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March 10, 2020
File No. 03.0033554.60

Mr. Joseph Martella
Office of Waste Management
Rhode Island Department of Environmental Management
235 Promenade Street, 3rd Floor
Providence, RI 02908-5767

Re: Bottom Sediment Sampling and Analysis
Proposed Drywell Closure Plan
Fields Point Liquefaction Project
642 Allens Avenue
Providence, Rhode Island
RIDEM Case No. SR-28-1152

Dear Mr. Martella:

On behalf of our Client, National Grid LNG, LLC d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) has prepared this letter summarizing the results associated with sampling of bottom sediment collected from an on-site drywell on March 5, 2020. The sediment sample was collected in compliance with the Department's request to characterize the bottom sediment of the drywell located to the north of the former Propane House foundation. As discussed in GZA's letter dated February 19, 2020, National Grid intends to close the drywell as part of the Fields Point Liquefaction Project (FPLP).

This letter is subject to the attached Limitations.

SAMPLING RESULTS AND RECOMMENDATIONS

In accordance with National Grid communications with the Department on March 5, 2020, a sample of the bottom sediment from the drywell was collected with a soil hand auger. The sample was observed to have slight coal-tar like odors and slight sheen. The sample was transported under chain-of-custody protocol to ESS Laboratory located in Cranston, Rhode Island and analyzed for Volatile Organic Compounds (VOCs) and Total Petroleum Hydrocarbons (TPH) using EPA Methods 8260 and 8100M, respectfully. As indicated in the attached laboratory report, the sediment sample contained compounds consistent with the historical use of the Site as a Manufactured Gas Plant (MGP). None of the VOCs were detected at levels above the Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC), with the exception of 1,2-Dibromoethane, which was detected at 0.293 mg/kg compared to the I/C-DEC of 0.07 mg/kg. This compound, also known as ethylene dibromide, is not typically associated with former MGP operations. TPH was detected in the sediment sample at a concentration of 17,300 mg/kg, which is above the I/C-DEC of 2,500 mg/kg but below the Upper Concentration Limit (UCL) of 30,000 mg/kg.



Based on the sample results, we believe the drywell should be closed in accordance with the procedure outlined in GZA's letter dated February 19, 2020.

Should you have any questions or comments regarding the information presented herein, please do not hesitate to contact the undersigned or Amy Willoughby at (781) 907-3644 or William Howard at (401) 784-7490.

Very truly yours,
GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink, appearing to read "S. Haupt", written over a light blue circular stamp.

Sara Haupt, P.E.
Assistant Project Manager

A handwritten signature in blue ink, appearing to read "Igor Runge", written over a light blue circular stamp.

Igor Runge, Ph.D., P.H.
Consultant/Reviewer

A handwritten signature in blue ink, appearing to read "Margaret S. Kilpatrick", written over a light blue circular stamp.

Margaret S. Kilpatrick, P.E.
Associate Principal

MSK/sd

Attachments: Limitations
Laboratory Analytical Report

Cc: Amy Willoughby (National Grid)
William Howard (National Grid)

\\GZAPROVIDENCE\Jobs\ENV\33554.60.msk\Work\Drywell Closure\Sample results and letter\33554.60 Drywell Sampling Letter final.docx



LIMITATIONS

GEOHYDROLOGICAL LIMITATIONS

1. This *letter* has been prepared on behalf of and for the exclusive use of National Grid, solely for use in documenting the conditions observed at the property located at 642 Allens Avenue in Providence, Rhode Island ("Site"). This letter and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of GZA or National Grid.
2. GZA's work was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and GZA observed that degree of care and skill generally exercised by other consultants under similar circumstances and conditions. GZA's findings and conclusions must be considered not as scientific certainties, but rather as our professional opinion concerning the significance of the limited data gathered during the course of the study. No other warranty, express or implied is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during the performance of our Site investigations.
3. The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based upon services performed and observations made by GZA.



