



**SITE INVESTIGATION REPORT
ADDENDUM
FORMER TIDEWATER FACILITY
AND MERRY STREET
PAWTUCKET, RHODE ISLAND**

PREPARED FOR:
RIDEM
Providence, Rhode Island

PREPARED BY:
GZA GeoEnvironmental, Inc.
Providence, Rhode Island

July 2014
File No. 43654.00

Copyright© 2014 GZA GeoEnvironmental, Inc.

July 9, 2014
GZA File No. 05.0043654.00

Via E-Mail and U.S. Mail



Mr. Joseph Martella
Rhode Island Department of Environmental Management (RIDEM)
Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02908

530 Broadway
Providence
Rhode Island
02909
401-421-4140
FAX 401-751-8613
<http://www.gza.com>

Re: Site Investigation Report Addendum
Focused Soil and Groundwater Sampling and Analysis
Former Tidewater Facility
Pawtucket, Rhode Island

Dear Mr. Martella:

On behalf of the Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) is pleased to present to the Rhode Island Department of Environmental Management (RIDEM) the attached *Site Investigation Report Addendum (SIR Addendum)* for the Former Tidewater Manufactured Gas Plant (MGP) and Power Plant Site located in Pawtucket, Rhode Island (the Site).

The activities described in the attached were performed in general accordance with the RIDEM-approved, February 2014 *Supplemental Site Investigation Work Plan (SSIWP)* prepared by GZA. This *SIR Addendum* presents the results of focused soil and groundwater gas sampling and analyses activities performed to further assess the localized detection of benzene in soil gas at SG-105S within the natural gas regulator station fence line.

We look forward to continue to work cooperatively with RIDEM to advance this Site to compliance with the applicable regulations. Should you have any questions or comments regarding the information presented herein, please do not hesitate to contact the undersigned or Michele Leone from National Grid at (781) 907-3651.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink that reads 'Sophia Narkiewicz'.

Sophia Narkiewicz
Project Engineer
401-421-4140
Sophia.narkiewicz@gza.com

A handwritten signature in blue ink that reads 'Margaret S. Kilpatrick'.

Margaret S. Kilpatrick, P.E.
Senior Project Manager
401-427-2719
margaret.kilpatrick@gza.com

A handwritten signature in blue ink that reads 'James J. Clark'.

James J. Clark, P.E., LEP
Principal
860-858-3134
james.clark@gza.com

Attachment: *Site Investigation Report Addendum*

cc: Barbara Morin, RIDEM
Michele Leone, National Grid

J:\ENV\43654.msk\Reports\2014 SIR Addendum\43654 00 SIR Addendum CL01.docx

TABLE OF CONTENTS

	<u>Page</u>
1.00 INTRODUCTION	1
1.10 PROJECT OBJECTIVES	1
1.20 SCOPE OF SERVICES	3
1.30 REPORT ORGANIZATION	3
2.00 SUPPLEMENTAL SITE INVESTIGATION PROGRAM	3
2.10 ABUTTER NOTIFICATION	4
2.20 SOIL AND GROUNDWATER EXPLORATION PROGRAM	4
2.20.1 Soil Borings and Field Screening	4
2.20.2 Monitoring Well Installation	5
2.20.3 Real Time Monitoring	6
2.20.4 Soil Boring Laboratory Analyses	7
2.20.5 Groundwater Depths and Elevations	7
2.20.6 Groundwater Sampling and Analysis	7
2.30 QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES AND SAMPLES	8
3.00 INVESTIGATION RESULTS	10
3.10 HYDROGEOLOGIC CONDITIONS	10
3.20 FIELD SCREENING AND VISUAL OBSERVATIONS	10
3.30 SOIL ANALYTICAL RESULTS	11
3.40 GROUNDWATER ANALYTICAL RESULTS	11
4.00 SUMMARY AND CONCLUSIONS	11

TABLES

TABLE NO. 1	SOIL ANALYTICAL RESULTS
TABLE NO. 2	MONITORING WELL CONSTRUCTION AND WELL DEVELOPMENT DETAILS AND GAUGING DATA
TABLE NO. 3	GROUNDWATER ANALYTICAL RESULTS



TABLE OF CONTENTS (Cont'd)

FIGURES

FIGURE NO. 1	LOCUS PLAN
FIGURE NO. 2	EXPLORATION LOCATION PLAN



APPENDICES

APPENDIX A	LIMITATIONS
APPENDIX B	FEBRUARY 21, 2014 ABUTTER NOTIFICATION
APPENDIX C	BORING LOGS
APPENDIX D	INVESTIGATION DERIVED WASTE DISPOSAL MANIFESTS
APPENDIX E	REAL TIME AIR MONITORING RESULTS
APPENDIX F	SOIL LABORATORY DATA CERTIFICATES
APPENDIX G	LOW FLOW SAMPLING LOGS
APPENDIX H	GROUNDWATER LABORATORY DATA CERTIFICATES

1.00 INTRODUCTION



On behalf of The Narragansett Electric Company, d/b/a National Grid (National Grid), GZA GeoEnvironmental Inc. (GZA) has prepared this *Site Investigation Report (SIR) Addendum* describing investigation activities that were performed at the former Tidewater facility located at the terminus of Tidewater and Merry Streets in Pawtucket, Rhode Island (refer to Figure 1 for the Site *Locus Plan*). This property is herein referred to as the Site.

The investigation described herein was performed consistent with the February 7, 2014 *Supplemental Site Investigation Work Plan (SSIWP)* and February 28, 2014 Addendum Letter to the SSIWP, which were prepared by GZA on behalf of National Grid and submitted to the Rhode Island Department of Environmental Management (RIDEM). As described in the SSIWP and addendum, these investigations were designed to address a data gap identified during the soil gas testing performed at the Site between July and August 2013. These investigations involved focused soil and groundwater testing within and adjacent to the active natural gas regulator station located on the western portion of the Site.

The Site is located on the west side of the Seekonk River and is bound to the west by residential properties, to the south and southwest by the Francis J. Varieur School and Max Read Athletic Field, and to the north by undeveloped property owned by the City of Pawtucket. It encompasses approximately 23 acres and was the location of the former Tidewater Manufactured Gas Plant (MGP) and the Pawtucket No. 1 Power Station. The Site is currently largely vacant with the exception of an active natural gas regulator station, an active switching station and electric substation, and two transmission towers owned and operated by National Grid. A *Site Investigation Data Report (SIDR)* was submitted to RIDEM in January of 2011. This SIDR was prepared consistent with applicable sections of Rule 7.00 of the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations–DEM-DSR-01-93). A *Remedial Alternative Evaluation* report was submitted to RIDEM on July 29, 2011. This evaluation, combined with the January 2011 SIDR fulfilled the requirements of Sections 7.03, 7.04, and 7.05 of the Remediation Regulations for a *Site Investigation Report (SIR)*. This report serves as an addendum to the SIR.

This report and its conclusions are subject to the Limitations presented in Appendix A and are subject to modification if subsequent information is developed by GZA or any other party.

1.10 PROJECT OBJECTIVES

In response to public comments regarding the potential for vapor migration from the Tidewater Site towards neighboring properties, RIDEM requested that National Grid evaluate the quality of soil gas at the Tidewater Site. Between July and August 2013, GZA completed soil gas sampling and testing at the Site consistent with a May 2013 SSIWP which National Grid submitted to RIDEM. The results of this soil gas sampling and



testing were submitted to RIDEM in an October 2013 *Site Investigation Report (SIR) Addendum*. Soil gas samples were collected from both interior and perimeter locations to assess the quality of soil gas at the Tidewater Site and near neighboring properties. The results indicated that potential migration of impacted soil gas from the Tidewater Site does not pose a risk to the neighboring properties and structures. The results of the soil gas investigation program do not alter the conclusions presented in the SIR prepared for the Site.

As described in the October 2013 *SIR Addendum*, benzene was detected in the shallow soil gas sample identified as SG-105S, collected at a depth of 5 feet below ground surface (bgs). As shown on Figure 2, SG-105 is located proximate to the perimeter of the Site, near the natural gas regulator station and is located at least 120 feet from an occupied building. At this location, benzene was detected in shallow soil gas at a concentration of 1,700 $\mu\text{g}/\text{m}^3$ during our July 2013 sampling event. This soil gas concentration is below the Connecticut Department of Energy and Environmental Protection (CTDEEP) residential criteria and above both the New Jersey Department of Environmental Protection (NJDEP) residential and industrial/commercial screening levels and the Massachusetts Department of Environmental Protection (MADEP) residential and industrial/commercial screening levels¹. The concentration of benzene detected in the deeper (collected at 11 feet bgs) soil gas sample from SG-105D were well below the above-described regulatory screening levels and criteria. To confirm that soil gas was not migrating from SG-105S toward the neighboring buildings, an additional probe (SG-114S) was installed as part of the August 2013 soil gas investigation. As shown on Figure 2, SG-114S is located approximately 75 feet to the south of SG-105S and at least 70 feet from an occupied building. The concentrations detected in the soil gas sample collected from 5 feet bgs at location SG-114S were well below regulatory screening levels and criteria from nearby states suggesting the detection of benzene at SG-105S was likely from a localized source.

Additional soil and groundwater sampling was recommended in our October 2013 *SIR Addendum* to further assess the localized detection of benzene in soil gas at SG-105S within the natural gas regulator station fence line. In February 2014, National Grid submitted a SSIWP describing the proposed soil and groundwater investigation plan to RIDEM. As described further herein, this investigation consisted of the performance of four (4) test borings (TB-400 to TB-403), two (2) of which were completed as groundwater monitoring wells (TB-400/MW-400 and TB-401/MW-401) proximate to soil gas location SG-105S, as well as the collection of soil and groundwater samples for laboratory analysis.

For further details regarding existing and historic Site conditions, including Site plans, previous Site investigations, hydrogeologic setting and observed impacts, please refer to the January 2011 SIDR and the October 2013 *SIR Addendum* which are available on the Tidewater website (www.tidewatersite.com).

¹ RIDEM has not established soil gas screening levels or criteria to evaluate the potential for vapor intrusion. Soil gas results were compared to criteria and/or screening values for nearby states, specifically to soil gas criteria published by the CTDEEP and to soil gas screening levels published by the NJDEP and the MADEP. For further details, please refer to GZA's October 2013 Soil Gas *SIR Addendum*.

1.20 SCOPE OF WORK

The following summarizes the scope of these supplemental investigations which were performed consistent with our February 2014 SSIWP Addendum. Any deviations from the work plan were relatively minor and did not affect the generated data or the conclusions of this report.



- Performance of four (4) soil borings proximate to the natural gas regulator station to further characterize the nature and extent of benzene and other volatile organic compounds (VOCs). Soil samples were collected continuously during the performance of the borings. The samples were collected for soil classification, observation for the presence of environmental impacts, and field-screening. Eight (8) soil samples were submitted for analytical testing of VOCs via EPA Method 8260B.
- Installation of two (2) groundwater monitoring wells.
- Collection of groundwater samples from the two (2) newly installed monitoring wells. Prior to sampling, the wells were developed and evaluated for the presence of light non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) using an electronic oil/water interface probe. Groundwater samples were analyzed for VOCs using EPA Method 8260B.
- Preparation of this *SIR Addendum*.

1.30 REPORT ORGANIZATION

This *SIR Addendum* is organized as follows:

- Section 1.00 provides an introduction to the project and presents the primary objective;
- Section 2.00 describes the supplemental investigations performed;
- Section 3.00 provides an evaluation of conditions encountered during the performance of these supplemental investigations; and
- Section 4.00 presents a summary of the investigation results along with our conclusions and recommendations.

2.00 SUPPLEMENTAL SITE INVESTIGATION PROGRAM

This investigation program was performed consistent with our February 2014 SSIWP and/or information subsequently requested by RIDEM. The following sections describe the investigation activities performed.



2.10 ABUTTER NOTIFICATION

In accordance with Section 7.07A of the Remediation Regulations and the October 2013 Public Involvement Plan (PIP) for the Tidewater Site, GZA identified and subsequently provided notifications to abutting property owners and tenants, including those additional interested parties on the Tidewater mailing list, to inform them of the planned environmental investigations. The abutter notifications were documented in a letter dated February 21, 2014, which was subsequently provided to RIDEM. This notification was also sent via email to those parties who elected to sign up for the Tidewater email list. A copy of the notification is provided in Appendix B.

2.20 SOIL AND GROUNDWATER EXPLORATION PROGRAM

The following sections describe the exploration and analytical testing program completed between April 3, 2014 and April 17, 2014. This field program involved the performance of four (4) soil borings (TB-400, TB-401, TB-402 and TB-403), with two (2) of the borings completed as groundwater monitoring wells (TB-400/MW-400 and TB-401/MW-401) to evaluate groundwater quality and the potential presence of non-aqueous phase liquid (NAPL). Exploration locations are shown on Figure 2. The boring locations were selected to evaluate the potential presence of soil and/or groundwater impacts associated with the detection of benzene in soil gas at SG-105S. The groundwater monitoring well locations were selected specifically such that one was located hydraulically upgradient (MW-400) and downgradient (MW-401) from SG-105(S).

Soil and groundwater samples were collected and analyzed during the investigation program in accordance with the February 2014 SSIWP. In addition, GZA performed real-time air monitoring during the utility clearance and soil boring installation work, consistent with the February 2014 SSIWP and February 2014 Addendum Letter to RIDEM.

2.20.1 Soil Borings and Field Screening

Between April 3, 2014 and April 4, 2014, GZA observed the installation of four (4) soil test borings by New England Geotech, LLC of Jamestown, RI. All of the borings were advanced utilizing a Geoprobe™ rig. The borings were extended to depths ranging from 20 to 25 feet bgs. Soil samples were collected continuously during the advancement of the borings at approximately 2-foot intervals with a 2-inch acetate sampler for the primary purposes of visual and olfactory classifications. Each boring location was initially advanced using vacuum excavation to depths of approximately 6 feet for utility clearance purposes. Utility clearance was performed by Clean Harbors Environmental Services, Inc. (CHES). During the initial clearance work, soil samples were collected from the sidewall of the boring at approximately 2-foot intervals. Groundwater monitoring wells were installed in two (2) of the four (4) borings as described below.

A GZA field engineer was present during all exploration activities to coordinate and document subsurface conditions, classify soils, prepare boring logs, field-screen soil samples, collect/prepare samples for laboratory testing, and perform real-time air monitoring.

GZA personnel photo-documented the soil within each split spoon sampler during the advancement of each boring. Copies of the photos have not been included as an appendix to this report, but can be provided upon request. Please refer to the boring logs attached in Appendix C for a description of subsurface conditions and monitoring well construction details.



The soil from each sampling interval was placed in a clean, 8-ounce glass jar. Soil samples for VOC analysis were placed in 40 milliliter (mL), methanol-preserved glass vials with septa caps. All recovered soil samples were stored in a cooler with ice and transported under chain-of-custody protocols to ESS Laboratory in Cranston, RI. Soil samples not selected for laboratory analysis were stored in a freezer by ESS Laboratory for potential subsequent analysis and/or disposal.

All soil samples recovered during the program were screened in the field for Total Volatile Organic Compounds (TVOCs) with a MiniRAE Photoionization Detector (PID) equipped with a 10.6 eV lamp and jar-head space technique prior to placing on ice. The MiniRAE PID measures relative levels of TVOCs referenced to a isobutylene-in-air-standard. Although the PID screening cannot be directly used to quantify VOC concentrations or to identify individual compounds, the results can serve as a relative indicator of VOC levels. The TVOC screening results are provided on the boring logs in Appendix C.

Upon achieving the desired depth, each boring (not slated for monitoring well installation) was backfilled with clean drill cuttings and/or clean off-Site filter sand to a depth approximately coincident with the existing ground surface.

Drilling equipment was steam cleaned between each test boring within a dedicated decontamination area located between the Former Machine Shop and the remnants of the Purifier House on the Former Gas Plant Area (FGPA) portion of the Site. All soil cuttings generated during drilling were containerized in a 55-gallon drum for disposal. Wash water (*i.e.*, decontamination water) and spent personal protective equipment (PPE) generated during the drilling program were placed into 55-gallon drums for subsequent off-Site disposal. The resulting drums were labeled and temporarily stored on-Site in a fenced enclosure located along the fence line between the FGPA and Former Power Plant Area (FPPA) adjacent to the former Purifier House and Meter Room. All investigation derived wastes (IDWs) were transported off-Site by CHES. Wash water, PPE and soil drill cutting drums were transported by CHES on May 15, 2014 to their facility in Braintree, Massachusetts. Copies of shipping records for the IDWs are included in Appendix D.

2.20.2 Monitoring Well Installation

Two (2) new monitoring wells were installed during the investigation program to further evaluate groundwater quality and the potential presence of NAPL. The monitoring wells were constructed of 2-inch Schedule 40 PVC in accordance with the standards specified in Appendix 1 of the RIDEM Groundwater Quality Regulations. Both of the wells were constructed with screens set to span the natural water table encountered during



drilling (ranging from approximately 12 to 16 feet below grade). For both wells, a sand filter pack was installed in the annular space around the well screen and extended approximately 1 foot above the well screen. The screen length of each well was approximately 10 feet. An approximate 1-foot (minimum) bentonite seal was placed above the filter pack. The remaining borehole above the bentonite was backfilled with clean native drill cuttings (when encountered) or clean off-Site filter sand. No impacted soil was used as backfill to construct the monitoring wells. A concrete surficial seal with an flush-mounted roadbox was installed to protect the wells. For additional details, please refer to the boring/well installation logs in Appendix C.

Upon completion of the monitoring well installations, the wells were allowed to stabilize over a 5 day period prior to well development. Well development activities were performed on April 9, 2014 to remove sediment build-up. This process was performed by surging a bailer repeatedly over the length of the well screen followed by the removal of at least ten (10) standing water column volumes or until the water quality was observed to be non-turbid. Groundwater was removed via a combination of bailing and pumping techniques during development.

All development water was collected in 55-gallon drums for subsequent off-Site disposal. The drummed purge water was transported off-Site on May 15, 2014 for appropriate disposal by CHES at their Braintree, Massachusetts facility. Copies of shipping records are included in Appendix D.

2.20.3 Real Time Air Monitoring

GZA performed real-time air quality monitoring during installation activities using hand held instruments consistent with the February 7, 2014 SSIWP and February 28, 2014 Addendum Letter to the SSIWP. This monitoring program included TVOCs and respirable dust in both the worker breathing zone and work zone perimeter. TVOCs were monitored using a hand held photoionization detector equipped with a 10.6 eV lamp. Particulate dust was monitored using a DustTrak portable dust meter. Equipment was calibrated at the beginning of work every day. The work zone perimeter action limit for TVOCs and dust was set at 0.1 parts per million (ppmv) and 150 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), respectively, which were consistent with the Site perimeter action limits established in the April 2011 Air Quality Monitoring Plan (AQMP) for the Tidewater Site. Additionally, GZA had a portable field gas chromatograph (Photovac Voyager) available on-Site to measure real-time benzene concentrations in the event that TVOCs were detected above the threshold levels described above for a sustained period of more than 5 minutes (i.e., TVOC readings sustained for more than 5 minutes above the 0.1 ppmv threshold). Summa canisters were also available to immediate deploy in the event that TVOCs were detected above the threshold levels for a sustained period of more than 5 minutes.

No transient (elevated reading observed for less than 5 minutes) or sustained (elevated readings observed for more than 5 minutes) readings above the threshold values were noted for either TVOCs or respirable dust during the air monitoring. As such, neither the Photovac Voyager nor the summa canisters were deployed. The air monitoring

data was posted to both the Site's website (www.tidewatersite.com) and to the bulletin boards at the end of Tidewater Street and Bowles Court on the Monday following installation. Air monitoring data graphs are included as Appendix E.

2.20.4 Soil Boring Laboratory Analyses

Subsurface soil samples were collected from each boring exploration for potential analytical testing. Nine (9) subsurface soil samples were submitted for laboratory testing during this supplemental investigation program. This includes the collection and analysis of one duplicate soil sample. From each boring, the soil sample from the 4-6 foot sample interval was submitted for analytical testing to assess soil concentrations coincident with the soil gas sample collection depth for SG-105S. In addition, supplemental soil samples were selected for laboratory analysis based on field screening results and visual observations. Soil samples were submitted for laboratory analysis for VOCs using EPA Method 8260.

The samples were collected in non-preserved 8 oz. glass containers with Teflon lids as well as in 40-ml methanol-preserved glass vials with septa caps. All soil samples were packed in an ice chest and transported under chain-of-custody protocol to ESS Laboratory in Cranston, RI. A copy of the subsurface soil boring analytical results and chain-of-custody forms are presented in Appendix F and the analytical results are summarized in Table 1 (VOC analyses). Quality control and quality assurance (QA/QC) samples were also collected and analyzed during the Supplemental SI program. These QA/QC procedures and samples are summarized in Section 2.30.

2.20.5 Groundwater Depths and Elevations

Following well development activities, GZA recorded depth to groundwater readings on April 17 and 22, 2014 in each of the newly installed monitoring wells using an electronic water level indicator. GZA also surveyed the vertical elevation of the top of the PVC well casing and adjacent ground surface for each new well relative to the 1929 National Geodetic Vertical datum (NGVD 1929). These depths to groundwater readings and reference elevations were used to calculate the elevation of the groundwater table at each well location. Monitoring well reference elevations and depth to groundwater measurements are presented in Table 2.

2.20.6 Groundwater Sampling and Analysis

Groundwater samples were collected on April 17, 2014 from the two (2) new groundwater monitoring wells in general accordance with EPA's January 19, 2010 *Low Stress (low flow) Purging and Sampling Procedure* (Low Flow SOP). Prior to sampling, the depth to static groundwater and NAPL present was measured in each well using an ORS electronic oil/water interface probe. During groundwater sampling, a variable speed peristaltic pump or submersible pump was utilized to control the rate of purging. Dedicated 3/8-inch polyethylene tubing installed in each of the wells was utilized as the intake and discharge tubing for the pump. This tubing has the potential to become brittle when



exposed to UV light (sunlight) and where necessary this tubing was replaced with new dedicated tubing as indicated on the field sampling logs (Appendix G). Pharmaceutical grade tubing was utilized as the pump head tubing and connected to the intake and discharge tubing by clamps sufficient to prevent the introduction of air into the sample.



During sampling, field readings were recorded for pH, temperature, specific conductance, oxidation reduction potential (ORP) and dissolved oxygen (DO) using a YSI Professional Plus® portable water quality meter with a flow-through cell. A LaMotte Turbidimeter® was used to monitor the turbidity. These field readings are presented in the field sampling logs, attached as Appendix G. As indicated on the logs, the monitoring wells were pumped until field screening parameters were stabilized prior to collecting the samples.

All purgewater generated during sampling was containerized in labeled 55-gallon steel drums. Once the sampling events were complete, the drums were removed from the Site by CHES for proper disposal on May 15, 2014. Copies of the disposal manifests are included in Appendix D.

Samples were placed in laboratory-provided, hydrochloric acid-preserved 40 mL glass vials with septa caps for VOC analysis via EPA Method 8260B. Samples were then packed in an ice chest and transported under chain-of-custody protocol to ESS Laboratory located in Cranston, Rhode Island.

The analytical results from these groundwater monitoring activities are provided in Appendix H and summarized in Table 3. QA/QC samples were also collected and analyzed during these groundwater sampling activities. These QA/QC procedures and samples are summarized below in Section 2.30.

2.30 QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES AND SAMPLES

All sample collection, handling, storage, field screening methods, transportation, and analyses were conducted in general accordance with the February 2014 SSIWP to ensure that results are accurate and representative. In addition and as described below, in accordance with the February 2014 SSIWP, GZA collected and analyzed field duplicate samples and trip blanks.

Field duplicate samples were collected and analyzed to evaluate the reproducibility of the sampling methods. Duplicate VOC soil samples were collected directly from the 2-inch acetate samplers. Duplicate groundwater samples were collected sequentially after achieving stabilization of the geochemical parameters. Duplicate soil samples were collected at a frequency of one duplicate for every eight samples analyzed and duplicate groundwater samples were collected at a frequency of one for every four samples analyzed. Duplicate soil and groundwater sampling results are included in the applicable summary tables, with a reference to the applicable sample location in the table note section.

A VOC trip blank accompanied each cooler of soil and groundwater samples to the laboratory and was analyzed for the presence of VOCs to evaluate potential cross contamination during sample transport. Soil trip blank analytical results are summarized in Table 1 and groundwater trip blank analytical results are summarized in Table 3.



Upon receipt, GZA audited the analytical data to assess whether the analytical data met the data quality objectives of the project. This audit included evaluation of QA/QC samples (e.g., Lab Control Samples (LCS)/Lab Control Sample Duplicates (LCSD), Method Blanks, Field Blanks, and Field Duplicates) to evaluate the representativeness, comparability, completeness, precision, accuracy, and sensitivity of the analytical data.

Both the soil and groundwater analytical results met the project data quality objectives. The following presents a summary of soil QA/QC results:

- VOCs were not detected in either of the two trip blanks that accompanied the soil samples, indicating that cross contamination was not an issue during soil sampling handling and transportation activities.
- One duplicate field sample set (BD 3 collected from TB-403 10-12 feet bgs) was submitted for analysis to evaluate sample reproducibility. The Relative Percent Difference (RPD) was calculated for each compound and was within acceptable ranges (less than 40% difference).
- Two duplicate laboratory sample sets (LCS/LCSD) were submitted for analysis to evaluate sample reproducibility. The Relative Percent Difference (RPD) was calculated for each compound and was within acceptable ranges (less than 40% difference).
- Copies of the original laboratory data, laboratory QA/QC, methods, and chain-of-custody form are provided for reference in Appendix F.

The following presents a summary of groundwater QA/QC results:

- VOCs were not detected in the trip blank that accompanied the groundwater samples, indicating cross contamination was not an issue during groundwater sampling handling and transportation activities.
- One duplicate field sample set (BD collected from MW-401) was submitted for analysis to evaluate sample reproducibility. The Relative Percent Difference (RPD) was calculated for each compound. An elevated RPD (more than 40% difference) was noted for the compound chloromethane. Given the very low concentrations that were detected and the fact that chloromethane is not a contaminant of concern for the Tidewater site, it is not expected that this variability significantly affects the data usability.
- One duplicate laboratory sample set (LCS/LCSD) was submitted for analysis to evaluate sample reproducibility. The Relative Percent Difference (RPD) was calculated for each compound and was within acceptable ranges (less than 40% difference).
- Copies of the original laboratory data, laboratory QA/QC, methods, and chain-of-custody form are provided for reference in Appendix H.

3.00 INVESTIGATION RESULTS



The following sections present the findings of the April 2014 investigation program within and adjacent to the natural gas regulator station area. Section 3.10 presents a summary of the observed hydrogeologic conditions in the area of work. Sections 3.20, 3.30, and 3.40 present the results of field screening and observations of impacted soils, soil analytical results and groundwater analytical results, respectively.

3.10 HYDROGEOLOGIC CONDITIONS

The work area within the natural gas regulator station fence line gently slopes downward from west to east towards the main portion of the Site. With the exception of TB-403, approximately 2 feet of fill was observed, underlain by sands (designated as alluvium / outwash). Fill material consists of sandy materials mixed with varying percentages of relatively inert materials such as brick, concrete, and asphalt. In general, the presence of these types of anthropologic materials was used to support the soil being classified as fill. No fill was observed at TB-403. The sands underlying the fill were classified as alluvium / outwash which is characterized by fine well stratified sands with bands of coarser sands. In general, the sands were observed to be coarser with increasing depth. Neither glacial till nor bedrock was observed in any of the borings which extended to depths of 20 to 25 feet below grade.

During drilling, groundwater was observed in the borings at depths ranging from approximately 12 to 16 feet bgs. GZA recorded depth to groundwater at both newly installed monitoring wells on April 17, 2014 and April 22, 2014. The groundwater elevations at each monitoring well were subsequently calculated. As indicated in Table 2, measured depth to groundwater was approximately the same as observed during the drilling program, with the natural groundwater table observed within the native sands layer. NAPL was not observed either in the drilling program or during either groundwater gauging events.

3.20 FIELD SCREENING AND VISUAL OBSERVATIONS

As discussed in Section 3.10, approximately 2 feet of fill was noted in each boring except TB-403. Fill materials in this portion of the Site were noted to consist of sandy materials mixed with varying percentages of asphalt fragments, concrete fragments, and brick. TVOC concentrations as measured by the PID were generally non-detect with the exception of relatively low detections in TB-403 (ranging from none detected (ND) to 9.5 parts per million volume basis (ppmv)). As shown on Figure 2, this boring is located closest to the natural gas regulator facility, approximately 50 feet northwest of SG-105S. The TVOC concentrations that were detected in soil collected from TB-403 increased with depth to the water table (at approximately 14 feet bgs) and thereafter decreased to ND. Visual and/or olfactory evidence of impacts were not noted in any of the borings.



3.30 SOIL ANALYTICAL RESULTS

Table 1 presents a summary of the soil analytical results. Eight (8) soil samples were collected as part of this investigation and submitted for analysis of VOCs via EPA Method 8260B. Two soil samples were submitted from each boring: a sample from 4 to 6 feet bgs and another sample from a deeper interval in the boring. The sample from each boring from 4 to 6 feet bgs was submitted to assess the concentration of VOCs in the soil at the interval where elevated benzene concentrations were detected in soil gas at SG-105S (5 feet bgs). VOCs were detected in two soil samples (2/8) from borings TB-400 (10-12 feet) and TB-403 (4-6 feet). The only VOC detected was naphthalene at concentrations ranging from 0.0268 to 0.124 mg/kg, well below the I/C-DEC of 10,000 mg/kg. Benzene was not detected in any of the 4-6 foot soil samples or deeper soil samples. There were no exceedances of the I/C-DEC or the GB Leachability Criteria for VOCs.

3.40 GROUNDWATER ANALYTICAL RESULTS

Groundwater samples were collected from MW-400 and MW-401 and submitted for analysis of VOCs via EPA Method 8260B. As presented in Table 3, the only compound detected in groundwater was chloromethane in MW-401 at a concentration of 0.0069 mg/L.² RIDEM has not established any groundwater objectives for chloromethane. Neither benzene nor naphthalene was detected in either groundwater sample.

4.00 SUMMARY AND CONCLUSIONS

National Grid completed a soil and groundwater sampling and testing program designed to further evaluate the localized detection of benzene in soil gas at SG-105S located proximate to the natural gas regulator station. The investigation was conducted under the direction of the RIDEM.

A total of four (4) test borings were advanced, two (2) of which were completed as groundwater monitoring wells. Eight (8) soil samples and two (2) groundwater samples were submitted for laboratory analysis for VOCs via EPA Method 8260. From each boring, the soil sample from the 4-6 foot sample interval was submitted for analytical testing to assess soil concentrations coincident with the soil gas sample collection depth for SG-105S (approximately 5 feet). In addition, one deeper sample was submitted based on the results of field screening. Groundwater was encountered during the investigation at depths ranging from approximately 12 to 17 feet bgs.

As noted above, benzene was not detected in either soil or groundwater samples collected from this area of the Site. No significant levels of any other VOCs were detected in either soil or groundwater. These results, along with the isolated nature of the soil gas detection at SG-105S, do not indicate the presence of soil or groundwater impacts in this area of the Site. It is

² The concentration of chloromethane detected in the sample from MW-401 was 0.0029 mg/L and the concentration detected in BD (blind duplicate sample) was 0.0069 mg/L. BD is the blind duplicate sample that was submitted from MW-401. It is noted that chloromethane is a common laboratory contaminant.

likely that the benzene detected in soil gas at SG-105S is attributable to a localized shallow soil impact located either within the natural gas regulator station fence line or outside the fence on the Merry Street extension. The observations made during this supplemental investigation program do not warrant further soil and groundwater investigation and do not alter the conclusions presented in our July 2011 *Remedial Alternative Evaluation*.



National Grid will re-sample soil gas from SG-105S during the next quarterly monitoring event (currently scheduled for July 2014). The data from this re-sampling event along with any additional recommendations will be submitted to RIDEM in the form of a brief letter report. National Grid continues to be committed to keeping neighbors, the nearby schools, parents and other stakeholders informed about the activities at the Tidewater Site.

J:\ENV\43654.msk\Reports\2014 SIR Addendum\43654 SIR Addendum final 07072014.docx

TABLES

**TABLE 1
SUMMARY OF SOIL VOC ANALYTICAL RESULTS**

Supplemental Site Investigation Report

Former Tidewater Facility

Pawtucket, Rhode Island

	RIDEM GB Leachability Criteria	RIDEM Industrial/ Commercial DEC	RIDEM UCL	TB-400 4-6 04/03/2014 1404134-01 Solid	TB-400 10-12 04/04/2014 1404160-01 Solid	TB-401 4-6 04/03/2014 1404134-02 Solid	TB-401 6-8 04/04/2014 1404160-02 Solid	TB-402 4-6 04/03/2014 1404134-03 Solid	TB-402 10-12 04/04/2014 1404160-03 Solid	TB-403 4-6 04/03/2014 1404134-04 Solid	TB-403 12-14 04/04/2014 1404160-04 Solid	BD 3 04/04/2014 1404160-05 Solid	Trip Blank-4314 04/03/2014 1404134-05 Solid	Trip Blank 4414 4/4/2014 1404160-06 Solid
EPA Method 8260 B Volatile Organics														
Dibromomethane	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Dichlorodifluoromethane	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Diethyl Ether	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Di-isopropyl ether	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Ethyl tertiary-butyl ether	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Ethylbenzene	mg/kg	62	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Hexachlorobutadiene	mg/kg	NE	73	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Isopropylbenzene	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Methyl tert-Butyl Ether	mg/kg	100	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Methylene Chloride	mg/kg	NE	760	<0.180	<0.181	<0.252	<0.168	<0.173	<0.146	<0.216	<0.194	<0.212	<0.250	<0.250
Naphthalene	mg/kg	NE	10,000	<0.0360	0.124	<0.0504	<0.0335	<0.0345	<0.0293	0.0268	<0.0389	<0.0424	<0.0500	<0.0500
n-Butylbenzene	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
n-Propylbenzene	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
sec-Butylbenzene	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Styrene	mg/kg	64	1,900	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
tert-Butylbenzene	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Tertiary-amyl methyl ether	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Tetrachloroethene	mg/kg	4.2	110	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Tetrahydrofuran	mg/kg	NE	10,000	<0.360	<0.362	<0.504	<0.335	<0.345	<0.293	<0.432	<0.389	<0.424	<0.500	<0.500
Toluene	mg/kg	54	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
trans-1,2-Dichloroethene	mg/kg	92	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
trans-1,3-Dichloropropene	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Trichloroethene	mg/kg	20	520	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Trichlorofluoromethane	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Vinyl Acetate	mg/kg	NE	10,000	<0.180	<0.181	<0.252	<0.168	<0.173	<0.146	<0.216	<0.194	<0.212	<0.250	<0.250
Vinyl Chloride	mg/kg	NE	3	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Xylene O	mg/kg	NE	10,000	<0.0360	<0.0362	<0.0504	<0.0335	<0.0345	<0.0293	<0.0432	<0.0389	<0.0424	<0.0500	<0.0500
Xylene P,M	mg/kg	NE	10,000	<0.0721	<0.0724	<0.101	<0.067	<0.0691	<0.0585	<0.0864	<0.0777	<0.0849	<0.100	<0.100
Xylenes (Total)	mg/kg	NE	10,000	<0.0721	<0.0724	<0.101	<0.067	<0.0691	<0.0585	<0.0864	<0.0777	<0.0849	<0.100	<0.100

Notes

NE = Not Established

NA = Not Analyzed

As described in the Remediation Regulations, the Direct Exposure and Leachability Criteria apply throughout the vadose zone. All soil data collected at the Site were within the vadose zone and comparisons to applicable I/C-DEC and GB Leachability Criteria are presented for each sample.

