		ug/L	10.00		87	70-130	10	25	
4-Methyl-2-Pentanone	53.9		ug/L	50.00		108	70-130	4	25	
Acetone	52.3		ug/L	50.00		105	70-130	1	25	
Benzene	9.65		ug/L	10.00		96	70-130	0.6	25	
Bromobenzene	9.67		ug/L	10.00		97	70-130	0.5	25	
Bromochloromethane	9.87		ug/L	10.00		99	70-130	0.3	25	
Bromodichloromethane	9.79		ug/L	10.00		98	70-130	2	25	
Bromoform	9.66		ug/L	10.00		97	70-130	3	25	
Bromomethane	9.96		ug/L	10.00		100	70-130	11	25	
Carbon Disulfide	9.26		ug/L	10.00		93	70-130	0.3	25	
Carbon Tetrachloride	10.1		ug/L	10.00		101	70-130	0.8	25	
Chlorobenzene	9.61		ug/L	10.00		96	70-130	0.7	25	
Chloroethane	8.72		ug/L	10.00		87	70-130	9	25	
Chloroform	9.94		ug/L	10.00		99	70-130	0.1	25	
Chloromethane	8.64		ug/L	10.00		86	70-130	17	25	
cis-1,2-Dichloroethene	9.58		ug/L	10.00		96	70-130	2	25	
cis-1,3-Dichloropropene	10.2		ug/L	10.00		102	70-130	1	25	
Dibromochloromethane	9.09		ug/L	10.00		91	70-130	5	25	
Dibromomethane	9.24		ug/L	10.00		92	70-130	1	25	
Dichlorodifluoromethane	8.79		ug/L	10.00		88	70-130	10	25	
Diethyl Ether	8.82		ug/L	10.00		88	70-130	4	25	
Di-isopropyl ether	9.59		ug/L	10.00		96	70-130	0.1	25	
Ethyl tertiary-butyl ether	9.54		ug/L	10.00		95	70-130	0.9	25	
Ethylbenzene	9.68		ug/L	10.00		97	70-130	0.2	25	
Hexachlorobutadiene	10.6		ug/L	10.00		106	70-130	8	25	
Hexachloroethane	9.53		ug/L	10.00		95	70-130	0.6	25	
Isopropylbenzene	9.06		ug/L	10.00		91	70-130	0.1	25	
Methyl tert-Butyl Ether	8.90		ug/L	10.00		89	70-130	0.2	25	
Methylene Chloride	9.29		ug/L	10.00		93	70-130	3	25	
Naphthalene	9.62		ug/L	10.00		96	70-130	9	25	
n-Butylbenzene	9.20		ug/L	10.00		92	70-130	6	25	
n-Propylbenzene	9.16		ug/L	10.00		92	70-130	4	25	
sec-Butylbenzene	9.29		ug/L	10.00		93	70-130	5	25	
Styrene	9.23		ug/L	10.00		92	70-130	2	25	
tert-Butylbenzene	9.18		ug/L	10.00		92	70-130	5	25	
Tertiary-amyl methyl ether	9.01		ug/L	10.00		90	70-130	2	25	
Tetrachloroethene	9.55		ug/L	10.00		96	70-130	0.3	25	



CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

**Batch CI70825 - 50308**

Tetrahydrofuran	10.4		ug/L	10.00		104	70-130	0.6	25	
Toluene	9.87		ug/L	10.00		99	70-130	1	25	
trans-1,2-Dichloroethene	10.4		ug/L	10.00		104	70-130	2	25	
trans-1,3-Dichloropropene	9.61		ug/L	10.00		96	70-130	3	25	
Trichloroethene	10.0		ug/L	10.00		100	70-130	2	25	
Trichlorofluoromethane	9.72		ug/L	10.00		97	70-130	7	25	
Vinyl Acetate	9.90		ug/L	10.00		99	70-130	0.1	25	
Vinyl Chloride	8.87		ug/L	10.00		89	70-130	17	25	
Xylene O	10.1		ug/L	10.00		101	70-130	2	25	
Xylene P,M	19.9		ug/L	20.00		100	70-130	1	25	
Xylenes (Total)	30.0		mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0254		mg/L	0.02500		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.0261		mg/L	0.02500		105	70-130			
Surrogate: Dibromofluoromethane	0.0245		mg/L	0.02500		98	70-130			
Surrogate: Toluene-d8	0.0259		mg/L	0.02500		103	70-130			