LABORATORY ANALYTICAL REPORT



CERTIFICATE OF ANALYSIS

Sophia Narkiewicz
GZA GeoEnvironmental, Inc.
188 Valley Street
Providence, RI 02909

RE: FPLP (33554.60)
ESS Laboratory Work Order Number: 20C0189

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 4:31 pm, Mar 09, 2020

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: GZA GeoEnvironmental, Inc.
Client Project ID: FPLP

ESS Laboratory Work Order: 20C0189

SAMPLE RECEIPT

The following samples were received on March 05, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
20C0189-01	SED-1	Soil	8100M, 8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: FPLP

ESS Laboratory Work Order: 20C0189

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Methanol

20C0189-01

Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).

4-Bromofluorobenzene (65% @ 70-130%), Toluene-d8 (66% @ 70-130%)

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. 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: GZA GeoEnvironmental, Inc.
Client Project ID: FPLP

ESS Laboratory Work Order: 20C0189

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: GZA GeoEnvironmental, Inc.
 Client Project ID: FPLP
 Client Sample ID: SED-1
 Date Sampled: 03/05/20 13:45
 Percent Solids: 69
 Initial Volume: 21.6
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0189
 ESS Laboratory Sample ID: 20C0189-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<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 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,1,1-Trichloroethane	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,1,2,2-Tetrachloroethane	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,1,2-Trichloroethane	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,1-Dichloroethane	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,1-Dichloroethene	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,1-Dichloropropene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2,3-Trichlorobenzene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2,3-Trichloropropane	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2,4-Trichlorobenzene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2,4-Trimethylbenzene	8.32 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2-Dibromo-3-Chloropropane	ND (1.46)	0.293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2-Dibromoethane	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2-Dichlorobenzene	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2-Dichloroethane	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,2-Dichloropropane	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,3,5-Trimethylbenzene	2.67 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,3-Dichlorobenzene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,3-Dichloropropane	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,4-Dichlorobenzene	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
1,4-Dioxane - Screen	ND (58.5)	55.6	8260B		1	03/09/20 12:42	D0C0151	DC00934
1-Chlorohexane	ND (0.293)	0.117	8260B		1	03/09/20 12:42	D0C0151	DC00934
2,2-Dichloropropane	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
2-Butanone	ND (1.46)	0.995	8260B		1	03/09/20 12:42	D0C0151	DC00934
2-Chlorotoluene	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
2-Hexanone	ND (1.46)	0.439	8260B		1	03/09/20 12:42	D0C0151	DC00934
4-Chlorotoluene	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
4-Isopropyltoluene	J 0.120 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
4-Methyl-2-Pentanone	ND (1.46)	0.468	8260B		1	03/09/20 12:42	D0C0151	DC00934
Acetone	ND (1.46)	0.790	8260B		1	03/09/20 12:42	D0C0151	DC00934
Benzene	3.58 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Bromobenzene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: FPLP
 Client Sample ID: SED-1
 Date Sampled: 03/05/20 13:45
 Percent Solids: 69
 Initial Volume: 21.6
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0189
 ESS Laboratory Sample ID: 20C0189-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<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 (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
Bromodichloromethane	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Bromoform	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Bromomethane	ND (0.293)	0.117	8260B		1	03/09/20 12:42	D0C0151	DC00934
Carbon Disulfide	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Carbon Tetrachloride	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Chlorobenzene	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Chloroethane	ND (0.293)	0.117	8260B		1	03/09/20 12:42	D0C0151	DC00934
Chloroform	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Chloromethane	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
cis-1,2-Dichloroethene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
cis-1,3-Dichloropropene	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
Dibromochloromethane	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Dibromomethane	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
Dichlorodifluoromethane	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
Diethyl Ether	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
Di-isopropyl ether	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Ethyl tertiary-butyl ether	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Ethylbenzene	20.6 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Hexachlorobutadiene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Isopropylbenzene	0.576 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Methyl tert-Butyl Ether	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
Methylene Chloride	J 0.260 (0.585)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Naphthalene	534 (14.6)	2.93	8260B		50	03/09/20 14:54	D0C0151	DC00934
n-Butylbenzene	J 0.219 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
n-Propylbenzene	0.357 (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
sec-Butylbenzene	J 0.0673 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Styrene	3.56 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
tert-Butylbenzene	ND (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Tertiary-amyl methyl ether	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Tetrachloroethene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Tetrahydrofuran	ND (1.46)	0.468	8260B		1	03/09/20 12:42	D0C0151	DC00934



