



**GROUNDWATER MONITORING REPORT -  
2013  
FORMER TIDEWATER FACILITY  
AND MERRY STREET  
PAWTUCKET, RHODE ISLAND**

**PREPARED FOR:**  
RIDEM  
Providence, Rhode Island

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

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**Via E-Mail and U.S. Mail**



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Re: 2013 Groundwater Monitoring Report  
642 Allens Avenue  
Providence, 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 *2013 Groundwater Monitoring Report*. This *Groundwater Monitoring Report* describes groundwater monitoring activities that were performed at the above-referenced Site during the 2011, 2012 and 2013 calendar year.

For the 2014 monitoring activities, groundwater elevation and NAPL thickness gauging was completed in January 2014, April 2014, July 2014 and October 2014. The annual groundwater sampling round for 2014 was completed in October 2014. Results of the 2014 groundwater monitoring events will be presented in a *Groundwater Monitoring Report* which is anticipated to be submitted to RIDEM during the first quarter of 2015.

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, appearing to read 'Margaret S. Kilpatrick'.

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

A handwritten signature in blue ink, appearing to read 'James J. Clark'.

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MSK/JJC:tja

Attachment: *2013 Groundwater Monitoring Report*

cc: Michele Leone, National Grid

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## 1.00 INTRODUCTION



On behalf of our client, The Narragansett Electric Company, d/b/a National Grid (National Grid), GeoEnvironmental, Inc. (GZA) is pleased to provide this *Groundwater Monitoring Report* related to the former Tidewater facility located at the terminus of Tidewater and Merry Streets in Pawtucket, Rhode Island (“the Site”). This report serves to provide a description of field activities and present the laboratory data generated from the synoptic groundwater sampling round performed in August 2013. In addition, this report summarizes groundwater elevation and non-aqueous phase liquid (NAPL) gauging and surface water sheen observations during 2013.<sup>1</sup>

The laboratory results were compared to applicable and available Method 1 (or Method 2 as appropriate) objectives as established in the Department’s Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations). Portions of this report include information previously presented in reports prepared by Vanasse Hangen Brustlin, Inc. (VHB), on behalf of National Grid and Atlantic Environmental Services, Inc. (AES), on behalf of predecessors of National Grid and submitted to the Department.

This report is subject to the Limitations presented in Appendix A.

### 1.10 SITE DESCRIPTION

The Site is located at the terminus of Tidewater Street and Merry Street in the City of Pawtucket, Rhode Island. A *Locus Plan* is attached as Figure 1. The Site was the location of the Tidewater Manufactured Gas Plant (MGP) and the Pawtucket No. 1 Power Station. It is now largely vacant with the exception of an active natural gas regulating station located on the northwest portion and the use of certain areas of the former Power Plant as an active switching station and electric substation. The Site is secured with a locked perimeter chain-link fence.

The Site is situated between Taft Street, an extension of Tidewater Street and Thornton Street to the west, the Seekonk River to the east, and consists of approximately 23 acres across seven separate lots. The majority of the Site is owned by National Grid and a small portion of the Site is owned by the City of Pawtucket. The Site has been subdivided into the following four areas, as shown on Figures 2A and 2B.

- North Fill Area (NFA) (northern portions of Assessors Plat (A.P.) 54B Lot 826) – Figure 2A;
- Former Gas Plant Area (FGPA) (southern portions of A.P. 54B Lot 826 and A.P. 65B Lot 662) - Figure 2A;
- Former Power Plant Area (FPPA) (A.P. 65B Lot 645) – Figure 2B; and
- South Fill Area (SFA) (A.P. 65B Lots 647 and 649, portions of Lot 648 and portions of A.P. 67B Lot 11) – Figure 2B.

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<sup>1</sup> This report provides and discusses the 2013 sheen observations, groundwater elevation and NAPL thickness gauging and groundwater monitoring analytical results. For reference, the attached tables and appendices included in this report also provide the sheen observations, groundwater elevation and NAPL thickness gauging and groundwater monitoring results for 2011 and 2012.



## 1.20 SITE BACKGROUND

MGP operations began in the 1880s and were substantially concluded in 1954, although peak shaving operations continued until the late 1960s. From the 1880s until 1954, the MGP generated gas using the coal carbonization and carbureted water gas processes. Coal was used as the principal fuel to produce coal gas in the coal carbonization process, while coke (enriched with fuel oil) was used to produce carbureted water gas. In the later years of operation (1954 until the late-1960s), the MGP produced gas using oil and propane for peak shaving purposes.

Power plant operations were conducted for approximately 85 years, between sometime in the early 1890s, when construction of the power plant began, until the facility ceased operation in 1975. During this timeframe, the plant used coal and petroleum based products for electricity generation.

GZA prepared and submitted to the Department a January 2011 *Site Investigation Data Report* (SIDR) and a July 2011 *Remedial Alternative Evaluation Report* (RAE). These reports served to complete the *Site Investigation Report* (SIR) for the Site consistent with the requirements of Section 7.08 of the Remediation Regulations.

As described in the RAE, groundwater elevation and NAPL thickness gauging and groundwater quality monitoring are anticipated to be part of the final remedy for this Site. The following sections describe sheen observations, groundwater elevation and NAPL thickness gauging and groundwater quality monitoring performed in 2013. As described further herein, the results of this 2013 monitoring were generally consistent with previous data and do not alter the information presented or recommendations made in the July 2011 RAE.

## **2.00 SHEEN OBSERVATIONS**

The Site is visited on an at least a twice-monthly basis to record the presence of any sheens along the shoreline. The shoreline of the Site is approximately 2,280 feet long and largely manmade in nature. Between January 2013 and December 2013, sheens on the surface water have been intermittently observed in limited areas of the Seekonk River adjacent to the shoreline of the FGPA and the FPPA. Sheen observations have been limited to the following three general shoreline areas:

- an approximate 10 foot section of the FGPA near MW-326S and TB-12/MW-3;
- an approximate 10 foot section of the FPPA proximate to the Narragansett Bay Commission (NBC) Combined Sewer Outfall (CSO); and
- an approximate 300 foot section of the FPPA near the shoreline bulkhead proximate to MW-315S/D.

Sheens observed in the FGPA near MW-326S and TB-12/MW-3 are generally observed as bright to dull localized bands less than 2 feet in width observed between the Site shoreline and remnants of wooden sheet piling (associated with a former dock). Sheens observed in the FPPA proximate to the NBC CSO are generally observed as bright to dull localized spots less than 3 feet in diameter observed within the Site boundary or very close to the shoreline. Sheens observed in the FPPA proximate to shoreline bulkhead are very intermittently observed as localized dull bands less than 1 foot in width observed very close to the shoreline. These sheens have generally been observed at mid- or low-tide only. Given the limited occurrence and extent of observed sheens, it is difficult to distinguish between sheening resulting from existing outfalls and subsurface impacts. Sheens



observed during 2013 were generally consistent with previous observations as documented in the January 2011 SIDR and the July 2011 *Remedial Alternative Evaluation*.<sup>2</sup> There were no sheens observed proximate to MW-4 where the cap was installed<sup>3</sup> or the SFA in 2013. Sheen observations are summarized in Table 1.

### 3.00 GROUNDWATER AND NAPL MONITORING PROGRAM

In addition to the shoreline sheen observations presented above, the monitoring program consists of gauging the monitoring well network for groundwater elevation and NAPL thickness and groundwater sampling of select monitoring wells. Groundwater elevation and NAPL thickness gauging of available monitoring wells was conducted on a quarterly basis in 2013 (January 2013, April 2013, August 2013<sup>4</sup>, and October 2013). Twenty seven (27) monitoring wells are included in the 2013 sampling round. All well locations are shown on the attached Figures 2A and 2B, *Exploration Location Plans*. These figures highlight the wells sampled in 2013.

Groundwater samples were analyzed for volatile organic compounds (VOCs) via EPA Method 8260B, total petroleum hydrocarbons (TPH) via EPA Method 8100M, polycyclic aromatic hydrocarbons (PAHs) via EPA Method 8260B, total cyanide and dissolved free cyanide via EPA Method 9014. Figures 2A and 2B, *Exploration Location Plans*, indicate the wells sampled in 2013: four in the NFA (MW-5, MW-7, MW-310S and MW-310D), ten in the FGPA (MW-201, MW-208, MW-312S, MW-312D, MW-326S, MW-326D, MW-333S, MW-333D, MW-339S, and MW-339D), eight in the FPPA (M&E MW-2, MW-6, MW-109, MW-314S, MW-314D, MW-316S, MW-316D, and MW-337) and five in the SFA (MW-107, MW-318S, MW-318D, MW-334S and MW-334D). These well locations were chosen to provide a representative evaluation of overall Site groundwater quality.

#### 3.10 OBSERVATIONS OF NAPL

Between January 2013 and December 2013, GZA performed quarterly NAPL thickness monitoring and recovery evaluations. These field activities were performed to assess the presence and relative mobility and recoverability of NAPL.

A comprehensive gauging round of the existing groundwater monitoring well network was completed during the quarterly monitoring events. Comprehensive groundwater elevation and NAPL thickness gauging data are included as Tables 2A and 2B, respectively, for the period from January 2011 through October 2013. A summary of wells exhibiting light Non-Aqueous Phase Liquid (LNAPL) and dense non-aqueous phase liquids (DNAPL) thicknesses are presented in Tables 2C and 2D, respectively. Observations of LNAPL and DNAPL thicknesses are generally limited to the FGPA and the South Fill Area which is consistent with those previously observed and documented in the January 2011 SIDR and the July 2011 *Remedial Alternative Evaluation* with a few minor deviations, as described below.

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<sup>2</sup> Sheen observations during the January 2011 to December 2012 time period are provided for reference and are summarized in Table 1.

<sup>3</sup> A shoreline cap was installed during 2009 in response to a sheen outbreak in this area. This work is documented in the February 2010 *Short Term Response Action Summary Report*.

<sup>4</sup> Due to scheduling constraints, the quarterly groundwater elevation and NAPL thickness gauging event and the annual groundwater sampling event took place in early August 2013 instead of July 2013.



During the monitoring events, in certain wells where measurable levels of NAPL were present, an effort was made to recover NAPL and monitor its relative rate of return (if any). LNAPL and DNAPL recovery was performed using a peristaltic pump with dedicated tubing positioned directly below the top of the NAPL surface. The LNAPL and/or DNAPL were extracted from the well until groundwater was observed within the tubing, at which point the pump was deactivated. The recovery of the LNAPL and/or DNAPL was then monitored with an oil/water interface probe. Tables 3A and 3B summarize the results of the LNAPL and DNAPL recovery efforts, respectively. During 2013 GZA removed approximately 9 gallons of NAPL/groundwater. As described further in this section, NAPL recovery was not practical in certain wells due to the viscosity of the material. The NAPL/groundwater was containerized in a drum and disposed off-Site. Copies of the disposal manifests are included in Appendix B.

Figures 4A and 4B, *Groundwater Analytical Data* depict well locations where either measurable LNAPL or DNAPL were observed during the 2013 groundwater monitoring activities.

In addition to the NAPL thicknesses shown in Tables 2C and 2D, during the 2013 annual groundwater sampling event, evidence of sheen was observed on purge water from monitoring wells MW-312S, MW-326S, MW-109, MW-314S, MW-337, and MW-334S. Purge waters generated from wells MW-326S, MW-314S, and MW-337 were observed to exhibit a petroleum-like odor and purge waters from MW-310S, MW-310D, MW-201, MW-208, MW-312S, MW-312D, MW-326D, MW-333D, MW-339S, MW-339D, MW-109, and MW-334S were observed to exhibit a coal-tar like odor. Refer to groundwater sampling logs in Appendix C for observations related to sheens and odors during the 2013 sampling event.

Notable NAPL observations in 2013 are as follows:

- **LNAPL:** Between January 2013 and December 2013, measurable levels of LNAPL (defined as equal to or greater than 0.01 feet) were detected in four (4) monitoring wells: three (3) in the FGPA and one (1) in the FPPA. As presented in Tables 2C and 3A, LNAPL thicknesses ranged varied in each well – in the FGPA: MW-210 {trace to 1.44 feet}, MW-3 {non-detect to 0.05 feet}, and MW-312S {0.04 to 0.93 feet}; and in the FPPA: M&E MW-5 {0.01 to 0.33 feet}. There were no new detections of LNAPL since the January 2011 SIDR. The well locations where LNAPL was detected in the FGPA are in the area of the former MGP processes and the former piping raceway footprint. On the FPPA, the well is located in the vicinity of the former service USTs (M&E MW-5). It should be noted that monitoring wells MW-313S, MW-326S, and MW-103, where measurable LNAPL was detected during both the 2011 SIDR and both the 2011 and 2012 monitoring events, did not show evidence of LNAPL during 2013. It should also be noted that monitoring well MW-314S, where measureable LNAPL was detected during the 2011 SIDR, did not show evidence of LNAPL during 2011, 2012 or 2013.

During the monthly monitoring events in 2013, LNAPL recovery evaluations were attempted at three (3) wells: M&E MW-5, MW-210 and MW-312S. These wells are located on the FGPA and FPPA portions of the Site. As expected, LNAPL appears to recover relatively slowly. In addition, observed LNAPL thicknesses appear to be highly dependent upon the tidal cycle at the time of gauging. As presented in Table 3A, the rate of LNAPL recovery appears to be on the order of 1 to 2 months (timeframe over which recorded thickness appears to return to original measurement).

In general, LNAPL thicknesses and recoverability are consistent with historic observations, as presented in the January 2011 SIDR and July 2011 RAE and summarized in Table 2C



and 3A, with some minor deviations. LNAPL in monitoring wells MW-103, MW-326S, MW-313S and MW-3 have decreased from measurable thicknesses of several feet in January 2011 to less than 0.05 feet since October 2011, suggesting that only localized LNAPL may have collected in these wells. These variations may be attributable to the observed tidal stage at the time of measurement (*i.e.*, LNAPL thicknesses measured at low tide were typically greater).

- **DNAPL:** Between January 2013 and December 2013, measurable levels of DNAPL (defined as equal to or greater than 0.01 feet) were detected in five (5) monitoring wells: three (3) in the FGPA and two (2) in the SFA. As presented in Tables 2D and 3B, DNAPL thicknesses varied in each well - in the FGPA: MW-4 {non-detect to 0.7 feet}, MW-303 {2.29 to 5.5 feet} and MW-341 {1.4 to 2.57 feet}; and in the SFA: MW-320S {trace amounts to 0.18 feet} and MW-320D {7.85 to 8.45 feet}. Consistent with the 2010 Site investigations presented in the January 2011 SIDR, DNAPL was detected in the FGPA in wells in the area of the former MGP processes, particularly those related to separation and tar processes (*i.e.*, clarification tanks, separators, boiling tanks) and in the SFA. In addition, measureable DNAPL was detected consistently between January 2011 and October 2013 at monitoring well MW-341, which is located downgradient of the former Gasholders No. 7 and 8. DNAPL was detected in trace amounts in MW-339D during 2013. It should be noted that monitoring well MW-103, which was the only well on the FPPA where measureable DNAPL was detected during the 2011 SIDR, did not show evidence of DNAPL during the 2011, 2012 or 2013 monitoring events.

Based on the measurable quantities, physical characteristics of the DNAPL, and results of historic DNAPL recovery attempts, recovery evaluations were attempted at two (2) well locations only in 2013 (MW-303 and MW-341 installed on the FGPA portion of the Site). During the 2013 recovery rounds, 1 to 1.5 gallon of DNAPL was recovered each quarter. MW-303 was more difficult to recover due to the viscosity of DNAPL.

In general, DNAPL thicknesses and recoverability rates observed during 2013 are consistent with historic observations made in the January 2011 SIDR and July 2011 *Remedial Alternative Evaluation*. DNAPL has been observed between 2011 and 2013 in MW-341 (thicknesses ranging from 0.95 to 2.57 feet), MW-320D (thicknesses ranging from 7.85 to 8.4 feet), and MW-303 (thicknesses ranging from trace amounts to 5.55 feet). Other measurable thicknesses of DNAPL (MW-4, MW-1 and MW-320S) were observed intermittently only during this period. Similar to observations of LNAPL, DNAPL is observed in only certain wells suggesting the presence of localized pockets and not a contiguous layer. Based on the results of attempted recovery and the viscous nature of the materials, the DNAPL is unlikely to be significantly mobile. In addition, groundwater monitoring wells act as collection points for NAPL and therefore the thicknesses measured within the wells are often significantly greater than what is actually present in the subsurface.

### 3.20 GROUNDWATER FLOW DIRECTION

Between April 2009 and October 2013, GZA recorded depth to groundwater readings at Site monitoring wells on a quarterly basis. Depths to groundwater measurements were obtained using an electronic water level/oil water interface probe accurate to within 0.01 feet. The groundwater elevations at each monitoring well were subsequently calculated using the casing and PVC elevations. Table 2A presents the depth to groundwater readings for each well gauged in 2011, 2012 and 2013. The groundwater elevations recorded during the August 2013 gauging round were





used to construct the *Groundwater Elevation Contour Plan* presented as Figure 3. Groundwater elevations during the 2013 gauging events are generally consistent with those recorded during previous monitoring events. As expected, review of groundwater elevations recorded during the 2013 reporting period indicated that the groundwater beneath the Site flows from west to east towards the Seekonk River. In general, the groundwater table was encountered between elevation 1 and 11 feet, which is predominantly within the fill unit.

### 3.30 GROUNDWATER SAMPLING TECHNIQUES

During the 2013 annual sampling event, groundwater samples were collected from twenty-six (26) of the twenty-seven (27) wells included in the program<sup>5</sup>. Groundwater samples were collected 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 C). 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. If NAPL was noted in the monitoring well prior to sampling, new tubing was installed in the monitoring well. In order to limit the potential for LNAPL to enter the sampling tubing during the collection of the sample, a peristaltic pump was used to force air through the tubing as it passed through the LNAPL/groundwater interface. If DNAPL was noted in the well, the sampling tubing was installed in these wells carefully so that the DNAPL layer was not intercepted.

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 C. As indicated on the logs, the monitoring wells were pumped until field screening parameters were stabilized prior to collecting the samples.

Samples were placed in laboratory-provided, hydrochloric acid-preserved 40 mL glass vials with septa caps for VOC analysis via EPA Method 8260B, 1000 mL amber glass bottles for PAHs analysis via EPA Method 8270C, hydrochloric acid-preserved 1000 mL amber glass bottles for TPH analysis via EPA Method 8100M and sodium hydroxide-preserved 250 mL plastic bottles for total cyanide analysis via EPA Method 9014. A sample was also field-filtered and placed in a laboratory-provided, sodium hydroxide-preserved 250 ml plastic bottle for dissolved cyanide analysis via EPA Method 9014. Samples were then packed in an ice chest and transported under chain-of-custody protocol to ESS Laboratory located in Cranston, Rhode Island.

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<sup>5</sup> MW-5 is included in the original sampling program; however, due to low water levels and insufficient recovery, there was not enough water present within the well to collect a sample during the August 2013 monitoring event. MW-316S had very limited water present; therefore only VOC samples were able to be collected.



### 3.40 INVESTIGATION-DERIVED WASTE MANAGEMENT

NAPL/groundwater and all purgewater that was recovered during 2013 was containerized in drums and disposed of off-Site. These fluids were containerized in labeled 55-gallon steel drums. Once the sampling event was complete, the drums were removed from the Site by Clean Harbors Environmental Services, Inc. (CHES) of East Providence, Rhode Island for proper off-Site disposal. Copies of the disposal manifests are included in Appendix B.

### 3.50 QA/QC SAMPLING AND ANALYSIS

During the 2013 sampling round, twenty-six (26) groundwater samples, two (2) blind duplicate samples and three (3) trip blanks were submitted to ESS Laboratory in Cranston, Rhode Island for analysis. The samples were transported to the laboratory under chain of custody protocol. As indicated on page 2 of each laboratory report, the samples were received intact, within the proper temperature range and appropriately preserved.

Analytical results for the trip blanks collected on August 6, 2013 and August 7, 2013 were below the laboratory reporting limit for all 75 targeted compounds. Naphthalene was detected at a concentration of 0.6 µg/L in the trip blank collected on August 8, 2013 (TB-080813); the concentration was flagged because the detection was below the method quantitation limit. Two samples (MW-7 and MW-208) were submitted with TB-080813 which were both non-detect for naphthalene, therefore no action is warranted. No other compounds were detected in the trip blank.

Naphthalene was detected in the laboratory method blank for EPA Method 8270C at a concentration of 0.4 µg/L for the samples collected on August 7, 2013. The effect of laboratory method blank contamination on sample results can be evaluated using the EPA's 5 Times Rule. This rule states that the contaminant level in an associated sample must exceed 5 times the level in the blank to be definitively present. The levels detected in the method blank were low enough that this rule would eliminate three of the naphthalene detects (MW-333S, MW-6, and MW-337) in this sample set. However, this rule cannot be used to eliminate detections of analytes that might be present based on Site knowledge. Naphthalene has been historically detected in each of these monitoring wells; therefore the results are not modified, but are flagged to indicate that naphthalene was detected in the method blank. These results are shown in Table 4B.

Two duplicate sample sets (Set #1 – MW-314D and BD#1 and Set#2 – MW-318S and BD#2) were also submitted for VOCs, PAHs, TPH, total cyanide and dissolved cyanide analysis to evaluate sample reproducibility. The relative percent difference (RPD) was calculated for each compound. Elevated RPDs (more than 40% difference) were noted for TPH and dissolved cyanide in one sample set (MW-314D and BD#1). Given the nature of the observed historical Site impacts, the variability in the TPH and dissolved cyanide results in these samples does not significantly affect data usability. These results are shown in Tables 4C (VOCs) and 4D (TPH, PAHs, total and dissolved cyanide). Copies of the original laboratory data, laboratory quality assurance/quality control (QA/QC), methods, and chain-of-custody forms are provided for reference in Appendix D.

### 3.60 GROUNDWATER ANALYTICAL RESULTS

Groundwater quality at the Site is generally characterized by few isolated exceedances of the GB Groundwater Objectives for benzene, ethylbenzene and naphthalene, primarily in localized areas of the Site where former MGP features were located in the FGPA (MW-312D, MW-326S and MW-333D), downgradient of former Nos. 7 and 8 gasholders in the FGPA (MW-339D) and in the NFA (MW-310D). No exceedances have been observed in large areas of the Site, including the FPPA,



the western portion of the FGPA and the western portion of the SFA. The GB Groundwater Objective for ethylbenzene has been exceeded sporadically historically, but was not exceeded during 2013. Figures 4A and 4B, *Analytical Groundwater Data*, present the total VOC concentrations detected in groundwater samples during the August 2013 sampling round and wells with GB groundwater exceedances.

Analytical data from the 2013 sampling event is summarized in Tables 4A (VOCs) and 4B (TPH, PAHs, total and dissolved cyanide). Historic analytical summaries by monitoring well dating back to 1996 are presented in Tables 5A through 5AA. These tables include comparisons to Method 1 (or Method 2 as appropriate) GB Groundwater Objectives and Upper Concentration Limits (UCL). In general, the analytical results reported during the 2013 event were consistent with levels detected in previous sampling results. A summary of the 2013 data is presented below.

### **Volatile Organic Compounds**

As indicated in Table 4A, VOCs were detected in nineteen of the groundwater samples analyzed (19/26) in 2013. The total VOC concentrations detected during the 2013 monitoring event ranged from 0.0004 mg/L to 9.561 mg/L. Five wells (5/26) exceeded the GB Groundwater Objective for one or more VOCs. Four (4/26 as a VOC) samples exceeded the Method 2 GB Groundwater Objective for naphthalene and four (4/26) samples exceeded for benzene.

The presence of these compounds in groundwater samples is typical for former MGP sites and consistent with historical sampling results for the Tidewater Site. As noted above, the GB Groundwater Objective for ethylbenzene has historically been exceeded sporadically, but was not exceeded during 2013. None of the VOCs detected in 2013 exceeded UCLs. The following sections discuss the dissolved-phased VOC analytical results for the 2013 sampling event as compared to the Method 1 (or Method 2 as appropriate) objectives by Site area.

#### *NFA (Northern Portions of A.P. 54B Lot 826)*

Three (3) groundwater samples (MW-7, MW-310S, and MW-310D) were collected in this area during the 2013 monitoring event and analyzed for VOCs. The groundwater sample from MW-310D had ten VOC detections, with two exceedances of the GB Groundwater Objectives, benzene and naphthalene. Benzene was detected in MW-310D at a concentration of 0.678 mg/L, exceeding the GB Groundwater Objective of 0.14 mg/L. Naphthalene was detected in MW-310D at a concentration of 6.6 mg/L, exceeding the Method 2 derived GB Groundwater Objective of 2.67 mg/L. There were no other exceedances of GB Groundwater Objectives. Two VOC compounds were detected in MW-7 and four VOC compounds were detected in MW-310S. Benzene was detected in MW-310S at a concentration of 0.0035 mg/L, well below the GB Groundwater Objective. Benzene was not detected in MW-7. Naphthalene was not detected in either MW-7 or MW-310S.

The concentrations of both benzene and naphthalene exceeded the GB Groundwater Objectives in MW-310D (refer to Table 5D) during the previous sampling rounds (June 2010, July 2011 and July 2012), consistent with the 2013 monitoring event. This well is located in the historic cove of the NFA and visual/olfactory impacts have been observed in this area.





*FGPA (Southern Portions of A.P. 54B Lot 826 and A.P. 65B Lot 662)*

Ten (10) groundwater samples (MW-201, MW-208, MW-312S, MW-312D, MW-326S, MW-326D, MW-333S, MW-333D, MW-339S, and MW-339D) were collected in this area during the 2013 monitoring event and analyzed for VOCs. Only one sample (1/10; MW-333S) was non-detect for VOCs during the 2013 event. Exceedances of the GB Groundwater Objectives for VOCs were detected in MW-312D, MW-326S, MW-333D, and MW-339D. Benzene was detected in eight samples (8/10) at concentrations ranging from 0.0006 mg/L to 3.56 mg/L, with three samples (3/10) exceeding the GB Groundwater Objective (MW-312D, 3.56 mg/L; MW-326S, 0.444 mg/L; and MW-333D, 2.67 mg/L). Naphthalene was detected in eight samples (8/10) at concentrations ranging from 0.0516 mg/L to 4.3 mg/L, with three samples (3/10) exceeding the GB Groundwater Objective (MW-312D, 4.3 mg/L; MW-333D, 3.96 mg/L; and MW-339D, 3.91 mg/L).

Dissolved phase VOC results for the FGPA were consistent with historic groundwater results, with exceedances of the GB Groundwater Objectives limited to naphthalene and benzene during the 2013 sampling event. The entirety of the above identified groundwater exceedances are located in the southeastern corner of the FGPA in the vicinity of the former processing houses for the MGP (*i.e.*, MW-312D, MW-326D, MW-333D), with one exception. Monitoring well MW-339D, which exhibited exceedances of the GB Groundwater Objectives for naphthalene, is located east of the location of the former Gasholders No. 7 and 8.

*FPPA (A.P. 65B Lot 645)*

Eight (8) groundwater samples were collected in this area during the 2013 monitoring event for VOC analysis (M&E MW-2, MW-6, MW-109, MW-314S, MW-314D, MW-316D, MW-316S and MW-337). Four samples (4/8; M&E MW-2, MW-316D, MW-316S and MW-337) were non-detect for VOCs during the 2013 event. For the targeted VOCs within the eight groundwater samples collected, benzene was detected in two samples (MW-6 – 0.0045 mg/L and MW-109 – 0.115 mg/L) and naphthalene was detected in two samples (MW-6 – 0.0263 mg/L and MW-109 – 0.163 mg/L).

Consistent with historic results, there were no exceedances of the GB Groundwater Objectives in the FGPA.

*SFA (A.P. 65B Lots 647 and 649, portions of A.P. 65B Lot 648 and portions of A.P. 67B Lot 11)*

Five (5) groundwater samples were collected from this area during the 2013 sampling event (MW-107, MW-318S, MW-318D, MW-334S, MW-334D). Two samples (2/5; MW-107 and MW-318D) were non-detect for VOCs during the 2013 event. For the targeted VOCs within the five groundwater samples collected, benzene was detected in three samples (MW-318S – 0.0733 mg/L, MW-334S – 0.002 mg/L, and MW-334D – 0.0015 mg/L) and naphthalene was detected in three samples (MW-318S – 0.988 mg/L, MW-334S – 0.0344 mg/L and MW-334D – 0.132 mg/L).

Similar to the FPPA and consistent with historic data, no VOCs were detected in excess of the GB Groundwater Objectives in the SFA during the 2013 sampling event.



## **Cyanide**

As indicated in Table 4B, total cyanide was detected in every groundwater sample analyzed (25/25) in 2013. The total cyanide concentrations detected ranged between 0.0125 mg/L to 4.05 mg/L. Consistent with past results, total cyanide was detected at greater than 1 mg/L in MW-201 (3.68 mg/L) and MW-333D (4.05 mg/L) which are both located in the FGPA. Dissolved and total cyanide results were relatively consistent. The dissolved cyanide concentrations detected ranged between 0.0119 mg/L to 3.95 mg/L. The total and dissolved cyanide levels detected in 2013 are consistent with historic detection at the Site and are typical of former MGP sites. The predominant forms of cyanide compounds at former MGP sites are typically iron–cyanide solids which are detected as part of the total cyanide analysis used at the Tidewater Site. Cyanide can be present in several forms, including free cyanide (HCN, or CN<sup>-</sup>) and metal-cyanide complexes, such as the iron-cyanides typically seen at former MGP sites. With respect to potential risk to human health and aquatic life, cyanide toxicity is mainly associated with free cyanide. Metal-cyanide complexes, especially the strong complexes with iron seen at MGP sites, are essentially non-toxic. Since there are no current potable use of groundwater at this Site, the potential for human health risk associated with impacts to groundwater are limited.

## **Poly-Aromatic Hydrocarbons (PAHs)**

As indicated in Table 4B, PAHs were detected in twenty two groundwater samples (22/25). Of the groundwater samples submitted for PAH analysis; two samples (MW-310D – 4.57 mg/L and MW-312D – 2.98 mg/L) exceeded the Method 2 derived GB Groundwater Objective (2.67 mg/L) for naphthalene. MW-310 is located in the SFA and MW-312 is located in the FGPA. PAH results in 2013 were consistent with historic monitoring events. The most significant PAHs concentrations were detected in the following wells: MW-310D (located along the riverfront in the NFA, within the footprint of the historic cove); MW-312S, MW-312D, MW-333D (located in the FGPA in the southeastern portion of the Site proximate to the historic MGP features); and MW-339D (located east of the former Gasholders No. 7 and 8).

## **Total Petroleum Hydrocarbons**

As indicated in Table 4B, TPH was detected in eighteen groundwater samples (18/25) at concentrations ranging from 0.33 mg/L to 13.5 mg/L. The wells where elevated groundwater TPH concentrations (greater than 5 mg/L) were detected were as follows: MW-310D (located along the riverfront in the NFA, within the footprint of the historic cove); MW-312S, MW-312D, MW-326S, MW-333D (located in the FGPA in the southeastern portion of the Site proximate to the historic MGP features); and MW-339D (located east of the former Gasholders No. 7 and 8). The highest dissolved phase petroleum hydrocarbon impacts (greater than 10 mg/L) were detected in MW-310D in the NFA and MW-326S in the FGPA at a concentration of 13.5 mg/L and 11.1 mg/L, respectively.

## 4.00 CONCLUSIONS



As part of the annual groundwater monitoring for 2013, twenty seven (27) monitoring wells were sampled in August 2013<sup>6</sup>, all accessible wells were gauged for groundwater elevation and the presence of NAPL quarterly, and inspections for sheen in the Seekonk River adjacent to the Site were made at least twice-monthly throughout the year. In general, observations made and the results of analytical testing during 2013 were consistent with historic results.

- Sheens were observed in areas consistent with historic observations, primarily near the bulkhead area in the central portion of the shoreline in the FPPA and FGPA. More significant sheens have generally been observed at mid- or low-tide consisted of bright to dull spots and bands. Sheens observed at high tide were generally much less significant and observed very intermittently.
- Nine (9) monitoring wells exhibited the presence of measureable NAPL in 2013, with four (4/9) monitoring wells exhibiting LNAPL thicknesses up to 1.44 feet and five (5/9) monitoring wells exhibiting DNAPL thicknesses up to 8.45 feet. Approximately 9 gallons of NAPL/groundwater was recovered from Site monitoring wells and was containerized and disposed of off-Site in 2013. Observations of both LNAPL and DNAPL continue to be localized and do not indicated the presence of significant contiguous layers in the subsurface. In addition and typical of MGP sites, recovery attempts suggest that observed NAPLs are unlikely to be significantly mobile.
- Exceedances of the GB Groundwater Objectives were limited to five (5) wells sampled during the 2013 monitoring round. Compounds detected in excess of the GB Groundwater Objectives were naphthalene and benzene. The presence of these compounds in groundwater samples is typical for former MGP sites. The most significant dissolved phase groundwater impacts were generally detected in the FGPA and SFA.

The annual monitoring performed in 2014 will be consistent with the 2013 program. It is anticipated that this monitoring program will continue until the Site remedy has been implemented at which time the program will be reevaluated in coordination with RIDEM.

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<sup>6</sup> Only 25 samples were analyzed from the 27 monitoring wells for total/dissolved cyanide, TPH and PAHs and only 26 samples were analyzed for VOCs. For the 2013 monitoring event, MW-5 had low water levels and there was not enough water present within the well to collect a sample and MW-316S has had very limited water present and only VOC samples were able to be collected.

## **TABLES**

**TABLE 1  
SUMMARY OF SHEEN OBSERVATIONS**

File No. 05.00043654.00  
1/9/2014

Former Tidewater Facility  
Pawtucket, Rhode Island

Date	Time	Approximate Tidal Stage	Sheen Observation Location	Sheen Characteristics
1/24/2011	No sheens observed at high tide.			
1/28/2011	No sheens observed at high tide.			
2/8/2011	No sheens observed at high tide.			
2/17/2011	1130	Low	Adjacent to MW-326 S/D	Long, dull bands
3/4/2011	940	Mid	Adjacent to MW-326 S/D	Long dull bands
3/4/2011	1030	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen
3/17/2011	1000	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen
3/29/2011	1500	Mid	Along entirety of the FPPA.	Heavy long dull sheen
3/29/2011	1500	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen
4/14/2011	1000	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen
4/26/2011	1000	Low	Shoreline between MW-311 and MW-203	Trace sheen
4/26/2011	1300	Low to Mid	54" CSO pipe outfall washout adjacent to MW-103	Sheen
5/4/2011	1245	Low to Mid	54" CSO pipe outfall washout adjacent to MW-103	Trace sheen spots
5/4/2011	1345	Low	From MW-4 to bend in the shoreline (adjacent to MW-326)	Large bright bands fading to a dull sheen
5/4/2011	1355	Low	Bulkhead area in FPPA	Large bright bands fading to a dull sheen
5/4/2011	1358	Low	Along entirety of the FPPA.	Large bands of sheen dull
5/4/2011	1402	Low	54" CSO pipe outfall washout adjacent to MW-103	Large bright bands fading to a dull sheen
5/5/2011	1346	Low to Mid	Adjacent to MW-326 S/D	Sheen
5/5/2011	1415	Low	From MW-4 to bend in the shoreline (adjacent to MW-326)	Large bright bands fading to a dull sheen
5/5/2011	1420	Low	Bulkhead area in FPPA	Sheen
5/5/2011	1425	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen bands
5/5/2011	1450	Low	From bulkhead to bend in the shoreline (adjacent to MW-326) FGPA and FPPA	Heavy large bright bands fading to a dull sheen
5/5/2011	1452	Low	54" CSO pipe outfall washout adjacent to MW-103	Heavy large bright bands fading to a dull sheen to the north and south
6/3/2011	1457	Low	Bulkhead Area in FPPA	Faint dull bands of sheen
6/3/2011	1459	Low	54" CSO pipe outfall washout adjacent to MW-103	Trace sheen spots
6/17/2011	1045	High to Mid	54" CSO pipe outfall washout adjacent to MW-103	Trace sheen spots
6/29/2011	1115	Low	Adjacent to MW-326 S/D	Faint dull bands
6/29/2011	1138	Low	Adjacent to MW-326 S/D	Heavy bright bands
6/29/2011	1142	Low	Bulkhead Area in FPPA	Slight Sheen
6/29/2011	1146	Low	54" CSO pipe outfall washout adjacent to MW-103	Sheen spots
6/29/2011	1210	Low	Adjacent to MW-326 S/D	Faint dull bands
6/29/2011	1220	Low	54" CSO pipe outfall washout adjacent to MW-103	Faint dull bands
7/5/2011	No sheens observed at mid to high tide.			
7/28/2011	1415	Low	Adjacent to MW-326 S/D	Slight Sheen
8/22/2011	No sheens observed at mid to high tide.			
8/25/2011	No sheens observed at mid to high tide.			
9/29/2011	No sheens observed at mid to high tide.			
10/18/2011	No sheens observed at mid to high tide.			
10/20/2011	845	Low	Bulkhead area in FPPA	Long dull bands
10/20/2011	850	Low	Along entirety of the FPPA.	Long dull bands
10/20/2011	900	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen bands
11/3/2011	1315	Mid	Adjacent to MW-326 S/D	Slight sheen spots
11/3/2011	1400	Mid to High	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen spots
11/8/2011	948	Mid	Adjacent to MW-326 S/D	Slight sheen spots
11/30/2011	No sheens observed at high tide.			
12/2/2011	No sheens observed at mid to high tide.			
12/22/2011	No sheens observed at mid to high tide.			

**TABLE 1  
SUMMARY OF SHEEN OBSERVATIONS**

Former Tidewater Facility  
Pawtucket, Rhode Island

Date	Time	Approximate Tidal Stage	Sheen Observation Location	Sheen Characteristics
1/5/2012	No sheens observed at mid tide.			
1/10/2012	830	High	Adjacent to MW-326 S/D	Slight sheen spots
1/10/2012	845	High	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen spots
1/19/2012	1200	Mid	Along entirety of the FPPA.	Large dull bands
1/20/2012	1030	Low	Adjacent to MW-326 S/D	Large dull bands
2/1/2012	735	Low	Adjacent to MW-326 S/D	Slight sheen bands
2/1/2012	745	Low	Bulkhead area in FPPA	Slight sheen bands
2/13/2012	945	Low to Mid	Adjacent to MW-326 S/D	Slight sheen spots and bands
2/13/2012	1000	Low to Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight sheen bands
3/2/2012	800	Low	Adjacent to MW-326 S/D	Very slight dull sheen bands
3/19/2012	1530	Low	Adjacent to MW-326 S/D	Slight dull bands and spots
3/19/2012	1540	Low	54" CSO pipe outfall washout adjacent to MW-103	Moderate dull bands and spots
4/4/2012	1050	Low to Mid	Adjacent to MW-326 S/D	Slight dull sheen spots
4/18/2012	1230	Low	Along entirety of the FPPA.	Minor dull bands
5/2/2012	935	Low	Adjacent to MW-326 S/D	Minor dull spots
5/2/2012	940	Low	Bulkhead area in FPPA	Minor dull bands
5/2/2012	940	Low	Along entirety of the FPPA.	Very minor bands
5/2/2012	940	Low	54" CSO pipe outfall washout adjacent to MW-103	Heavy bright bands
5/7/2012	No sheens observed at high tide.			
5/17/2012	955	Mid	54" CSO pipe outfall washout adjacent to MW-103	Minor dull sheen spots and bands
5/24/2012	No sheens observed at mid to low tide.			
6/5/2012	No sheens observed at high tide.			
6/26/2012	No sheens observed at high tide.			
7/10/2012	745	Low	Bulkhead area in FPPA	Slight bands of sheen
7/10/2012	800	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight to moderate dull sheen spots
7/26/2012	No sheens observed at mid tide.			
8/10/2012	9:40	Low to Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bright bands of sheen
8/10/2012	855	Low	Adjacent to MW-326 S/D	Slight bright bands of sheen
8/14/2012	10:00	High	Shoreline directly west of the South Washout Area	Minor bright bands of sheen. The sheen was determined to be biological in nature.
8/21/2012	No sheens observed at mid to high tide.			
8/30/2012	No sheens observed at mid to high tide.			
9/14/2012	12:15	Low	Adjacent to MW-326 S/D	Moderate dull bands
9/14/2012	12:45	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight bright spots of sheen
9/25/2012	10:55	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight dull spot of sheen
10/12/2012	8:10	Mid	Adjacent to MW-326 S/D	Slight dull spot of sheen
10/12/2012	9:00	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight dull bands of sheen
10/23/2012	10:30	Low	54" CSO pipe outfall washout adjacent to MW-103	Moderate bright sheen spots
10/23/2012	10:40	Low	Bulkhead area in FPPA	Slight dull bands of sheen
10/26/2012	No sheens observed at mid to high tide.			
10/31/2012	13:45	Mid to Low	Adjacent to MW-326 S/D	Slight dull bands of sheen
11/5/2012	No sheens observed at mid tide.			
11/26/2012	13:30	Low	Adjacent to MW-326 S/D	Moderate dull bands of sheen
12/10/2012	No sheens observed at mid to high tide.			
12/28/2012	No sheens observed at mid tide.			

**TABLE 1**  
**SUMMARY OF SHEEN OBSERVATIONS**

File No. 05.00043654.00  
1/9/2014

Former Tidewater Facility  
Pawtucket, Rhode Island

Date	Time	Approximate Tidal Stage	Sheen Observation Location	Sheen Characteristics
1/17/2013	No sheens observed at high tide.			
1/28/2013	No sheens observed at mid tide.			
2/5/2013	8:55	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight dull bands of sheen
2/27/2013	No sheens observed at high tide.			
3/5/2013	7:50	Low	54" CSO pipe outfall washout adjacent to MW-103	Moderate bright to dull bands and spots of sheen
3/5/2013	7:55	Low	Bulkhead area in FPPA	Slight dull bands
3/5/2013	8:05	Low	Adjacent to MW-326 S/D	Slight bright spots and bands of sheen
3/18/2013	No sheens observed at high tide.			
3/20/2013	No sheens observed at low tide.			
4/1/2013	12:20	High	54" CSO pipe outfall washout adjacent to MW-103	Dull to bright bands of sheen
4/26/2013	13:30	Low	Adjacent to MW-326 S/D	Dull spots and bands of sheen
5/10/2013	11:20	Mid	54" CSO pipe outfall washout adjacent to MW-103	Bright to dull spots and bands of sheen
5/22/2013	10:45	Low	Adjacent to MW-326 S/D	Moderate dull bands of sheen
5/22/2013	11:15	Low	54" CSO pipe outfall washout adjacent to MW-103	Heavy bright spots and bands of sheen
5/22/2013	11:15	Low	Bulkhead area in FPPA	Dull bands of sheen
5/28/2013	17:00	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight dull sheen spots
5/30/2013	No sheens observed at high to mid tide.			
6/5/2013	No sheens observed at mid to low tide.			
6/19/2013	No sheens observed at mid tide.			
6/28/2013	No sheens observed at mid tide.			
7/3/2013	No sheen noted at mid tide.			
7/9/2013	14:35	Low	Adjacent to MW-326 S/D	Bright bands of sheen
7/9/2013	15:15	Low	54" CSO pipe outfall washout adjacent to MW-103	Bright heavy bands of sheen
8/1/2013	No sheens observed at high tide.			
8/6/2013	8:00	High	54" CSO pipe outfall washout adjacent to MW-103	Slight bright to dull bands of sheen
8/27/2013	10:25	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bright bands of sheen
8/27/2013	10:30	Mid	Bulkhead area in FPPA	Very slight dull sheen bands
9/4/2013	No sheens observed at high tide.			
9/11/2013	7:55	Low to Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bright and dull bands of sheen
9/11/2013	8:00	Low to Mid	Bulkhead area in FPPA	Slight dull spots of sheen
9/11/2013	8:20	Low to Mid	Adjacent to MW-326 S/D	Slight dull spots of sheen
9/18/2013	No sheens observed at high tide.			
9/25/2013	No sheens observed at high tide.			
10/2/2013	11:30	Low	Adjacent to MW-326 S/D	Moderate bright bands of sheen
10/2/2013	11:35	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight bright and dull bands of sheen
10/2/2013	11:40	Low	Bulkhead area in FPPA	Slight bands of sheen
10/11/2013	No sheens were observed at low to mid tide.			
10/18/2013	14:15	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of sheen
10/29/2013	14:05	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of sheen
11/11/2013	9:15	Low	Adjacent to MW-326 S/D	Slight bands of sheen
11/11/2013	9:30	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of dull sheen
11/11/2013	9:30	Low	Bulkhead area in FPPA	Slight bands of dull sheen
11/25/2013	No sheens observed at high tide.			
12/11/2013	10:30	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight dull sheen spots
12/11/2013	11:03	Mid	Adjacent to MW-326 S/D	Slight bright to dull sheen spots
12/18/2013	14:05	Low	54" CSO pipe outfall washout adjacent to MW-103	Moderate bright to dull bands of sheen
12/31/2013	No sheens observed at high tide.			

Notes:

- SFA refers to the South Fill Area.
- FPPA refers to the Former Power Plant Area.
- FGPA refers to the Former Gas Plant Area.
- NFA refers to the North Fill Area.
- This table shows observations that were made along the Site shoreline. Observations were made at least twice a month.
- This table shows observations that were made between 2011 and 2013. The January 2011 SIDR presents sheen observations made during Site Investigation activities between 2009 and 2010.



















**TABLE 2C**  
**LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) WELL GAUGING DATA**

12/13/2013  
GZA File 05.00043654.00

Former Tidewater Facility  
Pawtucket, Rhode Island

Date	LNAPL Thickness (feet)													
	4/23/2009	6/18/2009	5/17/2010	5/20/2010	6/16/2010	11/2/2010	11/19/2010	12/3/2010	1/24/2011	2/17/2011	3/29/2011	4/26/2011	5/4/2011	
<b>Former Gas Plant Area</b>														
MW-3 (1) (3)		0.02			trace	trace	<b>0.05</b>	trace	<b>5.57</b>	<b>0.80</b>	<b>1.71</b>	<b>1.64</b>	<b>0.27</b>	
MW-4 (2) (3)		NP			NP	NP	NP	NP	NP	NP	NP	NP	NP	
MW-210 (3)		0.05			<b>0.05</b>	NP		NP	<b>0.23</b>	<b>0.92</b>	<b>2.54</b>	<b>2.48</b>	<b>2.02</b>	
MW-312S				NP	NP	<b>0.45</b>	<b>0.13</b>	trace	trace	trace	trace	<b>0.20</b>	<b>0.28</b>	
MW-313S			0.10		trace	NP	NP	NP	<b>4.52</b>	<b>0.22</b>	<b>0.04</b>	<b>0.05</b>	<b>0.02</b>	
MW-326S					NP	trace	<b>0.30</b>	trace	NP	trace	trace	<b>0.03</b>	<b>0.01</b>	
<b>Former Power Plant Area</b>														
M&E MW-5 (5)	1.35	0.44			NP	<b>0.04</b>	<b>1.17</b>				<b>3.24</b>	<b>3.16</b>	<b>1.12</b>	
MW-102 (4) (6)	NP	NP			NP	NP		NP	NP			NP		
MW-103 (4)	NP	NP			NP	<b>0.01</b>	NP	trace	<b>0.31</b>	trace	trace	<b>0.02</b>	<b>0.18</b>	
MW-109 (4)	NP	NP			NP	NP	NP	NP	NP	NP		NP		
MW-314S			0.01	NP	NP	NP	NP	NP	NP		NP	NP	NP	

Notes: Blank cells indicate well was not gauged during the event.  
trace - trace amounts of NAPL were found on the probe  
NP - No Product was detected  
Well is Located in Former Gas Plant Area  
Well is Located in Former Power Plant Area

- (1) Well was gauged by AES as part of their 1996 Site Investigation activities. Sheens were noted.
- (2) Well was gauged by AES as part of their 1996 Site Investigation activities. Floating product was noted.
- (3) Well was gauged by VHB as part of their 2006 Site Investigation activities. Inconsistent, but measurable LNAPL was present.
- (4) Well was gauged by VHB as part of their 2006 Site Investigation activities. Sheens were noted.
- (5) Casing was found broken on December 3, 2010. Repairs were made in March 2011.
- (6) Well was not located on January 29, 2013 due to snow.

**TABLE 2C  
LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) WELL GAUGING DATA**

Former Tidewater Facility  
Pawtucket, Rhode Island

Date	LNAPL Thickness (feet)											
	6/3/2011	6/29/2011	7/26/2011	10/18/2011	1/19/2012	4/18/2012	7/10/2012	10/15/2012	1/29/2013	4/26/2013	8/6/2013	10/29/2013
<b>Former Gas Plant Area</b>												
MW-3 (1) (3)	0.80	0.03	0.15	0.05	0.02	0.03	0.02	trace	NP	NP	0.05	trace
MW-4 (2) (3)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
MW-210 (3)	1.00	0.33	0.13	1.03	2.25	NP	0.11	NP	0.04	1.44	0.08	trace
MW-312S	0.01	0.14	0.25	0.48	0.12	0.46	1.1	0.01	0.04	0.76	0.93	0.07
MW-313S	trace	0.01	0.02	0.09	NP	NP	trace	NP	NP	NP	trace	NP
MW-326S	trace	0.01	0.02	0.03	NP	NP	NP	NP	NP	NP	NP	trace
<b>Former Power Plant Area</b>												
M&E MW-5 (5)	1.20	0.40	0.13	0.05	0.08	0.04	0.05	0.29	0.02	0.14	0.01	0.33
MW-102 (4) (6)			NP	NP	NP	NP	NP	NP		NP	NP	NP
MW-103 (4)	0.09	0.01	0.02	trace	0.02	trace	trace	trace	trace	trace	trace	trace
MW-109 (4)			NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
MW-314S	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP

Notes: Blank cells indicate well was not gauged during the event.  
 trace - trace amounts of NAPL were found on the probe  
 NP - No Product was detected  
 Well is Located in Former Gas Plant Area  
 Well is Located in Former Power Plant Area

- (1) Well was gauged by AES as part of their 1996 Site Investigation activities. Sheens were noted.
- (2) Well was gauged by AES as part of their 1996 Site Investigation activities. Floating product was noted.
- (3) Well was gauged by VHB as part of their 2006 Site Investigation activities. Inconsistent, but measurable LNAPL was present.
- (4) Well was gauged by VHB as part of their 2006 Site Investigation activities. Sheens were noted.
- (5) Casing was found broken on December 3, 2010. Repairs were made in March 2011.
- (6) Well was not located on January 29, 2013 due to snow.



