



**ENVIRONMENTAL • GEOTECHNICAL  
BUILDING SCIENCES • MATERIALS TESTING**

**GROUNDWATER & LANDFILL GAS MONITORING REPORT NO. 8  
THE FORMER PORTSMOUTH LANDFILL  
PARK AVENUE  
PORTSMOUTH, RI 02871**

**ATC PROJECT NO. 301000238**

PREPARED FOR:

AP ENTERPRISE LLC  
28 TEAL DRIVE  
WAKEFIELD, RHODE ISLAND 02879

PREPARED BY:

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MAY 2, 2019

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## 1.0 INTRODUCTION

ATC Group Services LLC (ATC) was retained by AP Enterprise to install four (4) groundwater monitoring wells and a total of eleven (11) landfill gas monitoring points, and to conduct two years of quarterly groundwater and landfill gas monitoring at the former Portsmouth Landfill located on Park Avenue in Portsmouth, Rhode Island (the Site). The objective of this work is to support the Rhode Island Department of Environmental Management (RIDEM) approved Site Monitoring Plan as prepared by Tim O'Connor & Company LLC. This is the eighth quarterly report prepared by ATC.

### 1.1 Site Location and Description

The entrance to the former Portsmouth Landfill is located 500 feet west-northwest of the intersection formed by Boyds Lane and Park Avenue. The property is identified by the Portsmouth Tax Assessor as Plat 20 Lots 1, 2 & 13 and Plat 25 Lot 2 (the Site). The Site encompasses approximately 15.02 acres. The ground surface is generally level, with downward slopes along the landfill margins. A Site Locus Map and a Site Plan are included as **Figures 1 and 2** respectively.

On April 25, 2017, four soil borings were completed as groundwater monitoring wells MW-1, MW-2, MW-3 and MW-4. The four groundwater monitoring wells were constructed using two-inch diameter polyvinyl chloride (PVC) riser and 10 to 15 feet of machine-slotted 0.01 inch well screen. The well screens were placed to intercept the groundwater table. Groundwater monitoring well locations are depicted on **Figure 2**.

## 2.0 FIELD ACTIVITIES

The following activities were conducted to evaluate the potential presence of contamination in soil gas and groundwater as a result of historic landfill activities.

### 2.1 Monitoring Well Gauging and Area Groundwater Flow

On April 12, 2019, ATC gauged depth to groundwater in the four groundwater monitoring wells using a Solinst electronic oil/water interface probe. Depth to groundwater was measured from the top of the PVC well risers and ranged from 6.98 feet in MW-1 to 13.80 feet below top of casing in MW-3. Non-aqueous phase liquids were not detected on the groundwater surface, or in the bottom of the wells. Based upon the groundwater elevation data, the groundwater gradient is generally toward the south on the southern portion of the Site, and to the west on the northern portion of the Site. A Water Level Gauging Sheet is provided as **Table 1**. Groundwater Contours are included on **Figure 2**.

### 2.2 Groundwater Sampling and Analysis

On April 12, 2019, ATC completed the eighth quarterly groundwater sampling round. The groundwater samples were obtained using the USEPA's Low Stress Purging and Sampling Procedure (EQA SOP-GW-001). ATC used a variable speed low-flow peristaltic pump to control the rate of purging and limit the drawdown. Disposable polyethylene tubing was used at each well. Field parameters were recorded during sampling using a YSI Pro Series with flow-through cell and LaMotte turbidity meter. Field parameters included pH, water temperature, specific

conductance, oxidation reduction potential (ORP) and dissolved oxygen. The groundwater samples were collected upon parameter stabilization, and contained in laboratory grade pre-preserved sample containers. The samples were chilled in a cooler and transported under Chain of Custody to the ESS Laboratory. ESS analyzed the samples for volatile organic compounds (VOCs) by EPA Method 8260, and metals by EPA Methods 6010 and 7010.

### **2.3 Groundwater Analytical Results**

No VOCs were reported in excess of the RIDEM GA Groundwater Objectives. Lead was detected in the MW-3 groundwater sample at a concentration of 0.016 milligrams per kilogram (mg/kg). This lead concentration exceeds the RIDEM GA Groundwater Objective of 0.015 mg/kg. Lead was detected in the MW-2 groundwater sample at a concentration of 0.015 mg/kg, equal to the GA Groundwater Objective concentration. Other detected metals were at concentrations less than the GA Groundwater Objectives. Other detected analytes include barium in all four well samples; zinc in MW-2; chlorobenzene and isopropylbenzene in MW-3; copper, nickel and zinc in MW-4. The groundwater analytical data is summarized on **Table 2**. The laboratory analytical report is included in **Appendix A**.

### **2.4 Soil Gas Point Installation**

Four permanent SGPs (SG-1, SG-2, SG-3 and SG-4) were installed in April of 2017. Each of the four SGPs were installed in the unsaturated zone, using a Geoprobe brand 21" stainless soil gas implant. The depth of placement was determined by the existing depth to groundwater at each location, which ranged from approximately four to ten feet below grade. Each SGP was backfilled with uniform grade, silica sand to approximately one foot above the screen section. Approximately one foot of bentonite was placed above each SGP to seal it from surface water intrusion. Each SGP was connected to 3/8" by 1/4" tubing that was brought to the ground surface. At the ground surface, the SGP tubing was protected by a two-inch, by five-foot lockable standpipe cemented at grade.

At the request of RIDEM, AP Enterprise directed ATC to install an additional seven permanent soil gas points (SGPs) along the Site boundary, near monitoring point SG-3. SG-3 is the only SGP to have exceeded methane's lower explosive limit (LEL) of 5% and the RIDEM limit of 25% of the LEL (1.25%). On April 13, 2018, ATC installed seven peripheral SGPs (SG-5, SG-6, SG-7, SG-8, SG-9, SG-10 and SG-11), located every 50 feet along the edge of the Site boundary near SG-3. The seven SGPs were installed in the vadose zone to a depth of 2.5 feet below grade using a slam bar and 1/4 inch OD polyethylene tubing terminating with an AMS slotted stainless steel soil gas point. The SGPs were secured at grade with a small concrete pad.

The eleven (11) peripheral SGPs are positioned to monitor for potential landfill gas migration away from the solid waste mound. These points are positioned between the landfill mound boundary and the nearby habitable structures. SGP locations are shown on **Figure 2**.

### **2.5 Soil Gas Monitoring**

On April 12, 2019, ATC conducted the eighth quarterly round of landfill gas monitoring. Soil gas methane, hydrogen sulfide, oxygen and carbon dioxide concentrations were measured at each monitoring point using a Landtech Gem 5000 Landfill Gas Analyzer. Additionally, ambient temperature, barometric pressure, wind speed and wind direction were measured and recorded.

SGPs are depicted on **Figure 2**. The soil gas monitoring results are summarized on **Table 3**.

SG-1 was plugged on April 12, 2019 and no soil gas readings were obtained at that well. All other soil gas readings were performed on April 12. ATC returned to the site on April 25, 2019, unplugged the SG-1 well tubing, and obtained the SG-1 soil gas readings.

On April 12, 2019, methane was detected in monitoring point SG-3 only, at a concentration of 3.6%, which is less than the methane lower explosive limit of 5%. SG-3 methane values during the previous three monitoring events exceeded the methane lower explosive limit. The seven other fence-line monitoring points near SG-3 (SG-5 through SG-11) were “non-detect” for methane. Therefore, the measured methane concentrations in the perimeter monitoring points did not exceed the RIDEM Solid Waste Regulation No. 2, Section 2.3.08 (d), of 25% of the LEL (1.25%) at the Site boundary. Hydrogen sulfide was detected at monitoring point SG-3 only, at 1%. The SGP carbon dioxide concentrations ranged from less than 0.1% to 11.1% at SG-3. The oxygen concentrations ranged from atmospheric (approximately 20.8%) down to 0.1% at SG-3. The soil gas monitoring results are summarized in **Table 3**.

### **3.0 CONCLUSIONS**

ATC has performed the eighth quarterly groundwater and landfill gas monitoring at the former Portsmouth town landfill on Park Avenue in Portsmouth, Rhode Island. Based upon the scope of work and sampling activities completed, ATC concludes the following:

- No VOCs were reported in excess of the RIDEM GA Groundwater Objectives. Lead was detected in the MW-3 groundwater sample at a concentration of 0.016 mg/kg. This lead concentration exceeds the RIDEM GA Groundwater Objective of 0.015 mg/kg. Lead was detected in the MW-2 groundwater sample at a concentration of 0.015 mg/kg, equal to the GA Groundwater Objective concentration.
- Methane was detected only in monitoring point SG-3, on April 12, 2019, at a concentration of 3.6%. This methane concentration is less than the lower explosive limit of 5%. SG-3 methane values during the previous three monitoring events exceeded the methane lower explosive limit. The seven other fence-line monitoring points near SG-3 (SG-5 through SG-11) were “non-detect” for methane. Therefore, the perimeter monitoring points methane concentrations did not exceed the RIDEM Solid Waste Regulation allowable concentration at the Site boundary.
- The closest building to SG-3 is located approximately 200 feet to the east. In ATC’s opinion, current conditions do not constitute a threat. However, soil gas conditions should continue to be closely monitored due to the observed SG-3 methane concentrations.
- Hydrogen sulfide was detected at monitoring point SG-3 at 1%. Soil gas carbon dioxide concentrations at the monitoring points ranged from 0.1% to 11.1% at SG-3. The oxygen concentrations ranged from atmospheric (approximately 20.8%) down to 0.1% at SG-3.

