



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

**GROUNDWATER & LANDFILL GAS MONITORING REPORT No. 5
THE FORMER PORTSMOUTH LANDFILL
PARK AVENUE
PORTSMOUTH, RI 02871**

ATC PROJECT No. 3010000238

PREPARED FOR:

AP ENTERPRISE LLC
28 TEAL DRIVE
WAKEFIELD, RHODE ISLAND 02879

PREPARED BY:

ATC GROUP SERVICES LLC
400 RESERVOIR AVENUE, SUITE 2C
PROVIDENCE, RHODE ISLAND 02907

SEPTEMBER 10, 2018

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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 fifth 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. Please refer to **Appendix A** for Figure 1 the Site Locus Map and for Site Plan, Figure 2, which was developed by DiPrete Engineering.

2.0 FIELD ACTIVITIES

The following activities were conducted 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 25, 2017, four soil borings completed as groundwater monitoring wells (MW-1, MW-2, MW-3 and MW-4) were installed at the Site by TDS Technical Drilling Services (TDS) of Sterling, MA. Groundwater monitoring well locations are depicted on the Site Plan, Figure 2.

Groundwater monitoring wells were constructed in each of the four soil borings using two-inch diameter, polyvinyl chloride (PVC) riser and 10 to 15 feet of machine-slotted 0.01 inch well screen. The well screen was placed to intercept the groundwater table.

On June 15, 2017, DiPrete Engineering completed a well elevation survey of the installed monitoring wells. The monitoring wells were surveyed with reference to mean seal level. Based upon the well elevation survey, the depth to groundwater and resulting groundwater gradients indicate the flow is directed radially away from well MW-3. The highest groundwater elevation (2.90 feet above mean sea level) was noted at well MW-3.

On July 31, 2018, ATC gauged the depth to groundwater in the monitoring wells using a Solinst electronic oil/water interface probe. ATC gauged the depth to groundwater from the top of the PVC well risers. The depth to groundwater ranged from 7.90 feet in MW-1 to 15.18 feet in MW-3. Non-aqueous phase liquids were not detected on the water surface, or in the bottom of the wells. Based upon the groundwater elevation data, the groundwater gradient is directed toward the south on the southern portion of the Site, to the north on the northern portion of the Site and to the east on the eastern portion. A Water Level Gauging Sheet is provided in **Appendix B**. A Groundwater Contour Map developed using the Golden Software "Surfer Program" is superimposed on Figure 2.

2.2 Groundwater Sampling and Analysis

On July 31, 2018, ATC completed the fifth 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 and 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) via EPA Method 8260, and metals via EPA Methods 6010 and 7010.

2.3 Groundwater Analytical Results

No metals or VOCs were reported in excess of the RIDEM GA Groundwater Objectives. Detected analytes included barium in MW-1; barium, copper and zinc in MW-2; barium, selenium, 1,4-dichlorobenzene, chlorobenzene, dichlorodifluoromethane and isopropylbenzene in MW-3; and barium, cadmium, copper, nickel, and zinc in MW-4. The groundwater analytical data is summarized in **Appendix C** on Table 1. Refer to **Appendix D** for copies of the laboratory analytical reports.

2.4 Soil Gas Point Installation

At the request of RIDEM, AP Enterprise directed ATC to install additional permanent soil gas points (SGPs) along the property 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 an ATC crew mobilized to the property. Seven (7) peripheral SGPs (SG-5, SG-6, SG-7, SG-8, SG-9, SG-10 and SG-11) were installed linearly every 50 feet along the edge of the Property boundary near SG-3. The seven (7) SGPs were installed in the vadose zone to a depth of 2.5 feet below grade using a slam bar and ¼ inch OD polyethylene tubing terminating with an AMS slotted stainless steel soil gas point. The SGP were secured at grade with a small concrete pad.

TDS installed the original four permanent SGPs (SG-1, SG-2, SG-3 and SG-4) in April of 2017. Each of the original 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 the 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.

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 July 31, 2018, ATC conducted the fifth 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 in **Appendix E** on Table 2.

On July 31, 2018, methane was only in monitoring point SG-3 at a concentration of 7.7%, which is within methane's lower and upper explosive limits of 5% to 15%. 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 points SG-3 at 2% and SG-10 at 1%. The carbon dioxide concentrations ranged from non-detectable up to 10.4% at SG-3. The oxygen concentrations ranged from atmospheric (approximately 19.9%) down to 5.2% at SG-3. Table 2 summarizes the monitoring results.