**TABLE 2D**  
**DENSE NON-AQUEOUS PHASE LIQUID (DNAPL) WELL GAUGING DATA**

12/13/2013  
GZA File 05.00043654.00

Former Tidewater Facility  
Pawtucket, Rhode Island

Date	DNAPL Thickness (feet)													
	4/23/2009	6/18/2009	5/17/2010	5/20/2010	6/16/2010	11/2/2010	11/19/2010	12/3/2010	1/24/2011	2/17/2011	3/29/2011	4/26/2011	5/4/2011	
<b>Former Gas Plant Area</b>														
MW-4 (1) (4)		NP			trace	trace	trace	trace	<b>1.15</b>	trace	trace	trace	trace	
MW-303			NP		trace	<b>2.53</b>	<b>0.55</b>	<b>0.50</b>	trace	<b>0.88</b>	<b>0.15</b>	<b>0.55</b>	<b>0.75</b>	
MW-312S				NP	trace	NP	NP	NP	NP	NP	NP	NP	NP	
MW-312D				NP	trace	NP		NP	NP		NP	NP	NP	
MW-313S			NP		NP	trace	NP	NP	NP	NP	NP	NP	NP	
MW-339D								NP	NP	NP	trace	trace	NP	
MW-341								trace	<b>1.45</b>	<b>1.00</b>	<b>1.75</b>	<b>1.45</b>	<b>1.95</b>	
<b>Former Power Plant Area</b>														
MW-103	NP	NP			NP	trace	<b>0.08</b>	NP	NP	NP	NP	NP	NP	
<b>South Fill Area</b>														
MW-1 (2) (3)	<b>0.29</b>	<b>0.80</b>			trace	trace	NP	<b>0.50</b>	trace	NP	<b>0.40</b>	<b>0.67</b>		
MW-320S			<b>0.18</b>		NP	<b>1.88</b>	NP	<b>0.20</b>	trace	trace	trace	trace		
MW-320D			<b>3.70</b>		<b>1.10</b>	<b>8.98</b>	<b>1.50</b>	<b>10.00</b>	<b>3.20</b>	<b>2.15</b>	<b>4.15</b>	<b>3.38</b>		

Notes: Blank cells indicate well was not gauged during the event.  
trace - trace amounts of NAPL were found on the probe  
NP - No Product was detected

Well is Located in Former Gas Plant Area  
Well is Located in Former Power Plant Area  
Well is Located in South Fill Area

- (1) Well was gauged by AES as part of their 1996 Site Investigation activities. "Thick tar product" was noted at the bottom of the well.
- (2) Well was gauged by AES as part of their 1996 Site Investigation activities. "Tar" was noted on bailer and tubing.
- (3) Well was gauged by VHB as part of their 2006 Site Investigation activities. Inconsistent, but measurable DNAPL was present, with thicknesses of up to 2.5 feet.
- (4) MW-4 was periodically gauged between October 2009 and January 2010 to assess thickness of DNAPL:

Date	Depth to Water (feet below ground surface)	DNAPL Thickness (feet)
10/30/2009	11.25	<b>0.2</b>
11/3/2009	11.29	NP
11/4/2009	11.46	<b>0.1</b>
11/12/2009	11.3	<b>0.27</b>
1/21/2010	8.75	<b>0.15</b>

**TABLE 2D  
DENSE NON-AQUEOUS PHASE LIQUID (DNAPL) WELL GAUGING DATA**

12/13/2013  
GZA File 05.00043654.00

Former Tidewater Facility  
Pawtucket, Rhode Island

Date	DNAPL Thickness (feet)											
	6/3/2011	6/29/2011	7/26/2011	10/18/2011	1/19/2012	4/18/2012	7/10/2012	10/15/2012	1/29/2013	4/26/2013	8/6/2013	10/29/2013
<b>Former Gas Plant Area</b>												
MW-4 (1) (4)	trace	trace	trace	trace	NP	NP	0.25	trace	trace	trace	0.7	NP
MW-303	0.13	0.30	trace	0.80	0.32	1.35	1.19	3.74	2.29	5.55	5.25	4.6
MW-312S	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
MW-312D	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
MW-313S	NP	NP	NP	NP	NP	trace	NP	trace	NP	NP	NP	NP
MW-339D	NP	NP	NP	trace	trace	trace	trace	NP	trace	trace	NP	trace
MW-341	1.50	1.25	0.95	1.68	1.48	1.38	1.08	1.5	1.4	1.95	2.57	2
<b>Former Power Plant Area</b>												
MW-103	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
<b>South Fill Area</b>												
MW-1 (2) (3)	0.15	0.60	trace	trace	trace	trace	NP	NP	trace	trace	NP	NP
MW-320S	trace	trace	trace	0.98	0.1	0.05	trace	0.75	trace	trace	trace	0.18
MW-320D	4.50	4.50	2.50	7.05	1.1	8.67	1.05	2.56	8.45	8.15	7.85	8.14

Notes: Blank cells indicate well was not gauged during the event.  
trace - trace amounts of NAPL were found on the probe  
NP - No Product was detected

Well is Located in Former Gas Plant Area

Well is Located in Former Power Plant Area

Well is Located in South Fill Area

- (1) Well was gauged by AES as part of their 1996 Site Investigation activities. "Thick tar product" was noted at the bottom of the well.
- (2) Well was gauged by AES as part of their 1996 Site Investigation activities. "Tar" was noted on bailer and tubing.
- (3) Well was gauged by VHB as part of their 2006 Site Investigation activities. Inconsistent, but measurable DNAPL was present, with thicknesses of up to 2.5 feet.
- (4) MW-4 was periodically gauged between October 2009 and January 2010 to assess thickness of DNAPL:

Date	Depth to Water (feet below ground surface)	DNAPL Thickness (feet)
10/30/2009	11.25	0.2
11/3/2009	11.29	NP
11/4/2009	11.46	0.1
11/12/2009	11.3	0.27
1/21/2010	8.75	0.15

**TABLE 3A**  
**SUMMARY OF LNAPL RECOVERY**  
Former Tidewater Facility  
Pawtucket, Rhode Island

Well ID	Date	Start Pumping	Depth to LNAPL (feet)	Depth to Water (feet)	Depth to Bottom (feet)	Estimated Volume Purged (gallons)	Tide Condition	Notes
MW-3	11/19/2010	9:22	10.47	10.54	17	0.20	Mid	
	2/17/2011	10:40	9.21	10.01	16.72	0.50	Mid	
	3/29/2011	11:59	10.6	12.31	17.05	0.25	Low	
	5/5/2011	13:31	9.22	9.49	17.1	0.20	Mid	
	6/3/2011	12:37	9.63	10.43	17.1	0.10	Mid	
MW-210	7/2/2010		9.6	9.75	17.3	0.05		
	2/17/2011	12:14	8.42	9.34	17.15	0.5	Low	
	3/29/2011	11:25	7.82	10.36	17.3	0.5	Low	
	5/5/2011	11:10	7.01	9.03	17.3	0.5	High	
	6/3/2011	11:50	8.05	9.05	17.3	0.5	Mid	
	6/29/2011	10:45	8.65	8.98	17.3	0.10	Mid	
	10/20/2011	11:14	7.12	8.22	17.3	1.00	Mid	
	1/20/2012	11:05	8.14	10.3	17.3	1.00	Low	
	4/26/2013	13:30	7.88	9.32	17.3	0.75	Low	
	8/8/2013	10:15	9.17	9.25	17.3	0.05	High	
MW-312S	7/2/2010		10.02	10.11	23.5	0.05		
	11/2/2010	14:45	10.85	11.25	23.5	0.5	Mid	
	11/19/2010	9:40	9.45	9.58	23.5	0.25	Mid	
	5/5/2011	12:45	8.24	8.52	23.5	0.10	Mid	
	7/27/2011	16:30	10.25	10.35	23.5	0.25	Mid/High	
	10/20/2011	10:21	8.49	8.97	23.5	0.50	Mid	
	1/20/2012	9:40	9.19	9.66	23.5	0.25	Mid	
	4/19/2012	11:09	8.76	9.22	23.5	0.50	Low/Mid	
	7/12/2012	11:18	9.98	10.6	23.5	0.75	Mid	
	4/26/2013	14:30	8.42	9.18	23.5	1.00	Low	
MW-313S	2/17/2011	11:56	9.59	9.81	24.76	0.10	Low	
	10/20/2011	12:35	8.85	8.9	24.76	0.10	Mid/High	
MW-326S	11/19/2010	9:20	11.61	11.91	26.6	0.25	Mid	
M&E MW-5	7/2/2010		6.43	6.6	14.6	0.05		
	11/19/2010	11:20	8.03	9.2	14.6	0.35	Low	
	3/29/2011	15:28	10.29	13.53	16.88	0.75	Mid	elevations adjusted for broken PVC
	5/5/2011	9:32	9.63	10.75	16.88	0.50	High	elevations adjusted for broken PVC
	6/3/2011	14:15	7.20	8.4	14.65	0.50	Low	elevations adjusted for broken PVC
	6/29/2011	13:05	8.00	8.4	14.65	0.50	Low	elevations adjusted for broken PVC
	10/20/2011	9:22	7.33	7.75	14.65	0.25	Low	elevations adjusted for broken PVC
	1/20/2012	8:12	6.73	6.95	14.65	0.10	Mid	elevations adjusted for broken PVC
	10/24/2012	14:27	8.05	8.22	14.65	0.20	Mid	elevations adjusted for broken PVC
	4/26/2013	13:00	6.99	7.13	14.65	0.25	Low	elevations adjusted for broken PVC
MW-103	10/30/2013	8:00	7.97	8.30	14.65	0.50	Mid	elevations adjusted for broken PVC
	7/2/2010		10.31	10.32	16.82	trace		
	11/19/2010	12:00	10.35	10.36	16.85	trace	Low	Blebs in purge water

Notes:

- Depth to bottom in this table are from 11/2/2010 gauging round, if not recorded
- Well is located in Former Gas Plant Area
- Well is located in Former Power Plant Area

**TABLE 3B**  
**SUMMARY OF DNAPL RECOVERY**  
Former Tidewater Facility  
Pawtucket, Rhode Island

Well ID	Date	Start Pumping	Depth to Water (feet)	Depth to DNAPL (feet)	Depth to Bottom (feet)	Estimated Volume Purged (gallons)	Tide Condition	Notes
MW-4	7/2/2010		10.85	trace	15.5	0.05		
	11/19/2010	10:12	10.73	trace	15.95		Mid	
MW-303	7/2/2010		8.8	41.18	42	Trace		
	11/2/2010	14:10	10.12	39.32	42	0.75	Mid	Measured thickness of DNAPL from probe, was not able to get to bottom, so estimate by probe
	11/19/2010	10:15	8.74	41.6	42	0.10	Low	DNAPL is very viscous
	2/17/2011	12:44	6.99	40.97	42.02	0.10	Low	DNAPL is very viscous
	5/5/2011	10:32	6.12	41.1	41.7	0.05	High	DNAPL is very viscous
	6/29/2011	10:02	7.1	41.55	41.7	Trace	Mid	Was not able to recover any DNAPL due to extreme viscosity
	10/20/2011	11:00	6.78	40.94	41.8	Trace	Mid	Was not able to recover any DNAPL due to extreme viscosity
	1/20/2012	10:42	7.69	41.37	41.8	Trace	Low	Was not able to recover any DNAPL due to extreme viscosity
	4/19/2012	10:45	6.54	40.65	41.8	0.15	Low/Mid	DNAPL is very viscous
	8/8/2013	11:30	6.43	36.7	41.8	0.25	High	Pumped for approximately 30 minutes. Was not able to recover all the DNAPL due to extreme viscosity.
10/30/2013	10:00	9.10	35.2	41.8	Trace	Mid	Pumped for approximately 20 minutes. Was not able to recover all the DNAPL due to extreme viscosity.	
MW-312D	7/2/2010		10.37	trace	31.87	Trace		
MW-313S	7/2/2010		dry		24.8	Trace		
	11/19/2010	9:30	10.86	trace	24.9		Mid	Did not pump
MW-341	2/17/2011	14:25	8.68	29.1	30.1	0.2	Low	
	3/29/2011	10:38	6.88	28.35	30.15	0.25	Low	
	5/5/2011	10:27	8.45	28.15	30.15	0.5	High	
	6/3/2011	10:54	7.28	28.6	30.15	0.5	High	
	6/17/2011	9:50	7.56	28.55	30.15	0.1	High	
	6/29/2011	9:24	8.1	28.85	30.15	0.5	Mid/High	
	7/25/2011	15:00				0.5	High	Did not gauge, recover only.
	7/27/2011	17:07	8.93	29.15	30.15	1	High	
	7/28/2011	15:00	9.11	29.15	30.15	0.5	Mid	
	10/20/2011	10:05	7.77	29	30.15	0.5	Low/Mid	
	1/20/2012	9:18	7.21	28.82	30.15	0.5	Low/Mid	
	4/19/2012	10:38	9.26	28.77	30.15	0.5	Low/Mid	
	7/12/2012	11:50		28.72	30.15	1	Mid	
	10/24/2012	15:02	10.45	28.45	30.15	0.75	Mid	
	1/30/2013	12:45	6.79	28.75	30.15	1.5	Low/Mid	
	4/26/2013	15:15	7.1	28.2	30.15	1.5	Low	
8/8/2013	11:00	8.08	27.58	30.15	1.25	High		
10/30/2013	9:30	10.10	28.15	30.15	1	Mid		
MW-1	7/2/2010		17.99	22.9	22.72	0.25		
	11/19/2010	12:30	17.86	trace	22.75		Low	DNAPL on probe (0.25")
MW-320S	7/2/2010		6.4	9.23	10.8	Trace		
	11/19/2010	13:00	6.28	9.68	10.9		Low	Did not pump due to viscosity of DNAPL.
MW-320D	7/2/2010		8.15	15.6	23.2	0.25		
	11/2/2010	15:20	8.77	16.72	23.3		Mid	Was not able to recover any DNAPL due to extreme viscosity
	11/19/2010	13:15	10	24.2	26.4	0.1	Low	Measured from top of casing, DNAPL is very viscous

Notes:

- Depth to bottom in this table are from 11/2/2010 gauging round, if not recorded
- Well is located in Former Gas Plant Area
- Well is located in South Fill Area

TABLE 4A  
SUMMARY OF GROUNDWATER VOC ANALYTICAL RESULTS

Former Tidewater Facility  
Pawtucket, Rhode Island

Table with 22 columns: EPA 8260, Units, RIDEM GB Groundwater UCL, RIDEM GB Groundwater Objective, and 18 monitoring wells (MW-7 to MW-314S). Rows list various VOCs such as 1,1,1,2-Tetrachloroethane, Benzene, and Styrene with their respective concentrations and detection limits.

**TABLE 4A**  
**SUMMARY OF GROUNDWATER VOC ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, Rhode Island

EPA 8260	VOLATILE ORGANICS	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-7	MW-310S	MW-310D	MW-201	MW-208	MW-312S	MW-312D	MW-326S	MW-326D	MW-333S	MW-333D	MW-339S	MW-339D	M and E MW-2	MW-6	MW-109	MW-314S	
					08/08/2013 1308137-01 Aqueous	08/06/2013 1308084-06 Aqueous	08/06/2013 1308084-07 Aqueous	08/07/2013 1308127-07 Aqueous	08/08/2013 1308137-02 Aqueous	08/06/2013 1308084-08 Aqueous	08/06/2013 1308084-09 Aqueous	08/07/2013 1308127-01 Aqueous	08/07/2013 1308127-02 Aqueous	08/07/2013 1308127-05 Aqueous	08/07/2013 1308127-06 Aqueous	08/07/2013 1308127-04 Aqueous	08/07/2013 1308127-03 Aqueous	08/06/2013 1308084-02 Aqueous	08/07/2013 1308127-08 Aqueous	08/06/2013 1308084-01 Aqueous	08/06/2013 1308084-03 Aqueous	
	tert-Butylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.1 D	<0.001	<0.001	<0.1 D	<0.1 D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tertiary-amyl methyl ether	mg/L	NE	NE	<0.001	<0.001	<0.1 D	<0.001	<0.001	<0.1 D	<0.1 D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tetrachloroethene	mg/L	NE	0.15	<0.001	<0.001	<0.1 D	<0.001	<0.001	<0.1 D	<0.1 D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tetrahydrofuran	mg/L	NE	NE	<0.005	<0.005	<0.5 D	<0.005	<0.005	<0.5 D	<0.5 D	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Toluene	mg/L	21	1.7	<0.001	<0.001	<b>0.174 D</b>	<0.001	<b>0.0004 J</b>	<0.1 D	<0.1 D	<b>0.0025</b>	<0.001	<0.001	<b>0.0152</b>	<0.001	<b>0.0471</b>	<0.001	<b>0.0012</b>	<b>0.003</b>	<0.001	<0.001
	trans-1,2-Dichloroethene	mg/L	79	2.8	<0.001	<0.001	<0.1 D	<0.001	<0.001	<0.1 D	<0.1 D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	trans-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.04 D	<0.0004	<0.0004	<0.04 D	<0.04 D	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Trichloroethene	mg/L	87	0.54	<b>0.0003 J</b>	<0.001	<0.1 D	<0.001	<0.001	<0.1 D	<0.1 D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Trichlorofluoromethane	mg/L	NE	NE	<0.001	<0.001	<0.1 D	<0.001	<0.001	<0.1 D	<0.1 D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Trihalomethanes (Total)	mg/L	NE	NE	<0.0036	<0.0036	<0.36 D	<0.0036	<0.0036	<0.36 D	<0.36 D	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036
	Vinyl Acetate	mg/L	NE	NE	<0.005	<0.005	<0.5 D	<0.005	<0.005	<0.5 D	<0.5 D	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Vinyl Chloride	mg/L	NE	0.002	<0.001	<0.001	<0.1 D	<0.001	<0.001	<0.1 D	<0.1 D	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Xylene O	mg/L	NE	NE	<0.001	<b>0.0006 J</b>	<b>0.489 D</b>	<b>0.0252</b>	<b>0.0044</b>	<b>0.088 J D</b>	<b>0.309 D</b>	<b>0.0509</b>	<b>0.01</b>	<0.001	<b>0.163 D</b>	<b>0.0013</b>	<b>0.344 D</b>	<0.001	<b>0.0186</b>	<b>0.0183</b>	<0.001	<0.001
	Xylene P,M	mg/L	NE	NE	<0.002	<0.002	<b>0.478 D</b>	<b>0.0051</b>	<b>0.0009 J</b>	<b>0.027 J D</b>	<b>0.03 J D</b>	<b>0.0132</b>	<0.002	<0.002	<b>0.0393</b>	<b>0.0021</b>	<b>0.33 D</b>	<0.002	<b>0.0028</b>	<b>0.0128</b>	<0.002	<0.002
	Xylenes (Total)	mg/L	NE	NE	<0.002	<0.002	<b>0.967 D</b>	<b>0.0303</b>	<b>0.0053</b>	<b>0.115 J D</b>	<b>0.339 D</b>	<b>0.0641</b>	<b>0.01</b>	<0.002	<b>0.202 D</b>	<b>0.0034</b>	<b>0.674 D</b>	<0.002	<b>0.0213</b>	<b>0.0311</b>	<0.002	<0.002
	Total VOCs	mg/L	NE	NE	<b>0.0021</b>	<b>0.0049</b>	<b>3.307</b>	<b>0.3987</b>	<b>0.0405</b>	<b>2.841</b>	<b>9.561</b>	<b>0.8268</b>	<b>0.2652</b>	<0.6451	<b>8.469</b>	<b>0.3045</b>	<b>5.5054</b>	<0.6451	<b>0.0803</b>	<b>0.5494</b>	<b>0.0007</b>	

**Notes**  
 NE = Not Established  
 "B" qualifier indicates that the analyte was present in the method blank  
 "D" qualifier indicates analytes reported from a diluted run of the original analysis.  
 "J" qualifier indicates analyte value was below the Method reporting Limit; Estimated value.  
 S = Shallow Screened Well  
 D = Deep Screened Well  
 NFA = North Fill Area  
 FGPA = Former Gas Plant Area  
 FPPA = Former Power Plant Area  
 SFA = South Fill Area  
**Bold values** indicate that the concentration was detected above method reporting limits  
 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.  
 This table presents analytical results from 2013. The January 2011 SIDR presents analytical results collected during Site Investigation activities from 2009 and 2010 and Appendix D of this report presents the analytical data collected during 2011 and 2012.

**TABLE 4A**  
**SUMMARY OF GROUNDWATER VOC ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, Rhode Island

EPA 8260	VOLATILE ORGANICS	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-314D	MW-316S	MW-316D	MW-337	MW-107	MW-318S	MW-318D	MW-334S	MW-334D
					08/06/2013 1308084-04 Aqueous	08/07/2013 1308127-17 Aqueous	08/07/2013 1308127-10 Aqueous	08/07/2013 1308127-09 Aqueous	08/07/2013 1308127-14 Aqueous	08/07/2013 1308127-12 Aqueous	08/07/2013 1308127-15 Aqueous	08/07/2013 1308127-13 Aqueous	08/07/2013 1308127-11 Aqueous
	1,1,1,2-Tetrachloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1,1-Trichloroethane	mg/L	68	3.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1,2,2-Tetrachloroethane	mg/L	NE	NE	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	1,1,2-Trichloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-Dichloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-Dichloroethene	mg/L	23	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-Dichloropropene	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	1,2,3-Trichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,3-Trichloropropane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,4-Trichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,4-Trimethylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.043</b>	<0.001	<b>0.0011</b>	<0.001
	1,2-Dibromo-3-Chloropropane	mg/L	NE	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	1,2-Dibromoethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-Dichloroethane	mg/L	670	0.11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-Dichloropropane	mg/L	140	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3,5-Trimethylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0177</b>	<0.001	<0.001	<0.001
	1,3-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3-Dichloropropane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,4-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,4-Dioxane - Screen	mg/L	NE	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1-Chlorohexane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2,2-Dichloropropane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2-Butanone	mg/L	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	2-Chlorotoluene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2-Hexanone	mg/L	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	4-Chlorotoluene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	4-Isopropyltoluene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0012</b>	<0.001	<0.001	<0.001
	4-Methyl-2-Pentanone	mg/L	NE	NE	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
	Acetone	mg/L	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Benzene	mg/L	18	0.14	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0733</b>	<0.001	<b>0.002</b>	<b>0.0015</b>
	Bromobenzene	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Bromochloromethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromodichloromethane	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Bromoform	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromomethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Carbon Disulfide	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Carbon Tetrachloride	mg/L	NE	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chlorobenzene	mg/L	56	3.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chloroethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Chloroform	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chloromethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	cis-1,2-Dichloroethene	mg/L	69	2.4	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0012</b>
	cis-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Dibromochloromethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Dibromomethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Dichlorodifluoromethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Diethyl Ether	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Di-isopropyl ether	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Ethyl tertiary-butyl ether	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Ethylbenzene	mg/L	16	1.6	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0099</b>	<0.001	<0.001	<0.001
	Hexachlorobutadiene	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Hexachloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Isopropylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Methyl tert-Butyl Ether	mg/L	NE	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Methylene Chloride	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Naphthalene	mg/L	NE	2.67	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.988 D</b>	<0.001	<b>0.0334</b>	<b>0.0132</b>
	n-Butylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	n-Propylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.002</b>	<0.001	<0.001	<0.001
	sec-Butylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Styrene	mg/L	50	2.2	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0051</b>	<0.001	<0.001	<0.001

**TABLE 4A  
SUMMARY OF GROUNDWATER VOC ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, Rhode Island

EPA 8260	VOLATILE ORGANICS	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-314D	MW-316S	MW-316D	MW-337	MW-107	MW-318S	MW-318D	MW-334S	MW-334D
					08/06/2013 1308084-04 Aqueous	08/07/2013 1308127-17 Aqueous	08/07/2013 1308127-10 Aqueous	08/07/2013 1308127-09 Aqueous	08/07/2013 1308127-14 Aqueous	08/07/2013 1308127-12 Aqueous	08/07/2013 1308127-15 Aqueous	08/07/2013 1308127-13 Aqueous	08/07/2013 1308127-11 Aqueous
	tert-Butylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tertiary-amyl methyl ether	mg/L	NE	NE	<b>0.0004 J</b>	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tetrachloroethene	mg/L	NE	0.15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tetrahydrofuran	mg/L	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Toluene	mg/L	21	1.7	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0659</b>	<0.001	<b>0.001</b>	<0.001
	trans-1,2-Dichloroethene	mg/L	79	2.8	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	trans-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Trichloroethene	mg/L	87	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0021</b>
	Trichlorofluoromethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Trihalomethanes (Total)	mg/L	NE	NE	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036
	Vinyl Acetate	mg/L	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Vinyl Chloride	mg/L	NE	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Xylene O	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<b>0.0374</b>	<0.001	<0.001	<0.001
	Xylene P,M	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<b>0.083</b>	<0.002	<0.002	<0.002
	Xylenes (Total)	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<b>0.12</b>	<0.002	<0.002	<0.002
	Total VOCs	mg/L	NE	NE	<b>0.0004</b>	<0.6451	<0.6451	<0.6451	<0.6451	<b>1.3265</b>	<0.6451	<b>0.0375</b>	<b>0.018</b>

**Notes**

- NE = Not Established
- "B" qualifier indicates that the analyte was present in the method blank
- "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- "J" qualifier indicates analyte value was below the Method reporting Limit; Estimated value.
- S = Shallow Screened Well
- D = Deep Screened Well
- NFA = North Fill Area
- FGPA = Former Gas Plant Area
- FPPA = Former Power Plant Area
- SFA = South Fill Area

**Bold values** indicate that the concentration was detected above method reporting limits

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.

This table presents analytical results from 2013. The January 2011 SIDR presents analytical results collected during Site Investigation activities from 2009 and 2010 and Appendix D of this report presents the analytical data collected during 2011 and 2012.



**TABLE 4B  
GROUNDWATER INORGANIC, TPH, PAH ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, RI

		Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-7 08/08/2013 1308137-01 Aqueous	MW-310S 08/06/2013 1308084-06 Aqueous	MW-310D 08/06/2013 1308084-07 Aqueous	MW-201 08/07/2013 1308127-07 Aqueous	MW-208 08/08/2013 1308137-02 Aqueous	MW-312S 08/06/2013 1308084-08 Aqueous	MW-312D 08/06/2013 1308084-09 Aqueous	MW-326S 08/07/2013 1308127-01 Aqueous	MW-326D 08/07/2013 1308127-02 Aqueous	MW-333S 08/07/2013 1308127-05 Aqueous	MW-333D 08/07/2013 1308127-06 Aqueous	MW-339S 08/07/2013 1308127-04 Aqueous	MW-339D 08/07/2013 1308127-03 Aqueous	
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON																	
	Hydrocarbon Content	mg/L	NE	NE	<0.19	<0.19	13.5	1.86	0.9	8.84	9.42	11.1	0.66	<0.19	6.6	0.61	9.78	
EPA 8270	PAHS BY GCMS																	
	2-Methylnaphthalene	mg/L	NE	NE	<0.0002	<0.0002	0.403 D	0.0004	<0.0002	0.101 D	0.189 D	0.0407 D	0.0009	<0.0002	0.0755 D	0.0323 D	0.303 D	
	Acenaphthene	mg/L	NE	NE	<0.0002	0.0008	0.0914 D	0.0061	0.0023	0.221 D	0.0771 D	0.0545 D	0.0016	<0.0002	0.0584 D	0.0004	0.0591 D	
	Acenaphthylene	mg/L	NE	NE	<0.0002	<0.0002	0.0454 D	0.0019	0.002	0.0336 D	0.0033 D	0.0006	<0.0002	<0.0002	0.0024 D	<0.0002	0.0789 D	
	Anthracene	mg/L	NE	NE	<0.0002	<0.0002	0.0024 D	0.003	0.0005	0.0377 D	0.005 D	0.0018	<0.0002	<0.0002	0.0037 D	0.0003	0.0041 D	
	Benzo [a] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.0005 D	0.0005	<0.00005	0.0145 D	<0.0005 D	0.0014	<0.00005	<0.00005	<0.0005 D	<0.00005	<0.0005 D	
	Benzo [a] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.0005 D	0.0003	<0.00005	0.0123 D	<0.0005 D	0.0012	<0.00005	<0.00005	<0.0005 D	<0.00005	<0.0005 D	
	Benzo [b] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.0005 D	0.0003	<0.00005	0.009 D	<0.0005 D	0.0009	<0.00005	<0.00005	<0.0005 D	<0.00005	<0.0005 D	
	Benzo [g,h,i] Perylene	mg/L	NE	NE	<0.0002	<0.0002	<0.0019 D	<0.0002	<0.0002	0.0043 D	<0.0019 D	0.0006	<0.0002	<0.0002	<0.0021 D	<0.0002	<0.0021 D	
	Benzo [k] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.0005 D	0.0001	<0.00005	0.0033 D	<0.0005 D	0.0009	<0.00005	<0.00005	<0.0005 D	<0.00005	<0.0005 D	
	Chrysene	mg/L	NE	NE	<0.00005	<0.00005	<0.0005 D	0.0005	<0.00005	0.0137 D	<0.0005 D	0.0013	<0.00005	<0.00005	<0.0005 D	<0.00005	<0.0005 D	
	Dibenzo [a,h] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.0005 D	0.00006	<0.00005	0.0012 D	<0.0005 D	0.0002	<0.00005	<0.00005	<0.0005 D	<0.00005	<0.0005 D	
	Fluoranthene	mg/L	NE	NE	<0.0002	<0.0002	<0.0019 D	0.0014	0.0002	0.0327 D	0.0023 D	0.0027	<0.0002	<0.0002	<0.0021 D	0.0002	<0.0021 D	
	Fluorene	mg/L	NE	NE	<0.0002	0.0002	0.0311 D	0.0108	0.0015	0.0811 D	0.0255 D	0.0058	<0.0002	<0.0002	0.0153 D	0.0009	0.0314 D	
	Indeno [1,2,3-cd] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.0005 D	0.0002	<0.00005	0.0045 D	<0.0005 D	0.0006	<0.00005	<0.00005	<0.0005 D	<0.00005	<0.0005 D	
	Naphthalene	mg/L	NE	2.67	0.0004	0.0002	4.57 D	0.0306 B D	0.0013	1.78 D	2.98 D	0.0068 B	0.0644 B D	0.0012 B	1.98 B D	0.129 B D	1.63 B D	
	Phenanthrene	mg/L	NE	NE	<0.0002	<0.0002	0.0207 D	0.0094	0.002	0.114 D	0.0246 D	0.0031	<0.0002	<0.0002	0.0169 D	0.0014	0.0271 D	
	Pyrene	mg/L	NE	NE	<0.0002	<0.0002	<0.0019 D	0.0024	0.0003	0.0439 D	0.0028 D	0.0037	<0.0002	<0.0002	<0.0021 D	0.0002	<0.0021 D	
EPA 9014	SUBCONTRACTED ANALYTES																	
	Dissolved Free Cyanide	mg/L	NE	NE	0.0239	0.0414	0.133	2.37 D	0.0237	0.3 D	0.523 D	0.337 D	0.766 D	0.0137	3.95 D	0.335 D	0.0761	
	Total Cyanide	mg/L	NE	NE	0.0316	0.0548	0.139	3.68 D	0.0302	0.307 D	0.531 D	0.339 D	0.808 D	0.014	4.05 D	0.364 D	0.0777	

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 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.  
 This table presents analytical results from 2013. The January 2011 SIDR presents analytical results collected during Site Investigation activities from 2009 and 2010 and Appendix D of this report presents the analytical data collected during 2011 and 2012.

**TABLE 4B  
GROUNDWATER INORGANIC, TPH, PAH ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, RI

	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	M and E MW-2 08/06/2013 1308084-02 Aqueous	MW-6 08/07/2013 1308127-08 Aqueous	MW-109 08/06/2013 1308084-01 Aqueous	MW-314S 08/06/2013 1308084-03 Aqueous	MW-314D 08/06/2013 1308084-04 Aqueous	MW-316D 08/07/2013 1308127-10 Aqueous	MW-337 08/07/2013 1308127-09 Aqueous	MW-107 08/07/2013 1308127-14 Aqueous	MW-318S 08/07/2013 1308127-12 Aqueous	MW-318D 08/07/2013 1308127-15 Aqueous	MW-334S 08/07/2013 1308127-13 Aqueous	MW-334D 08/07/2013 1308127-11 Aqueous	
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON															
	Hydrocarbon Content	mg/L	NE	NE	<0.19	<b>2.98</b>	<b>2.79</b>	<b>2.08</b>	<b>0.53</b>	<0.19	<b>1.36</b>	<0.19	<b>3.42</b>	<0.19	<b>0.52</b>	<b>0.33</b>
EPA 8270	PAHS BY GCMS															
	2-Methylnaphthalene	mg/L	NE	NE	<0.0002	<0.0002	<b>0.0309 D</b>	<0.0002	<0.0002	<0.0009 D	<0.0009 D	<0.0009 D	<b>0.0397 D</b>	<0.0009 D	<b>0.0019 D</b>	<b>0.0013 D</b>
	Acenaphthene	mg/L	NE	NE	<0.0002	<b>0.0067</b>	<b>0.0033</b>	<b>0.0025</b>	<b>0.0031</b>	<0.0009 D	<0.0009 D	<0.0009 D	<b>0.0046 D</b>	<0.0009 D	<0.001 D	<0.0009 D
	Acenaphthylene	mg/L	NE	NE	<0.0002	<b>0.0414 D</b>	<b>0.0004</b>	<b>0.0004</b>	<b>0.0002</b>	<0.0009 D	<0.001 D	<0.0009 D	<b>0.0129 D</b>	<0.0009 D	<0.001 D	<0.0009 D
	Anthracene	mg/L	NE	NE	<0.0002	<b>0.0005</b>	<b>0.0004</b>	<b>0.0004</b>	<0.0002	<0.0009 D	<0.0009 D	<0.0009 D	<b>0.0036 D</b>	<0.0009 D	<0.001 D	<0.0009 D
	Benzo [a] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D
	Benzo [a] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D
	Benzo [b] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D
	Benzo [g,h,i] Perylene	mg/L	NE	NE	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0009 D	<0.0009 D	<0.0009 D	<0.0009 D	<0.0009 D	<0.001 D	<0.0009 D
	Benzo [k] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D
	Chrysene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D
	Dibenzo [a,h] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D
	Fluoranthene	mg/L	NE	NE	<0.0002	<b>0.0004</b>	<0.0002	<b>0.0003</b>	<0.0002	<0.0009 D	<b>0.0012 D</b>	<0.0009 D	<b>0.001 D</b>	<0.0009 D	<0.001 D	<0.0009 D
	Fluorene	mg/L	NE	NE	<0.0002	<b>0.0063</b>	<b>0.0019</b>	<b>0.0008</b>	<0.0002	<0.0009 D	<b>0.0016 D</b>	<0.0009 D	<b>0.0111 D</b>	<0.0009 D	<0.001 D	<0.0009 D
	Indeno [1,2,3-cd] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D	<0.0002 D
	Naphthalene	mg/L	NE	2.67	<0.0002	<b>0.0018 B</b>	<b>0.0965 D</b>	<b>0.0003</b>	<b>0.0004</b>	<0.0009 D	<b>0.0014 B D</b>	<0.0009 D	<b>0.351 B D</b>	<0.0009 D	<b>0.0142 B D</b>	<b>0.0067 B D</b>
	Phenanthrene	mg/L	NE	NE	<0.0002	<b>0.0037</b>	<b>0.0019</b>	<0.0002	<0.0002	<0.0009 D	<0.0009 D	<0.0009 D	<b>0.0106 D</b>	<0.0009 D	<b>0.0027 D</b>	<b>0.0029 D</b>
	Pyrene	mg/L	NE	NE	<0.0002	<b>0.0003</b>	<b>0.0002</b>	<b>0.0004</b>	<b>0.0002</b>	<0.0009 D	<b>0.0012 D</b>	<0.0009 D	<0.0009 D	<0.0009 D	<0.001 D	<0.0009 D
EPA 9014	SUBCONTRACTED ANALYTES															
	Dissolved Free Cyanide	mg/L	NE	NE	<b>0.0395</b>	<b>0.263 D</b>	<b>0.132</b>	<b>0.0894</b>	<b>0.154</b>	<b>0.0129</b>	<b>0.267 D</b>	<b>0.0445</b>	<b>0.0119</b>	<b>0.0138</b>	<b>0.0286</b>	<b>0.0245</b>
	Total Cyanide	mg/L	NE	NE	<b>0.045</b>	<b>0.271 D</b>	<b>0.143</b>	<b>0.0902</b>	<b>0.317 D</b>	<b>0.0129</b>	<b>0.282 D</b>	<b>0.0472</b>	<b>0.0125</b>	<b>0.0163</b>	<b>0.0352</b>	<b>0.0256</b>

**Notes**

NE = Not Established  
 "B" qualifier indicates that the analyte was present in the method blank  
 "D" qualifier indicates analytes reported from a diluted run of the original analysis.  
 "J" qualifier indicates analyte value was below the Method reporting Limit; Estimated value.  
 S = Shallow Screened Well  
 D = Deep Screened Well  
 NFA = North Fill Area  
 FGPA = Former Gas Plant Area  
 FPPA = Former Power Plant Area  
 SFA = South Fill Area  
**Blue values** indicate that the concentration was detected above method reporting limits  
 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.  
 This table presents analytical results from 2013. The January 2011 SIDR presents analytical results collected during Site Investigation activities from 2009 and 2010 and Appendix D of this report presents the analytical data collected during 2011 and 2012.

**TABLE 4C  
SUMMARY OF GROUNDWATER VOC QA/QC ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, Rhode Island

		Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-314D 08/06/2013 1308084-04 Aqueous	BD-1 08/06/2013 1308084-05 Aqueous	MW-318S 08/07/2013 1308127-12 Aqueous	BD-2 08/07/2013 1308127-16 Aqueous	Trip Blank 8/6/2013 1308084-10 Aqueous	Trip Blank 08/07/2013 1308127-18 Aqueous	Trip Blank 8/8/2013 1308137-03 Aqueous
EPA 8260	VOLATILE ORGANICS										
	1,1,1,2-Tetrachloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1,1-Trichloroethane	mg/L	68	3.1	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1,2,2-Tetrachloroethane	mg/L	NE	NE	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	1,1,2-Trichloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-Dichloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-Dichloroethene	mg/L	23	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,1-Dichloropropene	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	1,2,3-Trichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,3-Trichloropropane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,4-Trichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2,4-Trimethylbenzene	mg/L	NE	NE	<0.001	<0.001	<b>0.043</b>	<b>0.0452</b>	<0.001	<0.001	<0.001
	1,2-Dibromo-3-Chloropropane	mg/L	NE	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	1,2-Dibromoethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-Dichloroethane	mg/L	670	0.11	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,2-Dichloropropane	mg/L	140	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3,5-Trimethylbenzene	mg/L	NE	NE	<0.001	<0.001	<b>0.0177</b>	<b>0.0182</b>	<0.001	<0.001	<0.001
	1,3-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,3-Dichloropropane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,4-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	1,4-Dioxane - Screen	mg/L	NE	NE	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	1-Chlorohexane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2,2-Dichloropropane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2-Butanone	mg/L	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	2-Chlorotoluene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	2-Hexanone	mg/L	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	4-Chlorotoluene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	4-Isopropyltoluene	mg/L	NE	NE	<0.001	<0.001	<b>0.0012</b>	<b>0.0012</b>	<0.001	<0.001	<0.001
	4-Methyl-2-Pentanone	mg/L	NE	NE	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
	Acetone	mg/L	NE	NE	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	Benzene	mg/L	18	0.14	<0.001	<0.001	<b>0.0733</b>	<b>0.0772</b>	<0.001	<0.001	<0.001
	Bromobenzene	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Bromochloromethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromodichloromethane	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Bromoform	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Bromomethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Carbon Disulfide	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Carbon Tetrachloride	mg/L	NE	0.07	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chlorobenzene	mg/L	56	3.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chloroethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Chloroform	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Chloromethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	cis-1,2-Dichloroethene	mg/L	69	2.4	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	cis-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Dibromochloromethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Dibromomethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Dichlorodifluoromethane	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Diethyl Ether	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Di-isopropyl ether	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Ethyl tertiary-butyl ether	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Ethylbenzene	mg/L	16	1.6	<0.001	<0.001	<b>0.0099</b>	<b>0.0097</b>	<0.001	<0.001	<0.001
	Hexachlorobutadiene	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Hexachloroethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Isopropylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Methyl tert-Butyl Ether	mg/L	NE	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Methylene Chloride	mg/L	NE	NE	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Naphthalene	mg/L	NE	2.67	<0.001	<0.001	<b>0.988 D</b>	<b>0.998 D</b>	<0.001	<0.001	<b>0.0006 J</b>
	n-Butylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	n-Propylbenzene	mg/L	NE	NE	<0.001	<0.001	<b>0.002</b>	<b>0.0018</b>	<0.001	<0.001	<0.001
	sec-Butylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Styrene	mg/L	50	2.2	<0.001	<0.001	<b>0.0051</b>	<b>0.0049</b>	<0.001	<0.001	<0.001

**TABLE 4C**  
**SUMMARY OF GROUNDWATER VOC QA/QC ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, Rhode Island

EPA 8260	VOLATILE ORGANICS	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-314D	BD-1	MW-318S	BD-2	Trip Blank	Trip Blank	Trip Blank
					08/06/2013 1308084-04 Aqueous	08/06/2013 1308084-05 Aqueous	08/07/2013 1308127-12 Aqueous	08/07/2013 1308127-16 Aqueous	8/6/2013 1308084-10 Aqueous	08/07/2013 1308127-18 Aqueous	8/8/2013 1308137-03 Aqueous
	tert-Butylbenzene	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tertiary-amyl methyl ether	mg/L	NE	NE	<b>0.0004 J</b>	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tetrachloroethene	mg/L	NE	0.15	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Tetrahydrofuran	mg/L	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Toluene	mg/L	21	1.7	<0.001	<0.001	<b>0.0659</b>	<b>0.0658</b>	<0.001	<0.001	<0.001
	trans-1,2-Dichloroethene	mg/L	79	2.8	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	trans-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Trichloroethene	mg/L	87	0.54	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Trichlorofluoromethane	mg/L	NE	NE	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Trihalomethanes (Total)	mg/L	NE	NE	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036
	Vinyl Acetate	mg/L	NE	NE	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Vinyl Chloride	mg/L	NE	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	Xylene O	mg/L	NE	NE	<0.001	<0.001	<b>0.0374</b>	<b>0.039</b>	<0.001	<0.001	<0.001
	Xylene P,M	mg/L	NE	NE	<0.002	<0.002	<b>0.083</b>	<b>0.0869</b>	<0.002	<0.002	<0.002
	Xylenes (Total)	mg/L	NE	NE	<0.002	<0.002	<b>0.12</b>	<b>0.126</b>	<0.002	<0.002	<0.002
	Total VOCs	mg/L	NE	NE	<b>0.0004</b>	<0.6451	<b>1.3265</b>	<b>1.3479</b>	<0.6451	<0.6451	<0.6451

**Notes**

NE = Not Established  
 "B" qualifier indicates that the analyte was present in the method blank  
 "D" qualifier indicates analytes reported from a diluted run of the original analysis.  
 "J" qualifier indicates analyte value was below the Method reporting Limit; Estimated value.  
 S = Shallow Screened Well  
 D = Deep Screened Well  
 NFA = North Fill Area  
 FGPA = Former Gas Plant Area  
 FPPA = Former Power Plant Area  
 SFA = South Fill Area

**Bold values** indicate that the concentration was detected above method reporting limits  
 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.

Blind Duplicate sample BD-1 was collected from MW-314D  
 Blind Duplicate sample BD-2 was collected from MW-318S

This table presents analytical results from 2013. The January 2011 SIDR presents analytical results collected during Site Investigation activities from 2009 and 2010 and Appendix D of this report presents the analytical data collected during 2011 and 2012.

**TABLE 4D  
GROUNDWATER INORGANIC, TPH, PAH QA/QC ANALYTICAL RESULTS**

Former Tidewater Facility  
Pawtucket, RI

		Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-314D 08/06/2013 1308084-04 Aqueous	BD-1 08/06/2013 1308084-05 Aqueous	MW-318S 08/07/2013 1308127-12 Aqueous	BD-2 08/07/2013 1308127-16 Aqueous
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON							
	Hydrocarbon Content	mg/L	NE	NE	0.53	0.89	3.42	3.64
EPA 8270	PAHS BY GCMS							
	2-Methylnaphthalene	mg/L	NE	NE	<0.0002	<0.0002	0.0397 D	0.0514 D
	Acenaphthene	mg/L	NE	NE	0.0031	0.0024	0.0046 D	0.0063 D
	Acenaphthylene	mg/L	NE	NE	0.0002	0.0002	0.0129 D	0.0168 D
	Anthracene	mg/L	NE	NE	<0.0002	<0.0002	0.0036 D	0.0043 D
	Benzo [a] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.0002 D	<0.0002 D
	Benzo [a] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.0002 D	<0.0002 D
	Benzo [b] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.0002 D	<0.0002 D
	Benzo [g,h,i] Perylene	mg/L	NE	NE	<0.0002	<0.0002	<0.0009 D	<0.0009 D
	Benzo [k] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.0002 D	<0.0002 D
	Chrysene	mg/L	NE	NE	<0.00005	<0.00005	<0.0002 D	<0.0002 D
	Dibenzo [a,h] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.0002 D	<0.0002 D
	Fluoranthene	mg/L	NE	NE	<0.0002	<0.0002	0.001 D	0.0012 D
	Fluorene	mg/L	NE	NE	<0.0002	<0.0002	0.0111 D	0.0147 D
	Indeno [1,2,3-cd] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.0002 D	<0.0002 D
	Naphthalene	mg/L	NE	2.67	0.0004	<0.0002	0.351 B D	0.434 B D
	Phenanthrene	mg/L	NE	NE	<0.0002	<0.0002	0.0106 D	0.0133 D
	Pyrene	mg/L	NE	NE	0.0002	<0.0002	<0.0009 D	<0.0009 D
EPA 9014	SUBCONTRACTED ANALYTES							
	Total Cyanide	mg/L	NE	NE	0.154	0.333 D	0.0119	0.0119
	Dissolved Free Cyanide	mg/L	NE	NE	0.317 D	0.337 D	0.0125	0.0122

**Notes**

NE = Not Established  
 "B" qualifier indicates that the analyte was present in the method blank  
 "D" qualifier indicates analytes reported from a diluted run of the original analysis.  
 "J" qualifier indicates analyte value was below the Method reporting Limit; Estimated value.  
 S = Shallow Screened Well  
 D = Deep Screened Well  
 NFA = North Fill Area  
 FGPA = Former Gas Plant Area  
 FPPA = Former Power Plant Area  
 SFA = South Fill Area

**Bold values** indicate that the concentration was detected above method reporting limits  
 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.

Blind Duplicate sample BD-1 was collected from MW-314D  
 Blind Duplicate sample BD-2 was collected from MW-318S

This table presents analytical results from 2013. The January 2011 SIDR presents analytical results collected during Site Investigation activities from 2009 and 2010 and Appendix D of this report presents the analytical data collected during 2011 and 2012.

**TABLE 5A  
GROUNDWATER MONITORING DATA**

1/6/2014  
GZA File No. 05.00043654.00

North Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-5										
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA July 2010		GZA December 2010		GZA July 2011	GZA July 2012	GZA August 2013
			Note (5)	Note (5)	Result	DL	Note (2)		Note (6)		Note (2)	Note (2)	Note (2)
VOCs (ppm)					Result	DL							
1,1,1,2-Tetrachloroethane	NE	NE			<	0.001							
1,1-Dichloroethene	23	0.007			<	0.001							
1,2,4-Trimethylbenzene	NE	NE			<	0.001							
1,2-Dibromo-3-Chloropropane	NE	0.002			<	0.005							
1,3,5-Trimethylbenzene	NE	NE			<	0.001							
4-Isopropyltoluene	NE	NE											
Acetone	NE	NE			<	0.025							
Benzene	18	0.14			<	0.001							
Carbon Tetrachloride	NE	0.07			<	0.001							
Chloroform	NE	NE			<	0.001							
cis-1,2-Dichloroethene	69	2.4			<	0.001							
Ethylbenzene	16	1.6			<	0.001							
Isopropylbenzene	NE	NE			<	0.001							
Methyl tert-Butyl Ether	NE	5			<	0.001							
Naphthalene	NE	2.67			<	0.002							
n-Butylbenzene	NE	NE			<	0.001							
n-Propylbenzene	NE	NE			<	0.001							
sec-Butylbenzene	NE	NE			<	0.001							
Styrene	50	2.2			<	0.001							
Tertiary-amyl methyl ether	NE	NE											
Tetrachloroethene	NE	0.15			<	0.001							
Toluene	21	1.7			<	0.001							
Trichloroethene	87	0.54			<	0.001							
Vinyl Chloride	NE	0.002			<	0.001							
Xylene O	NE	NE			<	0.001							
Xylene P,M	NE	NE			<	0.002							
Xylenes (Total)	NE	NE			<	0.003							
Total VOCs	NE	NE			<	0.188							
<b>TOTAL PETROLEUM HYDROCARBON (ppm)</b>													
Hydrocarbon Content	NE	NE			<	0.2							
<b>PAHS BY GCMS (ppm)</b>													
2-Methylnaphthalene	NE	NE			<	0.002							
Acenaphthene	NE	NE			<	0.002							
Acenaphthylene	NE	NE			<	0.002							
Anthracene	NE	NE			<	0.002							
Benzo [a] Anthracene	NE	NE			<	0.002							
Benzo [a] Pyrene	NE	NE			<	0.002							
Benzo [b] Fluoranthene	NE	NE			<	0.002							
Benzo [g,h,i] Perylene	NE	NE			<	0.002							
Benzo [k] Fluoranthene	NE	NE			<	0.002							
Chrysene	NE	NE			<	0.002							
Dibenzo [a,h] Anthracene	NE	NE			<	0.002							
Fluoranthene	NE	NE			<	0.002							
Fluorene	NE	NE			<	0.002							
Indeno [1,2,3-cd] Pyrene	NE	NE			<	0.002							
Naphthalene	NE	2.67			<	0.002							
Phenanthrene	NE	NE			<	0.002							
Pyrene	NE	NE			<	0.002							
<b>INORGANICS (ppm)</b>													
Total Cyanide	NE	NE			<b>0.020</b>	0.010							
Dissolved Free Cyanide	NE	NE			<	0.010							
Physiologically Available Cyanide	NE	NE											
Arsenic	NE	NE											
Beryllium	NE	NE											
Chromium	NE	NE											
Copper	NE	NE											
Lead	NE	NE											
Nickel	NE	NE											
Zinc	NE	NE											
Dissolved Arsenic	NE	NE											
Dissolved Beryllium	NE	NE											
Dissolved Chromium	NE	NE											
Dissolved Copper	NE	NE											
Dissolved Lead	NE	NE											
Dissolved Nickel	NE	NE											
Dissolved Zinc	NE	NE											

Notes:

Blank cells indicate that the parameter was not analyzed during this sampling round
D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
J "J" qualifier indicates analyte concentration is estimated
B "B" qualifier indicates that the analyte was present in the method blank
NE Regulatory Limit is not established
<b>Bold Value</b> = concentration detected above the Method Reporting Limit.
= concentration equals or exceeds the RIDEM GB Groundwater Objective
=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2) Well was not sampled because there was limited water
(3) NAPL was noted to be present
(4) Well was not sampled because it had not been installed yet.
(5) Well was not sampled because of an unknown reason
(6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



TABLE 5B  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

North Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-7												
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA July 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013
			Result	Result	Result	DL	Result	DL	Note (6)		Result	DL	Result	Result	
VOCs (ppm)															
1,1,1,2-Tetrachloroethane	NE	NE			<	0.001	<	0.001			<	0.001	<0.001	<0.001	
1,1-Dichloroethene	23	0.007			<	0.001	<	0.001			<	0.001	<0.001	<0.001	
1,2,4-Trimethylbenzene	NE	NE	<0.02	<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
1,2-Dibromo-3-Chloropropane	NE	0.002			<	0.005	<	0.002			<	0.002	<0.005	<0.005	
1,3,5-Trimethylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
4-Isopropyltoluene	NE	NE											<0.001	<0.001	
Acetone	NE	NE			<	0.025	<	0.010			<	0.010	<0.01	<0.01	
Benzene	18	0.14	<0.02	<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Carbon Tetrachloride	NE	0.07			<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Chloroform	NE	NE		<b>0.0048</b>	<	0.001	<	0.001			<	0.001	<0.001	<b>0.0018</b>	
cis-1,2-Dichloroethene	69	2.4			<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Ethylbenzene	16	1.6	<0.02	<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Isopropylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Naphthalene	NE	2.67		<0.001	<	0.002	<b>0.0035</b>	0.002			<	0.002	<0.001	<0.001	
n-Butylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
n-Propylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
sec-Butylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Styrene	50	2.2	<0.02		<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001	
Tetrachloroethene	NE	0.15			<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Toluene	21	1.7	<0.02		<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Trichloroethene	87	0.54			<	0.001	<	0.001			<	0.001	<0.001	<b>0.0003 J</b>	
Vinyl Chloride	NE	0.002			<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Xylene O	NE	NE	<0.02	<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	
Xylene P,M	NE	NE	<0.02	<0.002	<	0.002	<	0.002			<	0.002	<0.002	<0.002	
Xylenes (Total)	NE	NE	<0.04	<0.003	<	0.003	<	0.003			<	0.003	<0.003	<0.002	
Total VOCs	NE	NE	<0.14	<b>0.0048</b>	<	0.188	<b>0.0035</b>				<	0.122	<0.6415	<b>0.0021</b>	
TOTAL PETROLEUM HYDROCARBON (ppm)															
Hydrocarbon Content	NE	NE			<	0.2	<	0.2			<	0.2	<0.2	<0.19	
PAHS BY GCMS (ppm)															
2-Methylnaphthalene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Acenaphthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Acenaphthylene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Benzo [a] Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	
Benzo [a] Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	
Benzo [b] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	
Benzo [g,h,i] Perylene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Benzo [k] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	
Chrysene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	
Dibenzo [a,h] Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	
Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Fluorene	NE	NE	<0.02	<0.0003	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Indeno [1,2,3-cd] Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	
Naphthalene	NE	2.67	<0.02	<0.0003	<	0.002	<	0.002			<	0.002	<b>0.001</b>	<b>0.0004</b>	
Phenanthrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	
INORGANICS (ppm)															
Total Cyanide	NE	NE	<0.02	<0.05	<	0.010	<	0.010			<b>0.02</b>	0.010	<b>0.0205</b>	<b>0.0316</b>	
Dissolved Free Cyanide	NE	NE		<0.05	<	0.010	<	0.010			<	0.010	<0.005	<b>0.0239</b>	
Physiologically Available Cyanide	NE	NE		<0.05											
Arsenic	NE	NE	<0.002	<0.0025											
Beryllium	NE	NE	<0.002	<0.0005											
Chromium	NE	NE	<0.024	<0.010											
Copper	NE	NE	<0.024	<0.010											
Lead	NE	NE	<0.05	<0.0025											
Nickel	NE	NE	<0.024	<0.025											
Zinc	NE	NE	<b>0.023</b>	<0.025											
Dissolved Arsenic	NE	NE		<0.0025											
Dissolved Beryllium	NE	NE		<0.0005											
Dissolved Chromium	NE	NE		<0.010											
Dissolved Copper	NE	NE		<0.010											
Dissolved Lead	NE	NE		<0.0025											
Dissolved Nickel	NE	NE		<0.025											
Dissolved Zinc	NE	NE		<0.025											

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5C  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

North Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-310S													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA June 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Note (4)	Note (4)	Note (4)		Result	DL	Note (6)		Result	DL	Result	Result		
VOCs (ppm)																
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001			<	0.001	<0.001	<0.001		
1,1-Dichloroethene	23	0.007					<	0.001			<	0.001	<0.001	<0.001		
1,2,4-Trimethylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001		
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002			<	0.002	<0.005	<0.005		
1,3,5-Trimethylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001		
4-Isopropyltoluene	NE	NE											<0.001	<0.001		
Acetone	NE	NE					<	0.01			<	0.01	<0.01	<0.01		
Benzene	18	0.14					<	0.001			<	0.001	<b>0.0029</b>	<b>0.0035</b>		
Carbon Tetrachloride	NE	0.07					<	0.001			<	0.001	<0.001	<0.001		
Chloroform	NE	NE					<	0.001			<	0.001	<0.001	<0.001		
cis-1,2-Dichloroethene	69	2.4					<	0.001			<	0.001	<0.001	<0.001		
Ethylbenzene	16	1.6					<	0.001			<	0.001	<b>0.0012</b>	<b>0.0004 J</b>		
Isopropylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<b>0.0004 J</b>		
Methyl tert-Butyl Ether	NE	5					<	0.001			<	0.001	<0.001	<0.001		
Naphthalene	NE	2.67					<	0.002			<	0.002	<0.001	<0.001		
n-Butylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001		
n-Propylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001		
sec-Butylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001		
Styrene	50	2.2					<	0.001			<	0.001	<0.001	<0.001		
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001		
Tetrachloroethene	NE	0.15					<	0.001			<	0.001	<0.001	<0.001		
Toluene	21	1.7					<	0.001			<	0.001	<0.001	<0.001		
Trichloroethene	87	0.54					<	0.001			<	0.001	<0.001	<0.001		
Vinyl Chloride	NE	0.002					<	0.001			<	0.001	<0.001	<0.001		
Xylene O	NE	NE					<	0.001			<	0.001	<0.001	<b>0.0006 J</b>		
Xylene P,M	NE	NE					<	0.002			<	0.002	<0.002	<0.002		
Xylenes (Total)	NE	NE					<	0.003			<	0.003	<0.003	<0.002		
Total VOCs	NE	NE					<	0.122			<	0.122	<b>0.0041</b>	<b>0.0049</b>		
TOTAL PETROLEUM HYDROCARBON (ppm)																
Hydrocarbon Content	NE	NE					<b>0.41</b>	0.2			<	0.2	<0.2	<0.19		
PAHS BY GCMS (ppm)																
2-Methylnaphthalene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002		
Acenaphthene	NE	NE					<	0.002			<	0.002	<b>0.0004</b>	<b>0.0008</b>		
Acenaphthylene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002		
Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002		
Benzo [a] Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.00005		
Benzo [a] Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.00005		
Benzo [b] Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.00005		
Benzo [g,h,i] Perylene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002		
Benzo [k] Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.00005		
Chrysene	NE	NE					<	0.002			<	0.002	<0.0002	<0.00005		
Dibenzo [a,h] Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.00005		
Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002		
Fluorene	NE	NE					<	0.002			<	0.002	<0.0002	<b>0.0002</b>		
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.00005		
Naphthalene	NE	2.67					<	0.002			<	0.002	<b>0.0004</b>	<b>0.0002</b>		
Phenanthrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002		
Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002		
INORGANICS (ppm)																
Total Cyanide	NE	NE					<b>0.090</b>	0.010			<b>0.06</b>	0.010	<b>0.0531</b>	<b>0.0548</b>		
Dissolved Free Cyanide	NE	NE					<	0.010			<	0.010	<0.005	<b>0.0414</b>		
Physiologically Available Cyanide	NE	NE														
Arsenic	NE	NE														
Beryllium	NE	NE														
Chromium	NE	NE														
Copper	NE	NE														
Lead	NE	NE														
Nickel	NE	NE														
Zinc	NE	NE														
Dissolved Arsenic	NE	NE														
Dissolved Beryllium	NE	NE														
Dissolved Chromium	NE	NE														
Dissolved Copper	NE	NE														
Dissolved Lead	NE	NE														
Dissolved Nickel	NE	NE														
Dissolved Zinc	NE	NE														