## **TABLES**

**TABLE 1**

**WATER LEVEL MEASUREMENTS**

<i>Location:</i>	Portsmouth Landfill, Park Ave.	<i>ATC #:</i>	3010000238
<i>Client:</i>	AP Enterprise LLC	<i>Date:</i>	4/12/2019
<i>Instrument:</i>	ORS Interface Probe	<i>Gauged By:</i>	BM
<i>Checked By:</i>	SG		

WELL #	M.P. ELEVATIONS	DEPTH TO PRODUCT	DEPTH TO WATER	PRODUCT THICKNESS	EQUIVALENT HD ELEV.
MW-1	8.84	---	6.98	0.00	1.86
MW-2	16.25	---	13.74	0.00	2.51
MW-3	16.40	---	13.80	0.00	2.60
MW-4	14.09	---	11.97	0.00	2.12

**NOTES:**

Height of PVC; MW-1: 3.21, MW-2: 4.01, MW-3: 3.27, MW-4: 2.97

Survey completed by DiPrete Engineering (6/15/17)

Table 2

**Groundwater Analytical Results  
Former Portsmouth Town Landfill  
Park Avenue, Portsmouth, Rhode Island**

Well ID	Date	Antimony	Barium	Cadmium	Copper	Lead	Nickel	Selenium	Zinc	1,4-Dichlorobenzene	Chlorobenzene	Chloroform	Dichlorodifluoro methane	Diethyl Ether	Isopropylbenzene
MW-1	5/31/17	ND (0.025)	<b>0.062</b>	ND (0.0025)	ND (0.010)	ND (0.002)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/17	ND (0.002)	<b>0.068</b>	ND (0.0025)	ND (0.010)	ND (0.002)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	12/21/17	ND (0.002)	<b>0.101</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	<b>0.034</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.0005)	<b>0.050</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	ND (0.0005)	<b>0.060</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	<b>0.031</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	10/30/18	ND (0.001)	<b>0.135</b>	ND (0.0025)	<b>0.030</b>	ND (0.010)	ND (0.025)	ND (0.005)	<b>0.137</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	1/9/19	ND (0.002)	<b>0.059</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
4/12/19	ND (0.001)	<b>0.051</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)	
MW-2	5/31/17	ND (0.025)	<b>0.084</b>	ND (0.0025)	ND (0.010)	<b>0.005</b>	ND (0.025)	ND (0.005)	<b>0.044</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/17	ND (0.002)	<b>0.177</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	(ND 0.025)	ND (0.0010)	<b>0.0012</b>	ND (0.0010)	ND (0.0020)	ND (0.0010)	<b>0.0034</b>
	12/21/17	ND (0.002)	<b>0.187</b>	ND (0.0025)	ND (0.010)	<b>0.014</b>	ND (0.025)	ND (0.025)	<b>0.089</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.0005)	<b>0.094</b>	ND (0.0025)	<b>0.017</b>	ND (0.010)	ND (0.025)	ND (0.025)	<b>0.051</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	ND (0.0005)	<b>0.119</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	<b>0.060</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	<b>0.0012</b>
	10/30/18	ND (0.001)	<b>0.141</b>	ND (0.0025)	ND (0.010)	<b>0.011</b>	ND (0.025)	ND (0.025)	<b>0.051</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	1/9/19	ND (0.002)	<b>0.070</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
4/12/2019	ND (0.001)	<b>0.069</b>	ND (0.0025)	ND (0.010)	<b>0.015</b>	ND (0.025)	ND (0.025)	<b>0.071</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)	
MW-3	5/31/17	ND (0.025)	<b>0.681</b>	ND (0.0025)	ND (0.010)	ND (0.002)	ND (0.025)	ND (0.005)	<b>0.035</b>	<b>0.0011</b>	<b>0.0040</b>	ND (0.0010)	ND (0.0020)	<b>0.0011</b>	<b>0.0240</b>
	9/8/17	ND (0.002)	<b>0.606</b>	ND (0.0025)	ND (0.010)	<b>0.027</b>	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	<b>0.0026</b>	ND (0.0010)	ND (0.0020)	<b>0.0014</b>	<b>0.0025</b>
	12/21/17	ND (0.002)	<b>1.01</b>	ND (0.0025)	ND (0.010)	<b>0.025</b>	ND (0.025)	ND (0.025)	ND (0.025)	<b>0.0010</b>	<b>0.0029</b>	ND (0.0010)	<b>0.0073</b>	<b>0.0017</b>	<b>0.0191</b>
	4/13/18	ND (0.0005)	<b>0.460</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	<b>0.029</b>	ND (0.025)	<b>0.0012</b>	<b>0.0082</b>	ND (0.0010)	<b>0.0051</b>	ND (0.0010)	<b>0.0117</b>
	7/31/18	ND (0.0005)	<b>0.654</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	<b>0.0036</b>	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	10/30/18	ND (0.001)	<b>0.607</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	<b>0.027</b>	ND (0.0010)	<b>0.0024</b>	ND (0.0010)	ND (0.0020)	<b>0.0012</b>	<b>0.0020</b>
	1/9/19	ND (0.002)	<b>0.519</b>	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	ND (0.025)	<b>0.0013</b>	<b>0.0053</b>	ND (0.0010)	<b>0.0068</b>	ND (0.0010)	<b>0.0050</b>
4/12/2019	ND (0.001)	<b>0.506</b>	ND (0.0025)	ND (0.010)	<b>0.016</b>	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	<b>0.0044</b>	ND (0.0010)	ND (0.0020)	ND (0.0010)	<b>0.0013</b>	
MW-4	5/31/17	ND (0.025)	<b>0.050</b>	<b>0.0043</b>	<b>0.057</b>	ND (0.002)	<b>0.042</b>	ND (0.005)	<b>1.53</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/2017	ND (0.002)	<b>0.030</b>	<b>0.0025</b>	<b>0.021</b>	ND (0.002)	ND (0.025)	ND (0.005)	<b>0.562</b>	ND (0.0010)	ND (0.0010)	<b>0.0014</b>	ND (0.0020)	ND (0.0010)	ND (0.0010)
	12/21/17	ND (0.002)	<b>0.040</b>	ND (0.0025)	<b>0.017</b>	ND (0.010)	ND (0.025)	ND (0.025)	<b>0.264</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.002)	<b>0.0490</b>	<b>0.0036</b>	<b>0.043</b>	ND (0.010)	<b>0.055</b>	ND (0.025)	<b>1.90</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	ND (0.0005)	<b>0.032</b>	ND (0.0025)	<b>0.031</b>	ND (0.010)	ND (0.025)	ND (0.025)	<b>0.806</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	10/30/18	ND (0.001)	<b>0.070</b>	<b>0.0044</b>	<b>0.052</b>	ND (0.010)	<b>0.036</b>	ND (0.005)	<b>1.50</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	1/9/19	ND (0.002)	<b>0.060</b>	<b>0.0030</b>	<b>0.062</b>	ND (0.010)	<b>0.059</b>	ND (0.005)	<b>1.88</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
4/12/2019	ND (0.001)	<b>0.047</b>	ND (0.0025)	<b>0.034</b>	ND (0.010)	<b>0.038</b>	ND (0.025)	<b>1.34</b>	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)	
<b>RIDEM GA Groundwater Objectives</b>		<b>0.006</b>	<b>2</b>	<b>0.005</b>	<b>NS</b>	<b>0.015</b>	<b>0.1</b>	<b>0.05</b>	<b>NS</b>	<b>0.075</b>	<b>0.1</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>	<b>NS</b>

Notes: All units in mg/L = milligrams per liter unless otherwise noted  
 NS = No Standard  
 NA = Not Available or Not Analyzed  
 ND = not detected above method detection limit  
 Highlighted Exceeds RIDEM GA Groundwater Objective



Table 3

Soil Gas Monitoring Data  
Former Portsmouth Landfill  
Park Avenue, Portsmouth, RI