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: FPLP
 Client Sample ID: SED-1
 Date Sampled: 03/05/20 13:45
 Percent Solids: 69
 Initial Volume: 21.6
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 20C0189
 ESS Laboratory Sample ID: 20C0189-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<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>
Toluene	7.63 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
trans-1,2-Dichloroethene	ND (0.293)	0.0878	8260B		1	03/09/20 12:42	D0C0151	DC00934
trans-1,3-Dichloropropene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Trichloroethene	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Trichlorofluoromethane	ND (0.293)	0.117	8260B		1	03/09/20 12:42	D0C0151	DC00934
Vinyl Acetate	ND (0.293)	0.146	8260B		1	03/09/20 12:42	D0C0151	DC00934
Vinyl Chloride	ND (0.293)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Xylene O	8.32 (0.293)	0.0293	8260B		1	03/09/20 12:42	D0C0151	DC00934
Xylene P,M	20.0 (0.585)	0.0585	8260B		1	03/09/20 12:42	D0C0151	DC00934
Xylenes (Total)	28.3 (0.585)		8260B		1	03/09/20 12:42		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	117 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	65 %	SM	70-130
<i>Surrogate: Dibromofluoromethane</i>	114 %		70-130
<i>Surrogate: Toluene-d8</i>	66 %	SM	70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: FPLP
Client Sample ID: SED-1
Date Sampled: 03/05/20 13:45
Percent Solids: 69
Initial Volume: 2.11
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20C0189
ESS Laboratory Sample ID: 20C0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: ZLC
Prepared: 3/5/20 18:45

8100M Total Petroleum Hydrocarbons

<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>
Total Petroleum Hydrocarbons	17300 (517)		8100M		1	03/06/20 8:35	D0C0090	DC00450
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		86 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: FPLP

ESS Laboratory Work Order: 20C0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC00934 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,1-Trichloroethane	ND	0.200	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.200	mg/kg wet							
1,1,2-Trichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethane	ND	0.200	mg/kg wet							
1,1-Dichloroethene	ND	0.200	mg/kg wet							
1,1-Dichloropropene	ND	0.200	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,3-Trichloropropane	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.200	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	1.00	mg/kg wet							
1,2-Dibromoethane	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichloroethane	ND	0.200	mg/kg wet							
1,2-Dichloropropane	ND	0.200	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichloropropane	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dioxane - Screen	ND	40.0	mg/kg wet							
1-Chlorohexane	ND	0.200	mg/kg wet							
2,2-Dichloropropane	ND	0.200	mg/kg wet							
2-Butanone	ND	1.00	mg/kg wet							
2-Chlorotoluene	ND	0.200	mg/kg wet							
2-Hexanone	ND	1.00	mg/kg wet							
4-Chlorotoluene	ND	0.200	mg/kg wet							
4-Isopropyltoluene	ND	0.200	mg/kg wet							
4-Methyl-2-Pentanone	ND	1.00	mg/kg wet							
Acetone	ND	1.00	mg/kg wet							
Benzene	ND	0.200	mg/kg wet							
Bromobenzene	ND	0.200	mg/kg wet							
Bromochloromethane	ND	0.200	mg/kg wet							
Bromodichloromethane	ND	0.200	mg/kg wet							
Bromoform	ND	0.200	mg/kg wet							
Bromomethane	ND	0.200	mg/kg wet							
Carbon Disulfide	ND	0.200	mg/kg wet							
Carbon Tetrachloride	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Chloroethane	ND	0.200	mg/kg wet							
Chloroform	ND	0.200	mg/kg wet							
Chloromethane	ND	0.200	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.200	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.200	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: FPLP

ESS Laboratory Work Order: 20C0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC00934 - 5035