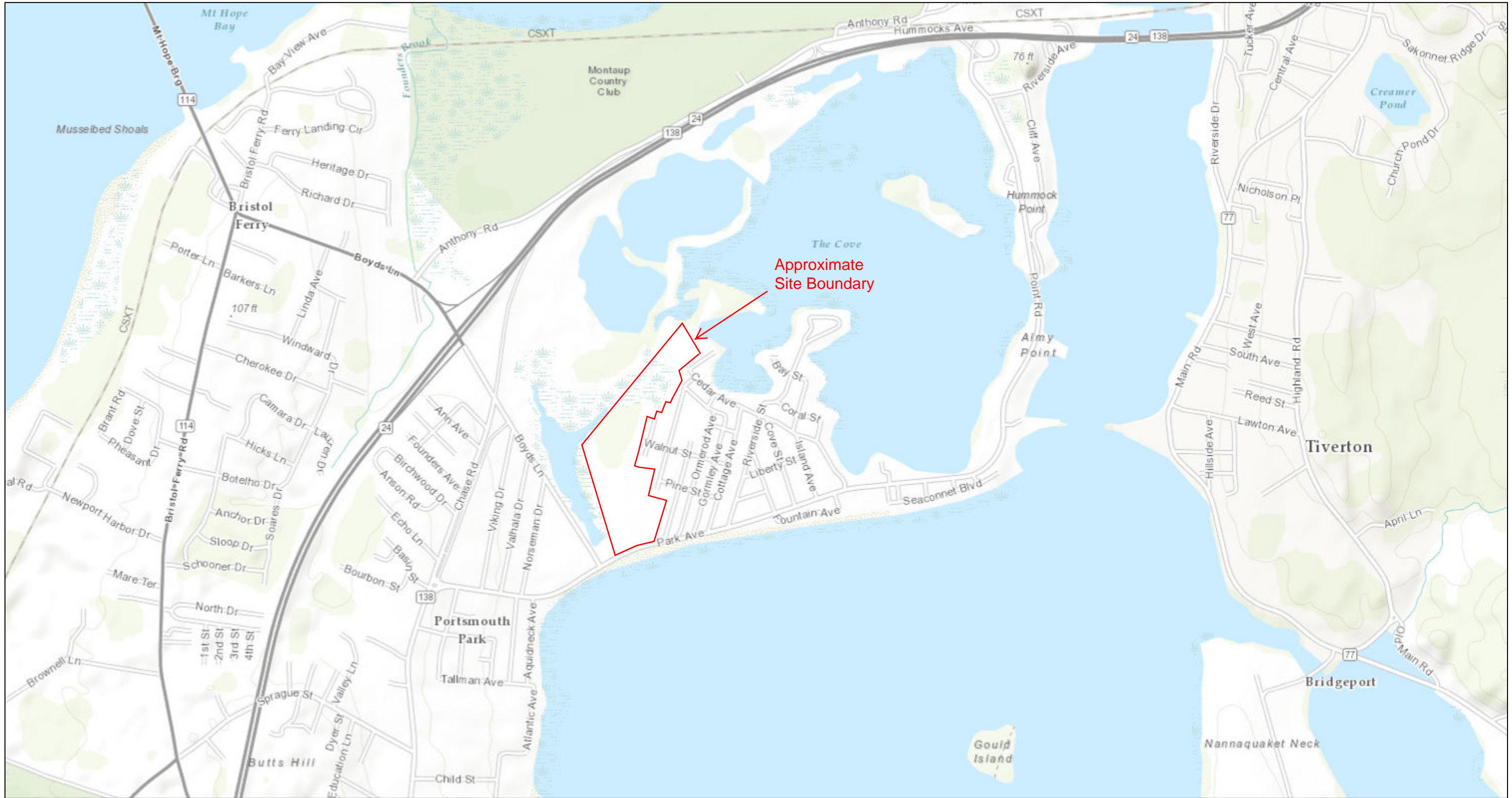
3.0 CONCLUSIONS

ATC has performed the fifth 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 metals and no VOCs were reported above applicable GA Groundwater Objectives in the four groundwater samples collected on July 31, 2018.
- The methane concentration measured during this fifth quarterly monitoring event at SG-3 increased since the last quarter, but remained lower than the first quarterly event (May 2017); the other 10 monitoring points were "non-detect" for methane. During this sampling event, the methane concentration at SGP SG-3 was detected at 7.7 which is within methane's lower and upper explosive limits of 5% to 15%. The fence-line methane concentrations 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.
- The closest building to SG-3 is approximately 200 feet to the east. In ATC's opinion, current conditions do not constitute a threat, however conditions will be closely monitored.
- Hydrogen sulfide was detected at monitoring points SG 3 at 2% and SG-10 at 1%. The carbon dioxide concentrations ranged from non-detectable up to 10.4% at SG-3. The oxygen concentrations ranged from atmospheric (approximately 19.9%) down to 5.2% at SG-3.