Gray shaded cells indicates the concentration exceeds the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC).

Detection limits highlighted in *blue and in italics* exceed the RIDEM Method 1 Criteria.

Concentrations **bolded and underlined** exceed the RIDEM Method 1 GB Leachability Criteria.

A concentration with a bold border exceeds the Upper Concentration Limit (UCL).

BD 3 is the blind duplicate for TB-403 12-14

TABLE 2
MONITORING WELL CONSTRUCTION
AND WELL DEVELOPMENT DETAILS AND GAUGING DATA

Former Tidewater Facility
Pawtucket, Rhode Island

Location ID	CONSTRUCTION INFORMATION						Reference Elevation (PVC) feet
	Total Soil Boring Depth ft. bgs	Well Diam. inches	Screen Length feet	Depth to Screened Interval (ft. bgs)		Total Depth of Well Recorded During Installation ft. bgs	
				Top	Bottom		
MONITORING WELLS							
MW-400	25.0	2	10.0	15.0	25.0	25.0	29.62
MW-401	20.0	2	10.0	10.0	20.0	20.0	24.99

Notes:

1. PVC = Top of PVC well; ft. bgs = feet below ground surface
2. The ground surface and the top of the PVC wells were surveyed by GZA personnel on April 21, 2014.
3. Elevations are relative to NGVD-1929.
4. Development water was containerized in 55-gallon drums for subsequent characterization and disposal.

TABLE 2
MONITORING WELL CONSTRUCTION
AND WELL DEVELOPMENT DETAILS AND GAUGING DATA

GZA Job No. 05.0043654.00

7/7/2014

Former Tidewater Facility
Pawtucket, Rhode Island

Location ID	WELL DEVELOPMENT ACTIVITIES					
	Water Added During Drilling (gallons)	Water Removed During Development (gallons)	Development Method	Duration of Development (minutes)	Date of Development Completion	Turbidity at end of Development (NTU)
MONITORING WELLS						
MW-400	0	12	Surge & Pump	70	4/9/2014	<10
MW-401	0	9	Surge & Pump	65	4/9/2014	<10

TABLE 2
MONITORING WELL CONSTRUCTION
AND WELL DEVELOPMENT DETAILS AND GAUGING DATA

GZA Job No. 05.0043654.00

7/7/2014

Former Tidewater Facility
Pawtucket, Rhode Island

Location ID	April 17, 2014 Gauging Observations					April 22, 2014 Gauging Observations				
	Depth to Water (PVC)	Depth to LNAPL (PVC)	Depth to DNAPL (PVC)	Measured Total Depth (PVC)	Groundwater Elevation (feet)	Depth to Water (PVC)	Depth to LNAPL (PVC)	Depth to DNAPL (PVC)	Measured Total Depth (PVC)	Groundwater Elevation (feet)
MONITORING WELLS										
MW-400	16.65	None	None	24.3	12.97	16.12	None	None	24.3	13.50
MW-401	12.07	None	None	19.4	12.92	11.53	None	None	19.3	13.46

TABLE 3
SUMMARY OF GROUNDWATER VOC ANALYTICAL RESULTS

Supplemental Site Investigation Report

Former Tidewater Facility

Pawtucket, Rhode Island

	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-400 1404413-02 04/17/2014 Groundwater	MW-401 1404413-03 04/17/2014 Groundwater	BD 1404413-01 04/17/2014 Groundwater	Trip Blank 1404413-04 04/17/2014 Groundwater
EPA Method 8260B Volatile Organics							
1,1,1,2-Tetrachloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,1,1-Trichloroethane	mg/L	68	3.1	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane	mg/L	NE	NE	<0.0005	<0.0005	<0.0005	<0.0005
1,1,2-Trichloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	mg/L	23	0.007	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloropropene	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
1,2,3-Trichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,2,3-Trichloropropane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,2,4-Trichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,2,4-Trimethylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dibromo-3-Chloropropane	mg/L	NE	0.002	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dibromoethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	mg/L	670	0.11	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloropropane	mg/L	140	3	<0.0010	<0.0010	<0.0010	<0.0010
1,3,5-Trimethylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,3-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,3-Dichloropropane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,4-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
1,4-Dioxane - Screen	mg/L	NE	NE	<0.500	<0.500	<0.500	<0.500
1-Chlorohexane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
2,2-Dichloropropane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
2-Butanone	mg/L	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100
2-Chlorotoluene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
2-Hexanone	mg/L	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100
4-Chlorotoluene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
4-Isopropyltoluene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
4-Methyl-2-Pentanone	mg/L	NE	NE	<0.0250	<0.0250	<0.0250	<0.0250
Acetone	mg/L	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100
Benzene	mg/L	18	0.14	<0.0010	<0.0010	<0.0010	<0.0010
Bromobenzene	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
Bromochloromethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Bromodichloromethane	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006
Bromoform	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Bromomethane	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
Carbon Disulfide	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Carbon Tetrachloride	mg/L	NE	0.07	<0.0010	<0.0010	<0.0010	<0.0010
Chlorobenzene	mg/L	56	3.2	<0.0010	<0.0010	<0.0010	<0.0010
Chloroethane	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
Chloroform	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Chloromethane	mg/L	NE	NE	<0.0020	0.0029	0.0069	<0.0020
cis-1,2-Dichloroethene	mg/L	69	2.4	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004

TABLE 3
SUMMARY OF GROUNDWATER VOC ANALYTICAL RESULTS

Supplemental Site Investigation Report

Former Tidewater Facility

Pawtucket, Rhode Island

	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-400 1404413-02 04/17/2014 Groundwater	MW-401 1404413-03 04/17/2014 Groundwater	BD 1404413-01 04/17/2014 Groundwater	Trip Blank 1404413-04 04/17/2014 Groundwater
EPA Method 8260B Volatile Organics							
Dibromochloromethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Dibromomethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Dichlorodifluoromethane	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
Diethyl Ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Di-isopropyl ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Ethyl tertiary-butyl ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	mg/L	16	1.6	<0.0010	<0.0010	<0.0010	<0.0010
Hexachlorobutadiene	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006
Hexachloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Isopropylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Methyl tert-Butyl Ether	mg/L	NE	5	<0.0010	<0.0010	<0.0010	<0.0010
Methylene Chloride	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
Naphthalene	mg/L	NE	2.67	<0.0010	<0.0010	<0.0010	<0.0010
n-Butylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
n-Propylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
sec-Butylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Styrene	mg/L	50	2.2	<0.0010	<0.0010	<0.0010	<0.0010
tert-Butylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Tertiary-amyl methyl ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Tetrachloroethene	mg/L	NE	0.15	<0.0010	<0.0010	<0.0010	<0.0010
Tetrahydrofuran	mg/L	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050
Toluene	mg/L	21	1.7	<0.0010	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethene	mg/L	79	2.8	<0.0010	<0.0010	<0.0010	<0.0010
trans-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004
Trichloroethene	mg/L	87	0.54	<0.0010	<0.0010	<0.0010	<0.0010
Trichlorofluoromethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Trihalomethanes (Total)	mg/L	NE	NE	<0.0036	<0.0036	<0.0036	<0.0010
Vinyl Acetate	mg/L	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050
Vinyl Chloride	mg/L	NE	0.002	<0.0010	<0.0010	<0.0010	<0.0010
Xylene O	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010
Xylene P,M	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
Xylenes (Total)	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020
Total VOCs	mg/L	NE	NE	<0.6471	0.0029	0.0069	<0.6471

Notes

NE = Not Established

Blue shaded cells indicate detection limits equal to or exceeds the GB Groundwater Objective.

Gray shaded cells indicate the concentration exceeds the GB Groundwater Objective.

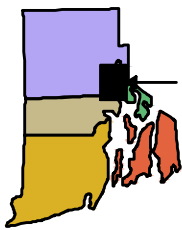
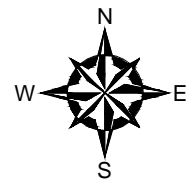
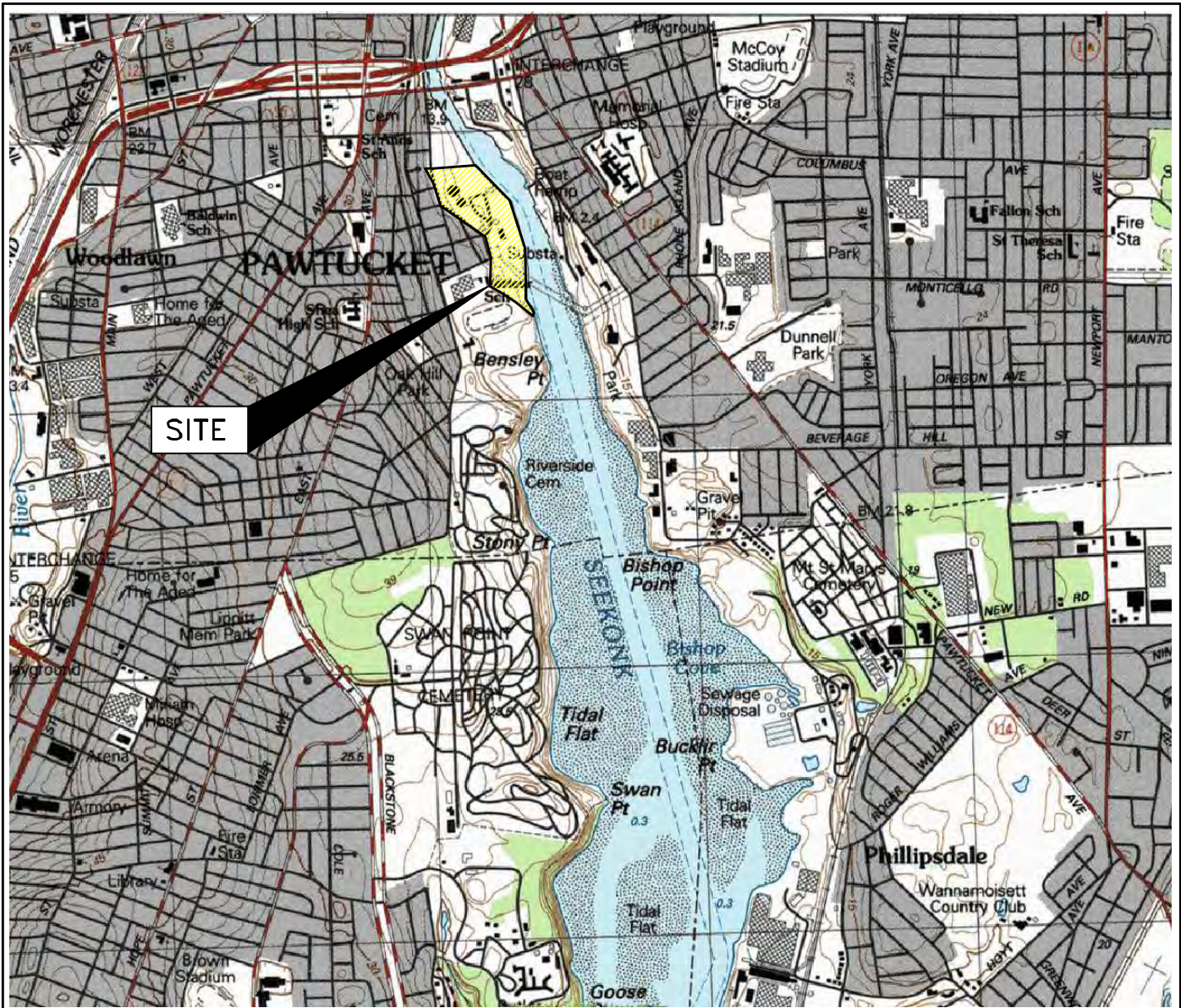
Underlined concentrations exceed the RIDEM GB Groundwater Upper Concentration Limit

Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.

BD is the blind duplicate of MW-401

FIGURES

© 2013 - GZA GeoEnvironmental, Inc. GZA-J:\ENV\43654.msk\CADD\GZA DWGS\43654 LOCUS PLAN.dwg [1] January 10, 2014 - 12:17pm scott.burton



QUADRANGLE LOCATION

SOURCE:

**BASE MAP FROM THE FOLLOWING USGS QUADRANGLE MAP:
PROVIDENCE, RHODE ISLAND (1987)**

DIGITAL TOPOGRAPHIC MAPS PROVIDED BY MAPTECH. INC.

CONTOUR ELEVATIONS REFERENCE NGVD 29,
CONTOURS ARE SHOWN IN METERS AT 3 METER INTERVALS

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

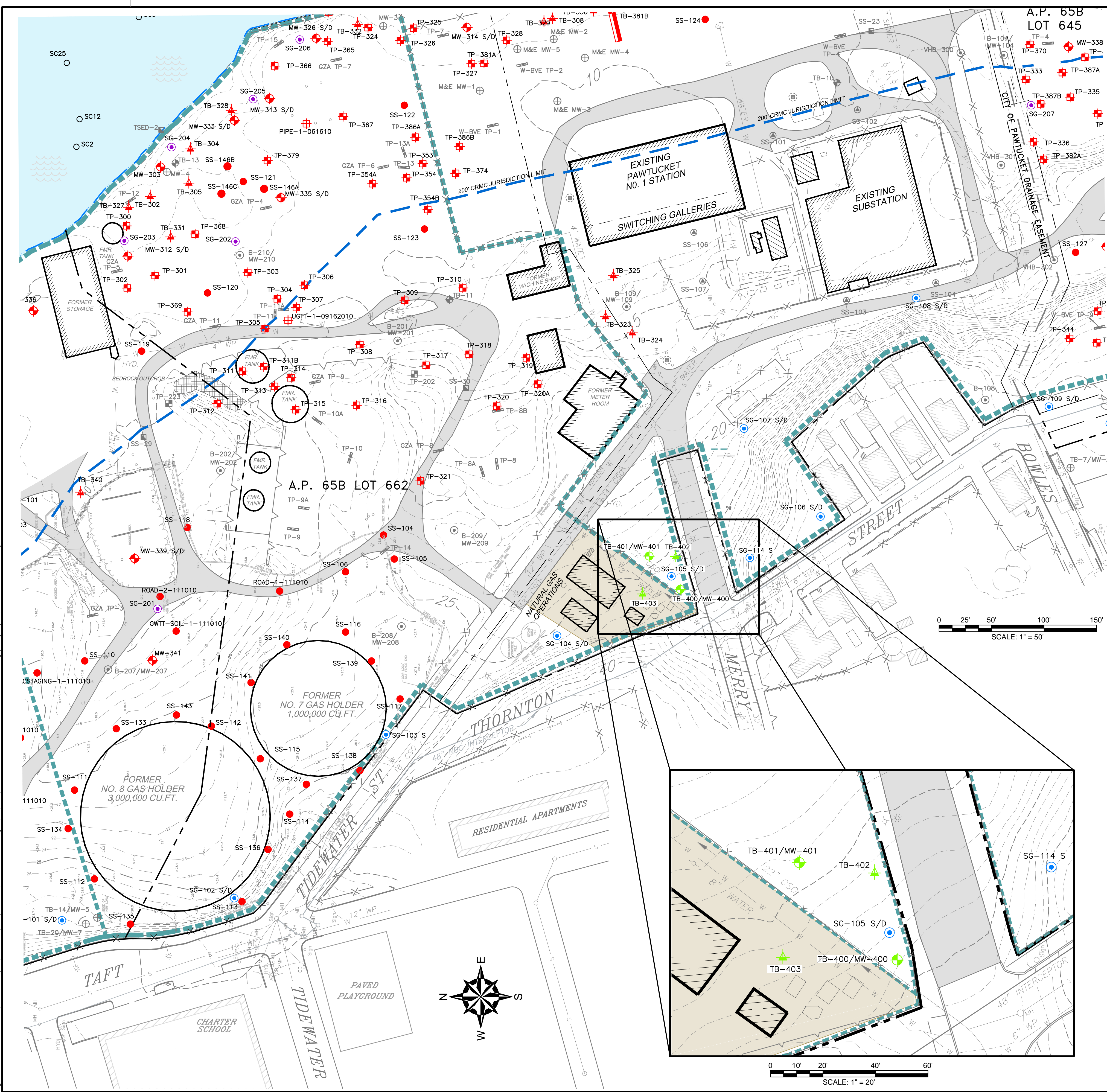
TIDEWATER FACILITY
PAWTUCKET, RHODE ISLAND

PREPARED BY:
 **GZA GeoEnvironmental, Inc.**
Engineers and Scientists
www.gza.com

PREPARED FOR:
NATIONAL GRID

LOCUS PLAN

PROJ MGR: MSK	REVIEWED BY: MSK	CHECKED BY: JJC	FIGURE 1 SHEET NO. 1 OF 5
DESIGNED BY: SDN	DRAWN BY: CRD	SCALE: AS NOTED	
DATE: 2014	PROJECT NO. 43654.20	REVISION NO. 0	



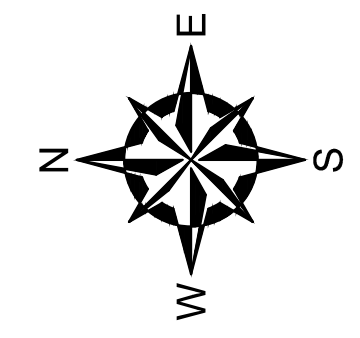
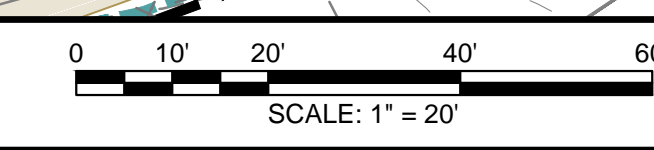
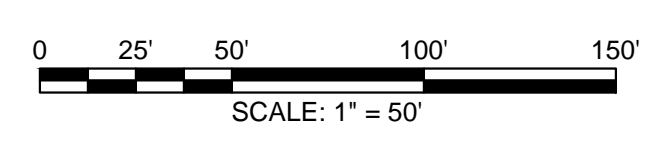
LEGEND:

- SITE AREA BOUNDARIES
- EXISTING BUILDINGS ON-SITE
- EXISTING FOUNDATION/PAD ON-SITE
- EXISTING BUILDINGS/STRUCTURES OFF-SITE
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- PROPERTY LINE
- APPROX. 200 FT. CRMC JURISDICTION LIMIT
- APPROX. WATERS EDGE
- EXISTING NBC INTERCEPTOR SANITARY SEWER
- EXISTING CITY OF PAWTUCKET STORM DRAIN
- EXISTING WATER LINE
- EXISTING STORM/COMBINED SAN. SEWER OVERFLOW
- EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
- EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
- EXISTING ACCESS ROAD
- EXISTING RETAINING WALLS
- EXISTING FENCE
- EXISTING CATCH BASIN LOCATIONS
- APPROXIMATE BOUNDARY OF NATURAL GAS REGULATOR STATION

SAMPLE LEGEND

- ATLANTIC SURFACE SOIL SAMPLE LOCATION
- ATLANTIC SEDIMENT SAMPLE LOCATION
- WESTON/BLACKSTONE VALLEY ELECTRIC SEDIMENT SAMPLE LOCATION
- RIDEM SURFACE SOIL SAMPLE LOCATION
- MONITORING WELL/BORING (VHB) SURVEYED
- ATLANTIC TEST PIT LOCATION
- WESTON/BLACKSTONE VALLEY ELECTRIC TEST PIT LOCATION
- GZA/VALLEY GAS TEST PIT LOCATION
- ATLANTIC SOIL BORING LOCATION
- ATLANTIC MONITORING WELL LOCATION
- METCALF & EDDY MONITORING WELL LOCATION
- VHB SURFACE SOIL SAMPLE LOCATION NON-SURVEYED
- VHB TEST PIT (2006)
- GZA TEST PIT (2009)
- GZA TEST BORING LOCATION (2010)
- GZA MONITORING WELL LOCATION (2010)
- GZA TEST PIT LOCATION (2010)
- GZA SURFACE SOIL SAMPLE LOCATION (2010)
- ARCADIS SEDIMENT SAMPLE LOCATION (2008)
- GZA RESIDUAL MATERIAL SAMPLE (2010)
- GZA TEST BORING LOCATION (2011)
- INTERIOR SOIL GAS SAMPLING LOCATION
- PERIMETER SOIL GAS SAMPLING LOCATION
- GZA BORING LOCATION (2014)
- GZA MONITORING WELL LOCATION (2014)

- GENERAL NOTES:**
- EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
 - ELECTRONIC FILES FROM GEI CONSULTANTS, INC. (FORMERLY AES) ENTITLED "HISTORIC STRUCTURES AND SAMPLE LOCATIONS", ORIGINAL SCALE 1"=80", DATED JULY 1999
 - ELECTRONIC FILES FROM VANASSE HANGEN BRUSTLIN, INC. ENTITLED "SOIL BORING, TEST PIT AND MONITOR WELL LOCATIONS", SCALE: 1"=60", UNDATED
 - ELECTRONIC FILES FROM WELSH ASSOCIATES LAND SURVEYORS, INC. ENTITLED "TOPOGRAPHIC SURVEY (AS-BUILT), FORMER TIDEWATER FACILITY, DEMOLITION OF GAS HOLDERS NOS. 7 & 8", DATED DECEMBER 17, 2010
 - ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS DURING 2009 AND 2010.
 - PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM INFORMATION PROVIDED ON A DRAWING ENTITLED "PERIMETER SURVEY OF LAND AT THE TIDEWATER FORMER MGP SITE IN PAWTUCKET, RHODE ISLAND FOR ATLANTIC ENVIRONMENTAL SERVICES INC." DEVELOPED BY LOUIS FEDERICI AND ASSOCIATES AND AN AUTO CAD FILE ENTITLED "MAX READ FIELD TRACK EXPANSION 2007" PROVIDED BY THE CITY OF PAWTUCKET.
 - HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
 - VERTICAL DATUM IS BASED ON NGVD 1929 (MSL) FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
 - REFERENCE SEWER DATA FROM SCANNED IMAGE PROVIDED BY THE CITY OF PAWTUCKET, RHODE ISLAND, ENTITLED "STUDY OF SEWERAGE FACILITIES" BY WATERMAN ENGINEERING CO. & ANDERSON NICHOLS CO. DATED NOV. 1975, ORIGINAL SCALE 1"=400' & SCANNED IMAGES OF HISTORIC PLAN & PROFILE DRAWINGS PROVIDED BY THE CITY OF PAWTUCKET, RHODE ISLAND.
 - SITE UTILITIES TAKEN FROM 1984 SANBORN MAP AND HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY.



THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY NATIONAL GRID OR THE NATIONAL GRID'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA AND NATIONAL GRID. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA AND NATIONAL GRID, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA AND NATIONAL GRID.

NO.	ISSUE/DESCRIPTION	BY	DATE
FORMER TIDEWATER FACILITY			
PAWTUCKET, RHODE ISLAND			
EXPLORATION LOCATION PLAN SUPPLEMENTAL SITE INVESTIGATION REPORT			
PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists 530 BROADWAY PROVIDENCE, RHODE ISLAND 02909 (401) 421-4140		NATIONAL GRID	
PROJ MGR:	MSK	REVIEWED BY:	WF
DESIGNED BY:	WF	DRAWN BY:	CRD
DATE:	2014	CHECKED BY:	MSK
		SCALE:	AS NOTED
		REVISION NO.:	0
		PROJECT NO.:	43654.00
		FIGURE	2
		SHEET NO.	2 OF 2

APPENDIX A
LIMITATIONS

LIMITATIONS

1. This Site Investigation Report Addendum has been prepared on behalf of and for the exclusive use of The Narragansett Electric Company d/b/a National Grid (National Grid), solely for use in documenting the work completed as described herein at the Former Tidewater MGP and Merry Street ("Site") under the applicable provisions of the State of Rhode Island Department of Environmental Management Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations). This report 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 GeoEnvironmental, Inc.(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 work described herein.
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.
4. In the event that National Grid or others authorized to use this report obtain information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.
5. The conclusions and recommendations contained in this report are based in part upon the data obtained from environmental samples obtained from relatively widely spread subsurface explorations. The nature and extent of variations between these explorations may not become evident until further exploration. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
6. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the boring logs.

7. In the event this work included the collection of water level data, these readings have been made in the test pits, borings and/or observation wells at times and under conditions stated on the exploration logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made.
8. The conclusions contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed by GZA and the conclusions and recommendations presented herein modified accordingly.

J:\ENV\43654.msk\Reports\2014 SIR Addendum\Appendix\Appendix A - Limitations\43654 Limitations-Appendix A.docx

APPENDIX B

FEBRUARY 21, 2014 ABUTTER NOTIFICATION

February 21, 2014
File No. 05.0043654.00-C

Re: Notice to Abutters and/or Interested Parties
Supplemental Site Investigation Work Plan Addendum – Limited Soil and Groundwater Investigation
Former Tidewater Facility
Pawtucket, Rhode Island
RIDEM Case No. 95-022



Dear Abutters and/or Interested Parties:

530 Broadway
Providence
Rhode Island
02909
401-421-4140
Fax: 401-751-8613
<http://www.gza.com>

The purpose of this letter is to notify you that The Narragansett Electric Company d/b/a National Grid (National Grid) will be conducting additional limited environmental testing activities associated with the former Tidewater Manufactured Gas Plant (MGP) and the former Pawtucket No. 1 Power Station Site (the Site) located at the ends of Tidewater and Merry Streets in Pawtucket, Rhode Island. This notice is being provided to abutting property owners, tenants and members of the Tidewater Site mailing list in accordance with requirements established in the Rhode Island Department of Environmental Management's (RIDEM) Rules and Regulation for the Investigation and Remediation of Hazardous Materials (Remediation Regulations) and the October 2013 Public Involvement Plan (PIP). Should you be an owner of property that is leased, we request that you provide a copy of this letter to your tenants.

National Grid plans to perform two test borings and install two groundwater monitoring wells near the active natural gas regulator station located at the Site. These investigations are designed to further evaluate results of the soil gas testing performed near the gas regulator station. National Grid will collect soil and groundwater samples from the borings and monitoring wells. Real time air quality monitoring will be performed during the drilling work using hand held instruments for dust and total volatile organic compounds (TVOCs).

Contractors will begin installing the test borings and wells on or about March 10, 2014. It will take approximately 2 days to install the borings and wells and another 2 to 3 days to collect the groundwater samples. The results of the additional soil and groundwater investigation will be submitted to RIDEM and posted to the Tidewater and RIDEM websites (<http://www.tidewatersite.com> and <http://www.dem.ri.gov/programs/benviron/waste/tide.htm>). The results of the initial soil gas investigation are also available on these websites. The air monitoring data will be posted to the bulletin boards at the end Tidewater Street and Bowles Court and the Tidewater website by the Monday following the work.

The proposed activities are further detailed in a *Supplemental Site Investigation Work Plan (SSIWP) Addendum* submitted to RIDEM on February 10, 2014. The SSIWP is available on the Tidewater website (www.tidewatersite.com). There is a 14-day comment period, commencing with the date of delivery of this notice, during which the public may review RIDEM records pertaining to this property and submit written comments regarding the proposed investigation activities described herein. These activities will be conducted in accordance with RIDEM's Remediation Regulations and will be performed by GZA GeoEnvironmental, Inc. (GZA) on behalf of National Grid.

If you would like more information or have any questions, please contact Michele Leone of National Grid at 781-907-3651.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P.E.
Senior Project Manager

James J. Clark, P.E.
Principal

MSK/JJC:tja

cc: Joe Martella, RIDEM
Michele Leone, National Grid

21 de fevereiro de 2014
Arquivo nº 05.0043654.00-C

Ref: Notificação aos donos de propriedades adjacentes e/ou partes interessadas
Adendo ao Plano de Trabalho de Investigação Complementar no Local – Investigação Limitada do Solo e da
Água Subterrânea
Previamente Tidewater Facility
Pawtucket, Rhode Island
Caso nº 95-022 RIDEM



Prezados donos de propriedades adjacentes e/ou partes interessadas,

530 Broadway
Providence
Rhode Island
02909
401-421-4140
Fax: 401-751-8613
<http://www.gza.com>

O objetivo desta carta é notificá-los de que a Companhia Elétrica Narragansett, sob o nome comercial National Grid (National Grid) estará conduzindo atividades adicionais de testes ambientais limitados associadas à antiga Fábrica de Gás Manufaturado Tidewater (sigla em inglês, MGP) e ao antigo local da Central Elétrica Pawtucket Nº 1 (o Local), localizados no final das ruas Tidewater e Merry, em Pawtucket, Rhode Island. Esta notificação está sendo fornecida aos donos das propriedades adjacentes, inquilinos e membros da lista de mala direta da Tidewater Site, de acordo com os requisitos estabelecidos nas Regras e regulamentação para a investigação e remediação de materiais perigosos (Regulamentações de Remediação) do Departamento de Gestão Ambiental de Rhode Island (sigla em inglês, RIDEM) e o Plano de Envolvimento Público (sigla em inglês, PIP) de outubro de 2013. Caso seja dono de uma propriedade que esteja alugada, solicitamos que forneça uma cópia desta carta aos seus inquilinos.

A National Grid planeja realizar dois testes com sondas e instalar dois poços de monitoramento subterrâneo perto da estação ativa reguladora de gás natural localizada no Local. Estas investigações são concebidas para avaliar os resultados dos testes de gás no solo realizados perto da estação reguladora de gás. A National Grid coletará amostras do solo e da água subterrânea das sondas e dos poços de monitoramento. O monitoramento da qualidade do ar em tempo real será realizado durante o trabalho de perfuração usando instrumentos portáteis para poeira e compostos orgânicos voláteis totais. Os empreiteiros começarão a instalar as sondas de teste e os poços por volta do dia 10 de março de 2014. Levará aproximadamente 2 dias para instalar as sondas e os poços, e outros 2 a 3 dias para coletar as amostras de água subterrânea. Os resultados da investigação adicional do solo e da água subterrânea serão apresentados ao RIDEM e publicados nos sites da Tidewater e do RIDEM, (<http://www.tidewatersite.com> e <http://www.dem.ri.gov/programs/benviron/waste/tide.htm>). Os resultados da investigação inicial de gás no solo também estão disponíveis nestes sites. Os dados do monitoramento do ar serão publicados nos painéis informativos no final da Tidewater Street e Bowles Court e no site da Tidewater na segunda-feira após o trabalho.

As atividades propostas serão mais detalhadas em um *Adendo ao Plano de Trabalho de Investigação Complementar no Local* (sigla em inglês, SSIWP) apresentado ao RIDEM em 10 de fevereiro de 2014. O SSIWP está disponível no site da Tidewater (www.tidewatersite.com). Há um período de 14 dias para comentários, começando a partir da data da entrega desta notificação, durante o qual o público pode analisar os registros do RIDEM pertencentes a esta propriedade e apresentar comentários por escrito relativos às atividades propostas de investigação descritas neste documento. Estas atividades serão conduzidas de acordo com as Regulamentações de Remediação do RIDEM e serão executadas pela GZA GeoEnvironmental, Inc. (GZA), em nome da National Grid.

Caso queiram mais informações ou tenham alguma dúvida, por favor, entrem em contato com Michele Leone da National Grid pelo telefone 781-907-3651.

Sinceramente,

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P.E.
Gerente Sênior de Projetos

James J. Clark, P.E.
Diretor

MSK/JJC:tja

cc: Joe Martella, RIDEM
Michele Leone, National Grid

febrero 21, 2014
Archivo n. ° 05.0043654.00-C

Asunto: Aviso para propietarios colindantes y partes interesadas
Anexo del Plan de Trabajo de Investigación Complementario en el Sitio – Investigación restringida del suelo y de las aguas subterráneas
Ex instalaciones de Tidewater
Pawtucket, Rhode Island
Caso del RIDEM n. ° 95-022



530 Broadway
Providence
Rhode Island
02909
401-421-4140
Fax: 401-751-8613
<http://www.gza.com>

Estimados propietarios colindantes y partes interesadas:

Le enviamos esta carta para notificarle que The Narragansett Electric Company, de nombre comercial National Grid (National Grid) comenzará a realizar pruebas ambientales restringidas adicionales en conjunto con la antigua planta Tidewater Manufactured Gas Plant (MGP) y la antigua Pawtucket No. 1 Power Station Site (el Sitio) ubicada al final de las calles Tidewater y Merry Street en Pawtucket, Rhode Island. Este es un aviso para dueños de propiedades colindantes, inquilinos y miembros de la lista de correo del Sitio Tidewater de conformidad con los requisitos establecidos en las Normas y Regulaciones para la Investigación y el Saneamiento de Emisiones de Materiales Peligrosos (las Normas de Saneamiento) del Departamento de Gestión Ambiental de Rhode Island (RIDEM, por sus siglas en inglés) y el Plan de Participación Pública (PIP, por sus siglas en inglés) de octubre de 2013. Si usted es dueño de una propiedad que está alquilada, le solicitamos que facilite una copia de esta carta a sus inquilinos.