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5D  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

North Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID:		MW-310D									
	Collected By:		AES	VHB	GZA		GZA		GZA		GZA	
	RIDEM GB	RIDEM GB GW	1996	2006	January 2010	June 2010	December 2010	July 2011	July 2012	August 2013		
	GW UCL	Objectives	Note (4)	Note (4)	Note (4)			Note (6)				
VOCs (ppm)						Result	DL		Result	DL	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE				<	0.025		<	0.05	<0.001	<b>0.13 D</b>
1,1-Dichloroethene	23	0.007				<	0.025		<	0.05	<0.001	<0.1 D
1,2,4-Trimethylbenzene	NE	NE				<b>0.32</b>	0.025		<b>0.64</b>	0.05	<b>0.712</b>	<b>0.473 D</b>
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.050		<	0.10	<0.005	<0.5 D
1,3,5-Trimethylbenzene	NE	NE				<b>0.84</b>	0.025		<b>0.17</b>	0.05	<b>0.18</b>	<b>0.102 D</b>
4-Isopropyltoluene	NE	NE									<b>0.017</b>	<0.1 D
Acetone	NE	NE				<	0.250		<	0.50	<0.01	<1 D
Benzene	18	0.14				<b>0.29</b>	0.025		<b>0.65</b>	0.05	<b>0.618</b>	<b>0.678 D</b>
Carbon Tetrachloride	NE	0.07				<	0.025		<	0.05	<0.001	<0.1 D
Chloroform	NE	NE				<	0.025		<	0.05	<0.001	<0.1 D
cis-1,2-Dichloroethene	69	2.4				<	0.025		<	0.05	<0.001	<0.1 D
Ethylbenzene	16	1.6				<b>0.4</b>	0.025		<b>0.92</b>	0.05	<b>1.07</b>	<b>0.72 D</b>
Isopropylbenzene	NE	NE				<b>0.05</b>	0.025		<b>0.092</b>	0.05	<b>0.101</b>	<b>0.063 J D</b>
Methyl tert-Butyl Ether	NE	5				<	0.025		<	0.05	<0.001	<0.1 D
Naphthalene	NE	2.67				<b>3.9</b>	0.050		<b>6.8</b>	0.10	<b>9.8</b>	<b>6.6 D</b>
n-Butylbenzene	NE	NE				<	0.025		<	0.05	<0.001	<0.1 D
n-Propylbenzene	NE	NE				<	0.025		<	0.05	<b>0.0524</b>	<0.1 D
sec-Butylbenzene	NE	NE				<	0.025		<	0.05	<b>0.005</b>	<0.1 D
Styrene	50	2.2				<	0.025		<	0.05	<0.001	<0.1 D
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.1 D
Tetrachloroethene	NE	0.15				<	0.025		<	0.05	<0.001	<0.1 D
Toluene	21	1.7				<b>0.061</b>	0.025		<b>0.19</b>	0.05	<b>0.198</b>	<b>0.174 D</b>
Trichloroethene	87	0.54				<	0.025		<	0.05	<0.001	<0.1 D
Vinyl Chloride	NE	0.002				<	0.025		<	0.05	<0.001	<0.1 D
Xylene O	NE	NE				<b>0.33</b>	0.025		<b>0.66</b>	0.05	<b>0.735</b>	<b>0.489 D</b>
Xylene P,M	NE	NE				<b>0.29</b>	0.050		<b>0.67</b>	0.10	<b>0.775</b>	<b>0.478 D</b>
Xylenes (Total)	NE	NE				<b>0.62</b>	0.075		<b>1.33</b>	0.15	<b>1.51</b>	<b>0.967 D</b>
Total VOCs	NE	NE				<b>6.48</b>			<b>10.79</b>		<b>14.26</b>	<b>9.907</b>
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE				<b>6.8</b>	1		<b>8.7</b>	0.2	<b>11.6</b>	<b>13.5</b>
PAHS BY GCMS (ppm)												
2-Methylnaphthalene	NE	NE				<b>0.17 D</b>	0.05		<b>0.2</b>	0.01	<b>0.394</b>	<b>0.403 D</b>
Acenaphthene	NE	NE				<b>0.088</b>	0.002		<b>0.054</b>	0.002	<b>0.158</b>	<b>0.0914 D</b>
Acenaphthylene	NE	NE				<b>0.027</b>	0.002		<b>0.023</b>	0.002	<b>0.064</b>	<b>0.0454 D</b>
Anthracene	NE	NE				<b>0.010</b>	0.002		<	0.002	<0.02	<b>0.0024 D</b>
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.02	<0.0019 D
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D
Chrysene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D
Fluoranthene	NE	NE				<	0.002		<	0.002	<0.02	<0.0019 D
Fluorene	NE	NE				<b>0.022</b>	0.002		<b>0.018</b>	0.002	<b>0.047</b>	<b>0.0311 D</b>
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D
Naphthalene	NE	2.67				<b>2.2 D</b>	0.05		<b>2.5</b>	0.04	<b>5.76</b>	<b>4.57 D</b>
Phenanthrene	NE	NE				<b>0.010</b>	0.002		<b>0.012</b>	0.002	<b>0.029</b>	<b>0.0207 D</b>
Pyrene	NE	NE				<	0.002		<	0.002	<0.02	<0.0019 D
INORGANICS (ppm)												
Total Cyanide	NE	NE				<b>0.18</b>	0.010		<b>0.12</b>	0.010	<b>0.132</b>	<b>0.139</b>
Dissolved Free Cyanide	NE	NE				<b>0.070</b>	0.010		<b>0.15</b>	0.010	<b>0.0293</b>	<b>0.133</b>
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5E  
GROUNDWATER MONITORING DATA

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-201													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA June 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Note (4)	Result	Result	DL	Result	DL	Note (6)	Result	DL	Result	DL	Result	DL	
VOCs (ppm)				Result	Result	DL	Result	DL	Note (6)	Result	DL	Result	DL	Result	DL	
1,1,1,2-Tetrachloroethane	NE	NE		<	0.001	<	0.001			<	0.001	<0.001	<	<0.001	<	
1,1-Dichloroethene	23	0.007		<	0.001	<	0.001			<	0.001	<0.001	<	<0.001	<	
1,2,4-Trimethylbenzene	NE	NE		<b>0.0907</b>	<b>0.017</b>	0.001	<b>0.0094</b>	0.001		<b>0.0047</b>	0.001	<b>0.0019</b>	<b>0.0019</b>	<b>0.0248</b>		
1,2-Dibromo-3-Chloropropane	NE	0.002		<	0.005	<	0.005			<	0.005	<0.005	<	<0.005		
1,3,5-Trimethylbenzene	NE	NE		<b>0.0024</b>	<	0.001	<	0.001		<	0.001	<0.001	<	<b>0.0024</b>		
4-Isopropyltoluene	NE	NE										<0.001	<	<0.001		
Acetone	NE	NE		<	0.025	<	0.025			<	0.025	<0.01	<	<0.01		
Benzene	18	0.14		<b>0.0047</b>	<b>0.032</b>	0.001	<b>0.050</b>	0.001		<b>0.050</b>	0.001	<b>0.0397</b>	<b>0.0397</b>	<b>0.0948 D</b>		
Carbon Tetrachloride	NE	0.07		<	0.001	<	0.001			<	0.001	<0.001	<	<0.001		
Chloroform	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<0.001	<	<0.001		
cis-1,2-Dichloroethene	69	2.4		<	0.001	<	0.001			<	0.001	<0.001	<	<0.001		
Ethylbenzene	16	1.6		<b>0.0228</b>	<b>0.055</b>	0.001	<b>0.064</b>	0.001		<b>0.035</b>	0.001	<b>0.0163</b>	<b>0.0163</b>	<b>0.0658</b>		
Isopropylbenzene	NE	NE		<b>0.0164</b>	<b>0.025</b>	0.001	<b>0.020</b>	0.001		<b>0.017</b>	0.001	<b>0.0129</b>	<b>0.0129</b>	<b>0.0274</b>		
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.001	<	0.001		<	0.001	<0.001	<	<0.001		
Naphthalene	NE	2.67		<b>0.0028</b>	<b>0.019</b>	0.002	<b>0.020</b>	0.002		<b>0.010</b>	0.002	<b>0.0032</b>	<b>0.0032</b>	<b>0.0781</b>		
n-Butylbenzene	NE	NE		<0.001	<b>0.0067</b>	0.001	<b>0.0062</b>	0.001		<b>0.0056</b>	0.001	<b>0.0056</b>	<b>0.0056</b>	<b>0.0068</b>		
n-Propylbenzene	NE	NE		<b>0.0149</b>	<b>0.018</b>	0.001	<b>0.018</b>	0.001		<b>0.015</b>	0.001	<b>0.0124</b>	<b>0.0124</b>	<b>0.0227</b>		
sec-Butylbenzene	NE	NE		<b>0.0031</b>	<b>0.0024</b>	0.001	<b>0.0024</b>	0.001		<b>0.0021</b>	0.001	<b>0.0018</b>	<b>0.0018</b>	<b>0.0026</b>		
Styrene	50	2.2		<	0.001	<	0.001			<	0.001	<0.001	<	<b>0.0043</b>		
Tertiary-amyl methyl ether	NE	NE										<0.001	<	<0.001		
Tetrachloroethene	NE	0.15		<	0.001	<	0.001			<	0.001	<0.001	<	<0.001		
Toluene	21	1.7		<b>0.0018</b>	<	0.001	<b>0.0024</b>	0.001		<	0.001	<0.001	<	<0.001		
Trichloroethene	87	0.54		<	0.001	<	0.001			<	0.001	<0.001	<	<0.001		
Vinyl Chloride	NE	0.002		<	0.001	<	0.001			<	0.001	<0.001	<	<0.001		
Xylene O	NE	NE		<b>0.0113</b>	<b>0.021</b>	0.001	<b>0.0062</b>	0.001		<b>0.0053</b>	0.001	<b>0.0021</b>	<b>0.0021</b>	<b>0.0252</b>		
Xylene P,M	NE	NE		<b>0.0024</b>	<	0.002	<	0.002		<	0.002	<0.002	<	<b>0.0051</b>		
Xylenes (Total)	NE	NE		<b>0.0137</b>	<b>0.021</b>	0.003	<b>0.0062</b>	0.003		<b>0.0053</b>	0.003	<b>0.0021</b>	<b>0.0021</b>	<b>0.0303</b>		
Total VOCs	NE	NE		<b>0.1733</b>	<b>0.1961</b>	0.188	<b>0.1986</b>	0.188		<b>0.1447</b>	0.188	<b>0.0959</b>	<b>0.0959</b>	<b>0.3987</b>		
TOTAL PETROLEUM HYDROCARBON (ppm)																
Hydrocarbon Content	NE	NE			<b>0.66</b>	0.2	<	0.2		<b>0.6</b>	0.2	<b>1.77</b>	<b>1.77</b>	<b>1.86</b>		
PAHS BY GCMS (ppm)																
2-Methylnaphthalene	NE	NE		<b>0.00076</b>	<	0.002	<b>0.0068</b>	0.002		<	0.002	<0.0002	<	<b>0.0004</b>		
Acenaphthene	NE	NE		<b>0.0088</b>	<b>0.0052</b>	0.002	<	0.002		<b>0.0053 D</b>	0.002	<b>0.006</b>	<b>0.006</b>	<b>0.0061</b>		
Acenaphthylene	NE	NE		<b>0.00209</b>	<	0.002	<	0.002		<	0.002	<b>0.002</b>	<b>0.002</b>	<b>0.0019</b>		
Anthracene	NE	NE		<b>0.0035</b>	<	0.002	<	0.002		<	0.002	<b>0.004</b>	<b>0.004</b>	<b>0.003</b>		
Benzo [a] Anthracene	NE	NE		<b>0.00102</b>	<	0.002	<	0.002		<	0.002	<b>0.0004</b>	<b>0.0004</b>	<b>0.0005</b>		
Benzo [a] Pyrene	NE	NE		<b>0.00085</b>	<	0.002	<	0.002		<	0.002	<b>0.0003</b>	<b>0.0003</b>	<b>0.0003</b>		
Benzo [b] Fluoranthene	NE	NE		<b>0.00051</b>	<	0.002	<	0.002		<	0.002	<b>0.0003</b>	<b>0.0003</b>	<b>0.0003</b>		
Benzo [g,h,i] Perylene	NE	NE		<b>0.00035</b>	<	0.002	<	0.002		<	0.002	<0.0002	<	<0.0002		
Benzo [k] Fluoranthene	NE	NE		<b>0.00063</b>	<	0.002	<	0.002		<	0.002	<0.0002	<	<b>0.0001</b>		
Chrysene	NE	NE		<b>0.00112</b>	<	0.002	<	0.002		<	0.002	<b>0.0004</b>	<b>0.0004</b>	<b>0.0005</b>		
Dibenzo [a,h] Anthracene	NE	NE		<b>0.00023</b>	<	0.002	<	0.002		<	0.002	<0.0002	<	<b>0.00006</b>		
Fluoranthene	NE	NE		<b>0.00503</b>	<	0.002	<	0.002		<	0.002	<b>0.002</b>	<b>0.002</b>	<b>0.0014</b>		
Fluorene	NE	NE		<b>0.014</b>	<b>0.011</b>	0.002	<	0.002		<b>0.011 D</b>	0.002	<b>0.012</b>	<b>0.012</b>	<b>0.0108</b>		
Indeno [1,2,3-cd] Pyrene	NE	NE		<b>0.00039</b>	<	0.002	<	0.002		<	0.002	<0.0002	<	<b>0.0002</b>		
Naphthalene	NE	2.67		<b>0.012</b>	<b>0.0069</b>	0.002	<	0.002		<b>0.0042 D</b>	0.002	<b>0.002</b>	<b>0.002</b>	<b>0.0306 B D</b>		
Phenanthrene	NE	NE		<b>0.012</b>	<b>0.085</b>	0.002	<	0.002		<b>0.086 D</b>	0.002	<b>0.012</b>	<b>0.012</b>	<b>0.0094</b>		
Pyrene	NE	NE		<b>0.00356</b>	<	0.002	<	0.002		<	0.002	<b>0.003</b>	<b>0.003</b>	<b>0.0024</b>		
INORGANICS (ppm)																
Total Cyanide	NE	NE		<b>2.52</b>	<b>4.1</b>	0.010	<b>3.5</b>	0.010		<b>4.0</b>	0.010	<b>0.0075</b>	<b>0.0075</b>	<b>3.68 D</b>		
Dissolved Free Cyanide	NE	NE		<0.05	<b>0.020</b>	0.010	<b>0.15</b>	0.010		<b>0.13</b>	0.010	<b>0.0067</b>	<b>0.0067</b>	<b>2.37 D</b>		
Physiologically Available Cyanide	NE	NE		<b>0.215</b>												
Arsenic	NE	NE		<0.0050												
Beryllium	NE	NE		<0.001												
Chromium	NE	NE		<0.020												
Copper	NE	NE		<0.020												
Lead	NE	NE		<b>0.0181</b>												
Nickel	NE	NE		<0.050												
Zinc	NE	NE		<0.050												
Dissolved Arsenic	NE	NE		<0.0050												
Dissolved Beryllium	NE	NE		<0.001												
Dissolved Chromium	NE	NE		<0.020												
Dissolved Copper	NE	NE		<0.020												
Dissolved Lead	NE	NE		<0.0050												
Dissolved Nickel	NE	NE		<0.050												
Dissolved Zinc	NE	NE		<0.050												

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5F  
GROUNDWATER MONITORING DATA

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-208													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA June 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Note (4)	Result	DL	Result	DL	Note (6)	Result	DL	Result	DL	Result	DL	Result	DL
VOCs (ppm)				Result	DL	Result	DL				Result	DL	Result	DL	Result	DL
1,1,1,2-Tetrachloroethane	NE	NE		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
1,1-Dichloroethene	23	0.007		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<	0.001	<0.001
1,2-Dibromo-3-Chloropropane	NE	0.002		<	0.002	<	0.002				<	0.002	<0.005	<	0.002	<0.005
1,3,5-Trimethylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<	0.001	<0.001
4-Isopropyltoluene	NE	NE											<0.001			<b>0.0009 J</b>
Acetone	NE	NE		<	0.025	<	0.01				<	0.01	<0.01	<	0.01	<0.01
Benzene	18	0.14		<b>0.0016</b>	<b>0.004</b>	0.001	<	0.001			<	0.001	<b>0.0017</b>	<	0.001	<b>0.0006 J</b>
Carbon Tetrachloride	NE	0.07		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
Chloroform	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<	0.001	<0.001
cis-1,2-Dichloroethene	69	2.4		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
Ethylbenzene	16	1.6		<b>0.0012</b>	<b>0.0033</b>	0.001	<	0.001			<b>0.0037</b>	0.001	<b>0.005</b>		0.001	<b>0.0096</b>
Isopropylbenzene	NE	NE		<b>0.0126</b>	<b>0.011</b>	0.001	<	0.001			<b>0.0037</b>	0.001	<b>0.0037</b>		0.001	<b>0.0027</b>
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<	0.001	<0.001
Naphthalene	NE	2.67		<b>0.0014</b>	<b>0.0023</b>	0.002	<	0.002			<b>0.0021</b>	0.002	<b>0.0028</b>		0.002	<0.001
n-Butylbenzene	NE	NE		<0.001	<b>0.015</b>	0.001	<b>0.0012</b>	0.001			<b>0.0076</b>	0.001	<b>0.0154</b>		0.001	<b>0.0132</b>
n-Propylbenzene	NE	NE		<b>0.0075</b>	<b>0.0090</b>	0.001	<	0.001			<b>0.0021</b>	0.001	<b>0.0019</b>		0.001	<b>0.0012</b>
sec-Butylbenzene	NE	NE		<b>0.0092</b>	<b>0.0074</b>	0.001	<	0.001			<b>0.0068</b>	0.001	<b>0.0077</b>		0.001	<b>0.0066</b>
Styrene	50	2.2		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
Tertiary-amyl methyl ether	NE	NE											<0.001			<0.001
Tetrachloroethene	NE	0.15		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
Toluene	21	1.7		<0.001	<b>0.0017</b>	0.001	<	0.001			<	0.001	<0.001	<	0.001	<b>0.0004 J</b>
Trichloroethene	87	0.54		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
Vinyl Chloride	NE	0.002		<	0.001	<	0.001				<	0.001	<0.001	<	0.001	<0.001
Xylene O	NE	NE		<b>0.0036</b>	<b>0.0025</b>	0.001	<	0.001			<b>0.002</b>	0.001	<b>0.0039</b>		0.001	<b>0.0044</b>
Xylene P,M	NE	NE		<0.002	<	0.002	<	0.002			<	0.002	<0.002	<	0.002	<b>0.0009 J</b>
Xylenes (Total)	NE	NE		<b>0.0036</b>	<b>0.0025</b>	0.003	<	0.003			<b>0.002</b>	0.003	<b>0.0039</b>		0.003	<b>0.0053</b>
Total VOCs	NE	NE		<b>0.0371</b>	<b>0.056</b>	0.185	<b>0.0012</b>	0.122			<b>0.028</b>	0.122	<b>0.0421</b>		0.122	<b>0.0405</b>
TOTAL PETROLEUM HYDROCARBON (ppm)																
Hydrocarbon Content	NE	NE			<b>0.57</b>	0.2	<b>0.8</b>	0.2			<b>0.31</b>	0.2	<b>1</b>		<b>0.9</b>	
PAHS BY GCMS (ppm)																
2-Methylnaphthalene	NE	NE		<0.0002	<	0.002	<b>0.033</b>	0.002			<	0.002	<0.0002	<	0.002	<0.0002
Acenaphthene	NE	NE		<b>0.00156</b>	<	0.002	<b>0.0067</b>	0.002			<	0.002	<b>0.003</b>		0.002	<b>0.0023</b>
Acenaphthylene	NE	NE		<b>0.0013</b>	<	0.002	<	0.002			<	0.002	<b>0.002</b>		0.002	<b>0.002</b>
Anthracene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<b>0.0005</b>		0.002	<b>0.0005</b>
Benzo [a] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.00005
Benzo [a] Pyrene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.00005
Benzo [b] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.00005
Benzo [g,h,i] Perylene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.0002
Benzo [k] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.00005
Chrysene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.00005
Dibenzo [a,h] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.00005
Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<b>0.0003</b>		0.002	<b>0.0002</b>
Fluorene	NE	NE		<b>0.00139</b>	<	0.002	<b>0.011</b>	0.002			<	0.002	<b>0.002</b>		0.002	<b>0.0015</b>
Indeno [1,2,3-cd] Pyrene	NE	NE		<0.0003	<	0.002	<	0.002			<	0.002	<0.0002	<	0.002	<0.00005
Naphthalene	NE	2.67		<b>0.00094</b>	<	0.002	<b>0.0076</b>	0.002			<	0.002	<b>0.002</b>		0.002	<b>0.0013</b>
Phenanthrene	NE	NE		<b>0.00074</b>	<	0.002	<b>0.01</b>	0.002			<	0.002	<b>0.002</b>		0.002	<b>0.002</b>
Pyrene	NE	NE		<b>0.00027</b>	<	0.002	<	0.002			<	0.002	<b>0.0005</b>		0.002	<b>0.0003</b>
INORGANICS (ppm)																
Total Cyanide	NE	NE		<b>0.17</b>	<b>0.010</b>	0.010	<b>0.050</b>	0.010			<b>0.030</b>	0.010	<b>0.0299</b>		0.010	<b>0.0302</b>
Dissolved Free Cyanide	NE	NE		<0.06	<	0.010	<	0.010			<	0.010	<0.005	<	0.010	<b>0.0237</b>
Physiologically Available Cyanide	NE	NE		<b>0.073</b>												
Arsenic	NE	NE		<b>0.0155</b>												
Beryllium	NE	NE		<0.001												
Chromium	NE	NE		<0.020												
Copper	NE	NE		<0.020												
Lead	NE	NE		<0.0050												
Nickel	NE	NE		<0.050												
Zinc	NE	NE		<0.050												
Dissolved Arsenic	NE	NE		<0.0050												
Dissolved Beryllium	NE	NE		<0.001												
Dissolved Chromium	NE	NE		<0.020												
Dissolved Copper	NE	NE		<0.020												
Dissolved Lead	NE	NE		<0.0050												
Dissolved Nickel	NE	NE		<0.050												
Dissolved Zinc	NE	NE		<0.050												

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



**TABLE 5G  
GROUNDWATER MONITORING DATA**

1/6/2014  
GZA File No. 05.00043654.00

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-312S													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA July 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Note (4)	Note (4)	Note (4)		Note (3)		Note (6)		Note (3)		Note (3)		Note (3)	
VOCs (ppm)							Result	DL			Result	DL	Result	DL	Result	DL
1,1,1,2-Tetrachloroethane	NE	NE					<	0.025			<	0.05	<	0.05	<	0.1 D
1,1-Dichloroethene	23	0.007					<	0.025			<	0.05	<	0.05	<	0.1 D
1,2,4-Trimethylbenzene	NE	NE					<b>0.18</b>	0.025			<b>0.26</b>	0.05	<b>0.186</b>	0.10	<b>0.104 D</b>	
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.050			<	0.10	<	0.10	<	0.5 D
1,3,5-Trimethylbenzene	NE	NE					<b>0.05</b>	0.025			<b>0.063</b>	0.05	<	0.05	<b>0.024 J D</b>	
4-Isopropyltoluene	NE	NE											<	0.05	<	0.1 D
Acetone	NE	NE					<	0.250			<	0.50	<	0.50	<	1 D
Benzene	18	0.14					<b>0.052</b>	0.025			<b>0.13</b>	0.05	<b>0.0685</b>	0.10	<	0.1 D
Carbon Tetrachloride	NE	0.07					<	0.025			<	0.05	<	0.05	<	0.1 D
Chloroform	NE	NE					<	0.025			<	0.05	<	0.05	<	0.1 D
cis-1,2-Dichloroethene	69	2.4					<	0.025			<	0.05	<	0.05	<	0.1 D
Ethylbenzene	16	1.6					<b>0.84</b>	0.025			<b>1.1</b>	0.05	<b>0.856</b>	0.10	<b>0.546 D</b>	
Isopropylbenzene	NE	NE					<b>0.04</b>	0.025			<b>0.053</b>	0.05	<	0.05	<b>0.022 J D</b>	
Methyl tert-Butyl Ether	NE	5					<	0.025			<	0.05	<	0.05	<	0.1 D
Naphthalene	NE	2.67					<b>2.8</b>	0.050			<b>4.3</b>	0.10	<b>2.85</b>	0.10	<b>2.03 D</b>	
n-Butylbenzene	NE	NE					<	0.025			<	0.05	<	0.05	<	0.1 D
n-Propylbenzene	NE	NE					<	0.025			<	0.05	<	0.05	<	0.1 D
sec-Butylbenzene	NE	NE					<	0.025			<	0.05	<	0.05	<	0.1 D
Styrene	50	2.2					<	0.025			<	0.05	<	0.05	<	0.1 D
Tertiary-amyl methyl ether	NE	NE											<	0.1	<	0.1 D
Tetrachloroethene	NE	0.15					<	0.025			<	0.05	<	0.05	<	0.1 D
Toluene	21	1.7					<	0.025			<	0.05	<	0.05	<	0.1 D
Trichloroethene	87	0.54					<	0.025			<	0.05	<	0.05	<	0.1 D
Vinyl Chloride	NE	0.002					<	0.025			<	0.05	<	0.05	<	0.1 D
Xylene O	NE	NE					<b>0.22</b>	0.025			<b>0.24</b>	0.05	<b>0.119</b>	0.10	<b>0.088 J D</b>	
Xylene P,M	NE	NE					<	0.050			<	0.10	<	0.10	<	0.1 D
Xylenes (Total)	NE	NE					<b>0.22</b>	0.750			<b>0.24</b>	0.150	<b>0.119</b>	0.10	<b>0.115 J D</b>	
Total VOCs	NE	NE					<b>4.18</b>	3.05			<b>6.15</b>	6.100	<b>4.0795</b>	6.100	<b>2.841</b>	
TOTAL PETROLEUM HYDROCARBON (ppm)																
Hydrocarbon Content	NE	NE					<b>5.2</b>	1			<b>48</b>	0.2	<b>8.61</b>	0.2	<b>8.84</b>	
PAHS BY GCMS (ppm)																
2-Methylnaphthalene	NE	NE					<b>0.11</b>	0.002			<b>3.1 D</b>	0.2	<b>0.068</b>	0.2	<b>0.101 D</b>	
Acenaphthene	NE	NE					<b>0.094</b>	0.002			<b>3.9 D</b>	0.2	<b>0.214</b>	0.2	<b>0.221 D</b>	
Acenaphthylene	NE	NE					<b>0.028</b>	0.002			<b>0.4 D</b>	0.2	<b>0.026</b>	0.2	<b>0.0336 D</b>	
Anthracene	NE	NE					<b>0.025</b>	0.002			<b>1.7 D</b>	0.2	<b>0.032</b>	0.2	<b>0.0377 D</b>	
Benzo [a] Anthracene	NE	NE					<b>0.0091</b>	0.002			<b>0.8 D</b>	0.2	<	0.02	<b>0.0145 D</b>	
Benzo [a] Pyrene	NE	NE					<b>0.0073</b>	0.002			<b>0.45 D</b>	0.2	<	0.02	<b>0.0123 D</b>	
Benzo [b] Fluoranthene	NE	NE					<b>0.006</b>	0.002			<b>0.41 D</b>	0.2	<	0.02	<b>0.009 D</b>	
Benzo [g,h,i] Perylene	NE	NE					<b>0.0027</b>	0.002			<	0.2	<	0.02	<b>0.0043 D</b>	
Benzo [k] Fluoranthene	NE	NE					<	0.002			<	0.2	<	0.02	<b>0.0033 D</b>	
Chrysene	NE	NE					<b>0.009</b>	0.002			<b>0.64 D</b>	0.2	<	0.02	<b>0.0137 D</b>	
Dibenzo [a,h] Anthracene	NE	NE					<	0.002			<	0.2	<	0.02	<b>0.0012 D</b>	
Fluoranthene	NE	NE					<b>0.026</b>	0.002			<b>1.8 D</b>	0.2	<b>0.022</b>	0.2	<b>0.0327 D</b>	
Fluorene	NE	NE					<b>0.047</b>	0.002			<b>2 D</b>	0.2	<b>0.078</b>	0.2	<b>0.0811 D</b>	
Indeno [1,2,3-cd] Pyrene	NE	NE					<b>0.0025</b>	0.002			<	0.2	<	0.02	<b>0.0045 D</b>	
Naphthalene	NE	2.67					<b>1 D</b>	0.02			<b>10 D</b>	0.2	<b>2.58</b>	0.2	<b>1.78 D</b>	
Phenanthrene	NE	NE					<b>0.088</b>	0.002			<b>5.6 D</b>	0.2	<b>0.115</b>	0.2	<b>0.114 D</b>	
Pyrene	NE	NE					<b>0.035</b>	0.002			<b>2.5 D</b>	0.2	<b>0.031</b>	0.2	<b>0.0439 D</b>	
INORGANICS (ppm)																
Total Cyanide	NE	NE					<b>0.51</b>	0.010			<b>0.33</b>	0.010	<b>0.319</b>	0.010	<b>0.307 D</b>	
Dissolved Free Cyanide	NE	NE					<	0.010			<b>0.040</b>	0.010	<	0.005	<b>0.3 D</b>	
Physiologically Available Cyanide	NE	NE														
Arsenic	NE	NE														
Beryllium	NE	NE														
Chromium	NE	NE														
Copper	NE	NE														
Lead	NE	NE														
Nickel	NE	NE														
Zinc	NE	NE														
Dissolved Arsenic	NE	NE														
Dissolved Beryllium	NE	NE														
Dissolved Chromium	NE	NE														
Dissolved Copper	NE	NE														
Dissolved Lead	NE	NE														
Dissolved Nickel	NE	NE														
Dissolved Zinc	NE	NE														

Notes:

Blank cells indicate that the parameter was not analyzed during this sampling round
D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
J "J" qualifier indicates analyte concentration is estimated
B "B" qualifier indicates that the analyte was present in the method blank
NE Regulatory Limit is not established
<b>Bold Value</b> = concentration detected above the Method Reporting Limit.
= concentration equals or exceeds the RIDEM GB Groundwater Objective
=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2) Well was not sampled because there was limited water
(3) NAPL was noted to be present
(4) Well was not sampled because it had not been installed yet.
(5) Well was not sampled because of an unknown reason
(6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



**TABLE 5H  
GROUNDWATER MONITORING DATA**

1/6/2014  
GZA File No. 05.00043654.00

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-312D										
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA July 2010		GZA December 2010	GZA July 2011		GZA July 2012	GZA August 2013	
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result	
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE				<	0.025		<	0.05	<0.1	<0.1 D	
1,1-Dichloroethene	23	0.007				<	0.025		<	0.05	<0.1	<0.1 D	
1,2,4-Trimethylbenzene	NE	NE				<b>0.31</b>	0.025		<b>0.42</b>	0.05	<b>0.432</b>	<0.1 D	
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.050		<	0.10	<0.5	<0.5 D	
1,3,5-Trimethylbenzene	NE	NE				<b>0.055</b>	0.025		<	0.05	<0.1	<b>0.026 J D</b>	
4-Isopropyltoluene	NE	NE									<0.1	<0.1 D	
Acetone	NE	NE				<	0.250		<	0.50	<1	<1 D	
Benzene	18	0.14				<b>2.5</b>	0.025		<b>2.8</b>	0.05	<b>2.29</b>	<b>3.56 D</b>	
Carbon Tetrachloride	NE	0.07				<	0.025		<	0.05	<0.1	<0.1 D	
Chloroform	NE	NE				<	0.025		<	0.05	<0.1	<0.1 D	
cis-1,2-Dichloroethene	69	2.4				<	0.025		<	0.05	<0.1	<0.1 D	
Ethylbenzene	16	1.6				<b>1.2</b>	0.025		<b>1.5</b>	0.05	<b>1.63</b>	<b>1.26 D</b>	
Isopropylbenzene	NE	NE				<b>0.062</b>	0.025		<b>0.085</b>	0.05	<b>0.054 J D</b>	<b>0.054 J D</b>	
Methyl tert-Butyl Ether	NE	5				<	0.025		<	0.05	<0.1	<0.1 D	
Naphthalene	NE	2.67				<b>3.4</b>	0.050		<b>5.3</b>	0.10	<b>6.75</b>	<b>4.3 D</b>	
n-Butylbenzene	NE	NE				<	0.025		<	0.05	<0.1	<0.1 D	
n-Propylbenzene	NE	NE				<	0.025		<	0.05	<0.1	<b>0.022 J D</b>	
sec-Butylbenzene	NE	NE				<	0.025		<	0.05	<0.1	<0.1 D	
Styrene	50	2.2				<	0.025		<	0.05	<0.1	<0.1 D	
Tertiary-amyl methyl ether	NE	NE									<0.1	<0.1 D	
Tetrachloroethene	NE	0.15				<	0.025		<	0.05	<0.1	<0.1 D	
Toluene	21	1.7				<	0.025		<	0.05	<0.1	<0.1 D	
Trichloroethene	87	0.54				<	0.025		<	0.05	<0.1	<0.1 D	
Vinyl Chloride	NE	0.002				<	0.025		<	0.05	<0.1	<0.1 D	
Xylene O	NE	NE				<b>0.3</b>	0.025		<b>0.41</b>	0.05	<b>0.422</b>	<b>0.309 D</b>	
Xylene P,M	NE	NE				<	0.050		<	0.10	<0.2	<b>0.03 J D</b>	
Xylenes (Total)	NE	NE				<b>0.3</b>	0.750		<b>0.41</b>	0.150	<b>0.422</b>	<b>0.339 D</b>	
Total VOCs	NE	NE				<b>7.8</b>	3.05		<b>10.52</b>	6.100	<b>11.524</b>	<b>9.561</b>	
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE				<b>4.6</b>	2.0		<b>6.5</b>	0.2	<b>10.7</b>	<b>9.42</b>	
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE				<b>0.14</b>	0.002		<b>0.091</b>	0.002	<b>0.172</b>	<b>0.189 D</b>	
Acenaphthene	NE	NE				<b>0.07</b>	0.002		<b>0.051</b>	0.002	<b>0.108</b>	<b>0.0771 D</b>	
Acenaphthylene	NE	NE				<b>0.0075</b>	0.002		<	0.002	<0.02	<b>0.0033 D</b>	
Anthracene	NE	NE				<b>0.0064</b>	0.002		<b>0.0035</b>	0.002	<0.02	<b>0.005 D</b>	
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D	
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D	
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D	
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.02	<0.0019 D	
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D	
Chrysene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D	
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D	
Fluoranthene	NE	NE				<b>0.003</b>	0.002		<b>0.0024</b>	0.002	<0.02	<b>0.0023 D</b>	
Fluorene	NE	NE				<b>0.025</b>	0.002		<b>0.019</b>	0.002	<b>0.031</b>	<b>0.0255 D</b>	
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.02	<0.0005 D	
Naphthalene	NE	2.67				<b>2 D</b>	0.05		<b>0.9</b>	0.02	<b>2.98</b>	<b>2.98 D</b>	
Phenanthrene	NE	NE				<b>0.032</b>	0.002		<b>0.018</b>	0.002	<b>0.033</b>	<b>0.0246 D</b>	
Pyrene	NE	NE				<b>0.0036</b>	0.002		<b>0.003</b>	0.002	<0.02	<b>0.0028 D</b>	
INORGANICS (ppm)													
Total Cyanide	NE	NE				<b>0.62</b>	0.010		<b>0.74</b>	0.010	<b>0.48</b>	<b>0.531 D</b>	
Dissolved Free Cyanide	NE	NE				<	0.010		<b>0.020</b>	0.010	<0.005	<b>0.523 D</b>	
Physiologically Available Cyanide	NE	NE											
Arsenic	NE	NE											
Beryllium	NE	NE											
Chromium	NE	NE											
Copper	NE	NE											
Lead	NE	NE											
Nickel	NE	NE											
Zinc	NE	NE											
Dissolved Arsenic	NE	NE											
Dissolved Beryllium	NE	NE											
Dissolved Chromium	NE	NE											
Dissolved Copper	NE	NE											
Dissolved Lead	NE	NE											
Dissolved Nickel	NE	NE											
Dissolved Zinc	NE	NE											

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 51  
GROUNDWATER MONITORING DATA

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-326S										
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010		GZA December 2010		GZA July 2011		GZA July 2012	GZA August 2013
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Note (3)	Result	DL	Result	Result
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE				<	0.005			<	0.005	<0.001	<0.001
1,1-Dichloroethene	23	0.007				<	0.005			<	0.005	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE				<b>0.073</b>	0.005			<b>0.140</b>	0.005	<b>0.0674</b>	<b>0.0478</b>
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.010			<	0.010	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE				<b>0.012</b>	0.005			<b>0.022</b>	0.005	<b>0.0098</b>	<b>0.0112</b>
4-Isopropyltoluene	NE	NE										<b>0.0019</b>	<0.001
Acetone	NE	NE				<	0.050			<	0.050	<0.01	<0.01
Benzene	18	0.14				<b>0.36</b>	0.005			<b>0.47</b>	0.005	<b>0.368</b>	<b>0.444 D</b>
Carbon Tetrachloride	NE	0.07				<	0.005			<	0.005	<0.001	<0.001
Chloroform	NE	NE				<	0.005			<	0.005	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4				<	0.005			<	0.005	<0.001	<0.001
Ethylbenzene	16	1.6				<b>0.2</b>	0.005			<b>0.3</b>	0.005	<b>0.186</b>	<b>0.154 D</b>
Isopropylbenzene	NE	NE				<b>0.026</b>	0.005			<b>0.051</b>	0.005	<b>0.0419</b>	<b>0.037</b>
Methyl tert-Butyl Ether	NE	5				<	0.005			<	0.005	<0.001	<0.001
Naphthalene	NE	2.67				<b>0.27</b>	0.010			<b>0.13</b>	0.010	<b>0.0474</b>	<b>0.0516</b>
n-Butylbenzene	NE	NE				<	0.005			<	0.005	<0.001	<0.001
n-Propylbenzene	NE	NE				<b>0.007</b>	0.005			<b>0.018</b>	0.005	<b>0.0152</b>	<b>0.0128</b>
sec-Butylbenzene	NE	NE				<	0.005			<	0.005	<b>0.0015</b>	<0.001
Styrene	50	2.2				<	0.005			<	0.005	<0.001	<b>0.0018</b>
Tertiary-amyl methyl ether	NE	NE										<0.001	<0.001
Tetrachloroethene	NE	0.15				<	0.005			<	0.005	<0.001	<0.001
Toluene	21	1.7				<	0.005			<b>0.006</b>	0.005	<b>0.0022</b>	<b>0.0025</b>
Trichloroethene	87	0.54				<	0.005			<	0.005	<0.001	<0.001
Vinyl Chloride	NE	0.002				<	0.005			<	0.005	<0.001	<0.001
Xylene O	NE	NE				<b>0.13</b>	0.005			<b>0.16</b>	0.005	<b>0.0735</b>	<b>0.0509</b>
Xylene P,M	NE	NE				<b>0.015</b>	0.010			<b>0.021</b>	0.010	<b>0.012</b>	<b>0.0132</b>
Xylenes (Total)	NE	NE				<b>0.145</b>	0.015			<b>0.181</b>	0.015	<b>0.0855</b>	<b>0.0641</b>
Total VOCs	NE	NE				<b>1.093</b>	0.62			<b>1.318</b>	0.62	<b>0.8268</b>	<b>0.8268</b>
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE				<b>2.7</b>	0.2			<b>2.3</b>	0.2	<b>6.43</b>	<b>11.1</b>
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE				<b>0.023</b>	0.002			<b>0.017</b>	0.002	<b>0.024</b>	<b>0.0407 D</b>
Acenaphthene	NE	NE				<b>0.029</b>	0.002			<b>0.025</b>	0.002	<b>0.038</b>	<b>0.0545 D</b>
Acenaphthylene	NE	NE				<	0.002			<	0.002	<b>0.0008</b>	<b>0.0006</b>
Anthracene	NE	NE				<	0.002			<	0.002	<b>0.001</b>	<b>0.0018</b>
Benzo [a] Anthracene	NE	NE				<	0.002			<	0.002	<b>0.0003</b>	<b>0.0014</b>
Benzo [a] Pyrene	NE	NE				<	0.002			<	0.002	<b>0.0003</b>	<b>0.0012</b>
Benzo [b] Fluoranthene	NE	NE				<	0.002			<	0.002	<b>0.0003</b>	<b>0.0009</b>
Benzo [g,h,i] Perylene	NE	NE				<	0.002			<	0.002	<0.0002	<b>0.0006</b>
Benzo [k] Fluoranthene	NE	NE				<	0.002			<	0.002	<0.0002	<b>0.0009</b>
Chrysene	NE	NE				<	0.002			<	0.002	<b>0.0003</b>	<b>0.0013</b>
Dibenzo [a,h] Anthracene	NE	NE				<	0.002			<	0.002	<0.0002	<b>0.0002</b>
Fluoranthene	NE	NE				<	0.002			<	0.002	<b>0.001</b>	<b>0.0027</b>
Fluorene	NE	NE				<b>0.0054</b>	0.002			<b>0.0043</b>	0.002	<b>0.006</b>	<b>0.0058</b>
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002			<	0.002	<0.0002	<b>0.0006</b>
Naphthalene	NE	2.67				<b>0.099</b>	0.002			<b>0.026</b>	0.002	<b>0.008</b>	<b>0.0068 B</b>
Phenanthrene	NE	NE				<b>0.0037</b>	0.002			<	0.002	<b>0.002</b>	<b>0.0031</b>
Pyrene	NE	NE				<	0.002			<	0.002	<b>0.002</b>	<b>0.0037</b>
INORGANICS (ppm)													
Total Cyanide	NE	NE				<b>0.69</b>	0.010			<b>0.49</b>	0.010	<b>0.297</b>	<b>0.339 D</b>
Dissolved Free Cyanide	NE	NE				<b>0.010</b>	0.010			<	0.010	<0.005	<b>0.337 D</b>
Physiologically Available Cyanide	NE	NE											
Arsenic	NE	NE											
Beryllium	NE	NE											
Chromium	NE	NE											
Copper	NE	NE											
Lead	NE	NE											
Nickel	NE	NE											
Zinc	NE	NE											
Dissolved Arsenic	NE	NE											
Dissolved Beryllium	NE	NE											
Dissolved Chromium	NE	NE											
Dissolved Copper	NE	NE											
Dissolved Lead	NE	NE											
Dissolved Nickel	NE	NE											
Dissolved Zinc	NE	NE											

Notes:

Blank cells indicate that the parameter was not analyzed during this sampling round
D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
J "J" qualifier indicates analyte concentration is estimated
B "B" qualifier indicates that the analyte was present in the method blank
NE Regulatory Limit is not established
<b>Bold Value</b> = concentration detected above the Method Reporting Limit.
= concentration equals or exceeds the RIDEM GB Groundwater Objective
=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2) Well was not sampled because there was limited water
(3) NAPL was noted to be present
(4) Well was not sampled because it had not been installed yet.
(5) Well was not sampled because of an unknown reason
(6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

**TABLE 5J**  
**GROUNDWATER MONITORING DATA**  
Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

1/6/2014  
GZA File No. 05.00043654.00

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-326D								
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013	
			Note (4)	Note (4)	Note (4)						
						Result	DL	Result	DL	Result	Result
VOCs (ppm)											
1,1,1,2-Tetrachloroethane	NE	NE				<	0.0025	<	0.001	<0.001	<0.001
1,1-Dichloroethene	23	0.007				<	0.0025	<	0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE				<b>0.022</b>	0.0025	<b>0.0027</b>	0.001	<b>0.0023</b>	<b>0.0086</b>
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.0050	<	0.002	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE				<b>0.0073</b>	0.0025	<	0.001	<0.001	<0.001
4-Isopropyltoluene	NE	NE								<0.001	<0.001
Acetone	NE	NE				<	0.0250	<	0.010	<0.01	<0.01
Benzene	18	0.14				<b>0.26</b>	0.0025	<b>0.057</b>	0.001	<b>0.0588</b>	<b>0.0809</b>
Carbon Tetrachloride	NE	0.07				<	0.0025	<	0.001	<0.001	<0.001
Chloroform	NE	NE				<	0.0025	<	0.001	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4				<	0.0025	<	0.001	<0.001	<0.001
Ethylbenzene	16	1.6				<b>0.13</b>	0.0025	<b>0.017</b>	0.001	<b>0.0201</b>	<b>0.0401</b>
Isopropylbenzene	NE	NE				<b>0.016</b>	0.0025	<b>0.0038</b>	0.001	<b>0.0022</b>	<b>0.0026</b>
Methyl tert-Butyl Ether	NE	5				<	0.0025	<	0.001	<0.001	<0.001
Naphthalene	NE	2.67				<b>0.32</b>	0.0050	<b>0.052</b>	0.002	<b>0.0448</b>	<b>0.123 D</b>
n-Butylbenzene	NE	NE				<	0.0025	<	0.001	<0.001	<0.001
n-Propylbenzene	NE	NE				<b>0.0051</b>	0.0025	<b>0.0014</b>	0.001	<0.001	<0.001
sec-Butylbenzene	NE	NE				<	0.0025	<	0.001	<0.001	<0.001
Styrene	50	2.2				<	0.0025	<	0.001	<0.001	<0.001
Tertiary-amyl methyl ether	NE	NE								<0.001	<0.001
Tetrachloroethene	NE	0.15				<	0.0025	<	0.001	<0.001	<0.001
Toluene	21	1.7				<	0.0025	<	0.001	<0.001	<0.001
Trichloroethene	87	0.54				<	0.0025	<	0.001	<0.001	<0.001
Vinyl Chloride	NE	0.002				<	0.0025	<	0.001	<0.001	<0.001
Xylene O	NE	NE				<b>0.034</b>	0.0025	<b>0.0029</b>	0.001	<b>0.0038</b>	<b>0.01</b>
Xylene P,M	NE	NE				<b>0.0068</b>	0.0050	<	0.002	<0.002	<0.002
Xylenes (Total)	NE	NE				<b>0.0408</b>	0.0075	<b>0.0029</b>	0.003	<b>0.0038</b>	<b>0.01</b>
Total VOCs	NE	NE				<b>0.8012</b>	0.305	<b>0.1368</b>	0.122	<b>0.132</b>	<b>0.2652</b>
TOTAL PETROLEUM HYDROCARBON (ppm)											
Hydrocarbon Content	NE	NE				<b>1.2</b>	0.2	<b>0.27</b>	0.2	<b>0.45</b>	<b>0.66</b>
PAHS BY GCMS (ppm)											
2-Methylnaphthalene	NE	NE				<b>0.0038</b>	0.002	<	0.002	<0.0002	<b>0.0009</b>
Acenaphthene	NE	NE				<b>0.0063</b>	0.002	<b>0.0022</b>	0.002	<b>0.001</b>	<b>0.0016</b>
Acenaphthylene	NE	NE				<	0.002	<	0.002	<0.0002	<0.0002
Anthracene	NE	NE				<	0.002	<	0.002	<0.0002	<0.0002
Benzo [a] Anthracene	NE	NE				<	0.002	<	0.002	<0.0002	<0.00005
Benzo [a] Pyrene	NE	NE				<	0.002	<	0.002	<0.0002	<0.00005
Benzo [b] Fluoranthene	NE	NE				<	0.002	<	0.002	<0.0002	<0.00005
Benzo [g,h,i] Perylene	NE	NE				<	0.002	<	0.002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE				<	0.002	<	0.002	<0.0002	<0.00005
Chrysene	NE	NE				<	0.002	<	0.002	<0.0002	<0.00005
Dibenzo [a,h] Anthracene	NE	NE				<	0.002	<	0.002	<0.0002	<0.00005
Fluoranthene	NE	NE				<	0.002	<	0.002	<0.0002	<0.0002
Fluorene	NE	NE				<	0.002	<	0.002	<b>0.0002</b>	<0.0002
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002	<	0.002	<0.0002	<0.00005
Naphthalene	NE	2.67				<b>0.042</b>	0.002	<b>0.02</b>	0.002	<b>0.012</b>	<b>0.0644 B D</b>
Phenanthrene	NE	NE				<b>0.0026</b>	0.002	<	0.002	<b>0.0004</b>	<0.0002
Pyrene	NE	NE				<	0.002	<	0.002	<0.0002	<0.0002
INORGANICS (ppm)											
Total Cyanide	NE	NE				<b>0.54</b>	0.010	<b>0.67</b>	0.010	<b>0.665</b>	<b>0.808 D</b>
Dissolved Free Cyanide	NE	NE				<b>0.080</b>	0.010	<b>0.010</b>	0.010	<0.005	<b>0.766 D</b>
Physiologically Available Cyanide	NE	NE									
Arsenic	NE	NE									
Beryllium	NE	NE									
Chromium	NE	NE									
Copper	NE	NE									
Lead	NE	NE									
Nickel	NE	NE									
Zinc	NE	NE									
Dissolved Arsenic	NE	NE									
Dissolved Beryllium	NE	NE									
Dissolved Chromium	NE	NE									
Dissolved Copper	NE	NE									
Dissolved Lead	NE	NE									
Dissolved Nickel	NE	NE									
Dissolved Zinc	NE	NE									

Notes:

D	"D" qualifier indicates analytes reported from a diluted run of the original analysis.
J	"J" qualifier indicates analyte concentration is estimated
B	"B" qualifier indicates that the analyte was present in the method blank
NE	Regulatory Limit is not established
<b>Bold Value</b>	= concentration detected above the Method Reporting Limit.
	= concentration equals or exceeds the RIDEM GB Groundwater Objective
	=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1)	Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2)	Well was not sampled because there was limited water
(3)	NAPL was noted to be present
(4)	Well was not sampled because it had not been installed yet.
(5)	Well was not sampled because of an unknown reason
(6)	Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5K  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID:		MW-333S									
	Collected By:		AES	VHB	GZA	GZA	GZA	GZA	GZA	GZA	GZA	GZA
	RIDEM GB	RIDEM GB GW	1996	2006	January 2010	June 2010	December 2010	July 2011	July 2012	August 2013		
	GW UCL	Objectives	Note (4)	Note (4)	Note (4)	Note (4)						
VOCs (ppm)							Result	DL	Result	DL	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001	<	0.001	<0.001	<0.001
1,1-Dichloroethene	23	0.007					<	0.001	<	0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE					<	0.001	<b>0.0097</b>	0.001	<b>0.0136</b>	<0.001
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002	<	0.002	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
4-Isopropyltoluene	NE	NE									<0.001	<0.001
Acetone	NE	NE					<	0.010	<	0.010	<0.01	<0.01
Benzene	18	0.14					<	0.001	<b>0.039</b>	0.001	<b>0.0287</b>	<0.001
Carbon Tetrachloride	NE	0.07					<	0.001	<	0.001	<0.001	<0.001
Chloroform	NE	NE					<	0.001	<	0.001	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4					<	0.001	<	0.001	<0.001	<0.001
Ethylbenzene	16	1.6					<	0.001	<b>0.13</b>	0.001	<b>0.212</b>	<0.001
Isopropylbenzene	NE	NE					<	0.001	<b>0.005</b>	0.001	<b>0.0068</b>	<0.001
Methyl tert-Butyl Ether	NE	5					<	0.001	<	0.001	<0.001	<0.001
Naphthalene	NE	2.67					<	0.002	<b>0.042</b>	0.002	<b>0.0122</b>	<0.001
n-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
n-Propylbenzene	NE	NE					<	0.001	<b>0.0015</b>	0.001	<b>0.0024</b>	<0.001
sec-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
Styrene	50	2.2					<	0.001	<	0.001	<0.001	<0.001
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001
Tetrachloroethene	NE	0.15					<	0.001	<	0.001	<0.001	<0.001
Toluene	21	1.7					<	0.001	<b>0.0026</b>	0.001	<b>0.0014</b>	<0.001
Trichloroethene	87	0.54					<	0.001	<	0.001	<0.001	<0.001
Vinyl Chloride	NE	0.002					<	0.001	<	0.001	<0.001	<0.001
Xylene O	NE	NE					<	0.001	<b>0.024</b>	0.001	<b>0.0144</b>	<0.001
Xylene P,M	NE	NE					<	0.002	<b>0.0048</b>	0.002	<b>0.0023</b>	<0.002
Xylenes (Total)	NE	NE					<	0.003	<b>0.029</b>	0.003	<b>0.0167</b>	<0.002
Total VOCs	NE	NE					<	0.122	<b>0.2586</b>	0.122	<b>0.2938</b>	<0.6451
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE					<b>0.31</b>	0.2	<b>0.32</b>	0.2	<b>1.07</b>	<0.19
PAHS BY GCMS (ppm)												
2-Methylnaphthalene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002
Acenaphthene	NE	NE					<	0.002	<	0.002	<b>0.002</b>	<0.0002
Acenaphthylene	NE	NE					<	0.002	<	0.002	<b>0.001</b>	<0.0002
Anthracene	NE	NE					<	0.002	<	0.002	<b>0.0002</b>	<0.0002
Benzo [a] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.00005
Benzo [a] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.00005
Benzo [b] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.00005
Benzo [g,h,i] Perylene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.00005
Chrysene	NE	NE					<	0.002	<	0.002	<0.0002	<0.00005
Dibenzo [a,h] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.00005
Fluoranthene	NE	NE					<	0.002	<	0.002	<b>0.0002</b>	<0.0002
Fluorene	NE	NE					<	0.002	<	0.002	<b>0.0006</b>	<0.0002
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.00005
Naphthalene	NE	2.67					<	0.002	<b>0.013</b>	0.002	<b>0.005</b>	<b>0.0012 B</b>
Phenanthrene	NE	NE					<	0.002	<	0.002	<b>0.0005</b>	<0.0002
Pyrene	NE	NE					<	0.002	<	0.002	<b>0.0003</b>	<0.0002
INORGANICS (ppm)												
Total Cyanide	NE	NE					<b>0.050</b>	0.01	<b>0.150</b>	0.01	<b>0.0815</b>	<b>0.014</b>
Dissolved Free Cyanide	NE	NE					<	0.01	<b>0.010</b>	0.01	<0.005	<b>0.0137</b>
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