Appendix A

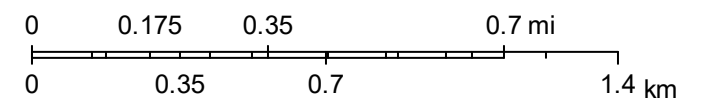
RIDEM Environmental Resource Map



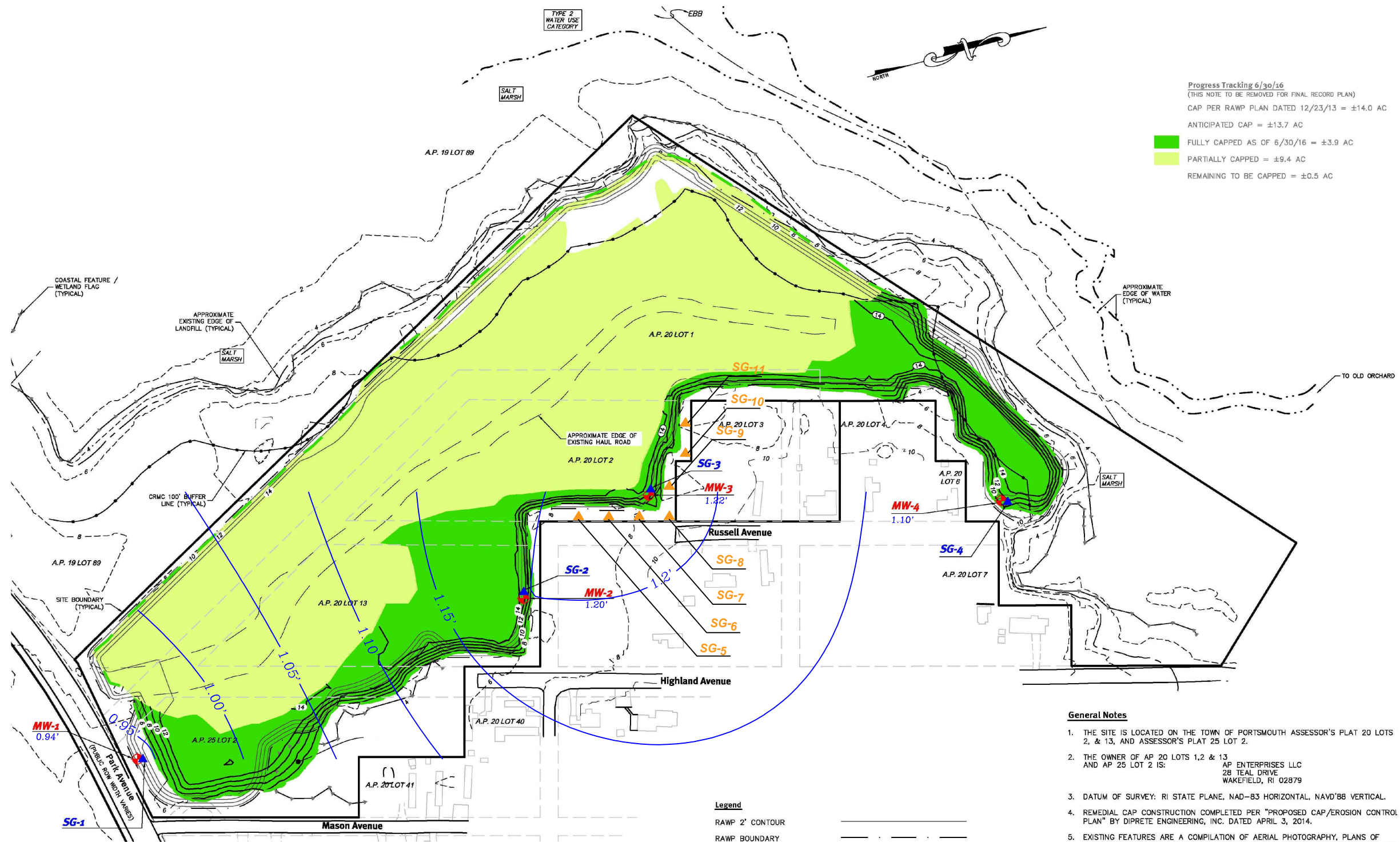
July 7, 2017

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

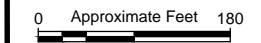


Progress Tracking 6/30/16
 (THIS NOTE TO BE REMOVED FOR FINAL RECORD PLAN)
 CAP PER RAWP PLAN DATED 12/23/13 = ±14.0 AC
 ANTICIPATED CAP = ±13.7 AC
 FULLY CAPPED AS OF 6/30/16 = ±3.9 AC
 PARTIALLY CAPPED = ±9.4 AC
 REMAINING TO BE CAPPED = ±0.5 AC

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'

- 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



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

DRAWING TITLE:
Former Portsmouth Landfill

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

DRAWN BY:	KS	FIGURE NO.
CHECKED BY:	TO	2
PROJECT NO.	3010000238	
DATE:	Sept. 10, 2018	

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

Appendix B

WATER LEVEL MEASUREMENTS

<i>Location:</i>	Portsmouth Landfill, Park Ave.	<i>ATC #:</i>	3010000238
<i>Client:</i>	AP Enterprise LLC	<i>Date:</i>	7/31/18
<i>Instrument:</i>	ORS Interface Probe	<i>Gauged By:</i>	AK
<i>Checked By:</i>	KS		

WELL #	M.P. ELEVATIONS	DEPTH TO PRODUCT	DEPTH TO WATER	PRODUCT THICKNESS	EQUIVALENT HD ELEV.
MW-1	8.84	0.00	7.90	0.00	0.94
MW-2	16.25	0.00	15.05	0.00	1.20
MW-3	16.40	0.00	15.18	0.00	1.22
MW-4	14.09	0.00	12.99	0.00	1.10

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)

Appendix C

Table 1															
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	Dichlorodifluoromethane	Diethyl Ether	Isopropylbenzene
MW-1	5/31/17	ND (0.025)	0.062	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)	0.068	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)	0.101	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	0.034	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.0005)	0.050	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)	0.060	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	0.031	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)	0.084	ND (0.0025)	ND (0.010)	0.005	ND (0.025)	ND (0.005)	0.044	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/17	ND (0.002)	0.177	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	0.0012	ND (0.0010)	ND (0.0020)	ND (0.0010)	0.0034
	12/21/17	ND (0.002)	0.187	ND (0.0025)	ND (0.010)	0.014	ND (0.025)	ND (0.025)	0.089	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/18	ND (0.0005)	0.094	ND (0.0025)	0.017	ND (0.010)	ND (0.025)	ND (0.025)	0.051	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	ND (0.0005)	0.119	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	0.060	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	0.0012
MW-3	5/31/17	ND (0.025)	0.681	ND (0.0025)	ND (0.010)	ND (0.002)	ND (0.025)	ND (0.005)	0.035	0.0011	0.0040	ND (0.0010)	ND (0.0020)	0.0011	0.0240
	9/8/17	ND (0.002)	0.606	ND (0.0025)	ND (0.010)	0.027	ND (0.025)	ND (0.005)	ND (0.025)	ND (0.0010)	0.0026	ND (0.0010)	ND (0.0020)	0.0014	0.0025
	12/21/17	ND (0.002)	1.01	ND (0.0025)	ND (0.010)	0.025	ND (0.025)	ND (0.025)	0.0010	0.0029	ND (0.0010)	0.0073	0.0017	0.0191	
	4/13/18	ND (0.0005)	0.460	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	0.029	ND (0.025)	0.0012	0.0082	ND (0.0010)	0.0051	ND (0.0010)	0.0117
	7/31/18	ND (0.0005)	0.654	ND (0.0025)	ND (0.010)	ND (0.010)	ND (0.025)	ND (0.025)	ND (0.025)	ND (0.0010)	0.0036	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
MW-4	5/31/17	ND (0.025)	0.050	0.0043	0.057	ND (0.002)	0.042	ND (0.005)	1.53	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	9/8/2017	ND (0.002)	0.030	0.0025	0.021	ND (0.002)	ND (0.025)	ND (0.005)	0.562	ND (0.0010)	ND (0.0010)	0.0014	ND (0.0020)	ND (0.0010)	ND (0.0010)
	12/21/2017	ND (0.002)	0.040	ND (0.0025)	0.017	ND (0.010)	ND (0.025)	ND (0.025)	0.264	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	4/13/2018	0.0005	0.049	0.0036	0.043	ND (0.010)	0.055	ND (0.025)	1.90	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
	7/31/18	0.0005	0.032	ND (0.0025)	0.031	ND (0.010)	ND (0.025)	ND (0.025)	0.806	ND (0.0010)	ND (0.0010)	ND (0.0010)	ND (0.0020)	ND (0.0010)	ND (0.0010)
RIDEM GA Groundwater Objectives		0.006	2	0.005	NS	0.015	0.1	0.05	NS	0.075	0.1	NS	NS	NS	NS

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 = RIDEM GA Groundwater exceedance

Appendix D

CERTIFICATE OF ANALYSIS

Keith Sullivan
ATC Group Services
400 Reservoir Ave Ste 2C
Providence, RI 02907

RE: Former Portsmouth Landfill (301.238)
ESS Laboratory Work Order Number: 1808001

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 4:11 pm, Aug 08, 2018

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: 1808001

SAMPLE RECEIPT

The following samples were received on August 01, 2018 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
1808001-01	MW-1	Ground Water	6010C, 6020A, 8260B
1808001-02	MW-2	Ground Water	6010C, 6020A, 8260B
1808001-03	MW-3	Ground Water	6010C, 6020A, 8260B
1808001-04	MW-4	Ground Water	6010C, 6020A, 8260B
1808001-05	Trip Blank	Aqueous	8260B



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1808001

PROJECT NARRATIVE

No unusual 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. 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: 1808001