Dibromochloromethane	ND	0.200	mg/kg wet							
Dibromomethane	ND	0.200	mg/kg wet							
Dichlorodifluoromethane	ND	0.200	mg/kg wet							
Diethyl Ether	ND	0.200	mg/kg wet							
Di-isopropyl ether	ND	0.200	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.200	mg/kg wet							
Ethylbenzene	ND	0.200	mg/kg wet							
Hexachlorobutadiene	ND	0.200	mg/kg wet							
Isopropylbenzene	ND	0.200	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.200	mg/kg wet							
Methylene Chloride	0.0720	0.400	mg/kg wet							J
Naphthalene	ND	0.200	mg/kg wet							
n-Butylbenzene	ND	0.200	mg/kg wet							
n-Propylbenzene	ND	0.200	mg/kg wet							
sec-Butylbenzene	ND	0.200	mg/kg wet							
Styrene	ND	0.200	mg/kg wet							
tert-Butylbenzene	ND	0.200	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.200	mg/kg wet							
Tetrachloroethene	ND	0.200	mg/kg wet							
Tetrahydrofuran	ND	1.00	mg/kg wet							
Toluene	ND	0.200	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.200	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.200	mg/kg wet							
Trichloroethene	ND	0.200	mg/kg wet							
Trichlorofluoromethane	ND	0.200	mg/kg wet							
Vinyl Acetate	ND	0.200	mg/kg wet							
Vinyl Chloride	ND	0.200	mg/kg wet							
Xylene O	ND	0.200	mg/kg wet							
Xylene P,M	ND	0.400	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	5.00		mg/kg wet	5.000		100	70-130			
Surrogate: 4-Bromofluorobenzene	5.00		mg/kg wet	5.000		100	70-130			
Surrogate: Dibromofluoromethane	5.00		mg/kg wet	5.000		100	70-130			
Surrogate: Toluene-d8	5.00		mg/kg wet	5.000		100	70-130			

LCS

1,1,1,2-Tetrachloroethane	2.02	0.200	mg/kg wet	2.000		101	70-130			
1,1,1-Trichloroethane	1.88	0.200	mg/kg wet	2.000		94	70-130			
1,1,2,2-Tetrachloroethane	1.89	0.200	mg/kg wet	2.000		94	70-130			
1,1,2-Trichloroethane	1.73	0.200	mg/kg wet	2.000		86	70-130			
1,1-Dichloroethane	1.82	0.200	mg/kg wet	2.000		91	70-130			
1,1-Dichloroethene	1.75	0.200	mg/kg wet	2.000		87	70-130			
1,1-Dichloropropene	1.90	0.200	mg/kg wet	2.000		95	70-130			
1,2,3-Trichlorobenzene	1.90	0.200	mg/kg wet	2.000		95	70-130			
1,2,3-Trichloropropane	1.79	0.200	mg/kg wet	2.000		90	70-130			
1,2,4-Trichlorobenzene	1.76	0.200	mg/kg wet	2.000		88	70-130			
1,2,4-Trimethylbenzene	2.02	0.200	mg/kg wet	2.000		101	70-130			



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5035/8260B Volatile Organic Compounds / Methanol