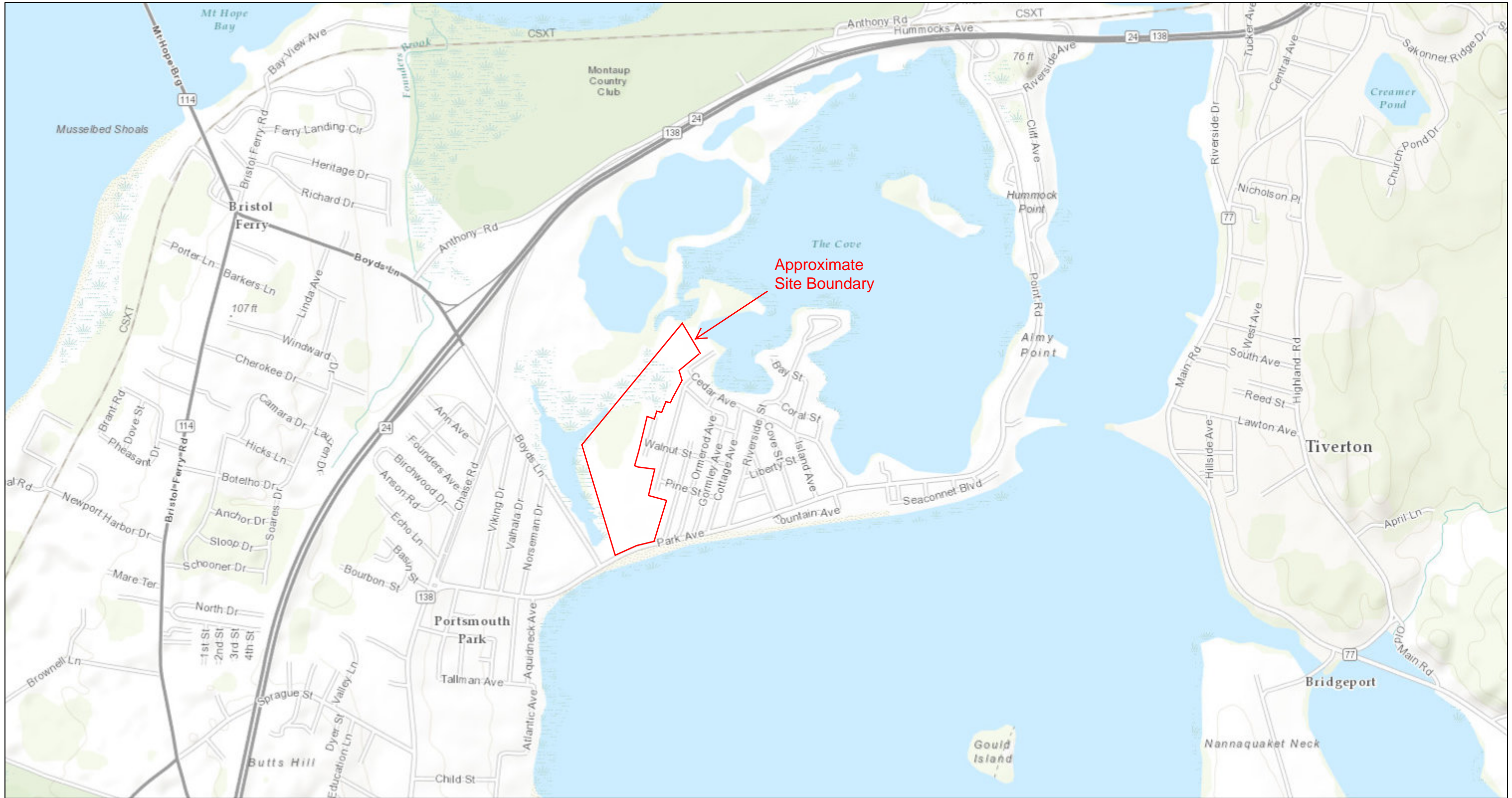
Location	Date	Ambient					Soil Gas					
		Temperature (F°)	Barometric Pressure (Inches Hg)	Wind Velocity (Miles Per Hour)	Wind Direction	Ambient Methane (CH4) (%)	Ambient Oxygen (O2) (%)	Soil Gas Methane (CH4) (%)	Soil Gas Oxygen (O2) (%)	Soil Gas Hydrogen Sulfide (H <sub>2</sub> S) (ppm)	Soil Gas LEL (%)	C02 (%)
SG-1	5/30/2017	54	30.24	4	SE	0.0	20.5	0	20.5	0	0	0
	9/8/2017	72	30.03	5	S	0.0	19.2	0	19.1	0	0	0
	12/21/2017	32	30.24	8	NW	0.2	21.6	0	21.2	0	0	0
	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	21.6	0	0	0
	7/31/2018	85	30.14	1	S	0.0	19.4	0	19.4	0	0	0
	10/30/2018	50	29.97	8	SSE	0.0	20.9	0	20.8	0	0	0.1
	1/9/2019	43	29.38	5	S	0.0	20.8	0	20.8	0	0	0.1
	4/12/2019	49	30.10	6	NW	0.0	21.3	No flow, obstructed well				
4/25/2019	54	29.86	3	N	0.0	20.9	0	20.7	0	0	0	
SG-2	5/30/2017	56	30.22	6	SE	0.0	20.6	0	20.6	0	0	0
	9/8/2017	72	30.03	8	S	0.0	19.4	0	19.3	0	0	0
	12/21/2017	32	30.24	10	NW	0.0	21.6	0	21.4	0	0	0
	4/13/2018	72	30.03	8	S	0.0	19.4	0	19.3	0	0	0
	7/31/2018	85	30.15	12	SW	0.0	19.8	0	19.7	0	0	0.1
	10/30/2018	50	29.95	8	SE	0.0	21.1	0	20.9	0	0	0.1
	1/9/2019	43	29.34	10	S	0.0	21.2	0	21.2	0	0	0
	4/12/2019	49	30.10	7	NE	0.0	21.2	0	21.2	0	0	0.2
SG-3	5/30/2017	56	30.22	6	SE	0.0	20.4	9.7	1.3	0	>100	12.5
	9/8/2017	73	30.04	4	SE	0.0	19.7	4.1	11.7	0	87	5.0
	12/21/2017	32	30.24	10	NW	0.0	21.6	4.6	7.8	0	90	9.0
	4/13/2018	73	30.04	4	SE	0.0	19.7	4.1	11.7	0	87	5.0
	7/31/2018	85	30.16	12	SW	0.0	19.7	7.7	5.2	2	>100	10.4
	10/30/2018	51	29.95	10	SSE	0.0	21.8	13.5	0.2	4	>100	2.0
	1/9/2019	42	29.33	12	S	0.0	21.3	16.0	0.0	4	>100	11.7
	4/12/2019	50	30.10	6	N	0.0	20.9	3.6	0.1	1	21	11.1
SG-4	5/30/2017	56	30.20	8	SE	0.0	20.1	0	19.6	0	0	0.2
	9/8/2017	73	30.05	6	SE	0.0	19.2	0	18.5	0	0	0.4
	12/21/2017	32	30.24	6	NW	0.0	21.6	0	21.0	0	0	0.5
	4/13/2018	73	30.05	6	SE	0.0	19.2	0	18.5	0	0	0.4
	7/31/2018	85	30.13	1	S	0.0	19.7	0	19.3	0	0	0.4
	10/30/2018	55	29.96	14	SSE	0.0	21.7	0	18.8	0	0	15.3
	1/9/2019	43	29.34	10	S	0.0	21.6	0	18.7	0	0	2.1
	4/12/2019	47	30.10	5	N	0.0	20.7	0	19.9	0	0	1.4
SG-5	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	20.1	0	0	0.7
	7/31/2018	85	30.16	12	SW	0.0	19.9	0	17.0	0	0	3.3
	10/30/2018	51	29.96	7	SE	0.0	21.4	0	13.5	0	0	6.5
	1/9/2019	42	29.33	10	S	0.0	21.2	0	17.0	0	0	3.9
	4/12/2019	46	30.20	9	N	0.0	21.2	0	19.4	1	0	2.7
SG-6	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	18.2	0	0	2.6
	7/31/2018	85	30.16	12	SW	0.0	19.9	0	10.3	0	0	8.6
	10/30/2018	51	29.95	7	SSE	0.0	21.5	0	15.3	0	0	6.0
	1/9/2019	42	29.33	15	S	0.0	21.1	0	15.9	0	0	5.0
	4/12/2019	48	30.20	7	NE	0.0	21.1	0	17.2	1	0	3.4
SG-7	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	17.6	0	0	3.3
	7/31/2018	85	30.16	12	SW	0.0	19.8	0	12.3	0	0	7.9
	10/30/2018	52	29.95	9	SSE	0.0	21.4	0	21.6	0	0	0.1
	1/9/2019	42	29.34	12	S	0.0	21.2	0	20.0	0	0	3.0
	4/12/2019	48	30.20	7	N	0.0	20.9	0	21.2	0	0	0.2
SG-8	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	20.7	0	0	0.8
	7/31/2018	85	30.16	12	SW	0.0	19.2	0	18.1	0	0	1.1
	10/30/2018	52	29.95	9	SE	0.0	21.9	0	20.1	0	0	1.7
	1/9/2019	41	29.34	10	S	0.0	21.2	0	19.5	0	0	1.0
	4/12/2019	50	30.30	6	N	0.0	20.8	0	19.9	0	0	1.3
SG-9	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	14.9	0	0	5.4
	7/31/2018	85	30.16	12	SW	0.0	19.2	0	13.7	0	0	5.2
	10/30/2018	54	29.94	12	SSE	0.0	21.7	0	13.0	0	0	7.4
	1/9/2019	41	29.33	10	S	0.0	21.3	0	14.4	0	0	4.8
	4/12/2019	50	30.30	5	N	0.0	20.8	0	15.1	0	0	4.8
SG-10	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	19.4	0	0	2.2
	7/31/2018	85	30.16	12	SW	0.0	19.3	0	12.9	1	0	5.9
	10/30/2018	53	29.94	14	SE	0.0	21.8	0	5.2	0	0	12.8
	1/9/2019	41	29.33	12	S	0.0	21.3	0	19.0	0	0	5.1
	4/12/2019	49	30.30	4	NE	0.0	20.8	0	14.3	0	0	5.6
SG-11	4/13/2018	45	29.92	6	SSW	0.0	21.9	0	20.1	0	0	1.4
	7/31/2018	85	30.16	12	SW	0.0	19.6	0	16.3	0	0	1.8
	7/31/2018	85	30.16	12	SW	0.0	19.6	0	16.3	0	0	1.8
	10/30/2018	53	29.94	14	SE	0.0	21.6	0	19.1	0	0	2.1
	4/12/2019	49	30.30	4	N	0.0	20.6	0	19.8	0	0	1.7

Lower explosive limit (LEL) of methane (CH<sub>4</sub>) is 5%  
Landfill gases measured using a Landtech Gem 2000 Plus Landfill Gas Monitor