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 04-2.1 - 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
- 5035 - Solid Purge and Trap

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



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-1
Date Sampled: 07/31/18 11:20
Percent Solids: N/A

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-01
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 (0.002)		6020A		1	NAR	08/07/18 15:37	50	25	CH80247
Arsenic	ND (0.010)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Barium	0.060 (0.025)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Beryllium	ND (0.0005)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Cadmium	ND (0.0025)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Chromium	ND (0.010)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Cobalt	ND (0.010)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Copper	ND (0.010)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Lead	ND (0.010)		6010C		1	KJK	08/03/18 13:27	50	25	CH80247
Nickel	ND (0.025)		6010C		1	KJK	08/03/18 13:27	50	25	CH80247
Selenium	ND (0.025)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Silver	ND (0.005)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Thallium	ND (0.002)		6020A		1	NAR	08/07/18 15:37	50	25	CH80247
Vanadium	ND (0.010)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247
Zinc	0.031 (0.025)		6010C		1	KJK	08/02/18 21:05	50	25	CH80247



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
 Client Project ID: Former Portsmouth Landfill
 Client Sample ID: MW-1
 Date Sampled: 07/31/18 11:20
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-01
 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	08/02/18 12:44	C8H0042	CH80232
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/02/18 12:44	C8H0042	CH80232
1-Chlorohexane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
2-Butanone	ND (0.0100)		8260B		1	08/02/18 12:44	C8H0042	CH80232
2-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
2-Hexanone	ND (0.0100)		8260B		1	08/02/18 12:44	C8H0042	CH80232
4-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Acetone	ND (0.0100)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Benzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Bromobenzene	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-1
Date Sampled: 07/31/18 11:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-01
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	08/02/18 12:44	C8H0042	CH80232
Bromodichloromethane	ND (0.0006)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Bromoform	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Bromomethane	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Carbon Disulfide	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Chlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Chloroethane	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Chloroform	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Chloromethane	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Dibromochloromethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Dibromomethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Diethyl Ether	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Di-isopropyl ether	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Ethylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Hexachloroethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Isopropylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Methylene Chloride	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Naphthalene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
n-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
n-Propylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
sec-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Styrene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
tert-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Tetrachloroethene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-1
Date Sampled: 07/31/18 11:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-01
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	08/02/18 12:44	C8H0042	CH80232
Toluene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Trichloroethene	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Vinyl Acetate	ND (0.0050)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Vinyl Chloride	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Xylene O	ND (0.0010)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Xylene P,M	ND (0.0020)		8260B		1	08/02/18 12:44	C8H0042	CH80232
Xylenes (Total)	ND (0.0020)		8260B		1	08/02/18 12:44		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	111 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	94 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	110 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-2
Date Sampled: 07/31/18 15:00
Percent Solids: N/A

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-02
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 (0.002)		6020A		1	NAR	08/07/18 15:43	50	25	CH80247
Arsenic	ND (0.010)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Barium	0.119 (0.025)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Beryllium	ND (0.0005)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Cadmium	ND (0.0025)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Chromium	ND (0.010)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Cobalt	ND (0.010)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Copper	ND (0.010)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Lead	ND (0.010)		6010C		1	KJK	08/03/18 13:31	50	25	CH80247
Nickel	ND (0.025)		6010C		1	KJK	08/03/18 13:31	50	25	CH80247
Selenium	ND (0.025)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Silver	ND (0.005)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Thallium	ND (0.002)		6020A		1	NAR	08/07/18 15:43	50	25	CH80247
Vanadium	ND (0.010)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247
Zinc	0.060 (0.025)		6010C		1	KJK	08/02/18 21:09	50	25	CH80247



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
 Client Project ID: Former Portsmouth Landfill
 Client Sample ID: MW-2
 Date Sampled: 07/31/18 15:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-02
 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	08/02/18 13:10	C8H0042	CH80232
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/02/18 13:10	C8H0042	CH80232
1-Chlorohexane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
2-Butanone	ND (0.0100)		8260B		1	08/02/18 13:10	C8H0042	CH80232
2-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
2-Hexanone	ND (0.0100)		8260B		1	08/02/18 13:10	C8H0042	CH80232
4-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Acetone	ND (0.0100)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Benzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Bromobenzene	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
 Client Project ID: Former Portsmouth Landfill
 Client Sample ID: MW-2
 Date Sampled: 07/31/18 15:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-02
 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	08/02/18 13:10	C8H0042	CH80232
Bromodichloromethane	ND (0.0006)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Bromoform	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Bromomethane	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Carbon Disulfide	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Chlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Chloroethane	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Chloroform	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Chloromethane	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Dibromochloromethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Dibromomethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Diethyl Ether	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Di-isopropyl ether	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Ethylbenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Hexachloroethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Isopropylbenzene	0.0012 (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Methylene Chloride	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Naphthalene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
n-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
n-Propylbenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
sec-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Styrene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
tert-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Tetrachloroethene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-2
Date Sampled: 07/31/18 15:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-02
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	08/02/18 13:10	C8H0042	CH80232
Toluene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Trichloroethene	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Vinyl Acetate	ND (0.0050)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Vinyl Chloride	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Xylene O	ND (0.0010)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Xylene P,M	ND (0.0020)		8260B		1	08/02/18 13:10	C8H0042	CH80232
Xylenes (Total)	ND (0.0020)		8260B		1	08/02/18 13:10		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>96 %</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: 07/31/18 12:55
Percent Solids: N/A

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-03
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 (0.002)		6020A		1	NAR	08/07/18 15:48	50	25	CH80247
Arsenic	ND (0.010)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Barium	0.654 (0.025)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Beryllium	ND (0.0005)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Cadmium	ND (0.0025)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Chromium	ND (0.010)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Cobalt	ND (0.010)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Copper	ND (0.010)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Lead	0.015 (0.010)		6010C		1	KJK	08/03/18 14:14	50	25	CH80247
Nickel	ND (0.025)		6010C		1	KJK	08/03/18 13:35	50	25	CH80247
Selenium	ND (0.025)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Silver	ND (0.005)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Thallium	ND (0.002)		6020A		1	NAR	08/07/18 15:48	50	25	CH80247
Vanadium	ND (0.010)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247
Zinc	ND (0.025)		6010C		1	KJK	08/02/18 21:14	50	25	CH80247