Batch DC00934 - 5035

1,2-Dibromo-3-Chloropropane	1.88	1.00	mg/kg wet	2.000		94	70-130			
1,2-Dibromoethane	2.05	0.200	mg/kg wet	2.000		102	70-130			
1,2-Dichlorobenzene	1.85	0.200	mg/kg wet	2.000		92	70-130			
1,2-Dichloroethane	1.86	0.200	mg/kg wet	2.000		93	70-130			
1,2-Dichloropropane	1.83	0.200	mg/kg wet	2.000		92	70-130			
1,3,5-Trimethylbenzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
1,3-Dichlorobenzene	1.84	0.200	mg/kg wet	2.000		92	70-130			
1,3-Dichloropropane	2.01	0.200	mg/kg wet	2.000		101	70-130			
1,4-Dichlorobenzene	1.93	0.200	mg/kg wet	2.000		96	70-130			
1,4-Dioxane - Screen	38.1	40.0	mg/kg wet	40.00		95	44-241			J
1-Chlorohexane	1.82	0.200	mg/kg wet	2.000		91	70-130			
2,2-Dichloropropane	1.92	0.200	mg/kg wet	2.000		96	70-130			
2-Butanone	8.58	1.00	mg/kg wet	10.00		86	70-130			
2-Chlorotoluene	1.78	0.200	mg/kg wet	2.000		89	70-130			
2-Hexanone	8.86	1.00	mg/kg wet	10.00		89	70-130			
4-Chlorotoluene	1.82	0.200	mg/kg wet	2.000		91	70-130			
4-Isopropyltoluene	1.82	0.200	mg/kg wet	2.000		91	70-130			
4-Methyl-2-Pentanone	9.14	1.00	mg/kg wet	10.00		91	70-130			
Acetone	7.91	1.00	mg/kg wet	10.00		79	70-130			
Benzene	1.89	0.200	mg/kg wet	2.000		94	70-130			
Bromobenzene	1.81	0.200	mg/kg wet	2.000		91	70-130			
Bromochloromethane	1.87	0.200	mg/kg wet	2.000		94	70-130			
Bromodichloromethane	1.99	0.200	mg/kg wet	2.000		100	70-130			
Bromoform	1.95	0.200	mg/kg wet	2.000		98	70-130			
Bromomethane	2.29	0.200	mg/kg wet	2.000		114	70-130			
Carbon Disulfide	1.85	0.200	mg/kg wet	2.000		92	70-130			
Carbon Tetrachloride	2.10	0.200	mg/kg wet	2.000		105	70-130			
Chlorobenzene	1.92	0.200	mg/kg wet	2.000		96	70-130			
Chloroethane	1.92	0.200	mg/kg wet	2.000		96	70-130			
Chloroform	1.82	0.200	mg/kg wet	2.000		91	70-130			
Chloromethane	2.19	0.200	mg/kg wet	2.000		109	70-130			
cis-1,2-Dichloroethene	1.83	0.200	mg/kg wet	2.000		92	70-130			
cis-1,3-Dichloropropene	2.05	0.200	mg/kg wet	2.000		102	70-130			
Dibromochloromethane	1.85	0.200	mg/kg wet	2.000		92	70-130			
Dibromomethane	1.84	0.200	mg/kg wet	2.000		92	70-130			
Dichlorodifluoromethane	1.70	0.200	mg/kg wet	2.000		85	70-130			
Diethyl Ether	1.78	0.200	mg/kg wet	2.000		89	70-130			
Di-isopropyl ether	1.74	0.200	mg/kg wet	2.000		87	70-130			
Ethyl tertiary-butyl ether	1.84	0.200	mg/kg wet	2.000		92	70-130			
Ethylbenzene	1.87	0.200	mg/kg wet	2.000		93	70-130			
Hexachlorobutadiene	1.92	0.200	mg/kg wet	2.000		96	70-130			
Isopropylbenzene	1.81	0.200	mg/kg wet	2.000		90	70-130			
Methyl tert-Butyl Ether	1.93	0.200	mg/kg wet	2.000		96	70-130			
Methylene Chloride	1.73	0.400	mg/kg wet	2.000		86	70-130			
Naphthalene	1.94	0.200	mg/kg wet	2.000		97	70-130			



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 20C0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch DC00934 - 5035