**Matrix Spike Source: 1709149-01**

1,1,1,2-Tetrachloroethane	9.52		ug/L	10.00	0.00	95	70-130			
1,1,1-Trichloroethane	9.81		ug/L	10.00	0.00	98	70-130			
1,1,2,2-Tetrachloroethane	10.4		ug/L	10.00	0.00	104	70-130			
1,1,2-Trichloroethane	10.6		ug/L	10.00	0.140	104	70-130			
1,1-Dichloroethane	9.76		ug/L	10.00	0.00	98	70-130			
1,1-Dichloroethene	14.0		ug/L	10.00	7.10	69	70-130			M-
1,1-Dichloropropene	9.80		ug/L	10.00	0.00	98	70-130			
1,2,3-Trichlorobenzene	8.85		ug/L	10.00	0.00	88	70-130			
1,2,3-Trichloropropane	10.3		ug/L	10.00	0.00	103	70-130			
1,2,4-Trichlorobenzene	9.14		ug/L	10.00	0.00	91	70-130			
1,2,4-Trimethylbenzene	8.95		ug/L	10.00	0.00	90	70-130			
1,2-Dibromo-3-Chloropropane	9.37		ug/L	10.00	0.00	94	70-130			
1,2-Dibromoethane	9.46		ug/L	10.00	0.00	95	70-130			
1,2-Dichlorobenzene	9.45		ug/L	10.00	0.00	94	70-130			
1,2-Dichloroethane	10.0		ug/L	10.00	0.160	98	70-130			
1,2-Dichloropropane	13.4		ug/L	10.00	0.00	134	70-130			M+
1,3,5-Trimethylbenzene	9.07		ug/L	10.00	0.00	91	70-130			
1,3-Dichlorobenzene	9.52		ug/L	10.00	0.00	95	70-130			
1,3-Dichloropropane	10.2		ug/L	10.00	0.00	102	70-130			
1,4-Dichlorobenzene	9.25		ug/L	10.00	0.00	92	70-130			
1,4-Dioxane - Screen	190		ug/L	200.0	0.00	95	0-332			
1-Chlorohexane	8.97		ug/L	10.00	0.00	90	70-130			
2,2-Dichloropropane	9.33		ug/L	10.00	0.00	93	70-130			
2-Butanone	53.2		ug/L	50.00	0.00	106	70-130			
2-Chlorotoluene	9.57		ug/L	10.00	0.00	96	70-130			
2-Hexanone	48.9		ug/L	50.00	0.00	98	70-130			
4-Chlorotoluene	9.38		ug/L	10.00	0.00	94	70-130			
4-Isopropyltoluene	8.84		ug/L	10.00	0.00	88	70-130			
4-Methyl-2-Pentanone	50.2		ug/L	50.00	0.00	100	70-130			



CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>8260B Volatile Organic Compounds</b>										
<b>Batch CI70825 - 5030B</b>										
Acetone	51.3		ug/L	50.00	1.52	100	70-130			
Benzene	9.88		ug/L	10.00	0.190	97	70-130			
Bromobenzene	9.52		ug/L	10.00	0.00	95	70-130			
Bromochloromethane	9.77		ug/L	10.00	0.00	98	70-130			
Bromodichloromethane	9.76		ug/L	10.00	0.00	98	70-130			
Bromoform	8.84		ug/L	10.00	0.00	88	70-130			
Bromomethane	12.3		ug/L	10.00	0.00	123	70-130			
Carbon Disulfide	9.02		ug/L	10.00	0.00	90	70-130			
Carbon Tetrachloride	9.73		ug/L	10.00	0.00	97	70-130			
Chlorobenzene	9.30		ug/L	10.00	0.00	93	70-130			
Chloroethane	9.78		ug/L	10.00	0.00	98	70-130			
Chloroform	10.2		ug/L	10.00	0.420	98	70-130			
Chloromethane	10.4		ug/L	10.00	0.00	104	70-130			
cis-1,2-Dichloroethene	84.8		ug/L	10.00	98.8	NR	70-130			MT
cis-1,3-Dichloropropene	9.87		ug/L	10.00	0.00	99	70-130			
Dibromochloromethane	8.85		ug/L	10.00	0.00	88	70-130			
Dibromomethane	9.19		ug/L	10.00	0.00	92	70-130			
Dichlorodifluoromethane	9.24		ug/L	10.00	0.00	92	70-130			
Diethyl Ether	8.37		ug/L	10.00	0.00	84	70-130			
Di-isopropyl ether	9.90		ug/L	10.00	0.00	99	70-130			
Ethyl tertiary-butyl ether	8.98		ug/L	10.00	0.00	90	70-130			
Ethylbenzene	9.64		ug/L	10.00	0.00	96	70-130			
Hexachlorobutadiene	10.3		ug/L	10.00	0.00	103	70-130			
Hexachloroethane	8.76		ug/L	10.00	0.00	88	70-130			
Isopropylbenzene	9.01		ug/L	10.00	0.00	90	70-130			
Methyl tert-Butyl Ether	8.57		ug/L	10.00	0.00	86	70-130			
Methylene Chloride	9.46		ug/L	10.00	-0.720	95	70-130			
Naphthalene	9.06		ug/L	10.00	0.00	91	70-130			
n-Butylbenzene	8.67		ug/L	10.00	0.00	87	70-130			
n-Propylbenzene	9.15		ug/L	10.00	0.00	92	70-130			
sec-Butylbenzene	9.18		ug/L	10.00	0.00	92	70-130			
Styrene	8.72		ug/L	10.00	0.00	87	70-130			
tert-Butylbenzene	8.97		ug/L	10.00	0.00	90	70-130			
Tertiary-amyl methyl ether	8.77		ug/L	10.00	0.00	88	70-130			
Tetrachloroethene	12.4		ug/L	10.00	3.52	89	70-130			
Tetrahydrofuran	9.55		ug/L	10.00	0.00	96	70-130			
Toluene	10.4		ug/L	10.00	0.00	104	70-130			
trans-1,2-Dichloroethene	12.4		ug/L	10.00	2.92	94	70-130			
trans-1,3-Dichloropropene	9.43		ug/L	10.00	0.00	94	70-130			
Trichloroethene	1080		ug/L	10.00	1710	NR	70-130			MT
Trichlorofluoromethane	11.2		ug/L	10.00	0.250	109	70-130			
Vinyl Acetate	9.12		ug/L	10.00	0.00	91	70-130			
Vinyl Chloride	14.4		ug/L	10.00	5.36	91	70-130			
Xylene O	9.33		ug/L	10.00	0.00	93	70-130			
Xylene P,M	19.0		ug/L	20.00	0.00	95	70-130			



CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

**Batch CI70825 - [CALC]**

Xylenes (Total)	28.4		mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0257		mg/L	0.02500		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.0248		mg/L	0.02500		99	70-130			
Surrogate: Dibromofluoromethane	0.0243		mg/L	0.02500		97	70-130			
Surrogate: Toluene-d8	0.0250		mg/L	0.02500		100	70-130			

**Matrix Spike Dup Source: 1709149-01**

1,1,1,2-Tetrachloroethane	9.72		ug/L	10.00	0.00	97	70-130	2	30	
1,1,1-Trichloroethane	10.1		ug/L	10.00	0.00	101	70-130	3	30	
1,1,2,2-Tetrachloroethane	10.4		ug/L	10.00	0.00	104	70-130	0.4	30	
1,1,2-Trichloroethane	10.2		ug/L	10.00	0.140	101	70-130	4	30	
1,1-Dichloroethane	9.95		ug/L	10.00	0.00	100	70-130	2	30	
1,1-Dichloroethene	17.0		ug/L	10.00	7.10	99	70-130	35	30	D+
1,1-Dichloropropene	10.2		ug/L	10.00	0.00	102	70-130	4	30	
1,2,3-Trichlorobenzene	9.24		ug/L	10.00	0.00	92	70-130	4	30	
1,2,3-Trichloropropane	9.65		ug/L	10.00	0.00	96	70-130	7	30	
1,2,4-Trichlorobenzene	8.96		ug/L	10.00	0.00	90	70-130	2	30	
1,2,4-Trimethylbenzene	9.12		ug/L	10.00	0.00	91	70-130	2	30	
1,2-Dibromo-3-Chloropropane	9.20		ug/L	10.00	0.00	92	70-130	2	30	
1,2-Dibromoethane	10.0		ug/L	10.00	0.00	100	70-130	6	30	
1,2-Dichlorobenzene	9.28		ug/L	10.00	0.00	93	70-130	2	30	
1,2-Dichloroethane	9.76		ug/L	10.00	0.160	96	70-130	2	30	
1,2-Dichloropropane	13.6		ug/L	10.00	0.00	136	70-130	1	30	M+
1,3,5-Trimethylbenzene	8.71		ug/L	10.00	0.00	87	70-130	4	30	
1,3-Dichlorobenzene	9.34		ug/L	10.00	0.00	93	70-130	2	30	
1,3-Dichloropropane	10.3		ug/L	10.00	0.00	103	70-130	0.6	30	
1,4-Dichlorobenzene	9.75		ug/L	10.00	0.00	98	70-130	5	30	
1,4-Dioxane - Screen	185		ug/L	200.0	0.00	92	0-332	3	200	
1-Chlorohexane	9.35		ug/L	10.00	0.00	94	70-130	4	30	
2,2-Dichloropropane	9.37		ug/L	10.00	0.00	94	70-130	0.4	30	
2-Butanone	51.6		ug/L	50.00	0.00	103	70-130	3	30	
2-Chlorotoluene	9.62		ug/L	10.00	0.00	96	70-130	0.5	30	
2-Hexanone	49.4		ug/L	50.00	0.00	99	70-130	1	30	
4-Chlorotoluene	9.46		ug/L	10.00	0.00	95	70-130	0.8	30	
4-Isopropyltoluene	9.12		ug/L	10.00	0.00	91	70-130	3	30	
4-Methyl-2-Pentanone	49.3		ug/L	50.00	0.00	99	70-130	2	30	
Acetone	52.9		ug/L	50.00	1.52	103	70-130	3	30	
Benzene	10.1		ug/L	10.00	0.190	99	70-130	2	30	
Bromobenzene	9.66		ug/L	10.00	0.00	97	70-130	1	30	
Bromochloromethane	9.82		ug/L	10.00	0.00	98	70-130	0.5	30	
Bromodichloromethane	8.01		ug/L	10.00	0.00	80	70-130	20	30	
Bromoform	9.22		ug/L	10.00	0.00	92	70-130	4	30	
Bromomethane	12.1		ug/L	10.00	0.00	121	70-130	2	30	
Carbon Disulfide	9.53		ug/L	10.00	0.00	95	70-130	5	30	
Carbon Tetrachloride	10.2		ug/L	10.00	0.00	102	70-130	4	30	
Chlorobenzene	9.46		ug/L	10.00	0.00	95	70-130	2	30	