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-3
Date Sampled: 07/31/18 12:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-03
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	08/02/18 13:36	C8H0042	CH80232
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/02/18 13:36	C8H0042	CH80232
1-Chlorohexane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
2-Butanone	ND (0.0100)		8260B		1	08/02/18 13:36	C8H0042	CH80232
2-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
2-Hexanone	ND (0.0100)		8260B		1	08/02/18 13:36	C8H0042	CH80232
4-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Acetone	ND (0.0100)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Benzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Bromobenzene	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-3
Date Sampled: 07/31/18 12:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-03
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	08/02/18 13:36	C8H0042	CH80232
Bromodichloromethane	ND (0.0006)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Bromoform	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Bromomethane	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Carbon Disulfide	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Chlorobenzene	0.0036 (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Chloroethane	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Chloroform	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Chloromethane	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Dibromochloromethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Dibromomethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Diethyl Ether	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Di-isopropyl ether	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Ethylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Hexachloroethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Isopropylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Methylene Chloride	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Naphthalene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
n-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
n-Propylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
sec-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Styrene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
tert-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Tetrachloroethene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-3
Date Sampled: 07/31/18 12:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-03
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	08/02/18 13:36	C8H0042	CH80232
Toluene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Trichloroethene	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Vinyl Acetate	ND (0.0050)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Vinyl Chloride	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Xylene O	ND (0.0010)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Xylene P,M	ND (0.0020)		8260B		1	08/02/18 13:36	C8H0042	CH80232
Xylenes (Total)	ND (0.0020)		8260B		1	08/02/18 13:36		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>93 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>97 %</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: 07/31/18 13:35
Percent Solids: N/A

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-04
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 (0.002)		6020A		1	NAR	08/07/18 15:53	50	25	CH80247
Arsenic	ND (0.010)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Barium	0.032 (0.025)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Beryllium	ND (0.0005)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Cadmium	ND (0.0025)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Chromium	ND (0.010)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Cobalt	ND (0.010)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Copper	0.031 (0.010)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Lead	ND (0.010)		6010C		1	KJK	08/03/18 13:53	50	25	CH80247
Nickel	ND (0.025)		6010C		1	KJK	08/03/18 13:53	50	25	CH80247
Selenium	ND (0.025)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Silver	ND (0.005)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Thallium	ND (0.002)		6020A		1	NAR	08/07/18 15:53	50	25	CH80247
Vanadium	ND (0.010)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247
Zinc	0.806 (0.025)		6010C		1	KJK	08/02/18 21:32	50	25	CH80247



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
 Client Project ID: Former Portsmouth Landfill
 Client Sample ID: MW-4
 Date Sampled: 07/31/18 13:35
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-04
 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	08/02/18 14:02	C8H0042	CH80232
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/02/18 14:02	C8H0042	CH80232
1-Chlorohexane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
2-Butanone	ND (0.0100)		8260B		1	08/02/18 14:02	C8H0042	CH80232
2-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
2-Hexanone	ND (0.0100)		8260B		1	08/02/18 14:02	C8H0042	CH80232
4-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Acetone	ND (0.0100)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Benzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Bromobenzene	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
 Client Project ID: Former Portsmouth Landfill
 Client Sample ID: MW-4
 Date Sampled: 07/31/18 13:35
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-04
 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	08/02/18 14:02	C8H0042	CH80232
Bromodichloromethane	ND (0.0006)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Bromoform	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Bromomethane	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Carbon Disulfide	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Chlorobenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Chloroethane	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Chloroform	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Chloromethane	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Dibromochloromethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Dibromomethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Diethyl Ether	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Di-isopropyl ether	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Ethylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Hexachloroethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Isopropylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Methylene Chloride	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Naphthalene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
n-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
n-Propylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
sec-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Styrene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
tert-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Tetrachloroethene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
Client Project ID: Former Portsmouth Landfill
Client Sample ID: MW-4
Date Sampled: 07/31/18 13:35
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
ESS Laboratory Sample ID: 1808001-04
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	08/02/18 14:02	C8H0042	CH80232
Toluene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Trichloroethene	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Vinyl Acetate	ND (0.0050)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Vinyl Chloride	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Xylene O	ND (0.0010)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Xylene P,M	ND (0.0020)		8260B		1	08/02/18 14:02	C8H0042	CH80232
Xylenes (Total)	ND (0.0020)		8260B		1	08/02/18 14:02		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>90 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>96 %</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: 07/31/18 16:45
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-05
 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	08/02/18 12:18	C8H0042	CH80232
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/02/18 12:18	C8H0042	CH80232
1-Chlorohexane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
2-Butanone	ND (0.0100)		8260B		1	08/02/18 12:18	C8H0042	CH80232
2-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
2-Hexanone	ND (0.0100)		8260B		1	08/02/18 12:18	C8H0042	CH80232
4-Chlorotoluene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Acetone	ND (0.0100)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Benzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Bromobenzene	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
 Client Project ID: Former Portsmouth Landfill
 Client Sample ID: Trip Blank
 Date Sampled: 07/31/18 16:45
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-05
 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	08/02/18 12:18	C8H0042	CH80232
Bromodichloromethane	ND (0.0006)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Bromoform	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Bromomethane	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Carbon Disulfide	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Chlorobenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Chloroethane	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Chloroform	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Chloromethane	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Dibromochloromethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Dibromomethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Diethyl Ether	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Di-isopropyl ether	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Ethylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Hexachloroethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Isopropylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Methylene Chloride	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Naphthalene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
n-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
n-Propylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
sec-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Styrene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
tert-Butylbenzene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Tetrachloroethene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
 Client Project ID: Former Portsmouth Landfill
 Client Sample ID: Trip Blank
 Date Sampled: 07/31/18 16:45
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1808001
 ESS Laboratory Sample ID: 1808001-05
 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	08/02/18 12:18	C8H0042	CH80232
Toluene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Trichloroethene	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Vinyl Acetate	ND (0.0050)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Vinyl Chloride	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Xylene O	ND (0.0010)		8260B		1	08/02/18 12:18	C8H0042	CH80232
Xylene P,M	ND (0.0020)		8260B		1	08/02/18 12:18	C8H0042	CH80232

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	108 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	86 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	109 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1808001

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 CH80247 - 3005A/200.7

Blank

Antimony	ND	0.002	mg/L							
Arsenic	ND	0.010	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	0.002	mg/L							
Vanadium	ND	0.010	mg/L							
Zinc	ND	0.025	mg/L							