National Grid planea realizar dos pruebas de sondeos e instalar dos pozos de monitoreo de agua subterránea cerca de la estación reguladora de gas natural activa ubicada en el Sitio. Estas investigaciones están diseñadas para seguir evaluando los resultados de las pruebas de gas en el suelo realizadas cerca de la estación reguladora de gas. National Grid recolectará muestras de suelo y de las aguas subterráneas de los pozos de monitoreo y de sondeo. **El control de calidad del aire en tiempo real se realizará durante el trabajo de perforación utilizando instrumentos portátiles para polvo y emisiones de compuestos orgánicos volátiles (TVOCs, por sus siglas en inglés).**

Los contratistas comenzarán a instalar los dispositivos para pruebas de sondeo y a construir los pozos el 10 de marzo de 2014 o alrededor de esa fecha. Las tareas concluirán en 2 días, aproximadamente, y les tomará otros 2 o 3 días recoger las muestras de agua subterránea. Los resultados de esta investigación adicional de suelo y agua subterránea serán presentados ante el RIDEM y publicados en los sitios web de Tidewater (<http://www.tidewatersite.com>) y RIDEM (<http://www.dem.ri.gov/programs/benviron/waste/tide.htm>). Los resultados de la investigación inicial de gas en el suelo también se encuentran disponibles en estos sitios web. **La información sobre el control de aire será publicada en los tableros de anuncios al final de la calle Tidewater Street y Bowles Court, y en el sitio web de Tidewater el lunes luego de finalizado el trabajo.**

Se podrán encontrar más detalles sobre las actividades propuestas en el *anexo del Plan de Trabajo de Investigación Complementario en el Sitio* (SSIWP) presentados ante el RIDEM el 10 de febrero de 2014. SSIWP está disponible en el sitio web de Tidewater (www.tidewatersite.com). El día de presentación de la presente notificación se inicia un período de 14 días para realizar comentarios. Durante este lapso, se podrán revisar los registros del RIDEM correspondientes a esta propiedad y presentar comentarios por escrito relacionados con las actividades de investigación propuestas antes mencionadas. Estas actividades serán llevadas a cabo de acuerdo con las Normas de Saneamiento del RIDEM y serán realizadas por GZA GeoEnvironmental, Inc. (GZA) en nombre de National Grid.

Si desea obtener más información o tiene alguna consulta, comuníquese con Michele Leone de National Grid al 781-907-3651.

Cordialmente.

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P. E.
Jefe de proyecto sénior

James J. Clark, P.E.
Director

MSK/JJC: tja

cc: Joe Martella, RIDEM
Michele Leone, National Grid

APPENDIX C
BORING LOGS

GEOPROBE LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

National Grid
 Former Tidewater Facility
 Pawtucket, Rhode Island

EXPLORATION NO.: TB-400
 SHEET: 1 of 2
 PROJECT NO: 43654.00
 REVIEWED BY: MSK

Logged By: SDN
 Drilling Co.: CHES/NEG
 Foreman: EA/HR

Geoprobe Location: See Plan
 Ground Surface Elev. (ft.):
 Final Geoprobe Depth (ft.): 25
 Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
 NM
 V. Datum:
 NM

Type of Rig: Vactor/Geoprobe
 Rig Model: Truck Mounted
 Drilling Method: Geoprobe

Sampler Type: NA
 Sampler O.D. (in.): 2.0
 Sampler Length (in.): 24
 Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft.)	Sample					Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)						
1	S-1	0-2	NA	NA	ND	S-1: Light brown (10YR 5/9), fine to coarse SAND, some Silt, little Gravel, trace Brick, trace Concrete, trace Asphalt, dry	1	FILL	2	← Riser	
2							2				
3	S-2	2-4	NA	NA	ND	S-2: Brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/dry	3	ALLUVIUM/ OUTWASH		← Filter Sand	
4							4				
5	S-3	4-6	NA	NA	ND	S-3: Brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/dry	4			← Bentonite Seal	
6							5				
7	S-4	6-8	24	12	0.9	S-4: Brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/dry					
8							6				
9	S-5	8-10	24	NA	NM	S-5: Brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/dry					
10							7				
11	S-6	10-12	24	20	0.9	S-6: (0"-11"): Brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/dry (11"-20"): Light brown (10YR 5/6), medium to coarse SAND, trace Silt, trace Gravel, moist	5				
12							8				
13	S-7	12-14	24	20	ND	S-7: Brown (10YR 4/4), fine to coarse SAND, trace Silt, trace Gravel, moist					
14							9				
15	S-8	14-16	24	21	ND	S-8: Brown (10YR 4/4), fine to coarse SAND, trace Silt, trace Gravel, moist					
							10				

REMARKS

Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface

- 1 - The upper 6 feet was cleared using an air knife and soil vactor truck. Soil samples were collected from sidewalls.
- 2 - 0.5" layer of asphalt at 6" bgs. 3" layer of concrete at 9" bgs.
- 3 - Bands of coarser grained material observed between 2-12 feet bgs.
- 4 - BD #1 collected from 4-6 feet bgs.
- 5 - Sample not collected from 8-10 feet bgs. sampler fell from drillers hand. Visual description only.

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-400

GZA TEMPLATE GEOPROBE W/EQUIP. 6/16/2014, 2:59:24 PM

GEOPROBE LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

National Grid
Former Tidewater Facility
Pawtucket, Rhode Island

EXPLORATION NO.: TB-400
SHEET: 2 of 2
PROJECT NO: 43654.00
REVIEWED BY: MSK

Logged By: SDN
Drilling Co.: CHES/NEG
Foreman: EA/HR

Geoprobe Location: See Plan
Ground Surface Elev. (ft.):
Final Geoprobe Depth (ft.): 25
Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
NM
V. Datum:
NM

Type of Rig: Vector/Geoprobe
Rig Model: Truck Mounted
Drilling Method: Geoprobe

Sampler Type: NA
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft)	Sample					Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)						
16	S-9	16-18	24	NA	ND	S-9: Gray (10YR 4/2), fine to coarse SAND, little (-) Silt, trace Gravel, wet	6				
17							7				
18	S-10	18-20	24	NA	ND	S-10: Gray (10YR 4/2), fine to coarse SAND, little (-) Silt, trace Gravel, wet					
19											
20	S-11	20-22	24	NA	ND	S-11: Gray (10YR 4/2), fine to coarse SAND, little (-) Silt, trace Gravel, wet		ALLUVIUM/ OUTWASH			
21											
22	S-12	22-24	NA	NA	NM	S-12: No Recovery					
23											
24	S-13	24-25	NA	NA	NM	S-13: No Recovery	8				
25							9			25	
						End of exploration at 25 feet.					
26											
27											
28											
29											
30											

REMARKS

Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface

6 - Water table observed at 16 feet bgs.

7 - Recovery not estimated for possible between 16-25 feet bgs, due to groundwater and slough.

8 - A groundwater monitoring well of the following construction was installed: 10 feet of 2" diameter, schedule 40, flush joint, threaded, 10 slot, PVC well screen at 25 feet bgs, 2" diameter, schedule 40, flush joint, threaded PVC riser installed from 0-15 feet bgs. Filter sand placed in annulus from 9-25 feet bgs. Bentonite seals installed 6-9 feet bgs. Remaining annulus filled with filter sand. Well protected with a roadbox.

9 - The headspace of soil samples was screened for Total Volatile Organic Compounds (TVOCs) using a miniRAE 3000 Photoionization detector (PID) equipped with a 10.6eV lamp. ND indicates readings below the instruments detection limit of approximately 0.1 ppmv

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-400

GZA TEMPLATE GEOPROBE W/EQUIP: 6/16/2014, 2:59:24 PM

GEOPROBE LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

National Grid
Former Tidewater Facility
Pawtucket, Rhode Island

EXPLORATION NO.: TB-401
SHEET: 1 of 2
PROJECT NO: 43654.00
REVIEWED BY: MSK

Logged By: SDN
Drilling Co.: CHES/NEG
Foreman: EA/HR

Geoprobe Location: See Plan
Ground Surface Elev. (ft.):
Final Geoprobe Depth (ft.): 20
Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
 NM
V. Datum:
 NM

Type of Rig: Vactor/Geoprobe
Rig Model: Truck Mounted
Drilling Method: Geoprobe

Sampler Type: NA
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft)	Sample					Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)						
1	S-1	0-2	NA	NA	ND	S-1: Brown (10YR 4/4), fine to coarse SAND, some Gravel, trace Silt, trace Cobbles, trace Brick, trace Concrete, dry	1				Riser
2							2	FILL			Filter Sand
3	S-2	2-4	NA	NA	ND	S-2: Dark brown (10YR 4/3), fine to medium SAND, little Silt, little Gravel, moist					
4	S-3	4-6	NA	NA	ND	S-3: Dark brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/wet					
5											Bentonite Seal
6	S-4	6-8	24	18	0.2	S-4: Dark brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/wet					
7											
8	S-5	8-10	24	17	ND	S-5: Dark brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/wet		ALLUVIUM/ OUTWASH			
9											
10	S-6	10-12	24	21	ND	S-6: (0"-10"): Dark brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/wet					
11					ND	(10"-21"): Dark brown (10YR 4/3), fine SAND, little Silt, trace Gravel, wet					Filter Sand
12	S-7	12-14	24	NA	ND	S-7: Dark brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/wet	3				Screen
13							4				
14	S-8	14-16	24	NA	ND	S-8: (0"-12"): Dark brown (10YR 4/3), fine to medium SAND, little Silt, trace Gravel, moist/wet	5				
15											

Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface

- REMARKS**
- 1 - The upper 6 feet was cleared using an air knife and soil vactor truck. Soil samples were collected from sidewalls.
 - 2 - 1" thick layer of asphalt on top.
 - 3 - Bands of redoximorphic features observed, 12-12.5 feet bgs.
 - 4 - Recovery not estimated between 12-20 feet bgs. due to slough and groundwater.
 - 5 - Water table at 12 feet bgs.

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-401

GZA TEMPLATE GEOPROBE W/EQUIP 6/16/2014, 2:59:24 PM

GEOPROBE LOG



National Grid
Former Tidewater Facility
Pawtucket, Rhode Island

EXPLORATION NO.: TB-401
SHEET: 2 of 2
PROJECT NO: 43654.00
REVIEWED BY: MSK

Logged By: SDN
Drilling Co.: CHES/NEG
Foreman: EA/HR

Geoprobe Location: See Plan
Ground Surface Elev. (ft.):
Final Geoprobe Depth (ft.): 20
Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
NM
V. Datum:
NM

Type of Rig: Vactor/Geoprobe
Rig Model: Truck Mounted
Drilling Method: Geoprobe

Sampler Type: NA
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft.)	Sample					Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)						
16					ND	(12"-24"): Gray (10YR 4/2), fine to coarse SAND, trace Gravel, trace Silt, wet					
17	S-9	16-18	24	NA	ND	S-9: Gray (10YR 4/2), fine to coarse SAND, trace Gravel, trace Silt, wet					
18							6	ALLUVIUM/ OUTWASH			
19	S-10	18-20	24	NA	ND	S-10: Gray (10YR 4/2), fine to coarse SAND, little Gravel, trace Silt, wet	7				
20									20		
21						End of exploration at 20 feet.					
22											
23											
24											
25											
26											
27											
28											
29											
30											

GZA TEMPLATE GEOPROBE W/EQUIP. 6/16/2014, 2:59:25 PM

REMARKS

Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface

6 - The headspace of soil samples was screened for Total Volatile Organic Compounds (TVOCs) using a miniRAE 3000 Photoionization detector (PID) equipped with a 10.6eV lamp. ND indicates readings below the instruments detection limit of approximately 0.1 ppmv.

7 - A groundwater monitoring well of the following construction was installed: 10 feet of 2" diameter, schedule 40, flush joint, threaded, 10 slot, PVC well screen at 20 feet bgs, 2" diameter, schedule 40, flush joint, threaded PVC, PVC riser installed from 0-10 feet bgs. Filter sand placed in annulus from 7-20 feet bgs. Bentonite seals installed 4-7 feet bgs., remaining annulus filled with filter sand. Well protected with a roadbox.

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-401

GEOPROBE LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

National Grid
 Former Tidewater Facility
 Pawtucket, Rhode Island

EXPLORATION NO.: TB-402
SHEET: 1 of 2
PROJECT NO: 43654.00
REVIEWED BY: MSK

Logged By: SDN
Drilling Co.: CHES/NEG
Foreman: EA/HR

Geoprobe Location: See Plan
Ground Surface Elev. (ft.):
Final Geoprobe Depth (ft.): 20
Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
 NM
V. Datum:
 NM

Type of Rig: Vactor/Geoprobe
Rig Model: Truck Mounted
Drilling Method: Geoprobe

Sampler Type: NA
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft)	Sample					Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)						
1	S-1	0-2	NA	NA	ND	S-1: Dark brown (10YR 4/2), fine to coarse SAND, some Gravel, some Silt, trace Brick, trace Asphalt, dry	1	FILL	2	No Equipment Installed	
2	S-2	2-4	NA	NA	ND	S-2: Dark brown (10YR 4/3), fine to medium SAND, some (-) Silt, trace Gravel, dry/moist	2				
3											
4	S-3	4-6	NA	NA	ND	S-3: Dark brown (10YR 4/3), fine to medium SAND, some (-) Silt, trace Gravel, moist		ALLUVIUM/ OUTWASH			
5											
6	S-4	6-8	24	9	ND	S-4: Dark brown (10YR 4/3), fine to medium SAND, some (-) Silt, trace Gravel, moist					
7											
8	S-5	8-10	24	16	ND	S-5: Dark brown (10YR 4/3), fine to medium SAND, some (-) Silt, trace Gravel, moist					
9											
10	S-6	10-12	24	18	ND	S-6: Dark brown (10YR 4/3), fine to medium SAND, some (-) Silt, trace Gravel, moist					
11											
12	S-7	12-14	24	18	ND	S-7: Dark brown (10YR 4/2), fine SAND, some Silt, trace Gravel, moist/wet					
13											
14	S-8	14-16	24	NA	ND	S-8: (0"-18"):Dark brown (10YR 4/2), fine SAND, some Silt, trace Gravel, wet	3				
15							4				

REMARKS

Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface

1 - The upper 6 feet was cleared using an air knife and soil vactor truck. Soil samples were collected from sidewalls.

2 - 1" thick layer of asphalt at 8" bgs.

3 - Water table at 14 feet bgs.

4 - Recovery not estimated between 14-20 feet bgs. due to slough from groundwater.

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-402

GZA TEMPLATE GEOPROBE W/EQUIP - 6/16/2014, 2:59:25 PM

GEOPROBE LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

National Grid
 Former Tidewater Facility
 Pawtucket, Rhode Island

EXPLORATION NO.: TB-402
SHEET: 2 of 2
PROJECT NO: 43654.00
REVIEWED BY: MSK

Logged By: SDN
Drilling Co.: CHES/NEG
Foreman: EA/HR

Geoprobe Location: See Plan
Ground Surface Elev. (ft.):
Final Geoprobe Depth (ft.): 20
Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
 NM
V. Datum:
 NM

Type of Rig: Vector/Geoprobe
Rig Model: Truck Mounted
Drilling Method: Geoprobe

Sampler Type: NA
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft)	Sample				PID (ppm)	Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)							
16	S-9	16-18	24	NA	ND	(18"-24"): Red-brown (5YR 5/6), medium to coarse SAND, some (-) Gravel, trace Silt, wet					
17					ND	S-9: Red-brown (5YR 5/6), medium to coarse SAND, some (-) Gravel, trace Silt, wet					
18	S-10	18-20	24	NA	ND	S-10: Red-brown (5YR 5/6), medium to coarse SAND, some (-) Gravel, trace Silt, wet					
19							5				
20						End of exploration at 20 feet.				20	
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

REMARKS
 Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface
 5 - The headspace of soil samples was screened for Total Volatile Organic Compounds (TVOCs) using a miniRAE 3000 Photoionization detector (PID) equipped with a 10.6eV lamp. ND indicates readings below the instruments detection limit of approximately 0.1 ppmv.

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-402

GZA TEMPLATE GEOPROBE W/EQUIP. 6/16/2014; 2:59:25 PM

GEOPROBE LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

National Grid
Former Tidewater Facility
Pawtucket, Rhode Island

EXPLORATION NO.: TB-403
SHEET: 1 of 2
PROJECT NO: 43654.00
REVIEWED BY: MSK

Logged By: SDN
Drilling Co.: CHES/NEG
Foreman: EA/HR

Geoprobe Location: See Plan
Ground Surface Elev. (ft.):
Final Geoprobe Depth (ft.): 20
Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
NM
V. Datum:
NM

Type of Rig: Vactor/Geoprobe
Rig Model: Truck Mounted
Drilling Method: Geoprobe

Sampler Type: NA
Sampler O.D. (in.): 2.0
Sampler Length (in.): 24
Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft.)	Sample					Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)						
1	S-1	0-2	NA	NA	ND	S-1: Light brown (10YR 5/6), fine to coarse SAND, little Gravel, little Silt, dry	1				No Equipment Installed
2	S-2	2-4	NA	NA	ND	S-2: Brown (10YR 4/3), fine to medium SAND, little Gravel, little Silt, dry/moist					
3	S-3	4-6	NA	NA	ND	S-3: Brown (10YR 4/3), fine to medium SAND, little Gravel, little Silt, dry/moist					
4	S-4	6-8	24	23	3.4	S-4: Brown (10YR 4/3), fine to coarse SAND, little Gravel, little Silt, moist					
5											
6											
7	S-4	6-8	24	23	3.4	S-4: Brown (10YR 4/3), fine to coarse SAND, little Gravel, little Silt, moist					
8											
9	S-5	8-10	24	23	1.7	S-5: (0"-12"): Brown (10YR 4/3), fine to coarse SAND, little Gravel, little Silt, moist (12"-23"): Brown (10YR 4/3), fine to coarse SAND, trace Silt, trace Gravel, moist	2				
10	S-6	10-12	24	23	0.2	S-6: Brown (10YR 4/3), fine to coarse SAND, little Gravel, little Silt, moist					
11											
12	S-7	12-14	24	24	9.5	S-7: (0"-12"): Brown (10YR 4/3), fine to coarse SAND, little Gravel, little Silt, moist (12"-24"): Brown (10YR 4/3), medium to coarse SAND, trace Silt, trace Gravel, wet	3				
13											
14	S-8	14-16	24	NA	0.1	S-8: Brown (10YR 4/3), medium to coarse SAND, trace Gravel, trace Silt, wet	4				
15							5				

REMARKS

Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface

- 1 - The upper 6 feet was cleared using an air knife and soil vactor truck. Soil samples were collected from sidewalls.
- 2 - Bands of coarse grained material observed between 9-14 feet bgs.
- 3 - BD#3 collected from 12-14 feet bgs.
- 4 - Water table at 14 feet bgs.
- 5 - Recovery not estimated between 14-20 feet bgs. due to slough and groundwater.

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-403

GEOPROBE LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

National Grid
 Former Tidewater Facility
 Pawtucket, Rhode Island

EXPLORATION NO.: TB-403
 SHEET: 2 of 2
 PROJECT NO: 43654.00
 REVIEWED BY: MSK

Logged By: SDN
 Drilling Co.: CHES/NEG
 Foreman: EA/HR

Geoprobe Location: See Plan
 Ground Surface Elev. (ft.):
 Final Geoprobe Depth (ft.): 20
 Date Start - Finish: 4/3/2014 - 4/4/2014

H. Datum:
 NM
 V. Datum:
 NM

Type of Rig: Vactor/Geoprobe
 Rig Model: Truck Mounted
 Drilling Method: Geoprobe

Sampler Type: NA
 Sampler O.D. (in.): 2.0
 Sampler Length (in.): 24
 Rock Core Size: NA

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
NM	NM	NM	NM

Depth (ft.)	Sample					Sample Description Modified Burmister	Remark	Elev. (ft.)	Stratum Description	Depth (ft.)	Equipment Installed
	No.	Depth (ft.)	Pen. (in)	Rec. (in)	PID (ppm)						
16	S-9	16-18	24	NA	ND	S-9: Brown (10YR 4/3), medium to coarse SAND, trace Gravel, trace Silt, wet		ALLUVIUM/ OUTWASH			
17											
18	S-10	18-20	24	NA	ND	S-10: Brown (10YR 4/3), medium to coarse SAND, trace Gravel, trace Silt, wet	6				
19											
20						End of exploration at 20 feet.				20	
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											

REMARKS

Abbreviations: NA=Not Applicable, NM=Not Measured, bgs=Below Ground Surface

6 - The headspace of soil samples was screened for Total Volatile Organic Compounds (TVOCs) using a miniRAE 3000 Photoionization detector (PID) equipped with a 10.6eV lamp. ND indicates readings below the instruments detection limit of approximately 0.1 ppmv.

7 - Headspace samples were composite samples due to limited recovery.

Field Screening performed with PID equipped with a 10.6 eV lamp calibrated to a 100 ppm isobutylene standard. See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TB-403

GZA TEMPLATE GEOPROBE W/EQUIP - 6/18/2014, 2:59:26 PM

APPENDIX D

INVESTIGATION DERIVED WASTE DISPOSAL MANIFESTS

RS

TRUCK 5139

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of 1

3. Emergency Response Phone

4. Manifest Tracking Number

RI8000032293

1

(800) 483 2719

006070107 FLE

5. Generator's Name and Mailing Address

Generator's Site Address (if different than mailing address)

Narragansett Electric company
40 Swivan Road
Warrum, MA 02451

200 Taft Street
Pawtucket, RI 02862

Generator's Phone:

(781) 907 3647 ATTN: Susan Bracke

6. Transporter 1 Company Name

U.S. EPA ID Number

Clean Harbors Environmental Services Inc

U.S. EPA ID Number

MA003922250

8. Designated Facility Name and Site Address

U.S. EPA ID Number

Clean Harbors of Braintree Inc
1 Hill Avenue
Braintree, MA 02194

MA053452837

Facility's Phone:

(781) 389 7100

9a HM	9b U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
1	NON DOT REGULATED MATERIAL (PURGEWATER)	001	DM	150	P	MA01	R015
2	NON DOT REGULATED MATERIAL (OILY DEBRIS)	001	DM	150	P	MA01	R015
3	NON DOT regulated material, (Oily Debris)	001	DM	150	P	MA01	R015
4							

14. Special Handling Instructions and Additional Information

- 1. T26701RIR (XSS)
- 2. R40179RIR (XSS)
- 3. R40179RIR (XSS)

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offor's Printed/Typed Name

ERIC C. ANTONIAN AGENT FOR NARRAGANSETT ELECTRIC

Signature

Eric Antonian

Month Day Year
5 15 14

16. International Shipments

Import to U.S.

Export from U.S.

Port of entry/exit:

Date leaving U.S.:

Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name

Shawn Giles

Signature

Shawn Giles

Month Day Year
5 15 14

Transporter 2 Printed/Typed Name

Signature

Month Day Year

18. Discrepancy

18a. Discrepancy Indication Space

Quantity

Type

Residue

Partial Rejection

Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)

U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator)

Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. H141	2. H141	3.	4.
---------	---------	----	----

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name

Hungan Hoang

Signature

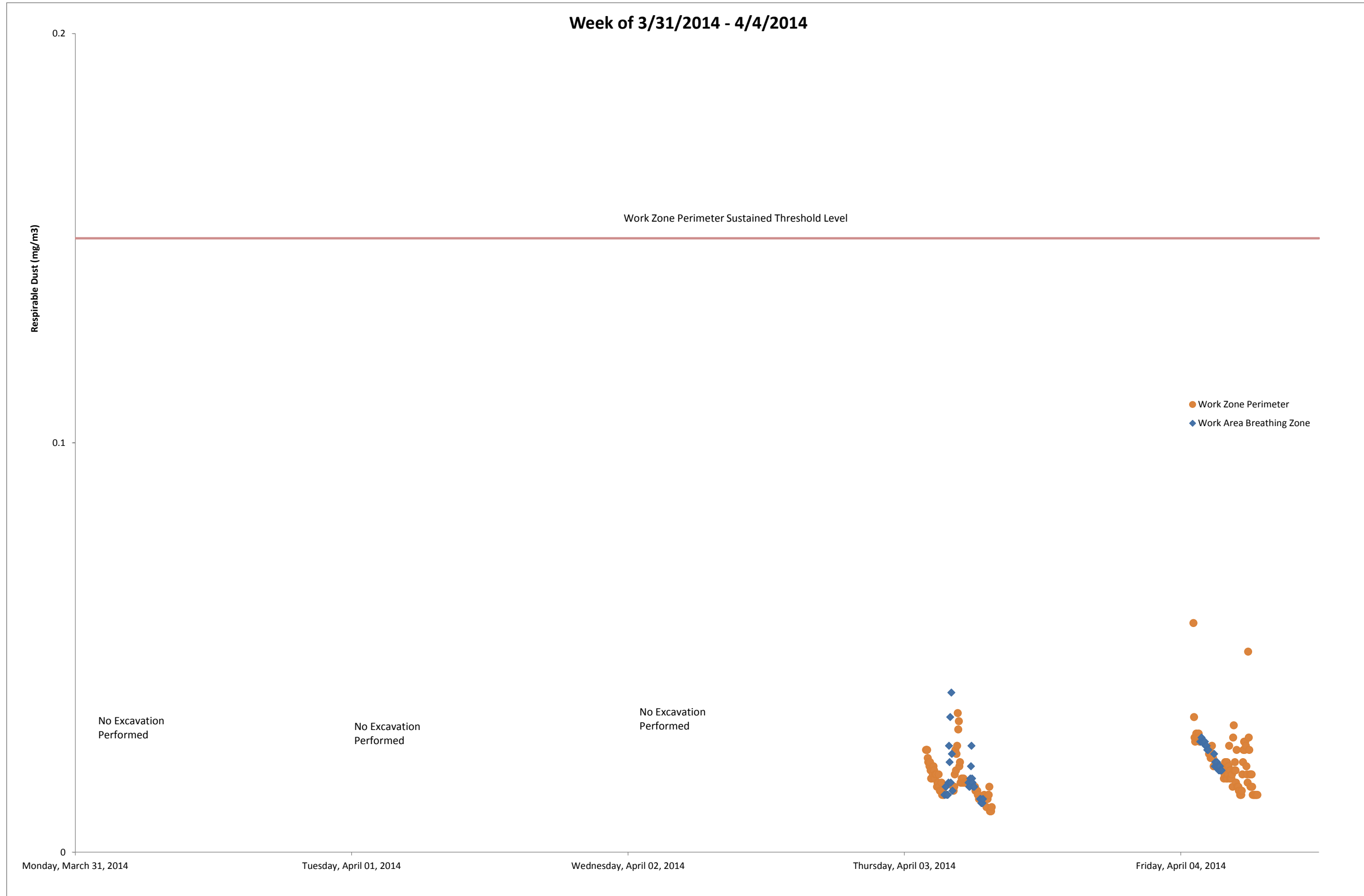
Hungan Hoang

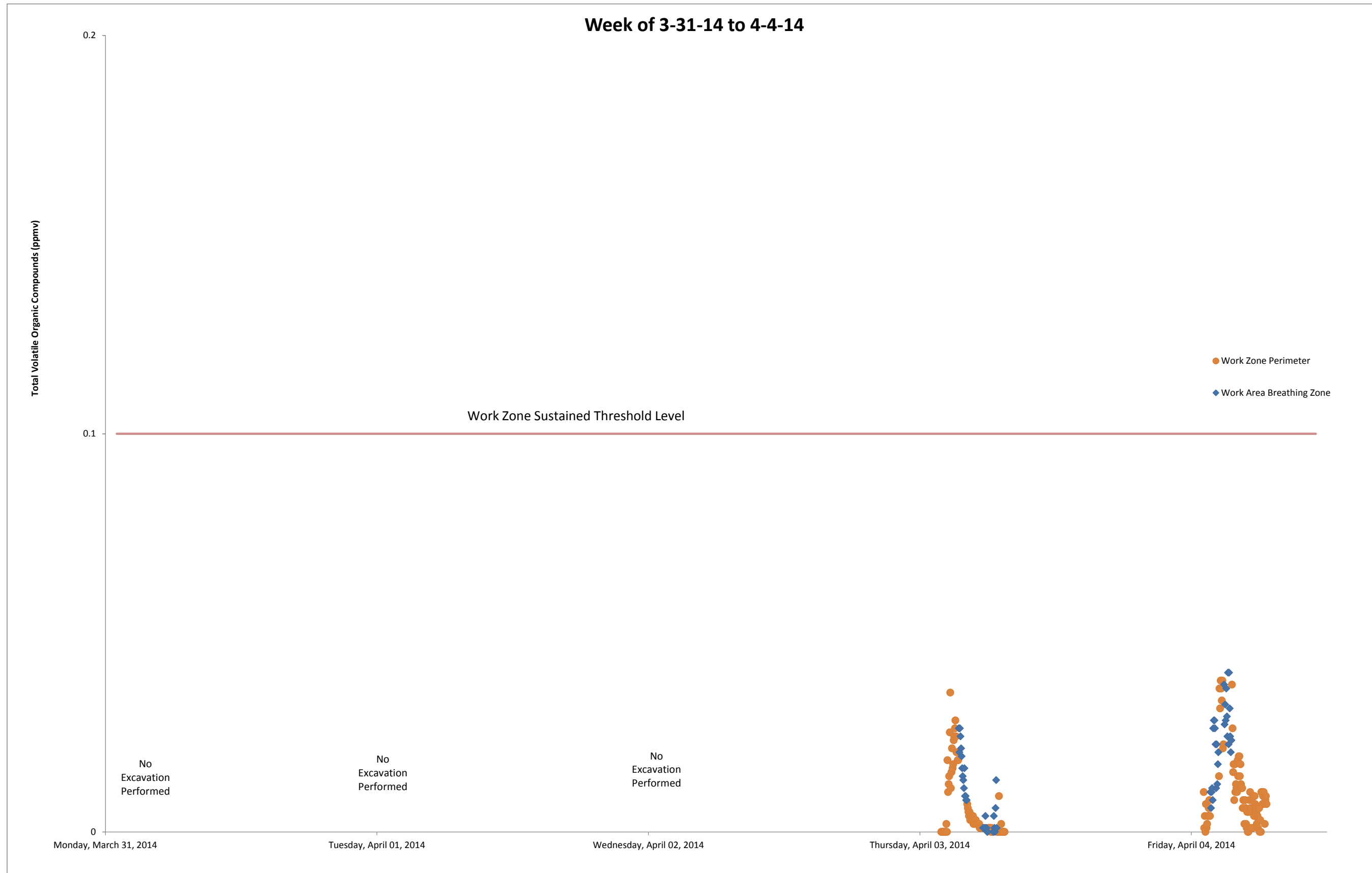
Month Day Year
5 15 14

rec'd 5-22-14

APPENDIX E

REAL TIME AIR MONITORING RESULTS





**Prepared by National Grid for the Businesses and Residents
Located Near the Former Tidewater Facility in Pawtucket, RI
Air Quality Monitoring - Transient Observations**

Date	Time	Location	Constituent	Observed Range of Elevated Transient Readings	Observed Conditions that may be leading to elevated transient readings
There were no transient elevated readings observed.					

Transient readings were conducted over a three minute time period. A reading is sustained if it is held for over a five minute time period.