CERTIFICATE OF ANALYSIS

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>8260B Volatile Organic Compounds</b>										
<b>Batch CI70825 - 50308</b>										
Chloroethane	9.72		ug/L	10.00	0.00	97	70-130	0.6	30	
Chloroform	10.4		ug/L	10.00	0.420	100	70-130	3	30	
Chloromethane	10.7		ug/L	10.00	0.00	107	70-130	3	30	
cis-1,2-Dichloroethene	89.1		ug/L	10.00	98.8	NR	70-130	NR	30	MT
cis-1,3-Dichloropropene	9.89		ug/L	10.00	0.00	99	70-130	0.2	30	
Dibromochloromethane	8.68		ug/L	10.00	0.00	87	70-130	2	30	
Dibromomethane	9.59		ug/L	10.00	0.00	96	70-130	4	30	
Dichlorodifluoromethane	9.88		ug/L	10.00	0.00	99	70-130	7	30	
Diethyl Ether	8.34		ug/L	10.00	0.00	83	70-130	0.4	30	
Di-isopropyl ether	9.99		ug/L	10.00	0.00	100	70-130	0.9	30	
Ethyl tertiary-butyl ether	9.17		ug/L	10.00	0.00	92	70-130	2	30	
Ethylbenzene	9.58		ug/L	10.00	0.00	96	70-130	0.6	30	
Hexachlorobutadiene	9.62		ug/L	10.00	0.00	96	70-130	7	30	
Hexachloroethane	8.99		ug/L	10.00	0.00	90	70-130	3	30	
Isopropylbenzene	8.98		ug/L	10.00	0.00	90	70-130	0.3	30	
Methyl tert-Butyl Ether	8.75		ug/L	10.00	0.00	88	70-130	2	30	
Methylene Chloride	11.6		ug/L	10.00	-0.720	116	70-130	21	30	
Naphthalene	8.76		ug/L	10.00	0.00	88	70-130	3	30	
n-Butylbenzene	9.10		ug/L	10.00	0.00	91	70-130	5	30	
n-Propylbenzene	9.26		ug/L	10.00	0.00	93	70-130	1	30	
sec-Butylbenzene	9.24		ug/L	10.00	0.00	92	70-130	0.7	30	
Styrene	8.97		ug/L	10.00	0.00	90	70-130	3	30	
tert-Butylbenzene	8.93		ug/L	10.00	0.00	89	70-130	0.4	30	
Tertiary-amyl methyl ether	9.12		ug/L	10.00	0.00	91	70-130	4	30	
Tetrachloroethene	12.8		ug/L	10.00	3.52	93	70-130	5	30	
Tetrahydrofuran	10.0		ug/L	10.00	0.00	100	70-130	5	30	
Toluene	10.5		ug/L	10.00	0.00	105	70-130	1	30	
trans-1,2-Dichloroethene	12.7		ug/L	10.00	2.92	98	70-130	4	30	
trans-1,3-Dichloropropene	9.48		ug/L	10.00	0.00	95	70-130	0.5	30	
Trichloroethene	1110		ug/L	10.00	1710	NR	70-130	NR	30	MT
Trichlorofluoromethane	10.7		ug/L	10.00	0.250	105	70-130	4	30	
Vinyl Acetate	8.56		ug/L	10.00	0.00	86	70-130	6	30	
Vinyl Chloride	14.0		ug/L	10.00	5.36	87	70-130	5	30	
Xylene O	9.63		ug/L	10.00	0.00	96	70-130	3	30	
Xylene P,M	18.7		ug/L	20.00	0.00	93	70-130	2	30	
Xylenes (Total)	28.3		mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0259		mg/L	0.02500		104	70-130			
Surrogate: 4-Bromofluorobenzene	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Dibromofluoromethane	0.0251		mg/L	0.02500		101	70-130			
Surrogate: Toluene-d8	0.0257		mg/L	0.02500		103	70-130			