LCS

Antimony	0.246	0.012	mg/L	0.2508	98	80-120				
Arsenic	0.251	0.010	mg/L	0.2500	100	80-120				
Barium	0.250	0.025	mg/L	0.2500	100	80-120				
Beryllium	0.0245	0.0005	mg/L	0.02500	98	80-120				
Cadmium	0.121	0.0025	mg/L	0.1251	96	80-120				
Chromium	0.248	0.010	mg/L	0.2500	99	80-120				
Cobalt	0.249	0.010	mg/L	0.2500	100	80-120				
Copper	0.259	0.010	mg/L	0.2500	103	80-120				
Lead	0.255	0.010	mg/L	0.2500	102	80-120				
Nickel	0.254	0.025	mg/L	0.2500	101	80-120				
Selenium	0.491	0.025	mg/L	0.4998	98	80-120				
Silver	0.129	0.005	mg/L	0.1249	103	80-120				
Thallium	0.226	0.012	mg/L	0.2502	90	80-120				
Vanadium	0.250	0.010	mg/L	0.2500	100	80-120				
Zinc	0.244	0.025	mg/L	0.2500	98	80-120				

LCS Dup

Antimony	0.236	0.012	mg/L	0.2508	94	80-120	4	20		
Arsenic	0.248	0.010	mg/L	0.2500	99	80-120	1	20		
Barium	0.247	0.025	mg/L	0.2500	99	80-120	2	20		
Beryllium	0.0238	0.0005	mg/L	0.02500	95	80-120	3	20		
Cadmium	0.118	0.0025	mg/L	0.1251	94	80-120	2	20		
Chromium	0.243	0.010	mg/L	0.2500	97	80-120	2	20		
Cobalt	0.245	0.010	mg/L	0.2500	98	80-120	1	20		
Copper	0.255	0.010	mg/L	0.2500	102	80-120	1	20		
Lead	0.252	0.010	mg/L	0.2500	101	80-120	1	20		
Nickel	0.253	0.025	mg/L	0.2500	101	80-120	0.4	20		
Selenium	0.480	0.025	mg/L	0.4998	96	80-120	2	20		
Silver	0.127	0.005	mg/L	0.1249	102	80-120	1	20		



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1808001

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 CH80247 - 3005A/200.7

Thallium	0.222	0.012	mg/L	0.2502		89	80-120	2	20	
Vanadium	0.246	0.010	mg/L	0.2500		98	80-120	2	20	
Zinc	0.240	0.025	mg/L	0.2500		96	80-120	2	20	

8260B Volatile Organic Compounds

Batch CH80232 - 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: 1808001

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 CH80232 - 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							
Xylenes (Total)	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0270		mg/L	0.02500		108	70-130			
Surrogate: 4-Bromofluorobenzene	0.0225		mg/L	0.02500		90	70-130			
Surrogate: Dibromofluoromethane	0.0268		mg/L	0.02500		107	70-130			
Surrogate: Toluene-d8	0.0245		mg/L	0.02500		98	70-130			

LCS

1,1,1,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130			
1,1,1-Trichloroethane	10.8		ug/L	10.00		108	70-130			
1,1,2,2-Tetrachloroethane	8.93		ug/L	10.00		89	70-130			



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
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ESS Laboratory Work Order: 1808001

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 CH80232 - 5030B

1,1,2-Trichloroethane	10.2		ug/L	10.00		102	70-130			
1,1-Dichloroethane	9.90		ug/L	10.00		99	70-130			
1,1-Dichloroethene	9.91		ug/L	10.00		99	70-130			
1,1-Dichloropropene	10.6		ug/L	10.00		106	70-130			
1,2,3-Trichlorobenzene	9.57		ug/L	10.00		96	70-130			
1,2,3-Trichloropropane	8.51		ug/L	10.00		85	70-130			
1,2,4-Trichlorobenzene	9.89		ug/L	10.00		99	70-130			
1,2,4-Trimethylbenzene	8.87		ug/L	10.00		89	70-130			
1,2-Dibromo-3-Chloropropane	9.11		ug/L	10.00		91	70-130			
1,2-Dibromoethane	10.7		ug/L	10.00		107	70-130			
1,2-Dichlorobenzene	9.73		ug/L	10.00		97	70-130			
1,2-Dichloroethane	10.6		ug/L	10.00		106	70-130			
1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,3,5-Trimethylbenzene	8.97		ug/L	10.00		90	70-130			
1,3-Dichlorobenzene	9.79		ug/L	10.00		98	70-130			
1,3-Dichloropropane	10.5		ug/L	10.00		105	70-130			
1,4-Dichlorobenzene	10.1		ug/L	10.00		101	70-130			
1,4-Dioxane - Screen	170		ug/L	200.0		85	0-332			
1-Chlorohexane	7.97		ug/L	10.00		80	70-130			
2,2-Dichloropropane	10.6		ug/L	10.00		106	70-130			
2-Butanone	47.0		ug/L	50.00		94	70-130			
2-Chlorotoluene	9.10		ug/L	10.00		91	70-130			
2-Hexanone	45.4		ug/L	50.00		91	70-130			
4-Chlorotoluene	9.46		ug/L	10.00		95	70-130			
4-Isopropyltoluene	9.00		ug/L	10.00		90	70-130			
4-Methyl-2-Pentanone	42.8		ug/L	50.00		86	70-130			
Acetone	45.2		ug/L	50.00		90	70-130			
Benzene	9.91		ug/L	10.00		99	70-130			
Bromobenzene	9.81		ug/L	10.00		98	70-130			
Bromochloromethane	10.2		ug/L	10.00		102	70-130			
Bromodichloromethane	10.2		ug/L	10.00		102	70-130			
Bromoform	10.9		ug/L	10.00		109	70-130			
Bromomethane	12.4		ug/L	10.00		124	70-130			
Carbon Disulfide	10.6		ug/L	10.00		106	70-130			
Carbon Tetrachloride	11.1		ug/L	10.00		111	70-130			
Chlorobenzene	10.4		ug/L	10.00		104	70-130			
Chloroethane	11.4		ug/L	10.00		114	70-130			
Chloroform	10.5		ug/L	10.00		105	70-130			
Chloromethane	11.0		ug/L	10.00		110	70-130			
cis-1,2-Dichloroethene	10.4		ug/L	10.00		104	70-130			
cis-1,3-Dichloropropene	9.94		ug/L	10.00		99	70-130			
Dibromochloromethane	10.3		ug/L	10.00		103	70-130			
Dibromomethane	10.0		ug/L	10.00		100	70-130			
Dichlorodifluoromethane	9.75		ug/L	10.00		98	70-130			
Diethyl Ether	9.17		ug/L	10.00		92	70-130			