APPENDIX F

SOIL LABORATORY DATA CERTIFICATES



CERTIFICATE OF ANALYSIS

Meg Kilpatrick
GZA GeoEnvironmental, Inc.
530 Broadway
Providence, RI 02909

RE: Tidewater GH (03.0043654)
ESS Laboratory Work Order Number: 1404134

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 4:17 pm, Apr 11, 2014

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 NELAC Standards, A2LA 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: Tidewater GH

ESS Laboratory Work Order: 1404134

SAMPLE RECEIPT

The following samples were received on April 04, 2014 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the Guidelines Establishing Test Procedures for the Analysis of Pollutants, 40 CFR Part 136, as amended.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1404134-01	TB-400 4-6	Soil	8260B
1404134-02	TB-401 4-6	Soil	8260B
1404134-03	TB-402 4-6	Soil	8260B
1404134-04	TB-403 4-6	Soil	8260B
1404134-05	Trip Blank-4314	Solid	8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

[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: Tidewater GH

ESS Laboratory Work Order: 1404134

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
- 8015D - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: TB-400 4-6
 Date Sampled: 04/03/14 10:00
 Percent Solids: 94
 Initial Volume: 24.5
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1404134
 ESS Laboratory Sample ID: 1404134-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0721)	0.0063	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0360)	0.0063	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0360)	0.0098	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0360)	0.0090	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0360)	0.0058	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0360)	0.0089	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0360)	0.0056	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0360)	0.0120	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0360)	0.0089	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0360)	0.0079	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0360)	0.0069	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.216)	0.0721	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0360)	0.0092	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0360)	0.0051	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0360)	0.0097	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0360)	0.0094	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0360)	0.0063	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0360)	0.0045	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0360)	0.0081	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0360)	0.0096	8260B		1	04/09/14 17:49	CXD0111	CD41008
1,4-Dioxane - Screen	ND (3.60)	1.20	8260B		1	04/09/14 17:49	CXD0111	CD41008
1-Chlorohexane	ND (0.0360)	0.0068	8260B		1	04/09/14 17:49	CXD0111	CD41008
2,2-Dichloropropane	ND (0.0721)	0.0123	8260B		1	04/09/14 17:49	CXD0111	CD41008
2-Butanone	ND (0.901)	0.208	8260B		1	04/09/14 17:49	CXD0111	CD41008
2-Chlorotoluene	ND (0.0360)	0.0102	8260B		1	04/09/14 17:49	CXD0111	CD41008
2-Hexanone	ND (0.360)	0.0621	8260B		1	04/09/14 17:49	CXD0111	CD41008
4-Chlorotoluene	ND (0.0360)	0.0047	8260B		1	04/09/14 17:49	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0360)	0.0064	8260B		1	04/09/14 17:49	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.360)	0.0434	8260B		1	04/09/14 17:49	CXD0111	CD41008
Acetone	ND (0.901)	0.267	8260B		1	04/09/14 17:49	CXD0111	CD41008
Benzene	ND (0.0360)	0.0058	8260B		1	04/09/14 17:49	CXD0111	CD41008
Bromobenzene	ND (0.0360)	0.0099	8260B		1	04/09/14 17:49	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-400 4-6
Date Sampled: 04/03/14 10:00
Percent Solids: 94
Initial Volume: 24.5
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0360)	0.0117	8260B		1	04/09/14 17:49	CXD0111	CD41008
Bromodichloromethane	ND (0.0360)	0.0050	8260B		1	04/09/14 17:49	CXD0111	CD41008
Bromoform	ND (0.0360)	0.0104	8260B		1	04/09/14 17:49	CXD0111	CD41008
Bromomethane	ND (0.0721)	0.0241	8260B		1	04/09/14 17:49	CXD0111	CD41008
Carbon Disulfide	ND (0.0360)	0.0053	8260B		1	04/09/14 17:49	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0360)	0.0063	8260B		1	04/09/14 17:49	CXD0111	CD41008
Chlorobenzene	ND (0.0360)	0.0057	8260B		1	04/09/14 17:49	CXD0111	CD41008
Chloroethane	ND (0.0721)	0.0240	8260B		1	04/09/14 17:49	CXD0111	CD41008
Chloroform	ND (0.0360)	0.0074	8260B		1	04/09/14 17:49	CXD0111	CD41008
Chloromethane	ND (0.0721)	0.0092	8260B		1	04/09/14 17:49	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0360)	0.0089	8260B		1	04/09/14 17:49	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0360)	0.0081	8260B		1	04/09/14 17:49	CXD0111	CD41008
Dibromochloromethane	ND (0.0360)	0.0091	8260B		1	04/09/14 17:49	CXD0111	CD41008
Dibromomethane	ND (0.0360)	0.0114	8260B		1	04/09/14 17:49	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0360)	0.0063	8260B		1	04/09/14 17:49	CXD0111	CD41008
Diethyl Ether	ND (0.0360)	0.0092	8260B		1	04/09/14 17:49	CXD0111	CD41008
Di-isopropyl ether	ND (0.0360)	0.0068	8260B		1	04/09/14 17:49	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0360)	0.0091	8260B		1	04/09/14 17:49	CXD0111	CD41008
Ethylbenzene	ND (0.0360)	0.0047	8260B		1	04/09/14 17:49	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0360)	0.0120	8260B		1	04/09/14 17:49	CXD0111	CD41008
Isopropylbenzene	ND (0.0360)	0.0063	8260B		1	04/09/14 17:49	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0360)	0.0058	8260B		1	04/09/14 17:49	CXD0111	CD41008
Methylene Chloride	ND (0.180)	0.0094	8260B		1	04/09/14 17:49	CXD0111	CD41008
Naphthalene	ND (0.0360)	0.0094	8260B		1	04/09/14 17:49	CXD0111	CD41008
n-Butylbenzene	ND (0.0360)	0.0089	8260B		1	04/09/14 17:49	CXD0111	CD41008
n-Propylbenzene	ND (0.0360)	0.0088	8260B		1	04/09/14 17:49	CXD0111	CD41008
sec-Butylbenzene	ND (0.0360)	0.0048	8260B		1	04/09/14 17:49	CXD0111	CD41008
Styrene	ND (0.0360)	0.0048	8260B		1	04/09/14 17:49	CXD0111	CD41008
tert-Butylbenzene	ND (0.0360)	0.0084	8260B		1	04/09/14 17:49	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0360)	0.0052	8260B		1	04/09/14 17:49	CXD0111	CD41008
Tetrachloroethene	ND (0.0360)	0.0120	8260B		1	04/09/14 17:49	CXD0111	CD41008
Tetrahydrofuran	ND (0.360)	0.0930	8260B		1	04/09/14 17:49	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-400 4-6
Date Sampled: 04/03/14 10:00
Percent Solids: 94
Initial Volume: 24.5
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0360)	0.0092	8260B		1	04/09/14 17:49	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0360)	0.0118	8260B		1	04/09/14 17:49	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0360)	0.0111	8260B		1	04/09/14 17:49	CXD0111	CD41008
Trichloroethene	ND (0.0360)	0.0074	8260B		1	04/09/14 17:49	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0360)	0.0095	8260B		1	04/09/14 17:49	CXD0111	CD41008
Vinyl Acetate	ND (0.180)	0.0074	8260B		1	04/09/14 17:49	CXD0111	CD41008
Vinyl Chloride	ND (0.0360)	0.0119	8260B		1	04/09/14 17:49	CXD0111	CD41008
Xylene O	ND (0.0360)	0.0069	8260B		1	04/09/14 17:49	CXD0111	CD41008
Xylene P,M	ND (0.0721)	0.0140	8260B		1	04/09/14 17:49	CXD0111	CD41008
Xylenes (Total)	ND (0.0721)		8260B		1	04/09/14 17:49		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>86 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>92 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-401 4-6
Date Sampled: 04/03/14 12:15
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.101)	0.0088	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0504)	0.0089	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0504)	0.0137	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0504)	0.0126	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0504)	0.0081	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0504)	0.0124	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0504)	0.0078	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0504)	0.0168	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0504)	0.0125	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0504)	0.0111	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0504)	0.0097	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.302)	0.101	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0504)	0.0128	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0504)	0.0072	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0504)	0.0135	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0504)	0.0132	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0504)	0.0089	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0504)	0.0064	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0504)	0.0113	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0504)	0.0134	8260B		1	04/09/14 18:17	CXD0111	CD41008
1,4-Dioxane - Screen	ND (5.04)	1.68	8260B		1	04/09/14 18:17	CXD0111	CD41008
1-Chlorohexane	ND (0.0504)	0.0096	8260B		1	04/09/14 18:17	CXD0111	CD41008
2,2-Dichloropropane	ND (0.101)	0.0172	8260B		1	04/09/14 18:17	CXD0111	CD41008
2-Butanone	ND (1.26)	0.291	8260B		1	04/09/14 18:17	CXD0111	CD41008
2-Chlorotoluene	ND (0.0504)	0.0142	8260B		1	04/09/14 18:17	CXD0111	CD41008
2-Hexanone	ND (0.504)	0.0868	8260B		1	04/09/14 18:17	CXD0111	CD41008
4-Chlorotoluene	ND (0.0504)	0.0066	8260B		1	04/09/14 18:17	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0504)	0.0090	8260B		1	04/09/14 18:17	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.504)	0.0607	8260B		1	04/09/14 18:17	CXD0111	CD41008
Acetone	ND (1.26)	0.373	8260B		1	04/09/14 18:17	CXD0111	CD41008
Benzene	ND (0.0504)	0.0082	8260B		1	04/09/14 18:17	CXD0111	CD41008
Bromobenzene	ND (0.0504)	0.0138	8260B		1	04/09/14 18:17	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-401 4-6
Date Sampled: 04/03/14 12:15
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0504)	0.0163	8260B		1	04/09/14 18:17	CXD0111	CD41008
Bromodichloromethane	ND (0.0504)	0.0070	8260B		1	04/09/14 18:17	CXD0111	CD41008
Bromoform	ND (0.0504)	0.0145	8260B		1	04/09/14 18:17	CXD0111	CD41008
Bromomethane	ND (0.101)	0.0337	8260B		1	04/09/14 18:17	CXD0111	CD41008
Carbon Disulfide	ND (0.0504)	0.0075	8260B		1	04/09/14 18:17	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0504)	0.0088	8260B		1	04/09/14 18:17	CXD0111	CD41008
Chlorobenzene	ND (0.0504)	0.0080	8260B		1	04/09/14 18:17	CXD0111	CD41008
Chloroethane	ND (0.101)	0.0336	8260B		1	04/09/14 18:17	CXD0111	CD41008
Chloroform	ND (0.0504)	0.0104	8260B		1	04/09/14 18:17	CXD0111	CD41008
Chloromethane	ND (0.101)	0.0128	8260B		1	04/09/14 18:17	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0504)	0.0125	8260B		1	04/09/14 18:17	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0504)	0.0114	8260B		1	04/09/14 18:17	CXD0111	CD41008
Dibromochloromethane	ND (0.0504)	0.0127	8260B		1	04/09/14 18:17	CXD0111	CD41008
Dibromomethane	ND (0.0504)	0.0159	8260B		1	04/09/14 18:17	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0504)	0.0088	8260B		1	04/09/14 18:17	CXD0111	CD41008
Diethyl Ether	ND (0.0504)	0.0128	8260B		1	04/09/14 18:17	CXD0111	CD41008
Di-isopropyl ether	ND (0.0504)	0.0095	8260B		1	04/09/14 18:17	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0504)	0.0127	8260B		1	04/09/14 18:17	CXD0111	CD41008
Ethylbenzene	ND (0.0504)	0.0066	8260B		1	04/09/14 18:17	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0504)	0.0168	8260B		1	04/09/14 18:17	CXD0111	CD41008
Isopropylbenzene	ND (0.0504)	0.0089	8260B		1	04/09/14 18:17	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0504)	0.0081	8260B		1	04/09/14 18:17	CXD0111	CD41008
Methylene Chloride	ND (0.252)	0.0132	8260B		1	04/09/14 18:17	CXD0111	CD41008
Naphthalene	ND (0.0504)	0.0132	8260B		1	04/09/14 18:17	CXD0111	CD41008
n-Butylbenzene	ND (0.0504)	0.0124	8260B		1	04/09/14 18:17	CXD0111	CD41008
n-Propylbenzene	ND (0.0504)	0.0123	8260B		1	04/09/14 18:17	CXD0111	CD41008
sec-Butylbenzene	ND (0.0504)	0.0068	8260B		1	04/09/14 18:17	CXD0111	CD41008
Styrene	ND (0.0504)	0.0067	8260B		1	04/09/14 18:17	CXD0111	CD41008
tert-Butylbenzene	ND (0.0504)	0.0118	8260B		1	04/09/14 18:17	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0504)	0.0073	8260B		1	04/09/14 18:17	CXD0111	CD41008
Tetrachloroethene	ND (0.0504)	0.0168	8260B		1	04/09/14 18:17	CXD0111	CD41008
Tetrahydrofuran	ND (0.504)	0.130	8260B		1	04/09/14 18:17	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-401 4-6
Date Sampled: 04/03/14 12:15
Percent Solids: 88
Initial Volume: 19.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0504)	0.0128	8260B		1	04/09/14 18:17	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0504)	0.0165	8260B		1	04/09/14 18:17	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0504)	0.0155	8260B		1	04/09/14 18:17	CXD0111	CD41008
Trichloroethene	ND (0.0504)	0.0104	8260B		1	04/09/14 18:17	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0504)	0.0133	8260B		1	04/09/14 18:17	CXD0111	CD41008
Vinyl Acetate	ND (0.252)	0.0104	8260B		1	04/09/14 18:17	CXD0111	CD41008
Vinyl Chloride	ND (0.0504)	0.0166	8260B		1	04/09/14 18:17	CXD0111	CD41008
Xylene O	ND (0.0504)	0.0097	8260B		1	04/09/14 18:17	CXD0111	CD41008
Xylene P,M	ND (0.101)	0.0196	8260B		1	04/09/14 18:17	CXD0111	CD41008
Xylenes (Total)	ND (0.101)		8260B		1	04/09/14 18:17		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>77 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>82 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>84 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>81 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: TB-402 4-6
 Date Sampled: 04/03/14 11:00
 Percent Solids: 91
 Initial Volume: 28.1
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1404134
 ESS Laboratory Sample ID: 1404134-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0691)	0.0060	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0345)	0.0061	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0345)	0.0094	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0345)	0.0086	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0345)	0.0055	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0345)	0.0085	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0345)	0.0053	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0345)	0.0115	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0345)	0.0086	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0345)	0.0076	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0345)	0.0066	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.207)	0.0691	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0345)	0.0088	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0345)	0.0049	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0345)	0.0093	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0345)	0.0091	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0345)	0.0061	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0345)	0.0044	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0345)	0.0077	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0345)	0.0092	8260B		1	04/09/14 18:45	CXD0111	CD41008
1,4-Dioxane - Screen	ND (3.45)	1.15	8260B		1	04/09/14 18:45	CXD0111	CD41008
1-Chlorohexane	ND (0.0345)	0.0066	8260B		1	04/09/14 18:45	CXD0111	CD41008
2,2-Dichloropropane	ND (0.0691)	0.0118	8260B		1	04/09/14 18:45	CXD0111	CD41008
2-Butanone	ND (0.864)	0.200	8260B		1	04/09/14 18:45	CXD0111	CD41008
2-Chlorotoluene	ND (0.0345)	0.0097	8260B		1	04/09/14 18:45	CXD0111	CD41008
2-Hexanone	ND (0.345)	0.0595	8260B		1	04/09/14 18:45	CXD0111	CD41008
4-Chlorotoluene	ND (0.0345)	0.0045	8260B		1	04/09/14 18:45	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0345)	0.0061	8260B		1	04/09/14 18:45	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.345)	0.0416	8260B		1	04/09/14 18:45	CXD0111	CD41008
Acetone	ND (0.864)	0.256	8260B		1	04/09/14 18:45	CXD0111	CD41008
Benzene	ND (0.0345)	0.0056	8260B		1	04/09/14 18:45	CXD0111	CD41008
Bromobenzene	ND (0.0345)	0.0095	8260B		1	04/09/14 18:45	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-402 4-6
Date Sampled: 04/03/14 11:00
Percent Solids: 91
Initial Volume: 28.1
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0345)	0.0112	8260B		1	04/09/14 18:45	CXD0111	CD41008
Bromodichloromethane	ND (0.0345)	0.0048	8260B		1	04/09/14 18:45	CXD0111	CD41008
Bromoform	ND (0.0345)	0.0099	8260B		1	04/09/14 18:45	CXD0111	CD41008
Bromomethane	ND (0.0691)	0.0231	8260B		1	04/09/14 18:45	CXD0111	CD41008
Carbon Disulfide	ND (0.0345)	0.0051	8260B		1	04/09/14 18:45	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0345)	0.0060	8260B		1	04/09/14 18:45	CXD0111	CD41008
Chlorobenzene	ND (0.0345)	0.0055	8260B		1	04/09/14 18:45	CXD0111	CD41008
Chloroethane	ND (0.0691)	0.0230	8260B		1	04/09/14 18:45	CXD0111	CD41008
Chloroform	ND (0.0345)	0.0071	8260B		1	04/09/14 18:45	CXD0111	CD41008
Chloromethane	ND (0.0691)	0.0088	8260B		1	04/09/14 18:45	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0345)	0.0086	8260B		1	04/09/14 18:45	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0345)	0.0078	8260B		1	04/09/14 18:45	CXD0111	CD41008
Dibromochloromethane	ND (0.0345)	0.0087	8260B		1	04/09/14 18:45	CXD0111	CD41008
Dibromomethane	ND (0.0345)	0.0109	8260B		1	04/09/14 18:45	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0345)	0.0060	8260B		1	04/09/14 18:45	CXD0111	CD41008
Diethyl Ether	ND (0.0345)	0.0088	8260B		1	04/09/14 18:45	CXD0111	CD41008
Di-isopropyl ether	ND (0.0345)	0.0065	8260B		1	04/09/14 18:45	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0345)	0.0087	8260B		1	04/09/14 18:45	CXD0111	CD41008
Ethylbenzene	ND (0.0345)	0.0045	8260B		1	04/09/14 18:45	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0345)	0.0115	8260B		1	04/09/14 18:45	CXD0111	CD41008
Isopropylbenzene	ND (0.0345)	0.0061	8260B		1	04/09/14 18:45	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0345)	0.0055	8260B		1	04/09/14 18:45	CXD0111	CD41008
Methylene Chloride	ND (0.173)	0.0091	8260B		1	04/09/14 18:45	CXD0111	CD41008
Naphthalene	ND (0.0345)	0.0091	8260B		1	04/09/14 18:45	CXD0111	CD41008
n-Butylbenzene	ND (0.0345)	0.0085	8260B		1	04/09/14 18:45	CXD0111	CD41008
n-Propylbenzene	ND (0.0345)	0.0084	8260B		1	04/09/14 18:45	CXD0111	CD41008
sec-Butylbenzene	ND (0.0345)	0.0046	8260B		1	04/09/14 18:45	CXD0111	CD41008
Styrene	ND (0.0345)	0.0046	8260B		1	04/09/14 18:45	CXD0111	CD41008
tert-Butylbenzene	ND (0.0345)	0.0081	8260B		1	04/09/14 18:45	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0345)	0.0050	8260B		1	04/09/14 18:45	CXD0111	CD41008
Tetrachloroethene	ND (0.0345)	0.0115	8260B		1	04/09/14 18:45	CXD0111	CD41008
Tetrahydrofuran	ND (0.345)	0.0891	8260B		1	04/09/14 18:45	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: TB-402 4-6
 Date Sampled: 04/03/14 11:00
 Percent Solids: 91
 Initial Volume: 28.1
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1404134
 ESS Laboratory Sample ID: 1404134-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0345)	0.0088	8260B		1	04/09/14 18:45	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0345)	0.0113	8260B		1	04/09/14 18:45	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0345)	0.0106	8260B		1	04/09/14 18:45	CXD0111	CD41008
Trichloroethene	ND (0.0345)	0.0071	8260B		1	04/09/14 18:45	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0345)	0.0091	8260B		1	04/09/14 18:45	CXD0111	CD41008
Vinyl Acetate	ND (0.173)	0.0071	8260B		1	04/09/14 18:45	CXD0111	CD41008
Vinyl Chloride	ND (0.0345)	0.0114	8260B		1	04/09/14 18:45	CXD0111	CD41008
Xylene O	ND (0.0345)	0.0066	8260B		1	04/09/14 18:45	CXD0111	CD41008
Xylene P,M	ND (0.0691)	0.0134	8260B		1	04/09/14 18:45	CXD0111	CD41008
Xylenes (Total)	ND (0.0691)		8260B		1	04/09/14 18:45		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	88 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	91 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	94 %		70-130
<i>Surrogate: Toluene-d8</i>	91 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-403 4-6
Date Sampled: 04/03/14 08:45
Percent Solids: 88
Initial Volume: 23.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0864)	0.0075	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0432)	0.0076	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0432)	0.0117	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0432)	0.0108	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0432)	0.0069	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0432)	0.0106	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0432)	0.0067	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0432)	0.0144	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0432)	0.0107	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0432)	0.0095	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0432)	0.0083	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.259)	0.0864	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0432)	0.0110	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0432)	0.0061	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0432)	0.0116	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0432)	0.0113	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0432)	0.0076	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0432)	0.0054	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0432)	0.0097	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0432)	0.0115	8260B		1	04/09/14 19:13	CXD0111	CD41008
1,4-Dioxane - Screen	ND (4.32)	1.44	8260B		1	04/09/14 19:13	CXD0111	CD41008
1-Chlorohexane	ND (0.0432)	0.0082	8260B		1	04/09/14 19:13	CXD0111	CD41008
2,2-Dichloropropane	ND (0.0864)	0.0148	8260B		1	04/09/14 19:13	CXD0111	CD41008
2-Butanone	ND (1.08)	0.250	8260B		1	04/09/14 19:13	CXD0111	CD41008
2-Chlorotoluene	ND (0.0432)	0.0122	8260B		1	04/09/14 19:13	CXD0111	CD41008
2-Hexanone	ND (0.432)	0.0744	8260B		1	04/09/14 19:13	CXD0111	CD41008
4-Chlorotoluene	ND (0.0432)	0.0056	8260B		1	04/09/14 19:13	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0432)	0.0077	8260B		1	04/09/14 19:13	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.432)	0.0520	8260B		1	04/09/14 19:13	CXD0111	CD41008
Acetone	ND (1.08)	0.320	8260B		1	04/09/14 19:13	CXD0111	CD41008
Benzene	ND (0.0432)	0.0070	8260B		1	04/09/14 19:13	CXD0111	CD41008
Bromobenzene	ND (0.0432)	0.0118	8260B		1	04/09/14 19:13	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-403 4-6
Date Sampled: 04/03/14 08:45
Percent Solids: 88
Initial Volume: 23.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0432)	0.0140	8260B		1	04/09/14 19:13	CXD0111	CD41008
Bromodichloromethane	ND (0.0432)	0.0060	8260B		1	04/09/14 19:13	CXD0111	CD41008
Bromoform	ND (0.0432)	0.0124	8260B		1	04/09/14 19:13	CXD0111	CD41008
Bromomethane	ND (0.0864)	0.0288	8260B		1	04/09/14 19:13	CXD0111	CD41008
Carbon Disulfide	ND (0.0432)	0.0064	8260B		1	04/09/14 19:13	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0432)	0.0075	8260B		1	04/09/14 19:13	CXD0111	CD41008
Chlorobenzene	ND (0.0432)	0.0068	8260B		1	04/09/14 19:13	CXD0111	CD41008
Chloroethane	ND (0.0864)	0.0288	8260B		1	04/09/14 19:13	CXD0111	CD41008
Chloroform	ND (0.0432)	0.0089	8260B		1	04/09/14 19:13	CXD0111	CD41008
Chloromethane	ND (0.0864)	0.0110	8260B		1	04/09/14 19:13	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0432)	0.0107	8260B		1	04/09/14 19:13	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0432)	0.0098	8260B		1	04/09/14 19:13	CXD0111	CD41008
Dibromochloromethane	ND (0.0432)	0.0109	8260B		1	04/09/14 19:13	CXD0111	CD41008
Dibromomethane	ND (0.0432)	0.0136	8260B		1	04/09/14 19:13	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0432)	0.0075	8260B		1	04/09/14 19:13	CXD0111	CD41008
Diethyl Ether	ND (0.0432)	0.0110	8260B		1	04/09/14 19:13	CXD0111	CD41008
Di-isopropyl ether	ND (0.0432)	0.0081	8260B		1	04/09/14 19:13	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0432)	0.0109	8260B		1	04/09/14 19:13	CXD0111	CD41008
Ethylbenzene	ND (0.0432)	0.0056	8260B		1	04/09/14 19:13	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0432)	0.0144	8260B		1	04/09/14 19:13	CXD0111	CD41008
Isopropylbenzene	ND (0.0432)	0.0076	8260B		1	04/09/14 19:13	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0432)	0.0069	8260B		1	04/09/14 19:13	CXD0111	CD41008
Methylene Chloride	ND (0.216)	0.0113	8260B		1	04/09/14 19:13	CXD0111	CD41008
Naphthalene	J 0.0268 (0.0432)	0.0113	8260B		1	04/09/14 19:13	CXD0111	CD41008
n-Butylbenzene	ND (0.0432)	0.0106	8260B		1	04/09/14 19:13	CXD0111	CD41008
n-Propylbenzene	ND (0.0432)	0.0105	8260B		1	04/09/14 19:13	CXD0111	CD41008
sec-Butylbenzene	ND (0.0432)	0.0058	8260B		1	04/09/14 19:13	CXD0111	CD41008
Styrene	ND (0.0432)	0.0057	8260B		1	04/09/14 19:13	CXD0111	CD41008
tert-Butylbenzene	ND (0.0432)	0.0101	8260B		1	04/09/14 19:13	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0432)	0.0062	8260B		1	04/09/14 19:13	CXD0111	CD41008
Tetrachloroethene	ND (0.0432)	0.0144	8260B		1	04/09/14 19:13	CXD0111	CD41008
Tetrahydrofuran	ND (0.432)	0.111	8260B		1	04/09/14 19:13	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-403 4-6
Date Sampled: 04/03/14 08:45
Percent Solids: 88
Initial Volume: 23.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0432)	0.0110	8260B		1	04/09/14 19:13	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0432)	0.0142	8260B		1	04/09/14 19:13	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0432)	0.0133	8260B		1	04/09/14 19:13	CXD0111	CD41008
Trichloroethene	ND (0.0432)	0.0089	8260B		1	04/09/14 19:13	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0432)	0.0114	8260B		1	04/09/14 19:13	CXD0111	CD41008
Vinyl Acetate	ND (0.216)	0.0089	8260B		1	04/09/14 19:13	CXD0111	CD41008
Vinyl Chloride	ND (0.0432)	0.0143	8260B		1	04/09/14 19:13	CXD0111	CD41008
Xylene O	ND (0.0432)	0.0083	8260B		1	04/09/14 19:13	CXD0111	CD41008
Xylene P,M	ND (0.0864)	0.0168	8260B		1	04/09/14 19:13	CXD0111	CD41008
Xylenes (Total)	ND (0.0864)		8260B		1	04/09/14 19:13		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>93 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>95 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>94 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank-4314
Date Sampled: 04/03/14 00:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-05
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.100)	0.0087	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0500)	0.0088	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0500)	0.0136	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0500)	0.0125	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0500)	0.0080	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0500)	0.0123	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0500)	0.0077	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0500)	0.0167	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0500)	0.0124	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0500)	0.0110	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0500)	0.0096	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.300)	0.100	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0500)	0.0127	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0500)	0.0071	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0500)	0.0134	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0500)	0.0131	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0500)	0.0088	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0500)	0.0063	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0500)	0.0112	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0500)	0.0133	8260B		1	04/09/14 13:08	CXD0111	CD41008
1,4-Dioxane - Screen	ND (5.00)	1.67	8260B		1	04/09/14 13:08	CXD0111	CD41008
1-Chlorohexane	ND (0.0500)	0.0095	8260B		1	04/09/14 13:08	CXD0111	CD41008
2,2-Dichloropropane	ND (0.100)	0.0171	8260B		1	04/09/14 13:08	CXD0111	CD41008
2-Butanone	ND (1.25)	0.289	8260B		1	04/09/14 13:08	CXD0111	CD41008
2-Chlorotoluene	ND (0.0500)	0.0141	8260B		1	04/09/14 13:08	CXD0111	CD41008
2-Hexanone	ND (0.500)	0.0861	8260B		1	04/09/14 13:08	CXD0111	CD41008
4-Chlorotoluene	ND (0.0500)	0.0065	8260B		1	04/09/14 13:08	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0500)	0.0089	8260B		1	04/09/14 13:08	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.500)	0.0602	8260B		1	04/09/14 13:08	CXD0111	CD41008
Acetone	ND (1.25)	0.370	8260B		1	04/09/14 13:08	CXD0111	CD41008
Benzene	ND (0.0500)	0.0081	8260B		1	04/09/14 13:08	CXD0111	CD41008
Bromobenzene	ND (0.0500)	0.0137	8260B		1	04/09/14 13:08	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank-4314
Date Sampled: 04/03/14 00:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-05
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0500)	0.0162	8260B		1	04/09/14 13:08	CXD0111	CD41008
Bromodichloromethane	ND (0.0500)	0.0069	8260B		1	04/09/14 13:08	CXD0111	CD41008
Bromoform	ND (0.0500)	0.0144	8260B		1	04/09/14 13:08	CXD0111	CD41008
Bromomethane	ND (0.100)	0.0334	8260B		1	04/09/14 13:08	CXD0111	CD41008
Carbon Disulfide	ND (0.0500)	0.0074	8260B		1	04/09/14 13:08	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0500)	0.0087	8260B		1	04/09/14 13:08	CXD0111	CD41008
Chlorobenzene	ND (0.0500)	0.0079	8260B		1	04/09/14 13:08	CXD0111	CD41008
Chloroethane	ND (0.100)	0.0333	8260B		1	04/09/14 13:08	CXD0111	CD41008
Chloroform	ND (0.0500)	0.0103	8260B		1	04/09/14 13:08	CXD0111	CD41008
Chloromethane	ND (0.100)	0.0127	8260B		1	04/09/14 13:08	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0500)	0.0124	8260B		1	04/09/14 13:08	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0500)	0.0113	8260B		1	04/09/14 13:08	CXD0111	CD41008
Dibromochloromethane	ND (0.0500)	0.0126	8260B		1	04/09/14 13:08	CXD0111	CD41008
Dibromomethane	ND (0.0500)	0.0158	8260B		1	04/09/14 13:08	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0500)	0.0087	8260B		1	04/09/14 13:08	CXD0111	CD41008
Diethyl Ether	ND (0.0500)	0.0127	8260B		1	04/09/14 13:08	CXD0111	CD41008
Di-isopropyl ether	ND (0.0500)	0.0094	8260B		1	04/09/14 13:08	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0500)	0.0126	8260B		1	04/09/14 13:08	CXD0111	CD41008
Ethylbenzene	ND (0.0500)	0.0065	8260B		1	04/09/14 13:08	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0500)	0.0167	8260B		1	04/09/14 13:08	CXD0111	CD41008
Isopropylbenzene	ND (0.0500)	0.0088	8260B		1	04/09/14 13:08	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0500)	0.0080	8260B		1	04/09/14 13:08	CXD0111	CD41008
Methylene Chloride	ND (0.250)	0.0131	8260B		1	04/09/14 13:08	CXD0111	CD41008
Naphthalene	ND (0.0500)	0.0131	8260B		1	04/09/14 13:08	CXD0111	CD41008
n-Butylbenzene	ND (0.0500)	0.0123	8260B		1	04/09/14 13:08	CXD0111	CD41008
n-Propylbenzene	ND (0.0500)	0.0122	8260B		1	04/09/14 13:08	CXD0111	CD41008
sec-Butylbenzene	ND (0.0500)	0.0067	8260B		1	04/09/14 13:08	CXD0111	CD41008
Styrene	ND (0.0500)	0.0066	8260B		1	04/09/14 13:08	CXD0111	CD41008
tert-Butylbenzene	ND (0.0500)	0.0117	8260B		1	04/09/14 13:08	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0500)	0.0072	8260B		1	04/09/14 13:08	CXD0111	CD41008
Tetrachloroethene	ND (0.0500)	0.0167	8260B		1	04/09/14 13:08	CXD0111	CD41008
Tetrahydrofuran	ND (0.500)	0.129	8260B		1	04/09/14 13:08	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank-4314
Date Sampled: 04/03/14 00:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404134
ESS Laboratory Sample ID: 1404134-05
Sample Matrix: Solid
Units: mg/kg wet
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0500)	0.0127	8260B		1	04/09/14 13:08	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0500)	0.0164	8260B		1	04/09/14 13:08	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0500)	0.0154	8260B		1	04/09/14 13:08	CXD0111	CD41008
Trichloroethene	ND (0.0500)	0.0103	8260B		1	04/09/14 13:08	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0500)	0.0132	8260B		1	04/09/14 13:08	CXD0111	CD41008
Vinyl Acetate	ND (0.250)	0.0103	8260B		1	04/09/14 13:08	CXD0111	CD41008
Vinyl Chloride	ND (0.0500)	0.0165	8260B		1	04/09/14 13:08	CXD0111	CD41008
Xylene O	ND (0.0500)	0.0096	8260B		1	04/09/14 13:08	CXD0111	CD41008
Xylene P,M	ND (0.100)	0.0194	8260B		1	04/09/14 13:08	CXD0111	CD41008
Xylenes (Total)	ND (0.100)		8260B		1	04/09/14 13:08		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>115 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>113 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.100	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0500	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0500	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0500	mg/kg wet							
1,1-Dichloroethane	ND	0.0500	mg/kg wet							
1,1-Dichloroethene	ND	0.0500	mg/kg wet							
1,1-Dichloropropene	ND	0.0500	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0500	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0500	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0500	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0500	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.300	mg/kg wet							
1,2-Dibromoethane	ND	0.0500	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,2-Dichloroethane	ND	0.0500	mg/kg wet							
1,2-Dichloropropane	ND	0.0500	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0500	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,3-Dichloropropane	ND	0.0500	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,4-Dioxane - Screen	ND	5.00	mg/kg wet							
1-Chlorohexane	ND	0.0500	mg/kg wet							
2,2-Dichloropropane	ND	0.100	mg/kg wet							
2-Butanone	ND	1.25	mg/kg wet							
2-Chlorotoluene	ND	0.0500	mg/kg wet							
2-Hexanone	ND	0.500	mg/kg wet							
4-Chlorotoluene	ND	0.0500	mg/kg wet							
4-Isopropyltoluene	ND	0.0500	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.500	mg/kg wet							
Acetone	ND	1.25	mg/kg wet							
Benzene	ND	0.0500	mg/kg wet							
Bromobenzene	ND	0.0500	mg/kg wet							
Bromochloromethane	ND	0.0500	mg/kg wet							
Bromodichloromethane	ND	0.0500	mg/kg wet							
Bromoform	ND	0.0500	mg/kg wet							
Bromomethane	ND	0.100	mg/kg wet							
Carbon Disulfide	ND	0.0500	mg/kg wet							
Carbon Tetrachloride	ND	0.0500	mg/kg wet							
Chlorobenzene	ND	0.0500	mg/kg wet							
Chloroethane	ND	0.100	mg/kg wet							
Chloroform	ND	0.0500	mg/kg wet							
Chloromethane	ND	0.100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0500	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0500	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

Dibromochloromethane	ND	0.0500	mg/kg wet							
Dibromomethane	ND	0.0500	mg/kg wet							
Dichlorodifluoromethane	ND	0.0500	mg/kg wet							
Diethyl Ether	ND	0.0500	mg/kg wet							
Di-isopropyl ether	ND	0.0500	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0500	mg/kg wet							
Ethylbenzene	ND	0.0500	mg/kg wet							
Hexachlorobutadiene	ND	0.0500	mg/kg wet							
Isopropylbenzene	ND	0.0500	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0500	mg/kg wet							
Methylene Chloride	ND	0.250	mg/kg wet							
Naphthalene	ND	0.0500	mg/kg wet							
n-Butylbenzene	ND	0.0500	mg/kg wet							
n-Propylbenzene	ND	0.0500	mg/kg wet							
sec-Butylbenzene	ND	0.0500	mg/kg wet							
Styrene	ND	0.0500	mg/kg wet							
tert-Butylbenzene	ND	0.0500	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0500	mg/kg wet							
Tetrachloroethene	ND	0.0500	mg/kg wet							
Tetrahydrofuran	ND	0.500	mg/kg wet							
Toluene	ND	0.0500	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0500	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0500	mg/kg wet							
Trichloroethene	ND	0.0500	mg/kg wet							
Vinyl Acetate	ND	0.250	mg/kg wet							
Vinyl Chloride	ND	0.0500	mg/kg wet							
Xylene O	ND	0.0500	mg/kg wet							
Xylene P,M	ND	0.100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	2.00		mg/kg wet	2.500		80	70-130			
Surrogate: 4-Bromofluorobenzene	2.05		mg/kg wet	2.500		82	70-130			
Surrogate: Dibromofluoromethane	2.16		mg/kg wet	2.500		86	70-130			
Surrogate: Toluene-d8	2.06		mg/kg wet	2.500		82	70-130			

LCS

1,1,1,2-Tetrachloroethane	2.31	0.100	mg/kg wet	2.500		93	70-130			
1,1,1-Trichloroethane	2.18	0.0500	mg/kg wet	2.500		87	70-130			
1,1,2,2-Tetrachloroethane	2.12	0.0500	mg/kg wet	2.500		85	70-130			
1,1,2-Trichloroethane	1.96	0.0500	mg/kg wet	2.500		79	70-130			
1,1-Dichloroethane	1.88	0.0500	mg/kg wet	2.500		75	70-130			
1,1-Dichloroethene	2.10	0.0500	mg/kg wet	2.500		84	70-130			
1,1-Dichloropropene	2.06	0.0500	mg/kg wet	2.500		82	70-130			
1,2,3-Trichlorobenzene	2.33	0.0500	mg/kg wet	2.500		93	70-130			
1,2,3-Trichloropropane	1.88	0.0500	mg/kg wet	2.500		75	70-130			
1,2,4-Trichlorobenzene	2.34	0.0500	mg/kg wet	2.500		94	70-130			
1,2,4-Trimethylbenzene	2.22	0.0500	mg/kg wet	2.500		89	70-130			
1,2-Dibromo-3-Chloropropane	2.18	0.300	mg/kg wet	2.500		87	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