n-Butylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130			
n-Propylbenzene	1.83	0.200	mg/kg wet	2.000		92	70-130			
sec-Butylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130			
Styrene	1.78	0.200	mg/kg wet	2.000		89	70-130			
tert-Butylbenzene	1.88	0.200	mg/kg wet	2.000		94	70-130			
Tertiary-amy methyl ether	1.87	0.200	mg/kg wet	2.000		94	70-130			
Tetrachloroethene	1.78	0.200	mg/kg wet	2.000		89	70-130			
Tetrahydrofuran	2.28	1.00	mg/kg wet	2.000		114	70-130			
Toluene	1.73	0.200	mg/kg wet	2.000		86	70-130			
trans-1,2-Dichloroethene	1.78	0.200	mg/kg wet	2.000		89	70-130			
trans-1,3-Dichloropropene	1.85	0.200	mg/kg wet	2.000		92	70-130			
Trichloroethene	1.91	0.200	mg/kg wet	2.000		96	70-130			
Trichlorofluoromethane	1.87	0.200	mg/kg wet	2.000		93	70-130			
Vinyl Acetate	2.05	0.200	mg/kg wet	2.000		103	70-130			
Vinyl Chloride	1.99	0.200	mg/kg wet	2.000		100	70-130			
Xylene O	1.89	0.200	mg/kg wet	2.000		94	70-130			
Xylene P,M	4.00	0.400	mg/kg wet	4.000		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	4.85		mg/kg wet	5.000		97	70-130			
Surrogate: 4-Bromofluorobenzene	4.83		mg/kg wet	5.000		97	70-130			
Surrogate: Dibromofluoromethane	4.99		mg/kg wet	5.000		100	70-130			
Surrogate: Toluene-d8	4.92		mg/kg wet	5.000		98	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	2.08	0.200	mg/kg wet	2.000		104	70-130	3	25	
1,1,1-Trichloroethane	1.80	0.200	mg/kg wet	2.000		90	70-130	5	25	
1,1,2,2-Tetrachloroethane	1.88	0.200	mg/kg wet	2.000		94	70-130	0.2	25	
1,1,2-Trichloroethane	1.83	0.200	mg/kg wet	2.000		92	70-130	6	25	
1,1-Dichloroethane	1.68	0.200	mg/kg wet	2.000		84	70-130	8	25	
1,1-Dichloroethene	1.61	0.200	mg/kg wet	2.000		81	70-130	8	25	
1,1-Dichloropropene	1.67	0.200	mg/kg wet	2.000		83	70-130	13	25	
1,2,3-Trichlorobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	5	25	
1,2,3-Trichloropropane	1.98	0.200	mg/kg wet	2.000		99	70-130	10	25	
1,2,4-Trichlorobenzene	1.71	0.200	mg/kg wet	2.000		86	70-130	3	25	
1,2,4-Trimethylbenzene	2.11	0.200	mg/kg wet	2.000		105	70-130	4	25	
1,2-Dibromo-3-Chloropropane	2.03	1.00	mg/kg wet	2.000		101	70-130	8	25	
1,2-Dibromoethane	2.06	0.200	mg/kg wet	2.000		103	70-130	0.4	25	
1,2-Dichlorobenzene	1.94	0.200	mg/kg wet	2.000		97	70-130	5	25	
1,2-Dichloroethane	1.75	0.200	mg/kg wet	2.000		87	70-130	6	25	
1,2-Dichloropropane	1.52	0.200	mg/kg wet	2.000		76	70-130	18	25	
1,3,5-Trimethylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	4	25	
1,3-Dichlorobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	8	25	
1,3-Dichloropropane	2.11	0.200	mg/kg wet	2.000		106	70-130	5	25	
1,4-Dichlorobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130	3	25	
1,4-Dioxane - Screen	39.8	40.0	mg/kg wet	40.00		100	44-241	5	200	J
1-Chlorohexane	1.90	0.200	mg/kg wet	2.000		95	70-130	4	25	
2,2-Dichloropropane	1.71	0.200	mg/kg wet	2.000		85	70-130	12	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
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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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5035/8260B Volatile Organic Compounds / Methanol