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services
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ESS Laboratory Work Order: 1808001

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 CH80232 - 5030B

Di-isopropyl ether	9.42		ug/L	10.00		94	70-130			
Ethyl tertiary-butyl ether	8.96		ug/L	10.00		90	70-130			
Ethylbenzene	9.09		ug/L	10.00		91	70-130			
Hexachlorobutadiene	10.5		ug/L	10.00		105	70-130			
Hexachloroethane	10.7		ug/L	10.00		107	70-130			
Isopropylbenzene	8.36		ug/L	10.00		84	70-130			
Methyl tert-Butyl Ether	9.12		ug/L	10.00		91	70-130			
Methylene Chloride	10.1		ug/L	10.00		101	70-130			
Naphthalene	7.24		ug/L	10.00		72	70-130			
n-Butylbenzene	8.66		ug/L	10.00		87	70-130			
n-Propylbenzene	8.68		ug/L	10.00		87	70-130			
sec-Butylbenzene	9.04		ug/L	10.00		90	70-130			
Styrene	8.63		ug/L	10.00		86	70-130			
tert-Butylbenzene	8.44		ug/L	10.00		84	70-130			
Tertiary-amyl methyl ether	8.81		ug/L	10.00		88	70-130			
Tetrachloroethene	9.67		ug/L	10.00		97	70-130			
Tetrahydrofuran	10.9		ug/L	10.00		109	70-130			
Toluene	10.1		ug/L	10.00		101	70-130			
trans-1,2-Dichloroethene	10.6		ug/L	10.00		106	70-130			
trans-1,3-Dichloropropene	10.1		ug/L	10.00		101	70-130			
Trichloroethene	9.78		ug/L	10.00		98	70-130			
Trichlorofluoromethane	12.3		ug/L	10.00		123	70-130			
Vinyl Acetate	8.64		ug/L	10.00		86	70-130			
Vinyl Chloride	10.8		ug/L	10.00		108	70-130			
Xylene O	9.78		ug/L	10.00		98	70-130			
Xylene P,M	20.3		ug/L	20.00		102	70-130			
Xylenes (Total)	30.1		mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0254		mg/L	0.02500		102	70-130			
Surrogate: 4-Bromofluorobenzene	0.0251		mg/L	0.02500		101	70-130			
Surrogate: Dibromofluoromethane	0.0264		mg/L	0.02500		106	70-130			
Surrogate: Toluene-d8	0.0238		mg/L	0.02500		95	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	9.95		ug/L	10.00		100	70-130	2	25	
1,1,1-Trichloroethane	10.6		ug/L	10.00		106	70-130	2	25	
1,1,2,2-Tetrachloroethane	8.71		ug/L	10.00		87	70-130	2	25	
1,1,2-Trichloroethane	9.65		ug/L	10.00		96	70-130	6	25	
1,1-Dichloroethane	9.48		ug/L	10.00		95	70-130	4	25	
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130	4	25	
1,1-Dichloropropene	10.2		ug/L	10.00		102	70-130	4	25	
1,2,3-Trichlorobenzene	9.52		ug/L	10.00		95	70-130	0.5	25	
1,2,3-Trichloropropane	8.47		ug/L	10.00		85	70-130	0.5	25	
1,2,4-Trichlorobenzene	9.66		ug/L	10.00		97	70-130	2	25	
1,2,4-Trimethylbenzene	8.87		ug/L	10.00		89	70-130	0	25	
1,2-Dibromo-3-Chloropropane	9.68		ug/L	10.00		97	70-130	6	25	
1,2-Dibromoethane	10.4		ug/L	10.00		104	70-130	3	25	



CERTIFICATE OF ANALYSIS

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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 CH80232 - 5030B

1,2-Dichlorobenzene	9.92		ug/L	10.00		99	70-130	2	25	
1,2-Dichloroethane	10.7		ug/L	10.00		107	70-130	1	25	
1,2-Dichloropropane	9.72		ug/L	10.00		97	70-130	4	25	
1,3,5-Trimethylbenzene	8.74		ug/L	10.00		87	70-130	3	25	
1,3-Dichlorobenzene	9.72		ug/L	10.00		97	70-130	0.7	25	
1,3-Dichloropropane	10.4		ug/L	10.00		104	70-130	1	25	
1,4-Dichlorobenzene	10.1		ug/L	10.00		101	70-130	0.3	25	
1,4-Dioxane - Screen	177		ug/L	200.0		88	0-332	4	200	
1-Chlorohexane	7.96		ug/L	10.00		80	70-130	0.1	25	
2,2-Dichloropropane	10.4		ug/L	10.00		104	70-130	1	25	
2-Butanone	46.5		ug/L	50.00		93	70-130	1	25	
2-Chlorotoluene	9.07		ug/L	10.00		91	70-130	0.3	25	
2-Hexanone	45.3		ug/L	50.00		91	70-130	0.2	25	
4-Chlorotoluene	9.03		ug/L	10.00		90	70-130	5	25	
4-Isopropyltoluene	8.96		ug/L	10.00		90	70-130	0.4	25	
4-Methyl-2-Pentanone	42.9		ug/L	50.00		86	70-130	0.2	25	
Acetone	43.1		ug/L	50.00		86	70-130	5	25	
Benzene	9.86		ug/L	10.00		99	70-130	0.5	25	
Bromobenzene	9.66		ug/L	10.00		97	70-130	2	25	
Bromochloromethane	10.3		ug/L	10.00		103	70-130	0.6	25	
Bromodichloromethane	9.79		ug/L	10.00		98	70-130	4	25	
Bromoform	11.2		ug/L	10.00		112	70-130	3	25	
Bromomethane	12.1		ug/L	10.00		121	70-130	2	25	
Carbon Disulfide	10.5		ug/L	10.00		105	70-130	0.9	25	
Carbon Tetrachloride	11.3		ug/L	10.00		113	70-130	2	25	
Chlorobenzene	10.1		ug/L	10.00		101	70-130	4	25	
Chloroethane	12.0		ug/L	10.00		120	70-130	6	25	
Chloroform	10.3		ug/L	10.00		103	70-130	2	25	
Chloromethane	10.5		ug/L	10.00		105	70-130	4	25	
cis-1,2-Dichloroethene	10.2		ug/L	10.00		102	70-130	2	25	
cis-1,3-Dichloropropene	9.87		ug/L	10.00		99	70-130	0.7	25	
Dibromochloromethane	10.1		ug/L	10.00		101	70-130	2	25	
Dibromomethane	10.4		ug/L	10.00		104	70-130	4	25	
Dichlorodifluoromethane	9.43		ug/L	10.00		94	70-130	3	25	
Diethyl Ether	9.09		ug/L	10.00		91	70-130	0.9	25	
Di-isopropyl ether	9.45		ug/L	10.00		94	70-130	0.3	25	
Ethyl tertiary-butyl ether	8.91		ug/L	10.00		89	70-130	0.6	25	
Ethylbenzene	9.07		ug/L	10.00		91	70-130	0.2	25	
Hexachlorobutadiene	9.85		ug/L	10.00		98	70-130	6	25	
Hexachloroethane	10.8		ug/L	10.00		108	70-130	0.8	25	
Isopropylbenzene	8.28		ug/L	10.00		83	70-130	1	25	
Methyl tert-Butyl Ether	9.32		ug/L	10.00		93	70-130	2	25	
Methylene Chloride	9.94		ug/L	10.00		99	70-130	1	25	
Naphthalene	7.27		ug/L	10.00		73	70-130	0.4	25	
n-Butylbenzene	8.22		ug/L	10.00		82	70-130	5	25	