	Blank cells indicate that the parameter was not analyzed during this sampling round
D	"D" qualifier indicates analytes reported from a diluted run of the original analysis.
J	"J" qualifier indicates analyte concentration is estimated
B	"B" qualifier indicates that the analyte was present in the method blank
NE	Regulatory Limit is not established
<b>Bold Value</b>	= concentration detected above the Method Reporting Limit.
	= concentration equals or exceeds the RIDEM GB Groundwater Objective
	=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1)	Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2)	Well was not sampled because there was limited water
(3)	NAPL was noted to be present
(4)	Well was not sampled because it had not been installed yet.
(5)	Well was not sampled because of an unknown reason
(6)	Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5L  
GROUNDWATER MONITORING DATA

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-333D										
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010		GZA July 2011		GZA July 2012	GZA August 2013	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE						<	0.025	<	0.025	<0.1	<0.001
1,1-Dichloroethene	23	0.007						<	0.025	<	0.025	<0.1	<0.001
1,2,4-Trimethylbenzene	NE	NE						<b>0.19</b>	0.025	<b>0.43</b>	0.025	<b>0.344</b>	<b>0.353 D</b>
1,2-Dibromo-3-Chloropropane	NE	0.002						<	0.050	<	0.050	<0.5	<0.005
1,3,5-Trimethylbenzene	NE	NE						<	0.025	<	0.025	<0.1	<0.001
4-Isopropyltoluene	NE	NE										<0.1	<0.001
Acetone	NE	NE						<	0.250	<	0.250	<1	<0.01
Benzene	18	0.14						<b>1.2</b>	0.025	<b>1.6</b>	0.025	<b>1.77</b>	<b>2.67 D</b>
Carbon Tetrachloride	NE	0.07						<	0.025	<	0.025	<0.1	<0.001
Chloroform	NE	NE						<	0.025	<	0.025	<0.1	<0.001
cis-1,2-Dichloroethene	69	2.4						<	0.025	<	0.025	<0.1	<0.001
Ethylbenzene	16	1.6						<b>0.91</b>	0.025	<b>0.98</b>	0.025	<b>0.981</b>	<b>1.14 D</b>
Isopropylbenzene	NE	NE						<b>0.041</b>	0.025	<b>0.080</b>	0.025	<0.1	<b>0.09</b>
Methyl tert-Butyl Ether	NE	5						<	0.025	<	0.025	<0.1	<0.001
Naphthalene	NE	2.67						<b>1.8</b>	0.050	<b>3</b>	0.050	<b>3.55</b>	<b>3.96 D</b>
n-Butylbenzene	NE	NE						<	0.025	<	0.025	<0.1	<0.001
n-Propylbenzene	NE	NE						<	0.025	<b>0.035</b>	0.025	<0.1	<b>0.0346</b>
sec-Butylbenzene	NE	NE						<	0.025	<	0.025	<0.1	<0.001
Styrene	50	2.2						<	0.025	<	0.025	<0.1	<b>0.0039</b>
Tertiary-amyl methyl ether	NE	NE										<0.1	<0.001
Tetrachloroethene	NE	0.15						<	0.025	<	0.025	<0.1	<0.001
Toluene	21	1.7						<b>0.065</b>	0.025	<	0.025	<0.1	<b>0.0152</b>
Trichloroethene	87	0.54						<	0.025	<	0.025	<0.1	<0.001
Vinyl Chloride	NE	0.002						<	0.025	<	0.025	<0.1	<0.001
Xylene O	NE	NE						<b>0.36</b>	0.025	<b>0.34</b>	0.025	<b>0.205</b>	<b>0.163 D</b>
Xylene P,M	NE	NE						<b>0.27</b>	0.050	<b>0.093</b>	0.050	<0.2	<b>0.0393</b>
Xylenes (Total)	NE	NE						<b>0.63</b>	0.075	<b>0.433</b>	0.075	<b>0.205</b>	<b>0.202 D</b>
Total VOCs	NE	NE						<b>4.84</b>	3.05	<b>6.558</b>	3.05	<b>6.85</b>	<b>8.469</b>
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE						<b>3.5</b>	0.2	<b>2</b>	0.2	<b>7.82</b>	<b>6.6</b>
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE						<b>0.13</b>	0.04	<b>0.046</b>	0.002	<b>0.066</b>	<b>0.0755 D</b>
Acenaphthene	NE	NE						<b>0.059</b>	0.04	<b>0.039</b>	0.002	<b>0.073</b>	<b>0.0584 D</b>
Acenaphthylene	NE	NE						<	0.04	<	0.002	<0.02	<b>0.0024 D</b>
Anthracene	NE	NE						<	0.04	<b>0.0027</b>	0.002	<0.02	<b>0.0037 D</b>
Benzo [a] Anthracene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Benzo [a] Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Benzo [b] Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Benzo [g,h,i] Perylene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D
Benzo [k] Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Chrysene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Dibenzo [a,h] Anthracene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D
Fluorene	NE	NE						<	0.04	<b>0.014</b>	0.002	<0.02	<b>0.0153 D</b>
Indeno [1,2,3-cd] Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Naphthalene	NE	2.67						<b>0.96</b>	0.04	<b>0.98</b>	0.02	<b>2.07</b>	<b>1.98 B D</b>
Phenanthrene	NE	NE						<	0.04	<b>0.013</b>	0.002	<b>0.022</b>	<b>0.0169 D</b>
Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D
INORGANICS (ppm)													
Total Cyanide	NE	NE						<b>0.72</b>	0.010	<b>1.1</b>	0.010	<b>0.742</b>	<b>4.05 D</b>
Dissolved Free Cyanide	NE	NE						<	0.010	<b>0.020</b>	0.010	<0.005	<b>3.95 D</b>
Physiologically Available Cyanide	NE	NE											
Arsenic	NE	NE											
Beryllium	NE	NE											
Chromium	NE	NE											
Copper	NE	NE											
Lead	NE	NE											
Nickel	NE	NE											
Zinc	NE	NE											
Dissolved Arsenic	NE	NE											
Dissolved Beryllium	NE	NE											
Dissolved Chromium	NE	NE											
Dissolved Copper	NE	NE											
Dissolved Lead	NE	NE											
Dissolved Nickel	NE	NE											
Dissolved Zinc	NE	NE											

Notes:

Blank cells indicate that the parameter was not analyzed during this sampling round
D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
J "J" qualifier indicates analyte concentration is estimated
B "B" qualifier indicates that the analyte was present in the method blank
NE Regulatory Limit is not established
<b>Bold Value</b> = concentration detected above the Method Reporting Limit.
= concentration equals or exceeds the RIDEM GB Groundwater Objective
=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2) Well was not sampled because there was limited water
(3) NAPL was noted to be present
(4) Well was not sampled because it had not been installed yet.
(5) Well was not sampled because of an unknown reason
(6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



TABLE 5M  
GROUNDWATER MONITORING DATA

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-339S									
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013		
			Note (4)	Note (4)	Note (4)	Note (4)						
VOCS (ppm)							Result	DL	Result	DL	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE					<	0.1	<	0.005	<0.005	<0.001
1,1-Dichloroethene	23	0.007					<	0.1	<	0.005	<0.005	<0.001
1,2,4-Trimethylbenzene	NE	NE					<b>0.41</b>	0.1	<b>0.02</b>	0.005	<b>0.0092</b>	<b>0.0092</b>
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.2	<	0.010	<0.01	<0.005
1,3,5-Trimethylbenzene	NE	NE					<b>0.13</b>	0.1	<b>0.0068</b>	0.005	<0.005	<b>0.0032</b>
4-Isopropyltoluene	NE	NE									<0.005	<0.001
Acetone	NE	NE					<	1.0	<	0.050	<0.05	<0.01
Benzene	18	0.14					<	0.1	<	0.005	<0.005	<b>0.0011</b>
Carbon Tetrachloride	NE	0.07					<	0.1	<	0.005	<0.005	<0.001
Chloroform	NE	NE					<	0.1	<	0.005	<0.005	<0.001
cis-1,2-Dichloroethene	69	2.4					<	0.1	<	0.005	<0.005	<0.001
Ethylbenzene	16	1.6					<	0.1	<	0.005	<0.005	<0.001
Isopropylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001
Methyl tert-Butyl Ether	NE	5					<	0.1	<	0.005	<0.005	<0.001
Naphthalene	NE	2.67					<b>10</b>	0.2	<b>0.76</b>	0.010	<b>0.35</b>	<b>0.286 D</b>
n-Butylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001
n-Propylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001
sec-Butylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001
Styrene	50	2.2					<	0.1	<	0.005	<0.005	<b>0.0016</b>
Tertiary-amyl methyl ether	NE	NE									<0.01	<0.001
Tetrachloroethene	NE	0.15					<	0.1	<	0.005	<0.005	<0.001
Toluene	21	1.7					<	0.1	<	0.005	<0.005	<0.001
Trichloroethene	87	0.54					<	0.1	<	0.005	<0.005	<0.001
Vinyl Chloride	NE	0.002					<	0.1	<	0.005	<0.005	<0.001
Xylene O	NE	NE					<	0.1	<	0.005	<0.005	<b>0.0013</b>
Xylene P,M	NE	NE					<	0.2	<	0.010	<0.01	<b>0.0021</b>
Xylenes (Total)	NE	NE					<	0.3	<	0.015	<0.015	<b>0.0034</b>
Total VOCs	NE	NE					<b>10.54</b>	12.5	<b>0.7868</b>	0.61	<b>0.3592</b>	<b>0.3045</b>
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE					<b>15</b>	10	<b>1.1</b>	0.2	<b>0.83</b>	<b>0.61</b>
PAHS BY GCMS (ppm)												
2-Methylnaphthalene	NE	NE					<b>0.3</b>	0.04	<b>0.075</b>	0.002	<b>0.066</b>	<b>0.0323 D</b>
Acenaphthene	NE	NE					<	0.04	<	0.002	<0.002	<b>0.0004</b>
Acenaphthylene	NE	NE					<	0.04	<	0.002	<0.002	<0.0002
Anthracene	NE	NE					<	0.04	<	0.002	<0.002	<b>0.0003</b>
Benzo [a] Anthracene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005
Benzo [a] Pyrene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005
Benzo [b] Fluoranthene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005
Benzo [g,h,i] Perylene	NE	NE					<	0.04	<	0.002	<0.002	<0.0002
Benzo [k] Fluoranthene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005
Chrysene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005
Dibenzo [a,h] Anthracene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005
Fluoranthene	NE	NE					<	0.04	<	0.002	<0.002	<b>0.0002</b>
Fluorene	NE	NE					<	0.04	<b>0.0029</b>	0.002	<b>0.002</b>	<b>0.0009</b>
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005
Naphthalene	NE	2.67					<b>5.5 D</b>	0.2	<b>0.35</b>	0.010	<b>0.287</b>	<b>0.129 B D</b>
Phenanthrene	NE	NE					<	0.04	<b>0.005</b>	0.002	<b>0.003</b>	<b>0.0014</b>
Pyrene	NE	NE					<	0.04	<	0.002	<0.002	<b>0.0002</b>
INORGANICS (ppm)												
Total Cyanide	NE	NE					<b>0.84</b>	0.010	<b>0.44</b>	0.010	<b>0.52</b>	<b>0.364 D</b>
Dissolved Free Cyanide	NE	NE					<	0.010	<b>0.080</b>	0.010	<0.005	<b>0.335 D</b>
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5N  
GROUNDWATER MONITORING DATA

Former Gas Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-339D										
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010		GZA July 2011		GZA July 2012	GZA August 2013	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE						<	0.05	<	0.025	<0.05	<0.001
1,1-Dichloroethene	23	0.007						<	0.05	<	0.025	<0.05	<0.001
1,2,4-Trimethylbenzene	NE	NE						<b>0.38</b>	0.05	<b>0.41</b>	0.025	<b>0.449</b>	<b>0.437 D</b>
1,2-Dibromo-3-Chloropropane	NE	0.002						<	0.10	<	0.050	<0.1	<0.005
1,3,5-Trimethylbenzene	NE	NE						<b>0.11</b>	0.05	<b>0.11</b>	0.025	<b>0.122</b>	<b>0.1 D</b>
4-Isopropyltoluene	NE	NE										<0.05	<b>0.0087</b>
Acetone	NE	NE						<	0.50	<	0.250	<0.5	<0.01
Benzene	18	0.14						<	0.05	<b>0.036</b>	0.025	<b>0.066</b>	<b>0.0232</b>
Carbon Tetrachloride	NE	0.07						<	0.05	<	0.025	<0.05	<0.001
Chloroform	NE	NE						<	0.05	<	0.025	<0.05	<0.001
cis-1,2-Dichloroethene	69	2.4						<	0.05	<	0.025	<0.05	<0.001
Ethylbenzene	16	1.6						<b>0.20</b>	0.05	<b>0.24</b>	0.025	<b>0.26</b>	<b>0.19 D</b>
Isopropylbenzene	NE	NE						<	0.05	<b>0.046</b>	0.025	<0.05	<b>0.0472</b>
Methyl tert-Butyl Ether	NE	5						<	0.05	<	0.025	<0.05	<0.001
Naphthalene	NE	2.67						<b>3.3</b>	0.10	<b>2.7</b>	0.050	<b>3.13</b>	<b>3.91 D</b>
n-Butylbenzene	NE	NE						<	0.05	<	0.025	<0.05	<0.001
n-Propylbenzene	NE	NE						<	0.05	<b>0.034</b>	0.025	<0.05	<b>0.034</b>
sec-Butylbenzene	NE	NE						<	0.05	<	0.025	<0.05	<0.001
Styrene	50	2.2						<	0.05	<b>0.044</b>	0.025	<0.05	<b>0.0342</b>
Tertiary-amyl methyl ether	NE	NE										<0.1	<0.001
Tetrachloroethene	NE	0.15						<	0.05	<	0.025	<0.05	<0.001
Toluene	21	1.7						<b>0.058</b>	0.05	<b>0.041</b>	0.025	<b>0.05</b>	<b>0.0471</b>
Trichloroethene	87	0.54						<	0.05	<	0.025	<0.05	<0.001
Vinyl Chloride	NE	0.002						<	0.05	<	0.025	<0.05	<0.001
Xylene O	NE	NE						<b>0.41</b>	0.05	<b>0.038</b>	0.025	<b>0.418</b>	<b>0.344 D</b>
Xylene P,M	NE	NE						<b>0.46</b>	0.10	<b>0.047</b>	0.050	<b>0.446</b>	<b>0.33 D</b>
Xylenes (Total)	NE	NE						<b>0.87</b>	0.15	<b>0.085</b>	0.075	<b>0.864</b>	<b>0.674 D</b>
Total VOCs	NE	NE						<b>4.92</b>	6.1	<b>3.746</b>	3.05	<b>4.941</b>	<b>5.5054</b>
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE						<b>10</b>	2.0	<b>5.4</b>	0.2	<b>8.4</b>	<b>9.78</b>
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE						<b>0.41</b>	0.04	<b>0.23</b>	0.01	<b>0.275</b>	<b>0.303 D</b>
Acenaphthene	NE	NE						<b>0.042</b>	0.04	<b>0.052</b>	0.002	<b>0.09</b>	<b>0.0591 D</b>
Acenaphthylene	NE	NE						<b>0.079</b>	0.04	<b>0.069</b>	0.002	<b>0.105</b>	<b>0.0789 D</b>
Anthracene	NE	NE						<	0.04	<b>0.0029</b>	0.002	<0.02	<b>0.0041 D</b>
Benzo [a] Anthracene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Benzo [a] Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Benzo [b] Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Benzo [g,h,i] Perylene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D
Benzo [k] Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Chrysene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Dibenzo [a,h] Anthracene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D
Fluorene	NE	NE						<	0.04	<b>0.024</b>	0.002	<b>0.04</b>	<b>0.0314 D</b>
Indeno [1,2,3-cd] Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D
Naphthalene	NE	2.67						<b>1.7</b>	0.04	<b>1.1</b>	0.04	<b>2.13</b>	<b>1.63 B D</b>
Phenanthrene	NE	NE						<	0.04	<b>0.023</b>	0.002	<b>0.041</b>	<b>0.0271 D</b>
Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D
INORGANICS (ppm)													
Total Cyanide	NE	NE						<b>0.29</b>	0.010	<b>0.13</b>	0.010	<b>0.0925</b>	<b>0.0777</b>
Dissolved Free Cyanide	NE	NE						<b>0.020</b>	0.010	<b>0.010</b>	0.010	<0.005	<b>0.0761</b>
Physiologically Available Cyanide	NE	NE											
Arsenic	NE	NE											
Beryllium	NE	NE											
Chromium	NE	NE											
Copper	NE	NE											
Lead	NE	NE											
Nickel	NE	NE											
Zinc	NE	NE											
Dissolved Arsenic	NE	NE											
Dissolved Beryllium	NE	NE											
Dissolved Chromium	NE	NE											
Dissolved Copper	NE	NE											
Dissolved Lead	NE	NE											
Dissolved Nickel	NE	NE											
Dissolved Zinc	NE	NE											

Notes:

	Blank cells indicate that the parameter was not analyzed during this sampling round
D	"D" qualifier indicates analytes reported from a diluted run of the original analysis.
J	"J" qualifier indicates analyte concentration is estimated
B	"B" qualifier indicates that the analyte was present in the method blank
NE	Regulatory Limit is not established
<b>Bold Value</b>	= concentration detected above the Method Reporting Limit.
	= concentration equals or exceeds the RIDEM GB Groundwater Objective
	=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1)	Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2)	Well was not sampled because there was limited water
(3)	NAPL was noted to be present
(4)	Well was not sampled because it had not been installed yet.
(5)	Well was not sampled because of an unknown reason
(6)	Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



**TABLE 50  
GROUNDWATER MONITORING DATA**

Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		M&E MW-2													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA June 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Note (5)							Note (6)						
VOCs (ppm)				Result	Result	DL	Result	DL			Result	DL	Result	Result		
1,1,1,2-Tetrachloroethane	NE	NE		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
1,1-Dichloroethene	23	0.007		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
1,2,4-Trimethylbenzene	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
1,2-Dibromo-3-Chloropropane	NE	0.002			<b>0.002</b>	<	<b>0.002</b>			<	<b>0.002</b>	<	<b>&lt;0.002</b>	<b>&lt;0.002</b>		
1,3,5-Trimethylbenzene	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
4-Isopropyltoluene	NE	NE											<0.001	<0.001		
Acetone	NE	NE		<	0.010	<	0.010			<	0.010	<	<0.01	<0.01		
Benzene	18	0.14		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
Carbon Tetrachloride	NE	0.07		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
Chloroform	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
cis-1,2-Dichloroethene	69	2.4		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
Ethylbenzene	16	1.6		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
Isopropylbenzene	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
Naphthalene	NE	2.67		<0.001	<	0.002	<	0.002		<	0.002	<	<0.001	<0.001		
n-Butylbenzene	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
n-Propylbenzene	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
sec-Butylbenzene	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
Styrene	50	2.2		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
Tertiary-amyl methyl ether	NE	NE											<0.002	<0.001		
Tetrachloroethene	NE	0.15		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
Toluene	21	1.7		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
Trichloroethene	87	0.54		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
Vinyl Chloride	NE	0.002		<	0.001	<	0.001			<	0.001	<	<0.001	<0.001		
Xylene O	NE	NE		<0.001	<	0.001	<	0.001		<	0.001	<	<0.001	<0.001		
Xylene P,M	NE	NE		<0.002	<	0.002	<	0.002		<	0.002	<	<0.002	<0.002		
Xylenes (Total)	NE	NE		<0.003	<	0.003	<	0.003		<	0.003	<	<0.003	<0.003		
Total VOCs	NE	NE		<0.019	<	0.122	<	0.122		<	0.122	<	<0.038	<0.038		
<b>TOTAL PETROLEUM HYDROCARBON (ppm)</b>																
Hydrocarbon Content	NE	NE		<	0.2	<	0.2			<	0.2	<	<b>0.27</b>	<0.19		
<b>PAHS BY GCMS (ppm)</b>																
2-Methylnaphthalene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Acenaphthene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Acenaphthylene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Benzo [a] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.00005	<0.00005		
Benzo [a] Pyrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.00005	<0.00005		
Benzo [b] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.00005	<0.00005		
Benzo [g,h,i] Perylene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Benzo [k] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.00005	<0.00005		
Chrysene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.00005	<0.00005		
Dibenzo [a,h] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.00005	<0.00005		
Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Fluorene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Indeno [1,2,3-cd] Pyrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.00005	<0.00005		
Naphthalene	NE	2.67		<0.0002	<	0.002	<	0.002		<	0.002	<	<b>0.001</b>	<0.002		
Phenanthrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
Pyrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<	<0.0002	<0.0002		
<b>INORGANICS (ppm)</b>																
Total Cyanide	NE	NE		<b>0.07</b>	<b>0.050</b>	0.010	<b>0.12</b>	0.010		<b>0.010</b>	0.010	<b>0.48</b>	<b>0.045</b>			
Dissolved Free Cyanide	NE	NE		<0.05	<	0.010	<	0.010		<	0.010	<	<0.005	<b>0.0395</b>		
Physiologically Available Cyanide	NE	NE		<0.05												
Arsenic	NE	NE		<0.0050												
Beryllium	NE	NE		<0.001												
Chromium	NE	NE		<0.020												
Copper	NE	NE		<0.020												
Lead	NE	NE		<0.0050												
Nickel	NE	NE		<0.050												
Zinc	NE	NE		<0.050												
Dissolved Arsenic	NE	NE		<0.0060												
Dissolved Beryllium	NE	NE		<0.001												
Dissolved Chromium	NE	NE		<0.020												
Dissolved Copper	NE	NE		<0.020												
Dissolved Lead	NE	NE		<0.0050												
Dissolved Nickel	NE	NE		<0.050												
Dissolved Zinc	NE	NE		<0.050												

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

**TABLE 5P**  
**GROUNDWATER MONITORING DATA**  
Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		TB-1 / MW-6													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA July 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Result	Result	Result	DL	Result	DL	Note (6)		Result	DL	Result	Result		
VOCs (ppm)			Result	Result	Result	DL	Result	DL	Note (6)		Result	DL	Result	Result		
1,1,1,2-Tetrachloroethane	NE	NE			<	0.001	<	0.001			<	0.001	<0.001	<0.001		
1,1-Dichloroethene	23	0.007			<	0.001	<	0.001			<	0.001	<0.001	<0.001		
1,2,4-Trimethylbenzene	NE	NE	<b>0.01 J</b>	<b>0.0054</b>	<b>0.0074</b>	0.001	<b>0.0031</b>	0.001			<b>0.0032</b>	0.001	<0.001	<b>0.0012</b>		
1,2-Dibromo-3-Chloropropane	NE	0.002			<	0.005	<	0.002			<	0.002	<0.005	<0.005		
1,3,5-Trimethylbenzene	NE	NE		<b>0.01</b>	<b>0.0046</b>	0.001	<b>0.0003</b>	0.001			<	0.001	<0.001	<0.001		
4-Isopropyltoluene	NE	NE											<0.001	<0.001		
Acetone	NE	NE			<	0.025	<	0.010			<b>0.003</b>	0.010	<0.01	<0.01		
Benzene	18	0.14	<b>0.02</b>	<b>0.0495</b>	<b>0.0035</b>	0.001	<b>0.0031</b>	0.001			<b>0.0034</b>	0.001	<b>0.0213</b>	<b>0.0263</b>		
Carbon Tetrachloride	NE	0.07			<	0.001	<	0.001			<	0.001	<0.001	<0.001		
Chloroform	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001		
cis-1,2-Dichloroethene	69	2.4			<	0.001	<	0.001			<	0.001	<0.001	<0.001		
Ethylbenzene	16	1.6	<b>0.03</b>	<b>0.0849</b>	<b>0.0016</b>	0.001	<b>0.068</b>	0.001			<b>0.0360</b>	0.001	<b>0.0243</b>	<b>0.0193</b>		
Isopropylbenzene	NE	NE		<b>0.0074</b>	<	0.001	<b>0.008</b>	0.001			<b>0.0049</b>	0.001	<b>0.0033</b>	<b>0.0037</b>		
Methyl tert-Butyl Ether	NE	5		<0.001	<b>0.005</b>	0.001	<	0.002			<	0.001	<0.001	<0.001		
Naphthalene	NE	2.67		<b>0.0328</b>	<b>0.00267</b>	0.002	<b>0.14</b>	0.001			<b>0.011</b>	0.002	<b>0.0035</b>	<b>0.0045</b>		
n-Butylbenzene	NE	NE		<b>0.0027</b>	<	0.001	<	0.001			<b>0.0012</b>	0.001	<0.001	<0.001		
n-Propylbenzene	NE	NE		<b>0.0079</b>	<	0.001	<b>0.008</b>	0.001			<b>0.0043</b>	0.001	<b>0.0027</b>	<b>0.0027</b>		
sec-Butylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001		
Styrene	50	2.2	<0.02		<b>0.0022</b>	0.001	<	0.001			<	0.001	<0.001	<0.001		
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001		
Tetrachloroethene	NE	0.15			<b>0.00015</b>	0.001	<	0.001			<	0.001	<0.001	<0.001		
Toluene	21	1.7	<0.02	<b>0.0057</b>	<b>0.0017</b>	0.001	<b>0.004</b>	0.001			<b>0.0025</b>	0.001	<b>0.0011</b>	<b>0.0012</b>		
Trichloroethene	87	0.54			<	0.001	<	0.001			<	0.001	<0.001	<0.001		
Vinyl Chloride	NE	0.002			<	0.001	<	0.001			<	0.001	<0.001	<0.001		
Xylene O	NE	NE	<b>0.02</b>	<b>0.082</b>	<	0.001	<b>0.079</b>	0.001			<b>0.042</b>	0.001	<b>0.0212</b>	<b>0.0186</b>		
Xylene P,M	NE	NE	<0.02	<b>0.0079</b>	<	0.002	<b>0.026</b>	0.001			<b>0.0055</b>	0.002	<b>0.0028</b>	<b>0.0028</b>		
Xylenes (Total)	NE	NE	<b>0.02</b>	<b>0.0899</b>	<	0.003	<b>0.105</b>	0.002			<b>0.048</b>	0.003	<b>0.024</b>	<b>0.0213</b>		
Total VOCs	NE	NE	<b>0.08</b>	<b>0.2962</b>	<b>0.02882</b>	0.188	<b>0.340</b>	0.093			<b>0.117</b>	0.122	<b>0.0802</b>	<b>0.0803</b>		
TOTAL PETROLEUM HYDROCARBON (ppm)																
Hydrocarbon Content	NE	NE			<b>2.6</b>	0.2	<b>3.7</b>	0.2			<b>1.8</b>	0.2	<b>3.65</b>	<b>2.98</b>		
PAHS BY GCMS (ppm)																
2-Methylnaphthalene	NE	NE	<b>0.04</b>	<0.0002	<	0.002	<b>0.034</b>	0.002			<	0.002	<0.0002	<0.0002		
Acenaphthene	NE	NE	<b>0.004</b>	<b>0.0315</b>	<b>0.017</b>	0.002	<b>0.013</b>	0.002			<b>0.0082</b>	0.002	<b>0.01</b>	<b>0.0067</b>		
Acenaphthylene	NE	NE	<b>0.013</b>	<b>0.1435</b>	<b>0.071</b>	0.002	<b>0.057</b>	0.002			<b>0.038</b>	0.002	<b>0.057</b>	<b>0.0414 D</b>		
Anthracene	NE	NE	<0.02	<b>0.00134</b>	<	0.002	<b>0.012</b>	0.002			<	0.002	<b>0.0006</b>	<b>0.0005</b>		
Benzo [a] Anthracene	NE	NE	<b>0.06</b>	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005		
Benzo [a] Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005		
Benzo [b] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005		
Benzo [g,h,i] Perylene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002		
Benzo [k] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005		
Chrysene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005		
Dibenzo [a,h] Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005		
Fluoranthene	NE	NE	<0.02	<b>0.00203</b>	<	0.002	<	0.002			<	0.002	<b>0.0007</b>	<b>0.0004</b>		
Fluorene	NE	NE	<b>0.003</b>	<b>0.0364</b>	<b>0.019</b>	0.002	<b>0.013</b>	0.002			<b>0.0081</b>	0.002	<b>0.01</b>	<b>0.0063</b>		
Indeno [1,2,3-cd] Pyrene	NE	NE	<0.02	<0.0003	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005		
Naphthalene	NE	2.67	<0.02	<b>0.0269</b>	<b>0.0077</b>	0.002	<b>0.042</b>	0.002			<b>0.0038</b>	0.002	<b>0.002</b>	<b>0.0018 B</b>		
Phenanthrene	NE	NE	<b>0.004</b>	<b>0.0306</b>	<b>0.014</b>	0.002	<b>0.012</b>	0.002			<b>0.0031</b>	0.002	<b>0.007</b>	<b>0.0037</b>		
Pyrene	NE	NE	<b>0.01 J</b>	<b>0.00104</b>	<	0.002	<	0.002			<	0.002	<b>0.0004</b>	<b>0.0003</b>		
INORGANICS (ppm)																
Total Cyanide	NE	NE	<b>0.18</b>	<b>0.2</b>	<b>0.21</b>	0.010	<b>0.13</b>	0.010			<b>0.21</b>	0.010	<b>0.174</b>	<b>0.271 D</b>		
Dissolved Free Cyanide	NE	NE		<0.05	<b>0.01</b>	0.010	<	0.010			<b>0.040</b>	0.010	<b>0.0063</b>	<b>0.263 D</b>		
Physiologically Available Cyanide	NE	NE		<0.05												
Arsenic	NE	NE	<0.002	<0.0025												
Beryllium	NE	NE	<0.002	<0.0005												
Chromium	NE	NE	<0.024	<0.010												
Copper	NE	NE	<0.024	<0.010												
Lead	NE	NE	<0.050	<0.0025												
Nickel	NE	NE	<0.024	<0.025												
Zinc	NE	NE	<b>0.023</b>	<0.025												
Dissolved Arsenic	NE	NE		<0.0025												
Dissolved Beryllium	NE	NE		<0.0005												
Dissolved Chromium	NE	NE		<0.010												
Dissolved Copper	NE	NE		<0.010												
Dissolved Lead	NE	NE		<0.0025												
Dissolved Nickel	NE	NE		<0.025												
Dissolved Zinc	NE	NE		<b>0.025</b>												

- Notes:
- Blank cells indicate that the parameter was not analyzed during this sampling round
  - D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
  - J "J" qualifier indicates analyte concentration is estimated
  - B "B" qualifier indicates that the analyte was present in the method blank
  - NE Regulatory Limit is not established
  - Bold Value** = concentration detected above the Method Reporting Limit.
  - = concentration equals or exceeds the RIDEM GB Groundwater Objective
  - =detection limit equals or exceeds the RIDEM GB Groundwater Objective
  - (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
  - (2) Well was not sampled because there was limited water
  - (3) NAPL was noted to be present
  - (4) Well was not sampled because it had not been installed yet.
  - (5) Well was not sampled because of an unknown reason
  - (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5Q  
GROUNDWATER MONITORING DATA

Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-109													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA July 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Note (4)							Note (6)						
VOCs (ppm)				Result	Result	DL	Result	DL			Result	DL	Result	Result		
1,1,1,2-Tetrachloroethane	NE	NE		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
1,1-Dichloroethene	23	0.007		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
1,2,4-Trimethylbenzene	NE	NE		<b>0.454</b>	<b>0.27</b>	0.0025	<b>0.26</b>	0.010			<b>0.21</b>	0.0025	<b>0.295</b>	<b>0.126 D</b>		
1,2-Dibromo-3-Chloropropane	NE	0.002		<	0.0130	<	0.002				<	0.0050	<0.05	<0.005		
1,3,5-Trimethylbenzene	NE	NE		<b>0.047</b>	<b>0.017</b>	0.0025	<b>0.02</b>	0.001			<b>0.0097</b>	0.0025	<b>0.0172</b>	<b>0.0057</b>		
4-Isopropyltoluene	NE	NE											<b>0.0104</b>	<b>0.0046</b>		
Acetone	NE	NE		<	0.0630	<	0.010				<	0.0250	<0.1	<0.01		
Benzene	18	0.14		<b>0.0352</b>	<b>0.039</b>	0.0025	<b>0.024</b>	0.001			<b>0.03</b>	0.0025	<b>0.0402</b>	<b>0.115 D</b>		
Carbon Tetrachloride	NE	0.07		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
Chloroform	NE	NE		<0.001	<	0.0025	<	0.001			<	0.0025	<0.01	<0.001		
cis-1,2-Dichloroethene	69	2.4		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
Ethylbenzene	16	1.6		<b>0.177</b>	<b>0.086</b>	0.0025	<	0.001			<b>0.057</b>	0.0025	<b>0.0928</b>	<b>0.0404</b>		
Isopropylbenzene	NE	NE		<b>0.0418</b>	<b>0.038</b>	0.0025	<b>0.028</b>	0.001			<b>0.026</b>	0.0025	<b>0.0337</b>	<b>0.0194</b>		
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.0025	<	0.002			<	0.0025	<0.01	<0.001		
Naphthalene	NE	2.67		<b>0.724</b>	<b>0.41</b>	0.0050	<b>0.3</b>	0.001			<b>0.3</b>	0.0050	<b>0.559</b>	<b>0.163 D</b>		
n-Butylbenzene	NE	NE		<0.001	<b>0.009</b>	0.0025	<	0.001			<b>0.0075</b>	0.0025	<0.01	<0.001		
n-Propylbenzene	NE	NE		<b>0.0217</b>	<b>0.017</b>	0.0025	<b>0.015</b>	0.001			<b>0.014</b>	0.0025	<b>0.0189</b>	<b>0.0101</b>		
sec-Butylbenzene	NE	NE		<b>0.0056</b>	<b>0.0025</b>	0.0025	<	0.001			<b>0.0025</b>	0.0025	<0.01	<0.001		
Styrene	50	2.2		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
Tertiary-amyl methyl ether	NE	NE											<0.01	<0.001		
Tetrachloroethene	NE	0.15		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
Toluene	21	1.7		<b>0.0058</b>	<b>0.0028</b>	0.0025	<b>0.003</b>	0.001			<b>0.0025</b>	0.0025	<0.01	<b>0.003</b>		
Trichloroethene	87	0.54		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
Vinyl Chloride	NE	0.002		<	0.0025	<	0.001				<	0.0025	<0.01	<0.001		
Xylene O	NE	NE		<b>0.0875</b>	<b>0.031</b>	0.0025	<b>0.033</b>	0.001			<b>0.026</b>	0.0025	<b>0.0457</b>	<b>0.0183</b>		
Xylene P,M	NE	NE		<b>0.0875</b>	<b>0.026</b>	0.0050	<b>0.034</b>	0.001			<b>0.019</b>	0.0050	<b>0.0415</b>	<b>0.0128</b>		
Xylenes (Total)	NE	NE		<b>0.175</b>	<b>0.057</b>	0.0075	<b>0.067</b>	0.002			<b>0.045</b>	0.0075	<b>0.0872</b>	<b>0.0311</b>		
Total VOCs	NE	NE		<b>1.6871</b>	<b>0.9483</b>	0.136	<b>0.717</b>	0.044			<b>0.7042</b>	0.09	<b>1.1544</b>	<b>0.5494</b>		
TOTAL PETROLEUM HYDROCARBON (ppm)																
Hydrocarbon Content	NE	NE			<b>1.1</b>	0.2	<b>1.5</b>	0.2			<b>0.66</b>	0.2	<b>3.62</b>	<b>2.79</b>		
PAHS BY GCMS (ppm)																
2-Methylnaphthalene	NE	NE		<b>0.073</b>	<b>0.026</b>	0.002	<b>0.04</b>	0.002			<b>0.021</b>	0.002	<b>0.026</b>	<b>0.0309 D</b>		
Acenaphthene	NE	NE		<b>0.00583</b>	<b>0.0027</b>	0.002	<b>0.0028</b>	0.002			<b>0.0023</b>	0.002	<b>0.004</b>	<b>0.0033</b>		
Acenaphthylene	NE	NE		<b>0.00124</b>	<	0.002	<	0.002			<	0.002	<0.002	<b>0.0004</b>		
Anthracene	NE	NE		<b>0.00065</b>	<	0.002	<	0.002			<	0.002	<0.002	<b>0.0004</b>		
Benzo [a] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Benzo [a] Pyrene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Benzo [b] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Benzo [g,h,i] Perylene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Benzo [k] Fluoranthene	NE	NE		<0.0003	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Chrysene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Dibenzo [a,h] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Fluoranthene	NE	NE		<b>0.00033</b>	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Fluorene	NE	NE		<b>0.00336</b>	<	0.002	<	0.002			<	0.002	<b>0.002</b>	<b>0.0019</b>		
Indeno [1,2,3-cd] Pyrene	NE	NE		<0.0003	<	0.002	<	0.002			<	0.002	<0.002	<0.00005		
Naphthalene	NE	2.67		<b>0.602</b>	<b>0.1</b>	0.002	<b>0.12</b>	0.002			<b>0.096</b>	0.002	<b>0.204</b>	<b>0.0965 D</b>		
Phenanthrene	NE	NE		<b>0.00317</b>	<	0.002	<	0.002			<	0.002	<b>0.002</b>	<b>0.0019</b>		
Pyrene	NE	NE		<b>0.00031</b>	<	0.002	<	0.002			<	0.002	<0.002	<b>0.0002</b>		
INORGANICS (ppm)																
Total Cyanide	NE	NE		<b>0.222</b>	<b>0.28</b>	0.010	<b>0.17</b>	0.010			<b>0.180</b>	0.010	<b>0.235</b>	<b>0.143</b>		
Dissolved Free Cyanide	NE	NE		<b>0.06</b>	<	0.010	<	0.010			<	0.010	<0.005	<b>0.132</b>		
Physiologically Available Cyanide	NE	NE		<0.05												
Arsenic	NE	NE		<b>0.0103</b>												
Beryllium	NE	NE		<0.001												
Chromium	NE	NE		<0.020												
Copper	NE	NE		<0.020												
Lead	NE	NE		<0.0050												
Nickel	NE	NE		<0.050												
Zinc	NE	NE		<0.050												
Dissolved Arsenic	NE	NE		<b>0.0085</b>												
Dissolved Beryllium	NE	NE		<0.001												
Dissolved Chromium	NE	NE		<0.020												
Dissolved Copper	NE	NE		<0.020												
Dissolved Lead	NE	NE		<0.0050												
Dissolved Nickel	NE	NE		<0.050												
Dissolved Zinc	NE	NE		<b>0.051</b>												

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5R  
GROUNDWATER MONITORING DATA

Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-314S									
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013		
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result
VOCs (ppm)												
1,1,1,2-Tetrachloroethane	NE	NE				<	0.001		<	0.001	<0.0025	<0.001
1,1-Dichloroethene	23	0.007				<	0.001		<	0.001	<0.0025	<0.001
1,2,4-Trimethylbenzene	NE	NE				<b>0.0017</b>	0.001		<	0.001	<b>0.0053</b>	<0.001
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.002		<	0.002	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001
4-Isopropyltoluene	NE	NE									<0.0025	<0.001
Acetone	NE	NE				<	0.010		<	0.010	<0.025	<0.01
Benzene	18	0.14				<	0.001		<	0.001	<0.0025	<0.001
Carbon Tetrachloride	NE	0.07				<	0.001		<	0.001	<0.0025	<0.001
Chloroform	NE	NE				<	0.001		<	0.001	<0.0025	<0.001
cis-1,2-Dichloroethene	69	2.4				<	0.001		<	0.001	<0.0025	<0.001
Ethylbenzene	16	1.6				<	0.001		<	0.001	<0.0025	<0.001
Isopropylbenzene	NE	NE				<b>0.0016</b>	0.001		<b>0.0016</b>	0.001	<b>0.0028</b>	<b>0.0007 J</b>
Methyl tert-Butyl Ether	NE	5				<	0.001		<	0.001	<0.0025	<0.001
Naphthalene	NE	2.67				<b>0.0041</b>	0.002		<	0.002	<b>0.0083</b>	<0.001
n-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001
n-Propylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001
sec-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001
Styrene	50	2.2				<	0.001		<	0.001	<0.0025	<0.001
Tertiary-amyl methyl ether	NE	NE									<0.005	<0.001
Tetrachloroethene	NE	0.15				<	0.001		<	0.001	<0.0025	<0.001
Toluene	21	1.7				<	0.001		<	0.001	<0.0025	<0.001
Trichloroethene	87	0.54				<	0.001		<	0.001	<0.0025	<0.001
Vinyl Chloride	NE	0.002				<	0.001		<	0.001	<0.0025	<0.001
Xylene O	NE	NE				<b>0.0041</b>	0.001		<	0.001	<b>0.0052</b>	<0.001
Xylene P,M	NE	NE				<	0.002		<	0.002	<0.005	<0.002
Xylenes (Total)	NE	NE				<b>0.0041</b>	0.003		<	0.003	<b>0.0052</b>	<0.002
Total VOCs	NE	NE				<b>0.0115</b>	0.122		<b>0.0016</b>	0.122	<b>0.0216</b>	<b>0.0007</b>
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE				<b>1.2</b>	0.2		<b>1.4</b>	0.2	<b>4.65</b>	<b>2.08</b>
PAHS BY GCMS (ppm)												
2-Methylnaphthalene	NE	NE				<	0.002		<	0.002	<b>0.0003</b>	<0.0002
Acenaphthene	NE	NE				<b>0.0029</b>	0.002		<	0.002	<b>0.003</b>	<b>0.0025</b>
Acenaphthylene	NE	NE				<	0.002		<	0.002	<b>0.0006</b>	<b>0.0004</b>
Anthracene	NE	NE				<	0.002		<	0.002	<b>0.0005</b>	<b>0.0004</b>
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005
Chrysene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005
Fluoranthene	NE	NE				<	0.002		<	0.002	<b>0.0002</b>	<b>0.0003</b>
Fluorene	NE	NE				<	0.002		<	0.002	<b>0.001</b>	<b>0.0008</b>
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005
Naphthalene	NE	2.67				<	0.002		<	0.002	<b>0.004</b>	<b>0.0003</b>
Phenanthrene	NE	NE				<	0.002		<	0.002	<b>0.0005</b>	<0.0002
Pyrene	NE	NE				<	0.002		<	0.002	<b>0.0003</b>	<b>0.0004</b>
INORGANICS (ppm)												
Total Cyanide	NE	NE				<b>0.20</b>	0.010		<b>0.10</b>	0.010	<b>0.0637</b>	<b>0.0902</b>
Dissolved Free Cyanide	NE	NE				<	0.010		<b>0.010</b>	0.010	<0.005	<b>0.0894</b>
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

	Blank cells indicate that the parameter was not analyzed during this sampling round
D	"D" qualifier indicates analytes reported from a diluted run of the original analysis.
J	"J" qualifier indicates analyte concentration is estimated
B	"B" qualifier indicates that the analyte was present in the method blank
NE	Regulatory Limit is not established
<b>Bold Value</b>	= concentration detected above the Method Reporting Limit.
	= concentration equals or exceeds the RIDEM GB Groundwater Objective
	=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1)	Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2)	Well was not sampled because there was limited water
(3)	NAPL was noted to be present
(4)	Well was not sampled because it had not been installed yet.
(5)	Well was not sampled because of an unknown reason
(6)	Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5S  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-314D											
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013				
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result		
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
1,1-Dichloroethene	23	0.007				<	0.001		<	0.001	<0.001	<0.001		
1,2,4-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.002		<	0.002	<0.002	<0.005		
1,3,5-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
4-Isopropyltoluene	NE	NE									<0.001	<0.001		
Acetone	NE	NE				<	0.010		<	0.010	<0.01	<0.01		
Benzene	18	0.14				<b>0.0016</b>	0.001		<b>0.001</b>	0.001	<0.001	<0.001		
Carbon Tetrachloride	NE	0.07				<	0.001		<	0.001	<0.001	<0.001		
Chloroform	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
cis-1,2-Dichloroethene	69	2.4				<	0.001		<	0.001	<0.001	<0.001		
Ethylbenzene	16	1.6				<	0.001		<	0.001	<0.001	<0.001		
Isopropylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
Methyl tert-Butyl Ether	NE	5				<	0.001		<	0.001	<0.001	<0.001		
Naphthalene	NE	2.67				<b>0.0023</b>	0.002		<	0.002	<0.001	<0.001		
n-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
n-Propylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
sec-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
Styrene	50	2.2				<	0.001		<	0.001	<0.001	<0.001		
Tertiary-amyl methyl ether	NE	NE									<0.002	<b>0.0004 J</b>		
Tetrachloroethene	NE	0.15				<	0.001		<	0.001	<0.001	<0.001		
Toluene	21	1.7				<	0.001		<	0.001	<0.001	<0.001		
Trichloroethene	87	0.54				<	0.001		<	0.001	<0.001	<0.001		
Vinyl Chloride	NE	0.002				<	0.001		<	0.001	<0.001	<0.001		
Xylene O	NE	NE				<	0.001		<	0.001	<0.001	<0.001		
Xylene P,M	NE	NE				<	0.002		<	0.002	<0.002	<0.002		
Xylenes (Total)	NE	NE				<	0.003		<	0.003	<0.003	<0.002		
Total VOCs	NE	NE				<b>0.0039</b>	0.122		<b>0.001</b>	0.122	<0.038	<b>0.0004</b>		
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE				<	0.2		<b>0.33</b>	0.2	<b>1.69</b>	<b>0.53</b>		
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002		
Acenaphthene	NE	NE				<b>0.0037</b>	0.002		<b>0.0027</b>	0.002	<b>0.003</b>	<b>0.0031</b>		
Acenaphthylene	NE	NE				<	0.002		<	0.002	<b>0.0003</b>	<b>0.0002</b>		
Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002		
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005		
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005		
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005		
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002		
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005		
Chrysene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005		
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005		
Fluoranthene	NE	NE				<	0.002		<	0.002	<b>0.0002</b>	<0.0002		
Fluorene	NE	NE				<	0.002		<	0.002	<b>0.0004</b>	<0.0002		
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005		
Naphthalene	NE	2.67				<	0.002		<	0.002	<b>0.004</b>	<b>0.0004</b>		
Phenanthrene	NE	NE				<b>0.002</b>	0.002		<	0.002	<b>0.0002</b>	<0.0002		
Pyrene	NE	NE				<	0.002		<	0.002	<b>0.0003</b>	<b>0.0002</b>		
INORGANICS (ppm)														
Total Cyanide	NE	NE				<b>0.46</b>	0.010		<b>0.32</b>	0.010	<b>0.144</b>	<b>0.317 D</b>		
Dissolved Free Cyanide	NE	NE				<	0.010		<b>0.050</b>	0.010	<0.005	<b>0.154</b>		
Physiologically Available Cyanide	NE	NE												
Arsenic	NE	NE												
Beryllium	NE	NE												
Chromium	NE	NE												
Copper	NE	NE												
Lead	NE	NE												
Nickel	NE	NE												
Zinc	NE	NE												
Dissolved Arsenic	NE	NE												
Dissolved Beryllium	NE	NE												
Dissolved Chromium	NE	NE												
Dissolved Copper	NE	NE												
Dissolved Lead	NE	NE												
Dissolved Nickel	NE	NE												
Dissolved Zinc	NE	NE												

Notes:

	Blank cells indicate that the parameter was not analyzed during this sampling round
D	"D" qualifier indicates analytes reported from a diluted run of the original analysis.
J	"J" qualifier indicates analyte concentration is estimated
B	"B" qualifier indicates that the analyte was present in the method blank
NE	Regulatory Limit is not established
<b>Bold Value</b>	= concentration detected above the Method Reporting Limit.
	= concentration equals or exceeds the RIDEM GB Groundwater Objective
	=detection limit equals or exceeds the RIDEM GB Groundwater Objective
(1)	Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
(2)	Well was not sampled because there was limited water
(3)	NAPL was noted to be present
(4)	Well was not sampled because it had not been installed yet.
(5)	Well was not sampled because of an unknown reason
(6)	Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



TABLE 5T  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-316S									
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013		
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result
VOCs (ppm)												
1,1,1,2-Tetrachloroethane	NE	NE							<	0.001	<0.001	<0.001
1,1-Dichloroethene	23	0.007							<	0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE							<	0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	NE	0.002							<	<b>0.002</b>	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE							<	0.001	<0.001	<0.001
4-Isopropyltoluene	NE	NE									<0.001	<0.001
Acetone	NE	NE							<b>0.012</b>	0.010	<0.01	<0.01
Benzene	18	0.14							<	0.001	<0.001	<0.001
Carbon Tetrachloride	NE	0.07							<	0.001	<0.001	<0.001
Chloroform	NE	NE							<	0.001	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4							<	0.001	<0.001	<0.001
Ethylbenzene	16	1.6							<	0.001	<0.001	<0.001
Isopropylbenzene	NE	NE							<	0.001	<0.001	<0.001
Methyl tert-Butyl Ether	NE	5							<	0.001	<0.001	<0.001
Naphthalene	NE	2.67							<	0.002	<0.001	<0.001
n-Butylbenzene	NE	NE							<	0.001	<0.001	<0.001
n-Propylbenzene	NE	NE							<	0.001	<0.001	<0.001
sec-Butylbenzene	NE	NE							<	0.001	<0.001	<0.001
Styrene	50	2.2							<	0.001	<0.001	<0.001
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001
Tetrachloroethene	NE	0.15							<	0.001	<0.001	<0.001
Toluene	21	1.7							<	0.001	<0.001	<0.001
Trichloroethene	87	0.54							<	0.001	<0.001	<0.001
Vinyl Chloride	NE	0.002							<	0.001	<0.001	<0.001
Xylene O	NE	NE							<	0.001	<0.001	<0.001
Xylene P,M	NE	NE							<	0.002	<0.002	<0.002
Xylenes (Total)	NE	NE							<	0.003	<0.003	<0.002
Total VOCs	NE	NE							<b>0.012</b>	0.122	<0.04	<0.6451
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE										
PAHS BY GCMS (ppm)												
2-Methylnaphthalene	NE	NE										
Acenaphthene	NE	NE										
Acenaphthylene	NE	NE										
Anthracene	NE	NE										
Benzo [a] Anthracene	NE	NE										
Benzo [a] Pyrene	NE	NE										
Benzo [b] Fluoranthene	NE	NE										
Benzo [g,h,i] Perylene	NE	NE										
Benzo [k] Fluoranthene	NE	NE										
Chrysene	NE	NE										
Dibenzo [a,h] Anthracene	NE	NE										
Fluoranthene	NE	NE										
Fluorene	NE	NE										
Indeno [1,2,3-cd] Pyrene	NE	NE										
Naphthalene	NE	2.67										
Phenanthrene	NE	NE										
Pyrene	NE	NE										
INORGANICS (ppm)												
Total Cyanide	NE	NE										
Dissolved Free Cyanide	NE	NE				<b>0.11</b>	0.010					
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5U  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-316D									
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013		
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result
VOCs (ppm)												
1,1,1,2-Tetrachloroethane	NE	NE				<	0.001		<	0.001	<0.001	<0.001
1,1-Dichloroethene	23	0.007				<	0.001		<	0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.002		<	0.002	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001
4-Isopropyltoluene	NE	NE									<0.001	<0.001
Acetone	NE	NE				<	0.010		<	0.010	<0.01	<0.01
Benzene	18	0.14				<	0.001		<	0.001	<0.001	<0.001
Carbon Tetrachloride	NE	0.07				<	0.001		<	0.001	<0.001	<0.001
Chloroform	NE	NE				<	0.001		<	0.001	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4				<	0.001		<	0.001	<0.001	<0.001
Ethylbenzene	16	1.6				<	0.001		<	0.001	<0.001	<0.001
Isopropylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001
Methyl tert-Butyl Ether	NE	5				<	0.001		<	0.001	<0.001	<0.001
Naphthalene	NE	2.67				<	0.002		<	0.002	<0.001	<0.001
n-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001
n-Propylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001
sec-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001
Styrene	50	2.2				<	0.001		<	0.001	<0.001	<0.001
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001
Tetrachloroethene	NE	0.15				<	0.001		<	0.001	<0.001	<0.001
Toluene	21	1.7				<	0.001		<	0.001	<0.001	<0.001
Trichloroethene	87	0.54				<	0.001		<	0.001	<0.001	<0.001
Vinyl Chloride	NE	0.002				<	0.001		<	0.001	<0.001	<0.001
Xylene O	NE	NE				<	0.001		<	0.001	<0.001	<0.001
Xylene P,M	NE	NE				<	0.002		<	0.002	<0.002	<0.002
Xylenes (Total)	NE	NE				<	0.003		<	0.003	<0.003	<0.002
Total VOCs	NE	NE				<	0.122		<	0.122	<0.04	<0.6451
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE				<	0.2		<	0.2	<0.2	<0.19
PAHS BY GCMS (ppm)												
2-Methylnaphthalene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Acenaphthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Acenaphthylene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002 D
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002 D
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002 D
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002 D
Chrysene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002 D
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002 D
Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Fluorene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002 D
Naphthalene	NE	2.67				<	0.002		<	0.002	<b>0.0004</b>	<0.0009 D
Phenanthrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0009 D
INORGANICS (ppm)												
Total Cyanide	NE	NE				<b>0.020</b>	0.010		<b>0.010</b>	0.010	<b>0.0083</b>	<b>0.0129</b>
Dissolved Free Cyanide	NE	NE				<	0.010		<	0.010	<0.005	<b>0.0129</b>
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