## FIGURES



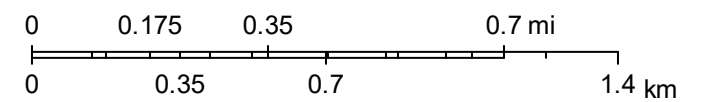
# RIDEM Environmental Resource Map



July 7, 2017

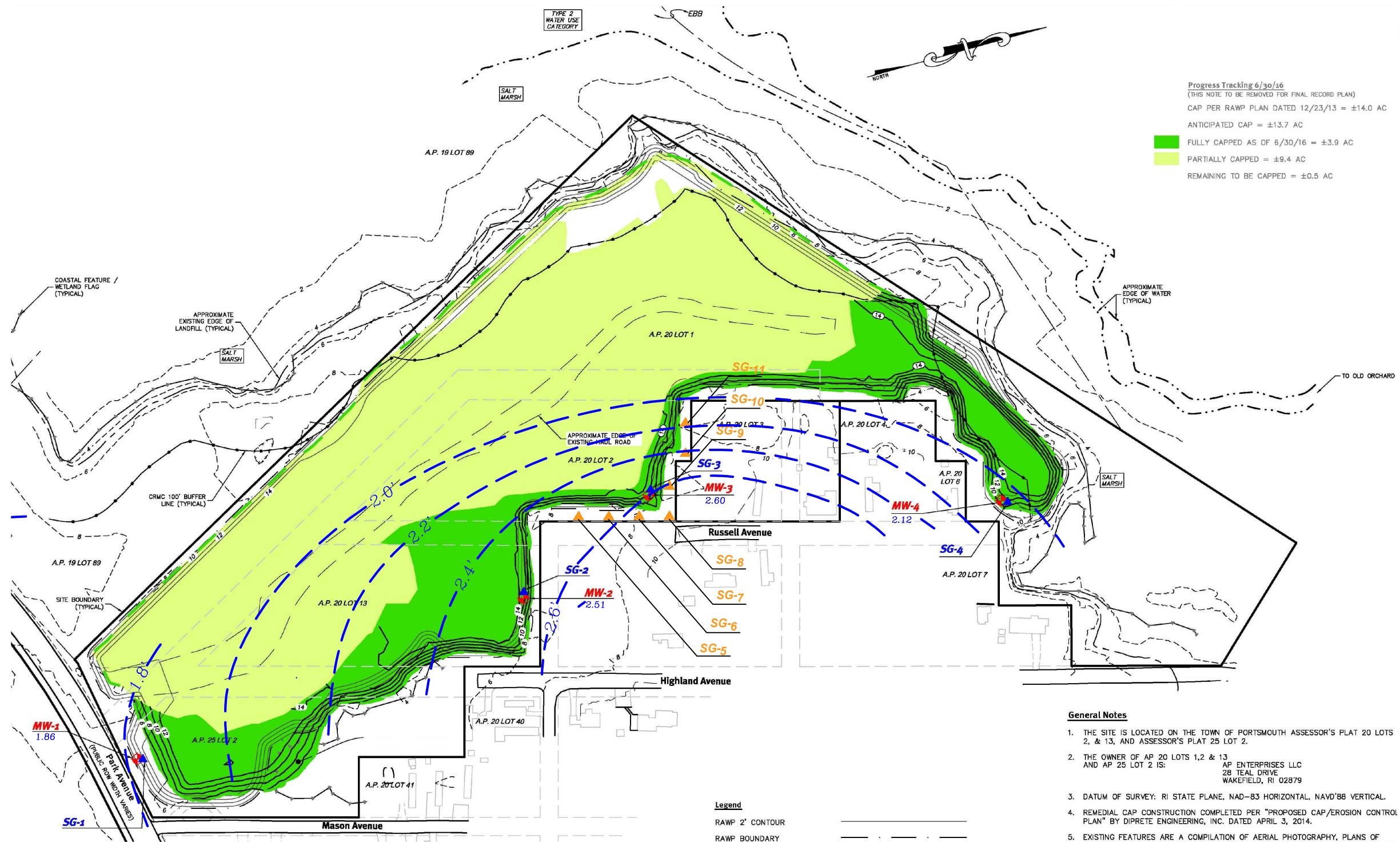
Figure 1: Site Locus Map

1:18,056



Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS





Progress Tracking 6/30/16  
 (THIS NOTE TO BE REMOVED FOR FINAL RECORD PLAN)  
 CAP PER RAWP PLAN DATED 12/23/13 = ±14.0 AC  
 ANTICIPATED CAP = ±13.7 AC  
 FULLY CAPPED AS OF 6/30/16 = ±3.9 AC  
 PARTIALLY CAPPED = ±9.4 AC  
 REMAINING TO BE CAPPED = ±0.5 AC

The base map for this figure was developed from a Diprete Engineering plan entitled "Landfill Monitoring Plan, Former Portsmouth Landfill, revised 07-18-2017."

**General Notes**

1. THE SITE IS LOCATED ON THE TOWN OF PORTSMOUTH ASSESSOR'S PLAT 20 LOTS 2, & 13, AND ASSESSOR'S PLAT 25 LOT 2.
2. THE OWNER OF AP 20 LOTS 1, 2 & 13 AND AP 25 LOT 2 IS:  
 AP ENTERPRISES LLC  
 28 TEAL DRIVE  
 WAKEFIELD, RI 02879
3. DATUM OF SURVEY: RI STATE PLANE, NAD-83 HORIZONTAL, NAVD'88 VERTICAL.
4. REMEDIAL CAP CONSTRUCTION COMPLETED PER "PROPOSED CAP/EROSION CONTROL PLAN" BY DIPRETE ENGINEERING, INC. DATED APRIL 3, 2014.
5. EXISTING FEATURES ARE A COMPILATION OF AERIAL PHOTOGRAPHY, PLANS OF RECORD BY OTHERS, AND ON THE GROUND SURVEY BY DIPRETE ENGINEERING, INC.
6. THIS PLAN DEPICTS PRE-REMEDIAL TOPOGRAPHY OUTSIDE CAP AREA AS SHOWN ON "BOUNDARY & TOPOGRAPHIC SURVEY PLAN - ISLAND PARK" BY WATERMAN ENGINEERING CO. DATED 05/01/07 AND CONVERTED FROM DATUM NGVD29 TO DATUM NGVD88.
7. COASTAL FEATURE AND WETLANDS FLAGS / LINES SHOWN PER "GRADING PLAN, ISLAND PARK, AP 20 LOTS 1, 2 & 13 - AP 25 LOT 2, PORTSMOUTH, RHODE ISLAND" BY WATERMAN ENGINEERING, DATED 01/04/2010. FLAGGING BY VANASSE HANGEN BRUSTLIN, INC. AND LOCATED BY FIELD SURVEY BY WATERMAN ENGINEERING.

**Monitoring Notes**

1. PHASE 1 MONITORING WELLS AND SOIL AND GAS POINTS INSTALLED 04/25/2017.
2. SUPPLEMENTAL SOIL GAS POINTS INSTALLED ON 04/13/2018
3. WATER TABLE ELEVATIONS OBTAINED 07/31/2018

**Legend**

RAWP 2' CONTOUR	---
RAWP BOUNDARY	---
FINAL CAP 2' CONTOUR	---
FINAL CAP BOUNDARY	---
EXISTING GROUND 10' CONTOUR	---
EXISTING GROUND 2' CONTOUR	---
PHASE 1 MONITORING WELL	MW-1
PHASE 1 SOIL GAS POINT	SG-1
SUPPLEMENTAL SOIL GAS POINT	SG5
GROUNDWATER ELEVATION (FEET)	1.80'
GROUNDWATER ELEVATION CONTOUR	2.4'

0 Approximate Feet 180

NAME/ADDRESS:  
**Prepared for**  
**AP Enterprise LLC**  
**28 Teal Drive, Wakefield, RI 02879**

DRAWING TITLE:  
**Groundwater Elevation Contours**  
**April 12, 2019**  
**Former Portsmouth Landfill**

**ATC** 400 Reservoir Avenue, Suite 2C  
 Providence, RI 0290  
 (401) 714-0306

DRAWN BY:	SG	FIGURE NO.
CHECKED BY:	TO	<b>2</b>
PROJECT NO.	3010000238	
DATE:	4/29/19	

## **APPENDIX A**





*CERTIFICATE OF ANALYSIS*

Stephen Gautie  
ATC Group Services  
400 Reservoir Ave Ste 2C  
Providence, RI 02907

**RE: Former Portsmouth Landfill (3010000238)**  
**ESS Laboratory Work Order Number: 1904515**

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 1:06 pm, Apr 25, 2019**

**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: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**SAMPLE RECEIPT**

The following samples were received on April 17, 2019 for the analyses specified on the enclosed Chain of Custody Record.

<b>Lab Number</b>	<b>Sample Name</b>	<b>Matrix</b>	<b>Analysis</b>
1904515-01	MW-1	Ground Water	6010C, 6020A, 7010, 8260B
1904515-02	MW-2	Ground Water	6010C, 6020A, 7010, 8260B
1904515-03	MW-3	Ground Water	6010C, 6020A, 7010, 8260B
1904515-04	MW-4	Ground Water	6010C, 6020A, 7010, 8260B
1904515-05	Trip Blank	Aqueous	8260B



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

- CD9D0366-CCV1 [Continuing Calibration %Diff/Drift is below control limit \(CD-\).](#)  
Bromomethane (33% @ 30%)
- CD91839-BS1 [Blank Spike recovery is above upper control limit \(B+\).](#)  
Chloromethane (132% @ 70-130%)
- CD91839-BSD1 [Blank Spike recovery is above upper control limit \(B+\).](#)  
Chloromethane (131% @ 70-130%)
- CD91931-BSD1 [Blank Spike recovery is below lower control limit \(B-\).](#)  
Bromomethane (68% @ 70-130%)

**Total Metals**

- CD91836-BSD1 [Blank Spike recovery is below lower control limit \(B-\).](#)  
Thallium (75% @ 80-120%)

**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: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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
- MADEP 18-2.1 - 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
- 5035A - 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: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-1  
Date Sampled: 04/12/19 15:50  
Percent Solids: N/A

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-01  
Sample Matrix: Ground Water  
Units: mg/L

Extraction Method: 3005A/200.7

**Total Metals**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (0.001)		6020A		1	NAR	04/22/19 15:30	50	25	CD91836
Arsenic	ND (0.002)		7010		1	KJK	04/19/19 15:43	50	25	CD91836
<b>Barium</b>	<b>0.051</b> (0.025)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Beryllium	ND (0.0005)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Cadmium	ND (0.0025)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Chromium	ND (0.010)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Cobalt	ND (0.010)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Copper	ND (0.010)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Lead	ND (0.010)		6010C		2	KJK	04/19/19 15:45	50	25	CD91836
Nickel	ND (0.025)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Selenium	ND (0.025)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Silver	ND (0.005)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Thallium	ND (0.0005)		6020A		1	NAR	04/22/19 15:30	50	25	CD91836
Vanadium	ND (0.010)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836
Zinc	ND (0.025)		6010C		1	KJK	04/19/19 2:56	50	25	CD91836



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-1  
Date Sampled: 04/12/19 15:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-01  
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	04/19/19 13:17	C9D0366	CD91931
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/19/19 13:17	C9D0366	CD91931
1-Chlorohexane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
2-Butanone	ND (0.0100)		8260B		1	04/19/19 13:17	C9D0366	CD91931
2-Chlorotoluene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
2-Hexanone	ND (0.0100)		8260B		1	04/19/19 13:17	C9D0366	CD91931
4-Chlorotoluene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Acetone	ND (0.0100)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Benzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Bromobenzene	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-1  
Date Sampled: 04/12/19 15:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-01  
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	04/19/19 13:17	C9D0366	CD91931
Bromodichloromethane	ND (0.0006)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Bromoform	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Bromomethane	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Carbon Disulfide	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Chlorobenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Chloroethane	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Chloroform	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Chloromethane	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Dibromochloromethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Dibromomethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Diethyl Ether	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Di-isopropyl ether	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Ethylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Hexachloroethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Isopropylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Methylene Chloride	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Naphthalene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
n-Butylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
n-Propylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
sec-Butylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Styrene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
tert-Butylbenzene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Tetrachloroethene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-1  
Date Sampled: 04/12/19 15:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-01  
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	04/19/19 13:17	C9D0366	CD91931
Toluene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Trichloroethene	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Vinyl Acetate	ND (0.0050)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Vinyl Chloride	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Xylene O	ND (0.0010)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Xylene P,M	ND (0.0020)		8260B		1	04/19/19 13:17	C9D0366	CD91931
Xylenes (Total)	ND (0.0020)		8260B		1	04/19/19 13:17		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-2  
Date Sampled: 04/12/19 13:48  
Percent Solids: N/A