1,2-Dibromoethane	2.46	0.0500	mg/kg wet	2.500		98	70-130			
1,2-Dichlorobenzene	2.42	0.0500	mg/kg wet	2.500		97	70-130			
1,2-Dichloroethane	2.28	0.0500	mg/kg wet	2.500		91	70-130			
1,2-Dichloropropane	2.04	0.0500	mg/kg wet	2.500		81	70-130			
1,3,5-Trimethylbenzene	2.33	0.0500	mg/kg wet	2.500		93	70-130			
1,3-Dichlorobenzene	2.41	0.0500	mg/kg wet	2.500		96	70-130			
1,3-Dichloropropane	2.18	0.0500	mg/kg wet	2.500		87	70-130			
1,4-Dichlorobenzene	2.30	0.0500	mg/kg wet	2.500		92	70-130			
1,4-Dioxane - Screen	57.9	5.00	mg/kg wet	50.00		116	44-241			
1-Chlorohexane	2.32	0.0500	mg/kg wet	2.500		93	70-130			
2,2-Dichloropropane	2.26	0.100	mg/kg wet	2.500		90	70-130			
2-Butanone	9.84	1.25	mg/kg wet	12.50		79	70-130			
2-Chlorotoluene	2.19	0.0500	mg/kg wet	2.500		88	70-130			
2-Hexanone	10.9	0.500	mg/kg wet	12.50		87	70-130			
4-Chlorotoluene	2.19	0.0500	mg/kg wet	2.500		88	70-130			
4-Isopropyltoluene	2.22	0.0500	mg/kg wet	2.500		89	70-130			
4-Methyl-2-Pentanone	10.4	0.500	mg/kg wet	12.50		83	70-130			
Acetone	11.1	1.25	mg/kg wet	12.50		89	70-130			
Benzene	1.96	0.0500	mg/kg wet	2.500		79	70-130			
Bromobenzene	2.46	0.0500	mg/kg wet	2.500		99	70-130			
Bromochloromethane	2.31	0.0500	mg/kg wet	2.500		92	70-130			
Bromodichloromethane	2.14	0.0500	mg/kg wet	2.500		85	70-130			
Bromoform	2.54	0.0500	mg/kg wet	2.500		102	70-130			
Bromomethane	2.08	0.100	mg/kg wet	2.500		83	70-130			
Carbon Disulfide	2.12	0.0500	mg/kg wet	2.500		85	70-130			
Carbon Tetrachloride	2.40	0.0500	mg/kg wet	2.500		96	70-130			
Chlorobenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130			
Chloroethane	1.81	0.100	mg/kg wet	2.500		73	70-130			
Chloroform	2.12	0.0500	mg/kg wet	2.500		85	70-130			
Chloromethane	1.81	0.100	mg/kg wet	2.500		72	70-130			
cis-1,2-Dichloroethene	2.30	0.0500	mg/kg wet	2.500		92	70-130			
cis-1,3-Dichloropropene	2.25	0.0500	mg/kg wet	2.500		90	70-130			
Dibromochloromethane	2.52	0.0500	mg/kg wet	2.500		101	70-130			
Dibromomethane	2.10	0.0500	mg/kg wet	2.500		84	70-130			
Dichlorodifluoromethane	1.83	0.0500	mg/kg wet	2.500		73	70-130			
Diethyl Ether	1.94	0.0500	mg/kg wet	2.500		78	70-130			
Di-isopropyl ether	1.84	0.0500	mg/kg wet	2.500		73	70-130			
Ethyl tertiary-butyl ether	2.09	0.0500	mg/kg wet	2.500		83	70-130			
Ethylbenzene	2.28	0.0500	mg/kg wet	2.500		91	70-130			
Hexachlorobutadiene	2.34	0.0500	mg/kg wet	2.500		93	70-130			
Isopropylbenzene	2.25	0.0500	mg/kg wet	2.500		90	70-130			
Methyl tert-Butyl Ether	2.09	0.0500	mg/kg wet	2.500		84	70-130			
Methylene Chloride	2.02	0.250	mg/kg wet	2.500		81	70-130			
Naphthalene	2.39	0.0500	mg/kg wet	2.500		96	70-130			
n-Butylbenzene	2.19	0.0500	mg/kg wet	2.500		88	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

n-Propylbenzene	2.25	0.0500	mg/kg wet	2.500		90	70-130			
sec-Butylbenzene	2.20	0.0500	mg/kg wet	2.500		88	70-130			
Styrene	2.26	0.0500	mg/kg wet	2.500		90	70-130			
tert-Butylbenzene	2.44	0.0500	mg/kg wet	2.500		98	70-130			
Tertiary-amyl methyl ether	2.00	0.0500	mg/kg wet	2.500		80	70-130			
Tetrachloroethene	2.03	0.0500	mg/kg wet	2.500		81	70-130			
Tetrahydrofuran	2.54	0.500	mg/kg wet	2.500		102	70-130			
Toluene	2.10	0.0500	mg/kg wet	2.500		84	70-130			
trans-1,2-Dichloroethene	2.23	0.0500	mg/kg wet	2.500		89	70-130			
trans-1,3-Dichloropropene	2.14	0.0500	mg/kg wet	2.500		86	70-130			
Trichloroethene	2.19	0.0500	mg/kg wet	2.500		87	70-130			
Vinyl Acetate	2.17	0.250	mg/kg wet	2.500		87	70-130			
Vinyl Chloride	1.97	0.0500	mg/kg wet	2.500		79	70-130			
Xylene O	2.42	0.0500	mg/kg wet	2.500		97	70-130			
Xylene P,M	4.64	0.100	mg/kg wet	5.000		93	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>2.09</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>84</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>2.10</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>84</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>2.05</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>82</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>2.12</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>85</i>	<i>70-130</i>			

LCS Dup

1,1,1,2-Tetrachloroethane	2.41	0.100	mg/kg wet	2.500		97	70-130	4	25	
1,1,1-Trichloroethane	2.33	0.0500	mg/kg wet	2.500		93	70-130	7	25	
1,1,2,2-Tetrachloroethane	2.20	0.0500	mg/kg wet	2.500		88	70-130	4	25	
1,1,2-Trichloroethane	2.21	0.0500	mg/kg wet	2.500		88	70-130	12	25	
1,1-Dichloroethane	2.03	0.0500	mg/kg wet	2.500		81	70-130	8	25	
1,1-Dichloroethene	2.16	0.0500	mg/kg wet	2.500		86	70-130	3	25	
1,1-Dichloropropene	2.24	0.0500	mg/kg wet	2.500		90	70-130	9	25	
1,2,3-Trichlorobenzene	2.54	0.0500	mg/kg wet	2.500		102	70-130	9	25	
1,2,3-Trichloropropane	2.18	0.0500	mg/kg wet	2.500		87	70-130	15	25	
1,2,4-Trichlorobenzene	2.62	0.0500	mg/kg wet	2.500		105	70-130	11	25	
1,2,4-Trimethylbenzene	2.41	0.0500	mg/kg wet	2.500		96	70-130	8	25	
1,2-Dibromo-3-Chloropropane	2.39	0.300	mg/kg wet	2.500		95	70-130	9	25	
1,2-Dibromoethane	2.61	0.0500	mg/kg wet	2.500		104	70-130	6	25	
1,2-Dichlorobenzene	2.63	0.0500	mg/kg wet	2.500		105	70-130	8	25	
1,2-Dichloroethane	2.47	0.0500	mg/kg wet	2.500		99	70-130	8	25	
1,2-Dichloropropane	2.12	0.0500	mg/kg wet	2.500		85	70-130	4	25	
1,3,5-Trimethylbenzene	2.51	0.0500	mg/kg wet	2.500		100	70-130	7	25	
1,3-Dichlorobenzene	2.62	0.0500	mg/kg wet	2.500		105	70-130	8	25	
1,3-Dichloropropane	2.25	0.0500	mg/kg wet	2.500		90	70-130	3	25	
1,4-Dichlorobenzene	2.46	0.0500	mg/kg wet	2.500		98	70-130	7	25	
1,4-Dioxane - Screen	56.6	5.00	mg/kg wet	50.00		113	44-241	2	200	
1-Chlorohexane	2.41	0.0500	mg/kg wet	2.500		97	70-130	4	25	
2,2-Dichloropropane	2.44	0.100	mg/kg wet	2.500		98	70-130	8	25	
2-Butanone	10.5	1.25	mg/kg wet	12.50		84	70-130	7	25	
2-Chlorotoluene	2.32	0.0500	mg/kg wet	2.500		93	70-130	6	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

2-Hexanone	11.2	0.500	mg/kg wet	12.50		90	70-130	3	25	
4-Chlorotoluene	2.37	0.0500	mg/kg wet	2.500		95	70-130	8	25	
4-Isopropyltoluene	2.42	0.0500	mg/kg wet	2.500		97	70-130	9	25	
4-Methyl-2-Pentanone	11.1	0.500	mg/kg wet	12.50		89	70-130	7	25	
Acetone	10.2	1.25	mg/kg wet	12.50		82	70-130	8	25	
Benzene	2.12	0.0500	mg/kg wet	2.500		85	70-130	8	25	
Bromobenzene	2.65	0.0500	mg/kg wet	2.500		106	70-130	7	25	
Bromochloromethane	2.42	0.0500	mg/kg wet	2.500		97	70-130	5	25	
Bromodichloromethane	2.26	0.0500	mg/kg wet	2.500		90	70-130	6	25	
Bromoform	2.70	0.0500	mg/kg wet	2.500		108	70-130	6	25	
Bromomethane	2.06	0.100	mg/kg wet	2.500		82	70-130	1	25	
Carbon Disulfide	2.26	0.0500	mg/kg wet	2.500		90	70-130	6	25	
Carbon Tetrachloride	2.55	0.0500	mg/kg wet	2.500		102	70-130	6	25	
Chlorobenzene	2.51	0.0500	mg/kg wet	2.500		101	70-130	6	25	
Chloroethane	2.00	0.100	mg/kg wet	2.500		80	70-130	10	25	
Chloroform	2.17	0.0500	mg/kg wet	2.500		87	70-130	2	25	
Chloromethane	1.90	0.100	mg/kg wet	2.500		76	70-130	5	25	
cis-1,2-Dichloroethene	2.40	0.0500	mg/kg wet	2.500		96	70-130	4	25	
cis-1,3-Dichloropropene	2.47	0.0500	mg/kg wet	2.500		99	70-130	9	25	
Dibromochloromethane	2.68	0.0500	mg/kg wet	2.500		107	70-130	6	25	
Dibromomethane	2.31	0.0500	mg/kg wet	2.500		92	70-130	9	25	
Dichlorodifluoromethane	1.93	0.0500	mg/kg wet	2.500		77	70-130	6	25	
Diethyl Ether	2.08	0.0500	mg/kg wet	2.500		83	70-130	7	25	
Di-isopropyl ether	1.96	0.0500	mg/kg wet	2.500		79	70-130	7	25	
Ethyl tertiary-butyl ether	2.26	0.0500	mg/kg wet	2.500		90	70-130	8	25	
Ethylbenzene	2.38	0.0500	mg/kg wet	2.500		95	70-130	4	25	
Hexachlorobutadiene	2.67	0.0500	mg/kg wet	2.500		107	70-130	13	25	
Isopropylbenzene	2.39	0.0500	mg/kg wet	2.500		96	70-130	6	25	
Methyl tert-Butyl Ether	2.27	0.0500	mg/kg wet	2.500		91	70-130	8	25	
Methylene Chloride	2.21	0.250	mg/kg wet	2.500		89	70-130	9	25	
Naphthalene	2.67	0.0500	mg/kg wet	2.500		107	70-130	11	25	
n-Butylbenzene	2.25	0.0500	mg/kg wet	2.500		90	70-130	3	25	
n-Propylbenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130	5	25	
sec-Butylbenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130	7	25	
Styrene	2.32	0.0500	mg/kg wet	2.500		93	70-130	3	25	
tert-Butylbenzene	2.64	0.0500	mg/kg wet	2.500		106	70-130	8	25	
Tertiary-amyl methyl ether	2.11	0.0500	mg/kg wet	2.500		84	70-130	5	25	
Tetrachloroethene	2.16	0.0500	mg/kg wet	2.500		86	70-130	6	25	
Tetrahydrofuran	2.28	0.500	mg/kg wet	2.500		91	70-130	11	25	
Toluene	2.24	0.0500	mg/kg wet	2.500		90	70-130	7	25	
trans-1,2-Dichloroethene	2.38	0.0500	mg/kg wet	2.500		95	70-130	7	25	
trans-1,3-Dichloropropene	2.31	0.0500	mg/kg wet	2.500		92	70-130	7	25	
Trichloroethene	2.33	0.0500	mg/kg wet	2.500		93	70-130	7	25	
Vinyl Acetate	2.39	0.250	mg/kg wet	2.500		96	70-130	10	25	
Vinyl Chloride	2.18	0.0500	mg/kg wet	2.500		87	70-130	10	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

Xylene O	2.59	0.0500	mg/kg wet	2.500		104	70-130	7	25	
Xylene P,M	4.95	0.100	mg/kg wet	5.000		99	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	2.27		mg/kg wet	2.500		91	70-130			
Surrogate: 4-Bromofluorobenzene	2.28		mg/kg wet	2.500		91	70-130			
Surrogate: Dibromofluoromethane	2.23		mg/kg wet	2.500		89	70-130			
Surrogate: Toluene-d8	2.25		mg/kg wet	2.500		90	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

Notes and Definitions

- U Analyte included in the analysis, but not detected
- 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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404134

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)

A2LA Accredited: Testing Cert# 2864.01
<http://www.a2la.org/scopepdf/2864-01.pdf>

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: RI0002

<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

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.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01

Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)

<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141

Lead Paint, Lead in Children's Metals Jewelry

<http://www.epsc.gov/cgi-bin/labapplist.aspx>

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: Client

ESS Project ID: 14040134
Date Project Due: 4/11/14
Days For Project: 5 Day

Items to be checked upon receipt:

- | | | | |
|---|-----------------------------------|---|---|
| 1. Air Bill Manifest Present? | <input type="text" value="N/A"/> | 10. Are the samples properly preserved? | <input type="text" value="Yes"/> |
| Air No.: | | 11. Proper sample containers used? | <input type="text" value="Yes"/> |
| 2. Were Custody Seals Present? | <input type="text" value="No"/> | 12. Any air bubbles in the VOA vials? | <input type="text" value="N/A"/> |
| 3. Were Custody Seals Intact? | <input type="text" value="* No"/> | 13. Holding times exceeded? | <input type="text" value="No"/> |
| 4. Is Radiation count < 100 CPM? | <input type="text" value="* No"/> | 14. Sufficient sample volumes? | <input type="text" value="Yes"/> |
| 5. Is a cooler present? | <input type="text" value="Yes"/> | 15. Any Subcontracting needed? | <input type="text" value="No"/> |
| <input type="text" value="Cooler Temp: 2.7"/> | | 16. Are ESS labels on correct containers? | <input checked="" type="text" value="Yes"/> <input type="text" value="No"/> |
| <input type="text" value="Iced With: Ice"/> | | 17. Were samples received intact? | <input checked="" type="text" value="Yes"/> <input type="text" value="No"/> |
| 6. Was COC included with samples? | <input type="text" value="Yes"/> | ESS Sample IDs: _____ | |
| 7. Was COC signed and dated by client? | <input type="text" value="Yes"/> | Sub Lab: _____ | |
| 8. Does the COC match the sample | <input type="text" value="Yes"/> | Analysis: _____ | |
| 9. Is COC complete and correct? | <input type="text" value="Yes"/> | TAT: _____ | |

18. Was there need to call project manager to discuss status? If yes, please explain.

* Trip Blank taken off hold from hold
W.O.

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	40 ml - VOA	1	MeOH
2	Yes	2 oz Soil Jar	1	NP
2	Yes	40 ml - VOA	1	MeOH
3	Yes	2 oz Soil Jar	1	NP
3	Yes	40 ml - VOA	1	MeOH
4	Yes	2 oz Soil Jar	1	NP
4	Yes	40 ml - VOA	1	MeOH
* 5	Yes	40 ml - VOA	1	MeOH

Completed By: [Signature]
Reviewed By: [Signature]

Date/Time: 4/8/14 1150
Date/Time: 4/8/14 1155

014040098-13

Preservative: MeOH



010000000589158

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 1 of 2

Turn Time 1 hr Standard Other Reporting Limits 1000/0.05
 If faster than 5 days, prior approval by laboratory is required # _____
 State where samples were collected from: MA (R) RI CI NH NJ NY ME Other _____
 Is this project for any of the following: USACE Navy Other
 MA-MCP

Co. Name	Project #	Project Name (20 Char. or less)	Other	Write Requested Analysis							
62K	43854	TIDEN AREA									
Contact Person	Address	Email Address									
M. K. KILPATRICK	530 BROOK AVENUE	mkilpatrick@esslab.com									
City	State	Zip	PO#								
PROVIDENCE	RI	02909									
Telephone #	Fax #										
401-421-4440											
ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	VOCs via 8260B	Other
41314	4/2/14	1030	X		S	TB-400 0-2	6/2	1/6			
		1015				↓ 2-4				X	OFF hold per client request.
		1000				↓ 4-6 ①				X	4/15/14
		1145				TB-401 0-2				X	
		1200				↓ 2-4				X	
		1215				↓ 4-6 ①				X	
		1130				TB-402 0-2				X	
		1115				↓ 2-4				X	
		1100				↓ 4-6 ①				X	
		915				TB-403 0-2				X	

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 Temp: 2.7° ice 4/13/14
 Seals Intact: Yes No NA: Pickup
 Internal Use Only: Yes No
 Relinquished by (Signature): [Signature] Date/Time: 4/13/14 1450
 Relinquished by (Signature): [Signature] Date/Time: 4/13/14 1450
 Received by (Signature): [Signature] Date/Time: _____
 Received by (Signature): _____ Date/Time: _____
 Relinquished by (Signature): _____ Date/Time: _____
 Relinquished by (Signature): _____ Date/Time: _____
 Comments: See 105 JTR Also included, next 10 rocks ANALY
 Sampled by: SOPIA NAKKIEWICZ EMAIL: SOPIA.NAKKIEWICZ@ESSLAB.COM Also

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

Turn Time: Standard Other
 If faster than 5 days, prior approval by laboratory is required # _____
 State where samples were collected from:
 MA RI CT NH NJ NY ME Other
 MA RI CT NH NJ NY ME Other
 Is this project for any of the following: USACE Other
 MA-MCP Navy

Reporting Limits: FID/CM PRC/bb
 Electronic Deliverable:
 Format: Excel Access PDF Other
 Write Required Applications:

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	Write Required Applications
4/3/14	9:00	X	S	TC-403	2-4	6/1	2	1/6	X	
4/5/14	8:45	↓	↓	4-6	①	↓	↓	↓	X	Out Hold per client request
4/7/14	07:00	↓	↓	TRIP BLANK - 4314	✓①	6	1	↓	X	
4/13/14	07:00	↓	↓	50#1		6/1	2	1/6	X	

Project # 49054
 Address 530 Broadway
 City Providence
 State RI
 Zip 02909
 Project Name (20 Char. or less) T100W/114

ESS LAB PROJECT ID 1409134
 State where samples were collected from: RI
 Is this project for any of the following: USACE Other

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge VW-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters
 Cooler Present: Yes No Internal Use Only: Yes No NA: Pickup
 Seals Intact: Yes No NA: Technician's
 Cooler Temp: 2.7° ice
 Relinquished by: (Signature) [Signature] Date/Time 4/14/14 14:50
 Received by: (Signature) [Signature] Date/Time 4/14/14 14:50
 Relinquished by: (Signature) [Signature] Date/Time _____
 Received by: (Signature) [Signature] Date/Time _____

Sampled by: SOPHIA NAPIELWICZ
 Preservation Code: 1-NP, 2-HCl, 3-H₂SO₄, 4-HNO₃, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-
 Comments: SOLIDS JAR ALSO INCLUDED, NEG ID RATES APPLY
 EMAIL SOPHIA.NAPIELWICZ@GEEK.COM ALSO



CERTIFICATE OF ANALYSIS

Meg Kilpatrick
GZA GeoEnvironmental, Inc.
530 Broadway
Providence, RI 02909

RE: Tidewater GH (03.0043654.T13)
ESS Laboratory Work Order Number: 1404160

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 4:28 pm, Apr 14, 2014

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 NELAC Standards, A2LA 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: Tidewater GH

ESS Laboratory Work Order: 1404160

SAMPLE RECEIPT

The following samples were received on April 07, 2014 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the Guidelines Establishing Test Procedures for the Analysis of Pollutants, 40 CFR Part 136, as amended.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1404160-01	TB-400 10-12	Soil	8260B
1404160-02	TB-401 6-8	Soil	8260B
1404160-03	TB-402 10-12	Soil	8260B
1404160-04	TB-403 12-14	Soil	8260B
1404160-05	BD 3	Soil	8260B
1404160-06	Trip Blank 4414	Soil	8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

[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: Tidewater GH

ESS Laboratory Work Order: 1404160

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
- 8015D - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: TB-400 10-12
 Date Sampled: 04/04/14 07:20
 Percent Solids: 94
 Initial Volume: 24.5
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1404160
 ESS Laboratory Sample ID: 1404160-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0724)	0.0063	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0362)	0.0064	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0362)	0.0098	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0362)	0.0090	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0362)	0.0058	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0362)	0.0089	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0362)	0.0056	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0362)	0.0121	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0362)	0.0090	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0362)	0.0080	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0362)	0.0069	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.217)	0.0724	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0362)	0.0092	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0362)	0.0051	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0362)	0.0097	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0362)	0.0095	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0362)	0.0064	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0362)	0.0046	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0362)	0.0081	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0362)	0.0096	8260B		1	04/09/14 19:41	CXD0111	CD41008
1,4-Dioxane - Screen	ND (3.62)	1.21	8260B		1	04/09/14 19:41	CXD0111	CD41008
1-Chlorohexane	ND (0.0362)	0.0069	8260B		1	04/09/14 19:41	CXD0111	CD41008
2,2-Dichloropropane	ND (0.0724)	0.0124	8260B		1	04/09/14 19:41	CXD0111	CD41008
2-Butanone	ND (0.904)	0.209	8260B		1	04/09/14 19:41	CXD0111	CD41008
2-Chlorotoluene	ND (0.0362)	0.0102	8260B		1	04/09/14 19:41	CXD0111	CD41008
2-Hexanone	ND (0.362)	0.0623	8260B		1	04/09/14 19:41	CXD0111	CD41008
4-Chlorotoluene	ND (0.0362)	0.0047	8260B		1	04/09/14 19:41	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0362)	0.0064	8260B		1	04/09/14 19:41	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.362)	0.0436	8260B		1	04/09/14 19:41	CXD0111	CD41008
Acetone	ND (0.904)	0.268	8260B		1	04/09/14 19:41	CXD0111	CD41008
Benzene	ND (0.0362)	0.0059	8260B		1	04/09/14 19:41	CXD0111	CD41008
Bromobenzene	ND (0.0362)	0.0099	8260B		1	04/09/14 19:41	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-400 10-12
Date Sampled: 04/04/14 07:20
Percent Solids: 94
Initial Volume: 24.5
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0362)	0.0117	8260B		1	04/09/14 19:41	CXD0111	CD41008
Bromodichloromethane	ND (0.0362)	0.0050	8260B		1	04/09/14 19:41	CXD0111	CD41008
Bromoform	ND (0.0362)	0.0104	8260B		1	04/09/14 19:41	CXD0111	CD41008
Bromomethane	ND (0.0724)	0.0242	8260B		1	04/09/14 19:41	CXD0111	CD41008
Carbon Disulfide	ND (0.0362)	0.0054	8260B		1	04/09/14 19:41	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0362)	0.0063	8260B		1	04/09/14 19:41	CXD0111	CD41008
Chlorobenzene	ND (0.0362)	0.0057	8260B		1	04/09/14 19:41	CXD0111	CD41008
Chloroethane	ND (0.0724)	0.0241	8260B		1	04/09/14 19:41	CXD0111	CD41008
Chloroform	ND (0.0362)	0.0075	8260B		1	04/09/14 19:41	CXD0111	CD41008
Chloromethane	ND (0.0724)	0.0092	8260B		1	04/09/14 19:41	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0362)	0.0090	8260B		1	04/09/14 19:41	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0362)	0.0082	8260B		1	04/09/14 19:41	CXD0111	CD41008
Dibromochloromethane	ND (0.0362)	0.0091	8260B		1	04/09/14 19:41	CXD0111	CD41008
Dibromomethane	ND (0.0362)	0.0114	8260B		1	04/09/14 19:41	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0362)	0.0063	8260B		1	04/09/14 19:41	CXD0111	CD41008
Diethyl Ether	ND (0.0362)	0.0092	8260B		1	04/09/14 19:41	CXD0111	CD41008
Di-isopropyl ether	ND (0.0362)	0.0068	8260B		1	04/09/14 19:41	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0362)	0.0091	8260B		1	04/09/14 19:41	CXD0111	CD41008
Ethylbenzene	ND (0.0362)	0.0047	8260B		1	04/09/14 19:41	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0362)	0.0121	8260B		1	04/09/14 19:41	CXD0111	CD41008
Isopropylbenzene	ND (0.0362)	0.0064	8260B		1	04/09/14 19:41	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0362)	0.0058	8260B		1	04/09/14 19:41	CXD0111	CD41008
Methylene Chloride	ND (0.181)	0.0095	8260B		1	04/09/14 19:41	CXD0111	CD41008
Naphthalene	0.124 (0.0362)	0.0095	8260B		1	04/09/14 19:41	CXD0111	CD41008
n-Butylbenzene	ND (0.0362)	0.0089	8260B		1	04/09/14 19:41	CXD0111	CD41008
n-Propylbenzene	ND (0.0362)	0.0088	8260B		1	04/09/14 19:41	CXD0111	CD41008
sec-Butylbenzene	ND (0.0362)	0.0048	8260B		1	04/09/14 19:41	CXD0111	CD41008
Styrene	ND (0.0362)	0.0048	8260B		1	04/09/14 19:41	CXD0111	CD41008
tert-Butylbenzene	ND (0.0362)	0.0085	8260B		1	04/09/14 19:41	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0362)	0.0052	8260B		1	04/09/14 19:41	CXD0111	CD41008
Tetrachloroethene	ND (0.0362)	0.0121	8260B		1	04/09/14 19:41	CXD0111	CD41008
Tetrahydrofuran	ND (0.362)	0.0933	8260B		1	04/09/14 19:41	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-400 10-12
Date Sampled: 04/04/14 07:20
Percent Solids: 94
Initial Volume: 24.5
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0362)	0.0092	8260B		1	04/09/14 19:41	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0362)	0.0119	8260B		1	04/09/14 19:41	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0362)	0.0111	8260B		1	04/09/14 19:41	CXD0111	CD41008
Trichloroethene	ND (0.0362)	0.0075	8260B		1	04/09/14 19:41	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0362)	0.0096	8260B		1	04/09/14 19:41	CXD0111	CD41008
Vinyl Acetate	ND (0.181)	0.0075	8260B		1	04/09/14 19:41	CXD0111	CD41008
Vinyl Chloride	ND (0.0362)	0.0119	8260B		1	04/09/14 19:41	CXD0111	CD41008
Xylene O	ND (0.0362)	0.0069	8260B		1	04/09/14 19:41	CXD0111	CD41008
Xylene P,M	ND (0.0724)	0.0140	8260B		1	04/09/14 19:41	CXD0111	CD41008
Xylenes (Total)	ND (0.0724)		8260B		1	04/09/14 19:41		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>86 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>90 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>89 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>88 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-401 6-8
Date Sampled: 04/04/14 09:35
Percent Solids: 94
Initial Volume: 26.1
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0670)	0.0058	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0335)	0.0059	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0335)	0.0091	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0335)	0.0084	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0335)	0.0054	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0335)	0.0082	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0335)	0.0052	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0335)	0.0112	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0335)	0.0083	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0335)	0.0074	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0335)	0.0064	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.201)	0.0670	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0335)	0.0085	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0335)	0.0048	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0335)	0.0090	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0335)	0.0088	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0335)	0.0059	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0335)	0.0042	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0335)	0.0075	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0335)	0.0089	8260B		1	04/09/14 20:37	CXD0111	CD41008
1,4-Dioxane - Screen	ND (3.35)	1.12	8260B		1	04/09/14 20:37	CXD0111	CD41008
1-Chlorohexane	ND (0.0335)	0.0064	8260B		1	04/09/14 20:37	CXD0111	CD41008
2,2-Dichloropropane	ND (0.0670)	0.0115	8260B		1	04/09/14 20:37	CXD0111	CD41008
2-Butanone	ND (0.838)	0.194	8260B		1	04/09/14 20:37	CXD0111	CD41008
2-Chlorotoluene	ND (0.0335)	0.0094	8260B		1	04/09/14 20:37	CXD0111	CD41008
2-Hexanone	ND (0.335)	0.0577	8260B		1	04/09/14 20:37	CXD0111	CD41008
4-Chlorotoluene	ND (0.0335)	0.0044	8260B		1	04/09/14 20:37	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0335)	0.0060	8260B		1	04/09/14 20:37	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.335)	0.0403	8260B		1	04/09/14 20:37	CXD0111	CD41008
Acetone	ND (0.838)	0.248	8260B		1	04/09/14 20:37	CXD0111	CD41008
Benzene	ND (0.0335)	0.0054	8260B		1	04/09/14 20:37	CXD0111	CD41008
Bromobenzene	ND (0.0335)	0.0092	8260B		1	04/09/14 20:37	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-401 6-8
Date Sampled: 04/04/14 09:35
Percent Solids: 94
Initial Volume: 26.1
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0335)	0.0109	8260B		1	04/09/14 20:37	CXD0111	CD41008
Bromodichloromethane	ND (0.0335)	0.0046	8260B		1	04/09/14 20:37	CXD0111	CD41008
Bromoform	ND (0.0335)	0.0096	8260B		1	04/09/14 20:37	CXD0111	CD41008
Bromomethane	ND (0.0670)	0.0224	8260B		1	04/09/14 20:37	CXD0111	CD41008
Carbon Disulfide	ND (0.0335)	0.0050	8260B		1	04/09/14 20:37	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0335)	0.0058	8260B		1	04/09/14 20:37	CXD0111	CD41008
Chlorobenzene	ND (0.0335)	0.0053	8260B		1	04/09/14 20:37	CXD0111	CD41008
Chloroethane	ND (0.0670)	0.0223	8260B		1	04/09/14 20:37	CXD0111	CD41008
Chloroform	ND (0.0335)	0.0069	8260B		1	04/09/14 20:37	CXD0111	CD41008
Chloromethane	ND (0.0670)	0.0085	8260B		1	04/09/14 20:37	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0335)	0.0083	8260B		1	04/09/14 20:37	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0335)	0.0076	8260B		1	04/09/14 20:37	CXD0111	CD41008
Dibromochloromethane	ND (0.0335)	0.0084	8260B		1	04/09/14 20:37	CXD0111	CD41008
Dibromomethane	ND (0.0335)	0.0106	8260B		1	04/09/14 20:37	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0335)	0.0058	8260B		1	04/09/14 20:37	CXD0111	CD41008
Diethyl Ether	ND (0.0335)	0.0085	8260B		1	04/09/14 20:37	CXD0111	CD41008
Di-isopropyl ether	ND (0.0335)	0.0063	8260B		1	04/09/14 20:37	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0335)	0.0084	8260B		1	04/09/14 20:37	CXD0111	CD41008
Ethylbenzene	ND (0.0335)	0.0044	8260B		1	04/09/14 20:37	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0335)	0.0112	8260B		1	04/09/14 20:37	CXD0111	CD41008
Isopropylbenzene	ND (0.0335)	0.0059	8260B		1	04/09/14 20:37	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0335)	0.0054	8260B		1	04/09/14 20:37	CXD0111	CD41008
Methylene Chloride	ND (0.168)	0.0088	8260B		1	04/09/14 20:37	CXD0111	CD41008
Naphthalene	ND (0.0335)	0.0088	8260B		1	04/09/14 20:37	CXD0111	CD41008
n-Butylbenzene	ND (0.0335)	0.0082	8260B		1	04/09/14 20:37	CXD0111	CD41008
n-Propylbenzene	ND (0.0335)	0.0082	8260B		1	04/09/14 20:37	CXD0111	CD41008
sec-Butylbenzene	ND (0.0335)	0.0045	8260B		1	04/09/14 20:37	CXD0111	CD41008
Styrene	ND (0.0335)	0.0044	8260B		1	04/09/14 20:37	CXD0111	CD41008
tert-Butylbenzene	ND (0.0335)	0.0078	8260B		1	04/09/14 20:37	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0335)	0.0048	8260B		1	04/09/14 20:37	CXD0111	CD41008
Tetrachloroethene	ND (0.0335)	0.0112	8260B		1	04/09/14 20:37	CXD0111	CD41008
Tetrahydrofuran	ND (0.335)	0.0864	8260B		1	04/09/14 20:37	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-401 6-8
Date Sampled: 04/04/14 09:35
Percent Solids: 94
Initial Volume: 26.1
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0335)	0.0085	8260B		1	04/09/14 20:37	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0335)	0.0110	8260B		1	04/09/14 20:37	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0335)	0.0103	8260B		1	04/09/14 20:37	CXD0111	CD41008
Trichloroethene	ND (0.0335)	0.0069	8260B		1	04/09/14 20:37	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0335)	0.0088	8260B		1	04/09/14 20:37	CXD0111	CD41008
Vinyl Acetate	ND (0.168)	0.0069	8260B		1	04/09/14 20:37	CXD0111	CD41008
Vinyl Chloride	ND (0.0335)	0.0111	8260B		1	04/09/14 20:37	CXD0111	CD41008
Xylene O	ND (0.0335)	0.0064	8260B		1	04/09/14 20:37	CXD0111	CD41008
Xylene P,M	ND (0.0670)	0.0130	8260B		1	04/09/14 20:37	CXD0111	CD41008
Xylenes (Total)	ND (0.0670)		8260B		1	04/09/14 20:37		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>84 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>87 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>91 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>87 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-402 10-12
Date Sampled: 04/04/14 11:25
Percent Solids: 95
Initial Volume: 29.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0585)	0.0051	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,1,1-Trichloroethane	ND (0.0293)	0.0051	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,1,2,2-Tetrachloroethane	ND (0.0293)	0.0080	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,1,2-Trichloroethane	ND (0.0293)	0.0073	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,1-Dichloroethane	ND (0.0293)	0.0047	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,1-Dichloroethene	ND (0.0293)	0.0072	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,1-Dichloropropene	ND (0.0293)	0.0045	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2,3-Trichlorobenzene	ND (0.0293)	0.0098	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2,3-Trichloropropane	ND (0.0293)	0.0073	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2,4-Trichlorobenzene	ND (0.0293)	0.0064	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2,4-Trimethylbenzene	ND (0.0293)	0.0056	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2-Dibromo-3-Chloropropane	ND (0.176)	0.0585	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2-Dibromoethane	ND (0.0293)	0.0074	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2-Dichlorobenzene	ND (0.0293)	0.0042	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2-Dichloroethane	ND (0.0293)	0.0078	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,2-Dichloropropane	ND (0.0293)	0.0077	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,3,5-Trimethylbenzene	ND (0.0293)	0.0051	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,3-Dichlorobenzene	ND (0.0293)	0.0037	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,3-Dichloropropane	ND (0.0293)	0.0066	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,4-Dichlorobenzene	ND (0.0293)	0.0078	8260B		1	04/09/14 21:05	CXD0111	CD41008
1,4-Dioxane - Screen	ND (2.93)	0.977	8260B		1	04/09/14 21:05	CXD0111	CD41008
1-Chlorohexane	ND (0.0293)	0.0056	8260B		1	04/09/14 21:05	CXD0111	CD41008
2,2-Dichloropropane	ND (0.0585)	0.0100	8260B		1	04/09/14 21:05	CXD0111	CD41008
2-Butanone	ND (0.731)	0.169	8260B		1	04/09/14 21:05	CXD0111	CD41008
2-Chlorotoluene	ND (0.0293)	0.0082	8260B		1	04/09/14 21:05	CXD0111	CD41008
2-Hexanone	ND (0.293)	0.0504	8260B		1	04/09/14 21:05	CXD0111	CD41008
4-Chlorotoluene	ND (0.0293)	0.0038	8260B		1	04/09/14 21:05	CXD0111	CD41008
4-Isopropyltoluene	ND (0.0293)	0.0052	8260B		1	04/09/14 21:05	CXD0111	CD41008
4-Methyl-2-Pentanone	ND (0.293)	0.0352	8260B		1	04/09/14 21:05	CXD0111	CD41008
Acetone	ND (0.731)	0.216	8260B		1	04/09/14 21:05	CXD0111	CD41008
Benzene	ND (0.0293)	0.0047	8260B		1	04/09/14 21:05	CXD0111	CD41008
Bromobenzene	ND (0.0293)	0.0080	8260B		1	04/09/14 21:05	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-402 10-12
Date Sampled: 04/04/14 11:25
Percent Solids: 95
Initial Volume: 29.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0293)	0.0095	8260B		1	04/09/14 21:05	CXD0111	CD41008
Bromodichloromethane	ND (0.0293)	0.0040	8260B		1	04/09/14 21:05	CXD0111	CD41008
Bromoform	ND (0.0293)	0.0084	8260B		1	04/09/14 21:05	CXD0111	CD41008
Bromomethane	ND (0.0585)	0.0195	8260B		1	04/09/14 21:05	CXD0111	CD41008
Carbon Disulfide	ND (0.0293)	0.0043	8260B		1	04/09/14 21:05	CXD0111	CD41008
Carbon Tetrachloride	ND (0.0293)	0.0051	8260B		1	04/09/14 21:05	CXD0111	CD41008
Chlorobenzene	ND (0.0293)	0.0046	8260B		1	04/09/14 21:05	CXD0111	CD41008
Chloroethane	ND (0.0585)	0.0195	8260B		1	04/09/14 21:05	CXD0111	CD41008
Chloroform	ND (0.0293)	0.0060	8260B		1	04/09/14 21:05	CXD0111	CD41008
Chloromethane	ND (0.0585)	0.0074	8260B		1	04/09/14 21:05	CXD0111	CD41008
cis-1,2-Dichloroethene	ND (0.0293)	0.0073	8260B		1	04/09/14 21:05	CXD0111	CD41008
cis-1,3-Dichloropropene	ND (0.0293)	0.0066	8260B		1	04/09/14 21:05	CXD0111	CD41008
Dibromochloromethane	ND (0.0293)	0.0074	8260B		1	04/09/14 21:05	CXD0111	CD41008
Dibromomethane	ND (0.0293)	0.0092	8260B		1	04/09/14 21:05	CXD0111	CD41008
Dichlorodifluoromethane	ND (0.0293)	0.0051	8260B		1	04/09/14 21:05	CXD0111	CD41008
Diethyl Ether	ND (0.0293)	0.0074	8260B		1	04/09/14 21:05	CXD0111	CD41008
Di-isopropyl ether	ND (0.0293)	0.0055	8260B		1	04/09/14 21:05	CXD0111	CD41008
Ethyl tertiary-butyl ether	ND (0.0293)	0.0074	8260B		1	04/09/14 21:05	CXD0111	CD41008
Ethylbenzene	ND (0.0293)	0.0038	8260B		1	04/09/14 21:05	CXD0111	CD41008
Hexachlorobutadiene	ND (0.0293)	0.0098	8260B		1	04/09/14 21:05	CXD0111	CD41008
Isopropylbenzene	ND (0.0293)	0.0051	8260B		1	04/09/14 21:05	CXD0111	CD41008
Methyl tert-Butyl Ether	ND (0.0293)	0.0047	8260B		1	04/09/14 21:05	CXD0111	CD41008
Methylene Chloride	ND (0.146)	0.0077	8260B		1	04/09/14 21:05	CXD0111	CD41008
Naphthalene	ND (0.0293)	0.0077	8260B		1	04/09/14 21:05	CXD0111	CD41008
n-Butylbenzene	ND (0.0293)	0.0072	8260B		1	04/09/14 21:05	CXD0111	CD41008
n-Propylbenzene	ND (0.0293)	0.0071	8260B		1	04/09/14 21:05	CXD0111	CD41008
sec-Butylbenzene	ND (0.0293)	0.0039	8260B		1	04/09/14 21:05	CXD0111	CD41008
Styrene	ND (0.0293)	0.0039	8260B		1	04/09/14 21:05	CXD0111	CD41008
tert-Butylbenzene	ND (0.0293)	0.0068	8260B		1	04/09/14 21:05	CXD0111	CD41008
Tertiary-amyl methyl ether	ND (0.0293)	0.0042	8260B		1	04/09/14 21:05	CXD0111	CD41008
Tetrachloroethene	ND (0.0293)	0.0098	8260B		1	04/09/14 21:05	CXD0111	CD41008
Tetrahydrofuran	ND (0.293)	0.0755	8260B		1	04/09/14 21:05	CXD0111	CD41008