TABLE 5V  
GROUNDWATER MONITORING DATA

Former Power Plant Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-337									
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013		
			Note (4)	Note (4)	Note (4)	Note (4)						
VOCs (ppm)							Result	DL	Result	DL	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001	<	0.001	<0.001	<0.001
1,1-Dichloroethene	23	0.007					<	0.001	<	0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002	<	0.002	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
4-Isopropyltoluene	NE	NE									<0.001	<0.001
Acetone	NE	NE					<	0.010	<	0.010	<0.01	<0.01
Benzene	18	0.14					<	0.001	<	0.001	<0.001	<0.001
Carbon Tetrachloride	NE	0.07					<	0.001	<	0.001	<0.001	<0.001
Chloroform	NE	NE					<	0.001	<	0.001	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4					<	0.001	<	0.001	<0.001	<0.001
Ethylbenzene	16	1.6					<	0.001	<	0.001	<0.001	<0.001
Isopropylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
Methyl tert-Butyl Ether	NE	5					<	0.001	<	0.001	<0.001	<0.001
Naphthalene	NE	2.67					<	0.002	<	0.002	<0.001	<0.001
n-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
n-Propylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
sec-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
Styrene	50	2.2					<	0.001	<	0.001	<0.001	<0.001
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001
Tetrachloroethene	NE	0.15					<	0.001	<	0.001	<0.001	<0.001
Toluene	21	1.7					<	0.001	<	0.001	<0.001	<0.001
Trichloroethene	87	0.54					<	0.001	<	0.001	<0.001	<0.001
Vinyl Chloride	NE	0.002					<	0.001	<	0.001	<0.001	<0.001
Xylene O	NE	NE					<	0.001	<	0.001	<0.001	<0.001
Xylene P,M	NE	NE					<	0.002	<	0.002	<0.002	<0.002
Xylenes (Total)	NE	NE					<	0.003	<	0.003	<0.003	<0.002
Total VOCs	NE	NE					<	0.122	<	0.122	<0.04	<0.6451
<b>TOTAL PETROLEUM HYDROCARBON (ppm)</b>												
Hydrocarbon Content	NE	NE					<b>0.69</b>	<b>0.2</b>	<b>0.46</b>	<b>0.2</b>	<b>0.91</b>	<b>1.36</b>
<b>PAHS BY GCMS (ppm)</b>												
2-Methylnaphthalene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0009 D
Acenaphthene	NE	NE					<	0.002	<	0.002	<b>0.0004</b>	<0.0009 D
Acenaphthylene	NE	NE					<	0.002	<	0.002	<b>0.0004</b>	<0.001 D
Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0009 D
Benzo [a] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [a] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [b] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [g,h,i] Perylene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0009 D
Benzo [k] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Chrysene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Dibenzo [a,h] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Fluoranthene	NE	NE					<	0.002	<	0.002	<b>0.001</b>	<b>0.0012 D</b>
Fluorene	NE	NE					<	0.002	<	0.002	<b>0.0009</b>	<b>0.0016 D</b>
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Naphthalene	NE	2.67					<	0.002	<	0.002	<b>0.0002</b>	<b>0.0014 B D</b>
Phenanthrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0009 D
Pyrene	NE	NE					<	0.002	<	0.002	<b>0.001</b>	<b>0.0012 D</b>
<b>INORGANICS (ppm)</b>												
Total Cyanide	NE	NE					<b>0.20</b>	0.010	<b>0.19</b>	0.010	<b>0.127</b>	<b>0.282 D</b>
Dissolved Free Cyanide	NE	NE					<	0.010	<	0.010	<b>0.0099</b>	<b>0.267 D</b>
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5W  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

South Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-107													
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010		GZA July 2010		GZA December 2010		GZA July 2011		GZA July 2012		GZA August 2013	
			Note (4)		Result	DL	Result	DL	Result	DL	Result	DL	Result	DL	Result	DL
VOCs (ppm)																
1,1,1,2-Tetrachloroethane	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
1,1-Dichloroethene	23	0.007			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
1,2,4-Trimethylbenzene	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
1,2-Dibromo-3-Chloropropane	NE	0.002			<	0.005	<	0.002			<	0.002	<	0.005	<	0.005
1,3,5-Trimethylbenzene	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
4-Isopropyltoluene	NE	NE													<	0.001
Acetone	NE	NE			<	0.025	<	0.010			<	0.010	<	0.01	<	0.01
Benzene	18	0.14			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Carbon Tetrachloride	NE	0.07			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Chloroform	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
cis-1,2-Dichloroethene	69	2.4			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Ethylbenzene	16	1.6			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Isopropylbenzene	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Methyl tert-Butyl Ether	NE	5			<	0.001	<	0.002			<	0.001	<	0.001	<	0.001
Naphthalene	NE	2.67			<	0.002	<	0.001			<	0.002	<	0.001	<	0.001
n-Butylbenzene	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
n-Propylbenzene	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
sec-Butylbenzene	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Styrene	50	2.2			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Tertiary-amyl methyl ether	NE	NE													<	0.001
Tetrachloroethene	NE	0.15			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Toluene	21	1.7			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Trichloroethene	87	0.54			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Vinyl Chloride	NE	0.002			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Xylene O	NE	NE			<	0.001	<	0.001			<	0.001	<	0.001	<	0.001
Xylene P,M	NE	NE			<	0.002	<	0.001			<	0.002	<	0.002	<	0.002
Xylenes (Total)	NE	NE			<	0.003	<	0.002			<	0.003	<	0.003	<	0.002
Total VOCs	NE	NE			<	0.188	<	0.093			<	0.122	<	0.04	<	0.6451
TOTAL PETROLEUM HYDROCARBON (ppm)																
Hydrocarbon Content	NE	NE			<	0.2	<	0.2			<	0.2	<	0.21	<	0.19
PAHS BY GCMS (ppm)																
2-Methylnaphthalene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Acenaphthene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Acenaphthylene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Anthracene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Benzo [a] Anthracene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0002 D
Benzo [a] Pyrene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0002 D
Benzo [b] Fluoranthene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0002 D
Benzo [g,h,i] Perylene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Benzo [k] Fluoranthene	NE	NE			<	0.0003	<	0.002			<	0.002	<	0.0002	<	0.0002 D
Chrysene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0002 D
Dibenzo [a,h] Anthracene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0002 D
Fluoranthene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Fluorene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Indeno [1,2,3-cd] Pyrene	NE	NE			<	0.0003	<	0.002			<	0.002	<	0.0002	<	0.0002 D
Naphthalene	NE	2.67			<	0.0002	<	0.002			<	0.002	<	0.002	<	0.0009 D
Phenanthrene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
Pyrene	NE	NE			<	0.0002	<	0.002			<	0.002	<	0.0002	<	0.0009 D
INORGANICS (ppm)																
Total Cyanide	NE	NE			<b>0.07</b>	<b>0.020</b>	0.010	<b>0.052</b>	0.010		<b>0.040</b>	0.010	<b>0.0306</b>	<b>0.0472</b>		
Dissolved Free Cyanide	NE	NE			<	0.05	<	0.010	<	0.010	<	0.010	<	0.005	<	<b>0.0445</b>
Physiologically Available Cyanide	NE	NE			<	0.05										
Arsenic	NE	NE			<	0.0050										
Beryllium	NE	NE			<b>0.003</b>											
Chromium	NE	NE			<b>0.038</b>											
Copper	NE	NE			<b>0.12</b>											
Lead	NE	NE			<b>0.0075</b>											
Nickel	NE	NE			<b>0.092</b>											
Zinc	NE	NE			<b>0.255</b>											
Dissolved Arsenic	NE	NE			<	0.0050										
Dissolved Beryllium	NE	NE			<b>0.003</b>											
Dissolved Chromium	NE	NE			<b>0.037</b>											
Dissolved Copper	NE	NE			<b>0.119</b>											
Dissolved Lead	NE	NE			<b>0.0075</b>											
Dissolved Nickel	NE	NE			<b>0.093</b>											
Dissolved Zinc	NE	NE			<b>0.259</b>											

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5X  
GROUNDWATER MONITORING DATA

South Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID:		MW-318S										
	Collected By:		AES	VHB	GZA		GZA		GZA		GZA		GZA
	RIDEM GB	RIDEM GB GW	1996	2006	January 2010	June 2010	December 2010	July 2011	July 2012	August 2013			
GW UCL	Objectives	Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result		
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE				<	0.01		<	0.01	<0.05	<0.001	
1,1-Dichloroethene	23	0.007				<	0.01		<	0.01	<0.05	<0.001	
1,2,4-Trimethylbenzene	NE	NE				<b>0.052</b>	0.01		<b>0.04</b>	0.01	<0.05	<b>0.043</b>	
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.02		<	0.02	<0.25	<0.005	
1,3,5-Trimethylbenzene	NE	NE				<b>0.023</b>	0.01		<b>0.017</b>	0.01	<0.05	<b>0.0177</b>	
4-Isopropyltoluene	NE	NE									<0.05	<b>0.0012</b>	
Acetone	NE	NE				<	0.10		<	0.10	<0.5	<0.01	
Benzene	18	0.14				<b>0.088</b>	0.01		<b>0.089</b>	0.01	<b>0.063</b>	<b>0.0733</b>	
Carbon Tetrachloride	NE	0.07				<	0.01		<	0.01	<0.05	<0.001	
Chloroform	NE	NE				<	0.01		<	0.01	<0.05	<0.001	
cis-1,2-Dichloroethene	69	2.4				<	0.01		<	0.01	<0.05	<0.001	
Ethylbenzene	16	1.6				<b>0.012</b>	0.01		<b>0.01</b>	0.01	<0.05	<b>0.0099</b>	
Isopropylbenzene	NE	NE				<	0.01		<	0.01	<0.05	<0.001	
Methyl tert-Butyl Ether	NE	5				<	0.01		<	0.01	<0.05	<0.001	
Naphthalene	NE	2.67				<b>1.2</b>	0.02		<b>1.1</b>	0.02	<b>1.22</b>	<b>0.988 D</b>	
n-Butylbenzene	NE	NE				<	0.01		<	0.01	<0.05	<0.001	
n-Propylbenzene	NE	NE				<	0.01		<	0.01	<0.05	<b>0.002</b>	
sec-Butylbenzene	NE	NE				<	0.01		<	0.01	<0.05	<0.001	
Styrene	50	2.2				<	0.01		<	0.01	<0.05	<b>0.0051</b>	
Tertiary-amyl methyl ether	NE	NE									<0.05	<0.001	
Tetrachloroethene	NE	0.15				<	0.01		<	0.01	<0.05	<0.001	
Toluene	21	1.7				<b>0.076</b>	0.01		<b>0.072</b>	0.01	<b>0.0575</b>	<b>0.0659</b>	
Trichloroethene	87	0.54				<	0.01		<	0.01	<0.05	<0.001	
Vinyl Chloride	NE	0.002				<	0.01		<	0.01	<0.05	<0.001	
Xylene O	NE	NE				<b>0.046</b>	0.01		<b>0.039</b>	0.01	<0.05	<b>0.0374</b>	
Xylene P,M	NE	NE				<b>0.11</b>	0.02		<b>0.082</b>	0.02	<0.1	<b>0.083</b>	
Xylenes (Total)	NE	NE				<b>0.156</b>	0.03		<b>0.121</b>	0.03	<0.15	<b>0.12</b>	
Total VOCs	NE	NE				<b>1.61</b>	1.22		<b>1.449</b>	1.22	<b>1.3405</b>	<b>1.3265</b>	
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE				<b>1</b>	1.0		<b>2.9</b>	0.2	<b>4.13</b>	<b>3.42</b>	
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE				<b>0.048</b>	0.002		<b>0.044</b>	0.01	<b>0.06</b>	<b>0.0397 D</b>	
Acenaphthene	NE	NE				<b>0.006</b>	0.002		<	0.01	<b>0.009</b>	<b>0.0046 D</b>	
Acenaphthylene	NE	NE				<b>0.021</b>	0.002		<b>0.014</b>	0.01	<b>0.024</b>	<b>0.0129 D</b>	
Anthracene	NE	NE				<b>0.019</b>	0.002		<	0.01	<b>0.007</b>	<b>0.0036 D</b>	
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.01	<0.002	<0.0002 D	
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.01	<0.002	<0.0002 D	
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.01	<0.002	<0.0002 D	
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.01	<0.002	<0.0009 D	
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.01	<0.002	<0.0002 D	
Chrysene	NE	NE				<	0.002		<	0.01	<0.002	<0.0002 D	
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.01	<0.002	<0.0002 D	
Fluoranthene	NE	NE				<b>0.004</b>	0.002		<	0.01	<0.002	<b>0.001 D</b>	
Fluorene	NE	NE				<b>0.014</b>	0.002		<b>0.012</b>	0.01	<b>0.02</b>	<b>0.0111 D</b>	
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.01	<0.002	<0.0002 D	
Naphthalene	NE	2.67				<b>0.21</b>	0.002		<b>0.38</b>	0.01	<b>0.753</b>	<b>0.351 B D</b>	
Phenanthrene	NE	NE				<b>0.018</b>	0.002		<	0.01	<b>0.019</b>	<b>0.0106 D</b>	
Pyrene	NE	NE				<b>0.003</b>	0.002		<	0.01	<0.002	<0.0009 D	
INORGANICS (ppm)													
Total Cyanide	NE	NE				<b>0.50</b>	0.010		<b>0.01</b>	0.010	<b>0.0359</b>	<b>0.0125</b>	
Dissolved Free Cyanide	NE	NE				<b>0.020</b>	0.010		<b>0.01</b>	0.010	<0.005	<b>0.0119</b>	
Physiologically Available Cyanide	NE	NE											
Arsenic	NE	NE											
Beryllium	NE	NE											
Chromium	NE	NE											
Copper	NE	NE											
Lead	NE	NE											
Nickel	NE	NE											
Zinc	NE	NE											
Dissolved Arsenic	NE	NE											
Dissolved Beryllium	NE	NE											
Dissolved Chromium	NE	NE											
Dissolved Copper	NE	NE											
Dissolved Lead	NE	NE											
Dissolved Nickel	NE	NE											
Dissolved Zinc	NE	NE											

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5Y  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

South Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-318D												
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010	GZA July 2011	GZA July 2012	GZA August 2013					
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result			
VOCs (ppm)															
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
1,1-Dichloroethene	23	0.007					<	0.001		<	0.001	<	0.001	<	0.001
1,2,4-Trimethylbenzene	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002		<	0.002	<	0.002	<	0.005
1,3,5-Trimethylbenzene	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
4-Isopropyltoluene	NE	NE												<	0.001
Acetone	NE	NE					<	0.010		<	0.010	<	0.010	<	0.010
Benzene	18	0.14					<	0.001		<	0.001	<	0.001	<	0.001
Carbon Tetrachloride	NE	0.07					<	0.001		<	0.001	<	0.001	<	0.001
Chloroform	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
cis-1,2-Dichloroethene	69	2.4					<	0.001		<	0.001	<	0.001	<	0.001
Ethylbenzene	16	1.6					<	0.001		<	0.001	<	0.001	<	0.001
Isopropylbenzene	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
Methyl tert-Butyl Ether	NE	5					<	0.001		<	0.001	<	0.001	<	0.001
Naphthalene	NE	2.67					<b>0.0043</b>	0.002		<	0.002	<	0.002	<	0.001
n-Butylbenzene	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
n-Propylbenzene	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
sec-Butylbenzene	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
Styrene	50	2.2					<	0.001		<	0.001	<	0.001	<	0.001
Tertiary-amyl methyl ether	NE	NE												<	0.001
Tetrachloroethene	NE	0.15					<	0.001		<	0.001	<	0.001	<	0.001
Toluene	21	1.7					<	0.001		<	0.001	<	0.001	<	0.001
Trichloroethene	87	0.54					<	0.001		<	0.001	<	0.001	<	0.001
Vinyl Chloride	NE	0.002					<	0.001		<	0.001	<	0.001	<	0.001
Xylene O	NE	NE					<	0.001		<	0.001	<	0.001	<	0.001
Xylene P,M	NE	NE					<	0.002		<	0.002	<	0.002	<	0.002
Xylenes (Total)	NE	NE					<	0.003		<	0.003	<	0.003	<	0.003
Total VOCs	NE	NE					<	0.122		<	0.122	<	0.122	<	0.04
TOTAL PETROLEUM HYDROCARBON (ppm)															
Hydrocarbon Content	NE	NE					<	0.2		<	0.2	<	0.2	<	0.21
PAHS BY GCMS (ppm)															
2-Methylnaphthalene	NE	NE					<	0.002		<	0.002	<	0.002	<b>0.0008</b>	<0.0009 D
Acenaphthene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Acenaphthylene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Anthracene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Benzo [a] Anthracene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Benzo [a] Pyrene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Benzo [b] Fluoranthene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Benzo [g,h,i] Perylene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Benzo [k] Fluoranthene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Chrysene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Dibenzo [a,h] Anthracene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Fluoranthene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Fluorene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
Naphthalene	NE	2.67					<	0.002		<	0.002	<	0.002	<b>0.01</b>	<0.0009 D
Phenanthrene	NE	NE					<b>0.002</b>	0.002		<	0.002	<	0.002	<	0.0002
Pyrene	NE	NE					<	0.002		<	0.002	<	0.002	<	0.0002
INORGANICS (ppm)															
Total Cyanide	NE	NE					<	0.010		<	0.010	<	0.010	<	0.005
Dissolved Free Cyanide	NE	NE					<	0.010		<	0.010	<	0.010	<	0.005
Physiologically Available Cyanide	NE	NE													
Arsenic	NE	NE													
Beryllium	NE	NE													
Chromium	NE	NE													
Copper	NE	NE													
Lead	NE	NE													
Nickel	NE	NE													
Zinc	NE	NE													
Dissolved Arsenic	NE	NE													
Dissolved Beryllium	NE	NE													
Dissolved Chromium	NE	NE													
Dissolved Copper	NE	NE													
Dissolved Lead	NE	NE													
Dissolved Nickel	NE	NE													
Dissolved Zinc	NE	NE													

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5Z  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

South Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-334S									
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010		GZA July 2011		GZA July 2012	GZA August 2013
			Note (4)	Note (4)	Note (4)	Note (4)						
VOCs (ppm)							Result	DL	Result	DL	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001	<	0.001	<0.001	<0.001
1,1-Dichloroethene	23	0.007					<	0.001	<	0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE					<b>0.0034</b>	0.001	<	0.001	<b>0.0016</b>	<b>0.0011</b>
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002	<	0.002	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE					<b>0.0013</b>	0.001	<	0.001	<0.001	<0.001
4-Isopropyltoluene	NE	NE									<0.001	<0.001
Acetone	NE	NE					<	0.010	<	0.010	<0.01	<0.01
Benzene	18	0.14					<b>0.0032</b>	0.001	<b>0.001</b>	0.001	<b>0.0021</b>	<b>0.002</b>
Carbon Tetrachloride	NE	0.07					<	0.001	<	0.001	<0.001	<0.001
Chloroform	NE	NE					<	0.001	<	0.001	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4					<	0.001	<	0.001	<0.001	<0.001
Ethylbenzene	16	1.6					<	0.001	<	0.001	<0.001	<0.001
Isopropylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
Methyl tert-Butyl Ether	NE	5					<	0.001	<	0.001	<0.001	<0.001
Naphthalene	NE	2.67					<b>0.071</b>	0.002	<b>0.014</b>	0.002	<b>0.0429</b>	<b>0.0334</b>
n-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
n-Propylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
sec-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001
Styrene	50	2.2					<	0.001	<	0.001	<0.001	<0.001
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001
Tetrachloroethene	NE	0.15					<	0.001	<	0.001	<0.001	<0.001
Toluene	21	1.7					<b>0.0018</b>	0.001	<b>0.0011</b>	0.001	<b>0.0012</b>	<b>0.001</b>
Trichloroethene	87	0.54					<	0.001	<	0.001	<0.001	<0.001
Vinyl Chloride	NE	0.002					<	0.001	<	0.001	<0.001	<0.001
Xylene O	NE	NE					<b>0.0025</b>	0.001	<	0.001	<b>0.0013</b>	<0.001
Xylene P,M	NE	NE					<b>0.0042</b>	0.002	<	0.002	<0.002	<0.002
Xylenes (Total)	NE	NE					<b>0.0067</b>	0.003	<	0.003	<b>0.0013</b>	<0.002
Total VOCs	NE	NE					<b>0.0874</b>	0.122	<b>0.0161</b>	0.122	<b>0.0491</b>	<b>0.0375</b>
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE					<b>0.5</b>	0.2	<b>0.22</b>	0.2	<b>0.55</b>	<b>0.52</b>
PAHS BY GCMS (ppm)												
2-Methylnaphthalene	NE	NE					<b>0.0028</b>	0.002	<	0.002	<b>0.003</b>	<b>0.0019 D</b>
Acenaphthene	NE	NE					<	0.002	<	0.002	<b>0.001</b>	<0.001 D
Acenaphthylene	NE	NE					<	0.002	<	0.002	<b>0.0002</b>	<0.001 D
Anthracene	NE	NE					<	0.002	<	0.002	<b>0.0005</b>	<0.001 D
Benzo [a] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [a] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [b] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [g,h,i] Perylene	NE	NE					<	0.002	<	0.002	<0.0002	<0.001 D
Benzo [k] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Chrysene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Dibenzo [a,h] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Fluoranthene	NE	NE					<	0.002	<	0.002	<b>0.0006</b>	<0.001 D
Fluorene	NE	NE					<	0.002	<	0.002	<b>0.001</b>	<0.001 D
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D
Naphthalene	NE	2.67					<b>0.018</b>	0.002	<b>0.0075</b>	0.002	<b>0.023</b>	<b>0.0142 B D</b>
Phenanthrene	NE	NE					<b>0.0021</b>	0.002	<	0.002	<b>0.003</b>	<b>0.0027 D</b>
Pyrene	NE	NE					<	0.002	<	0.002	<b>0.0004</b>	<0.001 D
INORGANICS (ppm)												
Total Cyanide	NE	NE					<b>0.040</b>	0.010	<b>0.02</b>	0.010	<b>0.0564</b>	<b>0.0352</b>
Dissolved Free Cyanide	NE	NE					<	0.010	<	0.010	<0.005	<b>0.0286</b>
Physiologically Available Cyanide	NE	NE										
Arsenic	NE	NE										
Beryllium	NE	NE										
Chromium	NE	NE										
Copper	NE	NE										
Lead	NE	NE										
Nickel	NE	NE										
Zinc	NE	NE										
Dissolved Arsenic	NE	NE										
Dissolved Beryllium	NE	NE										
Dissolved Chromium	NE	NE										
Dissolved Copper	NE	NE										
Dissolved Lead	NE	NE										
Dissolved Nickel	NE	NE										
Dissolved Zinc	NE	NE										

Notes:

- Blank cells indicate that the parameter was not analyzed during this sampling round
- D "D" qualifier indicates analytes reported from a diluted run of the original analysis.
- J "J" qualifier indicates analyte concentration is estimated
- B "B" qualifier indicates that the analyte was present in the method blank
- NE Regulatory Limit is not established
- Bold Value** = concentration detected above the Method Reporting Limit.
- = concentration equals or exceeds the RIDEM GB Groundwater Objective
- =detection limit equals or exceeds the RIDEM GB Groundwater Objective
- (1) Method 2 GB Objective criteria for naphthalene developed by GZA in accordance with the methods described in the Remediation Regulations.
- (2) Well was not sampled because there was limited water
- (3) NAPL was noted to be present
- (4) Well was not sampled because it had not been installed yet.
- (5) Well was not sampled because of an unknown reason
- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



TABLE 5AA  
GROUNDWATER MONITORING DATA

1/6/2014  
GZA File No. 05.00043654.00

South Fill Area  
Former Tidewater Facility  
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-334D										
	RIDEM GB GW UCL	RIDEM GB GW Objectives	AES 1996	VHB 2006	GZA January 2010	GZA June 2010	GZA December 2010		GZA July 2011		GZA July 2012	GZA August 2013	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE						<	0.001	<	0.001	<0.001	<0.001
1,1-Dichloroethene	23	0.007						<	0.001	<	0.001	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE						<b>0.0042</b>	0.001	<	0.001	<0.001	<0.001
1,2-Dibromo-3-Chloropropane	NE	0.002						<	0.002	<	0.002	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE						<b>0.0014</b>	0.001	<	0.001	<0.001	<0.001
4-Isopropyltoluene	NE	NE										<0.001	<0.001
Acetone	NE	NE						<	0.010	<	0.010	<0.01	<0.01
Benzene	18	0.14						<b>0.0030</b>	0.001	<b>0.0013</b>	0.001	<b>0.0013</b>	<b>0.0015</b>
Carbon Tetrachloride	NE	0.07						<	0.001	<	0.001	<0.001	<0.001
Chloroform	NE	NE						<	0.001	<	0.001	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4						<b>0.0024</b>	0.001	<b>0.0011</b>	0.001	<b>0.0012</b>	<b>0.0012</b>
Ethylbenzene	16	1.6						<b>0.0011</b>	0.001	<	0.001	<0.001	<0.001
Isopropylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001
Methyl tert-Butyl Ether	NE	5						<	0.001	<	0.001	<0.001	<0.001
Naphthalene	NE	2.67						<b>0.11</b>	0.002	<b>0.0097</b>	0.002	<b>0.0213</b>	<b>0.0132</b>
n-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001
n-Propylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001
sec-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001
Styrene	50	2.2						<	0.001	<	0.001	<0.001	<0.001
Tertiary-amyl methyl ether	NE	NE										<0.001	<0.001
Tetrachloroethene	NE	0.15						<	0.001	<	0.001	<0.001	<0.001
Toluene	21	1.7						<b>0.0018</b>	0.001	<	0.001	<0.001	<0.001
Trichloroethene	87	0.54						<b>0.0045</b>	0.001	<b>0.0014</b>	0.001	<b>0.0023</b>	<b>0.0021</b>
Vinyl Chloride	NE	0.002						<	0.001	<	0.001	<0.001	<0.001
Xylene O	NE	NE						<b>0.0036</b>	0.001	<	0.001	<0.001	<0.001
Xylene P,M	NE	NE						<b>0.0040</b>	0.002	<	0.002	<0.002	<0.002
Xylenes (Total)	NE	NE						<b>0.0076</b>	0.003	<	0.003	<0.003	<0.002
Total VOCs	NE	NE						<b>0.136</b>	0.122	<b>0.0135</b>	0.122	<b>0.0261</b>	<b>0.018</b>
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE						<b>0.47</b>	0.2	<	0.2	<b>0.45</b>	<b>0.33</b>
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE						<b>0.0099</b>	0.002	<	0.002	<b>0.002</b>	<b>0.0013 D</b>
Acenaphthene	NE	NE						<	0.002	<	0.002	<b>0.0008</b>	<0.0009 D
Acenaphthylene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0009 D
Anthracene	NE	NE						<	0.002	<	0.002	<b>0.0005</b>	<0.0009 D
Benzo [a] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [a] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [b] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D
Benzo [g,h,i] Perylene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0009 D
Benzo [k] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D
Chrysene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D
Dibenzo [a,h] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D
Fluoranthene	NE	NE						<	0.002	<	0.002	<b>0.0007</b>	<0.0009 D
Fluorene	NE	NE						<	0.002	<	0.002	<b>0.001</b>	<0.0009 D
Indeno [1,2,3-cd] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D
Naphthalene	NE	2.67						<	0.002	<b>0.0036</b>	0.002	<b>0.008</b>	<b>0.0067 B D</b>
Phenanthrene	NE	NE						<b>0.002</b>	0.002	<	0.002	<b>0.003</b>	<b>0.0029 D</b>
Pyrene	NE	NE						<	0.002	<	0.002	<b>0.0005</b>	<0.0009 D
INORGANICS (ppm)													
Total Cyanide	NE	NE						<b>0.35</b>	0.010	<b>0.02</b>	0.010	<b>0.0326</b>	<b>0.0256</b>
Dissolved Free Cyanide	NE	NE						<b>0.060</b>	0.010	<	0.010	<0.005	<b>0.0245</b>
Physiologically Available Cyanide	NE	NE											
Arsenic	NE	NE											
Beryllium	NE	NE											
Chromium	NE	NE											
Copper	NE	NE											
Lead	NE	NE											
Nickel	NE	NE											
Zinc	NE	NE											
Dissolved Arsenic	NE	NE											
Dissolved Beryllium	NE	NE											
Dissolved Chromium	NE	NE											
Dissolved Copper	NE	NE											
Dissolved Lead	NE	NE											
Dissolved Nickel	NE	NE											
Dissolved Zinc	NE	NE											

Notes:

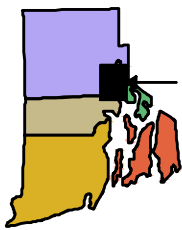
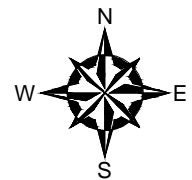
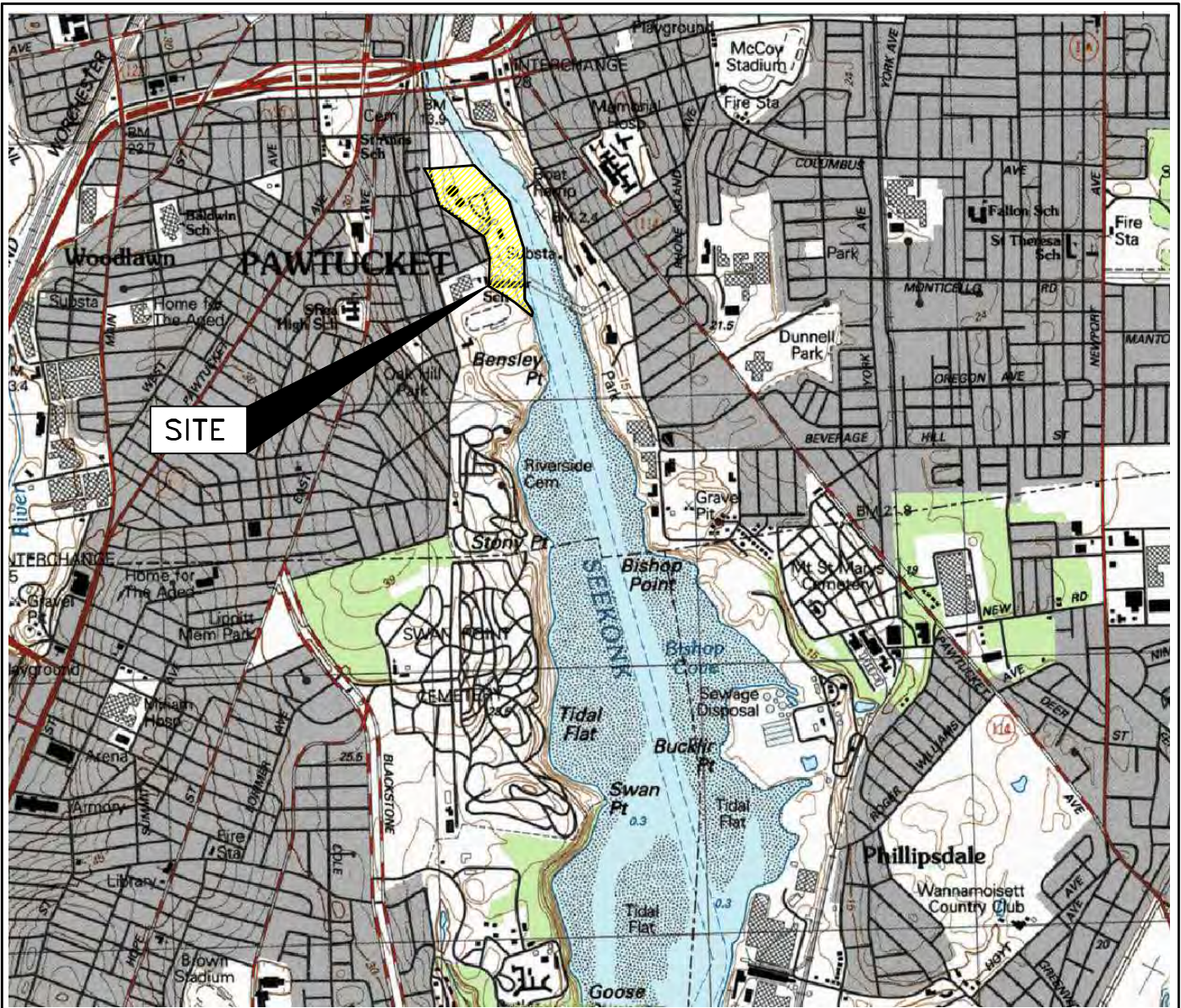
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- (6) Well was not included in this sampling round

Please note that this table only includes compounds that have been detected or have detection limits that exceeded the RIDEM GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.



## **FIGURES**

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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

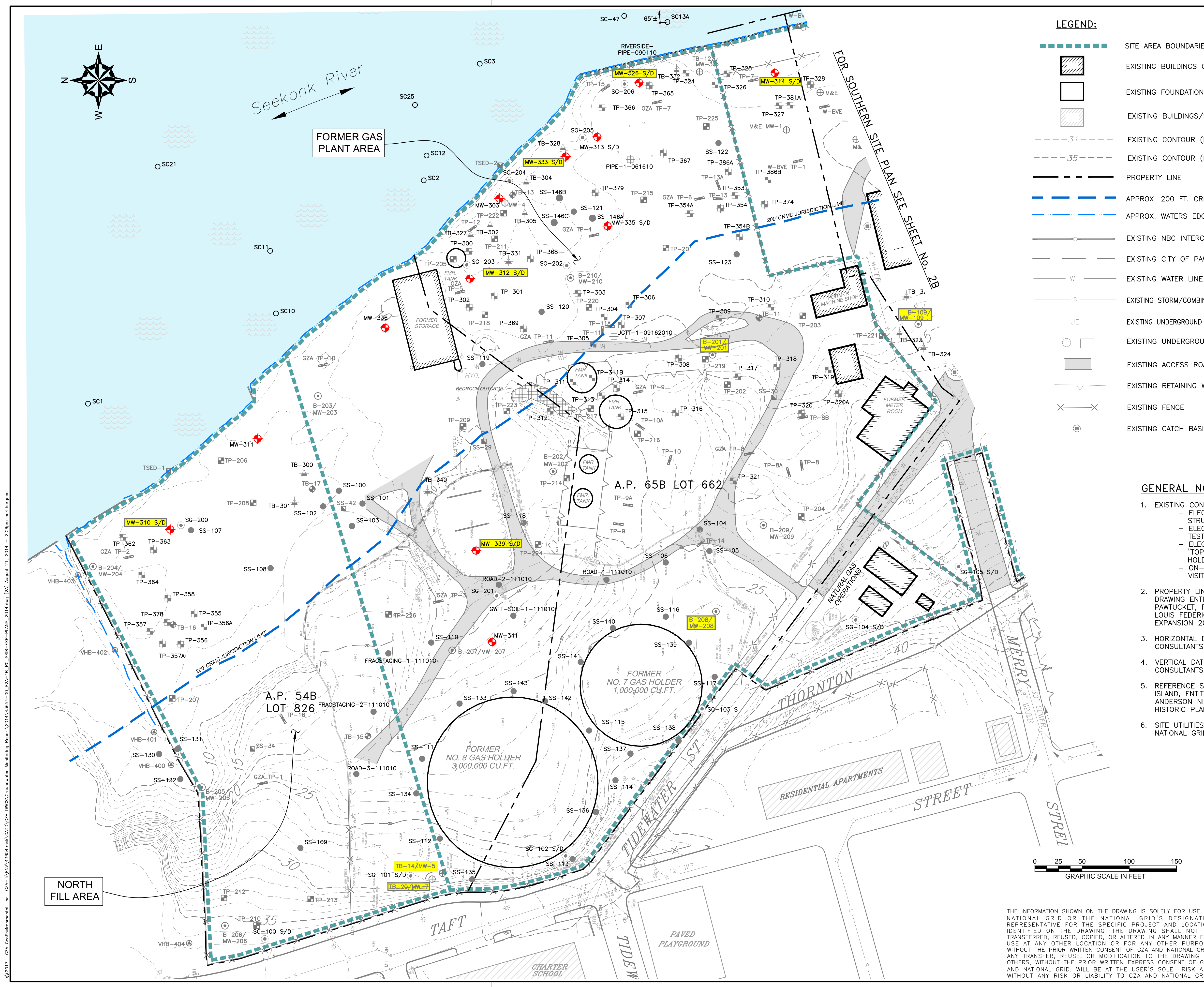
PREPARED BY:  
 **GZA GeoEnvironmental, Inc.**  
Engineers and Scientists  
www.gza.com

PREPARED FOR:  
NATIONAL GRID

LOCUS PLAN

PROJ MGR: MSK	REVIEWED BY: MSK	CHECKED BY: JJC	FIGURE <b>1</b> 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
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- EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
- EXISTING ACCESS ROAD
- EXISTING RETAINING WALLS
- EXISTING FENCE
- EXISTING CATCH BASIN LOCATIONS

**SAMPLE LEGEND**

- SS-9 ATLANTIC SURFACE SOIL SAMPLE LOCATION
  - TSED-6 ATLANTIC SEDIMENT SAMPLE LOCATION
  - W-BVE SS-3 WESTON/BLACKSTONE VALLEY ELECTRIC SEDIMENT SAMPLE LOCATION
  - RIDEM SS-3 RIDEM SURFACE SOIL SAMPLE LOCATION
  - B-109/MW-109 MONITORING WELL/BORING (VHB) SURVEYED
  - TP-3A ATLANTIC TEST PIT LOCATION
  - W-BVE WESTON/BLACKSTONE VALLEY ELECTRIC TEST PIT LOCATION
  - GZA TP-8 GZA/VALLEY GAS TEST PIT LOCATION
  - TB-15 ATLANTIC SOIL BORING LOCATION
  - MW-3 ATLANTIC MONITORING WELL LOCATION
  - M&E MW-1 METCALF & EDDY MONITORING WELL LOCATION
  - VHB-400 VHB SURFACE SOIL SAMPLE LOCATION NON-SURVEYED
  - TP-204 VHB TEST PIT (2006)
  - GZ-01 GZA TEST PIT (2009)
  - TB-300 GZA TEST BORING LOCATION (2010)
  - MW-320 S/D GZA MONITORING WELL LOCATION (2010)
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  - SG-200 PERIMETER SOIL GAS SAMPLING LOCATION
  - SG-100 INTERIOR SOIL GAS SAMPLING LOCATION
- INDICATES THAT MONITORING WELL WAS SAMPLED AS PART OF THE 2013 GROUNDWATER MONITORING PROGRAM

**GENERAL NOTES:**

1. 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.
2. 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.
3. HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
4. VERTICAL DATUM IS BASED ON NGVD 1929 (MSL) FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
5. 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.
6. SITE UTILITIES TAKEN FROM 1984 SANBORN MAP AND HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY.

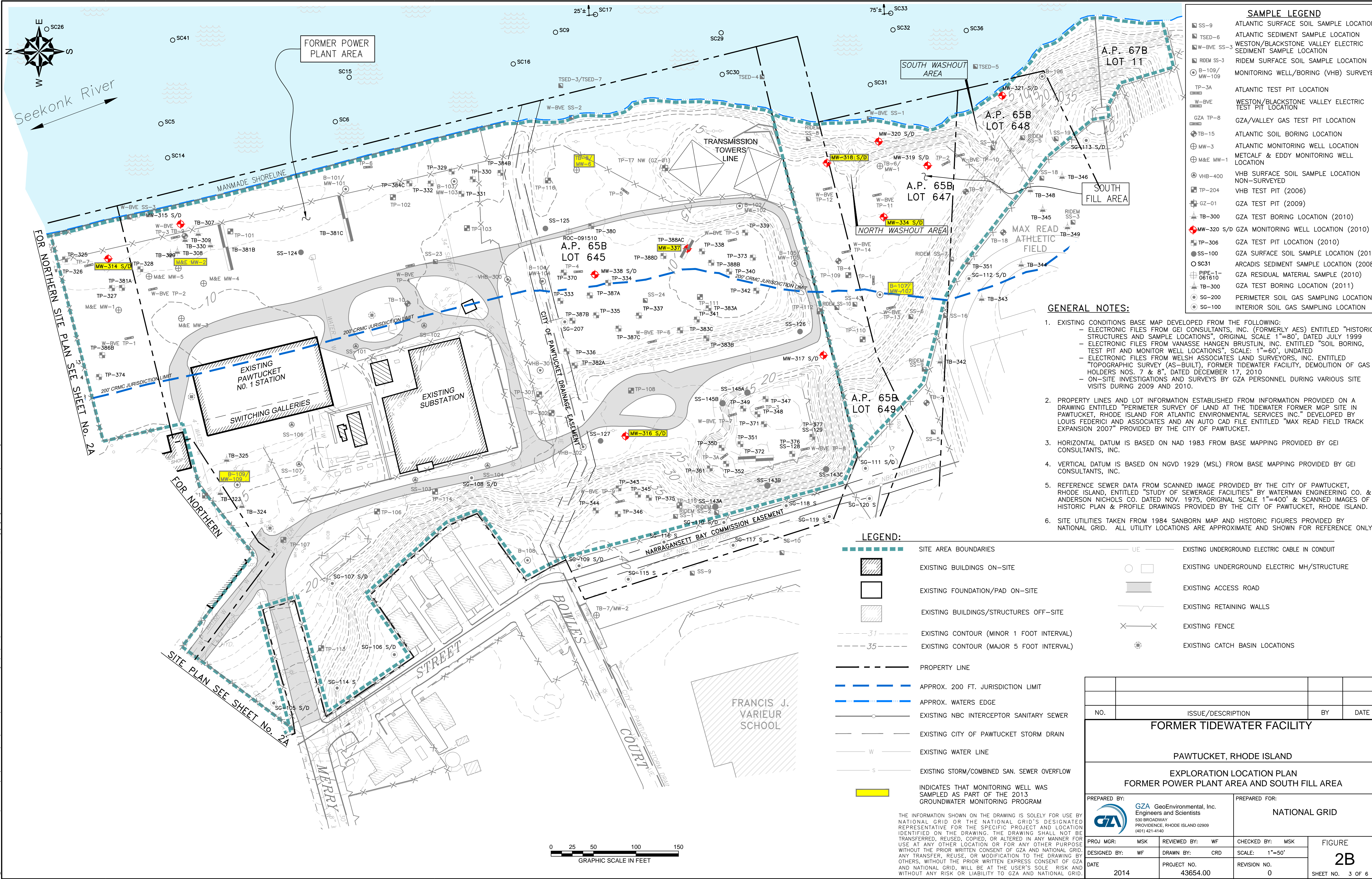


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NO.	ISSUE/DESCRIPTION	BY	DATE
<b>FORMER TIDEWATER FACILITY</b>			
PAWTUCKET, RHODE ISLAND			
EXPLORATION LOCATION PLAN NORTH FILL AREA AND FORMER GAS PLANT AREA			
PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists 530 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:	1"=50'
		REVISION NO.:	0
		PROJECT NO.:	43654.00
		FIGURE	2A
		SHEET NO.	2 OF 6

© 2013 - GZA GeoEnvironmental, Inc. GZA-ENV-13054.mxd GZA DWS-Groundwater Monitoring Report 2013A-13054-00\_F2A-4B-RO\_SSH-EP-PLANS\_2014.dwg [2] August 21, 2014 - 2:06pm coribangdan

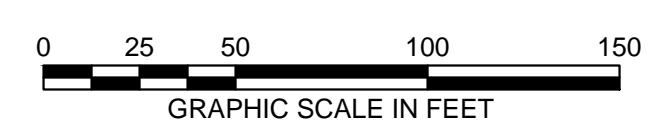




SAMPLE LEGEND	
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TS-6	ATLANTIC SEDIMENT SAMPLE LOCATION
W-BVE SS-3	WESTON/BLACKSTONE VALLEY ELECTRIC SEDIMENT SAMPLE LOCATION
RIDEM SS-3	RIDEM SURFACE SOIL SAMPLE LOCATION
B-109/MW-109	MONITORING WELL/BORING (VHB) SURVEYED
TP-3A	ATLANTIC TEST PIT LOCATION
W-BVE	WESTON/BLACKSTONE VALLEY ELECTRIC TEST PIT LOCATION
GZA TP-8	GZA/VALLEY GAS TEST PIT LOCATION
TB-15	ATLANTIC SOIL BORING LOCATION
MW-3	ATLANTIC MONITORING WELL LOCATION
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VHB-400	VHB SURFACE SOIL SAMPLE LOCATION NON-SURVEYED
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GZ-01	GZA TEST PIT (2009)
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TP-306	GZA TEST PIT LOCATION (2010)
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  - SITE UTILITIES TAKEN FROM 1984 SANBORN MAP AND HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY.

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. 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
	INDICATES THAT MONITORING WELL WAS SAMPLED AS PART OF THE 2013 GROUNDWATER MONITORING PROGRAM
	EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
	EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
	EXISTING ACCESS ROAD
	EXISTING RETAINING WALLS
	EXISTING FENCE
	EXISTING CATCH BASIN LOCATIONS

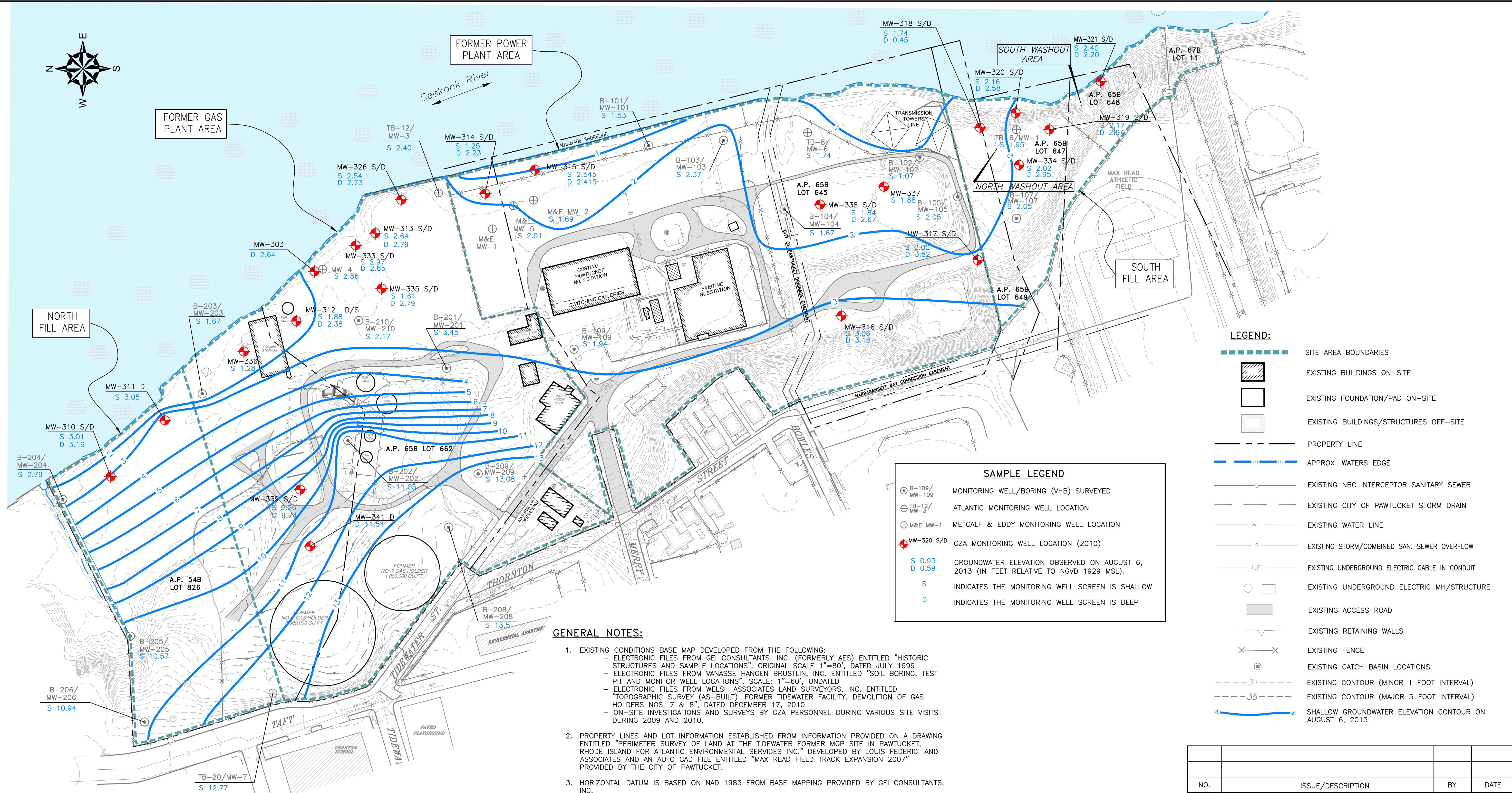
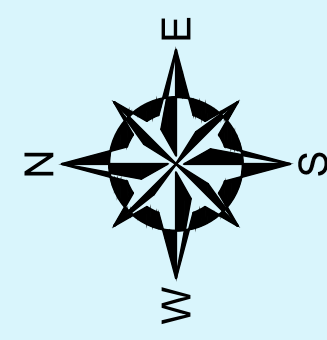


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NO.	ISSUE/DESCRIPTION	BY	DATE
<b>FORMER TIDEWATER FACILITY</b>			
PAWTUCKET, RHODE ISLAND			
EXPLORATION LOCATION PLAN FORMER POWER PLANT AREA AND SOUTH FILL AREA			
PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists 530 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:	1"=50'
		REVISION NO.:	0
		PROJECT NO.:	43654.00
		FIGURE	2B
		SHEET NO.	3 OF 6

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**LEGEND:**

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	EXISTING ACCESS ROAD
	EXISTING RETAINING WALLS
	EXISTING FENCE
	EXISTING CATCH BASIN LOCATIONS
	EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
	EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
	SHALLOW GROUNDWATER ELEVATION CONTOUR ON AUGUST 6, 2013

**SAMPLE LEGEND**

	MONITORING WELL/BORING (VHB) SURVEYED
	ATLANTIC MONITORING WELL LOCATION
	METCALF & EDDY MONITORING WELL LOCATION
	GZA MONITORING WELL LOCATION (2010)
S 0.93 D 0.59	GROUNDWATER ELEVATION OBSERVED ON AUGUST 6, 2013 (IN FEET RELATIVE TO NGVD 1929 MSL).
S	INDICATES THE MONITORING WELL SCREEN IS SHALLOW
D	INDICATES THE MONITORING WELL SCREEN IS DEEP

**GENERAL NOTES:**

- EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
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- SHALLOW GROUNDWATER CONTOURS (NGVD 1929 MSL) ARE BASED ON DATA FROM WIDELY SPACED EXPLORATIONS AND MAY NOT REFLECT ACTUAL SUBSURFACE CONDITIONS. WATER LEVEL READINGS WERE ON AUGUST 6, 2013.
- WATER LEVEL READINGS HAVE BEEN MADE IN THE MONITORING WELLS AT THE TIMES AND UNDER THE CONDITIONS STATED ON THE SAMPLING LOGS. THESE DATA HAVE BEEN REVIEWED AND INTERPRETATIONS MADE IN THE TEXT OF THIS REPORT. HOWEVER, FLUCTUATIONS IN THE LEVEL OF THE GROUNDWATER MAY OCCUR DUE TO VARIATIONS IN RAINFALL, TEMPERATURE AND OTHER FACTORS.

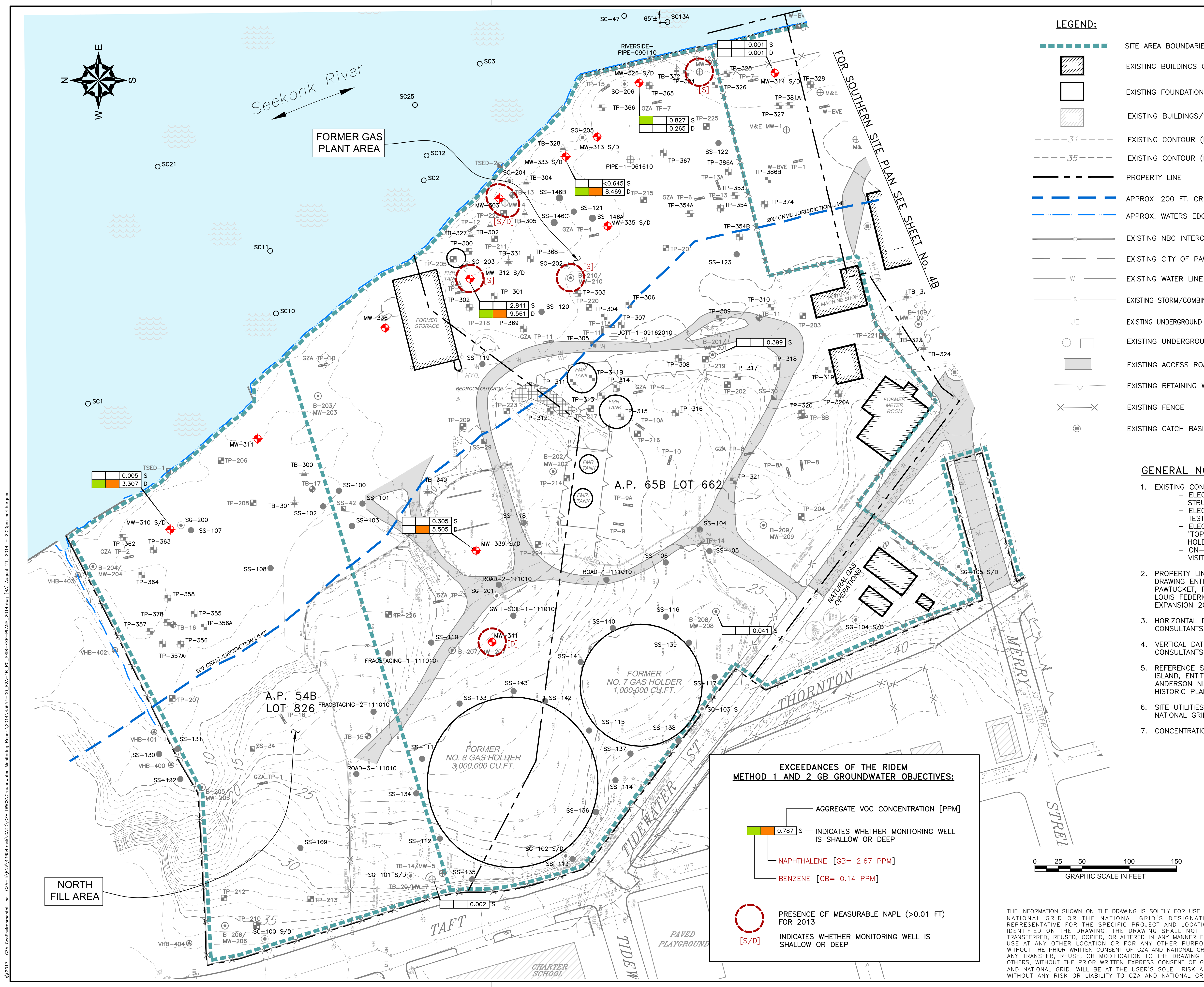


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NO.	ISSUE/DESCRIPTION	BY	DATE
<b>FORMER TIDEWATER FACILITY</b>			
PAWTUCKET, RHODE ISLAND			
<b>SHALLOW GROUNDWATER CONTOUR PLAN</b>			
AUGUST 6, 2013			
PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists 530 BROADWAY PROVIDENCE, RHODE ISLAND 02909 (401) 421-4140		PREPARED FOR:
		NATIONAL GRID	
PROJ MGR:	MSK	REVIEWED BY:	WF
DESIGNED BY:	WF	DRAWN BY:	CRD
DATE:	2014	CHECKED BY:	MSK
	PROJECT NO.	SCALE:	1"=80'
	43654.00	REVISION NO.	0
			FIGURE
			<b>3</b>
			SHEET NO. 4 OF 6

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**LEGEND:**

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- EXISTING WATER LINE
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7. CONCENTRATIONS SHOWN ARE THE MAXIMUM 2013 ANALYTICAL RESULTS.