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-02  
Sample Matrix: Ground Water  
Units: mg/L

Extraction Method: 3005A/200.7

**Total Metals**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (0.001)		6020A		1	NAR	04/22/19 15:34	50	25	CD91836
Arsenic	<b>0.003</b> (0.002)		7010		1	KJK	04/19/19 15:55	50	25	CD91836
Barium	<b>0.069</b> (0.025)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Beryllium	ND (0.0005)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Cadmium	ND (0.0025)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Chromium	ND (0.010)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Cobalt	ND (0.010)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Copper	ND (0.010)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Lead	<b>0.015</b> (0.010)		6010C		1	KJK	04/19/19 13:55	50	25	CD91836
Nickel	ND (0.025)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Selenium	ND (0.025)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Silver	ND (0.005)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Thallium	ND (0.0005)		6020A		1	NAR	04/22/19 15:34	50	25	CD91836
Vanadium	ND (0.010)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836
Zinc	<b>0.071</b> (0.025)		6010C		1	KJK	04/19/19 3:00	50	25	CD91836



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-2  
Date Sampled: 04/12/19 13:48  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-02  
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	04/18/19 16:43	C9D0340	CD91839
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/19 16:43	C9D0340	CD91839
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
2-Butanone	ND (0.0100)		8260B		1	04/18/19 16:43	C9D0340	CD91839
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
2-Hexanone	ND (0.0100)		8260B		1	04/18/19 16:43	C9D0340	CD91839
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Acetone	ND (0.0100)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Benzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Bromobenzene	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839





*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-2  
Date Sampled: 04/12/19 13:48  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-02  
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	04/18/19 16:43	C9D0340	CD91839
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Bromoform	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Bromomethane	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Chlorobenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Chloroethane	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Chloroform	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Chloromethane	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Dibromomethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Diethyl Ether	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Ethylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Hexachloroethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Isopropylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Methylene Chloride	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Naphthalene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Styrene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839





*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-2  
Date Sampled: 04/12/19 13:48  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-02  
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	04/18/19 16:43	C9D0340	CD91839
Toluene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Trichloroethene	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Xylene O	ND (0.0010)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Xylene P,M	ND (0.0020)		8260B		1	04/18/19 16:43	C9D0340	CD91839
Xylenes (Total)	ND (0.0020)		8260B		1	04/18/19 16:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-3  
Date Sampled: 04/12/19 12:05  
Percent Solids: N/A

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-03  
Sample Matrix: Ground Water  
Units: mg/L

Extraction Method: 3005A/200.7

**Total Metals**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (0.001)		6020A		1	NAR	04/22/19 15:39	50	25	CD91836
Arsenic	ND (0.002)		7010		1	KJK	04/19/19 16:01	50	25	CD91836
<b>Barium</b>	<b>0.506</b> (0.025)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Beryllium	ND (0.0005)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Cadmium	ND (0.0025)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Chromium	ND (0.010)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Cobalt	ND (0.010)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Copper	ND (0.010)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
<b>Lead</b>	<b>0.016</b> (0.010)		6010C		1	KJK	04/19/19 13:59	50	25	CD91836
Nickel	ND (0.025)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Selenium	ND (0.025)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Silver	ND (0.005)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Thallium	ND (0.0005)		6020A		1	NAR	04/22/19 15:39	50	25	CD91836
Vanadium	ND (0.010)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836
Zinc	ND (0.025)		6010C		1	KJK	04/19/19 3:16	50	25	CD91836



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-3  
Date Sampled: 04/12/19 12:05  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-03  
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	04/18/19 17:09	C9D0340	CD91839
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/19 17:09	C9D0340	CD91839
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
2-Butanone	ND (0.0100)		8260B		1	04/18/19 17:09	C9D0340	CD91839
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
2-Hexanone	ND (0.0100)		8260B		1	04/18/19 17:09	C9D0340	CD91839
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Acetone	ND (0.0100)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Benzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Bromobenzene	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-3  
Date Sampled: 04/12/19 12:05  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-03  
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	04/18/19 17:09	C9D0340	CD91839
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Bromoform	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Bromomethane	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
<b>Chlorobenzene</b>	<b>0.0044</b> (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Chloroethane	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Chloroform	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Chloromethane	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Dibromomethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Diethyl Ether	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Ethylbenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Hexachloroethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
<b>Isopropylbenzene</b>	<b>0.0013</b> (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Methylene Chloride	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Naphthalene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Styrene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-3  
Date Sampled: 04/12/19 12:05  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-03  
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	04/18/19 17:09	C9D0340	CD91839
Toluene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Trichloroethene	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Xylene O	ND (0.0010)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Xylene P,M	ND (0.0020)		8260B		1	04/18/19 17:09	C9D0340	CD91839
Xylenes (Total)	ND (0.0020)		8260B		1	04/18/19 17:09		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-4  
Date Sampled: 04/12/19 10:12  
Percent Solids: N/A

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-04  
Sample Matrix: Ground Water  
Units: mg/L

Extraction Method: 3005A/200.7

**Total Metals**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>I/V</u>	<u>F/V</u>	<u>Batch</u>
Antimony	ND (0.001)		6020A		1	NAR	04/22/19 15:44	50	25	CD91836
Arsenic	ND (0.002)		7010		1	KJK	04/19/19 16:07	50	25	CD91836
<b>Barium</b>	<b>0.047</b> (0.025)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Beryllium	ND (0.0005)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Cadmium	ND (0.0025)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Chromium	ND (0.010)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Cobalt	ND (0.010)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
<b>Copper</b>	<b>0.034</b> (0.010)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Lead	ND (0.010)		6010C		1	KJK	04/19/19 14:06	50	25	CD91836
<b>Nickel</b>	<b>0.038</b> (0.025)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Selenium	ND (0.025)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Silver	ND (0.005)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
Thallium	ND (0.0005)		6020A		1	NAR	04/22/19 15:44	50	25	CD91836
Vanadium	ND (0.010)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836
<b>Zinc</b>	<b>1.34</b> (0.025)		6010C		1	KJK	04/19/19 3:22	50	25	CD91836



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-4  
Date Sampled: 04/12/19 10:12  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-04  
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	04/18/19 17:34	C9D0340	CD91839
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/19 17:34	C9D0340	CD91839
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
2-Butanone	ND (0.0100)		8260B		1	04/18/19 17:34	C9D0340	CD91839
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
2-Hexanone	ND (0.0100)		8260B		1	04/18/19 17:34	C9D0340	CD91839
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Acetone	ND (0.0100)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Benzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Bromobenzene	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839





*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-4  
Date Sampled: 04/12/19 10:12  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-04  
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	04/18/19 17:34	C9D0340	CD91839
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Bromoform	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Bromomethane	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Chlorobenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Chloroethane	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Chloroform	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Chloromethane	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Dibromomethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Diethyl Ether	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Ethylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Hexachloroethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Isopropylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Methylene Chloride	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Naphthalene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Styrene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839





*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: MW-4  
Date Sampled: 04/12/19 10:12  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-04  
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	04/18/19 17:34	C9D0340	CD91839
Toluene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Trichloroethene	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Xylene O	ND (0.0010)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Xylene P,M	ND (0.0020)		8260B		1	04/18/19 17:34	C9D0340	CD91839
Xylenes (Total)	ND (0.0020)		8260B		1	04/18/19 17:34		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>109 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: Trip Blank  
Date Sampled: 04/12/19 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-05  
Sample Matrix: Aqueous  
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	04/18/19 12:27	C9D0340	CD91839
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/19 12:27	C9D0340	CD91839
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
2-Butanone	ND (0.0100)		8260B		1	04/18/19 12:27	C9D0340	CD91839
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
2-Hexanone	ND (0.0100)		8260B		1	04/18/19 12:27	C9D0340	CD91839
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Acetone	ND (0.0100)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Benzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Bromobenzene	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: Trip Blank  
Date Sampled: 04/12/19 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-05  
Sample Matrix: Aqueous  
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	04/18/19 12:27	C9D0340	CD91839
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Bromoform	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Bromomethane	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Chlorobenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Chloroethane	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Chloroform	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Chloromethane	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Dibromomethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Diethyl Ether	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Ethylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Hexachloroethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Isopropylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Methylene Chloride	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Naphthalene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Styrene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill  
Client Sample ID: Trip Blank  
Date Sampled: 04/12/19 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1904515  
ESS Laboratory Sample ID: 1904515-05  
Sample Matrix: Aqueous  
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	04/18/19 12:27	C9D0340	CD91839
Toluene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Trichloroethene	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Xylene O	ND (0.0010)		8260B		1	04/18/19 12:27	C9D0340	CD91839
Xylene P,M	ND (0.0020)		8260B		1	04/18/19 12:27	C9D0340	CD91839

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**Total Metals**

**Batch CD91836 - 3005A/200.7**

**Blank**

Antimony	ND	0.001	mg/L
Arsenic	ND	0.002	mg/L
Barium	ND	0.025	mg/L
Beryllium	ND	0.0005	mg/L
Cadmium	ND	0.0025	mg/L
Chromium	ND	0.010	mg/L
Cobalt	ND	0.010	mg/L
Copper	ND	0.010	mg/L
Lead	ND	0.010	mg/L
Nickel	ND	0.025	mg/L
Selenium	ND	0.025	mg/L
Silver	ND	0.005	mg/L
Thallium	ND	0.0005	mg/L
Vanadium	ND	0.010	mg/L
Zinc	ND	0.025	mg/L