Batch DC00934 - 5035

2-Butanone	8.58	1.00	mg/kg wet	10.00		86	70-130	0	25	
2-Chlorotoluene	1.86	0.200	mg/kg wet	2.000		93	70-130	4	25	
2-Hexanone	9.60	1.00	mg/kg wet	10.00		96	70-130	8	25	
4-Chlorotoluene	1.99	0.200	mg/kg wet	2.000		99	70-130	9	25	
4-Isopropyltoluene	1.91	0.200	mg/kg wet	2.000		96	70-130	5	25	
4-Methyl-2-Pentanone	9.09	1.00	mg/kg wet	10.00		91	70-130	0.5	25	
Acetone	7.31	1.00	mg/kg wet	10.00		73	70-130	8	25	
Benzene	1.73	0.200	mg/kg wet	2.000		86	70-130	9	25	
Bromobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	9	25	
Bromochloromethane	1.77	0.200	mg/kg wet	2.000		88	70-130	5	25	
Bromodichloromethane	1.99	0.200	mg/kg wet	2.000		99	70-130	0.2	25	
Bromoform	2.09	0.200	mg/kg wet	2.000		104	70-130	7	25	
Bromomethane	2.53	0.200	mg/kg wet	2.000		127	70-130	10	25	
Carbon Disulfide	1.73	0.200	mg/kg wet	2.000		86	70-130	6	25	
Carbon Tetrachloride	1.89	0.200	mg/kg wet	2.000		94	70-130	11	25	
Chlorobenzene	2.05	0.200	mg/kg wet	2.000		102	70-130	7	25	
Chloroethane	2.01	0.200	mg/kg wet	2.000		101	70-130	5	25	
Chloroform	1.71	0.200	mg/kg wet	2.000		86	70-130	6	25	
Chloromethane	2.13	0.200	mg/kg wet	2.000		107	70-130	2	25	
cis-1,2-Dichloroethene	1.74	0.200	mg/kg wet	2.000		87	70-130	5	25	
cis-1,3-Dichloropropene	1.88	0.200	mg/kg wet	2.000		94	70-130	9	25	
Dibromochloromethane	1.90	0.200	mg/kg wet	2.000		95	70-130	2	25	
Dibromomethane	1.75	0.200	mg/kg wet	2.000		88	70-130	5	25	
Dichlorodifluoromethane	1.79	0.200	mg/kg wet	2.000		89	70-130	5	25	
Diethyl Ether	1.70	0.200	mg/kg wet	2.000		85	70-130	5	25	
Di-isopropyl ether	1.71	0.200	mg/kg wet	2.000		85	70-130	2	25	
Ethyl tertiary-butyl ether	1.64	0.200	mg/kg wet	2.000		82	70-130	11	25	
Ethylbenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	10	25	
Hexachlorobutadiene	2.26	0.200	mg/kg wet	2.000		113	70-130	16	25	
Isopropylbenzene	1.97	0.200	mg/kg wet	2.000		99	70-130	9	25	
Methyl tert-Butyl Ether	1.72	0.200	mg/kg wet	2.000		86	70-130	11	25	
Methylene Chloride	1.75	0.400	mg/kg wet	2.000		87	70-130	1	25	
Naphthalene	1.97	0.200	mg/kg wet	2.000		98	70-130	2	25	
n-Butylbenzene	2.01	0.200	mg/kg wet	2.000		101	70-130	7	25	
n-Propylbenzene	1.92	0.200	mg/kg wet	2.000		96	70-130	5	25	
sec-Butylbenzene	1.89	0.200	mg/kg wet	2.000		95	70-130	0.8	25	
Styrene	2.03	0.200	mg/kg wet	2.000		102	70-130	13	25	
tert-Butylbenzene	1.93	0.200	mg/kg wet	2.000		96	70-130	3	25	
Tertiary-amyl methyl ether	1.60	0.200	mg/kg wet	2.000		80	70-130	16	25	
Tetrachloroethene	1.87	0.200	mg/kg wet	2.000		94	70-130	5	25	
Tetrahydrofuran	2.25	1.00	mg/kg wet	2.000		112	70-130	1	25	
Toluene	1.90	0.200	mg/kg wet	2.000		95	70-130	10	25	
trans-1,2-Dichloroethene	1.66	0.200	mg/kg wet	2.000		83	70-130	7	25	
trans-1,3-Dichloropropene	1.71	0.200	mg/kg wet	2.000		86	70-130	8	25	
Trichloroethene	1.74	0.200	mg/kg wet	2.000		87	70-130	9	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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5035/8260B Volatile Organic Compounds / Methanol

Batch DC00934 - 5035

Trichlorofluoromethane	1.84	0.200	mg/kg wet	2.000		92	70-130	2	25	
Vinyl Acetate	1.88	0.200	mg/kg wet	2.000		94	70-130	9	25	
Vinyl Chloride	1.82	0.200	mg/kg wet	2.000		91	70-130	9	25	
Xylene O	2.15	0.200	mg/kg wet	2.000		107	70-130	13	25	
Xylene P,M	4.18	0.400	mg/kg wet	4.000		104	70-130	4	25	
Surrogate: 1,2-Dichloroethane-d4	4.67		mg/kg wet	5.000		93	70-130			
Surrogate: 4-Bromofluorobenzene	5.28		mg/kg wet	5.000		106	70-130			
Surrogate: Dibromofluoromethane	4.60		mg/kg wet	5.000		92	70-130			
Surrogate: Toluene-d8	5.39		mg/kg wet	5.000		108	70-130			

8100M Total Petroleum Hydrocarbons

Batch DC00450 - 3546

Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacotane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	4.64		mg/kg wet	5.000		93	40-140			