**EXCEEDANCES OF THE RIDEM METHOD 1 AND 2 GB GROUNDWATER OBJECTIVES:**

AGGREGATE VOC CONCENTRATION [PPM]

0.787 S - INDICATES WHETHER MONITORING WELL IS SHALLOW OR DEEP

NAPHTHALENE [GB= 2.67 PPM]

BENZENE [GB= 0.14 PPM]

PRESENCE OF MEASURABLE NAPL (>0.01 FT) FOR 2013

INDICATES WHETHER MONITORING WELL IS SHALLOW OR DEEP

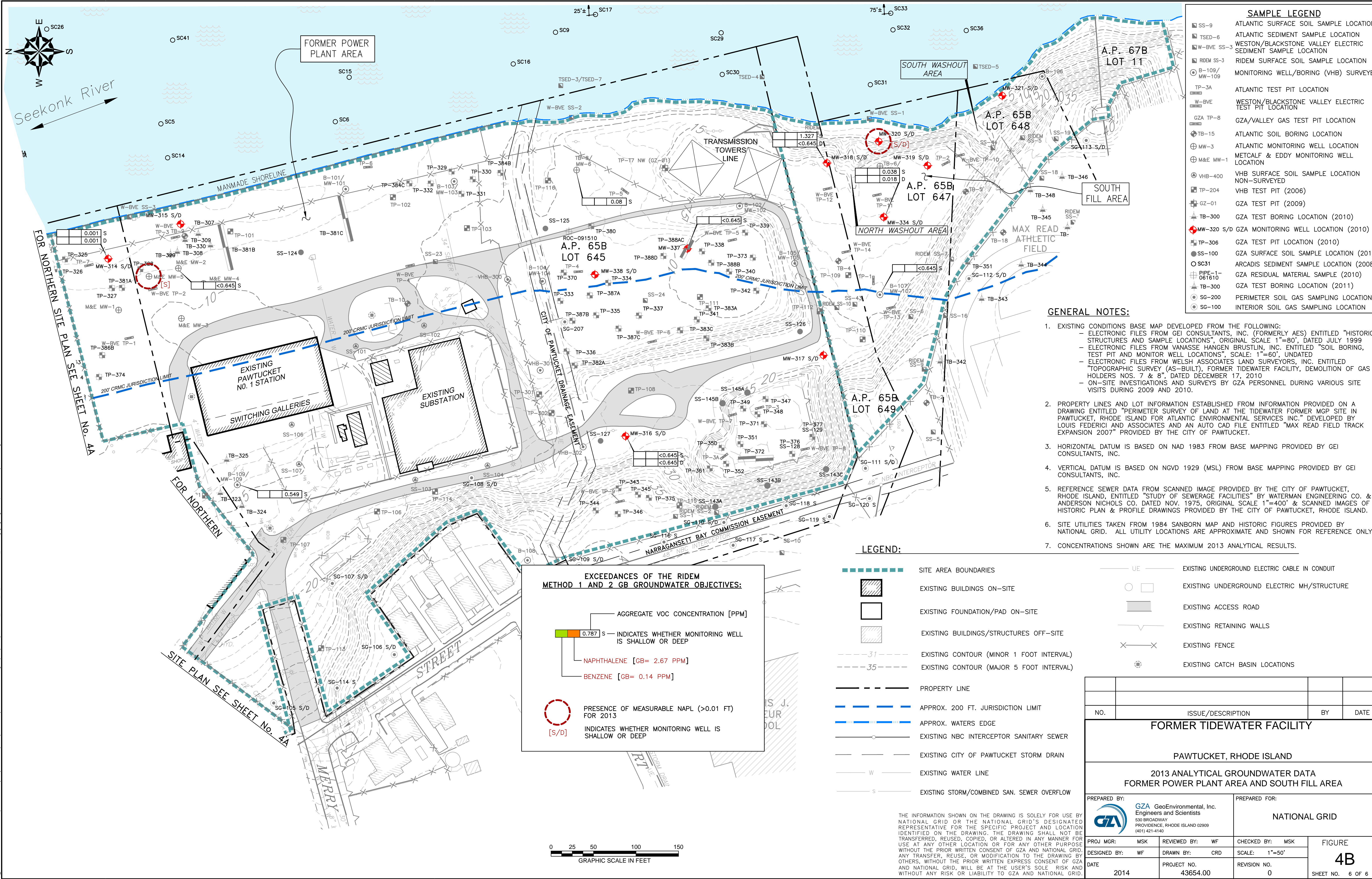


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NO.	ISSUE/DESCRIPTION	BY	DATE
<b>FORMER TIDEWATER FACILITY</b>			
PAWTUCKET, RHODE ISLAND			
2013 ANALYTICAL GROUNDWATER DATA NORTH FILL AREA AND FORMER GAS PLANT AREA			
PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists 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	PROJECT NO.:	43654.00
		CHECKED BY:	MSK
		SCALE:	1"=50'
		REVISION NO.:	0
			FIGURE <b>4A</b>
			SHEET NO. 5 OF 6

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**SAMPLE LEGEND**

SS-9	ATLANTIC SURFACE SOIL SAMPLE LOCATION
TS-6	ATLANTIC SEDIMENT SAMPLE LOCATION
W-BVE SS-3	WESTON/BLACKSTONE VALLEY ELECTRIC SEDIMENT SAMPLE LOCATION
RIDEM SS-3	RIDEM SURFACE SOIL SAMPLE LOCATION
B-109/MW-109	MONITORING WELL/BORING (VHB) SURVEYED
TP-3A	ATLANTIC TEST PIT LOCATION
W-BVE	WESTON/BLACKSTONE VALLEY ELECTRIC TEST PIT LOCATION
GZA TP-8	GZA/VALLEY GZA TEST PIT LOCATION
TB-15	ATLANTIC SOIL BORING LOCATION
MW-3	ATLANTIC MONITORING WELL LOCATION
M&E MW-1	METCALF & EDDY MONITORING WELL LOCATION
VHB-400	VHB SURFACE SOIL SAMPLE LOCATION NON-SURVEYED
TP-204	VHB TEST PIT (2006)
GZ-01	GZA TEST PIT (2009)
TB-300	GZA TEST BORING LOCATION (2010)
MW-320 S/D	GZA MONITORING WELL LOCATION (2010)
TP-306	GZA TEST PIT LOCATION (2010)
SS-100	GZA SURFACE SOIL SAMPLE LOCATION (2010)
SC31	ARCADIS SEDIMENT SAMPLE LOCATION (2008)
PIPE-1-061610	GZA RESIDUAL MATERIAL SAMPLE (2010)
TB-300	GZA TEST BORING LOCATION (2011)
SG-200	PERIMETER SOIL GAS SAMPLING LOCATION
SG-100	INTERIOR SOIL GAS SAMPLING LOCATION

- 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.
  - CONCENTRATIONS SHOWN ARE THE MAXIMUM 2013 ANALYTICAL RESULTS.

**EXCEEDANCES OF THE RIDEM METHOD 1 AND 2 GB GROUNDWATER OBJECTIVES:**

AGGREGATE VOC CONCENTRATION [PPM]

0.787 S INDICATES WHETHER MONITORING WELL IS SHALLOW OR DEEP

NAPHTHALENE [GB= 2.67 PPM]

BENZENE [GB= 0.14 PPM]

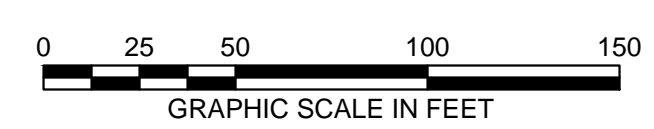
PRESENCE OF MEASURABLE NAPL (>0.01 FT) FOR 2013

[S/D] INDICATES WHETHER MONITORING WELL IS SHALLOW OR DEEP

**LEGEND:**

--- (dashed green)	SITE AREA BOUNDARIES	--- (dashed blue)	EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
■ (hatched)	EXISTING BUILDINGS ON-SITE	○ (square)	EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
□ (white)	EXISTING FOUNDATION/PAD ON-SITE	--- (grey)	EXISTING ACCESS ROAD
■ (grey)	EXISTING BUILDINGS/STRUCTURES OFF-SITE	--- (grey)	EXISTING RETAINING WALLS
--- (dashed blue)	EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)	--- (grey)	EXISTING FENCE
--- (dashed blue)	EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)	○ (circle)	EXISTING CATCH BASIN LOCATIONS
--- (dashed black)	PROPERTY LINE	---	
--- (dashed blue)	APPROX. 200 FT. JURISDICTION LIMIT	---	
--- (dashed blue)	APPROX. WATERS EDGE	---	
---	EXISTING NBC INTERCEPTOR SANITARY SEWER	---	
---	EXISTING CITY OF PAWTUCKET STORM DRAIN	---	
---	EXISTING WATER LINE	---	
---	EXISTING STORM/COMBINED SAN. SEWER OVERFLOW	---	

NO.	ISSUE/DESCRIPTION	BY	DATE
<b>FORMER TIDEWATER FACILITY</b>			
PAWTUCKET, RHODE ISLAND			
<b>2013 ANALYTICAL GROUNDWATER DATA</b>			
<b>FORMER POWER PLANT AREA AND SOUTH FILL AREA</b>			
PREPARED BY:	GZA GeoEnvironmental, Inc. Engineers and Scientists 530 BROADWAY PROVIDENCE, RHODE ISLAND 02909 (401) 421-4140		PREPARED FOR:
PROJ MGR:	MSK	REVIEWED BY:	WF
DESIGNED BY:	WF	DRAWN BY:	CRD
DATE:	2014	PROJECT NO.:	43654.00
		CHECKED BY:	MSK
		SCALE:	1"=50'
		REVISION NO.:	0
			FIGURE
			<b>4B</b>
			SHEET NO. 6 OF 6



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**APPENDIX A**  
**LIMITATIONS**

## LIMITATIONS

1. This Groundwater Monitoring Report 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 summarizing field activities and findings from an groundwater monitoring event completed at the Former Tidewater MGP and Power Plant Site ("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\Groundwater Monitoring Report\2012\Appendix A - Limitations\43654 Limitations-Appendix A.docx

**APPENDIX B**

**GROUNDWATER SAMPLING LOGS**

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/28/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-7  
 Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No   
 Screened Interval (feet): 14.5 bgs) to 24.5 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Submersible Pump Start Time: 12:00 Stop Time: 12:40  
 Depth: Depth to 27.50 feet Height of GW Column: 7.25 feet Average Flow Rate: 375 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 3.6 Gal.  
 Water: 20.25 feet Total Volume Purged: 4 Gal.

**SAMPLING INFORMATION**

Equipment: Submersible Pump Time: 12:30

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: -  
 Clarity: -  
 : Odor: -

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
12:07	7.19	14.8	0.90	3.65	144.4	32.4	20.27
12:10	7.01	14.4	0.90	3.75	146.3	23.3	20.28
12:13	6.92	14.9	0.90	3.72	146.8	19.3	20.25
12:16	6.74	14.6	0.90	3.88	148.2	14.2	20.25
12:19	6.65	14.8	0.90	3.93	152	10.3	20.25
12:21	6.63	14.7	0.90	4.09	153.8	5.1	20.25
12:24	6.61	14.5	0.90	4.16	156	4.5	20.25
12:27	6.63	14.6	0.90	4.22	158.3	3.9	20.25

**NOTES**

Notes: Sampling depth in screen: 19.5 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.



File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-310S  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) bgs): to 15  
 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 9:15 Stop Time: 11:45  
 Depth: Depth to 16.80 feet Height of GW Column: 7.78 feet Average Flow Rate: 200 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 4.02 Gal.  
 Water: 8.42 feet Total Volume Purged: 4.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 10:30

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Sample Observations: Color: Clear  
 Clarity: Clear  
 Odor: Moderate Coal tar-like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
9:56	6.36	13.50	0.387	0.27	-45	14.9	9.20
10:01	6.36	13.70	0.389	0.3	-48	13.9	9.22
10:06	6.36	14.0	0.389	0.27	-55	12.2	9.22
10:11	6.36	19.9	0.384	0.25	-61	12	9.22
10:21	6.40	14.0	0.383	0.25	-61	10	9.22
10:25	6.39	14.0	0.383	0.28	-65	9.5	9.22
10:27	6.38	14.0	0.383	0.25	-67	9.2	9.22

**NOTES**

Notes: Iron in purge water.  
 Sampling depth in screen: 10 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-310D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
22 bgs): to 32

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 9:20 Stop Time: 10:50  
 Depth: Depth to 36.20 feet Height of GW Column: 28.61 feet Average Flow Rate: 200 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 13.73 Gal.  
 Water: 7.54 feet Total Volume Purged: 4.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 10:50

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: Moderate Coal tar-like odor

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
10:35	6.91	13.2	0.655	0.23	-82	11.70	10.24
10:40	7.04	13.2	0.556	0.18	-105	8.03	10.24
10:45	7.06	13.2	0.555	0.18	-107	8.52	10.24
10:49	7.06	13.3	0.56	0.18	-108	7.95	10.24

**NOTES**

Notes: Sampling depth in screen: 27 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-201  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
3 bgs) to 13

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 12:40 Stop Time: 14:05  
 Depth: Depth to 15.00 feet Height of GW Column: 1.79 feet Average Flow Rate: 400 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 0.875 Gal.  
 Water: 13.21 feet Total Volume Purged: 8.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 14:00

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Yellow  
 Clarity: -  
 : Odor: Slight sulfur odor

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
13:39	8.07	16.3	1.08	0.92	-180.5	8.11	13.95
13:40	7.96	16.0	1.08	0.93	-139	7.1	13.95
13:43	7.79	15.9	1.08	0.92	-190.8	0.68	13.95
13:46	7.70	15.9	1.08	0.93	-191.7	-	-
13:49	7.64	15.9	1.08	0.95	-193.1	-	-
13:52	7.59	15.8	1.08	0.97	-194.2	-	-
13:55	7.56	15.8	1.08	0.98	-196.1	-	-

**NOTES**

Notes: Sampling depth in screen: 12 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-208  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
10 bgs) to 20

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 10:05 Stop Time: 11:50  
 Depth: Depth to 22.65 feet Height of GW Column: 0.85 feet Average Flow Rate: 175 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 3.29 Gal.  
 Water: 15.80 feet Total Volume Purged: 4 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 11:45

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Slight rust  
 Clarity: Slight  
 : Odor: -

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
11:29	7.14	16.1	0.66	0.61	-48.5	17.6	15.85
11:33	7.10	16.8	0.66	0.67	-51.6	19.0	15.85
11:36	7.00	15.7	0.66	0.58	-53.8	14.5	15.85
11:39	6.90	15.8	0.66	0.55	-56	12.1	15.85
11:42	6.93	15.8	0.66	0.53	-57.7	11.1	15.85

**NOTES**

Notes: Sampling depth in screen: 15 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: **MW-312S**  
 Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No   
 Screened Interval (feet bgs):  to   
 Well Diameter:  2"

**WELL PURGING INFORMATION**

Equipment: Peristaltic Pump Start Time: 14:50 Stop Time: 16:10  
 Well Depth: 23.50 feet Height of GW Column: 14.75 feet Average Flow Rate: 450 ml/min  
 Depth to Product: 8.5 feet Three Times the Standing Volume: 7.08 Gal.  
 Depth to Water: 8.75 feet Total Volume Purged: 7.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 16:00

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Sample Observations: Color: Yellow  
 Clarity: -  
 Odor: Fuel oil-like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV		DD<0.3ft.
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
15:36	6.14	17.4	2.45	1.52	-95	<5	8.75
15:40	6.14	17.2	2.45	1.61	-97	<5	-
15:43	6.15	17.5	2.44	1.52	-98	<5	-
15:46	6.14	17.6	2.44	1.43	-99	<5	-

**NOTES**

Notes: 0.25' of LNAPL (Fuel Oil).  
 Used Horiba due to presence of LNAPL.  
 Sheen on purge water.  
 Sampling depth in screen: 12.5 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-312D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet) Well Diameter: 2"  
23 bgs) to 28

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 14:45 Stop Time: 16:00  
 Depth: Depth to 31.90 feet Height of GW Column: 22.72 feet Average Flow Rate: 300 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 10.91 Gal.  
 Water: 9.18 feet Total Volume Purged: 4.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 15:55

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Sample Observations: Color: Yellow  
 Clarity: -  
 : Odor: -

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
15:32	8.74	14.8	0.82	0.26	-179.5	3.96	9.20
15:35	8.57	14.8	0.81	0.26	-179.1	-	-
15:38	8.37	14.8	0.80	0.24	-177.5	-	-
15:41	8.36	14.8	0.80	0.25	-176.8	-	-
15:45	8.42	14.8	0.80	0.24	-175.5	-	-

**NOTES**

Notes:  
 Sampling depth in screen: 26 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.



File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-326S  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet) bgs): to 5 to 25 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 14:40 Stop Time: 16:30  
 Depth: Depth to 26.60 feet Height of GW Column: 15.17 feet Average Flow Rate: 250 ml/min  
 Product Depth to 11.41 feet Three Times the Standing Volume: 7.28 Gal.  
 Water: 11.43 feet Total Volume Purged: 8 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 16:30

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: -

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
1620	6.68	15.50	0.708	0.47	-125	2	10.75
1623	6.67	15.50	0.706	0.5	-126	1	10.75
1626	6.67	15.40	0.709	0.48	-127	2	10.75

**NOTES**

Notes: Slight sheen on purge water.  
 Used Horiba due to presence of LNAPL  
 Sampling depth in screen: 15 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-326D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
33 bgs) to 43

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 14:35 Stop Time: 16:20  
 Depth: Depth to 45.00 feet Height of GW Column: 34.65 feet Average Flow Rate: 250 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 16.6 Gal.  
 Water: 10.37 feet Total Volume Purged: 8 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 16:20

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: None

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
15:55	7.71	15.8	9.899	0.70	-169	4.4	17.55
16:03	7.66	15.8	10.395	0.69	-167	4.9	17.55
16:10	7.66	15.8	9.963	0.76	-162	4.5	17.55
16:13	7.65	15.7	9.946	0.78	-160	4.0	17.55
16:16	7.63	15.7	9.841	0.75	-155	3.9	17.55

**NOTES**

Notes: Sampling depth in screen: 38 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-333S  
 Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No   
 Screened Interval (feet): 6 bgs) to 16 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 11:30 Stop Time: 13:15  
 Depth: Depth to 18.30 feet Height of GW Column: 6.25 feet Average Flow Rate: 300 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 3 Gal.  
 Water: 12.05 feet Total Volume Purged: 7.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 13:10

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: None

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
12:06	6.14	19.7	7.991	0.27	41	3.7	12.55
12:12	6.15	19.2	7.909	0.22	7.0	2.9	12.52
12:17	6.18	19.5	7.802	0.19	-26	3.2	12.50
12:23	6.17	19.2	7.753	0.18	-39	3.8	12.48
12:29	6.18	19.1	7.632	0.18	-32	3.0	12.45
12:35	6.21	19.1	7.600	0.18	-49	3.5	12.42
12:59	6.26	19.3	7.308	0.13	-126	3.0	12.26
13:02	6.27	19.5	7.316	0.14	-130	3.0	12.25
13:05	6.28	19.3	7.225	0.12	-129.7	3.0	12.25

**NOTES**

Notes: Sampling depth in screen: 11 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-333D

Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No

Screened Interval (feet): 30 bgs) to 40 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 11:35 Stop Time: 13:30

Depth: Depth to 45.00 feet Height of GW Column: 32.76 feet Average Flow Rate: 250 ml/min

Product: Depth to - feet Three Times the Standing Volume: 15.72 Gal.

Water: 12.24 feet Total Volume Purged: 8 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 13:30

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: None

**FIELD ANALYSIS DATA**

	±/0.1	±/3%	±/3%	±/10%	±/10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
13:17	7.87	16.00	0.954	0.50	-194	3.0	15.00
13:25	7.89	16.00	0.955	0.49	-194	2.5	15.00
13:30	7.85	16.00	0.956	0.49	-189	3.0	15.00

**NOTES**

Notes: Sampling depth in screen: 35 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-339S  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet) Well Diameter: 2"  
3 bgs): to 10

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 9:50 Stop Time: 11:00  
 Depth: Depth to 12.20 feet Height of GW Column: 5.69 feet Average Flow Rate: 375 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 2.73 Gal.  
 Water: 6.51 feet Total Volume Purged: 6 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 10:50

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: -  
 Clarity: -  
 : Odor: -

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
10:22	5.57	18.9	0.62	0.63	80.4	4.76	6.80
10:25	5.43	19.8	0.62	0.66	80.2	-	6.81
10:32	5.37	18.5	0.62	2.60	75.0	-	6.75
10:35	5.34	18.4	0.62	2.36	75.1	-	6.75
10:40	5.35	18.6	0.61	2.24	76.5	-	6.70
10:43	5.36	18	0.61	2.55	71.9	-	6.65

**NOTES**

Notes: Sampling depth in screen: 7 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/27/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-339D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet) Well Diameter: 2"  
12 bgs) to 17

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 11:05 Stop Time: 12:25  
 Depth: Depth to 20.95 feet Height of GW Column: 12.65 feet Average Flow Rate: 250 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 6.07 Gal.  
 Water: 8.30 feet Total Volume Purged: 7 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 12:18

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: -  
 Clarity: -  
 : Odor: Slight coal-tar like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV		DD<0.3ft
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
12:03	6.87	14.2	0.56	0.5	-32.8	4.5	8.22
12:06	6.83	14.0	0.56	0.37	-37.4	3.74	8.22
12:09	6.78	14.1	0.56	0.32	-42	-	8.22
12:12	6.79	14.1	0.56	0.29	-46.1	-	8.22
12:15	6.81	14.1	0.56	0.26	-50.3	-	8.22

**NOTES**

Notes: Sampling depth in screen: 15 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.



File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: M&E MW-2  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet bgs): Unknown Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment Well: Peristaltic Pump Start Time: 10:01 Stop Time: 11:45  
 Depth: Depth to 13.80 feet Height of GW Column: 4.40 feet Average Flow Rate: 225 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 2.11 Gal.  
 Water: 9.40 feet Total Volume Purged: 9 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 11:35

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCl	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Sample Observations: Color: -  
 Clarity: -  
 Odor: -

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
11:17	7.27	19.3	10.922	1.73	7.5	0.09	10.64
11:24	7.24	19.3	10.987	1.79	7.0	0	10.65
11:27	7.21	19.5	11.013	1.79	2.7	0	10.63
11:30	7.25	19.7	11.095	1.79	4.6	0	10.60

**NOTES**

Notes: Sampling depth in screen: 11 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-6  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet) bgs): to 15.5  
 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 13:25 Stop Time: 14:45  
 Depth: Depth to 19.10 feet Height of GW Column: 7.23 feet Average Flow Rate: 150 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 3.47 Gal.  
 Water: 11.87 feet Total Volume Purged: 3 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 14:35

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: -  
 Clarity: Slight turbid  
 : Odor: Slight Petroleum-like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV		DD<0.3ft
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
14:10	6.72	17.3	0.628	0.76	-54.7	5.35	11.90
14:15	6.69	17.4	0.627	0.76	-60.7	5.11	11.90
14:20	6.67	17.4	0.626	0.57	-64.3	5.12	11.90
14:26	6.65	17.5	0.626	0.44	-71.6	4.85	11.90
14:29	6.65	17.4	0.625	0.41	-72.7	4.2	11.90
14:33	6.64	17.3	0.622	0.41	-76.1	4.05	11.90

**NOTES**

Notes: Sampling depth in screen: 11 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-109  
 Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No   
 Screened Interval (feet): 10 bgs) to 20 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 16:30 Stop Time: 17:10  
 Depth: Depth to 19.30 feet Height of GW Column: 7.78 feet Average Flow Rate: 200 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 3.73 Gal.  
 Water: 11.52 feet Total Volume Purged: 4 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 17:10

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: Slight coal-tar like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
17:00	6.47	14.00	0.333	0.13	-139	2.1	11.52
17:05	6.47	14.10	0.334	0.12	-142	2.5	11.52
17:10	6.47	14.10	0.332	0.12	-144	2.8	11.52

**NOTES**

Notes: Sampling depth in screen: 14.5 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-314S  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet) Well Diameter: 2"  
5 bgs) to 25

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 8:55 Stop Time: 9:55  
 Depth: Depth to 24.40 feet Height of GW Column: 15.22 feet Average Flow Rate: 500 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 7.31 Gal.  
 Water: 9.18 feet Total Volume Purged: 8 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 9:45

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: -  
 Clarity: Slight  
 : Odor: Slight Petroleum-like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
9:27	6.79	13.6	2.506	0.43	-87.1	8.05	9.61
9:32	6.82	13.6	2.531	0.34	-83	7.51	9.61
9:35	6.80	13.6	2.534	0.30	-87.4	7.53	9.61
9:38	6.84	13.7	2.561	0.30	-87.1	8.07	9.61
9:41	6.81	13.7	2.579	0.32	-91.2	7.75	9.61

**NOTES**

Notes: Slight sheen in purge water.  
 Sampling depth in screen: 20 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-314D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
33 bgs) to 43

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 10:54 Stop Time: 12:30  
 Depth: Depth to 43.20 feet Height of GW Column: 33.85 feet Average Flow Rate: 475 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 16.25 Gal.  
 Water: 9.35 feet Total Volume Purged: 6 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 12:23

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Tan  
 Clarity: Slight turbid  
 : Odor: Slight Petroleum-like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV		DD<0.3ft
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
11:53	7.60	12.5	8.593	0.34	-91.6	18	12.14
11:57	7.51	12.7	8.555	0.40	-87.2	17.5	12.10
12:01	7.52	12.7	8.526	0.38	-89.8	18.2	12.10
12:05	7.48	12.8	8.547	0.32	-98.9	18	12.00
12:10	7.44	13.8	8.579	0.25	-91.8	18	11.30
12:14	7.39	13.8	9.400	0.24	-92.1	9.72	11.02
12:17	7.39	13.8	9.462	0.23	-92.7	9.5	10.85
12:20	7.39	13.8	9.494	0.25	-92.8	9.37	10.80

**NOTES**

Notes: Very slight sheen on purge water.  
 Sampling depth in screen: 38 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-337  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC            Other            No             
 Screened Interval (feet bgs): 5 to 15 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 14:30 Stop Time: 16:20  
 Depth: Depth to 19.90 feet Height of GW Column: 8.05 feet Average Flow Rate: 500 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 3.86 Gal.  
 Water: 11.85 feet Total Volume Purged: 20 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 16:10

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: -  
 Clarity: -  
 : Odor: Slight Petroleum-like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
14:47	6.76	15.2	0.725	0.28	-41.6	4.90	11.85
14:54	6.77	15.2	0.720	0.19	-47.6	-	-
15:06	6.97	15.2	0.709	0.15	-56.6	-	-
15:50	7.21	15.2	0.684	0.12	-64.8	-	-
15:59	7	15.1	0.684	0.11	-69.6	-	11.80
16:02	6.95	15.2	0.686	0.12	-69.8	-	-
16:05	6.92	15.20	0.686	0.11	-70.1	-	-

**NOTES**

Notes: Slight sheen in purge water.  
 Sampling depth in screen: 13.5 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.



File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/28/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-316S  
 Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No   
 Screened Interval (feet): 10 to 20  
 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Bailer Start Time: 9:30 Stop Time: NA  
 Depth: Depth to 22.28 feet Height of GW Column: 0.69 feet Average Flow Rate:            ml/min  
 Product Depth to - feet Three Times the Standing Volume: 0.3 Gal.  
 Water: 21.59 feet Total Volume Purged: 0.1 Gal.

**SAMPLING INFORMATION**

Equipment: Bailer Time: 11:25

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3

Smpl Observations: Color: -  
 Clarity: Turbid  
 : Odor: -

**FIELD ANALYSIS DATA**

Time	+/-0.1 pH	+/-3% Temperature (°C)	+/-3% Specific Conductivity (mS/cm)	+/-10% DO (mg/L)	+/-10mV ORP (mV)	Turbidity (NTU)	DD<0.3ft Depth to Water (feet)

**NOTES**

Notes: This well went dry multiple times.  
 Use Bailer to get sample.  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/28/2011  
 Sampler: SDN

**WELL INFORMATION**

Monitoring Well ID: MW-316D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet): 22 bgs) to 27 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Bailer Start Time: 9:30 Stop Time: 10:30  
 Depth: Depth to 31.50 feet Height of GW Column: 9.87 feet Average Flow Rate: - ml/min  
 Product Depth to - feet Three Times the Standing Volume: 4.74 Gal.  
 Water: 21.63 feet Total Volume Purged: 4.75 Gal.

**SAMPLING INFORMATION**

Equipment: Bailer Time: 10:50

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations  
 Color: -  
 Clarity: Turbid  
 : Odor: -

**FIELD ANALYSIS DATA**

Time	+/-0.1 pH	+/-3% Temperature (°C)	+/-3% Specific Conductivity (mS/cm)	+/-10% DO (mg/L)	+/-10mV ORP (mV)	Turbidity (NTU)	DD<0.3ft Depth to Water (feet)
10:40	7.47	15.1	0.604	3.97	82.8	15.5	22.8

**NOTES**

Notes: 0.5 gal. purged with pump.  
 4.25 gal. purged with bailer.  
 Peristaltic could not pump.  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-107

Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No

Screened Interval (feet): 16 bgs) to 26 Well Diameter: 2"

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 12:30 Stop Time: 13:55

Depth: Depth to 27.75 feet Height of GW Column: 7.84 feet Average Flow Rate: 150 ml/min

Product: Depth to - feet Three Times the Standing Volume: 3.76 Gal.

Water: 19.91 feet Total Volume Purged: 3 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 13:55

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: None

**FIELD ANALYSIS DATA**

	±0.1	±3%	±3%	±10%	±10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
13:41	3.25	16.50	0.774	2.1	527	2.2	19.93
13:46	3.24	16.40	0.773	2.19	526	2.5	19.93
13:51	3.25	16.50	0.776	2.25	526	2.3	19.93

**NOTES**

Notes: Pump struggling, may be too much head to pull up.  
 Sampling depth in screen: 21 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 9/26/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-318S  
 Measuring Point: PVC X Well Construction: PVC X x Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
10 bgs): to 25

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 13:35 Stop Time: 14:45  
 Depth: Depth to 26.94 feet Height of GW Column: 9.58 feet Average Flow Rate: 150 ml/min  
 Product Depth to - feet Three Times the Standing Volume: 4.60 Gal.  
 Water: 17.36 feet Total Volume Purged: 2 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 14:35

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: Coal-tar-like odor

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
14:24	3.15	15.50	1.001	0.40	319	3.5	17.25
14:29	3.14	15.50	1.005	0.39	319	3.1	17.25
14:34	3.15	15.40	1.001	0.46	318	2.8	17.25

**NOTES**

Notes: Sampling depth in screen: 18 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-318D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
30 bgs) to 40

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 14:55 Stop Time: 16:15  
 Depth: Depth to 43.65 feet Height of GW Column: 25.80 feet Average Flow Rate: 150 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 12.38 Gal.  
 Water: 17.75 feet Total Volume Purged: 3 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 16:15

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: None

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
15:54	5.99	15.2	0.424	1.20	160	4.7	15.98
16:04	5.98	15.3	0.423	0.87	148	3.8	15.98
16:09	5.98	15.3	0.423	0.80	143	3.5	15.96
16:14	5.95	15.4	0.428	0.77	138	3.2	15.99

**NOTES**

Notes: Sampling depth in screen: 35 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-334S

Measuring Point: PVC  Well Construction: PVC  Well Locked: Yes   
 TOC  Other  No

Screened Interval (feet): 14 bgs) to 24 Well Diameter: 2

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 12:00 Stop Time: 13:15

Depth: Depth to 28.75 feet Height of GW Column: 9.23 feet Average Flow Rate: 100 ml/min

Product Depth to - feet Three Times the Standing Volume: 4.43 Gal.

Water: 19.52 feet Total Volume Purged: 1.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 13:15

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N		Glass	1
PAHs	N		Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: Faint coal-tar like

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
13:01	2.46	18.00	2.477	3.48	474	3.1	19.54
13:06	2.51	18.00	2.477	3.61	475	3.0	19.54
13:11	2.46	18.00	2.487	3.58	475	3.3	19.54

**NOTES**

Notes: Pump is at full throttle. Difficulty pumping head.  
 Sampling depth in screen: 21 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.

File Number: 05.00043654.00 T33  
 Project: Former MGP Facility, Tidewater Street, Pawtucket, RI  
 Date: 7/26/2011  
 Sampler: MJB

**WELL INFORMATION**

Monitoring Well ID: MW-334D  
 Measuring Point: PVC X Well Construction: PVC X Well Locked: Yes X  
 TOC        Other        No         
 Screened Interval (feet) Well Diameter: 2"  
28 bgs) to 38

**WELL PURGING INFORMATION**

Equipment: Well Peristaltic Pump Start Time: 14:15 Stop Time: 15:45  
 Depth: Depth to 43.13 feet Height of GW Column: 22.02 feet Average Flow Rate: 150 ml/min  
 Product: Depth to - feet Three Times the Standing Volume: 10.60 Gal.  
 Water: 21.11 feet Total Volume Purged: 2.5 Gal.

**SAMPLING INFORMATION**

Equipment: Peristaltic Pump Time: 15:45

Analytical Parameters	Field Filtered	Preservative	Container	Number of Samples
VOCs	N	HCL	VOA	3
Total Cyanide	N	NaOH	Plastic	1
Dissolved Cyanide	Y	NaOH	Plastic	1
TPH	N	-	Glass	1
PAHs	N	-	Glass	1

Smpl Observations: Color: Clear  
 Clarity: Clear  
 : Odor: None

**FIELD ANALYSIS DATA**

	+/-0.1	+/-3%	+/-3%	+/-10%	+/-10mV	DD<0.3ft	
Time	pH	Temperature (°C)	Specific Conductivity (mS/cm)	DO (mg/L)	ORP (mV)	Turbidity (NTU)	Depth to Water (feet)
15:04	2.69	17.00	1.814	2.18	448	4.2	19.21
15:33	2.73	17.10	1.715	2.82	447	4.3	18.95
15:39	2.72	17.10	1.710	2.72	447	4.0	18.90
15:43	2.72	17.10	1.700	2.72	447	4.8	18.85

**NOTES**

Notes: Sampling depth in screen: 33 feet bgs  
 All other depths noted (Depth to Water, Depth to Product and Well depth) are measured from the top of PVC within the Casing.



GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 36
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-7
Sample Date: 7/11/2012
Sampler's Name: EMB

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 7/11/12/14:30

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 25.88
Depth to LNAPL (feet): -
Depth to Water (feet): 20.39
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 14.5 to 24.5

Standing Water in Well (feet): 5.49
Well Diameter (in.): 2"
Sample Depth (feet BGS): 19.5
Standpipe: TPVC to Ground Surface (feet) -
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Submersible No.

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

INSTRUMENT MEASUREMENTS:

Start time: 14:35

Stop time: 15:25

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mvolts), pH (s.u.), Spec. Cond. (ms/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains 8 rows of data from 14:50 to 15:25.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 15:25

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists tests for VOCs, TPH, PAHs, Total Cyanide, and Dissolved Cyanide.

Sample observations:

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 5 Gal

Tubing Volume: 0.14 Gal

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:

Blind duplicate "BD071112" Collected

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-310S  
 Sample Date: 7/10/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 16.9  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 6.98  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5 to 15

Standing Water in Well (feet): 9.92  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 10  
 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-3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 13:17

Stop time: 14:30

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvols) ( $\pm 10$ )	pH (s.u.) ( $\pm 0.1$ )	Spec. Cond. (ms/cm) ( $\pm 3\%$ )	DO (mg/L) ( $\pm 10\%$ or 3 rdgs <0.5)	Temperature ( $^{\circ}\text{C}$ ) ( $\pm 3\%$ )	Turbidity (ntu) ( $\pm 10\%$ or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
13:45	6.90	-30	6.00	.535	0.82	15.1	7	400	
13:50	6.86	-30	5.98	.541	0.6	15.3	10	400	
13:55	6.82	-31	6.00	.546	0.49	15.0	6	400	
14:00	6.80	-31	6.02	.551	0.43	15.1	5	400	
14:05	6.80	-33	6.05	.560	0.37	15.8	5	400	
14:10	6.80	-32	6.06	.560	0.31	14.2	5	400	
14:15	6.80	-32	6.07	.561	0.32	14.2	5	400	
14:17	6.80	-32	6.06	.562	0.32	14.2	5	400	
14:20	6.80	-32	6.06	.562	0.32	14.2	5	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 14:20

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: None Odor: None Clarity: None

Total Purge Volume: 4 Gal Tubing Volume: 0.1 Gal

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:**

Orange flakes in purge water at beginning of pumping.

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GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 36
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-310D
Sample Date: 7/10/2013
Sampler's Name: EMB

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 7/10/2012/ 8:05

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 36.3
Depth to LNAPL (feet): -
Depth to Water (feet): 9
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 22 to 32

Standing Water in Well (feet): 27.3
Well Diameter (in.): 2"
Sample Depth (feet BGS): 27
Standpipe: TPVC to Ground Surface (feet) -
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Peristaltic No. P-2
Meter Type: YSI #2 No. Lamotte #1

Flow-Thru Cell Vol (mL): 200

INSTRUMENT MEASUREMENTS:

Start time: 13:20

Stop time: 15:00

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mv), pH (s.u.), Spec. Cond. (ms/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Data rows from 14:20 to 14:50.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 14:50

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Rows for VOCs, TPH, PAHs, Total Cyanide, Dissolved Cyanide.

Sample observations:

Color: None Odor: None Clarity: None

Total Purge Volume: 5 Gak Tubing Volume: 0.22 Gal

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:

Grayish color at start, then cleared.

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
**Weather:** Sunny 80's

Well ID: MW-201  
 Sample Date: 7/10/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 15.15  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 10.36  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 3 to 13

Standing Water in Well (feet): 4.79  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 8  
 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-3  
 Meter Type: YSI #2 No. Lamotte #1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 10:52

Stop time: 12:15

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvols) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (ms/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
11:30	11.10	-136	6.67	1.09	0.85	16.6	5.7	350	
11:35	11.10	-142	6.66	1.1	0.69	16.4	10.1	350	
11:40	11.10	-157	6.68	1.1	0.46	16.4	7.7	350	
11:45	11.10	-158	6.7	1.11	0.49	16.6	7	350	
11:50	11.10	-167	6.72	1.11	0.39	16.4	<5	350	
11:55	11.10	-175	6.76	1.11	0.29	16.4	<5	350	
12:00	11.10	-183	6.76	1.11	0.24	16.4	<5	350	
12:02	11.10	-188	6.76	1.11	0.26	16.5	<5	350	
12:04	11.10	-190	6.76	1.11	0.25	16.6	<5	350	
12:06	11.10	-191	6.76	1.12	0.25	16.6	<5	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:06

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Grayish Odor: Organic Clarity: Slightly Murky

**Total Purge Volume:** 3 Gal

**Tubing Volume:** 0.08 Gal

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
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**Notes:**

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-208  
 Sample Date: 7/10/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 21.8  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 16.12  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 5.68  
 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-2

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 11:05

Stop time: 12:45

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (ms/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
12:10	16.05	-97	6.32	0.68	0.89	16.8	11	350	
12:15	16.04	-88	6.18	0.67	0.69	16.4	8	350	
12:20	16.03	-88	6.18	0.67	0.64	16.4	5	350	
12:25	16.03	-87	6.17	0.67	0.56	16.5	5	350	
12:30	16.03	-87	6.17	0.66	0.56	16.6	5	350	
12:32	16.03	-87	6.17	0.66	0.56	16.6	5	350	
12:34	16.03	-87	6.17	0.66	0.55	16.6	5	350	
12:36	16.03	-87	6.17	0.66	0.55	16.6	5	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:36

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: None Odor: None Clarity: Clear

Total Purge Volume: 5 Gal

Tubing Volume: 0.11 Gal

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:**

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 \_\_\_\_\_  
 \_\_\_\_\_

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-312S  
 Sample Date: 7/11/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/11/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 20  
 Depth to LNAPL (feet): 9.95  
 Depth to Water (feet): 11.05  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5 to 20

Standing Water in Well (feet): 8.95  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 12.5  
 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-2

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 8:25

Stop time: 10:00

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvols) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (ms/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
9:20	NM	-8	6.04	4.40	2.34	16.7	13	450	
9:22	NM	-25	6	4.32	0.66	16.0	8	450	
9:30	NM	-34	6	4.31	0.59	16.1	4	450	
9:35	NM	-37	6.02	4.30	0.63	16.4	4	450	
9:40	NM	-37	6.03	4.29	0.63	16.4	4	450	
9:42	NM	-38	6.03	4.29	0.63	16.3	4	450	
9:45	NM	-38	6.03	4.29	0.63	16.3	4	450	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 9:45

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Clear Odor: Slight Product Clarity: Clear

Total Purge Volume: 5 Gal Tubing Volume: 0.11 Gal

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
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**Notes:**

Replaced tubing prior to sample process.  
 Trace amount of LNAPL in purge water, cleared to slight sheen.  
 NM= not measured.  
 Dept to water not measured due to LNAPL presence during low flow sampling.

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-312D  
 Sample Date: 7/11/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/11/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 32  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 8.8  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 23 to 28

Standing Water in Well (feet): 23.2  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 25.5  
 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-3  
 Meter Type: YSI #2 No. Lamotte #1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 13:07

Stop time: 14:15

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvvolts) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (ms/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
13:35	8.70	-146	7.23	0.91	0.52	14.4	5	450	
13:40	8.60	-143	7.22	0.83	0.47	14.1	4	450	
14:00	8.56	-138	7.20	0.71	0.31	13.8	2	450	
14:05	8.54	-138	7.20	0.71	0.32	13.9	2	450	
14:10	8.54	-138	7.20	0.71	0.32	13.9	3	450	
14:12	8.54	-138	7.20	0.71	0.30	14.0	2	450	
14:15	8.54	-138	7.20	0.71	0.31	14.0	2	450	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 14:15

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> SO <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Clear    Odor: Slight Petroleum-like    Clarity: Clear

Total Purge Volume: 4.5 Gal

Tubing Volume: 0.17 Gal

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:**



GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 36
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-326S
Sample Date: 7/11/2012
Sampler's Name: EMB

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 7/11/2012 -8:00

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 26.7
Depth to LNAPL (feet): trace
Depth to Water (feet): 12.98
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 5 to 25

Standing Water in Well (feet): 13.72
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 [X] Good Lock- [X] Yes [ ] No Expansion Cap- [X] Yes [ ] No Well ID- [X] Yes [ ] No Concrete Collar- [X] Yes [ ] No Well- [ ] Poor [X] Good

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Peristaltic No. P-2

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

INSTRUMENT MEASUREMENTS:

Start time: 8:02

Stop time: 9:25

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mv), pH (s.u.), Spec. Cond. (ms/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Data rows from 8:50 to 9:20.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 9:20

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Rows for VOCs, TPH, PAHs, Total Cyanide, Dissolved Cyanide.

Sample observations:

Color: Clear Odor: Slight Petroleum Clarity: Clear

Total Purge Volume: 4 Gal

Tubing Volume: 0.09 Gal

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:

Slight sheen on purge water.

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
**Weather:** Sunny 80's

Well ID: MW-326D  
 Sample Date: 7/11/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/11/2012 -8:30

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 45.3  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 12.18  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 33 to 43

Standing Water in Well (feet): 33.12  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 38  
 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-3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 8:35

Stop time: 9:45

Time: (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mv/ols) (±10)	2 pH (s.u.) (±0.1)	3 Spec. Cond. (ms/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
9:15	NR	-104	7.3	9.75	3.81	15.2	5	400	
9:20	19.10	-99	7.31	9.84	3.49	15.2	4	400	
9:25	19.15	-99	7.32	9.84	3.05	15.3	3	400	
9:30	19.17	-101	7.33	9.77	2.48	15.4	3	400	
9:35	NR	-103	7.33	9.76	2.07	15.4	3	400	
9:40	19.21	-106	7.33	9.73	1.85	15.5	3	400	
9:42	19.20	-107	7.34	9.73	1.78	15.5	3	400	
9:45	19.21	-107	7.34	9.72	1.77	15.5	3	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 9:45

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Clear    Odor: None    Clarity: Clear

Total Purge Volume: 6 Gal    Tubing Volume: 0.25 Gal

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
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**Notes:**  
 NR=Not Recorded.  
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 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-333S  
 Sample Date: 7/11/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/11/2012 -10:55

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 18.3  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 11.88  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 6 to 16

Standing Water in Well (feet): 6.42  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 11  
 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-2

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 11:20

Stop time: 12:30

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvolts) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (ms/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
11:45	11.98	0	6.29	12.89	0.35	19.2	7	400	
11:50	11.98	15	6.14	12.84	0.29	19.3	5	400	
11:55	11.96	15	6.14	12.79	0.29	19.2	5	400	
12:00	11.92	13	6.14	12.73	0.29	19.0	<5	400	
12:05	11.85	10	6.14	12.68	0.26	18.9	<5	400	
12:10	11.78	8	6.14	12.65	0.25	18.8	<5	400	
12:15	11.77	6	6.14	12.65	0.24	19.0	<5	400	
12:17	11.76	6	6.14	12.65	0.24	19.1	<5	400	
12:20	11.75	6	6.14	12.65	0.24	19.1	<5	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:20

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> SO <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 6.5 Gal

Tubing Volume: 0.08 Gal

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:**

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
**Weather:** Sunny 80's

Well ID: MW-333D  
 Sample Date: 7/11/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/11/2012 -10:40

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 45  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 11.78  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 30 to 40

Standing Water in Well (feet): 33.22  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 35  
 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-3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 10:45

Stop time: 12:00

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvolts) (±10)	2 pH (s.u.) (±0.1)	3 Spec. Cond. (ms/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
11:20	15.25	-186	7.49	1.25	0.56	15.7	35	500	
11:25	15.31	-183	7.51	1.26	0.49	15.6	30	500	
11:30	15.40	-166	7.48	1.26	0.60	15.7	27	500	
11:35	15.55	-180	7.53	1.25	0.42	15.7	21	500	
11:40	15.59	-182	7.54	1.24	0.38	14.7	14	500	
11:45	15.61	-182	7.55	1.25	0.35	15	15	500	
11:50	15.65	-182	7.55	1.25	0.34	15.1	14	500	
11:55	15.67	-183	7.56	1.26	0.34	15.1	16	500	
11:57	15.78	-184	7.56	1.26	0.34	15.2	15	500	
12:00	15.8	-184	7.56	1.26	0.33	15.2	15	500	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:00

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Grayish Odor: None Clarity: Murky

Total Purge Volume: 5 Gal Tubing Volume: 0

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:**

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 36
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-339S
Sample Date: 7/12/2012
Sampler's Name: EMB

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 7-12-12/9:10

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 12.4
Depth to LNAPL (feet): -
Depth to Water (feet): 7.08
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 3 to 10

Standing Water in Well (feet): 5.32
Well Diameter (in.): 2"
Sample Depth (feet BGS): 7
Standpipe: TPVC to Ground Surface (feet) -
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Peristaltic No. P-2
Meter Type: YSI #2 No. Lamotte #1

Flow-Thru Cell Vol (mL): 200

INSTRUMENT MEASUREMENTS:

Start time: 9:18

Stop time: 10:30

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mvolts), pH (s.u.), Spec. Cond. (ms/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains 6 rows of data from 9:55 to 10:20.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 10:20

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists testing parameters for VOCs, TPH, PAHs, and Cyanide.

Sample observations:

Color: Clear Odor: Slight Product Clarity: Clear

Total Purge Volume: 6 Gal Tubing Volume: 0.07 Gal

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:

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-339E  
 Sample Date: 7/12/2012  
 Sampler's Name: EMB

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7-12-12/9:05

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 21.05  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 6.9  
 Depth to DNAPL (feet): Trace (-)  
 Well Screened Interval (feet BGS): 12 to 17

Standing Water in Well (feet): 14.15  
 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-3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 10:22

Stop time: 11:30

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (ms/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
11:00	9.14	-6	6.05	.588	0.47	13.9	3	450	
11:15	9.14	-36	6.16	.592	0.23	13.9	2	450	
11:20	9.14	-38	6.17	.593	0.22	13.8	<5	450	
11:25	9.14	-42	6.18	.594	0.21	13.9	<5	450	
11:27	9.14	-43	6.18	.594	0.21	13.9	<5	450	
11:30	9.14	-43	6.18	.594	0.2	13.9	<5	450	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 11:30

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> SO <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Clear Odor: Slight Product-like Clarity: Clear

**5 Gal** Tubing Volume: 0.12 Gal

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:**

New tubing installed prior to sampling  
Slight sheen

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MAE MW-  
 Sample Date: 7/12/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 13.3  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 10.75  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): unknown

Standing Water in Well (feet): 3.02  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 12  
 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-2

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #1

**INSTRUMENT MEASUREMENTS:**

Start time: 8:30

Stop time: 10:10

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
9:30	11.05	0.5	6.64	14232	2.01	19.6	5.11	300	
9:33	11.05	0.5	6.64	14253	1.84	19.6	4.91	300	
9:36	11.05	0.8	6.64	14230	1.44	19.6	4.69	300	
9:39	11.05	1.7	6.64	14228	1.63	19.6	4.51	300	
9:42	11.05	3.0	6.63	14767	1.59	19.6	4.71	300	
9:45	11.05	4.0	6.63	14304	1.5	19.8	4.71	300	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 9:50

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> SO <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: None Odor: None Clarity: None

Total Purge Volume: 8 Gal Tubing Volume: 0.08 Gal

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:**

Not enough water to go midpoint.  
Lots of Bees in standpipe cap.

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-6  
 Sample Date: 7/11/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 19.03  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 11.7  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5.5 to 15.5

Standing Water in Well (feet): 7.33  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 11  
 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-6

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 10:40

Stop time: 11:50

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mv) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (± 3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
11:00	11.92	-48	6.08	1479	4.47	14.6	8.72	375	
11:03	11.92	-6.6	6.06	1484	4.32	14.4	8.48	375	
11:06	11.92	-8	6.06	1487	4.22	14.6	9.50	375	
11:09	11.92	-8.8	6.06	1492	4.10	14.6	9.79	375	
11:12	11.92	-10.5	6.07	1416	3.99	14.4	9.84	375	
11:23	11.92	-14.5	6.07	1523	0.35	15.8	11.10	150	
11:27	11.92	-16.1	6.07	1540	0.33	15.6	10.87	150	
11:30	11.92	-17.1	6.07	1513	0.28	15.5	10.51	150	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 11:35

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: None Odor: None Clarity: none

Total Purge Volume: 6 Gal

Tubing Volume: 0.09 Gal

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:**

Lowered flow to lower DO



**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-109  
 Sample Date: 7/11/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7-10-12/8:06

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 19.3  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 12.5  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 6.8  
 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-6  
 Meter Type: YSI #3 No. Lamotte #3

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 14:15

Stop time: 15:45

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvols) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
14:57	11.95	-32.8	6.11	709	0.38	15.7	7.54	350	
14:40	11.95	-38.7	6.12	610	0.26	15.6	8.1	350	
14:48	11.95	-52.9	6.21	429	0.31	15.5	11.2	350	
14:51	11.95	-55.2	6.2	455	0.41	15.8	11.9	350	
14:55	11.95	-59	6.23	410	0.41	15.5	12.1	350	
14:59	11.95	-61.6	6.24	367	0.41	15.5	12	350	
15:02	11.95	-63.2	6.24	353	0.41	15.6	13.2	350	
15:05	11.95	-64.9	6.24	347	0.37	15.5	13.1	350	
15:08	11.95	-66.8	6.23	339	0.32	15.6	13.5	350	
15:11	11.95	-68.3	6.24	336	0.27	15.6	14.2	350	
15:14	11.95	-70	6.24	334	0.28	15.5	14.1	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 15:20

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Odor: Very Slight  
 Color: None Coal tar-like Clarity: None

Total Purge Volume: 5 Gal Tubing Volume: 0.11 Gal

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:  
 Slight sheen on purge water

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-314S  
 Sample Date: 7/12/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 24.3  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 10.25  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5 to 25

Standing Water in Well (feet): 13.95  
 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-6  
 Meter Type: YSI #2 No. Lamotte #1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 8:15

Stop time: 9:15

	1	2	3	4	5	6	7	8	
Time: (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
8:46	10.45	-47.2	6.19	4526	0.42	15.2	4.72	300	
8:49	10.45	-49.2	6.19	4537	0.36	15.1	4.81	300	
8:52	10.45	-51.2	6.20	4542	0.33	15.1	4.26	300	
8:55	10.45	-52.3	6.19	4552	0.3	15.3	4.15	300	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 9:03

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Odor: Very Slight  
 Color: None Fuel Oil-like Clarity: None

Total Purge Volume: 3 Gal Tubing Volume: 0.14 Gal

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:**

Brace sheen on purge water

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-314D  
 Sample Date: 7/12/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7-10-12/8:10

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 43.4  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 10.3  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 33 to 43

Standing Water in Well (feet): 33.04  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 38  
 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-6  
 Meter Type: YSI #2 No. Lamotte #1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 9:15

Stop time: 10:50

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
10:16	11.05	-62.8	6.51	8256	0.22	13.3	9.76	400	
10:19	11.05	-63.5	6.51	8257	0.19	14	9.81	400	
10:22	11.05	-64.7	6.52	8120	0.18	14	9.51	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 10:30

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> SO <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: none Odor: None Clarity: none

Total Purge Volume: 7 Gal

Tubing Volume: 0.26 Gal

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:**

Very slight sheen on purge water

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-316S  
 Sample Date: 7/11/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7-10-12/8:37

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 23.53  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 22.82  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 0.71  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 19  
 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: Bailer No.

Flow-Thru Cell Vol (mL): NA

Meter Type: YSI #3 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 12:40

Stop time: NA

		1	2	3	4	5	6	7	8
Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (±10)	pH (s.u.) (±0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
12:55	NR	182	5.92	912	4.26	21.5	>100	NA	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 13:00

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

**Sample observations:**

Color: None Odor: None Clarity: Very turbid

Total Purge Volume: 0 Gal Tubing Volume: NA

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:**  
 Lots of fine sand  
 Pre-bail: 22.82=DTW  
 Immediately collect sample  
 NR=Not recorded

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-316D  
 Sample Date: 7/11/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7-10-12/8:38

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 31.5  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 21.94  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 22 to 27

Standing Water in Well (feet): 9.56  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 25  
 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: Submersible No.