CERTIFICATE OF ANALYSIS

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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 CH80232 - 5030B

n-Propylbenzene	8.61		ug/L	10.00		86	70-130	0.8	25	
sec-Butylbenzene	8.93		ug/L	10.00		89	70-130	1	25	
Styrene	8.63		ug/L	10.00		86	70-130	0	25	
tert-Butylbenzene	8.64		ug/L	10.00		86	70-130	2	25	
Tertiary-amyl methyl ether	8.49		ug/L	10.00		85	70-130	4	25	
Tetrachloroethene	9.87		ug/L	10.00		99	70-130	2	25	
Tetrahydrofuran	9.64		ug/L	10.00		96	70-130	13	25	
Toluene	9.77		ug/L	10.00		98	70-130	4	25	
trans-1,2-Dichloroethene	10.4		ug/L	10.00		104	70-130	2	25	
trans-1,3-Dichloropropene	9.58		ug/L	10.00		96	70-130	6	25	
Trichloroethene	9.98		ug/L	10.00		100	70-130	2	25	
Trichlorofluoromethane	11.7		ug/L	10.00		117	70-130	5	25	
Vinyl Acetate	8.24		ug/L	10.00		82	70-130	5	25	
Vinyl Chloride	10.7		ug/L	10.00		107	70-130	0.4	25	
Xylene O	9.64		ug/L	10.00		96	70-130	1	25	
Xylene P,M	18.8		ug/L	20.00		94	70-130	8	25	
Xylenes (Total)	28.5		mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0266		mg/L	0.02500		106	70-130			
Surrogate: 4-Bromofluorobenzene	0.0251		mg/L	0.02500		101	70-130			
Surrogate: Dibromofluoromethane	0.0261		mg/L	0.02500		104	70-130			
Surrogate: Toluene-d8	0.0235		mg/L	0.02500		94	70-130			



CERTIFICATE OF ANALYSIS

Client Name: ATC Group Services

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Notes and Definitions

- U Analyte included in the analysis, but not detected
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1808001

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

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

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

Massachusetts Potable and Non Potable Water: M-RI002

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

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

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

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

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

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

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

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

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

www.esslaboratory.com

CHAIN OF CUSTODY

Page ____ of ____

Turn Time <input checked="" type="checkbox"/> Standard Other _____ If faster than 5 days, prior approval by laboratory is required # _____	Reporting Limits	ESS LAB PROJECT ID 1808001
State where samples were collected from: MA <input type="checkbox"/> RI <input checked="" type="checkbox"/> CT <input type="checkbox"/> NH <input type="checkbox"/> NJ <input type="checkbox"/> NY <input type="checkbox"/> ME <input type="checkbox"/> Other _____	Electronic Deliverable Yes ___ No ___	
Is this project for any of the following: MA-MCP Navy USACE Other _____	Format: Excel ___ Access ___ PDF ___ Other _____	

Co. Name		Project #		Project Name (20 Char. or less)		Number of Containers	Type of Containers	Write Required Analysis									
Contact Person		Address		City State Zip PO#				VOC (8260)	Sb	As	Pb	Cd	Cr	Pb	Ni	Zn	
ATC Group Services		301.238		former Portsmouth Landfill													
Keith Sullivan		400 Reservoir Ave, Suite 2C		Providence RI 02907													
Telephone # 401.714.0306		Fax #		Email Address keith.sullivan@atcgs.com													
ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code										
1	7/31/18	11:20 am			GW	mw-1	4	3V	X	X	X	X	X				
2	↓	3:00			↓	mw-2	↓	↓	↓	↓	↓	↓	↓				
3	↓	12:55			↓	mw-3	↓	↓	↓	↓	↓	↓	↓				
4	↓	1:35			↓	mw-4	↓	↓	↓	↓	↓	↓	↓				
5	7/31/18	4:45			↓	Trip Blank	2	1	↓	↓	↓	↓	↓	↓	↓		

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters

Cooler Present Yes ___ No ___ Internal Use Only Preservation Code 1- NP, 2- HCl, 3- H₂SO₄, 4- HNO₃, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- _____

Seals Intact ___ Yes ___ No NA: ___ [] Pickup

Cooler Temp: 4.7 ICE RC [] Technicians _____

Comments: GA Gw Limits

Relinquished by: (Signature) <i>Keith Sullivan</i>	Date/Time 7/31/18 5:00	Received by: (Signature) <i>R. Carlson</i>	Date/Time 8/1/18 8:50	Relinquished by: (Signature) <i>R. Carlson</i>	Date/Time 8/1/18 1908	Received by: (Signature) <i>J. [Signature]</i>	Date/Time 8/1/18 10:15
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time

Appendix E

**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 ₂ 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
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
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
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
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
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
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
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
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
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
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

Lower explosive limit (LEL) of methane (CH4) is 5%
Landfill gases measured using a Landtech Gem 2000 Plus Landfill Gas Monitor