*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
Client Project ID: Textron Gorham - Groundwater

ESS Laboratory Work Order: 1709149

**Notes and Definitions**

- U Analyte included in the analysis, but not detected
- MT Due to high target values, matrix spike analyte(s) is masked (MT).
- M+ Matrix Spike recovery is above upper control limit (M+).
- M- Matrix Spike recovery is below lower control limit (M-).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



*CERTIFICATE OF ANALYSIS*

Client Name: AMEC Foster Wheeler  
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ESS Laboratory Work Order: 1709149

**ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS**

**ENVIRONMENTAL**

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

[http://datamine2.state.nj.us/DEP\\_OPRA/OpraMain/pi\\_main?mode=pi\\_by\\_site&sort\\_order=PI\\_NAMEA&Select+a+Site:=58715](http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715)

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

## ESS Laboratory Sample and Cooler Receipt Checklist

Client: AMEC Foster Wheeler - KPB/HDM  
 Shipped/Delivered Via: \_\_\_\_\_ Client \_\_\_\_\_

ESS Project ID: 1709149  
 Date Received: 9/7/2017  
 Project Due Date: 9/14/2017  
 Days for Project: 5 Day

- |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Air bill manifest present? <input type="checkbox"/> No<br>Air No.: <u>NA</u><br>2. Were custody seals present? <input type="checkbox"/> No<br>3. Is radiation count <100 CPM? <input type="checkbox"/> Yes<br>4. Is a Cooler Present? <input type="checkbox"/> Yes<br>Temp: <u>15.1</u> Iced with: <u>Ice</u><br>5. Was COC signed and dated by client? <input type="checkbox"/> Yes | 6. Does COC match bottles? <input type="checkbox"/> Yes<br>7. Is COC complete and correct? <input type="checkbox"/> Yes<br>8. Were samples received intact? <input type="checkbox"/> Yes<br>9. Were labs informed about <u>short holds &amp; rushes</u> ? Yes / No / <u>NA</u><br>10. Were any analyses received outside of hold time? Yes / <u>No</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- |                                                                                                          |                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11. Any Subcontracting needed? Yes / <u>No</u><br>ESS Sample IDs: _____<br>Analysis: _____<br>TAT: _____ | 12. Were VOAs received? <u>Yes</u> / No<br>a. Air bubbles in aqueous VOAs? Yes / <u>No</u><br>b. Does methanol cover soil completely? Yes / No / <u>NA</u> |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|

13. Are the samples properly preserved? Yes / No
- a. If metals preserved upon receipt: Date: \_\_\_\_\_ Time: \_\_\_\_\_ By: \_\_\_\_\_
- b. Low Level VOA vials frozen: Date: \_\_\_\_\_ Time: \_\_\_\_\_ By: \_\_\_\_\_

Sample Receiving Notes:

\_\_\_\_\_

\_\_\_\_\_

14. Was there a need to contact Project Manager? Yes / No
- a. Was there a need to contact the client? Yes / No
- Who was contacted? \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ By: \_\_\_\_\_

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	160718	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160719	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160720	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160721	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160722	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160723	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160724	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160725	Yes	No	Yes	VOA Vial - HCl	HCl	
01	160726	Yes	No	Yes	VOA Vial - HCl	HCl	
02	160715	Yes	No	Yes	VOA Vial - HCl	HCl	
02	160716	Yes	No	Yes	VOA Vial - HCl	HCl	
02	160717	Yes	No	Yes	VOA Vial - HCl	HCl	

2nd Review  
 Are barcode labels on correct containers? Yes / No

Completed By: [Signature] Date & Time: 9/7/17 1608

Reviewed By: [Signature] Date & Time: 9/7/17 1622

Delivered By: [Signature] Date & Time: 9/7/17 1623