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 12:25

Stop time: 13:45

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
13:13	22	111.5	6.17	530	4.21	17	8.82	150	
13:17	22	110.7	6.17	527	4.54	16.5	8.71	150	
13:20	22	110.7	6.16	524	4.27	16.8	9.45	200	
13:23	22	111.6	6.16	517	4.42	16.3	8.92	200	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 13:30

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: None Odor: None Clarity: None

Total Purge Volume: 8 Gal Tubing Volume: 0.16 Gal

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:**

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 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

### GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-337  
 Sample Date: 7/11/2012  
 Sampler's Name: SDN

#### WATER LEVEL OBSERVATIONS

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 19.9  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 11.78  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5 to 15

Standing Water in Well (feet): 8.12  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 10  
 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-6

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

#### INSTRUMENT MEASUREMENTS:

Start time: 9:45

Stop time: 10:50

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
10:06	11.95	145.2	5.67	556	0.28	16	7.13	400	
10:10	11.95	63.2	5.75	548	0.24	15.4	0.53	400	
10:13	11.95	54.7	5.77	549	0.3	15.5	9.17	400	
10:16	11.95	43.8	5.78	548	0.71	15.5	10.4	400	
10:19	11.95	36.6	5.8	549	0.79	15.4	10.0	400	
10:22	11.95	33.9	5.79	547	0.77	15.3	10.1	400	

#### SAMPLE TESTING INFORMATION:

SAMPLE TIME: 10:30

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> SO <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

#### Sample observations:

Odor: Slight fuel

Color: None Oil-like Clarity: None

Total Purge Volume: 4 Gal

Tubing Volume: 0.11 Gal

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:

Flow as low as possible

Very slight sheen on purge water

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 36
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-107
Sample Date: 7/11/2012
Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 7-10-12/9:26

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 27.7
Depth to LNAPL (feet): -
Depth to Water (feet): 19.69
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 16 to 26

Standing Water in Well (feet): 8.31
Well Diameter (in.): 2"
Sample Depth (feet BGS): 21
Standpipe: TPVC to Ground Surface (feet) -
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Submersible No.

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

INSTRUMENT MEASUREMENTS:

Start time: 8:45

Stop time: 9:40

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mvolts), pH (s.u.), Spec. Cond. (µS/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains 7 rows of data from 9:00 to 9:19.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 9:25

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists tests for VOCs, TPH, PAHs, Total Cyanide, and Dissolved Cyanide.

Sample observations:

Color: None Odor: None Clarity: None

Total Purge Volume: 3 Gal

Tubing Volume: 0.14 Gal

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:

Flow as low as possible



**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-318S  
 Sample Date: 7/10/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7-10-12/9:42

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 27.69  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 17.22  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 25

Standing Water in Well (feet): 10.47  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 18  
 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

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 11:35

Stop time: 13:05

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
12:14	17.11	320.8	2.93	1455	2.72	15.8	1.02	150	
12:18	17.11	335.7	2.91	1458	1.63	15.7	1.05	150	
12:24	17.11	344.5	2.87	1451	1.32	15.4	1.1	150	
12:30	17.11	350.6	2.87	1417	1.28	15.4	1.03	150	
12:33	17.11	352.2	2.84	1427	1.20	15.3	1.05	150	
12:36	17.11	359.1	2.84	1454	1.22	15.4	1.07	150	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:40

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 2 Gal

Tubing Volume: 0.17 Gal

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:**

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-318D  
 Sample Date: 7/10/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7/10/2012

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 43.45  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 18.25  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 30 to 40

Standing Water in Well (feet): 25.2  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 35  
 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

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 14:15

Stop time: 14:55

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
14:41	15.96	275.2	5.81	453.6	1.58	14.3	22	300	
14:44	15.96	263.2	5.85	455.2	1.61	14.4	21.5	300	
14:47	15.95	259.3	8.86	455.8	1.63	14.4	21.1	300	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 14:50

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HC1	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: None Odor: None Clarity: None

Total Purge Volume: 3 Gal Tubing Volume: 0.23 Gal

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:**

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 \_\_\_\_\_  
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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654.00 Task 36  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-334S  
 Sample Date: 7/10/2012  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 7-10-12 9:32

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 28.81  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 19.31  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 14 to 24

Standing Water in Well (feet): 9.5  
 Well Diameter (in.): 2"  
 Sample Depth (feet BGS): 19  
 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: Submersible No.

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 11:50

Stop time: 13:30

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
12:59	19.35	440.3	2.58	3240	4.61	16.4	1.5	200	
13:02	19.35	440.5	2.34	3264	4.72	16.5	1.27	200	
13:05	19.35	441.4	2.35	3300	4.27	16.6	1.31	200	
13:09	19.35	441.3	2.33	3226	4.50	16	1.35	200	
13:12	19.35	446.9	2.33	3198	4.48	15.6	1.3	200	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 13:15

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	H <sub>2</sub> So <sub>4</sub>	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: None Odor: Slight Coal tar-like Clarity: Slight sheen

Total Purge Volume: 5 Gal

Tubing Volume: 0.17 Gal

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 BD-71012

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 36
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-334D
Sample Date: 7/10/2012
Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 7-10-12/9:31

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 43.28
Depth to LNAPL (feet): -
Depth to Water (feet): 20.92
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 28 to 38

Standing Water in Well (feet): 22.33
Well Diameter (in.): 2"
Sample Depth (feet BGS): 33
Standpipe: TPVC to Ground Surface (feet) -
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Submersible No.

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #3 No. Lamotte #2

INSTRUMENT MEASUREMENTS:

Start time: 13:50

Stop time: 14:40

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mv), pH (s.u.), Spec. Cond. (µS/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains 4 rows of data from 14:08 to 14:20.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 14:25

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists testing parameters for VOCs, TPH, PAHs, and Cyanide.

Sample observations:

Color: None Odor: None Clarity: None

Total Purge Volume: 3 Gal Tubing Volume: 0.22 Gal

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 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 1 of 2  
Date: 7/10/2012

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### LOW FLOW CALIBRATION:

#### Initial Calibration:

Morning

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>988</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>3.99/7.0</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>100</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>237.5</u>	Reading: <u>237.5</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>0/10</u>	Reading: <u>0/10.92</u>

#### Bump Check:

Night

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>1080</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.28/6.85</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>101.4</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>224.5</u>	Reading: <u>222.8</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>1</u>	Reading: <u>0.7</u>

Revision Date: 1/27/12

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## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 2 of 2  
Date: 7/10/2012

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### LOW FLOW CALIBRATION:

#### Initial Calibration:

Morning

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>992</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>3.99/7.02</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>98.6</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>2375</u>	Reading: <u>237.5</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/10</u>	Reading: <u>-0.02/9.71</u>

#### Bump Check:

Night

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>1100</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.01/6.85</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>101.1</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>224.5</u>	Reading: <u>218.6</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>1</u>	Reading: <u>0.9</u>

Revision Date: 1/27/12

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## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 1 of 2  
Date: 7/11/2012

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### LOW FLOW CALIBRATION:

#### Initial Calibration:

Morning

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>1000</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.01/6.99</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>100.4</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>224.5</u>	Reading: <u>224.5</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte @2</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1</u>

#### Bump Check:

Night

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>1041</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.14/6.86</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>102.4</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>224.5</u>	Reading: <u>225.7</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.03/1.15</u>

Revision Date: 1/27/12

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## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 2 of 2  
Date: 7/11/2012

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### LOW FLOW CALIBRATION:

#### Initial Calibration:

Morning

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>1010</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.01/6.99</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>100.1</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>224.5</u>	Reading: <u>224.5</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>1</u>	Reading: <u>1</u>

#### Bump Check:

Night

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>970</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.16/6.87</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>96.7</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>224.5</u>	Reading: <u>29.2</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.60/0.76</u>

Revision Date: 1/27/12

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## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

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Date: 7/12/2012

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### LOW FLOW CALIBRATION:

#### Initial Calibration:

Morning

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>1000</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>3.99/6.99</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>101.1</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>224.5</u>	Reading: <u>224.6</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte @2</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.10/1.20</u>

#### Bump Check:

Night

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>1030</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.10/6.97</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>101.1</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>224.5</u>	Reading: <u>217</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.25</u>

Revision Date: 1/27/12

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## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

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Date: 7/12/2012

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### LOW FLOW CALIBRATION:

#### Initial Calibration:

Morning

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>1000</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4/7</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>100.1</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>224.5</u>	Reading: <u>224.5</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>-.03/0.99</u>

#### Bump Check:

Night

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>1020</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.11/6.91</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>106.5</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>224.5</u>	Reading: <u>218</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.1/0.97</u>

Revision Date: 1/27/12

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Cloudy 80's

Well ID: MW-7  
 Sample Date: 8/6/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-8:47

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 27.58  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 19.21  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 19.5 to 29.5

Standing Water in Well (feet): 8.37  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 25  
 Standpipe: TPVC to Ground Surface (feet) 2.6  
 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: Submersible No.           
 Meter Type: YSI/Lamotte No.          1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 9:15

Stop time: 9:50

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
9:44	19.25	206	5.92	456	6.92	15.2	<5	400	
9:47	19.25	209	5.92	455	7.03	15.3	<5	400	
9:56	19.25	211	5.92	455	7.06	15.2	<5	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 9:50

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

**Total Purge Volume:** 5 gallons **Tubing Volume:** 0.16 gallons

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:**

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80s

Well ID: MW-310S  
 Sample Date: 8/6/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-8:16

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 16.9  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 6.58  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5 to 15

Standing Water in Well (feet): 10.32  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 10  
 Standpipe: TPVC to Ground Surface (feet) 2.05  
 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. 3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI/Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 11:30

Stop time: 12:15

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
12:05	8.95	-31	6.32	380	0.45	13.9	10	350	
13:10	8.95	-33	6.35	380	0.43	13.9	10	350	
13:15	8.95	-33	6.32	379	0.40	13.9	9	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:15

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Slight Coal tar-like Clarity: Clear

Total Purge Volume: 4 gallons

Tubing Volume: 0.11 gallon

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:**

Iron particles in purge water.

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-310D  
 Sample Date: 8/6/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-8:19

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 36.3  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 6.02  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 22 to 32

Standing Water in Well (feet): 30.28  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 27  
 Standpipe: TPVC to Ground Surface (feet) 2.10  
 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. 4

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI/Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 11:35

Stop time: 12:37

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
12:22	8.98	-95	6.90	559	0.33	13.4	12	350	
12:25	8.98	-98	6.99	559	0.35	13.5	12	350	
12:30	8.98	-100	6.95	557	0.33	13.4	9	350	
12:34	8.98	-101	6.98	559	0.30	13.5	10	350	
12:37	8.98	-101	9.97	558	0.32	13.5	10	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:37

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	1	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Field Filtered

**Sample observations:**

Color: Clear Odor: Slight Coal tar-like Clarity: Clear

Total Purge Volume: 4 gallons Tubing Volume: 0.22 gallon

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:**

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80s

Well ID: MW-201  
 Sample Date: 8/7/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:01

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 15.05  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 10.31  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 2 to 13

Standing Water in Well (feet): 4.74  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 10  
 Standpipe: TPVC to Ground Surface (feet) 2.9  
 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. 4  
 Meter Type: YSI/Lamotte No. 1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 14:00

Stop time: 14:40

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
14:25	11.28	-107	7.29	454	0.95	16.9	8	400	
14:28	11.26	-113	7.33	450	0.78	16.9	7	400	
14:31	11.26	-114	7.35	450	0.78	16.8	7	400	
14:34	11.26	-118	7.39	451	0.48	16.8	6	400	
14:37	11.28	-118	7.44	454	0.42	16.8	6	400	
14:40	11.28	-125	7.43	454	0.32	16.8	6	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 14:40

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Coal tar-like Clarity: Clear

Total Purge Volume: 4 gallons Tubing Volume: 0.09 gallon

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:**

Not enough water to sample at the midpoint of the well screen.

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Cloudy 80's

Well ID: MW-208  
 Sample Date: 8/8/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-8:54

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 21.8  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 14.73  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 7.07  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 14  
 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. 4  
 Meter Type: YSI, Lamotte No. 1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 9:05

Stop time: 10:24

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
10:15	14.74	-29	6.24	412	0.42	15.5	<5	300	
10:21	14.74	-26	6.26	410	0.35	15.5	<5	300	
10:24	14.74	-26	6.27	400	0.30	15.5	<5	300	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 10:24

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Coal tar-like Clarity: Clear

Total Purge Volume: 5 gallons Tubing Volume: 0.13 gallon

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:**

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Suny 80's

Well ID: MW-312S  
 Sample Date: 8/6/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:59

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 23.5  
 Depth to LNAPL (feet): 8.62  
 Depth to Water (feet): 8.55  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5 to 20

Standing Water in Well (feet): 13.95  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 12  
 Standpipe: TPVC to Ground Surface (feet) 2.4  
 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. 3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI, Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 13:30

Stop time: 14:31

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvols) ( $\pm 10$ )	2 pH (s.u.) ( $\pm 0.1$ )	3 Spec. Cond. ( $\mu\text{S/cm}$ ) ( $\pm 3\%$ )	4 DO (mg/L) ( $\pm 10\%$ or 3 rdgs <0.5)	5 Temperature ( $^{\circ}\text{C}$ ) ( $\pm 3\%$ )	6 Turbidity (ntu) ( $\pm 10\%$ or <5ntu)	7 Flow (ml/min) (<500 ml/min)	8 Notes
14:02	13.74	-37	6.21	2933	0.75	16.9	11	350	
14:24	13.74	-53	6.28	2963	1.19	16.8	13	350	
14:28	13.74	-56	6.27	2859	1.22	16.8	12	350	
14:31	13.74	-54	6.25	2867	1.20	16.8	12	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 14:31

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Coal tar-like Clarity: Sheen on purge water

Total Purge Volume: 3 gallons Tubing Volume: 0.14 gallon

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:**  
 Replaced tubing



### GROUNDWATER SAMPLING DATA SHEET

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-312D  
 Sample Date: 8/6/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-10:05

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 32.9  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 8.19  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 23 to 28

Standing Water in Well (feet): 24.71  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 25  
 Standpipe: TPVC to Ground Surface (feet) 2.3  
 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. 4  
 Meter Type: YSI, Lamotte No. 1

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 13:05

Stop time: 13:51

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (±10)	pH (s.u.) (±0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
13:36	10.72	-123	7.24	603	1.73	15	9	350	
13:39	10.72	-125	7.34	586	1.65	14.8	9	350	
13:42	10.72	-125	7.35	577	1.72	14.8	8	350	
13:47	10.72	-126	7.35	565	1.75	14.8	7	350	
13:51	10.72	-128	7.37	565	1.73	14.8	7	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 13:51

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	1	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Coal tar-like Clarity: Clear

Total Purge Volume: 4 gallons Tubing Volume: 0.2 gallon

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:**

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-326S  
 Sample Date: 8/7/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:31

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 25.58  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 10.07  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 5 to 25

Standing Water in Well (feet): 16.51  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 15  
 Standpipe: TPVC to Ground Surface (feet) 2.7  
 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. 4

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI, Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 10:50

Stop time: 11:46

		1	2	3	4	5	6	7	8
Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
11:32	10.85	-80	7.54	357	0.28	14.6	8	450	
11:37	10.87	-82	7.52	370	0.25	14.6	7	450	
11:40	10.88	-80	7.66	355	0.26	14.6	7	450	
11:43	11.00	-81	7.71	357	0.26	14.6	8	450	
11:46	11.00	-81	7.74	354	0.27	14.6	8	450	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 11:46

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Fuel oil-like Clarity: Sheen on purge water

**Total Purge Volume:** 5 gallons **Tubing Volume:** 0.16 gallon

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
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**Notes:**

Replaced tubing  
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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-326D  
 Sample Date: 8/7/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:29

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 45.05  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 9.18  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 23 to 43

Standing Water in Well (feet): 35.87  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 33  
 Standpipe: TPVC to Ground Surface (feet) 1.9  
 Roadbox: TPVC to Ground Surface (feet) NM

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. 3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI, Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 10:20

Stop time: 11:22

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvols) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
10:57	18.32	-114	7.98	4415	1.42	14.5	11	350	
11:01	18.50	-117	7.89	4469	0.70	14.7	9	350	
11:08	18.88	-119	7.9	4508	0.43	14.9	10	350	
11:15	18.95	-119	7.89	4538	0.39	13.0	9	350	
11:19	18.98	-120	7.92	4549	0.40	13.0	10	350	
11:22	19.00	-120	7.91	4537	0.39	13.0	10	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 11:22

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Slight Coal tar-like Clarity: Clear

Total Purge Volume: 4 gallons Tubing Volume: 0.27 gallon

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:**

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-333S  
 Sample Date: 8/7/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:11

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 17.9  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 9.22  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 6 to 16

Standing Water in Well (feet): 8.57  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 11  
 Standpipe: TPVC to Ground Surface (feet) 3  
 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. 3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI, Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 8:30

Stop time: 9:39

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
8:54	9.23	195	6.47	6766	5.18	22.7	6	400	
9:01	9.23	189	6.48	7037	5.17	22.7	6	400	
9:07	9.25	186	6.49	7310	5.24	22.7	5	400	
9:10	9.26	186	6.50	7698	5.17	22.7	6	400	
9:15	9.29	167	6.50	8030	5.06	22.7	5	400	
9:18	9.31	187	6.50	8203	5.05	22.7	4	400	
9:21	9.31	188	6.50	8359	5.14	22.7	3	400	
9:24	9.33	188	6.50	8537	5.22	22.7	4	400	
9:27	9.33	188	6.50	8740	5.1	22.7	4	400	
9:30	9.36	188	6.50	8870	5.17	22.7	3	400	
9:33	9.38	188	6.50	9073	5.29	22.7	4	400	
9:36	9.40	188	6.50	9126	5.18	22.7	4	400	
9:39	9.40	188	6.50	9290	5.1	22.7	4	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 9:39

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 5 gallons

Tubing Volume: 0.10 gallon

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
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**Notes:**

GROUNDWATER SAMPLING DATA SHEET

File No. 43654
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-333D
Sample Date: 8/7/2013
Sampler's Name: Matt Bergen

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 8/6/13-9:08

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 44.96
Depth to LNAPL (feet): -
Depth to Water (feet): 9.45
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 30 to 40

Standing Water in Well (feet): 35.51
Well Diameter (in.): 2
Sample Depth (feet BGS): 35
Standpipe: TPVC to Ground Surface (feet) 3.2
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Peristaltic No. 4

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI, Lamotte No. 1

INSTRUMENT MEASUREMENTS:

Start time: 9:00

Stop time: 9:52

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mv), pH (s.u.), Spec. Cond. (µS/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains 5 rows of data from 9:42 to 9:52.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 9:52

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists tests for VOCS, TPH, PAHs, Total Cyanide, and Dissolved Cyanide.

Sample observations:

Color: Clear Odor: Coal tar-like Clarity: Clear

Total Purge Volume: 3.5 gallons

Tubing Volume: 0.27 gallon

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:

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-339S  
 Sample Date: 8/7/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-10:13

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 12.45  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 6.00  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 3 to 10

Standing Water in Well (feet): 6.45  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 7  
 Standpipe: TPVC to Ground Surface (feet) 2.75  
 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. 4

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI, Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 12:25

Stop time: 13:10

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
12:58	6.32	273	4.69	340	0.31	19.5	8	350	
13:01	6.33	276	4.76	339	0.28	19.5	7	350	
13:04	6.33	277	4.80	335	0.29	19.5	7	350	
13:07	6.34	279	4.85	333	0.25	19.5	6	350	
13:10	6.34	278	4.88	330	0.21	19.5	6	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 13:10

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Coal tar-like Clarity: Clear

Total Purge Volume: 3.5 gallons Tubing Volume: 0.07 gallon

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:**

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
**Weather:** Sunny 80's

Well ID: MW-339D  
 Sample Date: 8/7/2013  
 Sampler's Name: Matt Bergen

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-10:16

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 21.28  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 5.68  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 12 to 17

Standing Water in Well (feet): 15.54  
 Well Diameter (in.): 5  
 Sample Depth (feet BGS): 15  
 Standpipe: TPVC to Ground Surface (feet) 3.1  
 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. 3

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI, Lamotte No. 1

**INSTRUMENT MEASUREMENTS:**

Start time: 12:50

Stop time: 13:35

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvols) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
13:28	7.39	-3	6.23	285	0.30	15.8	7	400	
13:32	7.39	-3	6.23	284	0.25	15.8	7	400	
13:35	7.39	-7	6.25	286	0.20	15.8	7	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 13:35

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Coal tar-like Clarity: Clear

Total Purge Volume: 4 gallons Tubing Volume: 0.13 gallon

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:**

Replaced tubing

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MAE MW-2  
 Sample Date: 8/6/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-7:54

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 13.75  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 9.12  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): Unknown

Standing Water in Well (feet): 4.63  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 11  
 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-6

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 11:30

Stop time: 12:10

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
11:50	9.45	96.4	7.11	12331	1.28	22.2	4.58	400	
11:54	9.45	78.8	7.09	12600	1.39	22.1	4.31	400	
12:01	9.48	81.2	7.15	12922	1.78	21.4	4.50	400	
12:04	9.50	80.3	7.10	13984	1.77	21.8	4.52	400	
12:07	9.52	80.4	7.12	13030	1.85	22.1	4.55	400	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:10

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

**Total Purge Volume:** 3.5 gallons **Tubing Volume:** 0.09 gallon

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:**

Bees in standpipe cap

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GROUNDWATER SAMPLING DATA SHEET

File No. 43654
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-6
Sample Date: 8/7/2013
Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 8/6/13-8:37

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 19.05
Depth to LNAPL (feet): -
Depth to Water (feet): 11.75
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 5.5 to 15.5

Standing Water in Well (feet): 7.3
Well Diameter (in.): 2
Sample Depth (feet BGS): 10
Standpipe: TPVC to Ground Surface (feet) -
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Peristaltic No. P-6

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

INSTRUMENT MEASUREMENTS:

Start time: 15:30

Stop time: 16:00

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mv), pH (s.u.), Spec. Cond. (µS/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains three rows of data from 15:51 to 15:58.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 16:00

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists tests for VOCs, TPH, PAHs, and Cyanide.

Sample observations:

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 2.5 gallons

Tubing Volume: 0.11 gallon

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:

Replaced tubing in well

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-109  
 Sample Date: 8/6/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:53

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 19  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 11.41  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 7.59  
 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-6

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 13:45

Stop time: 14:20

	1	2	3	4	5	6	7	8	
Time: (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvols) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
14:09	11.98	-12.6	6.59	301.7	0.40	16.6	4.8	250	
14:13	11.98	-14.5	6.60	300.1	0.34	16.6	4.7	250	
14:18	11.99	-16.8	6.60	298.3	0.28	16.6	4.6	250	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 14:20

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:** very, very slight  
 Color: Clear Odor: Coal tar-like Clarity: Very slight sheen on purge water

**Total Purge Volume:** 2.5 gallons **Tubing Volume:** 0.11 gallon

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:**  
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GROUNDWATER SAMPLING DATA SHEET

File No. 43654
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-314S
Sample Date: 8/6/2013
Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 8/6/13-7:51

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 24.2
Depth to LNAPL (feet): -
Depth to Water (feet): 9.12
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 5 to 25

Standing Water in Well (feet): 15.08
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 [X] Good Lock- [X] Yes [ ] No Expansion Cap- [X] Yes [ ] No Well ID- [X] Yes [ ] No Concrete Collar- [X] Yes [ ] No Well- [ ] Poor [X] Good

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Peristaltic No. P-6

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

INSTRUMENT MEASUREMENTS:

Start time: 12:30

Stop time: 13:15

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mvols), pH (s.u.), Spec. Cond. (µS/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains 4 rows of data.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 13:15

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists tests like VOCS, TPH, PAHs, Total Cyanide, Dissolved Cyanide.

Sample observations:

Color: Clear Odor: Slight fuel-oil like Clarity: trace sheen on purge water

Total Purge Volume: 5 gallons

Tubing Volum 0.15 gallon

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:

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-314D  
 Sample Date: 8/6/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-7:52

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 43.4  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 8.15  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 33 to 43

Standing Water in Well (feet): 35.25  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 38  
 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

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 11:40

Stop time: 12:45

	1	2	3	4	5	6	7	8	
Time: (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvols) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
12:30	10.50	-51.2	7.78	10384	0.23	14.9	7.3	250	
12:33	10.50	-50.6	7.74	9977	0.21	15.4	7.5	250	
12:37	10.51	-50.2	7.78	9777	0.21	15.0	7.55	250	
12:40	10.52	-49.8	7.75	9780	0.20	15.2	7.6	250	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:45

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 4 gallons Tubing Volume: 0.26 gallon

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 BD #1  
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 \_\_\_\_\_  
 \_\_\_\_\_

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-316S  
 Sample Date: 8/7/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:59

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 22.25  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 21.43  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 0.85  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 22  
 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: Bailer No.                       
 Meter Type: YSI #2 No.                      Lamotte #2                     

Flow-Thru Cell Vol (mL): NA

**INSTRUMENT MEASUREMENTS:**

Start time: NA

Stop time: NA

		1	2	3	4	5	6	7	8
Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
13:45	NR	291.2	4.88	778	5.69	17.5	>500	NA	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 11:40

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

**Sample observations:**

Color: Clear Odor: None Clarity: Very turbid

Total Purge Volume: 0.5 gallon Tubing Volume: NA

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
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**Notes:**

NR-Not Recorded  
 NA-Not applicable  
 Bailed to collect sample due to lack of water in well. 0.85 feet of water in well so the sample was collected from the bottom of the well.

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-316D  
 Sample Date: 8/7/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-10:00

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 31.2  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 21.5  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 22 to 27

Standing Water in Well (feet): 9.7  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 24.5  
 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: Submersible No.  
 Meter Type: YSI #2 No. Lamotte #2

Flow-Thru Cell Vol (mL): 200

**INSTRUMENT MEASUREMENTS:**

Start time: 13:30

Stop time: 14:15

	1	2	3	4	5	6	7	8	
Time: (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvolts) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
14:01	21.85	216.4	6.02	356.6	6.70	14.9	15	260	
14:07	21.85	212.4	6.07	356.7	6.69	15	14.8	260	
14:10	21.85	212.1	6.09	355.6	6.74	14.9	14.6	260	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 14:15

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

**Total Purge Volume:** 3.5 gallons **Tubing Volume:** 0.18 gallon

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:**

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GROUNDWATER SAMPLING DATA SHEET

File No. 43654
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Sunny 80's

Well ID: MW-337
Sample Date: 8/7/2013
Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 8/6/13-8:45

Point of Measurement: PVC Riser [X] Steel Casing [ ] Ground [ ]
Total Well Depth (feet): 19.9
Depth to LNAPL (feet): -
Depth to Water (feet): 11.65
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 5 to 15

Standing Water in Well (feet): 8.25
Well Diameter (in.): 2
Sample Depth (feet BGS): 10
Standpipe: TPVC to Ground Surface (feet) -
Roadbox: TPVC to Ground Surface (feet) -

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

EQUIPMENT

Sample Method: [ ] Bail [X] Pump / [X] Low Flow

Pump Type: Peristaltic No. P-5

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

INSTRUMENT MEASUREMENTS:

Start time: 15:00

Stop time: 15:35

Table with 10 columns: Time (start), Depth to Water (ft), ORP (mvolts), pH (s.u.), Spec. Cond. (µS/cm), DO (mg/L), Temperature (°C), Turbidity (ntu), Flow (ml/min), Notes. Contains three rows of data.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 15:35

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists tests for VOCS, TPH, PAHs, Total Cyanide, and Dissolved Cyanide.

Sample observations:

Color: Clear Odor: Fuel Oil-Like Clarity: Very slight sheen on purge water

Total Purge Volume: 4 gallons

Tubing Volume: 0.12 gallon

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:

### GROUNDWATER SAMPLING DATA SHEET

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-107  
 Sample Date: 8/7/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

 Measurement Date/Time: 8/6/13-9:00

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 27.8  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 19.75  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 16 to 26

Standing Water in Well (feet): 8.05  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 21  
 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: Submersible No. \_\_\_\_\_

 Flow-Thru Cell Vol (mL): 200

 Meter Type: YSI #2 No. \_\_\_\_\_ Lamotte #2
**INSTRUMENT MEASUREMENTS:**

 Start time: 8:30

 Stop time: 11:40

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
8:58	19.78	509.6	3.30	497.9	1.70	14.3	8.81	250	
9:01	19.79	513	3.30	495.7	1.96	14.5	8.49	250	
9:04	19.79	515.3	3.29	497.8	1.69	14.6	7.91	250	
9:07	19.80	518.9	3.29	498.8	1.44	14.6	6.74	250	
9:11	19.80	521	3.29	498.5	1.26	14.7	6.72	250	
9:14	19.80	522.5	3.29	497.5	1.25	14.7	6.79	250	
9:17	19.80	524.8	3.29	493.6	1.27	14.6	6.7	250	

**SAMPLE TESTING INFORMATION:**

 SAMPLE TIME: 11:40

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

 Color: Clear Odor: None Clarity: Clear

 Total Purge Volume: 4 gallons Tubing Volume: 0.16 gallon

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:**  
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# GROUNDWATER SAMPLING DATA SHEET

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-318S  
 Sample Date: 8/7/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:04

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 26.9  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 16.82  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 10 to 25

Standing Water in Well (feet): 10.08  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 18  
 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

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 9:30

Stop time: 10:40

	1	2	3	4	5	6	7	8	
Time: (start)	Depth to Water (ft) (drawdown <0.3 or stable)	ORP (mvols) (± 10)	pH (s.u.) (± 0.1)	Spec. Cond. (µS/cm) (±3%)	DO (mg/L) (±10% or 3 rdgs <0.5)	Temperature (°C) (±3%)	Turbidity (ntu) (±10% or <5ntu)	Flow (ml/min) (<500 ml/min)	Notes
10:11	16.85	379.4	2.91	891	1.53	14.4	4.91	250	
10:14	16.85	372.0	2.89	883	1.79	14.4	4.17	250	
10:17	16.85	366.7	2.91	877	1.46	14.3	4.2	250	
10:20	16.85	363.7	2.91	882	1.19	14.2	4	250	
10:23	16.85	360.3	2.89	880	1.14	14.1	3	250	
10:26	16.86	356.1	2.90	875	1.02	14.0	3	250	
10:29	16.86	367.1	2.91	879	0.92	13.9	3	250	
10:32	16.86	373.3	2.90	872	0.85	13.9	3	250	
10:36	16.87	370.3	2.91	872	0.89	13.9	3	250	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 10:40

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 4 gallons Tubing Volume: 0.16 gallon

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 BD#2  
 \_\_\_\_\_  
 \_\_\_\_\_  
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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-318D  
 Sample Date: 8/7/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:05

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 43.6  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 15.71  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 30 to 40

Standing Water in Well (feet): 27.89  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 35  
 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-6

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 11:00

Stop time: 12:10

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
11:55	17.22	139.9	5.74	314	1.58	15.1	10.4	200	
11:58	17.25	170	5.75	312.6	1.49	15	7.7	200	
12:01	17.28	168.6	5.74	311.4	1.47	15	7.9	200	
12:04	17.31	167.4	5.79	311	1.44	14.9	7.7	200	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:10

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 3.5 gallons Tubing Volume: 0.23 gallon

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:**

**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-334S  
 Sample Date: 8/7/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:20

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 28.9  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 19.32  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 14 to 24

Standing Water in Well (feet): 9.58  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 19  
 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: Submersible No.                     

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No.                      Lamotte #2                     

**INSTRUMENT MEASUREMENTS:**

Start time: 10:00

Stop time: 11:30

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
11:13	19.37	488.2	2.22	2247	0.37	15	8	350	
11:16	19.37	489.3	2.22	2238	0.30	14.8	6.8	350	
11:19	19.38	490.3	2.21	2236	0.26	14.7	5.5	350	
11:22	19.38	490.5	2.21	2235	0.28	14.7	4.4	350	
11:25	19.38	490.3	2.21	2231	0.29	14.6	4.6	350	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 11:30

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: Slight Coal tar-like Clarity: Very slight sheen

Total Purge Volume: 4 gallons Tubing Volume: 0.17 gallon

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
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**Notes:**

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**GROUNDWATER SAMPLING DATA SHEET**

File No. 43654  
 Project: Former Tidewater Facility  
 Location: City: Pawtucket State: RI  
 Weather: Sunny 80's

Well ID: MW-334D  
 Sample Date: 8/7/2013  
 Sampler's Name: SDN

**WATER LEVEL OBSERVATIONS**

Measurement Date/Time: 8/6/13-9:22

Point of Measurement: PVC Riser  Steel Casing  Ground   
 Total Well Depth (feet): 43.15  
 Depth to LNAPL (feet): -  
 Depth to Water (feet): 18.58  
 Depth to DNAPL (feet): -  
 Well Screened Interval (feet BGS): 28 to 38

Standing Water in Well (feet): 24.57  
 Well Diameter (in.): 2  
 Sample Depth (feet BGS): 33  
 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: Submersible No.

Flow-Thru Cell Vol (mL): 200

Meter Type: YSI #2 No. Lamotte #2

**INSTRUMENT MEASUREMENTS:**

Start time: 12:00

Stop time: 12:50

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
12:36	20.45	471.1	2.42	1750	0.38	15.9	4.9	300	
12:39	20.45	470.5	2.41	1750	0.37	15.6	5	300	
12:42	20.45	469.9	2.41	1737	0.32	15.3	4.6	300	

**SAMPLE TESTING INFORMATION:**

SAMPLE TIME: 12:50

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCS	8260B	3	VOA	40	HCl	None
TPH	8100M	2	Amber Glass	1000	HCl	None
PAHs	8270C	2	Amber Glass	1000	None	None
Total Cyanide	9010	1	Plastic	250	NaOH	None
Dissolved Cyanide	9010	1	Plastic	250	NaOH	Filtered

**Sample observations:**

Color: Clear Odor: None Clarity: Clear

Total Purge Volume: 3 gallons Tubing Volume: 0.26 gallon

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 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 1 of 2  
Date: 8/6/2013

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### LOW FLOW CALIBRATION:

#### Intial Calibration:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>1000</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.01/7.01</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>100</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>231</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1</u>

#### Bump Check:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>1037</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.13/6.94</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>101.9</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>232</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.10/1.18</u>

## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 2 of 2  
Date: 8/6/2013

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### LOW FLOW CALIBRATION:

#### Intial Calibration:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>1000</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.02/7.01</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>100</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>231</u>	Reading: <u>231</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1</u>

#### Bump Check:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>1100</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.06/7.17</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>100</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>231</u>	Reading: <u>239.6</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.04/1.12</u>

## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 1 of 2  
Date: 8/7/2013

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### LOW FLOW CALIBRATION:

#### Intial Calibration:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>1000</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4/7.01</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>99.3</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>231.2</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.09</u>

#### Bump Check:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>950</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.11/6.96</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>108</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>229</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.02/1.01</u>

## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 2 of 2  
Date: 8/7/2013

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### LOW FLOW CALIBRATION:

#### Intial Calibration:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>1001</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>3.99/7.01</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>101.1</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>231</u>	Reading: <u>230.5</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>0/1</u>	Reading: <u>0.01/0.99</u>

#### Bump Check:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>1000</u>	Reading: <u>971</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.12/6.97</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>100</u>	Reading: <u>111</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #2</u>	Standard Solution: <u>231</u>	Reading: <u>232</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #2</u>	Standard Solution: <u>0/1</u>	Reading: <u>-0.10/0.91</u>

Revision Date: 1/27/12

J:\ENV\43654.msk\Log\Low Flow Logs Dec 2013\Low Flow Sampling Logs.xls



## LOW FLOW CALIBRATION SHEET

File No. 43654.00 Task 36  
Project: Former Tidewater Facility  
Location: City: Pawtucket State: RI

Page: 1 of 1  
Date: 8/8/2013

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### LOW FLOW CALIBRATION:

#### Intial Calibration:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>991</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.01/7</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>100.5</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>230.8</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.00</u>

#### Bump Check:

<b>Specific Conductance:</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>1021</u>
<b>pH (s.u.):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.17/7.00</u>
<b>DO (mg/L):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>91.1</u>
<b>ORP (mvolts):</b>	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>232.1</u>
<b>Turbidity (NTU):</b>	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0.10/0.93</u>

**APPENDIX C**

**INVESTIGATION DERIVED WASTE DISPOSAL MANIFESTS**

Truck # 5139

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

RI7708956-001

9C PPW 3/3/2011

Form Approved. OMB No. 2050-0039

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>RI000035216</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 483-3718</b>	4. Manifest Tracking Number <b>006047421 FLE</b>		
5. Generator's Name and Mailing Address <b>Narragansett Electric Company 40 Sylvan Road Waltham, MA 02451</b>			Generator's Site Address (if different than mailing address) <b>200 Taft Street Pawtucket, RI 02862</b>				
Generator's Phone: <b>(781) 907-3647</b> <b>ATTN: Susan Brochu</b>							
6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>				U.S. EPA ID Number <b>MAD039322250</b>			
7. Transporter 2 Company Name				U.S. EPA ID Number			
8. Designated Facility Name and Site Address <b>Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184</b>				U.S. EPA ID Number <b>MAD053452637</b>			
Facility's Phone: <b>(781) 380-7100</b>							
GENERATOR	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
		1. <b>NON DOT REGULATED MATERIAL (PURGEWATER)</b>	No.	Type			<b>MA01 R015</b>
		2. <b>NON RCRA HAZARDOUS WASTE SOLIDS, (NA), EMPTY DRUMS, LAST CONTAINED OIL</b>	<b>003</b>	<b>DM</b>	<b>165</b>	<b>6</b>	<b>MA99</b>
		3.	<b>001</b>	<b>DM</b>	<b>20</b>	<b>P</b>	
		4.					
14. Special Handling Instructions and Additional Information <b>1. P26701RIR 3X55 2. CH367518 1X55</b>							
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/Offerer's Printed/Typed Name <b>Agent for PAUL D. HOERN Narragansett Electric Co.</b>				Signature <i>Paul D Hoern</i>		Month Day Year <b>10/22/13</b>	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.    Port of entry/exit: _____ Transporter signature (for exports only): _____    Date leaving U.S.: _____							
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials						
	Transporter 1 Printed/Typed Name <b>Mike McLaughlin</b>			Signature <i>Mike McLaughlin</i>		Month Day Year <b>8/27/13</b>	
Transporter 2 Printed/Typed Name			Signature		Month Day Year		
DESIGNATED FACILITY	18. Discrepancy						
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
	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. <b>H141</b>		2. <b>H141</b>		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 <b>Huyen Hoang</b>			Signature <i>Huyen Hoang</i>		Month Day Year <b>8/27/13</b>		

5427

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

RI4724083-001

SC PPW 3/3/2011

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number <b>RI000034791</b>		2. Page 1 of 1		3. Emergency Response Phone <b>(800) 483-3718</b>		4. Manifest Tracking Number <b>005279330 FLE</b>			
5. Generator's Name and Mailing Address <b>Narragansett Electric company 40 Sullivan Road Waltham, MA 02451</b>						Generator's Site Address (if different than mailing address) <b>200 Taft Street Pawtucket, RI 02862</b>					
Generator's Phone: <b>(781) 907-3847</b>						ATTN: Susan Brochu					
6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>						U.S. EPA ID Number <b>MAD039322250</b>					
7. Transporter 2 Company Name						U.S. EPA ID Number					
8. Designated Facility Name and Site Address <b>Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184</b>						U.S. EPA ID Number <b>MAD053452537</b>					
Facility's Phone: <b>(781) 380-7100</b>											
GENERATOR	9a. H.M.	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 WL/Vol.	13. Waste Codes	
						No.	Type				
	x	1. <b>HA3082 HAZARDOUS WASTE LIQUID N.O.S. (BENZENE) 9. PG III</b>				1	DM	5	G	D018	
		2. <b>NON DOT REGULATED MATERIAL (OILY DEBRIS)</b>				1	DM	60	P	MA01 R015	
		3.									
	4.										
14. Special Handling Instructions and Additional Information <b>1. CHE 44579 ERG#171 (1XSS DM)</b> <b>2. P40179RIR (1XSS DM)</b>											
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/Offendor's Printed/Typed Name <b>DAVID PETTY</b>						Signature <i>David Petty</i>			Month Day Year <b>10 26 12</b>		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____											
17. Transporter Acknowledgment of Receipt of Materials											
Transporter 1 Printed/Typed Name <b>Michael Ritucci</b>						Signature <i>MR</i>			Month Day Year <b>10 26 12</b>		
Transporter 2 Printed/Typed Name						Signature			Month Day Year		
18. Discrepancy <b>NOT A HAZARDOUS WASTE IN RI. THE WASTE DESCRIBED ON LINE 9.b.1 IS MGP EXEMPT</b>											
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection											
18b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number _____											
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. <b>H141</b>		2. <b>H141</b>		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 <b>Richard Markich</b>						Signature <i>RM</i>			Month Day Year <b>10 26 12</b>		

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.



TAK # 5151

RI4461069-001

SC PPW 3/3/2011



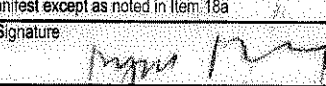
Form Approved. OMB No. 2050-0039

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number RIP000032293		2. Page 1 of 1		3. Emergency Response Phone (800) 483-3718		4. Manifest Tracking Number 005279076 FLE				
5. Generator's Name and Mailing Address Naragansett Electric company 40 Sylvan Road Waltham, MA 02451						Generator's Site Address (if different than mailing address) 200 Taft Street Pawtucket, RI 02862						
6. Transporter 1 Company Name Clean Harbors Environmental Services Inc						U.S. EPA ID Number MAD039322250						
7. Transporter 2 Company Name						U.S. EPA ID Number						
8. Designated Facility Name and Site Address Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184						U.S. EPA ID Number MAD053452637						
Facility's Phone: 1781-380-7100												
GENERATOR	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		
		1. NON DOT REGULATED MATERIAL (OILY DEBRIS)				No.	Type			MA01 R015		
		2. NON DOT REGULATED MATERIAL (PURGEWATER)				01	DM	60	P			
		3.				03	DM	130	G	MA01 R015		
		4.										
14. Special Handling Instructions and Additional Information 1 R40179RIP 1XSS 2 T26781RIP 3XSS												
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/Officer's Printed/Typed Name: AGENT FOR WASTE FRANCISCO BRITO Signature: [Signature] Month: 7 Day: 23 Year: 12												
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/ext.: _____ Date leaving U.S.: _____												
17. Transporter Acknowledgment of Receipt of Materials												
Transporter 1 Printed/Typed Name: FRANCISCO BRITO Signature: [Signature] Month: 7 Day: 23 Year: 12												
Transporter 2 Printed/Typed Name: Mike McLaughlin Signature: [Signature] Month: 7 Day: 25 Year: 12												
18. Discrepancy												
18a. Discrepancy Indication: Space <input type="checkbox"/> Quantity <input checked="" type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection												
18b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number: _____												
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: Huyen Hoang Signature: [Signature] Month: 7 Day: 25 Year: 12												

GENERATOR  
INTL  
TRANSPORTER  
DESIGNATED FACILITY

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>RI P000034312</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 483-3718</b>	4. Manifest Tracking Number <b>005278913 FLE</b>		
5. Generator's Name and Mailing Address <b>Narragansett Electric company 40 Sylvan Road Waltham, MA 02451</b>				Generator's Site Address (if different than mailing address) <b>200 Taft Street Pawtucket, RI 02862</b>			
6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>				U.S. EPA ID Number <b>MAD039322250</b>			
7. Transporter 2 Company Name				U.S. EPA ID Number			
8. Designated Facility Name and Site Address <b>Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184</b>				U.S. EPA ID Number <b>MAD053452637</b>			
Facility's Phone: <b>(781) 380-7100</b>							
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				
GENERATOR ↓	1. <b>HA3082. HAZARDOUS WASTE, LIQUID, N.O.S., (BENZENE), 9, PG III</b>	<b>01</b>	<b>DM</b>	<b>5</b>	<b>G</b>	<b>R015</b>	<b>D018</b>
	2. <b>NON DOT REGULATED MATERIAL, (OILY DEBRIS)</b>	<b>01</b>	<b>DM</b>	<b>50</b>	<b>P</b>	<b>MA01</b>	<b>R015</b>
	3.						
	4.						
14. Special Handling Instructions and Additional Information <b>1. CH075269H ERG#171 IX55</b> <b>2. R40179RIR IX55</b>							
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/Offero's Printed/Typed Name <b>Mike McLaughlin</b>				Signature 		Month Day Year <b>5 7 12</b>	
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name <b>Mike McLaughlin</b>				Signature 		Month Day Year <b>5 7 12</b>	
Transporter 2 Printed/Typed Name				Signature		Month Day Year	
18. Discrepancy <b>NOT A HAZARDOUS WASTE IN RI. THE WASTE DESCRIBED ON LINE 9.b.1 IS MGP EXEMPT.</b>							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> 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)							
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. <b>H141</b>		2. <b>H141</b>		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 <b>Nguyen Hoang</b>				Signature 		Month Day Year <b>5 10 12</b>	

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping



<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>RI P0000 34932</b>	2. Page 1 of <b>1 of 2</b>	3. Emergency Response Phone <b>(800) 443-3719</b>	4. Manifest Tracking Number <b>004003707 FLE</b>		
5. Generator's Name and Mailing Address <b>Harragansett Electric company 40 Sylvan Road Waltham, MA 02451</b>			Generator's Site Address (if different than mailing address) <b>200 Taft Street Pawtucket, RI 02862</b>				
6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>			U.S. EPA ID Number <b>MAD039322250</b>				
7. Transporter 2 Company Name <b>Clean Harbors Environmental Services Inc</b>			U.S. EPA ID Number <b>MAD039322250</b>				
8. Designated Facility Name and Site Address <b>Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184</b>			U.S. EPA ID Number <b>MAD053452637</b>				
Facility's Phone: <b>(781) 380-7100</b>							
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	<b>NON DOT REGULATED MATERIAL (DILT DEBRIS)</b>	<b>05</b>	<b>DM</b>	<b>300</b>	<b>P</b>	<b>MA01 R015</b>	
2							
3							
4							
14. Special Handling Instructions and Additional Information <b>1 R40179B1R 5x55</b>							
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/Offero's Printed/Typed Name <b>Mike M'Laughlin</b>			Signature <i>[Signature]</i>		Month <b>2</b>	Day <b>7</b>	Year <b>13</b>
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name <b>Mike M'Laughlin</b>			Signature <i>[Signature]</i>		Month <b>2</b>	Day <b>7</b>	Year <b>13</b>
Transporter 2 Printed/Typed Name <b>Victor DeBade</b>			Signature <i>[Signature]</i>		Month <b>2</b>	Day <b>7</b>	Year <b>13</b>
18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection							
18b. Alternate Facility (or Generator) Manifest Reference Number: _____ U.S. EPA ID Number _____							
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	<b>H141</b>	2		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 <b>Huyen Hoang</b>			Signature <i>[Signature]</i>		Month <b>2</b>	Day <b>18</b>	Year <b>13</b>

GENERATOR

TRANSPORTER INTL

DESIGNATED FACILITY

Clean Harbors has the appropriate permits for and will accept the waste the Generator is shipping

UNIFORM HAZARDOUS WASTE MANIFEST 1. Generator ID Number: RIP0003452 2. Page 1 of 1 3. Emergency Response Phone: 781-307-3847 4. Manifest Tracking Number: 004003707 FLE

5. Generator's Name and Mailing Address: New England Electric Company, 40 Sylvan Road, Waltham, MA 02451  
 Generator's Site Address (if different than mailing address): 200 Taft Street, Pawtucket, RI 02862

6. Transporter 1 Company Name: Clean Harbors Environmental Services Inc U.S. EPA ID Number: MA0039322250

7. Transporter 2 Company Name: John Deere Environmental Services Inc U.S. EPA ID Number: MA0039322250

8. Designated Facility Name and Site Address: John Deere Environmental Services Inc, 100 Avenue, Cranston, MA 02104 U.S. EPA ID Number: MA003452627  
 Facility's Phone: (781) 300-7100

GENERATOR

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	<u>ACID DOT REGULATORY MATERIAL, HAZ. CLASS 3</u>	<u>05</u>	<u>DM</u>	<u>300</u>	<u>P</u>	<u>HA01, R010</u>
2						
3						
4						

14. Special Handling Instructions and Additional Information: HAZARDOUS WASTE

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: Mike McLaughlin Signature: [Signature] Month: 1 Day: 7 Year: 13

INT'L

16. International Shipments  Import to U.S.  Export from U.S. Port of entry/exit: \_\_\_\_\_ Date leaving U.S.: \_\_\_\_\_

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials  
 Transporter 1 Printed/Typed Name: Mike McLaughlin Signature: [Signature] Month: 2 Day: 7 Year: 13  
 Transporter 2 Printed/Typed Name: Mike DeGado Signature: [Signature] Month: 2 Day: 7 Year: 13

DESIGNATED FACILITY

18. Discrepancy 18a. Discrepancy Indication Space  Quantity  Type  Residue  Partial Rejection  Full Rejection

18b. Alternate Facility (or Generator) Manifest Reference Number: \_\_\_\_\_ 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. 11111 2. \_\_\_\_\_ 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: Hansen Signature: [Signature] Month: 2 Day: 8 Year: 13



**UNIFORM HAZARDOUS WASTE MANIFEST**  
**(Continuation Sheet)**

21. Generator ID Number  
*RIPO0003493Z*

22. Page  
*2*

23. Manifest Tracking Number  
*004003707 FLE*

24. Generator's Name  
*Narragansett Electric company  
40 Sylvan Road  
Waltham MA 02451*

25. Transporter *3* Company Name  
*Clean Harbors Environmental Services Inc*

U.S. EPA ID Number  
*MA01039372250*

26. Transporter \_\_\_\_\_ Company Name

U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers		29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		
		No.	Type					

32. Special Handling Instructions and Additional Information

33. Transporter *3* Acknowledgment of Receipt of Materials  
Printed/Typed Name *Kevin Hurst* Signature *Kevin Hurst* Month *02* Day *08* Year *13*

34. Transporter Acknowledgment of Receipt of Materials  
Printed/Typed Name \_\_\_\_\_ Signature \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_ Year \_\_\_\_\_

35. Discrepancy

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

GENERATOR  
TRANSPORTER  
DESIGNATED FACILITY

TRK # 5117

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>	1. Generator ID Number <b>RI P000033182</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 483-3718</b>	4. Manifest Tracking Number <b>004001339 FLE</b>
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5. Generator's Name and Mailing Address <b>Narragansett Electric company 40 Sylvan Road Waltham, MA 02451</b>	Generator's Site Address (if different than mailing address) <b>200 Taft Street Pawtucket, RI 02862</b>
Generator's Phone: <b>(781) 907-3647 ATTN: Susan Brochu</b>	

6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>	U.S. EPA ID Number <b>MAD039322250</b>
7. Transporter 2 Company Name	U.S. EPA ID Number

8. Designated Facility Name and Site Address <b>Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184</b>	U.S. EPA ID Number <b>MAD053452637</b>
Facility's Phone: <b>(781) 380-7100</b>	

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				
X	1. <b>HA3077. HAZARDOUS WASTE, SOLID, N.O.S., (BENZENE), 9, PG III</b>	02	DM	600	P	R015	D018
X	2. <b>HA3082. HAZARDOUS WASTE, LIQUID, N.O.S., (BENZENE), 9, PG III</b>	01	DM	40	G	R015	D018
	3. <b>NON DOT REGULATED MATERIAL, (OILY DEBRIS)</b>	01	DM	80	P	MA01	R015
	4.						

14. Special Handling Instructions and Additional Information  
 1. **US725H 2X55 ERG#171**  
 2. **CH075269HX5 ERG#171**  
 3. **R40179RIR(X5)**

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/Offero's Printed/Typed Name: **AGENT FOR THE GENERATOR FRANCISCO BATO** Signature: *Francisco Bato* Month: **8** Day: **26** Year: **11**

16. International Shipments  Import to U.S.  Export from U.S. Port of entry/exit: \_\_\_\_\_ Date leaving U.S.: \_\_\_\_\_

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name <b>Francisco Bato</b>	Signature <i>Francisco Bato</i>	Month Day Year <b>8 26 11</b>
Transporter 2 Printed/Typed Name <b>John Dugan</b>	Signature <i>John Dugan</i>	Month Day Year <b>8 26 11</b>

18. Discrepancy **NOT AHAZARDOUS WASTE IN RE THE WASTE DESCRIBED ONLINE AND 9.2 ARE MOI EXEMPT.**

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. <b>H141</b>	2. <b>H141</b>	3. <b>H141</b>	4.
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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: **Keith A. Dwyer, Inc.** Signature: *Keith A. Dwyer* Month Day Year: **08 26 11**



REGISTRATION NUMBER: **RD0000033179** | U.S. EPA ID NUMBER: **004001256** | FLE

Management District Number: **40** | State: **MA** | City: **Waltham** | Zip: **02451**  
 Facility Name: **Clean Harbors Environmental Services Inc.** | Address: **200 Tab Street** | City: **Pasternon, RI 02962**

Registration Number: **07911907 3547** | Agency: **AITH Susan Ertuba**  
 U.S. EPA Number: **MA003932250**  
 Facility Name: **Clean Harbors ENV SERVICES INC** | U.S. EPA Number: **MA0039122250**

U.S. EPA Number: **MA003452537**

Description	Quantity		Type	Code	Material Code
	Vol.	Wt.			
NON CONTAMINATED MATERIAL (PURGERS)	03 DM	150 G	G	0001	0001
<del>NON CONTAMINATED MATERIAL (PURGERS)</del>					

1. Date of registration: **08/21/11**  
 2. Date of expiration: **08/21/11**

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this registration are true and accurate, and that I am not a generator of hazardous waste...