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-402 10-12
Date Sampled: 04/04/14 11:25
Percent Solids: 95
Initial Volume: 29.8
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0293)	0.0074	8260B		1	04/09/14 21:05	CXD0111	CD41008
trans-1,2-Dichloroethene	ND (0.0293)	0.0096	8260B		1	04/09/14 21:05	CXD0111	CD41008
trans-1,3-Dichloropropene	ND (0.0293)	0.0090	8260B		1	04/09/14 21:05	CXD0111	CD41008
Trichloroethene	ND (0.0293)	0.0060	8260B		1	04/09/14 21:05	CXD0111	CD41008
Trichlorofluoromethane	ND (0.0293)	0.0077	8260B		1	04/09/14 21:05	CXD0111	CD41008
Vinyl Acetate	ND (0.146)	0.0060	8260B		1	04/09/14 21:05	CXD0111	CD41008
Vinyl Chloride	ND (0.0293)	0.0097	8260B		1	04/09/14 21:05	CXD0111	CD41008
Xylene O	ND (0.0293)	0.0056	8260B		1	04/09/14 21:05	CXD0111	CD41008
Xylene P,M	ND (0.0585)	0.0114	8260B		1	04/09/14 21:05	CXD0111	CD41008
Xylenes (Total)	ND (0.0585)		8260B		1	04/09/14 21:05		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>84 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>89 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>88 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>88 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-403 12-14
Date Sampled: 04/04/14 08:30
Percent Solids: 94
Initial Volume: 22.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0777)	0.0068	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,1,1-Trichloroethane	ND (0.0389)	0.0068	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,1,2,2-Tetrachloroethane	ND (0.0389)	0.0106	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,1,2-Trichloroethane	ND (0.0389)	0.0097	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,1-Dichloroethane	ND (0.0389)	0.0062	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,1-Dichloroethene	ND (0.0389)	0.0096	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,1-Dichloropropene	ND (0.0389)	0.0060	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2,3-Trichlorobenzene	ND (0.0389)	0.0130	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2,3-Trichloropropane	ND (0.0389)	0.0096	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2,4-Trichlorobenzene	ND (0.0389)	0.0085	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2,4-Trimethylbenzene	ND (0.0389)	0.0075	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2-Dibromo-3-Chloropropane	ND (0.233)	0.0777	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2-Dibromoethane	ND (0.0389)	0.0099	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2-Dichlorobenzene	ND (0.0389)	0.0055	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2-Dichloroethane	ND (0.0389)	0.0104	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,2-Dichloropropane	ND (0.0389)	0.0102	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,3,5-Trimethylbenzene	ND (0.0389)	0.0068	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,3-Dichlorobenzene	ND (0.0389)	0.0049	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,3-Dichloropropane	ND (0.0389)	0.0087	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,4-Dichlorobenzene	ND (0.0389)	0.0103	8260B		1	04/10/14 14:46	CXD0128	CD41104
1,4-Dioxane - Screen	ND (3.89)	1.30	8260B		1	04/10/14 14:46	CXD0128	CD41104
1-Chlorohexane	ND (0.0389)	0.0074	8260B		1	04/10/14 14:46	CXD0128	CD41104
2,2-Dichloropropane	ND (0.0777)	0.0133	8260B		1	04/10/14 14:46	CXD0128	CD41104
2-Butanone	ND (0.972)	0.225	8260B		1	04/10/14 14:46	CXD0128	CD41104
2-Chlorotoluene	ND (0.0389)	0.0110	8260B		1	04/10/14 14:46	CXD0128	CD41104
2-Hexanone	ND (0.389)	0.0669	8260B		1	04/10/14 14:46	CXD0128	CD41104
4-Chlorotoluene	ND (0.0389)	0.0051	8260B		1	04/10/14 14:46	CXD0128	CD41104
4-Isopropyltoluene	ND (0.0389)	0.0069	8260B		1	04/10/14 14:46	CXD0128	CD41104
4-Methyl-2-Pentanone	ND (0.389)	0.0468	8260B		1	04/10/14 14:46	CXD0128	CD41104
Acetone	ND (0.972)	0.288	8260B		1	04/10/14 14:46	CXD0128	CD41104
Benzene	ND (0.0389)	0.0063	8260B		1	04/10/14 14:46	CXD0128	CD41104
Bromobenzene	ND (0.0389)	0.0106	8260B		1	04/10/14 14:46	CXD0128	CD41104



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-403 12-14
Date Sampled: 04/04/14 08:30
Percent Solids: 94
Initial Volume: 22.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0389)	0.0126	8260B		1	04/10/14 14:46	CXD0128	CD41104
Bromodichloromethane	ND (0.0389)	0.0054	8260B		1	04/10/14 14:46	CXD0128	CD41104
Bromoform	ND (0.0389)	0.0112	8260B		1	04/10/14 14:46	CXD0128	CD41104
Bromomethane	ND (0.0777)	0.0260	8260B		1	04/10/14 14:46	CXD0128	CD41104
Carbon Disulfide	ND (0.0389)	0.0058	8260B		1	04/10/14 14:46	CXD0128	CD41104
Carbon Tetrachloride	ND (0.0389)	0.0068	8260B		1	04/10/14 14:46	CXD0128	CD41104
Chlorobenzene	ND (0.0389)	0.0061	8260B		1	04/10/14 14:46	CXD0128	CD41104
Chloroethane	ND (0.0777)	0.0259	8260B		1	04/10/14 14:46	CXD0128	CD41104
Chloroform	ND (0.0389)	0.0080	8260B		1	04/10/14 14:46	CXD0128	CD41104
Chloromethane	ND (0.0777)	0.0099	8260B		1	04/10/14 14:46	CXD0128	CD41104
cis-1,2-Dichloroethene	ND (0.0389)	0.0096	8260B		1	04/10/14 14:46	CXD0128	CD41104
cis-1,3-Dichloropropene	ND (0.0389)	0.0088	8260B		1	04/10/14 14:46	CXD0128	CD41104
Dibromochloromethane	ND (0.0389)	0.0098	8260B		1	04/10/14 14:46	CXD0128	CD41104
Dibromomethane	ND (0.0389)	0.0123	8260B		1	04/10/14 14:46	CXD0128	CD41104
Dichlorodifluoromethane	ND (0.0389)	0.0068	8260B		1	04/10/14 14:46	CXD0128	CD41104
Diethyl Ether	ND (0.0389)	0.0099	8260B		1	04/10/14 14:46	CXD0128	CD41104
Di-isopropyl ether	ND (0.0389)	0.0073	8260B		1	04/10/14 14:46	CXD0128	CD41104
Ethyl tertiary-butyl ether	ND (0.0389)	0.0098	8260B		1	04/10/14 14:46	CXD0128	CD41104
Ethylbenzene	ND (0.0389)	0.0051	8260B		1	04/10/14 14:46	CXD0128	CD41104
Hexachlorobutadiene	ND (0.0389)	0.0130	8260B		1	04/10/14 14:46	CXD0128	CD41104
Isopropylbenzene	ND (0.0389)	0.0068	8260B		1	04/10/14 14:46	CXD0128	CD41104
Methyl tert-Butyl Ether	ND (0.0389)	0.0062	8260B		1	04/10/14 14:46	CXD0128	CD41104
Methylene Chloride	ND (0.194)	0.0102	8260B		1	04/10/14 14:46	CXD0128	CD41104
Naphthalene	ND (0.0389)	0.0102	8260B		1	04/10/14 14:46	CXD0128	CD41104
n-Butylbenzene	ND (0.0389)	0.0096	8260B		1	04/10/14 14:46	CXD0128	CD41104
n-Propylbenzene	ND (0.0389)	0.0095	8260B		1	04/10/14 14:46	CXD0128	CD41104
sec-Butylbenzene	ND (0.0389)	0.0052	8260B		1	04/10/14 14:46	CXD0128	CD41104
Styrene	ND (0.0389)	0.0051	8260B		1	04/10/14 14:46	CXD0128	CD41104
tert-Butylbenzene	ND (0.0389)	0.0091	8260B		1	04/10/14 14:46	CXD0128	CD41104
Tertiary-amyl methyl ether	ND (0.0389)	0.0056	8260B		1	04/10/14 14:46	CXD0128	CD41104
Tetrachloroethene	ND (0.0389)	0.0130	8260B		1	04/10/14 14:46	CXD0128	CD41104
Tetrahydrofuran	ND (0.389)	0.100	8260B		1	04/10/14 14:46	CXD0128	CD41104



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: TB-403 12-14
Date Sampled: 04/04/14 08:30
Percent Solids: 94
Initial Volume: 22.6
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0389)	0.0099	8260B		1	04/10/14 14:46	CXD0128	CD41104
trans-1,2-Dichloroethene	ND (0.0389)	0.0127	8260B		1	04/10/14 14:46	CXD0128	CD41104
trans-1,3-Dichloropropene	ND (0.0389)	0.0120	8260B		1	04/10/14 14:46	CXD0128	CD41104
Trichloroethene	ND (0.0389)	0.0080	8260B		1	04/10/14 14:46	CXD0128	CD41104
Trichlorofluoromethane	ND (0.0389)	0.0103	8260B		1	04/10/14 14:46	CXD0128	CD41104
Vinyl Acetate	ND (0.194)	0.0080	8260B		1	04/10/14 14:46	CXD0128	CD41104
Vinyl Chloride	ND (0.0389)	0.0128	8260B		1	04/10/14 14:46	CXD0128	CD41104
Xylene O	ND (0.0389)	0.0075	8260B		1	04/10/14 14:46	CXD0128	CD41104
Xylene P,M	ND (0.0777)	0.0151	8260B		1	04/10/14 14:46	CXD0128	CD41104
Xylenes (Total)	ND (0.0777)		8260B		1	04/10/14 14:46		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 3
Date Sampled: 04/04/14 07:00
Percent Solids: 90
Initial Volume: 22.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0849)	0.0074	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,1,1-Trichloroethane	ND (0.0424)	0.0075	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,1,2,2-Tetrachloroethane	ND (0.0424)	0.0115	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,1,2-Trichloroethane	ND (0.0424)	0.0106	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,1-Dichloroethane	ND (0.0424)	0.0068	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,1-Dichloroethene	ND (0.0424)	0.0104	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,1-Dichloropropene	ND (0.0424)	0.0065	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2,3-Trichlorobenzene	ND (0.0424)	0.0142	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2,3-Trichloropropane	ND (0.0424)	0.0105	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2,4-Trichlorobenzene	ND (0.0424)	0.0093	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2,4-Trimethylbenzene	ND (0.0424)	0.0081	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2-Dibromo-3-Chloropropane	ND (0.255)	0.0849	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2-Dibromoethane	ND (0.0424)	0.0108	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2-Dichlorobenzene	ND (0.0424)	0.0060	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2-Dichloroethane	ND (0.0424)	0.0114	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,2-Dichloropropane	ND (0.0424)	0.0111	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,3,5-Trimethylbenzene	ND (0.0424)	0.0075	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,3-Dichlorobenzene	ND (0.0424)	0.0053	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,3-Dichloropropane	ND (0.0424)	0.0095	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,4-Dichlorobenzene	ND (0.0424)	0.0113	8260B		1	04/10/14 15:43	CXD0128	CD41104
1,4-Dioxane - Screen	ND (4.24)	1.42	8260B		1	04/10/14 15:43	CXD0128	CD41104
1-Chlorohexane	ND (0.0424)	0.0081	8260B		1	04/10/14 15:43	CXD0128	CD41104
2,2-Dichloropropane	ND (0.0849)	0.0145	8260B		1	04/10/14 15:43	CXD0128	CD41104
2-Butanone	ND (1.06)	0.245	8260B		1	04/10/14 15:43	CXD0128	CD41104
2-Chlorotoluene	ND (0.0424)	0.0120	8260B		1	04/10/14 15:43	CXD0128	CD41104
2-Hexanone	ND (0.424)	0.0731	8260B		1	04/10/14 15:43	CXD0128	CD41104
4-Chlorotoluene	ND (0.0424)	0.0055	8260B		1	04/10/14 15:43	CXD0128	CD41104
4-Isopropyltoluene	ND (0.0424)	0.0076	8260B		1	04/10/14 15:43	CXD0128	CD41104
4-Methyl-2-Pentanone	ND (0.424)	0.0511	8260B		1	04/10/14 15:43	CXD0128	CD41104
Acetone	ND (1.06)	0.314	8260B		1	04/10/14 15:43	CXD0128	CD41104
Benzene	ND (0.0424)	0.0069	8260B		1	04/10/14 15:43	CXD0128	CD41104
Bromobenzene	ND (0.0424)	0.0116	8260B		1	04/10/14 15:43	CXD0128	CD41104



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 3
Date Sampled: 04/04/14 07:00
Percent Solids: 90
Initial Volume: 22.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0424)	0.0137	8260B		1	04/10/14 15:43	CXD0128	CD41104
Bromodichloromethane	ND (0.0424)	0.0059	8260B		1	04/10/14 15:43	CXD0128	CD41104
Bromoform	ND (0.0424)	0.0122	8260B		1	04/10/14 15:43	CXD0128	CD41104
Bromomethane	ND (0.0849)	0.0283	8260B		1	04/10/14 15:43	CXD0128	CD41104
Carbon Disulfide	ND (0.0424)	0.0063	8260B		1	04/10/14 15:43	CXD0128	CD41104
Carbon Tetrachloride	ND (0.0424)	0.0074	8260B		1	04/10/14 15:43	CXD0128	CD41104
Chlorobenzene	ND (0.0424)	0.0067	8260B		1	04/10/14 15:43	CXD0128	CD41104
Chloroethane	ND (0.0849)	0.0283	8260B		1	04/10/14 15:43	CXD0128	CD41104
Chloroform	ND (0.0424)	0.0087	8260B		1	04/10/14 15:43	CXD0128	CD41104
Chloromethane	ND (0.0849)	0.0108	8260B		1	04/10/14 15:43	CXD0128	CD41104
cis-1,2-Dichloroethene	ND (0.0424)	0.0105	8260B		1	04/10/14 15:43	CXD0128	CD41104
cis-1,3-Dichloropropene	ND (0.0424)	0.0096	8260B		1	04/10/14 15:43	CXD0128	CD41104
Dibromochloromethane	ND (0.0424)	0.0107	8260B		1	04/10/14 15:43	CXD0128	CD41104
Dibromomethane	ND (0.0424)	0.0134	8260B		1	04/10/14 15:43	CXD0128	CD41104
Dichlorodifluoromethane	ND (0.0424)	0.0074	8260B		1	04/10/14 15:43	CXD0128	CD41104
Diethyl Ether	ND (0.0424)	0.0108	8260B		1	04/10/14 15:43	CXD0128	CD41104
Di-isopropyl ether	ND (0.0424)	0.0080	8260B		1	04/10/14 15:43	CXD0128	CD41104
Ethyl tertiary-butyl ether	ND (0.0424)	0.0107	8260B		1	04/10/14 15:43	CXD0128	CD41104
Ethylbenzene	ND (0.0424)	0.0055	8260B		1	04/10/14 15:43	CXD0128	CD41104
Hexachlorobutadiene	ND (0.0424)	0.0142	8260B		1	04/10/14 15:43	CXD0128	CD41104
Isopropylbenzene	ND (0.0424)	0.0075	8260B		1	04/10/14 15:43	CXD0128	CD41104
Methyl tert-Butyl Ether	ND (0.0424)	0.0068	8260B		1	04/10/14 15:43	CXD0128	CD41104
Methylene Chloride	ND (0.212)	0.0111	8260B		1	04/10/14 15:43	CXD0128	CD41104
Naphthalene	ND (0.0424)	0.0111	8260B		1	04/10/14 15:43	CXD0128	CD41104
n-Butylbenzene	ND (0.0424)	0.0104	8260B		1	04/10/14 15:43	CXD0128	CD41104
n-Propylbenzene	ND (0.0424)	0.0104	8260B		1	04/10/14 15:43	CXD0128	CD41104
sec-Butylbenzene	ND (0.0424)	0.0057	8260B		1	04/10/14 15:43	CXD0128	CD41104
Styrene	ND (0.0424)	0.0056	8260B		1	04/10/14 15:43	CXD0128	CD41104
tert-Butylbenzene	ND (0.0424)	0.0099	8260B		1	04/10/14 15:43	CXD0128	CD41104
Tertiary-amyl methyl ether	ND (0.0424)	0.0061	8260B		1	04/10/14 15:43	CXD0128	CD41104
Tetrachloroethene	ND (0.0424)	0.0142	8260B		1	04/10/14 15:43	CXD0128	CD41104
Tetrahydrofuran	ND (0.424)	0.109	8260B		1	04/10/14 15:43	CXD0128	CD41104



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 3
Date Sampled: 04/04/14 07:00
Percent Solids: 90
Initial Volume: 22.9
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0424)	0.0108	8260B		1	04/10/14 15:43	CXD0128	CD41104
trans-1,2-Dichloroethene	ND (0.0424)	0.0139	8260B		1	04/10/14 15:43	CXD0128	CD41104
trans-1,3-Dichloropropene	ND (0.0424)	0.0131	8260B		1	04/10/14 15:43	CXD0128	CD41104
Trichloroethene	ND (0.0424)	0.0087	8260B		1	04/10/14 15:43	CXD0128	CD41104
Trichlorofluoromethane	ND (0.0424)	0.0112	8260B		1	04/10/14 15:43	CXD0128	CD41104
Vinyl Acetate	ND (0.212)	0.0087	8260B		1	04/10/14 15:43	CXD0128	CD41104
Vinyl Chloride	ND (0.0424)	0.0140	8260B		1	04/10/14 15:43	CXD0128	CD41104
Xylene O	ND (0.0424)	0.0081	8260B		1	04/10/14 15:43	CXD0128	CD41104
Xylene P,M	ND (0.0849)	0.0165	8260B		1	04/10/14 15:43	CXD0128	CD41104
Xylenes (Total)	ND (0.0849)		8260B		1	04/10/14 15:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>119 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>125 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>118 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank 4414
Date Sampled: 04/04/14 07:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-06
Sample Matrix: Soil
Units: mg/kg
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.100)	0.0087	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,1,1-Trichloroethane	ND (0.0500)	0.0088	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,1,2,2-Tetrachloroethane	ND (0.0500)	0.0136	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,1,2-Trichloroethane	ND (0.0500)	0.0125	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,1-Dichloroethane	ND (0.0500)	0.0080	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,1-Dichloroethene	ND (0.0500)	0.0123	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,1-Dichloropropene	ND (0.0500)	0.0077	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2,3-Trichlorobenzene	ND (0.0500)	0.0167	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2,3-Trichloropropane	ND (0.0500)	0.0124	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2,4-Trichlorobenzene	ND (0.0500)	0.0110	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2,4-Trimethylbenzene	ND (0.0500)	0.0096	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2-Dibromo-3-Chloropropane	ND (0.300)	0.100	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2-Dibromoethane	ND (0.0500)	0.0127	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2-Dichlorobenzene	ND (0.0500)	0.0071	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2-Dichloroethane	ND (0.0500)	0.0134	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,2-Dichloropropane	ND (0.0500)	0.0131	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,3,5-Trimethylbenzene	ND (0.0500)	0.0088	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,3-Dichlorobenzene	ND (0.0500)	0.0063	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,3-Dichloropropane	ND (0.0500)	0.0112	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,4-Dichlorobenzene	ND (0.0500)	0.0133	8260B		1	04/10/14 13:47	CXD0128	CD41104
1,4-Dioxane - Screen	ND (5.00)	1.67	8260B		1	04/10/14 13:47	CXD0128	CD41104
1-Chlorohexane	ND (0.0500)	0.0095	8260B		1	04/10/14 13:47	CXD0128	CD41104
2,2-Dichloropropane	ND (0.100)	0.0171	8260B		1	04/10/14 13:47	CXD0128	CD41104
2-Butanone	ND (1.25)	0.289	8260B		1	04/10/14 13:47	CXD0128	CD41104
2-Chlorotoluene	ND (0.0500)	0.0141	8260B		1	04/10/14 13:47	CXD0128	CD41104
2-Hexanone	ND (0.500)	0.0861	8260B		1	04/10/14 13:47	CXD0128	CD41104
4-Chlorotoluene	ND (0.0500)	0.0065	8260B		1	04/10/14 13:47	CXD0128	CD41104
4-Isopropyltoluene	ND (0.0500)	0.0089	8260B		1	04/10/14 13:47	CXD0128	CD41104
4-Methyl-2-Pentanone	ND (0.500)	0.0602	8260B		1	04/10/14 13:47	CXD0128	CD41104
Acetone	ND (1.25)	0.370	8260B		1	04/10/14 13:47	CXD0128	CD41104
Benzene	ND (0.0500)	0.0081	8260B		1	04/10/14 13:47	CXD0128	CD41104
Bromobenzene	ND (0.0500)	0.0137	8260B		1	04/10/14 13:47	CXD0128	CD41104



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank 4414
Date Sampled: 04/04/14 07:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-06
Sample Matrix: Soil
Units: mg/kg
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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 (0.0500)	0.0162	8260B		1	04/10/14 13:47	CXD0128	CD41104
Bromodichloromethane	ND (0.0500)	0.0069	8260B		1	04/10/14 13:47	CXD0128	CD41104
Bromoform	ND (0.0500)	0.0144	8260B		1	04/10/14 13:47	CXD0128	CD41104
Bromomethane	ND (0.100)	0.0334	8260B		1	04/10/14 13:47	CXD0128	CD41104
Carbon Disulfide	ND (0.0500)	0.0074	8260B		1	04/10/14 13:47	CXD0128	CD41104
Carbon Tetrachloride	ND (0.0500)	0.0087	8260B		1	04/10/14 13:47	CXD0128	CD41104
Chlorobenzene	ND (0.0500)	0.0079	8260B		1	04/10/14 13:47	CXD0128	CD41104
Chloroethane	ND (0.100)	0.0333	8260B		1	04/10/14 13:47	CXD0128	CD41104
Chloroform	ND (0.0500)	0.0103	8260B		1	04/10/14 13:47	CXD0128	CD41104
Chloromethane	ND (0.100)	0.0127	8260B		1	04/10/14 13:47	CXD0128	CD41104
cis-1,2-Dichloroethene	ND (0.0500)	0.0124	8260B		1	04/10/14 13:47	CXD0128	CD41104
cis-1,3-Dichloropropene	ND (0.0500)	0.0113	8260B		1	04/10/14 13:47	CXD0128	CD41104
Dibromochloromethane	ND (0.0500)	0.0126	8260B		1	04/10/14 13:47	CXD0128	CD41104
Dibromomethane	ND (0.0500)	0.0158	8260B		1	04/10/14 13:47	CXD0128	CD41104
Dichlorodifluoromethane	ND (0.0500)	0.0087	8260B		1	04/10/14 13:47	CXD0128	CD41104
Diethyl Ether	ND (0.0500)	0.0127	8260B		1	04/10/14 13:47	CXD0128	CD41104
Di-isopropyl ether	ND (0.0500)	0.0094	8260B		1	04/10/14 13:47	CXD0128	CD41104
Ethyl tertiary-butyl ether	ND (0.0500)	0.0126	8260B		1	04/10/14 13:47	CXD0128	CD41104
Ethylbenzene	ND (0.0500)	0.0065	8260B		1	04/10/14 13:47	CXD0128	CD41104
Hexachlorobutadiene	ND (0.0500)	0.0167	8260B		1	04/10/14 13:47	CXD0128	CD41104
Isopropylbenzene	ND (0.0500)	0.0088	8260B		1	04/10/14 13:47	CXD0128	CD41104
Methyl tert-Butyl Ether	ND (0.0500)	0.0080	8260B		1	04/10/14 13:47	CXD0128	CD41104
Methylene Chloride	ND (0.250)	0.0131	8260B		1	04/10/14 13:47	CXD0128	CD41104
Naphthalene	ND (0.0500)	0.0131	8260B		1	04/10/14 13:47	CXD0128	CD41104
n-Butylbenzene	ND (0.0500)	0.0123	8260B		1	04/10/14 13:47	CXD0128	CD41104
n-Propylbenzene	ND (0.0500)	0.0122	8260B		1	04/10/14 13:47	CXD0128	CD41104
sec-Butylbenzene	ND (0.0500)	0.0067	8260B		1	04/10/14 13:47	CXD0128	CD41104
Styrene	ND (0.0500)	0.0066	8260B		1	04/10/14 13:47	CXD0128	CD41104
tert-Butylbenzene	ND (0.0500)	0.0117	8260B		1	04/10/14 13:47	CXD0128	CD41104
Tertiary-amyl methyl ether	ND (0.0500)	0.0072	8260B		1	04/10/14 13:47	CXD0128	CD41104
Tetrachloroethene	ND (0.0500)	0.0167	8260B		1	04/10/14 13:47	CXD0128	CD41104
Tetrahydrofuran	ND (0.500)	0.129	8260B		1	04/10/14 13:47	CXD0128	CD41104



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank 4414
Date Sampled: 04/04/14 07:00
Percent Solids: N/A
Initial Volume: 15
Final Volume: 15
Extraction Method: 5035

ESS Laboratory Work Order: 1404160
ESS Laboratory Sample ID: 1404160-06
Sample Matrix: Soil
Units: mg/kg
Analyst: MD

All methods used are in accordance with 40 CFR 136.