LCS										
Decane (C10)	1.6	0.2	mg/kg wet	2.500		64	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		75	40-140			
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		90	40-140			
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		93	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Nonadecane (C19)	3.1	0.2	mg/kg wet	2.500		126	40-140			
Nonane (C9)	1.4	0.2	mg/kg wet	2.500		57	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Total Petroleum Hydrocarbons	30.9	37.5	mg/kg wet	35.00		88	40-140			
Triacotane (C30)	2.3	0.2	mg/kg wet	2.500		94	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: FPLP

ESS Laboratory Work Order: 20C0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8100M Total Petroleum Hydrocarbons

Batch DC00450 - 3546

<i>Surrogate: O-Terphenyl</i>	3.87		mg/kg wet	5.000		77	40-140			
LCS Dup										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		67	40-140	4	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		92	40-140	0.5	25	
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		74	40-140	2	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		91	40-140	1	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		92	40-140	0.4	25	
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.5	25	
Nonadecane (C19)	3.1	0.2	mg/kg wet	2.500		124	40-140	1	25	
Nonane (C9)	1.4	0.2	mg/kg wet	2.500		57	30-140	0.07	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		94	40-140	0.1	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		86	40-140	1	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		92	40-140	0.5	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		79	40-140	0.9	25	
Total Petroleum Hydrocarbons	30.8	37.5	mg/kg wet	35.00		88	40-140	0.2	25	
Triacotane (C30)	2.3	0.2	mg/kg wet	2.500		93	40-140	0.7	25	
<i>Surrogate: O-Terphenyl</i>	3.78		mg/kg wet	5.000		76	40-140			



CERTIFICATE OF ANALYSIS

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Notes and Definitions

- U Analyte included in the analysis, but not detected
- SM Surrogate recovery(ies) outside of criteria due to matrix (UCM/coelution/matrix is present) (SM).
- J Reported between MDL and MRL
- 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
- MF Membrane Filtration
- MPN Most Probably Number
- TNTC Too numerous to Count
- CFU Colony Forming Units



CERTIFICATE OF ANALYSIS

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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 Sample and Cooler Receipt Checklist

Client: GZA - Providence, RI - GZA/KPB
 Shipped/Delivered Via: Client

ESS Project ID: 20C0189
 Date Received: 3/5/2020
 Project Due Date: 3/6/2020
 Days for Project: 1 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 3.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

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

Sample Receiving Notes:

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

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
1	20695	Yes	N/A	Yes	8 oz jar	NP	
1	20696	Yes	N/A	Yes	8 oz jar	NP	
1	20697	Yes	N/A	Yes	VOA Vial	MeOH	

2nd Review

- Were all containers scanned into storage/lab?** Initials: [Signature]
- Are barcode labels on correct containers? Yes / No
 - Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
 - Are all Hex Chrome stickers attached? Yes / No / NA
 - Are all QC stickers attached? Yes / No / NA
 - Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: [Signature] Date & Time: 3/5/20 1745
 Reviewed By: [Signature] Date & Time: 3/5/20 1747
 Delivered By: [Signature] Date & Time: 3/5/20 1747

ESS Laboratory

Division of Thielisch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # **20C089**

Turn Time: Rush: 24-hr

Regulatory State: RI

Is this project for any of the following?

MA-MCP CT-RCP RGP Remediation

Project # 33559.00 Project Name FPLP

Address 188 Valley St. Providence RI Suite 300

City Providence State RI Zip Code PO #

Telephone Number 401 421 4140 Email Address Sophia.Novick@esg.com

Company Name GZA GEDENVICENMENTAL

Contact Person Sophia Novick

Sample ID

Sample Matrix SOIL

Collection Date 3/5/20 Collection Time 1345

Sample Type grab

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other

Preservation Code: 1-Num Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc2, NaOH 9-NH4Cl 10-DI H2O 11-Other

Number of Containers: 1

Electronic Deliverables Limit Checker Excel Other (Please Specify) →

Analysis VOC

TDH

✓

✓

Laboratory Use Only

Cooler Present:

Seals Intact:

Cooler Temperature: 21 °C

Relinquished by: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Received By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Relinquished by: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Received By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Relinquished by: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Received By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Sampled by: Sara Haupt

Comments:

Please specify "Other" preservative and containers types in this space

Relinquished By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Received By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Relinquished By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Received By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Relinquished By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Received By: (Signature, Date & Time)

[Signature] 3/5/2020 1732

Received By: (Signature, Date & Time)