**LCS**

Antimony	0.284	0.005	mg/L	0.2500	113	80-120
Arsenic	0.253	0.062	mg/L	0.2500	101	80-120
Barium	0.236	0.025	mg/L	0.2500	94	80-120
Beryllium	0.0236	0.0005	mg/L	0.02500	94	80-120
Cadmium	0.116	0.0025	mg/L	0.1250	93	80-120
Chromium	0.237	0.010	mg/L	0.2500	95	80-120
Cobalt	0.235	0.010	mg/L	0.2500	94	80-120
Copper	0.240	0.010	mg/L	0.2500	96	80-120
Lead	0.242	0.010	mg/L	0.2500	97	80-120
Nickel	0.233	0.025	mg/L	0.2500	93	80-120
Selenium	0.460	0.025	mg/L	0.5000	92	80-120
Silver	0.117	0.005	mg/L	0.1250	94	80-120
Thallium	0.199	0.002	mg/L	0.2500	80	80-120
Vanadium	0.237	0.010	mg/L	0.2500	95	80-120
Zinc	0.233	0.025	mg/L	0.2500	93	80-120

**LCS Dup**

Antimony	0.293	0.005	mg/L	0.2500	117	80-120	3	20
Arsenic	0.242	0.062	mg/L	0.2500	97	80-120	4	20
Barium	0.237	0.025	mg/L	0.2500	95	80-120	0.7	20
Beryllium	0.0237	0.0005	mg/L	0.02500	95	80-120	0.6	20
Cadmium	0.115	0.0025	mg/L	0.1250	92	80-120	1	20
Chromium	0.238	0.010	mg/L	0.2500	95	80-120	0.6	20
Cobalt	0.237	0.010	mg/L	0.2500	95	80-120	0.8	20
Copper	0.241	0.010	mg/L	0.2500	96	80-120	0.4	20
Lead	0.243	0.010	mg/L	0.2500	97	80-120	0.3	20
Nickel	0.235	0.025	mg/L	0.2500	94	80-120	0.9	20
Selenium	0.458	0.025	mg/L	0.5000	92	80-120	0.5	20
Silver	0.117	0.005	mg/L	0.1250	94	80-120	0.2	20



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**Total Metals**

**Batch CD91836 - 3005A/200.7**

Thallium	0.187	0.002	mg/L	0.2500		75	80-120	6	20	B-
Vanadium	0.237	0.010	mg/L	0.2500		95	80-120	0.2	20	
Zinc	0.234	0.025	mg/L	0.2500		94	80-120	0.3	20	

**8260B Volatile Organic Compounds**

**Batch CD91839 - 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							



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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 CD91839 - 5030B**

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							
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							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0260</i>		mg/L	<i>0.02500</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0250</i>		mg/L	<i>0.02500</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>0.0260</i>		mg/L	<i>0.02500</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0250</i>		mg/L	<i>0.02500</i>		<i>100</i>	<i>70-130</i>			

**LCS**

1,1,1,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130			
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130			
1,1,2,2-Tetrachloroethane	9.86		ug/L	10.00		99	70-130			
1,1,2-Trichloroethane	9.91		ug/L	10.00		99	70-130			





*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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 CD91839 - 5030B**

1,1-Dichloroethane	10.5		ug/L	10.00		105	70-130			
1,1-Dichloroethene	9.95		ug/L	10.00		100	70-130			
1,1-Dichloropropene	10.4		ug/L	10.00		104	70-130			
1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,2,3-Trichloropropane	9.37		ug/L	10.00		94	70-130			
1,2,4-Trichlorobenzene	10.1		ug/L	10.00		101	70-130			
1,2,4-Trimethylbenzene	10.1		ug/L	10.00		101	70-130			
1,2-Dibromo-3-Chloropropane	9.45		ug/L	10.00		94	70-130			
1,2-Dibromoethane	9.85		ug/L	10.00		98	70-130			
1,2-Dichlorobenzene	9.34		ug/L	10.00		93	70-130			
1,2-Dichloroethane	11.5		ug/L	10.00		115	70-130			
1,2-Dichloropropane	9.92		ug/L	10.00		99	70-130			
1,3,5-Trimethylbenzene	9.92		ug/L	10.00		99	70-130			
1,3-Dichlorobenzene	9.61		ug/L	10.00		96	70-130			
1,3-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,4-Dichlorobenzene	9.56		ug/L	10.00		96	70-130			
1,4-Dioxane - Screen	180		ug/L	200.0		90	0-332			
1-Chlorohexane	8.50		ug/L	10.00		85	70-130			
2,2-Dichloropropane	10.8		ug/L	10.00		108	70-130			
2-Butanone	49.8		ug/L	50.00		100	70-130			
2-Chlorotoluene	9.53		ug/L	10.00		95	70-130			
2-Hexanone	45.4		ug/L	50.00		91	70-130			
4-Chlorotoluene	9.70		ug/L	10.00		97	70-130			
4-Isopropyltoluene	10.0		ug/L	10.00		100	70-130			
4-Methyl-2-Pentanone	44.4		ug/L	50.00		89	70-130			
Acetone	45.8		ug/L	50.00		92	70-130			
Benzene	10.1		ug/L	10.00		101	70-130			
Bromobenzene	9.56		ug/L	10.00		96	70-130			
Bromochloromethane	10.3		ug/L	10.00		103	70-130			
Bromodichloromethane	10.4		ug/L	10.00		104	70-130			
Bromoform	9.93		ug/L	10.00		99	70-130			
Bromomethane	9.72		ug/L	10.00		97	70-130			
Carbon Disulfide	9.52		ug/L	10.00		95	70-130			
Carbon Tetrachloride	11.2		ug/L	10.00		112	70-130			
Chlorobenzene	9.60		ug/L	10.00		96	70-130			
Chloroethane	10.2		ug/L	10.00		102	70-130			
Chloroform	11.0		ug/L	10.00		110	70-130			
Chloromethane	13.2		ug/L	10.00		132	70-130			B+
cis-1,2-Dichloroethene	9.84		ug/L	10.00		98	70-130			
cis-1,3-Dichloropropene	9.70		ug/L	10.00		97	70-130			
Dibromochloromethane	9.65		ug/L	10.00		96	70-130			
Dibromomethane	10.7		ug/L	10.00		107	70-130			
Dichlorodifluoromethane	11.8		ug/L	10.00		118	70-130			
Diethyl Ether	9.44		ug/L	10.00		94	70-130			
Di-isopropyl ether	9.69		ug/L	10.00		97	70-130			





*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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 CD91839 - 5030B**

Ethyl tertiary-butyl ether	9.10		ug/L	10.00		91	70-130			
Ethylbenzene	9.49		ug/L	10.00		95	70-130			
Hexachlorobutadiene	11.5		ug/L	10.00		115	70-130			
Hexachloroethane	8.73		ug/L	10.00		87	70-130			
Isopropylbenzene	9.37		ug/L	10.00		94	70-130			
Methyl tert-Butyl Ether	9.58		ug/L	10.00		96	70-130			
Methylene Chloride	10.4		ug/L	10.00		104	70-130			
Naphthalene	9.09		ug/L	10.00		91	70-130			
n-Butylbenzene	10.4		ug/L	10.00		104	70-130			
n-Propylbenzene	9.46		ug/L	10.00		95	70-130			
sec-Butylbenzene	9.85		ug/L	10.00		98	70-130			
Styrene	9.24		ug/L	10.00		92	70-130			
tert-Butylbenzene	9.46		ug/L	10.00		95	70-130			
Tertiary-amyl methyl ether	9.11		ug/L	10.00		91	70-130			
Tetrachloroethene	8.27		ug/L	10.00		83	70-130			
Tetrahydrofuran	8.83		ug/L	10.00		88	70-130			
Toluene	9.98		ug/L	10.00		100	70-130			
trans-1,2-Dichloroethene	9.26		ug/L	10.00		93	70-130			
trans-1,3-Dichloropropene	9.68		ug/L	10.00		97	70-130			
Trichloroethene	9.78		ug/L	10.00		98	70-130			
Trichlorofluoromethane	11.8		ug/L	10.00		118	70-130			
Vinyl Acetate	12.1		ug/L	10.00		121	70-130			
Vinyl Chloride	11.2		ug/L	10.00		112	70-130			
Xylene O	9.73		ug/L	10.00		97	70-130			
Xylene P,M	19.9		ug/L	20.00		99	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0241		mg/L	0.02500		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0275		mg/L	0.02500		110	70-130			
Surrogate: Dibromofluoromethane	0.0263		mg/L	0.02500		105	70-130			
Surrogate: Toluene-d8	0.0243		mg/L	0.02500		97	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	10.5		ug/L	10.00		105	70-130	1	25	
1,1,1-Trichloroethane	11.2		ug/L	10.00		112	70-130	2	25	
1,1,2,2-Tetrachloroethane	9.96		ug/L	10.00		100	70-130	1	25	
1,1,2-Trichloroethane	10.1		ug/L	10.00		101	70-130	2	25	
1,1-Dichloroethane	10.8		ug/L	10.00		108	70-130	3	25	
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130	1	25	
1,1-Dichloropropene	10.5		ug/L	10.00		105	70-130	1	25	
1,2,3-Trichlorobenzene	10.0		ug/L	10.00		100	70-130	2	25	
1,2,3-Trichloropropane	9.47		ug/L	10.00		95	70-130	1	25	
1,2,4-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	0.2	25	
1,2,4-Trimethylbenzene	10.3		ug/L	10.00		103	70-130	2	25	
1,2-Dibromo-3-Chloropropane	9.77		ug/L	10.00		98	70-130	3	25	
1,2-Dibromoethane	10.0		ug/L	10.00		100	70-130	2	25	
1,2-Dichlorobenzene	9.43		ug/L	10.00		94	70-130	1	25	
1,2-Dichloroethane	11.8		ug/L	10.00		118	70-130	3	25	



*CERTIFICATE OF ANALYSIS*

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ESS Laboratory Work Order: 1904515