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	ND (0.0500)	0.0127	8260B		1	04/10/14 13:47	CXD0128	CD41104
trans-1,2-Dichloroethene	ND (0.0500)	0.0164	8260B		1	04/10/14 13:47	CXD0128	CD41104
trans-1,3-Dichloropropene	ND (0.0500)	0.0154	8260B		1	04/10/14 13:47	CXD0128	CD41104
Trichloroethene	ND (0.0500)	0.0103	8260B		1	04/10/14 13:47	CXD0128	CD41104
Trichlorofluoromethane	ND (0.0500)	0.0132	8260B		1	04/10/14 13:47	CXD0128	CD41104
Vinyl Acetate	ND (0.250)	0.0103	8260B		1	04/10/14 13:47	CXD0128	CD41104
Vinyl Chloride	ND (0.0500)	0.0165	8260B		1	04/10/14 13:47	CXD0128	CD41104
Xylene O	ND (0.0500)	0.0096	8260B		1	04/10/14 13:47	CXD0128	CD41104
Xylene P,M	ND (0.100)	0.0194	8260B		1	04/10/14 13:47	CXD0128	CD41104
Xylenes (Total)	ND (0.300)	0.0310	8260B		0	04/10/14 13:47	CXD0128	CD41104

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>100 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.100	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0500	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0500	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0500	mg/kg wet							
1,1-Dichloroethane	ND	0.0500	mg/kg wet							
1,1-Dichloroethene	ND	0.0500	mg/kg wet							
1,1-Dichloropropene	ND	0.0500	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0500	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0500	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0500	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0500	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.300	mg/kg wet							
1,2-Dibromoethane	ND	0.0500	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,2-Dichloroethane	ND	0.0500	mg/kg wet							
1,2-Dichloropropane	ND	0.0500	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0500	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,3-Dichloropropane	ND	0.0500	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,4-Dioxane - Screen	ND	5.00	mg/kg wet							
1-Chlorohexane	ND	0.0500	mg/kg wet							
2,2-Dichloropropane	ND	0.100	mg/kg wet							
2-Butanone	ND	1.25	mg/kg wet							
2-Chlorotoluene	ND	0.0500	mg/kg wet							
2-Hexanone	ND	0.500	mg/kg wet							
4-Chlorotoluene	ND	0.0500	mg/kg wet							
4-Isopropyltoluene	ND	0.0500	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.500	mg/kg wet							
Acetone	ND	1.25	mg/kg wet							
Benzene	ND	0.0500	mg/kg wet							
Bromobenzene	ND	0.0500	mg/kg wet							
Bromochloromethane	ND	0.0500	mg/kg wet							
Bromodichloromethane	ND	0.0500	mg/kg wet							
Bromoform	ND	0.0500	mg/kg wet							
Bromomethane	ND	0.100	mg/kg wet							
Carbon Disulfide	ND	0.0500	mg/kg wet							
Carbon Tetrachloride	ND	0.0500	mg/kg wet							
Chlorobenzene	ND	0.0500	mg/kg wet							
Chloroethane	ND	0.100	mg/kg wet							
Chloroform	ND	0.0500	mg/kg wet							
Chloromethane	ND	0.100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0500	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0500	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

Dibromochloromethane	ND	0.0500	mg/kg wet							
Dibromomethane	ND	0.0500	mg/kg wet							
Dichlorodifluoromethane	ND	0.0500	mg/kg wet							
Diethyl Ether	ND	0.0500	mg/kg wet							
Di-isopropyl ether	ND	0.0500	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0500	mg/kg wet							
Ethylbenzene	ND	0.0500	mg/kg wet							
Hexachlorobutadiene	ND	0.0500	mg/kg wet							
Isopropylbenzene	ND	0.0500	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0500	mg/kg wet							
Methylene Chloride	ND	0.250	mg/kg wet							
Naphthalene	ND	0.0500	mg/kg wet							
n-Butylbenzene	ND	0.0500	mg/kg wet							
n-Propylbenzene	ND	0.0500	mg/kg wet							
sec-Butylbenzene	ND	0.0500	mg/kg wet							
Styrene	ND	0.0500	mg/kg wet							
tert-Butylbenzene	ND	0.0500	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0500	mg/kg wet							
Tetrachloroethene	ND	0.0500	mg/kg wet							
Tetrahydrofuran	ND	0.500	mg/kg wet							
Toluene	ND	0.0500	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0500	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0500	mg/kg wet							
Trichloroethene	ND	0.0500	mg/kg wet							
Vinyl Acetate	ND	0.250	mg/kg wet							
Vinyl Chloride	ND	0.0500	mg/kg wet							
Xylene O	ND	0.0500	mg/kg wet							
Xylene P,M	ND	0.100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	2.00		mg/kg wet	2.500		80	70-130			
Surrogate: 4-Bromofluorobenzene	2.05		mg/kg wet	2.500		82	70-130			
Surrogate: Dibromofluoromethane	2.16		mg/kg wet	2.500		86	70-130			
Surrogate: Toluene-d8	2.06		mg/kg wet	2.500		82	70-130			

LCS

1,1,1,2-Tetrachloroethane	2.31	0.100	mg/kg wet	2.500		93	70-130			
1,1,1-Trichloroethane	2.18	0.0500	mg/kg wet	2.500		87	70-130			
1,1,2,2-Tetrachloroethane	2.12	0.0500	mg/kg wet	2.500		85	70-130			
1,1,2-Trichloroethane	1.96	0.0500	mg/kg wet	2.500		79	70-130			
1,1-Dichloroethane	1.88	0.0500	mg/kg wet	2.500		75	70-130			
1,1-Dichloroethene	2.10	0.0500	mg/kg wet	2.500		84	70-130			
1,1-Dichloropropene	2.06	0.0500	mg/kg wet	2.500		82	70-130			
1,2,3-Trichlorobenzene	2.33	0.0500	mg/kg wet	2.500		93	70-130			
1,2,3-Trichloropropane	1.88	0.0500	mg/kg wet	2.500		75	70-130			
1,2,4-Trichlorobenzene	2.34	0.0500	mg/kg wet	2.500		94	70-130			
1,2,4-Trimethylbenzene	2.22	0.0500	mg/kg wet	2.500		89	70-130			
1,2-Dibromo-3-Chloropropane	2.18	0.300	mg/kg wet	2.500		87	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

1,2-Dibromoethane	2.46	0.0500	mg/kg wet	2.500		98	70-130			
1,2-Dichlorobenzene	2.42	0.0500	mg/kg wet	2.500		97	70-130			
1,2-Dichloroethane	2.28	0.0500	mg/kg wet	2.500		91	70-130			
1,2-Dichloropropane	2.04	0.0500	mg/kg wet	2.500		81	70-130			
1,3,5-Trimethylbenzene	2.33	0.0500	mg/kg wet	2.500		93	70-130			
1,3-Dichlorobenzene	2.41	0.0500	mg/kg wet	2.500		96	70-130			
1,3-Dichloropropane	2.18	0.0500	mg/kg wet	2.500		87	70-130			
1,4-Dichlorobenzene	2.30	0.0500	mg/kg wet	2.500		92	70-130			
1,4-Dioxane - Screen	57.9	5.00	mg/kg wet	50.00		116	44-241			
1-Chlorohexane	2.32	0.0500	mg/kg wet	2.500		93	70-130			
2,2-Dichloropropane	2.26	0.100	mg/kg wet	2.500		90	70-130			
2-Butanone	9.84	1.25	mg/kg wet	12.50		79	70-130			
2-Chlorotoluene	2.19	0.0500	mg/kg wet	2.500		88	70-130			
2-Hexanone	10.9	0.500	mg/kg wet	12.50		87	70-130			
4-Chlorotoluene	2.19	0.0500	mg/kg wet	2.500		88	70-130			
4-Isopropyltoluene	2.22	0.0500	mg/kg wet	2.500		89	70-130			
4-Methyl-2-Pentanone	10.4	0.500	mg/kg wet	12.50		83	70-130			
Acetone	11.1	1.25	mg/kg wet	12.50		89	70-130			
Benzene	1.96	0.0500	mg/kg wet	2.500		79	70-130			
Bromobenzene	2.46	0.0500	mg/kg wet	2.500		99	70-130			
Bromochloromethane	2.31	0.0500	mg/kg wet	2.500		92	70-130			
Bromodichloromethane	2.14	0.0500	mg/kg wet	2.500		85	70-130			
Bromoform	2.54	0.0500	mg/kg wet	2.500		102	70-130			
Bromomethane	2.08	0.100	mg/kg wet	2.500		83	70-130			
Carbon Disulfide	2.12	0.0500	mg/kg wet	2.500		85	70-130			
Carbon Tetrachloride	2.40	0.0500	mg/kg wet	2.500		96	70-130			
Chlorobenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130			
Chloroethane	1.81	0.100	mg/kg wet	2.500		73	70-130			
Chloroform	2.12	0.0500	mg/kg wet	2.500		85	70-130			
Chloromethane	1.81	0.100	mg/kg wet	2.500		72	70-130			
cis-1,2-Dichloroethene	2.30	0.0500	mg/kg wet	2.500		92	70-130			
cis-1,3-Dichloropropene	2.25	0.0500	mg/kg wet	2.500		90	70-130			
Dibromochloromethane	2.52	0.0500	mg/kg wet	2.500		101	70-130			
Dibromomethane	2.10	0.0500	mg/kg wet	2.500		84	70-130			
Dichlorodifluoromethane	1.83	0.0500	mg/kg wet	2.500		73	70-130			
Diethyl Ether	1.94	0.0500	mg/kg wet	2.500		78	70-130			
Di-isopropyl ether	1.84	0.0500	mg/kg wet	2.500		73	70-130			
Ethyl tertiary-butyl ether	2.09	0.0500	mg/kg wet	2.500		83	70-130			
Ethylbenzene	2.28	0.0500	mg/kg wet	2.500		91	70-130			
Hexachlorobutadiene	2.34	0.0500	mg/kg wet	2.500		93	70-130			
Isopropylbenzene	2.25	0.0500	mg/kg wet	2.500		90	70-130			
Methyl tert-Butyl Ether	2.09	0.0500	mg/kg wet	2.500		84	70-130			
Methylene Chloride	2.02	0.250	mg/kg wet	2.500		81	70-130			
Naphthalene	2.39	0.0500	mg/kg wet	2.500		96	70-130			
n-Butylbenzene	2.19	0.0500	mg/kg wet	2.500		88	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

n-Propylbenzene	2.25	0.0500	mg/kg wet	2.500		90	70-130			
sec-Butylbenzene	2.20	0.0500	mg/kg wet	2.500		88	70-130			
Styrene	2.26	0.0500	mg/kg wet	2.500		90	70-130			
tert-Butylbenzene	2.44	0.0500	mg/kg wet	2.500		98	70-130			
Tertiary-amyl methyl ether	2.00	0.0500	mg/kg wet	2.500		80	70-130			
Tetrachloroethene	2.03	0.0500	mg/kg wet	2.500		81	70-130			
Tetrahydrofuran	2.54	0.500	mg/kg wet	2.500		102	70-130			
Toluene	2.10	0.0500	mg/kg wet	2.500		84	70-130			
trans-1,2-Dichloroethene	2.23	0.0500	mg/kg wet	2.500		89	70-130			
trans-1,3-Dichloropropene	2.14	0.0500	mg/kg wet	2.500		86	70-130			
Trichloroethene	2.19	0.0500	mg/kg wet	2.500		87	70-130			
Vinyl Acetate	2.17	0.250	mg/kg wet	2.500		87	70-130			
Vinyl Chloride	1.97	0.0500	mg/kg wet	2.500		79	70-130			
Xylene O	2.42	0.0500	mg/kg wet	2.500		97	70-130			
Xylene P,M	4.64	0.100	mg/kg wet	5.000		93	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>2.09</i>		mg/kg wet	<i>2.500</i>		<i>84</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>2.10</i>		mg/kg wet	<i>2.500</i>		<i>84</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>2.05</i>		mg/kg wet	<i>2.500</i>		<i>82</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>2.12</i>		mg/kg wet	<i>2.500</i>		<i>85</i>	<i>70-130</i>			

LCS Dup

1,1,1,2-Tetrachloroethane	2.41	0.100	mg/kg wet	2.500		97	70-130	4	25	
1,1,1-Trichloroethane	2.33	0.0500	mg/kg wet	2.500		93	70-130	7	25	
1,1,2,2-Tetrachloroethane	2.20	0.0500	mg/kg wet	2.500		88	70-130	4	25	
1,1,2-Trichloroethane	2.21	0.0500	mg/kg wet	2.500		88	70-130	12	25	
1,1-Dichloroethane	2.03	0.0500	mg/kg wet	2.500		81	70-130	8	25	
1,1-Dichloroethene	2.16	0.0500	mg/kg wet	2.500		86	70-130	3	25	
1,1-Dichloropropene	2.24	0.0500	mg/kg wet	2.500		90	70-130	9	25	
1,2,3-Trichlorobenzene	2.54	0.0500	mg/kg wet	2.500		102	70-130	9	25	
1,2,3-Trichloropropane	2.18	0.0500	mg/kg wet	2.500		87	70-130	15	25	
1,2,4-Trichlorobenzene	2.62	0.0500	mg/kg wet	2.500		105	70-130	11	25	
1,2,4-Trimethylbenzene	2.41	0.0500	mg/kg wet	2.500		96	70-130	8	25	
1,2-Dibromo-3-Chloropropane	2.39	0.300	mg/kg wet	2.500		95	70-130	9	25	
1,2-Dibromoethane	2.61	0.0500	mg/kg wet	2.500		104	70-130	6	25	
1,2-Dichlorobenzene	2.63	0.0500	mg/kg wet	2.500		105	70-130	8	25	
1,2-Dichloroethane	2.47	0.0500	mg/kg wet	2.500		99	70-130	8	25	
1,2-Dichloropropane	2.12	0.0500	mg/kg wet	2.500		85	70-130	4	25	
1,3,5-Trimethylbenzene	2.51	0.0500	mg/kg wet	2.500		100	70-130	7	25	
1,3-Dichlorobenzene	2.62	0.0500	mg/kg wet	2.500		105	70-130	8	25	
1,3-Dichloropropane	2.25	0.0500	mg/kg wet	2.500		90	70-130	3	25	
1,4-Dichlorobenzene	2.46	0.0500	mg/kg wet	2.500		98	70-130	7	25	
1,4-Dioxane - Screen	56.6	5.00	mg/kg wet	50.00		113	44-241	2	200	
1-Chlorohexane	2.41	0.0500	mg/kg wet	2.500		97	70-130	4	25	
2,2-Dichloropropane	2.44	0.100	mg/kg wet	2.500		98	70-130	8	25	
2-Butanone	10.5	1.25	mg/kg wet	12.50		84	70-130	7	25	
2-Chlorotoluene	2.32	0.0500	mg/kg wet	2.500		93	70-130	6	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

2-Hexanone	11.2	0.500	mg/kg wet	12.50		90	70-130	3	25	
4-Chlorotoluene	2.37	0.0500	mg/kg wet	2.500		95	70-130	8	25	
4-Isopropyltoluene	2.42	0.0500	mg/kg wet	2.500		97	70-130	9	25	
4-Methyl-2-Pentanone	11.1	0.500	mg/kg wet	12.50		89	70-130	7	25	
Acetone	10.2	1.25	mg/kg wet	12.50		82	70-130	8	25	
Benzene	2.12	0.0500	mg/kg wet	2.500		85	70-130	8	25	
Bromobenzene	2.65	0.0500	mg/kg wet	2.500		106	70-130	7	25	
Bromochloromethane	2.42	0.0500	mg/kg wet	2.500		97	70-130	5	25	
Bromodichloromethane	2.26	0.0500	mg/kg wet	2.500		90	70-130	6	25	
Bromoform	2.70	0.0500	mg/kg wet	2.500		108	70-130	6	25	
Bromomethane	2.06	0.100	mg/kg wet	2.500		82	70-130	1	25	
Carbon Disulfide	2.26	0.0500	mg/kg wet	2.500		90	70-130	6	25	
Carbon Tetrachloride	2.55	0.0500	mg/kg wet	2.500		102	70-130	6	25	
Chlorobenzene	2.51	0.0500	mg/kg wet	2.500		101	70-130	6	25	
Chloroethane	2.00	0.100	mg/kg wet	2.500		80	70-130	10	25	
Chloroform	2.17	0.0500	mg/kg wet	2.500		87	70-130	2	25	
Chloromethane	1.90	0.100	mg/kg wet	2.500		76	70-130	5	25	
cis-1,2-Dichloroethene	2.40	0.0500	mg/kg wet	2.500		96	70-130	4	25	
cis-1,3-Dichloropropene	2.47	0.0500	mg/kg wet	2.500		99	70-130	9	25	
Dibromochloromethane	2.68	0.0500	mg/kg wet	2.500		107	70-130	6	25	
Dibromomethane	2.31	0.0500	mg/kg wet	2.500		92	70-130	9	25	
Dichlorodifluoromethane	1.93	0.0500	mg/kg wet	2.500		77	70-130	6	25	
Diethyl Ether	2.08	0.0500	mg/kg wet	2.500		83	70-130	7	25	
Di-isopropyl ether	1.96	0.0500	mg/kg wet	2.500		79	70-130	7	25	
Ethyl tertiary-butyl ether	2.26	0.0500	mg/kg wet	2.500		90	70-130	8	25	
Ethylbenzene	2.38	0.0500	mg/kg wet	2.500		95	70-130	4	25	
Hexachlorobutadiene	2.67	0.0500	mg/kg wet	2.500		107	70-130	13	25	
Isopropylbenzene	2.39	0.0500	mg/kg wet	2.500		96	70-130	6	25	
Methyl tert-Butyl Ether	2.27	0.0500	mg/kg wet	2.500		91	70-130	8	25	
Methylene Chloride	2.21	0.250	mg/kg wet	2.500		89	70-130	9	25	
Naphthalene	2.67	0.0500	mg/kg wet	2.500		107	70-130	11	25	
n-Butylbenzene	2.25	0.0500	mg/kg wet	2.500		90	70-130	3	25	
n-Propylbenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130	5	25	
sec-Butylbenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130	7	25	
Styrene	2.32	0.0500	mg/kg wet	2.500		93	70-130	3	25	
tert-Butylbenzene	2.64	0.0500	mg/kg wet	2.500		106	70-130	8	25	
Tertiary-amyl methyl ether	2.11	0.0500	mg/kg wet	2.500		84	70-130	5	25	
Tetrachloroethene	2.16	0.0500	mg/kg wet	2.500		86	70-130	6	25	
Tetrahydrofuran	2.28	0.500	mg/kg wet	2.500		91	70-130	11	25	
Toluene	2.24	0.0500	mg/kg wet	2.500		90	70-130	7	25	
trans-1,2-Dichloroethene	2.38	0.0500	mg/kg wet	2.500		95	70-130	7	25	
trans-1,3-Dichloropropene	2.31	0.0500	mg/kg wet	2.500		92	70-130	7	25	
Trichloroethene	2.33	0.0500	mg/kg wet	2.500		93	70-130	7	25	
Vinyl Acetate	2.39	0.250	mg/kg wet	2.500		96	70-130	10	25	
Vinyl Chloride	2.18	0.0500	mg/kg wet	2.500		87	70-130	10	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41008 - 5035

Xylene O	2.59	0.0500	mg/kg wet	2.500		104	70-130	7	25	
Xylene P,M	4.95	0.100	mg/kg wet	5.000		99	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	2.27		mg/kg wet	2.500		91	70-130			
Surrogate: 4-Bromofluorobenzene	2.28		mg/kg wet	2.500		91	70-130			
Surrogate: Dibromofluoromethane	2.23		mg/kg wet	2.500		89	70-130			
Surrogate: Toluene-d8	2.25		mg/kg wet	2.500		90	70-130			

Batch CD41104 - 5035

Blank

1,1,1,2-Tetrachloroethane	ND	0.100	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0500	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0500	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0500	mg/kg wet							
1,1-Dichloroethane	ND	0.0500	mg/kg wet							
1,1-Dichloroethene	ND	0.0500	mg/kg wet							
1,1-Dichloropropene	ND	0.0500	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0500	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0500	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0500	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0500	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.300	mg/kg wet							
1,2-Dibromoethane	ND	0.0500	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,2-Dichloroethane	ND	0.0500	mg/kg wet							
1,2-Dichloropropane	ND	0.0500	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0500	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,3-Dichloropropane	ND	0.0500	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0500	mg/kg wet							
1,4-Dioxane - Screen	ND	5.00	mg/kg wet							
1-Chlorohexane	ND	0.0500	mg/kg wet							
2,2-Dichloropropane	ND	0.100	mg/kg wet							
2-Butanone	ND	1.25	mg/kg wet							
2-Chlorotoluene	ND	0.0500	mg/kg wet							
2-Hexanone	ND	0.500	mg/kg wet							
4-Chlorotoluene	ND	0.0500	mg/kg wet							
4-Isopropyltoluene	ND	0.0500	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.500	mg/kg wet							
Acetone	ND	1.25	mg/kg wet							
Benzene	ND	0.0500	mg/kg wet							
Bromobenzene	ND	0.0500	mg/kg wet							
Bromochloromethane	ND	0.0500	mg/kg wet							
Bromodichloromethane	ND	0.0500	mg/kg wet							
Bromoform	ND	0.0500	mg/kg wet							
Bromomethane	ND	0.100	mg/kg wet							
Carbon Disulfide	ND	0.0500	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41104 - 5035

Carbon Tetrachloride	ND	0.0500	mg/kg wet							
Chlorobenzene	ND	0.0500	mg/kg wet							
Chloroethane	ND	0.100	mg/kg wet							
Chloroform	ND	0.0500	mg/kg wet							
Chloromethane	ND	0.100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0500	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0500	mg/kg wet							
Dibromochloromethane	ND	0.0500	mg/kg wet							
Dibromomethane	ND	0.0500	mg/kg wet							
Dichlorodifluoromethane	ND	0.0500	mg/kg wet							
Diethyl Ether	ND	0.0500	mg/kg wet							
Di-isopropyl ether	ND	0.0500	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0500	mg/kg wet							
Ethylbenzene	ND	0.0500	mg/kg wet							
Hexachlorobutadiene	ND	0.0500	mg/kg wet							
Isopropylbenzene	ND	0.0500	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0500	mg/kg wet							
Methylene Chloride	ND	0.250	mg/kg wet							
Naphthalene	ND	0.0500	mg/kg wet							
n-Butylbenzene	ND	0.0500	mg/kg wet							
n-Propylbenzene	ND	0.0500	mg/kg wet							
sec-Butylbenzene	ND	0.0500	mg/kg wet							
Styrene	ND	0.0500	mg/kg wet							
tert-Butylbenzene	ND	0.0500	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0500	mg/kg wet							
Tetrachloroethene	ND	0.0500	mg/kg wet							
Tetrahydrofuran	ND	0.500	mg/kg wet							
Toluene	ND	0.0500	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0500	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0500	mg/kg wet							
Trichloroethene	ND	0.0500	mg/kg wet							
Vinyl Acetate	ND	0.250	mg/kg wet							
Vinyl Chloride	ND	0.0500	mg/kg wet							
Xylene O	ND	0.0500	mg/kg wet							
Xylene P,M	ND	0.100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	2.04		mg/kg wet	2.500		81	70-130			
Surrogate: 4-Bromofluorobenzene	2.20		mg/kg wet	2.500		88	70-130			
Surrogate: Dibromofluoromethane	2.23		mg/kg wet	2.500		89	70-130			
Surrogate: Toluene-d8	2.14		mg/kg wet	2.500		86	70-130			

LCS

1,1,1,2-Tetrachloroethane	2.48	0.100	mg/kg wet	2.500		99	70-130			
1,1,1-Trichloroethane	2.35	0.0500	mg/kg wet	2.500		94	70-130			
1,1,2,2-Tetrachloroethane	2.18	0.0500	mg/kg wet	2.500		87	70-130			
1,1,2-Trichloroethane	2.10	0.0500	mg/kg wet	2.500		84	70-130			
1,1-Dichloroethane	2.02	0.0500	mg/kg wet	2.500		81	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41104 - 5035

1,1-Dichloroethene	2.22	0.0500	mg/kg wet	2.500		89	70-130			
1,1-Dichloropropene	2.12	0.0500	mg/kg wet	2.500		85	70-130			
1,2,3-Trichlorobenzene	2.39	0.0500	mg/kg wet	2.500		96	70-130			
1,2,3-Trichloropropane	2.05	0.0500	mg/kg wet	2.500		82	70-130			
1,2,4-Trichlorobenzene	2.46	0.0500	mg/kg wet	2.500		99	70-130			
1,2,4-Trimethylbenzene	2.24	0.0500	mg/kg wet	2.500		90	70-130			
1,2-Dibromo-3-Chloropropane	2.24	0.300	mg/kg wet	2.500		89	70-130			
1,2-Dibromoethane	2.62	0.0500	mg/kg wet	2.500		105	70-130			
1,2-Dichlorobenzene	2.52	0.0500	mg/kg wet	2.500		101	70-130			
1,2-Dichloroethane	2.41	0.0500	mg/kg wet	2.500		97	70-130			
1,2-Dichloropropane	2.12	0.0500	mg/kg wet	2.500		85	70-130			
1,3,5-Trimethylbenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130			
1,3-Dichlorobenzene	2.51	0.0500	mg/kg wet	2.500		100	70-130			
1,3-Dichloropropane	2.26	0.0500	mg/kg wet	2.500		91	70-130			
1,4-Dichlorobenzene	2.44	0.0500	mg/kg wet	2.500		98	70-130			
1,4-Dioxane - Screen	53.6	5.00	mg/kg wet	50.00		107	44-241			
1-Chlorohexane	2.39	0.0500	mg/kg wet	2.500		96	70-130			
2,2-Dichloropropane	2.49	0.100	mg/kg wet	2.500		99	70-130			
2-Butanone	10.3	1.25	mg/kg wet	12.50		82	70-130			
2-Chlorotoluene	2.31	0.0500	mg/kg wet	2.500		93	70-130			
2-Hexanone	13.5	0.500	mg/kg wet	12.50		108	70-130			
4-Chlorotoluene	2.24	0.0500	mg/kg wet	2.500		90	70-130			
4-Isopropyltoluene	2.35	0.0500	mg/kg wet	2.500		94	70-130			
4-Methyl-2-Pentanone	10.1	0.500	mg/kg wet	12.50		81	70-130			
Acetone	10.2	1.25	mg/kg wet	12.50		82	70-130			
Benzene	2.13	0.0500	mg/kg wet	2.500		85	70-130			
Bromobenzene	2.58	0.0500	mg/kg wet	2.500		103	70-130			
Bromochloromethane	2.41	0.0500	mg/kg wet	2.500		96	70-130			
Bromodichloromethane	2.26	0.0500	mg/kg wet	2.500		91	70-130			
Bromoform	2.75	0.0500	mg/kg wet	2.500		110	70-130			
Bromomethane	1.85	0.100	mg/kg wet	2.500		74	70-130			
Carbon Disulfide	2.20	0.0500	mg/kg wet	2.500		88	70-130			
Carbon Tetrachloride	2.59	0.0500	mg/kg wet	2.500		104	70-130			
Chlorobenzene	2.48	0.0500	mg/kg wet	2.500		99	70-130			
Chloroethane	2.04	0.100	mg/kg wet	2.500		82	70-130			
Chloroform	2.23	0.0500	mg/kg wet	2.500		89	70-130			
Chloromethane	1.91	0.100	mg/kg wet	2.500		76	70-130			
cis-1,2-Dichloroethene	2.43	0.0500	mg/kg wet	2.500		97	70-130			
cis-1,3-Dichloropropene	2.39	0.0500	mg/kg wet	2.500		95	70-130			
Dibromochloromethane	2.73	0.0500	mg/kg wet	2.500		109	70-130			
Dibromomethane	2.23	0.0500	mg/kg wet	2.500		89	70-130			
Dichlorodifluoromethane	1.94	0.0500	mg/kg wet	2.500		78	70-130			
Diethyl Ether	2.04	0.0500	mg/kg wet	2.500		82	70-130			
Di-isopropyl ether	1.94	0.0500	mg/kg wet	2.500		77	70-130			
Ethyl tertiary-butyl ether	2.20	0.0500	mg/kg wet	2.500		88	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41104 - 5035

Ethylbenzene	2.35	0.0500	mg/kg wet	2.500		94	70-130			
Hexachlorobutadiene	2.72	0.0500	mg/kg wet	2.500		109	70-130			
Isopropylbenzene	2.36	0.0500	mg/kg wet	2.500		94	70-130			
Methyl tert-Butyl Ether	2.14	0.0500	mg/kg wet	2.500		86	70-130			
Methylene Chloride	2.08	0.250	mg/kg wet	2.500		83	70-130			
Naphthalene	2.33	0.0500	mg/kg wet	2.500		93	70-130			
n-Butylbenzene	2.13	0.0500	mg/kg wet	2.500		85	70-130			
n-Propylbenzene	2.28	0.0500	mg/kg wet	2.500		91	70-130			
sec-Butylbenzene	2.33	0.0500	mg/kg wet	2.500		93	70-130			
Styrene	2.22	0.0500	mg/kg wet	2.500		89	70-130			
tert-Butylbenzene	2.60	0.0500	mg/kg wet	2.500		104	70-130			
Tertiary-amyl methyl ether	2.07	0.0500	mg/kg wet	2.500		83	70-130			
Tetrachloroethene	2.22	0.0500	mg/kg wet	2.500		89	70-130			
Tetrahydrofuran	2.20	0.500	mg/kg wet	2.500		88	70-130			
Toluene	2.18	0.0500	mg/kg wet	2.500		87	70-130			
trans-1,2-Dichloroethene	2.34	0.0500	mg/kg wet	2.500		94	70-130			
trans-1,3-Dichloropropene	2.28	0.0500	mg/kg wet	2.500		91	70-130			
Trichloroethene	2.35	0.0500	mg/kg wet	2.500		94	70-130			
Vinyl Acetate	2.31	0.250	mg/kg wet	2.500		92	70-130			
Vinyl Chloride	2.12	0.0500	mg/kg wet	2.500		85	70-130			
Xylene O	2.37	0.0500	mg/kg wet	2.500		95	70-130			
Xylene P,M	4.81	0.100	mg/kg wet	5.000		96	70-130			
Surrogate: 1,2-Dichloroethane-d4	1.80		mg/kg wet	2.500		72	70-130			
Surrogate: 4-Bromofluorobenzene	1.76		mg/kg wet	2.500		70	70-130			
Surrogate: Dibromofluoromethane	1.75		mg/kg wet	2.500		70	70-130			
Surrogate: Toluene-d8	1.81		mg/kg wet	2.500		72	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	2.43	0.100	mg/kg wet	2.500		97	70-130	2	25	
1,1,1-Trichloroethane	2.30	0.0500	mg/kg wet	2.500		92	70-130	2	25	
1,1,2,2-Tetrachloroethane	2.14	0.0500	mg/kg wet	2.500		86	70-130	1	25	
1,1,2-Trichloroethane	2.08	0.0500	mg/kg wet	2.500		83	70-130	1	25	
1,1-Dichloroethane	1.95	0.0500	mg/kg wet	2.500		78	70-130	4	25	
1,1-Dichloroethene	2.20	0.0500	mg/kg wet	2.500		88	70-130	1	25	
1,1-Dichloropropene	2.22	0.0500	mg/kg wet	2.500		89	70-130	4	25	
1,2,3-Trichlorobenzene	2.47	0.0500	mg/kg wet	2.500		99	70-130	3	25	
1,2,3-Trichloropropane	2.20	0.0500	mg/kg wet	2.500		88	70-130	7	25	
1,2,4-Trichlorobenzene	2.47	0.0500	mg/kg wet	2.500		99	70-130	0.08	25	
1,2,4-Trimethylbenzene	2.22	0.0500	mg/kg wet	2.500		89	70-130	1	25	
1,2-Dibromo-3-Chloropropane	2.21	0.300	mg/kg wet	2.500		88	70-130	1	25	
1,2-Dibromoethane	2.59	0.0500	mg/kg wet	2.500		104	70-130	1	25	
1,2-Dichlorobenzene	2.49	0.0500	mg/kg wet	2.500		100	70-130	1	25	
1,2-Dichloroethane	2.32	0.0500	mg/kg wet	2.500		93	70-130	4	25	
1,2-Dichloropropane	2.08	0.0500	mg/kg wet	2.500		83	70-130	2	25	
1,3,5-Trimethylbenzene	2.32	0.0500	mg/kg wet	2.500		93	70-130	2	25	
1,3-Dichlorobenzene	2.54	0.0500	mg/kg wet	2.500		101	70-130	1	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41104 - 5035

1,3-Dichloropropane	2.24	0.0500	mg/kg wet	2.500		90	70-130	0.9	25	
1,4-Dichlorobenzene	2.37	0.0500	mg/kg wet	2.500		95	70-130	3	25	
1,4-Dioxane - Screen	58.3	5.00	mg/kg wet	50.00		117	44-241	8	200	
1-Chlorohexane	2.44	0.0500	mg/kg wet	2.500		97	70-130	2	25	
2,2-Dichloropropane	2.41	0.100	mg/kg wet	2.500		96	70-130	3	25	
2-Butanone	10.4	1.25	mg/kg wet	12.50		84	70-130	2	25	
2-Chlorotoluene	2.34	0.0500	mg/kg wet	2.500		93	70-130	0.9	25	
2-Hexanone	11.0	0.500	mg/kg wet	12.50		88	70-130	20	25	
4-Chlorotoluene	2.20	0.0500	mg/kg wet	2.500		88	70-130	2	25	
4-Isopropyltoluene	2.30	0.0500	mg/kg wet	2.500		92	70-130	2	25	
4-Methyl-2-Pentanone	10.3	0.500	mg/kg wet	12.50		82	70-130	1	25	
Acetone	9.74	1.25	mg/kg wet	12.50		78	70-130	5	25	
Benzene	2.05	0.0500	mg/kg wet	2.500		82	70-130	4	25	
Bromobenzene	2.54	0.0500	mg/kg wet	2.500		102	70-130	2	25	
Bromochloromethane	2.32	0.0500	mg/kg wet	2.500		93	70-130	4	25	
Bromodichloromethane	2.18	0.0500	mg/kg wet	2.500		87	70-130	4	25	
Bromoform	2.72	0.0500	mg/kg wet	2.500		109	70-130	1	25	
Bromomethane	2.22	0.100	mg/kg wet	2.500		89	70-130	18	25	
Carbon Disulfide	2.16	0.0500	mg/kg wet	2.500		86	70-130	2	25	
Carbon Tetrachloride	2.48	0.0500	mg/kg wet	2.500		99	70-130	4	25	
Chlorobenzene	2.44	0.0500	mg/kg wet	2.500		98	70-130	2	25	
Chloroethane	2.02	0.100	mg/kg wet	2.500		81	70-130	1	25	
Chloroform	2.15	0.0500	mg/kg wet	2.500		86	70-130	3	25	
Chloromethane	1.78	0.100	mg/kg wet	2.500		71	70-130	7	25	
cis-1,2-Dichloroethene	2.33	0.0500	mg/kg wet	2.500		93	70-130	4	25	
cis-1,3-Dichloropropene	2.37	0.0500	mg/kg wet	2.500		95	70-130	0.8	25	
Dibromochloromethane	2.71	0.0500	mg/kg wet	2.500		108	70-130	0.8	25	
Dibromomethane	2.24	0.0500	mg/kg wet	2.500		90	70-130	0.3	25	
Dichlorodifluoromethane	1.95	0.0500	mg/kg wet	2.500		78	70-130	0.1	25	
Diethyl Ether	2.01	0.0500	mg/kg wet	2.500		80	70-130	2	25	
Di-isopropyl ether	1.88	0.0500	mg/kg wet	2.500		75	70-130	3	25	
Ethyl tertiary-butyl ether	2.18	0.0500	mg/kg wet	2.500		87	70-130	1	25	
Ethylbenzene	2.30	0.0500	mg/kg wet	2.500		92	70-130	2	25	
Hexachlorobutadiene	2.62	0.0500	mg/kg wet	2.500		105	70-130	4	25	
Isopropylbenzene	2.30	0.0500	mg/kg wet	2.500		92	70-130	3	25	
Methyl tert-Butyl Ether	2.22	0.0500	mg/kg wet	2.500		89	70-130	4	25	
Methylene Chloride	2.06	0.250	mg/kg wet	2.500		82	70-130	0.9	25	
Naphthalene	2.39	0.0500	mg/kg wet	2.500		96	70-130	2	25	
n-Butylbenzene	2.13	0.0500	mg/kg wet	2.500		85	70-130	0.2	25	
n-Propylbenzene	2.15	0.0500	mg/kg wet	2.500		86	70-130	6	25	
sec-Butylbenzene	2.30	0.0500	mg/kg wet	2.500		92	70-130	1	25	
Styrene	2.28	0.0500	mg/kg wet	2.500		91	70-130	3	25	
tert-Butylbenzene	2.52	0.0500	mg/kg wet	2.500		101	70-130	3	25	
Tertiary-amyl methyl ether	2.10	0.0500	mg/kg wet	2.500		84	70-130	1	25	
Tetrachloroethene	2.15	0.0500	mg/kg wet	2.500		86	70-130	3	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

5035/8260B Volatile Organic Compounds / Methanol

Batch CD41104 - 5035

Tetrahydrofuran	2.00	0.500	mg/kg wet	2.500		80	70-130	10	25	
Toluene	2.14	0.0500	mg/kg wet	2.500		86	70-130	2	25	
trans-1,2-Dichloroethene	2.27	0.0500	mg/kg wet	2.500		91	70-130	3	25	
trans-1,3-Dichloropropene	2.16	0.0500	mg/kg wet	2.500		87	70-130	5	25	
Trichloroethene	2.30	0.0500	mg/kg wet	2.500		92	70-130	2	25	
Vinyl Acetate	2.31	0.250	mg/kg wet	2.500		92	70-130	0.2	25	
Vinyl Chloride	2.05	0.0500	mg/kg wet	2.500		82	70-130	3	25	
Xylene O	2.42	0.0500	mg/kg wet	2.500		97	70-130	2	25	
Xylene P,M	4.74	0.100	mg/kg wet	5.000		95	70-130	2	25	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>1.79</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>72</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>1.76</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>70</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>1.78</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>71</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>1.78</i>		<i>mg/kg wet</i>	<i>2.500</i>		<i>71</i>	<i>70-130</i>			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404160

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)

A2LA Accredited: Testing Cert# 2864.01
<http://www.a2la.org/scopepdf/2864-01.pdf>

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: RI0002

<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

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.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01

Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)

<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141

Lead Paint, Lead in Children's Metals Jewelry

<http://www.epsc.gov/cgi-bin/labapplist.aspx>

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: Client

ESS Project ID: 14040160
Date Project Due: 4/15/14
Days For Project: 5 Day

Items to be checked upon receipt:

- | | | | |
|--|-------------------------------|---|---------------------------------|
| 1. Air Bill Manifest Present? | <input type="checkbox"/> * No | 10. Are the samples properly preserved? | <input type="checkbox"/> Yes |
| Air No.: | | 11. Proper sample containers used? | <input type="checkbox"/> Yes |
| 2. Were Custody Seals Present? | <input type="checkbox"/> No | 12. Any air bubbles in the VOA vials? | <input type="checkbox"/> N/A |
| 3. Were Custody Seals Intact? | <input type="checkbox"/> N/A | 13. Holding times exceeded? | <input type="checkbox"/> No |
| 4. Is Radiation count < 100 CPM? | <input type="checkbox"/> Yes | 14. Sufficient sample volumes? | <input type="checkbox"/> Yes |
| 5. Is a cooler present? | <input type="checkbox"/> Yes | 15. Any Subcontracting needed? | <input type="checkbox"/> No |
| <input type="text" value="Cooler Temp: -1.1"/> | | 16. Are ESS labels on correct containers? | <input type="checkbox"/> Yes No |
| <input type="text" value="Iced With: Ice"/> | | 17. Were samples received intact? | <input type="checkbox"/> Yes No |
| 6. Was COC included with samples? | <input type="checkbox"/> Yes | ESS Sample IDs: _____ | |
| 7. Was COC signed and dated by client? | <input type="checkbox"/> Yes | Sub Lab: _____ | |
| 8. Does the COC match the sample | <input type="checkbox"/> Yes | Analysis: _____ | |
| 9. Is COC complete and correct? | <input type="checkbox"/> Yes | TAT: _____ | |

18. Was there need to call project manager to discuss status? If yes, please explain.

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	4 oz Soil Jar	1	NP
1	Yes	40 ml - VOA	1	MeOH
2	Yes	4 oz Soil Jar	1	NP
2	Yes	40 ml - VOA	1	MeOH
3	Yes	4 oz Soil Jar	1	NP
3	Yes	40 ml - VOA	1	MeOH
4	Yes	4 oz Soil Jar	1	NP
4	Yes	40 ml - VOA	1	MeOH
5	Yes	4 oz Soil Jar	1	NP
5	Yes	40 ml - VOA	1	MeOH
6	Yes	40 ml - VOA	1	MeOH

Completed By: [Signature]

Date/Time: 4/15/14 0245

Reviewed By: [Signature]

Date/Time: 4/8/14 0912

CHAIN OF CUSTODY

Page 1 of 2

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

Turn Time Standard Other _____
 If faster than 5 days, prior approval by laboratory is required # _____
 State where samples were collected from:
 MA RI CT NH NJ NY ME Other _____
 Is this project for any of the following: USACE Other _____
 MA-MCP Navy

Reporting Limits _____
 Electronic Deliverable Yes No
 Format: Excel Access PDF Other _____

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	Write Required Analysis	
①	4/11/14	7:15	X		S	TB-400 6-8	1	2	1/6		
		7:20									
		7:28									
		7:30									
②	4/11/14	9:35				70-401 8-8					
		9:40									
		9:45									
		11:7									
		11:8									
③	4/11/14	11:15				TB-402 6-8					

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 Pickup Technicians

Seals Intact Yes No NA: AC 4/12/14

Cooler Temp: _____

Relinquished by: (Signature) _____ Date/Time 4/11/14 11:30
 Received by: (Signature) _____ Date/Time 4/11/14 15:55

Relinquished by: (Signature) _____ Date/Time 4/11/14 14:30
 Received by: (Signature) _____ Date/Time 4/11/14 15:55

Comments: _____

Preservation Code 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9- _____

Sampled by: _____

Please fax all changes to Chain of Custody in writing.
 1 (White) Lab Copy 2 (Yellow) Client Receipt
 10/26/04 A

CHAIN OF CUSTODY

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

Turn Time: Standard Other _____
 If faster than 5 days, prior approval by laboratory is required # _____
 State where samples were collected from:
 MA RI CT NH NJ NY ME Other _____
 Is this project for any of the following:
 MA-MCP Navy USACE Other _____

Reporting Limits: (Blank) (Blank) (Blank)
 Electronic Deliverable: Yes No _____
 Format: Excel Access _____ PDF Other _____
 ESS LAB PROJECT ID: 1909160

Co. Name	Project #		Project Name (20 Char. or less)		Number of Containers	Type of Containers	Write Required Analysis
62A	4451	22114	THIAVAIT #				
Contact Person	Address		City		State	Zip	PO#
MADEP	4451		FRANCA		RI	02910	
Telephone #	Fax #	Sample Identification (20 Char. or less)		Pres Code			
401-461-7181		19-403 12-14		6	1		
ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX		
(4)	4/14/14	1930	X		S		
(5)	4/14/14	515			I		
(6)	4/14/14	630			I		
(7)	4/14/14	635			I		
(8)	4/14/14	630			I		
(9)	4/14/14	700			I		
(10)	4/14/14	700			I		
(11)	4/14/14	700			I		

off held
 per client request
 4/14/14

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: Pickup Technician

Seals Intact: Yes No NA: No NA:

Cooler Temp: _____
 Relinquished by: (Signature) _____ Date/Time: 4/14/14 11:30
 Relinquished by: (Signature) _____ Date/Time: 4/14/14 14:30

Received by: (Signature) _____ Date/Time: _____
 Received by: (Signature) _____ Date/Time: _____

Sampled by: COMMISSIONER Preservation Code: _____
 Comments: SAMPLES ACC INCURRED NEGATIVE RESULTS

APPENDIX G

LOW FLOW SAMPLING LOGS

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 25
 Project: Tidewater Former MGP
 Location: City: Pawtucket State: R.I.
Weather: Sunny 40's

Well ID: MW-400
 Sample Date: 4/17/2014
 Sampler's Name: Sophia Narkewicz

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 4/17/2014/ 14:00

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 24.3
 Depth to LNAPL (feet): -
 Depth to Water (feet): 16.65
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 15 to 25

Standing Water in Well (feet): 7.65
 Well Diameter (in.): 2"
 Sample Depth (feet BGS): 20
 Standpipe: TPVC to Ground Surface (feet) -
 Roadbox: TPVC to Ground Surface (feet) -

Well Condition: Protective Casing- Poor Good Lock- Yes No Expansion Cap- Yes No Well ID- Yes No Concrete Collar- Yes No Well- Poor Good

EQUIPMENT

Sample Method: Bail Pump / Low Flow

Pump Type: Peristaltic No. P-5
 Meter Type: YSI + LAMOTTE No. 1

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 14:15

Stop time: 14:55

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvolts) (±10)	2 pH (s.u.) (±0.1)	3 Spec. Cond. (µS/cm) (±3%)	4 DO (mg/L) (±10% or 3 rdgs <0.5)	5 Temperature (°C) (±3%)	6 Turbidity (ntu) (±10% or <5ntu)	7 Flow (ml/min) (<500 ml/min)	8 Notes
14:33	16.70	220.8	5.44	493.6	5.81	11.3	4	450	
14:40	16.70	225.6	5.52	486.4	4.81	11.6	4	450	
14:43	16.70	229.6	5.53	480.3	4.57	11.7	4	450	
14:46	16.70	224.7	5.56	474.4	4.5	11.7	4	450	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 14:50

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40mL	HCl	None

Sample observations:

Color: - Odor: - Clarity: -

Total Purge Volume: 2 Gals. **Tubing Volume:** 0.17 Gals

2" WELL = 0.163 GAL /FT = 0.617 LITERS/FT
 1" WELL = 0.013 GAL /FT = 0.0492 LITERS/FT
 3/8" TUBING - 0.0057 GAL/FT - 0.0217 LITERS/FT
 1/4" TUBING - 0.0025 GAL/FT - 0.0096 LITERS/FT

Notes:

Collected blind duplicate, BD

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 25
 Project: Tidewater Former MGP
 Location: City: Pawtucket State: R.I.
Weather: Sunny 40's

Well ID: MW-401
 Sample Date: 4/17/2014
 Sampler's Name: Sophia Narkewicz

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 4/17/2014/ 14:00

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 19.35
 Depth to LNAPL (feet): -
 Depth to Water (feet): 12.07
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 7.28
 Well Diameter (in.): 2"
 Sample Depth (feet BGS): 15
 Standpipe: TPVC to Ground Surface (feet) -
 Roadbox: TPVC to Ground Surface (feet) -

Well Condition: Protective Casing- Poor Good Lock- Yes No Expansion Cap- Yes No Well ID- Yes No Concrete Collar- Yes No Well- Poor Good

EQUIPMENT

Sample Method: Bail Pump / Low Flow

Pump Type: Peristaltic No. P-1
 Meter Type: YSI + LAMOTTE No. 1

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 14:30

Stop time: 15:10

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvols) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (µS/cm) (±3%)	4 DO (mg/L) (±10% or 3 rdgs <0.5)	5 Temperature (°C) (±3%)	6 Turbidity (ntu) (±10% or <5ntu)	7 Flow (ml/min) (<500 ml/min)	8 Notes
14:55	12.10	74	5.72	297.6	0.33	11.3	4	350	
14:58	12.10	61.4	5.78	299.4	0.32	11.2	4	350	
15:01	12.10	65.4	5.72	300.7	0.31	11.2	4	350	
15:04	12.10	60.5	5.75	300.6	0.31	11.2	4	350	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 15:05

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40mL	HCl	None

Sample observations:

Color: - Odor: - Clarity: -

Total Purge Volume: 3 Gals. Tubing Volume: 0.12 Gals

2" WELL = 0.163 GAL /FT = 0.617 LITERS/FT 1" WELL = 0.013 GAL /FT = 0.0492 LITERS/FT 3/8" TUBING - 0.0057 GAL/FT - 0.0217 LITERS/FT 1/4" TUBING - 0.0025 GAL/FT - 0.0096 LITERS/FT

Notes:

LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 25
Project: Tidewater Former MGP
Location: City: Pawtucket State: Rhode Island

Page: 1 of 1
Date: 4/17/2014

LOW FLOW CALIBRATION:

Intial Calibration:

Specific Conductance:	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>1001</u>
pH (s.u.):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.01/7.02</u>
DO (mg/L):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>99.7</u>
ORP (mvolts):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>237.5</u>	Reading: <u>237.1</u>
Turbidity (NTU):	Instrument and Number: <u>LAMOTTE #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.2/0.99</u>

Bump Check:

Specific Conductance:	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>991</u>
pH (s.u.):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>3.81/7.12</u>
DO (mg/L):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>93</u>
ORP (mvolts):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>237.5</u>	Reading: <u>237</u>
Turbidity (NTU):	Instrument and Number: <u>LAMOTTE #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0.1/1.1</u>

Revision Date: 1/27/12

J:\ENV\43654.msk\Log\Low Flow Sampling Log 4-17-2014.xls

APPENDIX H

GROUNDWATER LABORATORY DATA CERTIFICATES



CERTIFICATE OF ANALYSIS

Meg Kilpatrick
GZA GeoEnvironmental, Inc.
530 Broadway
Providence, RI 02909

RE: Tidewater GH (03.0043654)
ESS Laboratory Work Order Number: 1404413

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

Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 3:25 pm, Apr 23, 2014

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 NELAC Standards, A2LA 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: Tidewater GH

ESS Laboratory Work Order: 1404413

SAMPLE RECEIPT

The following samples were received on April 17, 2014 for the analyses specified on the enclosed Chain of Custody Record.

The samples and analyses listed below were analyzed in accordance with the Guidelines Establishing Test Procedures for the Analysis of Pollutants, 40 CFR Part 136, as amended.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1404413-01	BD	Ground Water	8260B
1404413-02	MW-400	Ground Water	8260B
1404413-03	MW-401	Ground Water	8260B
1404413-04	Trip Blank	Aqueous	8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

PROJECT NARRATIVE

8260B Volatile Organic Compounds

CD41848-BSD1 Relative percent difference for duplicate is outside of criteria (D+).
Acetone (27%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

- [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: Tidewater GH

ESS Laboratory Work Order: 1404413

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
- 8015D - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD
Date Sampled: 04/17/14 12:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/14 21:29	CXD0229	CD41848
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
2-Butanone	ND (0.0100)		8260B		1	04/18/14 21:29	CXD0229	CD41848
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
2-Hexanone	ND (0.0100)		8260B		1	04/18/14 21:29	CXD0229	CD41848
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Acetone	ND (0.0100)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Benzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Bromobenzene	ND (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD
Date Sampled: 04/17/14 12:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Bromoform	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Bromomethane	ND (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Chlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Chloroethane	ND (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Chloroform	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Chloromethane	0.0069 (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Dibromomethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Diethyl Ether	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Ethylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Hexachloroethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Isopropylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Methylene Chloride	ND (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Naphthalene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Styrene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD
Date Sampled: 04/17/14 12:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Toluene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Trichloroethene	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Xylene O	ND (0.0010)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Xylene P,M	ND (0.0020)		8260B		1	04/18/14 21:29	CXD0229	CD41848
Xylenes (Total)	ND (0.0020)		8260B		1	04/18/14 21:29		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			04/18/14 21:29		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>126 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>81 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>122 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-400
Date Sampled: 04/17/14 14:50
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/14 21:54	CXD0229	CD41848
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
2-Butanone	ND (0.0100)		8260B		1	04/18/14 21:54	CXD0229	CD41848
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
2-Hexanone	ND (0.0100)		8260B		1	04/18/14 21:54	CXD0229	CD41848
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Acetone	ND (0.0100)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Benzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Bromobenzene	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-400
Date Sampled: 04/17/14 14:50
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Bromoform	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Bromomethane	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Chlorobenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Chloroethane	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Chloroform	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Chloromethane	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Dibromomethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Diethyl Ether	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Ethylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Hexachloroethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Isopropylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Methylene Chloride	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Naphthalene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Styrene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-400
Date Sampled: 04/17/14 14:50
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Toluene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Trichloroethene	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Xylene O	ND (0.0010)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Xylene P,M	ND (0.0020)		8260B		1	04/18/14 21:54	CXD0229	CD41848
Xylenes (Total)	ND (0.0020)		8260B		1	04/18/14 21:54		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			04/18/14 21:54		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>129 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>82 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>127 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-401
Date Sampled: 04/17/14 15:05
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/14 22:19	CXD0229	CD41848
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
2-Butanone	ND (0.0100)		8260B		1	04/18/14 22:19	CXD0229	CD41848
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
2-Hexanone	ND (0.0100)		8260B		1	04/18/14 22:19	CXD0229	CD41848
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Acetone	ND (0.0100)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Benzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Bromobenzene	ND (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-401
Date Sampled: 04/17/14 15:05
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Bromoform	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Bromomethane	ND (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Chlorobenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Chloroethane	ND (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Chloroform	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Chloromethane	0.0029 (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Dibromomethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Diethyl Ether	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Ethylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Hexachloroethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Isopropylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Methylene Chloride	ND (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Naphthalene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Styrene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-401
Date Sampled: 04/17/14 15:05
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Toluene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Trichloroethene	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Xylene O	ND (0.0010)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Xylene P,M	ND (0.0020)		8260B		1	04/18/14 22:19	CXD0229	CD41848
Xylenes (Total)	ND (0.0020)		8260B		1	04/18/14 22:19		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			04/18/14 22:19		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>129 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>82 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>127 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank
Date Sampled: 04/17/14 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-04
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,1-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,1-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,1-Dichloropropene	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2-Dibromoethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2-Dichloroethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,3-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1,4-Dioxane - Screen	ND (0.500)		8260B		1	04/18/14 14:18	CXD0229	CD41848
1-Chlorohexane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
2,2-Dichloropropane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
2-Butanone	ND (0.0100)		8260B		1	04/18/14 14:18	CXD0229	CD41848
2-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
2-Hexanone	ND (0.0100)		8260B		1	04/18/14 14:18	CXD0229	CD41848
4-Chlorotoluene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
4-Isopropyltoluene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Acetone	ND (0.0100)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Benzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Bromobenzene	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank
Date Sampled: 04/17/14 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-04
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Bromodichloromethane	ND (0.0006)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Bromoform	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Bromomethane	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Carbon Disulfide	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Carbon Tetrachloride	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Chlorobenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Chloroethane	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Chloroform	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Chloromethane	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Dibromochloromethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Dibromomethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Dichlorodifluoromethane	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Diethyl Ether	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Di-isopropyl ether	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Ethylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Hexachlorobutadiene	ND (0.0006)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Hexachloroethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Isopropylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Methylene Chloride	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Naphthalene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
n-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
n-Propylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
sec-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Styrene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
tert-Butylbenzene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Tetrachloroethene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank
Date Sampled: 04/17/14 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1404413
ESS Laboratory Sample ID: 1404413-04
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Toluene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Trichloroethene	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Trichlorofluoromethane	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Vinyl Acetate	ND (0.0050)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Vinyl Chloride	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Xylene O	ND (0.0010)		8260B		1	04/18/14 14:18	CXD0229	CD41848
Xylene P,M	ND (0.0020)		8260B		1	04/18/14 14:18	CXD0229	CD41848

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>118 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>81 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>117 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>105 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8260B Volatile Organic Compounds

Batch CD41848 - 5030B

Blank

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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8260B Volatile Organic Compounds

Batch CD41848 - 5030B

Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0288</i>		mg/L	<i>0.02500</i>		<i>115</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0203</i>		mg/L	<i>0.02500</i>		<i>81</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>0.0283</i>		mg/L	<i>0.02500</i>		<i>113</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0262</i>		mg/L	<i>0.02500</i>		<i>105</i>	<i>70-130</i>			

LCS

1,1,1,2-Tetrachloroethane	9.22		ug/L	10.00		92	70-130			
1,1,1-Trichloroethane	9.65		ug/L	10.00		96	70-130			
1,1,2,2-Tetrachloroethane	9.52		ug/L	10.00		95	70-130			
1,1,2-Trichloroethane	9.05		ug/L	10.00		90	70-130			
1,1-Dichloroethane	9.04		ug/L	10.00		90	70-130			
1,1-Dichloroethene	8.49		ug/L	10.00		85	70-130			
1,1-Dichloropropene	9.75		ug/L	10.00		98	70-130			
1,2,3-Trichlorobenzene	9.09		ug/L	10.00		91	70-130			
1,2,3-Trichloropropane	8.11		ug/L	10.00		81	70-130			
1,2,4-Trichlorobenzene	8.67		ug/L	10.00		87	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8260B Volatile Organic Compounds

Batch CD41848 - 5030B

1,2,4-Trimethylbenzene	9.10		ug/L	10.00		91	70-130			
1,2-Dibromo-3-Chloropropane	8.17		ug/L	10.00		82	70-130			
1,2-Dibromoethane	8.97		ug/L	10.00		90	70-130			
1,2-Dichlorobenzene	8.92		ug/L	10.00		89	70-130			
1,2-Dichloroethane	9.87		ug/L	10.00		99	70-130			
1,2-Dichloropropane	8.59		ug/L	10.00		86	70-130			
1,3,5-Trimethylbenzene	9.77		ug/L	10.00		98	70-130			
1,3-Dichlorobenzene	9.41		ug/L	10.00		94	70-130			
1,3-Dichloropropane	9.18		ug/L	10.00		92	70-130			
1,4-Dichlorobenzene	8.83		ug/L	10.00		88	70-130			
1,4-Dioxane - Screen	211		ug/L	200.0		106	0-332			
1-Chlorohexane	8.71		ug/L	10.00		87	70-130			
2,2-Dichloropropane	9.68		ug/L	10.00		97	70-130			
2-Butanone	46.6		ug/L	50.00		93	70-130			
2-Chlorotoluene	9.69		ug/L	10.00		97	70-130			
2-Hexanone	47.2		ug/L	50.00		94	70-130			
4-Chlorotoluene	9.53		ug/L	10.00		95	70-130			
4-Isopropyltoluene	8.65		ug/L	10.00		86	70-130			
4-Methyl-2-Pentanone	46.1		ug/L	50.00		92	70-130			
Acetone	52.8		ug/L	50.00		106	70-130			
Benzene	9.87		ug/L	10.00		99	70-130			
Bromobenzene	9.06		ug/L	10.00		91	70-130			
Bromochloromethane	10.3		ug/L	10.00		103	70-130			
Bromodichloromethane	8.82		ug/L	10.00		88	70-130			
Bromoform	9.35		ug/L	10.00		94	70-130			
Bromomethane	10.0		ug/L	10.00		100	70-130			
Carbon Disulfide	8.93		ug/L	10.00		89	70-130			
Carbon Tetrachloride	9.82		ug/L	10.00		98	70-130			
Chlorobenzene	9.48		ug/L	10.00		95	70-130			
Chloroethane	8.82		ug/L	10.00		88	70-130			
Chloroform	9.33		ug/L	10.00		93	70-130			
Chloromethane	10.3		ug/L	10.00		103	70-130			
cis-1,2-Dichloroethene	9.45		ug/L	10.00		94	70-130			
cis-1,3-Dichloropropene	9.18		ug/L	10.00		92	70-130			
Dibromochloromethane	8.82		ug/L	10.00		88	70-130			
Dibromomethane	9.56		ug/L	10.00		96	70-130			
Dichlorodifluoromethane	9.27		ug/L	10.00		93	70-130			
Diethyl Ether	8.45		ug/L	10.00		84	70-130			
Di-isopropyl ether	8.09		ug/L	10.00		81	70-130			
Ethyl tertiary-butyl ether	8.70		ug/L	10.00		87	70-130			
Ethylbenzene	9.43		ug/L	10.00		94	70-130			
Hexachlorobutadiene	8.37		ug/L	10.00		84	70-130			
Hexachloroethane	9.11		ug/L	10.00		91	70-130			
Isopropylbenzene	9.22		ug/L	10.00		92	70-130			
Methyl tert-Butyl Ether	8.32		ug/L	10.00		83	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8260B Volatile Organic Compounds

Batch CD41848 - 5030B

Methylene Chloride	11.8		ug/L	10.00		118	70-130			
Naphthalene	8.14		ug/L	10.00		81	70-130			
n-Butylbenzene	9.26		ug/L	10.00		93	70-130			
n-Propylbenzene	9.16		ug/L	10.00		92	70-130			
sec-Butylbenzene	9.30		ug/L	10.00		93	70-130			
Styrene	9.26		ug/L	10.00		93	70-130			
tert-Butylbenzene	9.25		ug/L	10.00		92	70-130			
Tertiary-amyl methyl ether	8.95		ug/L	10.00		90	70-130			
Tetrachloroethene	8.05		ug/L	10.00		80	70-130			
Tetrahydrofuran	8.52		ug/L	10.00		85	70-130			
Toluene	10.4		ug/L	10.00		104	70-130			
trans-1,2-Dichloroethene	9.06		ug/L	10.00		91	70-130			
trans-1,3-Dichloropropene	8.26		ug/L	10.00		83	70-130			
Trichloroethene	9.01		ug/L	10.00		90	70-130			
Trichlorofluoromethane	9.05		ug/L	10.00		90	70-130			
Vinyl Acetate	10.9		ug/L	10.00		109	70-130			
Vinyl Chloride	10.5		ug/L	10.00		105	70-130			
Xylene O	10.0		ug/L	10.00		100	70-130			
Xylene P,M	19.8		ug/L	20.00		99	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0265		mg/L	0.02500		106	70-130			
Surrogate: 4-Bromofluorobenzene	0.0228		mg/L	0.02500		91	70-130			
Surrogate: Dibromofluoromethane	0.0273		mg/L	0.02500		109	70-130			
Surrogate: Toluene-d8	0.0253		mg/L	0.02500		101	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	9.05		ug/L	10.00		90	70-130	2	25	
1,1,1-Trichloroethane	9.34		ug/L	10.00		93	70-130	3	25	
1,1,2,2-Tetrachloroethane	9.35		ug/L	10.00		94	70-130	2	25	
1,1,2-Trichloroethane	8.96		ug/L	10.00		90	70-130	1	25	
1,1-Dichloroethane	8.69		ug/L	10.00		87	70-130	4	25	
1,1-Dichloroethene	8.42		ug/L	10.00		84	70-130	0.8	25	
1,1-Dichloropropene	9.57		ug/L	10.00		96	70-130	2	25	
1,2,3-Trichlorobenzene	9.56		ug/L	10.00		96	70-130	5	25	
1,2,3-Trichloropropane	8.01		ug/L	10.00		80	70-130	1	25	
1,2,4-Trichlorobenzene	8.94		ug/L	10.00		89	70-130	3	25	
1,2,4-Trimethylbenzene	9.12		ug/L	10.00		91	70-130	0.2	25	
1,2-Dibromo-3-Chloropropane	8.00		ug/L	10.00		80	70-130	2	25	
1,2-Dibromoethane	8.81		ug/L	10.00		88	70-130	2	25	
1,2-Dichlorobenzene	9.16		ug/L	10.00		92	70-130	3	25	
1,2-Dichloroethane	9.45		ug/L	10.00		94	70-130	4	25	
1,2-Dichloropropane	8.33		ug/L	10.00		83	70-130	3	25	
1,3,5-Trimethylbenzene	9.92		ug/L	10.00		99	70-130	2	25	
1,3-Dichlorobenzene	9.39		ug/L	10.00		94	70-130	0.2	25	
1,3-Dichloropropane	8.96		ug/L	10.00		90	70-130	2	25	
1,4-Dichlorobenzene	8.90		ug/L	10.00		89	70-130	0.8	25	
1,4-Dioxane - Screen	194		ug/L	200.0		97	0-332	8	200	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8260B Volatile Organic Compounds

Batch CD41848 - 5030B

1-Chlorohexane	8.75		ug/L	10.00		88	70-130	0.5	25	
2,2-Dichloropropane	9.09		ug/L	10.00		91	70-130	6	25	
2-Butanone	41.2		ug/L	50.00		82	70-130	12	25	
2-Chlorotoluene	9.64		ug/L	10.00		96	70-130	0.5	25	
2-Hexanone	45.4		ug/L	50.00		91	70-130	4	25	
4-Chlorotoluene	9.54		ug/L	10.00		95	70-130	0.1	25	
4-Isopropyltoluene	8.74		ug/L	10.00		87	70-130	1	25	
4-Methyl-2-Pentanone	43.6		ug/L	50.00		87	70-130	6	25	
Acetone	40.4		ug/L	50.00		81	70-130	27	25	D+
Benzene	9.35		ug/L	10.00		94	70-130	5	25	
Bromobenzene	9.25		ug/L	10.00		92	70-130	2	25	
Bromochloromethane	9.51		ug/L	10.00		95	70-130	8	25	
Bromodichloromethane	8.57		ug/L	10.00		86	70-130	3	25	
Bromoform	8.50		ug/L	10.00		85	70-130	10	25	
Bromomethane	9.50		ug/L	10.00		95	70-130	6	25	
Carbon Disulfide	8.89		ug/L	10.00		89	70-130	0.4	25	
Carbon Tetrachloride	9.63		ug/L	10.00		96	70-130	2	25	
Chlorobenzene	9.35		ug/L	10.00		94	70-130	1	25	
Chloroethane	8.53		ug/L	10.00		85	70-130	3	25	
Chloroform	8.90		ug/L	10.00		89	70-130	5	25	
Chloromethane	9.87		ug/L	10.00		99	70-130	4	25	
cis-1,2-Dichloroethene	9.04		ug/L	10.00		90	70-130	4	25	
cis-1,3-Dichloropropene	8.89		ug/L	10.00		89	70-130	3	25	
Dibromochloromethane	8.48		ug/L	10.00		85	70-130	4	25	
Dibromomethane	9.12		ug/L	10.00		91	70-130	5	25	
Dichlorodifluoromethane	9.22		ug/L	10.00		92	70-130	0.5	25	
Diethyl Ether	8.50		ug/L	10.00		85	70-130	0.6	25	
Di-isopropyl ether	7.83		ug/L	10.00		78	70-130	3	25	
Ethyl tertiary-butyl ether	8.41		ug/L	10.00		84	70-130	3	25	
Ethylbenzene	9.41		ug/L	10.00		94	70-130	0.2	25	
Hexachlorobutadiene	8.35		ug/L	10.00		84	70-130	0.2	25	
Hexachloroethane	8.96		ug/L	10.00		90	70-130	2	25	
Isopropylbenzene	9.32		ug/L	10.00		93	70-130	1	25	
Methyl tert-Butyl Ether	8.00		ug/L	10.00		80	70-130	4	25	
Methylene Chloride	12.1		ug/L	10.00		121	70-130	3	25	
Naphthalene	8.83		ug/L	10.00		88	70-130	8	25	
n-Butylbenzene	9.47		ug/L	10.00		95	70-130	2	25	
n-Propylbenzene	9.23		ug/L	10.00		92	70-130	0.8	25	
sec-Butylbenzene	9.50		ug/L	10.00		95	70-130	2	25	
Styrene	9.06		ug/L	10.00		91	70-130	2	25	
tert-Butylbenzene	9.40		ug/L	10.00		94	70-130	2	25	
Tertiary-amyl methyl ether	8.73		ug/L	10.00		87	70-130	2	25	
Tetrachloroethene	8.16		ug/L	10.00		82	70-130	1	25	
Tetrahydrofuran	7.50		ug/L	10.00		75	70-130	13	25	
Toluene	10.1		ug/L	10.00		101	70-130	4	25	



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
---------	--------	-----	-------	-------------	---------------	------	-------------	-----	-----------	-----------

8260B Volatile Organic Compounds

Batch CD41848 - 5030B

trans-1,2-Dichloroethene	8.78		ug/L	10.00		88	70-130	3	25	
trans-1,3-Dichloropropene	8.04		ug/L	10.00		80	70-130	3	25	
Trichloroethene	8.79		ug/L	10.00		88	70-130	2	25	
Trichlorofluoromethane	8.53		ug/L	10.00		85	70-130	6	25	
Vinyl Acetate	10.1		ug/L	10.00		101	70-130	8	25	
Vinyl Chloride	10.3		ug/L	10.00		103	70-130	2	25	
Xylene O	10.0		ug/L	10.00		100	70-130	0	25	
Xylene P,M	19.4		ug/L	20.00		97	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0259		mg/L	0.02500		104	70-130			
Surrogate: 4-Bromofluorobenzene	0.0224		mg/L	0.02500		90	70-130			
Surrogate: Dibromofluoromethane	0.0271		mg/L	0.02500		108	70-130			
Surrogate: Toluene-d8	0.0258		mg/L	0.02500		103	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

Notes and Definitions

- U Analyte included in the analysis, but not detected
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- 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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1404413

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP)

A2LA Accredited: Testing Cert# 2864.01
<http://www.a2la.org/scopepdf/2864-01.pdf>

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: RI0002

<http://www.maine.gov/dhhs/mecdc/environmental-health/water/dwp-services/labcert/documents/AllLabs.xls>

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.depweb.state.pa.us/portal/server.pt/community/labs/13780/laboratory_accreditation_program/590095

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01

Lead in Paint, Phthalates, Lead in Children's Metals Products (Including Jewelry)

<http://www.A2LA.org/dirsearchnew/newsearch.cfm>

CPSC ID# 1141

Lead Paint, Lead in Children's Metals Jewelry

<http://www.epsc.gov/cgi-bin/labapplist.aspx>

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.
Client Project ID: _____
Shipped/Delivered Via: Client

ESS Project ID: 14040413
Date Project Due: 4/24/14
Days For Project: 5 Day

Items to be checked upon receipt:

- 1. Air Bill Manifest Present? * No
- Air No.: _____
- 2. Were Custody Seals Present? No
- 3. Were Custody Seals Intact? N/A
- 4. Is Radiation count < 100 CPM? Yes
- 5. Is a cooler present? Yes
- Cooler Temp: 4.9
- Iced With: Ice
- 6. Was COC included with samples? Yes
- 7. Was COC signed and dated by client? Yes
- 8. Does the COC match the sample Yes
- 9. Is COC complete and correct? Yes
- 10. Are the samples properly preserved? Yes
- 11. Proper sample containers used? Yes
- 12. Any air bubbles in the VOA vials? No
- 13. Holding times exceeded? No
- 14. Sufficient sample volumes? Yes
- 15. Any Subcontracting needed? No
- 16. Are ESS labels on correct containers? Yes No
- 17. Were samples received intact? Yes No
- ESS Sample IDs: _____
- Sub Lab: _____
- Analysis: _____
- TAT: _____

18. Was there need to call project manager to discuss status? If yes, please explain.

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	40 ml - VOA	3	HCL
2	Yes	40 ml - VOA	3	HCL
3	Yes	40 ml - VOA	3	HCL
4	Yes	40 ml - VOA	3	HCL

Completed By: [Signature] Date/Time: 4/17/14 1819
Reviewed By: [Signature] Date/Time: 4/17/14
4/17/14 2115

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

Turn Time Standard Other _____
 If faster than 5 days, prior approval by laboratory is required # _____
 State where samples were collected from: MA RI CT NH NJ NY ME Other _____
 Is this project for any of the following: USACE Other _____
 MA-MCP Navy

Reporting Limits
 MDEM GA
 Electronic Deliverable Yes No _____
 Format: Excel Access _____ PDF Other _____

Co. Name	Project #	Project Name (20 Char. or less)	Type of Containers	Number of Containers	Type of Containers	Write Required Analysis																			
						COMP	GRB	MATRIX	Sample Identification (20 Char. or less)	Pres Code															
Co. Name: CBA	Project #: 49654	Project Name: TIDENAPAK	Type of Containers: 3	Number of Containers: 3	Type of Containers: V	COMP	GRB	MATRIX	Sample Identification (20 Char. or less)	Pres Code															
Contact Person: Meg KILLPATRICK	Address: 530 BRADWAY	City: PAWLIKANCE	State: RI	Zip: 02909	PO#: _____	ESS LAB Sample #	Collection Time	Date	4/17/14	1200	4/17/14	1200	1450	1505	2										
Telephone #: 401-421-4140	Fax #: _____	Email Address: Margaret.Killpatrick@pa.com																							
4						X	GN	TRIP BLANK	2	X															
1						X	GN	BD	1	X															
2						X	GN	MW-400	1	X															
3						X	GN	MW-401	1	X															

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 No NA: Pickup Technicians _____

Seals Intact Yes No No NA: Pickup Technicians _____

Cooler Temp: **49° ice est 4/17/14**

Relinquished by: (Signature) *[Signature]* Date/Time **4/17/14 1630**
 Relinquished by: (Signature) *[Signature]* Date/Time **4/17/14 1630**

Received by: (Signature) *[Signature]* Date/Time _____
 Received by: (Signature) *[Signature]* Date/Time _____

Relinquished by: (Signature) *[Signature]* Date/Time _____
 Relinquished by: (Signature) *[Signature]* Date/Time _____

Sampled by: **SOPHIA MARKIEWICZ**
 Comments: **NGP10 PAGES APPLY**
EMAIL SOPHIA.MARKIEWICZ@pa.com also