**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 CD91839 - 5030B**

1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130	2	25	
1,3,5-Trimethylbenzene	10.0		ug/L	10.00		100	70-130	1	25	
1,3-Dichlorobenzene	9.63		ug/L	10.00		96	70-130	0.2	25	
1,3-Dichloropropane	10.5		ug/L	10.00		105	70-130	3	25	
1,4-Dichlorobenzene	9.77		ug/L	10.00		98	70-130	2	25	
1,4-Dioxane - Screen	205		ug/L	200.0		103	0-332	13	200	
1-Chlorohexane	8.87		ug/L	10.00		89	70-130	4	25	
2,2-Dichloropropane	10.8		ug/L	10.00		108	70-130	0	25	
2-Butanone	50.8		ug/L	50.00		102	70-130	2	25	
2-Chlorotoluene	9.64		ug/L	10.00		96	70-130	1	25	
2-Hexanone	47.0		ug/L	50.00		94	70-130	3	25	
4-Chlorotoluene	9.83		ug/L	10.00		98	70-130	1	25	
4-Isopropyltoluene	10.3		ug/L	10.00		103	70-130	2	25	
4-Methyl-2-Pentanone	46.7		ug/L	50.00		93	70-130	5	25	
Acetone	45.5		ug/L	50.00		91	70-130	0.7	25	
Benzene	10.2		ug/L	10.00		102	70-130	2	25	
Bromobenzene	9.68		ug/L	10.00		97	70-130	1	25	
Bromochloromethane	10.3		ug/L	10.00		103	70-130	0.1	25	
Bromodichloromethane	10.5		ug/L	10.00		105	70-130	0.9	25	
Bromoform	9.96		ug/L	10.00		100	70-130	0.3	25	
Bromomethane	9.89		ug/L	10.00		99	70-130	2	25	
Carbon Disulfide	9.60		ug/L	10.00		96	70-130	0.8	25	
Carbon Tetrachloride	11.3		ug/L	10.00		113	70-130	0.9	25	
Chlorobenzene	9.85		ug/L	10.00		98	70-130	3	25	
Chloroethane	10.3		ug/L	10.00		103	70-130	1	25	
Chloroform	11.3		ug/L	10.00		113	70-130	3	25	
Chloromethane	13.1		ug/L	10.00		131	70-130	0.6	25	B+
cis-1,2-Dichloroethene	10.3		ug/L	10.00		103	70-130	5	25	
cis-1,3-Dichloropropene	9.87		ug/L	10.00		99	70-130	2	25	
Dibromochloromethane	9.75		ug/L	10.00		98	70-130	1	25	
Dibromomethane	10.8		ug/L	10.00		108	70-130	0.3	25	
Dichlorodifluoromethane	11.9		ug/L	10.00		119	70-130	1	25	
Diethyl Ether	9.59		ug/L	10.00		96	70-130	2	25	
Di-isopropyl ether	9.94		ug/L	10.00		99	70-130	3	25	
Ethyl tertiary-butyl ether	9.48		ug/L	10.00		95	70-130	4	25	
Ethylbenzene	9.93		ug/L	10.00		99	70-130	5	25	
Hexachlorobutadiene	12.0		ug/L	10.00		120	70-130	4	25	
Hexachloroethane	9.26		ug/L	10.00		93	70-130	6	25	
Isopropylbenzene	9.60		ug/L	10.00		96	70-130	2	25	
Methyl tert-Butyl Ether	9.76		ug/L	10.00		98	70-130	2	25	
Methylene Chloride	10.6		ug/L	10.00		106	70-130	2	25	
Naphthalene	9.02		ug/L	10.00		90	70-130	0.8	25	
n-Butylbenzene	10.5		ug/L	10.00		105	70-130	2	25	
n-Propylbenzene	9.60		ug/L	10.00		96	70-130	1	25	
sec-Butylbenzene	9.95		ug/L	10.00		100	70-130	1	25	



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 1904515

**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 CD91839 - 5030B**

Styrene	9.61		ug/L	10.00		96	70-130	4	25	
tert-Butylbenzene	9.77		ug/L	10.00		98	70-130	3	25	
Tertiary-amyl methyl ether	9.25		ug/L	10.00		92	70-130	2	25	
Tetrachloroethene	8.70		ug/L	10.00		87	70-130	5	25	
Tetrahydrofuran	8.89		ug/L	10.00		89	70-130	0.7	25	
Toluene	10.0		ug/L	10.00		100	70-130	0.6	25	
trans-1,2-Dichloroethene	9.83		ug/L	10.00		98	70-130	6	25	
trans-1,3-Dichloropropene	9.94		ug/L	10.00		99	70-130	3	25	
Trichloroethene	10.5		ug/L	10.00		105	70-130	7	25	
Trichlorofluoromethane	12.1		ug/L	10.00		121	70-130	2	25	
Vinyl Acetate	12.4		ug/L	10.00		124	70-130	2	25	
Vinyl Chloride	11.3		ug/L	10.00		113	70-130	0.8	25	
Xylene O	10.1		ug/L	10.00		101	70-130	3	25	
Xylene P,M	20.3		ug/L	20.00		102	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0234		mg/L	0.02500		94	70-130			
Surrogate: 4-Bromofluorobenzene	0.0278		mg/L	0.02500		111	70-130			
Surrogate: Dibromofluoromethane	0.0258		mg/L	0.02500		103	70-130			
Surrogate: Toluene-d8	0.0242		mg/L	0.02500		97	70-130			

**Batch CD91931 - 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							



*CERTIFICATE OF ANALYSIS*

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**Quality Control Data**

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**8260B Volatile Organic Compounds**

**Batch CD91931 - 5030B**

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							
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							



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
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ESS Laboratory Work Order: 1904515

**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 CD91931 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0255		mg/L	0.02500		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.0260		mg/L	0.02500		104	70-130			
Surrogate: Dibromofluoromethane	0.0255		mg/L	0.02500		102	70-130			
Surrogate: Toluene-d8	0.0251		mg/L	0.02500		100	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130			
1,1,1-Trichloroethane	11.7		ug/L	10.00		117	70-130			
1,1,2,2-Tetrachloroethane	9.63		ug/L	10.00		96	70-130			
1,1,2-Trichloroethane	10.4		ug/L	10.00		104	70-130			
1,1-Dichloroethane	11.0		ug/L	10.00		110	70-130			
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130			
1,1-Dichloropropene	11.0		ug/L	10.00		110	70-130			
1,2,3-Trichlorobenzene	10.8		ug/L	10.00		108	70-130			
1,2,3-Trichloropropane	9.42		ug/L	10.00		94	70-130			
1,2,4-Trichlorobenzene	10.9		ug/L	10.00		109	70-130			
1,2,4-Trimethylbenzene	10.2		ug/L	10.00		102	70-130			
1,2-Dibromo-3-Chloropropane	9.56		ug/L	10.00		96	70-130			
1,2-Dibromoethane	10.2		ug/L	10.00		102	70-130			
1,2-Dichlorobenzene	9.31		ug/L	10.00		93	70-130			
1,2-Dichloroethane	11.7		ug/L	10.00		117	70-130			
1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,3,5-Trimethylbenzene	9.98		ug/L	10.00		100	70-130			
1,3-Dichlorobenzene	9.60		ug/L	10.00		96	70-130			
1,3-Dichloropropane	10.4		ug/L	10.00		104	70-130			
1,4-Dichlorobenzene	9.77		ug/L	10.00		98	70-130			
1,4-Dioxane - Screen	193		ug/L	200.0		96	0-332			
1-Chlorohexane	9.55		ug/L	10.00		96	70-130			
2,2-Dichloropropane	11.7		ug/L	10.00		117	70-130			
2-Butanone	51.8		ug/L	50.00		104	70-130			
2-Chlorotoluene	9.52		ug/L	10.00		95	70-130			
2-Hexanone	47.6		ug/L	50.00		95	70-130			
4-Chlorotoluene	9.84		ug/L	10.00		98	70-130			
4-Isopropyltoluene	10.2		ug/L	10.00		102	70-130			
4-Methyl-2-Pentanone	46.5		ug/L	50.00		93	70-130			
Acetone	46.2		ug/L	50.00		92	70-130			
Benzene	10.4		ug/L	10.00		104	70-130			
Bromobenzene	9.50		ug/L	10.00		95	70-130			
Bromochloromethane	10.5		ug/L	10.00		105	70-130			
Bromodichloromethane	10.9		ug/L	10.00		109	70-130			
Bromoform	10.4		ug/L	10.00		104	70-130			
Bromomethane	7.39		ug/L	10.00		74	70-130			



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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 CD91931 - 5030B**

Carbon Disulfide	10.5		ug/L	10.00		105	70-130			
Carbon Tetrachloride	12.1		ug/L	10.00		121	70-130			
Chlorobenzene	9.80		ug/L	10.00		98	70-130			
Chloroethane	10.4		ug/L	10.00		104	70-130			
Chloroform	11.4		ug/L	10.00		114	70-130			
Chloromethane	12.1		ug/L	10.00		121	70-130			
cis-1,2-Dichloroethene	10.5		ug/L	10.00		105	70-130			
cis-1,3-Dichloropropene	10.5		ug/L	10.00		105	70-130			
Dibromochloromethane	9.99		ug/L	10.00		100	70-130			
Dibromomethane	11.1		ug/L	10.00		111	70-130			
Dichlorodifluoromethane	9.18		ug/L	10.00		92	70-130			
Diethyl Ether	10.1		ug/L	10.00		101	70-130			
Di-isopropyl ether	10.3		ug/L	10.00		103	70-130			
Ethyl tertiary-butyl ether	9.80		ug/L	10.00		98	70-130			
Ethylbenzene	9.95		ug/L	10.00		100	70-130			
Hexachlorobutadiene	11.9		ug/L	10.00		119	70-130			
Hexachloroethane	9.78		ug/L	10.00		98	70-130			
Isopropylbenzene	9.46		ug/L	10.00		95	70-130			
Methyl tert-Butyl Ether	10.2		ug/L	10.00		102	70-130			
Methylene Chloride	10.7		ug/L	10.00		107	70-130			
Naphthalene	10.8		ug/L	10.00		108	70-130			
n-Butylbenzene	10.8		ug/L	10.00		108	70-130			
n-Propylbenzene	9.65		ug/L	10.00		96	70-130			
sec-Butylbenzene	9.91		ug/L	10.00		99	70-130			
Styrene	9.65		ug/L	10.00		96	70-130			
tert-Butylbenzene	9.62		ug/L	10.00		96	70-130			
Tertiary-amyl methyl ether	9.80		ug/L	10.00		98	70-130			
Tetrachloroethene	8.37		ug/L	10.00		84	70-130			
Tetrahydrofuran	9.43		ug/L	10.00		94	70-130			
Toluene	10.3		ug/L	10.00		103	70-130			
trans-1,2-Dichloroethene	9.77		ug/L	10.00		98	70-130			
trans-1,3-Dichloropropene	10.4		ug/L	10.00		104	70-130			
Trichloroethene	11.0		ug/L	10.00		110	70-130			
Trichlorofluoromethane	12.1		ug/L	10.00		121	70-130			
Vinyl Acetate	12.8		ug/L	10.00		128	70-130			
Vinyl Chloride	11.0		ug/L	10.00		110	70-130			
Xylene O	10.1		ug/L	10.00		101	70-130			
Xylene P,M	20.5		ug/L	20.00		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0242		mg/L	0.02500		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0284		mg/L	0.02500		113	70-130			
Surrogate: Dibromofluoromethane	0.0265		mg/L	0.02500		106	70-130			
Surrogate: Toluene-d8	0.0243		mg/L	0.02500		97	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130	0.3	25	
1,1,1-Trichloroethane	11.4		ug/L	10.00		114	70-130	2	25	



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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 CD91931 - 5030B**

1,1,2,2-Tetrachloroethane	9.28		ug/L	10.00		93	70-130	4	25	
1,1,2-Trichloroethane	10.2		ug/L	10.00		102	70-130	2	25	
1,1-Dichloroethane	10.5		ug/L	10.00		105	70-130	4	25	
1,1-Dichloroethene	9.80		ug/L	10.00		98	70-130	5	25	
1,1-Dichloropropene	10.6		ug/L	10.00		106	70-130	4	25	
1,2,3-Trichlorobenzene	10.3		ug/L	10.00		103	70-130	4	25	
1,2,3-Trichloropropane	9.10		ug/L	10.00		91	70-130	3	25	
1,2,4-Trichlorobenzene	10.8		ug/L	10.00		108	70-130	1	25	
1,2,4-Trimethylbenzene	9.63		ug/L	10.00		96	70-130	5	25	
1,2-Dibromo-3-Chloropropane	9.09		ug/L	10.00		91	70-130	5	25	
1,2-Dibromoethane	10.2		ug/L	10.00		102	70-130	0.4	25	
1,2-Dichlorobenzene	8.81		ug/L	10.00		88	70-130	6	25	
1,2-Dichloroethane	11.7		ug/L	10.00		117	70-130	0.5	25	
1,2-Dichloropropane	10.1		ug/L	10.00		101	70-130	0.7	25	
1,3,5-Trimethylbenzene	9.48		ug/L	10.00		95	70-130	5	25	
1,3-Dichlorobenzene	9.02		ug/L	10.00		90	70-130	6	25	
1,3-Dichloropropane	10.5		ug/L	10.00		105	70-130	0.9	25	
1,4-Dichlorobenzene	9.37		ug/L	10.00		94	70-130	4	25	
1,4-Dioxane - Screen	202		ug/L	200.0		101	0-332	5	200	
1-Chlorohexane	9.36		ug/L	10.00		94	70-130	2	25	
2,2-Dichloropropane	11.1		ug/L	10.00		111	70-130	5	25	
2-Butanone	51.9		ug/L	50.00		104	70-130	0.3	25	
2-Chlorotoluene	9.01		ug/L	10.00		90	70-130	6	25	
2-Hexanone	47.8		ug/L	50.00		96	70-130	0.4	25	
4-Chlorotoluene	9.42		ug/L	10.00		94	70-130	4	25	
4-Isopropyltoluene	9.63		ug/L	10.00		96	70-130	6	25	
4-Methyl-2-Pentanone	46.8		ug/L	50.00		94	70-130	0.7	25	
Acetone	46.0		ug/L	50.00		92	70-130	0.4	25	
Benzene	10.1		ug/L	10.00		101	70-130	3	25	
Bromobenzene	9.23		ug/L	10.00		92	70-130	3	25	
Bromochloromethane	10.3		ug/L	10.00		103	70-130	1	25	
Bromodichloromethane	10.7		ug/L	10.00		107	70-130	2	25	
Bromoform	10.3		ug/L	10.00		103	70-130	1	25	
Bromomethane	6.75		ug/L	10.00		68	70-130	9	25	B-
Carbon Disulfide	10.0		ug/L	10.00		100	70-130	5	25	
Carbon Tetrachloride	11.4		ug/L	10.00		114	70-130	5	25	
Chlorobenzene	9.53		ug/L	10.00		95	70-130	3	25	
Chloroethane	9.98		ug/L	10.00		100	70-130	4	25	
Chloroform	11.1		ug/L	10.00		111	70-130	3	25	
Chloromethane	11.3		ug/L	10.00		113	70-130	7	25	
cis-1,2-Dichloroethene	10.6		ug/L	10.00		106	70-130	1	25	
cis-1,3-Dichloropropene	10.2		ug/L	10.00		102	70-130	3	25	
Dibromochloromethane	10.1		ug/L	10.00		101	70-130	0.7	25	
Dibromomethane	11.1		ug/L	10.00		111	70-130	0.7	25	
Dichlorodifluoromethane	8.84		ug/L	10.00		88	70-130	4	25	



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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 CD91931 - 5030B**

Diethyl Ether	9.83		ug/L	10.00		98	70-130	3	25	
Di-isopropyl ether	10.3		ug/L	10.00		103	70-130	0.2	25	
Ethyl tertiary-butyl ether	9.87		ug/L	10.00		99	70-130	0.7	25	
Ethylbenzene	9.70		ug/L	10.00		97	70-130	3	25	
Hexachlorobutadiene	10.9		ug/L	10.00		109	70-130	9	25	
Hexachloroethane	9.38		ug/L	10.00		94	70-130	4	25	
Isopropylbenzene	9.06		ug/L	10.00		91	70-130	4	25	
Methyl tert-Butyl Ether	10.4		ug/L	10.00		104	70-130	2	25	
Methylene Chloride	10.4		ug/L	10.00		104	70-130	3	25	
Naphthalene	10.5		ug/L	10.00		105	70-130	3	25	
n-Butylbenzene	10.3		ug/L	10.00		103	70-130	5	25	
n-Propylbenzene	9.21		ug/L	10.00		92	70-130	5	25	
sec-Butylbenzene	9.34		ug/L	10.00		93	70-130	6	25	
Styrene	9.53		ug/L	10.00		95	70-130	1	25	
tert-Butylbenzene	9.25		ug/L	10.00		92	70-130	4	25	
Tertiary-amyl methyl ether	9.92		ug/L	10.00		99	70-130	1	25	
Tetrachloroethene	8.13		ug/L	10.00		81	70-130	3	25	
Tetrahydrofuran	10.0		ug/L	10.00		100	70-130	6	25	
Toluene	10.0		ug/L	10.00		100	70-130	3	25	
trans-1,2-Dichloroethene	9.55		ug/L	10.00		96	70-130	2	25	
trans-1,3-Dichloropropene	10.6		ug/L	10.00		106	70-130	1	25	
Trichloroethene	10.8		ug/L	10.00		108	70-130	1	25	
Trichlorofluoromethane	11.6		ug/L	10.00		116	70-130	4	25	
Vinyl Acetate	12.9		ug/L	10.00		129	70-130	0.3	25	
Vinyl Chloride	10.2		ug/L	10.00		102	70-130	7	25	
Xylene O	9.76		ug/L	10.00		98	70-130	3	25	
Xylene P,M	19.9		ug/L	20.00		100	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	0.0241		mg/L	0.02500		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0282		mg/L	0.02500		113	70-130			
Surrogate: Dibromofluoromethane	0.0263		mg/L	0.02500		105	70-130			
Surrogate: Toluene-d8	0.0246		mg/L	0.02500		98	70-130			





*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services

Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**Notes and Definitions**

- U Analyte included in the analysis, but not detected
- D Diluted.
- CD- Continuing Calibration %Diff/Drift is below control limit (CD-).
- B+ Blank Spike recovery is above upper control limit (B+).
- B- Blank Spike recovery is below lower control limit (B-).
- 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
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



*CERTIFICATE OF ANALYSIS*

Client Name: ATC Group Services  
Client Project ID: Former Portsmouth Landfill

ESS Laboratory Work Order: 1904515

**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/mecdc/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: ATC Group Services - KPB/HDM

ESS Project ID: 1904515  
 Date Received: 4/17/2019  
 Project Due Date: 4/24/2019  
 Days for Project: 5 Day

Shipped/Delivered Via: ESS Courier

- |   |  |
|---|--|
| 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>.9</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? <input checked="" type="checkbox"/> Yes / No<br>a. Air bubbles in aqueous VOAs? <input checked="" type="checkbox"/> Yes / No<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 608.3 Pesticides)
01	334930	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
01	334940	Yes	No	Yes	VOA Vial - HCl	HCl	
01	334941	Yes	No	Yes	VOA Vial - HCl	HCl	
01	334942	Yes	No	Yes	VOA Vial - HCl	HCl	
02	334929	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
02	334937	Yes	No	Yes	VOA Vial - HCl	HCl	
02	334938	Yes	No	Yes	VOA Vial - HCl	HCl	
02	334939	Yes	No	Yes	VOA Vial - HCl	HCl	
03	334928	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
03	334934	Yes	No	Yes	VOA Vial - HCl	HCl	
03	334935	Yes	No	Yes	VOA Vial - HCl	HCl	
03	334936	Yes	No	Yes	VOA Vial - HCl	HCl	
04	334927	Yes	NA	Yes	250 mL Poly - HNO3	HNO3	
04	334931	Yes	No	Yes	VOA Vial - HCl	HCl	
04	334932	Yes	No	Yes	VOA Vial - HCl	HCl	
04	334933	Yes	No	Yes	VOA Vial - HCl	HCl	
05	334943	Yes	NA	Yes	VOA Vial - HCl	HCl	

**2nd Review**

- All containers scanned into storage/lab
- Are barcode labels on correct containers?
- Are all necessary stickers attached?

Initials:                     

Yes / No

Yes / No

# ESS Laboratory Sample and Cooler Receipt Checklist

Client: ATC Group Services - KP/B/HDM ESS Project ID: 1904515  
Date Received: 4/17/2019

Completed By: [Signature] Date & Time: 4/17/19 1534

Reviewed By: [Signature] Date & Time: 4/17/19 1534

Delivered By: [Signature] 4/17/19 1534