Signature: **DAVID A. BLANKHEAD** | Title: **AGENT FOR REGISTRATION** | Date: **08/21/11**

Signature: **EMERALD DAVID A. BLANKHEAD** | Title: **AGENT FOR U.S. EPA REGISTRATION** | Date: **08/21/11**

Generator's Name: **FRANCISCO BATO** | Title: **FRANCISCO BATO** | U.S. EPA ID Number: **004001256**

Generator's Name: **FRANCISCO BATO** | Title: **FRANCISCO BATO** | U.S. EPA ID Number: **004001256**

18. Generator's Facility Type:  Quarry  Fire  Repair  Other (Specify):

19. Generator's Facility (or Generator): **FRANCISCO BATO** | U.S. EPA ID Number: **004001256**

20. Generator's Facility (or Generator): **FRANCISCO BATO** | U.S. EPA ID Number: **004001256**

21. Generator's Facility (or Generator): **FRANCISCO BATO** | U.S. EPA ID Number: **004001256**

22. Generator's Facility (or Generator): **FRANCISCO BATO** | U.S. EPA ID Number: **004001256**

Signature: **David A. Blankhead** | Title: **AGENT FOR REGISTRATION** | Date: **08/21/11**

TAK FFS117

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number <b>RI000033366</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 453-3718</b>	4. Manifest Tracking Number <b>003099866 FLE</b>
----------------------------------	--	--------------------------	--	---

5. Generator's Name and Mailing Address <b>Narragansett Electric company 40 Sylvan Road Waltham, MA 02451</b>	Generator's Site Address (if different than mailing address) <b>200 Taft Street Pawtucket, RI 02862</b>
Generator's Phone: <b>(781) 907-3647</b>	ATTN: <b>Susan Brochu</b>

6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>	U.S. EPA ID Number <b>MAD039322250</b>
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7. Transporter 2 Company Name	U.S. EPA ID Number
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8. Designated Facility Name and Site Address <b>Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184</b>	U.S. EPA ID Number <b>MAD053452637</b>
Facility's Phone: <b>(781) 380-7100</b>	

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				
X	1. <b>HAZARDOUS WASTE LIQUID N.O.S. (BENZENE) 9. PG III</b>	<b>01</b>	<b>DM</b>	<b>15</b>	<b>G</b>	<b>R015</b>	<b>D018</b>
	2. <b>NON DOT REGULATED MATERIAL (OILY DEBRIS)</b>	<b>01</b>	<b>DM</b>	<b>50</b>	<b>P</b>	<b>MA01</b>	<b>R015</b>
	3. <b>NON DOT REGULATED MATERIAL (PURGEWATER)</b>	<b>01</b>	<b>DM</b>	<b>60</b>	<b>P</b>	<b>MA01</b>	<b>R015</b>
	4.						

14. Special Handling Instructions and Additional Information  
**1. CH0752ESH IXS 5 EKG#171**  
**2. R40179RIR IXS 5**  
**3. T26781RIR IXS 5**

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: **AGENT FOR HARRY FRANCISCO BERTO** Signature: *[Signature]* Month: **2** Day: **13** Year: **12**

16. International Shipments  Import to U.S.  Export from U.S. Port of entry/exit: \_\_\_\_\_ Date leaving U.S.: \_\_\_\_\_

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name <b>Francisco Berto</b>	Signature <i>[Signature]</i>	Month <b>2</b>	Day <b>13</b>	Year <b>12</b>
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

18. Discrepancy **NOT A HAZARDOUS WASTE IN RI. THE WASTE DESCRIBED ON LINE 9.b.1 IS MGP EXEMPT.**

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. <b>H141</b>	2. <b>H141</b>	3. <b>H141</b>	4.
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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: **Huyen Hoang** Signature: *[Signature]* Month: **2** Day: **13** Year: **12**

**APPENDIX D**

LABORATORY DATA REPORTS

## **Appendix D Supplemental QA/QC Information for 2011 and 2012**

During the 2011 sampling round, twenty-six (26) groundwater samples, two (2) blind duplicate samples and three (3) trip blanks were submitted to GZA's Environmental Chemistry Lab (ECL) in Hopkinton, MA for analysis. The samples were transported to the laboratory under chain of custody protocol. As indicated on page 2 of each laboratory report, the samples were received intact, within the proper temperature range and appropriately preserved. Analytical results for the trip blanks were below the laboratory reporting limit for all 67 targeted compounds. Two duplicate sample sets (Set #1 – MW-339S and BD#1 and Set #2 – MW-312D and BD#2) were also submitted for VOCs, PAH, TPH, total cyanide and dissolved cyanide analysis to evaluate sample reproducibility. The relative percent difference (RPD) was calculated for each compound. Elevated RPDs (more than 40% difference) were noted for PAHs in one sample set (MW-312D and BD#2). Given the nature of the observed Site impacts, the variability in the PAHs results in these samples does not significantly affect data usability.

During the 2012 sampling round, twenty-six (26) groundwater samples, two (2) blind duplicate samples and three (3) trip blanks were submitted to ESS Laboratory in Cranston, RI for analysis. The samples were transported to the laboratory under chain of custody protocol. As indicated on page 2 of each laboratory report, the samples were received intact, within the proper temperature range and appropriately preserved. Analytical results for the trip blanks were below the laboratory reporting limit for all 74 targeted compounds. Two duplicate sample sets (Set #1 – MW-7 and BD071112 and Set #2 – MW-334S and BD-71012) were also submitted for VOCs, PAH, TPH, total cyanide and dissolved cyanide analysis to evaluate sample reproducibility. The 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 forms for 2011 and 2012 are provided for reference in Appendix D.

**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs  
Attn: Ms. Michelle Miranda  
Engineers and Scientists  
106 South Street  
Hopkinton, MA 01748

**Date Received:** 7/27/11  
**Date Reported:** 8/2/11  
**P.O. #:** 8-35210  
**Work Order #:** 1107-14456

---

**DESCRIPTION:** GZA FILE #03.0043654.00 FORMER TIDEWATER FACILITY, PAWT. RI

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Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.  
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

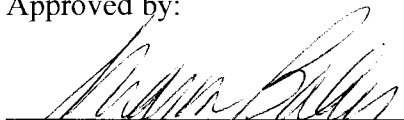
Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.  
The Certificate of Analysis shall not be reproduced except in full, without written approval of R. I. Analytical.  
Results relate only to samples submitted to the laboratory for analysis.  
Test results are not blank corrected.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015  
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:



Sharon Baker  
MIS / Data Reporting Manager

enc: Chain of Custody

**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/27/11

Work Order #: 1107-14456

GZA FILE #03.0043654.00 FORMER TIDEWATER FACILITY, PAWT. RI

Sample # 001

**SAMPLE DESCRIPTION:** MW-107**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 13:55

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.04	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 002

**SAMPLE DESCRIPTION:** MW-109**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 17:10

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.18	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 003

**SAMPLE DESCRIPTION:** MW-318S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 14:35

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.01	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 004

**SAMPLE DESCRIPTION:** MW-318D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 16:15

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	<0.01	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 005

**SAMPLE DESCRIPTION:** MW-334S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 13:15

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.02	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC



**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/27/11

Work Order #: 1107-14456

GZA FILE #03.0043654.00 FORMER TIDEWATER FACILITY, PAWT. RI

Sample # 006

**SAMPLE DESCRIPTION:** MW-334D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 13:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.02	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 007

**SAMPLE DESCRIPTION:** MW-314S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 09:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.10	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 008

**SAMPLE DESCRIPTION:** MW-314D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 12:23

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.32	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	0.05	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 009

**SAMPLE DESCRIPTION:** MW-337**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 16:10

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.19	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

Sample # 010

**SAMPLE DESCRIPTION:** TB-1/MW-6**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/26/2011 @ 14:35

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.21	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	0.04	0.01	mg/l	SM 4500CN C E	8/2/11	EC

**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/27/11

Work Order #: 1107-14456

GZA FILE #03.0043654.00 FORMER TIDEWATER FACILITY, PAWT. RI

Sample # 011

**SAMPLE DESCRIPTION:** MOE/MW-2

**SAMPLE TYPE:** GRAB

**SAMPLE DATE/TIME:** 7/26/2011 @ 11:35

<b>PARAMETER</b>	<b>SAMPLE RESULTS</b>	<b>DET. LIMIT</b>	<b>UNITS</b>	<b>METHOD</b>	<b>DATE ANALYZED</b>	<b>ANALYST</b>
Total Cyanide	0.06	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/2/11	EC

## QA/QC Report

Client: GZA GeoEnvironmental Labs

WO #: 1107-14456

Date: 8/2/2011

## -Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Total Cyanide	mg/l	<0.01	7/29/2011
Dissolved Free Cyanide	mg/l	<0.01	8/02/2011

## -LCS/LCS Duplicate Data Results-

Parameter	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Total Cyanide	0.10	0.105	105	0.102	102	3	7/29/2011
Dissolved Free Cyanide	0.10	0.101	101	0.097	97	4	8/02/2011

## Case Narrative

Date: 8/2/2011

GZA GeoEnvironmental Labs  
Attn: Ms. Michelle Miranda  
Engineers and Scientists  
106 South Street  
Hopkinton, MA 01748

Project: GZA FILE #03.0043654.00 FORMERTIDEWATER FACILITY, PAWT. RI

RIAL WO#: 1107-14456

R.I. Analytical Laboratories received Eleven Groundwater samples from the GZA GeoEnvironmental Labs on July 27, 2011. The samples were transported and delivered to the laboratory in a cooler on ice (at 5.4 degrees C). The samples were received in good condition. Upon arrival the samples were logged into our LIMS system and assigned a work order number of 1107-14456.



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Sharon Baker  
Data Reporting / MIS Manager

# RIAL

W.O.# 1107-00118  
(for lab use only)

## CHAIN-OF-CUSTODY RECORD

Sample I.D.	Date/Time Sampled	Matrix A=Air S=Soil GW=Ground W. SW=Surface W. WW=Waste W. DW=Drinking W. P=Product Other (specify)	ANALYSIS REQUIRED																							Total No. of Cont.	Note #						
			GC Methane, Ethane, Ethene	EPA 8260	EPA 8260-8010 List	EPA 8021- Full List	EPA 8021- 8010 List (Chlor)	EPA 8021- 8020 List (BTEX)	EPA 524.2 DW VOCs	EPA 624 W VOCs	EPA 602 W VOCs	EPA 8270 SVOCs	EPA 8270 PAH	EPA 8270 BN	EPA 8082-PCBs	EPA 8081-Pest	TPH-GC (Mod 8100)	TPH-GC w/FING	EPH (MA DEP)	VPH (MA DEP)	Metals (List Below)	MCP 14 Metals (MA)	TCLP - Specify Below	SPLP - Specify Below	EPA 300	CI	NO3	SO4	TOTAL CYANIDE	DISSOLVED FREE CYANIDE			
MW-107	7/26/11 @ 1355	GW																												X	X	2	1
MW-109	7/26/11 @ 1710	GW																											X	X	2	1	
MW-318S	7/26/11 @ 1435	GW																											X	X	2	1	
MW-318D	7/26/11 @ 1615	GW																											X	X	2	1	
MW-334S	7/26/11 @ 1315	GW																											X	X	2	1	
MW-334D	7/26/11 @ 1545	GW																											X	X	2	1	
MW-314S	7/26/11 @ 0945	GW																											X	X	2	1	
MW-314D	7/26/11 @ 1223	GW																											X	X	2	1	
MW-337	7/26/11 @ 1610	GW																											X	X	2	1	
TB-1/MW-6	7/26/11 @ 1435	GW																											X	X	2	1	
<b>MOE/MW-2</b>	7/26/11 @ 1135	GW																											X	X	2	1	

2013

NOTES: (Unless otherwise noted, all samples have been refrigerated to 4 +/- 2°C)  
\*Specify "Other" preservatives and container types in this space.

Report Method Blank and Laboratory Control Sample Results

1. NGRID PROJECT

2. Dissolved Free Cyanide-Field Filtered

Project Manager: Michelle Miranda

RELINQUISHED BY: [Signature] DATE/TIME: 7-27-11 0900

RECEIVED BY: [Signature]

RELINQUISHED BY: [Signature] DATE/TIME: 7-27-11 1510

RECEIVED BY: [Signature]

TURNAROUND TIME: Standard Fast LAB USE: Temp Blank  
4 DAYS Approved by: [Signature] A. Ford TEMP OF COOLER: 5.1 °C  
due daily by 1400hrs. Cooler Air

GZA FILE NO: 03-0043654.00 TASK NO: 33 P.O. NO: 8-358210

PROJECT: Fomer Tidewater Facility

LOCATION: Pawtucket, RI

COLLECTOR(S): \_\_\_\_\_ SN, MB \_\_\_\_\_ SHEET 1 OF 1

Pick-up: ✓ No Time all



**GZA GeoEnvironmental, Inc.**  
**106 South Street**  
**Hopkinton, MA 01748**  
**(781) 278-4700**

Laboratory Identification Numbers:  
MA and ME: **MA092** NH: **2028**  
CT: **PH0579** RI: **LAO00236**  
NELAC - NYS DOH: **11063**

## **ANALYTICAL REPORT**

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick

Project No.: **05.0043654.00**  
Work Order No.: **1107-00118**  
Date Received: **07/27/2011**  
Date Reported: **08/03/2011**

### **SAMPLE INFORMATION**

<b>Date Sampled</b>	<b>Matrix</b>	<b>Laboratory ID</b>	<b>Sample ID</b>
07/26/2011	Aqueous	1107-00118 001	MW-107
07/26/2011	Aqueous	1107-00118 002	MW-109
07/26/2011	Aqueous	1107-00118 003	MW-318S
07/26/2011	Aqueous	1107-00118 004	MW-318D
07/26/2011	Aqueous	1107-00118 005	MW-334S
07/26/2011	Aqueous	1107-00118 006	MW-334D
07/26/2011	Aqueous	1107-00118 007	MW-314S
07/26/2011	Aqueous	1107-00118 008	MW-314D
07/26/2011	Aqueous	1107-00118 009	MW-337
07/26/2011	Aqueous	1107-00118 010	TB-1/MW-6
07/26/2011	Aqueous	1107-00118 011	M&E/MW-2
07/26/2011	Aqueous	1107-00118 012	Trip Blank



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**

Project No.: **05.0043654.00**

Date Received: **07/27/2011**

Date Reported: **08/03/2011**

Work Order No.: **1107-00118**

---

PROJECT NARRATIVE:

**1. Sample Receipt**

The samples were received on 07/27/11 via   x\_GZA courier,   EC,   FEDEX, or   hand delivered. The temperature of the   x\_temperature blank/  cooler air, was 5.7 degrees C. The temperature requirement for most analyses is above freezing to 6 degrees C. The samples were received intact for all requested analyses.

The chain of custody indicates that the samples, when required, were chemically preserved in accordance with the method they reference.

**2. Subcontracted Analyses**

Analyses for Total and Dissolved Cyanide were subcontracted to Rhode Island Analytical, Warwick RI (RIAL); Certification MA: MA-RI015, NH: 253700 A&B, CT: PH-0508, ME: RI015, RI: RI-033, NY:11726,

The data is included in GZA's report for ease of electronic data transfer and is indicated by "XXX" in the tech column. The data report from the subcontractor is attached.

**3. EPA Method 8260 - VOCs**

The elevated reporting limits for samples MW-109 (1107-00118-002) and MW-318S (1107-00118-003) are due to initial dilution of the sample in order to get target compounds within the calibration range of the instrument. The dilution was based upon screening data for the sample.

Attach QC 8260 7/28/2011 "S" - Aqueous

**4. EPA Method 8270 - SVOCs (PAHs)**

Per the Project Manager, a subset of the analyte list for Method 8270 (Semivolatile Organic Compounds by GC/MS) has been provided.

The surrogate recovery for sample MW-334D (1107-00118-006) exceeded the acceptance criteria of 70-130%. The specific outlier includes: nitrobenzene-D5 (21.7%). Method 8270D permits one surrogate to be outside acceptance criteria.

Attach QC 8270 7/29/2011 "I" - Aqueous

Attach QC 8270 8/01/2011 "I" - Aqueous

**5. Total Petroleum Hydrocarbons (TPH)**

Attach QC TPH 07/28/11 - Aqueous



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**

Date Received: **07/27/2011**

Project No.: **05.0043654.00**

Date Reported: **08/03/2011**

Work Order No.: **1107-00118**

Data Authorized By: 

GZA GeoEnvironmental, Inc. has NELAC validation for the following methods:

Wastewater: Methods 624,625,245.1,150.2,120.1, 200.7 (PP13, RCRA 8, and Fe, Mg, Mn, Al, Cr+6, V, Co, Mo, Sn, Ti).

Aqueous: Methods 8260B, 8270D, 8081B, 8082A, 7470, 150.2, 120.1, 1311, 6010C (PP13, RCRA 8, and Fe, Mg, Mn, Al, Cr+6, V, Co, Mo, Sn, Ti), 300.0 (Cl, Fl, SO4, NO3, NO2, Ophos), MA DEP EPH/VPH.

Soil: Methods 8260B, 8270D, 8081B, 8082A, 7471B, 9045, 1311, 6010C (PP13, RCRA8, and Fe, Mg, Mn, Al, V, Co, Mo, Sn, Ca), MA DEP VPH/EPH.

Abbreviations:

- % R = % Recovery
- DF = Dilution Factor
- DFS = Dilution Factor Solids
- CF = Calculation Factor
- DO = Diluted Out

Method Key:

- Method 8260: The current version of the method is 8260B.
- Method 8270: The current version of the method is 8270D.
- Method 6010: The current version of the method is 6010C.
- Method 8081: The current version of the method is 8081B.
- Method 8082: The current version of the method is 8082A.
- Method 7471: The current version of the method is 7471B.

The current Metals preparation methods are: 3010A (aqueous) and 3051 (solid).

Please note that the laboratory signed copy of the chain of custody record is an integral part of the data report.

The laboratory report shall not be reproduced except in full without the written consent of the laboratory.

Soil data is reported on a dry weight basis unless otherwise specified.

Matrix Spike / Matrix Spike Duplicate sets are performed as per method and are reported at the end of the analytical report if assigned on the Chain of Custody.





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-107**  
 Sample Date: **07/26/2011**

Sample No.: **001**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
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Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-107**  
 Sample Date: **07/26/2011**

Sample No.: **001**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	105	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	113	70-130	% R	MQS	07/28/2011



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Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-107**  
 Sample Date: **07/26/2011**

Sample No.: **001**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	102	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/29/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	42.3	30-130	% R	CMG	07/29/2011
***2-Fluorobiphenyl	EPA 8270	44.8	30-130	% R	CMG	07/29/2011
***P-Terphenyl-D14	EPA 8270	32.3	30-130	% R	CMG	07/29/2011
Extraction	EPA 3510C	1		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		<200	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		46.4	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.04	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM-4500CN-C E	<0.01	0.01	mg/L	XXX	08/02/2011
RI Excel Deliverables						
GB Groundwater Objective	Excel Deliverable					



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Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-109**  
 Sample Date: **07/26/2011**

Sample No.: **002**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Vinyl chloride	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<25	25	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Carbon disulfide	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Methyl tert-butyl ether	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
2-Butanone (MEK)	EPA 8260	<25	25	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<25	25	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Carbon tetrachloride	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Benzene	EPA 8260	30	2.5	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
4-Methyl-2-pentanone (MIBK)	EPA 8260	<25	25	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Toluene	EPA 8260	2.5	2.5	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011



ANALYTICAL REPORT

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 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-109**  
 Sample Date: **07/26/2011**

Sample No.: **002**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
2-Hexanone	EPA 8260	<25	25	ug/L	MQS	07/28/2011
1,3-Dichloropropane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	57	2.5	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	19	5.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	26	2.5	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	26	2.5	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
n-Propylbenzene	EPA 8260	14	2.5	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	9.7	2.5	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	210	2.5	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	2.5	2.5	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	6.9	2.5	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	7.5	2.5	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
1,2-Dibromo-3-chloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	300	5.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<2.5	2.5	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	100	70-130	% R	MQS	07/28/2011





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Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-109**  
 Sample Date: **07/26/2011**

Sample No.: **002**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***Toluene-D8	EPA 8260	108	70-130	% R	MQS	07/28/2011
***4-Bromofluorobenzene	EPA 8260	102	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	2.5		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/29/2011
Naphthalene	EPA 8270	96	2.0	ug/L	CMG	07/29/2011
2-Methylnaphthalene	EPA 8270	21	2.0	ug/L	CMG	07/29/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Acenaphthene	EPA 8270	2.3	2.0	ug/L	CMG	07/29/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	36.0	30-130	% R	CMG	07/29/2011
***2-Fluorobiphenyl	EPA 8270	38.2	30-130	% R	CMG	07/29/2011
***P-Terphenyl-D14	EPA 8270	47.2	30-130	% R	CMG	07/29/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		660	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		41.9	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.18	0.01	mg/L	XXX	07/29/2011
Dissolved Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/02/2011



ANALYTICAL REPORT

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Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-318S**

Sample No.: **003**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<20	20	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<20	20	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<20	20	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<20	20	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<20	20	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<100	100	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<50	50	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<10	10	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<100	100	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<100	100	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Benzene	EPA 8260	89	10	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<100	100	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Toluene	EPA 8260	72	10	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<20	20	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<100	100	ug/L	MQS	07/28/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-318S**  
 Sample Date: **07/26/2011**

Sample No.: **003**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<20	20	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	10	10	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	82	20	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	39	10	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<20	20	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	17	10	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	40	10	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<20	20	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	1100	20	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	119	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/28/2011



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Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-318S**  
 Sample Date: **07/26/2011**

Sample No.: **003**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	105	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	10		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	380	10	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	44	10	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	14	10	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	12	10	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<10	10	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	42.6	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	46.2	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	32.6	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		2900	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		48.2	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.01	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	0.01	0.01	mg/l	XXX	08/02/2011



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 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-318D**  
 Sample Date: **07/26/2011**

Sample No.: **004**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011



ANALYTICAL REPORT

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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-318D**  
 Sample Date: **07/26/2011**

Sample No.: **004**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	112	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	109	70-130	% R	MQS	07/28/2011



ANALYTICAL REPORT

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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-318D**  
 Sample Date: **07/26/2011**

Sample No.: **004**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	102	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/29/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	57.2	30-130	% R	CMG	07/29/2011
***2-Fluorobiphenyl	EPA 8270	58.4	30-130	% R	CMG	07/29/2011
***P-Terphenyl-D14	EPA 8270	31.4	30-130	% R	CMG	07/29/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		<200	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		42.0	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	<0.01	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/02/2011



ANALYTICAL REPORT

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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-334S**  
 Sample Date: **07/26/2011**

Sample No.: **005**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	1.0	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	1.1	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-334S**  
 Sample Date: **07/26/2011**

Sample No.: **005**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	14	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	109	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/28/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-334S**

Sample No.: **005**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	101	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/29/2011
Naphthalene	EPA 8270	7.5	2.0	ug/L	CMG	07/29/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/29/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	42.6	30-130	% R	CMG	07/29/2011
***2-Fluorobiphenyl	EPA 8270	58.4	30-130	% R	CMG	07/29/2011
***P-Terphenyl-D14	EPA 8270	52.7	30-130	% R	CMG	07/29/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		220	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		45.2	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.02	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/02/2011



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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-334D**  
 Sample Date: **07/26/2011**

Sample No.: **006**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	1.1	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	1.3	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	1.4	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011



ANALYTICAL REPORT

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 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-334D**  
 Sample Date: **07/26/2011**

Sample No.: **006**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	9.7	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	107	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/28/2011



ANALYTICAL REPORT

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 530 Broadway  
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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-334D**  
 Sample Date: **07/26/2011**

Sample No.: **006**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	102	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/30/2011
Naphthalene	EPA 8270	3.6	2.0	ug/L	CMG	07/30/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	21.7	* 30-130	% R	CMG	07/30/2011
***2-Fluorobiphenyl	EPA 8270	42.5	30-130	% R	CMG	07/30/2011
***P-Terphenyl-D14	EPA 8270	45.4	30-130	% R	CMG	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		<200	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		40.5	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.02	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/02/2011



ANALYTICAL REPORT

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Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-314S**  
 Sample Date: **07/26/2011**

Sample No.: **007**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011



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Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-314S**  
 Sample Date: **07/26/2011**

Sample No.: **007**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	1.6	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	114	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	110	70-130	% R	MQS	07/28/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-314S**  
 Sample Date: **07/26/2011**

Sample No.: **007**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	98.0	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/30/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	38.0	30-130	% R	CMG	07/30/2011
***2-Fluorobiphenyl	EPA 8270	35.8	30-130	% R	CMG	07/30/2011
***P-Terphenyl-D14	EPA 8270	46.7	30-130	% R	CMG	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		1400	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		55.1	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.10	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	0.01	0.01	mg/l	XXX	08/02/2011





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 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-314D**  
 Sample Date: **07/26/2011**

Sample No.: **008**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	1.0	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-314D**  
 Sample Date: **07/26/2011**

Sample No.: **008**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	107	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	110	70-130	% R	MQS	07/28/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-314D**  
 Sample Date: **07/26/2011**

Sample No.: **008**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	102	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/30/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthene	EPA 8270	2.7	2.0	ug/L	CMG	07/30/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	45.7	30-130	% R	CMG	07/30/2011
***2-Fluorobiphenyl	EPA 8270	44.1	30-130	% R	CMG	07/30/2011
***P-Terphenyl-D14	EPA 8270	50.4	30-130	% R	CMG	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		330	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		59.6	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.32	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	0.05	0.01	mg/l	XXX	08/02/2011



ANALYTICAL REPORT

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Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-337**  
 Sample Date: **07/26/2011**

Sample No.: **009**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011



ANALYTICAL REPORT

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 530 Broadway  
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Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-337**  
 Sample Date: **07/26/2011**

Sample No.: **009**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	114	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/28/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **MW-337**  
 Sample Date: **07/26/2011**

Sample No.: **009**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	103	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	55.0	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	53.8	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	41.7	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		460	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		49.3	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.19	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/02/2011





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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **TB-1/MW-6**

Sample No.: **010**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/28/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Acetone	EPA 8260	30	10	ug/L	MQS	07/28/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/28/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Benzene	EPA 8260	34	1.0	ug/L	MQS	07/28/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Toluene	EPA 8260	2.5	1.0	ug/L	MQS	07/28/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/28/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **TB-1/MW-6**

Sample No.: **010**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Ethylbenzene	EPA 8260	36	1.0	ug/L	MQS	07/28/2011
m&p-Xylene	EPA 8260	5.5	2.0	ug/L	MQS	07/28/2011
o-Xylene	EPA 8260	42	1.0	ug/L	MQS	07/28/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
Isopropylbenzene	EPA 8260	4.9	1.0	ug/L	MQS	07/28/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
N-Propylbenzene	EPA 8260	4.3	1.0	ug/L	MQS	07/28/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2,4-Trimethylbenzene	EPA 8260	3.2	1.0	ug/L	MQS	07/28/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
n-Butylbenzene	EPA 8260	1.2	1.0	ug/L	MQS	07/28/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/28/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Naphthalene	EPA 8260	11	2.0	ug/L	MQS	07/28/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/28/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	102	70-130	% R	MQS	07/28/2011
***Toluene-D8	EPA 8260	110	70-130	% R	MQS	07/28/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **TB-1/MW-6**

Sample No.: **010**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	106	70-130	% R	MQS	07/28/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	3.8	2.0	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	38	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	8.2	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	8.1	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	3.1	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	48.8	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	50.6	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	43.7	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		1800	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		45.1	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.21	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	0.04	0.01	mg/l	XXX	08/02/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
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Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **M&E/MW-2**

Sample No.: **011**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
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Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **M&E/MW-2**

Sample No.: **011**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	116	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/29/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **M&E/MW-2**

Sample No.: **011**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	106	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011
PAHS BY GCMS	EPA 8270				CMG	07/30/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	07/30/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	39.9	30-130	% R	CMG	07/30/2011
***2-Fluorobiphenyl	EPA 8270	39.0	30-130	% R	CMG	07/30/2011
***P-Terphenyl-D14	EPA 8270	43.4	30-130	% R	CMG	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	07/30/2011
Hydrocarbon Content		<200	200	ug/L	RJD	07/30/2011
Surrogate:						
***p-Terphenyl		56.4	40-130	% R	RJD	07/30/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/28/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.06	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/02/2011



ANALYTICAL REPORT

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Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **Trip Blank**

Sample No.: **012**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
 Date Reported: **08/03/2011**  
 Work Order No.: **1107-00118**

Sample ID: **Trip Blank**  
 Sample Date: **07/26/2011**

Sample No.: **012**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	108	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/29/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick

Project Name.: **Former Tidewater Facility**  
Project No.: **05.0043654.00**

Date Received: **07/27/2011**  
Date Reported: **08/03/2011**  
Work Order No.: **1107-00118**

Sample ID: **Trip Blank**

Sample No.: **012**

Sample Date: **07/26/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	101	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/28/2011

EPA Method 8260 / 524.2 Aqueous Method Blank (MB) and Laboratory Control Sample/Duplicate (LCS/LCSD) Data

Method Blank

Date Analyzed:	7/28/2011	
Volatile Organics	Conc. ug/L	Acceptance Limit
dichlorodifluoromethane	< 1.0	< 1.0
chloromethane	< 1.0	< 1.0
vinyl chloride	< 0.5	< 0.5
bromomethane	< 1.0	< 1.0
chloroethane	< 0.5	< 0.5
trichlorofluoromethane	< 1.0	< 1.0
diethyl ether	< 2.5	< 2.5
acetone	< 10	< 10
1,1-dichloroethene	< 0.5	< 0.5
carbon disulfide	< 5.0	< 5.0
dichloromethane	< 1.0	< 1.0
methyl-tert-butyl-ether	< 0.5	< 0.5
trans-1,2-dichloroethene	< 0.5	< 0.5
1,1-dichloroethane	< 0.5	< 0.5
2-butanone	< 10	< 10
2,2-dichloropropane	< 0.5	< 0.5
cis-1,2-dichloroethene	< 0.5	< 0.5
chloroform	< 0.5	< 0.5
bromochloromethane	< 0.5	< 0.5
tetrahydrofuran	< 5.0	< 5.0
1,1,1-trichloroethane	< 0.5	< 0.5
1,1-dichloropropene	< 0.5	< 0.5
carbon tetrachloride	< 0.5	< 0.5
1,2-dichloroethane	< 0.5	< 0.5
benzene	< 0.5	< 0.5
trichloroethene	< 0.5	< 0.5
1,2-dichloropropane	< 0.5	< 0.5
bromodichloromethane	< 0.5	< 0.5
1,1,1,2-tetrachloroethane	< 0.5	< 0.5
4-methyl-2-pentanone	< 10	< 10
cis-1,3-dichloropropene	< 0.5	< 0.5
toluene	< 0.5	< 0.5
trans-1,3-dichloropropene	< 1.0	< 1.0
1,1,2-trichloroethane	< 0.5	< 0.5
2-hexanone	< 10	< 10
1,3-dichloropropane	< 0.5	< 0.5
tetrachloroethene	< 0.5	< 0.5
dibromochloromethane	< 0.5	< 0.5
1,2-dibromoethane (EDB)	< 1.0	< 1.0
chlorobenzene	< 0.5	< 0.5
1,1,1,2-tetrachloroethane	< 0.5	< 0.5
ethylbenzene	< 0.5	< 0.5
1,1,2,2-tetrachloroethane	< 0.5	< 0.5
m&p-xylene	< 1.0	< 1.0
o-xylene	< 0.5	< 0.5
styrene	< 0.5	< 0.5
bromoform	< 1.0	< 1.0
isopropylbenzene	< 0.5	< 0.5
1,2,3-trichloropropane	< 0.5	< 0.5
bromobenzene	< 0.5	< 0.5
n-propylbenzene	< 0.5	< 0.5
2-chlorotoluene	< 0.5	< 0.5
1,3,5-trimethylbenzene	< 0.5	< 0.5
4-chlorotoluene	< 0.5	< 0.5
tert-butyl-benzene	< 0.5	< 0.5
1,2,4-trimethylbenzene	< 0.5	< 0.5
sec-butyl-benzene	< 0.5	< 0.5
p-isopropyltoluene	< 0.5	< 0.5
1,3-dichlorobenzene	< 0.5	< 0.5
1,4-dichlorobenzene	< 0.5	< 0.5
n-butylbenzene	< 0.5	< 0.5
1,2-dichlorobenzene	< 0.5	< 0.5
1,2-dibromo-3-chloropropane	< 2.5	< 2.5
1,2,4-trichlorobenzene	< 0.5	< 0.5
hexachlorobutadiene	< 0.5	< 0.5
naphthalene	< 1.0	< 1.0

Laboratory Control Sample

Date Analyzed:	7/28/2011	
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits
dichlorodifluoromethane	105	70-130
chloromethane	117	70-130
vinyl chloride	97.3	80-120
bromomethane	98.2	70-130
chloroethane	99.0	70-130
trichlorofluoromethane	87.5	70-130
diethyl ether	95.6	70-130
acetone	87.0	70-130
1,1-dichloroethene	95.9	80-120
carbon disulfide	101	70-130
dichloromethane	101	70-130
methyl-tert-butyl-ether	99.0	70-130
trans-1,2-dichloroethene	103	70-130
1,1-dichloroethane	101	70-130
2-butanone	97.3	70-130
2,2-dichloropropane	103	70-130
cis-1,2-dichloroethene	104	70-130
chloroform	94.2	80-120
bromochloromethane	102	70-130
tetrahydrofuran	120	70-130
1,1,1-trichloroethane	91.0	70-130
1,1-dichloropropene	102	70-130
carbon tetrachloride	95.0	70-130
1,2-dichloroethane	90.9	70-130
benzene	103	70-130
trichloroethene	105	70-130
1,2-dichloropropane	111	80-120
bromodichloromethane	95.1	70-130
1,1,1,2-tetrachloroethane	99.1	70-130
4-methyl-2-pentanone	101	70-130
cis-1,3-dichloropropene	107	70-130
toluene	106	80-120
trans-1,3-dichloropropene	102	70-130
1,1,2-trichloroethane	95.1	70-130
2-hexanone	96.6	70-130
1,3-dichloropropane	93.9	70-130
tetrachloroethene	94.0	70-130
dibromochloromethane	95.6	70-130
1,2-dibromoethane (EDB)	97.2	70-130
chlorobenzene	98.1	70-130
1,1,1,2-tetrachloroethane	94.6	70-130
ethylbenzene	97.6	80-120
1,1,2,2-tetrachloroethane	96.3	70-130
m&p-xylene	95.2	70-130
o-xylene	96.6	70-130
styrene	101	70-130
bromoform	99.3	70-130
isopropylbenzene	101	70-130
1,2,3-trichloropropane	90.5	70-130
bromobenzene	98.8	70-130
n-propylbenzene	100.0	70-130
2-chlorotoluene	97.3	70-130
1,3,5-trimethylbenzene	98.6	70-130
4-chlorotoluene	96.8	70-130
tert-butyl-benzene	96.2	70-130
1,2,4-trimethylbenzene	99.4	70-130
sec-butyl-benzene	101	70-130
p-isopropyltoluene	98.3	70-130
1,3-dichlorobenzene	99.8	70-130
1,4-dichlorobenzene	99.8	70-130
n-butylbenzene	100.0	70-130
1,2-dichlorobenzene	97.6	70-130
1,2-dibromo-3-chloropropane	94.7	70-130
1,2,4-trichlorobenzene	100	70-130
hexachlorobutadiene	95.2	70-130
naphthalene	94.8	70-130

Laboratory Control Sample Duplicate

Date Analyzed:	7/28/2011				
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict	RPD	Limit
dichlorodifluoromethane	105	70-130	ok	0.05	<25
chloromethane	113	70-130	ok	2.89	<25
vinyl chloride	97.0	70-130	ok	0.33	<25
bromomethane	95.0	70-130	ok	3.34	<25
chloroethane	97.5	70-130	ok	1.48	<25
trichlorofluoromethane	86.5	70-130	ok	1.12	<25
diethyl ether	95.1	70-130	ok	0.52	<25
acetone	83.8	70-130	ok	3.79	<25
1,1-dichloroethene	91.9	70-130	ok	4.27	<25
carbon disulfide	93.4	70-130	ok	7.47	<25
dichloromethane	99.0	70-130	ok	2.22	<25
methyl-tert-butyl-ether	98.5	70-130	ok	0.53	<25
trans-1,2-dichloroethene	99.0	70-130	ok	3.94	<25
1,1-dichloroethane	100	70-130	ok	1.18	<25
2-butanone	103	70-130	ok	6.21	<25
2,2-dichloropropane	99.6	70-130	ok	3.29	<25
cis-1,2-dichloroethene	103	70-130	ok	0.79	<25
chloroform	95.3	70-130	ok	1.10	<25
bromochloromethane	103	70-130	ok	0.63	<25
tetrahydrofuran	112	70-130	ok	6.95	<25
1,1,1-trichloroethane	90.5	70-130	ok	0.55	<25
1,1-dichloropropene	98.7	70-130	ok	3.31	<25
carbon tetrachloride	94.0	70-130	ok	1.03	<25
1,2-dichloroethane	89.7	70-130	ok	1.38	<25
benzene	104	70-130	ok	0.99	<25
trichloroethene	103	70-130	ok	2.61	<25
1,2-dichloropropane	107	70-130	ok	3.71	<25
bromodichloromethane	95.5	70-130	ok	0.45	<25
1,1,1,2-tetrachloroethane	104	70-130	ok	4.69	<25
4-methyl-2-pentanone	107	70-130	ok	6.25	<25
cis-1,3-dichloropropene	109	70-130	ok	1.74	<25
toluene	106	70-130	ok	0.11	<25
trans-1,3-dichloropropene	101	70-130	ok	0.34	<25
1,1,2-trichloroethane	101	70-130	ok	6.20	<25
2-hexanone	104	70-130	ok	7.77	<25
1,3-dichloropropane	99.6	70-130	ok	5.89	<25
tetrachloroethene	95.4	70-130	ok	1.50	<25
dibromochloromethane	100	70-130	ok	4.94	<25
1,2-dibromoethane (EDB)	101	70-130	ok	3.87	<25
chlorobenzene	101	70-130	ok	2.41	<25
1,1,1,2-tetrachloroethane	98.7	70-130	ok	4.16	<25
ethylbenzene	101	70-130	ok	3.30	<25
1,1,2,2-tetrachloroethane	103	70-130	ok	7.10	<25
m&p-xylene	94.6	70-130	ok	0.58	<25
o-xylene	100	70-130	ok	3.71	<25
styrene	104	70-130	ok	3.04	<25
bromoform	103	70-130	ok	3.21	<25
isopropylbenzene	102	70-130	ok	0.67	<25
1,2,3-trichloropropane	100	70-130	ok	10.2	<25
bromobenzene	102	70-130	ok	3.01	<25
n-propylbenzene	102	70-130	ok	2.15	<25
2-chlorotoluene	99.0	70-130	ok	1.70	<25
1,3,5-trimethylbenzene	101	70-130	ok	1.89	<25
4-chlorotoluene	97.8	70-130	ok	1.06	<25
tert-butyl-benzene	100	70-130	ok	3.88	<25
1,2,4-trimethylbenzene	101	70-130	ok	2.12	<25
sec-butyl-benzene	102	70-130	ok	0.96	<25
p-isopropyltoluene	102	70-130	ok	3.64	<25
1,3-dichlorobenzene	100	70-130	ok	0.59	<25
1,4-dichlorobenzene	104	70-130	ok	4.14	<25
n-butylbenzene	101	70-130	ok	1.26	<25
1,2-dichlorobenzene	103	70-130	ok	4.93	<25
1,2-dibromo-3-chloropropane	105	70-130	ok	9.86	<25
1,2,4-trichlorobenzene	106	70-130	ok	6.03	<25
hexachlorobutadiene	96.7	70-130	ok	1.57	<25
naphthalene	109	70-130	ok	13.7	<25

Surrogates:	Recovery (%)	Acceptance Limits	Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	RPD	Acceptance Limits	Verdict
DIBROMOFLUOROMETHANE	106	70-130	DIBROMOFLUOROMETHANE	107	70-130	ok	106	70-130	ok	1.18	<25	ok
1,2-DICHLOROETHANE-D4	99.6	70-130	1,2-DICHLOROETHANE-D4	113	70-130	ok	109	70-130	ok	4.15	<25	ok
TOLUENE-D8	111	70-130	TOLUENE-D8	111	70-130	ok	109	70-130	ok	1.62	<25	ok
4-BROMOFLUOROBENZENE	102	70-130	4-BROMOFLUOROBENZENE	102	70-130	ok	103	70-130	ok	1.69	<25	ok
1,2-DICHLOROBENZENE-D4	102	70-130	1,2-DICHLOROBENZENE-D4	111	70-130	ok	114	70-130	ok	2.47	<25	ok

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Method Blank**

<b>Date Extracted:</b>	<b>07/29/11</b>	
<b>Date Analyzed:</b>	<b>07/29/11</b>	
<b>File Name:</b>	<b>M9063</b>	
<b>Semi-Volatile Organics</b>	<b>Result</b>	<b>(ug/L)</b>
naphthalene	ND	2.0
2-methylnaphthalene	ND	2.0
acenaphthylene	ND	2.0
acenaphthene	ND	2.0
fluorene	ND	2.0
phenanthrene	ND	2.0
anthracene	ND	2.0
fluoranthene	ND	2.0
pyrene	ND	2.0
benz [a] anthracene	ND	2.0
chrysene	ND	2.0
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0

<b>Surrogates:</b>	<b>Recovery (%)</b>	<b>Acceptance Limits</b>
NITROBENZENE-D5	61.8	30-130
2-FLUOROBIPHENYL	64.6	30-130
p-TERPHENYL-D14	73.2	30-130

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

Date Extracted:	07/29/11	Date Analyzed:	07/29/11	File Name:	M9064	
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict	% Recovery	Acceptance Limits	Verdict
naphthalene	66.6	40-140	ok	56.2	40-140	ok
2-methylnaphthalene	65.2	40-140	ok	54.2	40-140	ok
acenaphthylene	71.8	40-140	ok	59.7	40-140	ok
acenaphthene	70.6	40-140	ok	58.8	30-130	ok
fluorene	76.5	40-140	ok	62.9	40-140	ok
phenanthrene	75.8	40-140	ok	64.0	40-140	ok
anthracene	77.1	40-140	ok	64.3	40-140	ok
fluoranthene	77.9	40-140	ok	66.4	40-140	ok
pyrene	79.9	40-140	ok	68.5	40-140	ok
benz [a] anthracene	79.4	40-140	ok	65.9	40-140	ok
chrysene	75.3	40-140	ok	66.2	40-140	ok
benzo [b] fluoranthene	76.8	40-140	ok	63.8	40-140	ok
benzo [k] fluoranthene	69.8	40-140	ok	62.0	40-140	ok
benzo [a] pyrene	73.9	40-140	ok	63.9	40-140	ok
indeno [1,2,3-cd] pyrene	74.2	40-140	ok	64.2	40-140	ok
dibenz [a,h] anthracene	74.3	40-140	ok	62.7	40-141	ok
benzo [ghi] perylene	73.2	40-140	ok	63.4	40-142	ok

Laboratory Control Sample Duplicate

Date Extracted:	07/29/11	Date Analyzed:	07/29/11	File Name:	M9065
% Recovery	Acceptance Limits	Verdict	% Diff	Limits	Verdict
66.6	40-140	ok	17	<20	ok
65.2	40-140	ok	18	<20	ok
71.8	40-140	ok	18	<20	ok
70.6	40-140	ok	18	<20	ok
76.5	40-140	ok	19	<20	ok
75.8	40-140	ok	17	<20	ok
77.1	40-140	ok	18	<20	ok
77.9	40-140	ok	16	<20	ok
79.9	40-140	ok	15	<20	ok
79.4	40-140	ok	19	<20	ok
75.3	40-140	ok	13	<20	ok
76.8	40-140	ok	18	<20	ok
69.8	40-140	ok	12	<20	ok
73.9	40-140	ok	15	<20	ok
74.2	40-140	ok	15	<20	ok
74.3	40-140	ok	17	<20	ok
73.2	40-140	ok	14	<20	ok

CAM criteria allows 15% of analytes to exceed criteria.

Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	Relative % Diff.	Limits	Verdict
NITROBENZENE-D5	70.9	30-130	ok	59.5	30-130	ok	17	<20	ok
2-FLUOROBIPHENYL	72.2	30-130	ok	60.0	30-130	ok	18	<20	ok
p-TERPHENYL-D14	78.0	30-130	ok	67.3	30-130	ok	15	<20	ok

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Method Blank**

<b>Date Extracted:</b>	<b>08/01/11</b>	
<b>Date Analyzed:</b>	<b>08/02/11</b>	
<b>File Name:</b>	<b>M9095</b>	
<b>Semi-Volatile Organics</b>	<b>Result</b>	<b>(ug/L)</b>
naphthalene	ND	2.0
2-methylnaphthalene	ND	2.0
acenaphthylene	ND	2.0
acenaphthene	ND	2.0
fluorene	ND	2.0
phenanthrene	ND	2.0
anthracene	ND	2.0
fluoranthene	ND	2.0
pyrene	ND	2.0
benz [a] anthracene	ND	2.0
chrysene	ND	2.0
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0

<b>Surrogates:</b>	<b>Recovery (%)</b>	<b>Acceptance Limits</b>
NITROBENZENE-D5	52.3	30-130
2-FLUOROBIPHENYL	61.2	30-130
p-TERPHENYL-D14	71.1	30-130

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

**Date Extracted:** 08/01/11  
**Date Analyzed:** 08/02/11  
**File Name:** M9096  
**Spike Concentration = 20ug/L**

	% Recovery	Acceptance Limits	Verdict
naphthalene	56.4	40-140	ok
2-methylnaphthalene	56.3	40-140	ok
acenaphthylene	60.6	40-140	ok
acenaphthene	62.3	40-140	ok
fluorene	66.8	40-140	ok
phenanthrene	66.7	40-140	ok
anthracene	68.8	40-140	ok
fluoranthene	68.3	40-140	ok
pyrene	70.0	40-140	ok
benz [a] anthracene	64.3	40-140	ok
chrysene	70.3	40-140	ok
benzo [b] fluoranthene	73.9	40-140	ok
benzo [k] fluoranthene	61.7	40-140	ok
benzo [a] pyrene	70.1	40-140	ok
indeno [1,2,3-cd] pyrene	70.1	40-140	ok
dibenz [a,h] anthracene	70.4	40-140	ok
benzo [ghi] perylene	68.1	40-140	ok

Laboratory Control Sample Duplicate

**Date Extracted:** 08/01/11  
**Date Analyzed:** 08/02/11  
**File Name:** M9097

	% Recovery	Acceptance Limits	Verdict	% Diff	Limits	Verdict
naphthalene	61.8	40-140	ok	9.1	<20	ok
2-methylnaphthalene	58.8	40-140	ok	4.5	<20	ok
acenaphthylene	61.8	40-140	ok	2.0	<20	ok
acenaphthene	60.2	30-130	ok	3.4	<20	ok
fluorene	66.2	40-140	ok	0.84	<20	ok
phenanthrene	70.1	40-140	ok	4.9	<20	ok
anthracene	69.5	40-140	ok	0.95	<20	ok
fluoranthene	71.4	40-140	ok	4.4	<20	ok
pyrene	73.5	40-140	ok	4.8	<20	ok
benz [a] anthracene	69.5	40-140	ok	7.7	<20	ok
chrysene	72.2	40-140	ok	2.6	<20	ok
benzo [b] fluoranthene	73.6	40-140	ok	0.31	<20	ok
benzo [k] fluoranthene	68.6	40-140	ok	11	<20	ok
benzo [a] pyrene	72.7	40-140	ok	3.7	<20	ok
indeno [1,2,3-cd] pyrene	73.0	40-140	ok	4.0	<20	ok
dibenz [a,h] anthracene	72.9	40-141	ok	3.5	<20	ok
benzo [ghi] perylene	70.7	40-142	ok	3.8	<20	ok

CAM criteria allows 15% of analytes to exceed criteria.

Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	Relative % Diff.	Limits	Verdict
NITROBENZENE-D5	60.5	30-130	ok	60.6	30-130	ok	0.25	<20	ok
2-FLUOROBIPHENYL	62.1	30-130	ok	62.5	30-130	ok	0.59	<20	ok
p-TERPHENYL-D14	67.0	30-130	ok	72.1	30-130	ok	7.3	<20	ok

GZA GEOENVIRONMENTAL, INC.  
 ENVIRONMENTAL CHEMISTRY LABORATORY  
 106 SOUTH STREET, HOPKINTON, MA 01748 (508)435-9244  
 MASSACHUSETTS LABORATORY I.D. NO. MA092

**TPH**  
**TOTAL PETROLEUM HYDROCARBONS IN AQUEOUS AND/OR SOLID MATRIX**

**QUALITY CONTROL**

**EXT. DATE:            07/28/11            Aqueous**

<b>METHOD BLANK</b>	<b>AQUEOUS</b>	<b>SOLID</b>			
	ug/L-PPB	mg/kg - PPM			
TPH	<200	<10			
<b>Surrogate:</b>	<b>Recovery (%)</b>	<b>Limits-Aqueous</b>	<b>Limits-Solid</b>		
***p-Terphenyl	53.9	40-130	40-130		
<hr/>					
<b>LABORATORY CONTROL SAMPLE / DUPLICATE LCS</b>	<b>LCS</b>	<b>LCSD</b>	<b>Limits</b>	<b>RPD</b>	<b>Limits</b>
	Recovery (%)	Recovery (%)			
TPH	68.9	68.7	<b>40-150</b>	<b>0.29</b>	<b>&lt;30</b>
<b>Surrogate:</b>					
***p-Terphenyl	70.9	70.5			

\*Matrix Spike / Duplicate Spike performed as per method and reported if assigned on the Chain of Custody.



**CHAIN-OF-CUSTODY RECORD**

W.O. # 1107-0113  
 (for lab use only)

Sample ID.	Date/Time Sampled	Matrix	ANALYSIS REQUIRED																	Total No. of Cont.	Note #																			
MW-107	7-26-11 1355	GW	<input type="checkbox"/> pH	<input type="checkbox"/> Cond.	GC Methane, Ethane, Ethene	EPA 8260	EPA 8260- Landfill List	EPA 8021- Full List	EPA 8021- 8010 List (Chlor.)	EPA 8021- 8020 List (BTEX)	EPA 524.2 DW VOCs	EPA 624 WW VOCs	<input type="checkbox"/> 601	<input type="checkbox"/> 602 WW VOCs	EPA 8270 SVOCs	EPA 8270 PAH <input type="checkbox"/> A <input type="checkbox"/> BN	EPA 625 WW SVOCs	EPA 8082-PCBs	EPA 8081-Pest	TPH-GC (Mod. 8100)	TPH-GC w/FING.	EPH (MA DEP)	VPH (MA DEP)	Metals <input type="checkbox"/> PPM-13 <input type="checkbox"/> R-8	MCP 14 Metals (MA)	METALS LF-15 (RI)	Metals (List Below) **	TCLP - Specify Below	SPLP - Specify Below	EPA 300 <input type="checkbox"/> Cl <input type="checkbox"/> NO3 <input type="checkbox"/> SO4	Total Cyanide	Dissolved Cyanide	7							
MW-109	7-26-11 1710																																							
MW-318s	7-26-11 1435																																							
MW-318d	7-26-11 1615																																							
MW-334s	7-26-11 1315																																							
MW-334d	7-26-11 1545																																							
MW-344s	7/26/11 945																																							
MW-344d	7/26/11 12:23																																							
MW-337	7/26/11 16:10																																							
TB-1/MW-6	7/26/11 14:35																																							
MDE MW-2	7/26/11 11:35																																							
R-19 BLANK	7/26/11 7:00																																							

NOTES: (Unless otherwise noted, all samples have been refrigerated to 4 +/- 2°C)  
 \*Specify "Other" preservatives and container types in this space.  
 Distilled Cyanide was Field P. 117 rec'd

RECEIVED BY: CS  
 DATE/TIME: 7/26/11/1845  
 PROJECT MANAGER: Meg K. [Signature]  
 GZA GEOTECHNICAL, INC.  
 140 Broadway  
 Providence, RI 02903  
 (401) 421-4140  
 FAX (401) 751-8613

TURNAROUND TIME: 5 days  
 LAB USE: Temp Blank  
 Temp of Cooler: 5°F  
 GZA FILE NO: 0502143654.06  
 TASK NO: 33  
 P.O. NO: [Blank]

PROJECT: Tidesex  
 COLLECTOR(S): Paul [Signature], Matt Berger  
 SHEET: 1 OF 1

### CERTIFICATE OF ANALYSIS

GZA GeoEnvironmental Labs  
Attn: Ms. Michelle Miranda  
Engineers and Scientists  
106 South Street  
Hopkinton, MA 01748

**Date Received:** 7/28/11  
**Date Reported:** 8/3/11  
**P.O. #:** 8-35217  
**Work Order #:** 1107-14582

---

**DESCRIPTION:** GZA FILE# 03.0043654.00 FOMER TIDEWATER FACILITY

---

Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.  
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

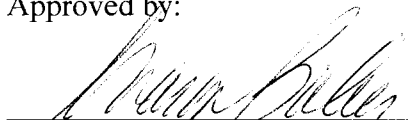
Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.  
The Certificate of Analysis shall not be reproduced except in full, without written approval of R. I. Analytical.  
Results relate only to samples submitted to the laboratory for analysis.  
Test results are not blank corrected.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015  
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:



Sharon Baker  
MIS / Data Reporting Manager

enc: Chain of Custody

**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/28/11

Work Order #: 1107-14582

GZA FILE# 03.0043654.00 FOMER TIDEWATER FACILITY

Sample # 001

**SAMPLE DESCRIPTION:** MW-333D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 13:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	1.1	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.02	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 002

**SAMPLE DESCRIPTION:** MW-310S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.06	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 003

**SAMPLE DESCRIPTION:** MW-310D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 10:50

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.12	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	0.15*	0.01	mg/l	SM 4500CN C E	8/3/11	EC

\*TCN and FCNDISS analysis was performed a second time to confirm the deviation between the two results.

Two separate samples were provided for each of the two analyses.

Sample # 004

**SAMPLE DESCRIPTION:** MW-333S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 13:10

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.15	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC

**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/28/11

Work Order #: 1107-14582

GZA FILE# 03.0043654.00 FOMER TIDEWATER FACILITY

Sample # 005

**SAMPLE DESCRIPTION:** MW-326S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 16:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.49	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 006

**SAMPLE DESCRIPTION:** MW-326D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 16:20

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.67	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 007

**SAMPLE DESCRIPTION:** MW-208**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 11:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.03	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 008

**SAMPLE DESCRIPTION:** MW-339D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 12:18

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.13	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC

**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/28/11

Work Order #: 1107-14582

GZA FILE# 03.0043654.00 FOMER TIDEWATER FACILITY

Sample # 009

**SAMPLE DESCRIPTION:** MW-339S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 10:50

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.44	0.01	mg/l	SM-4500CN-C E	7/29/11	EC
Dissolved Free Cyanide	0.08	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 010

**SAMPLE DESCRIPTION:** MW-201**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 12:40

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	4.0	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.13	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 011

**SAMPLE DESCRIPTION:** MW-312S**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 16:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.33	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.04	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 012

**SAMPLE DESCRIPTION:** MW-312D**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 15:55

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
Total Cyanide	0.74	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.02	0.01	mg/l	SM 4500CN C E	8/3/11	EC

**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/28/11

Work Order #: 1107-14582

GZA FILE# 03.0043654.00 FOMER TIDEWATER FACILITY

Sample # 013

**SAMPLE DESCRIPTION:** BD-1**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 12:18

<b>PARAMETER</b>	<b>SAMPLE RESULTS</b>	<b>DET. LIMIT</b>	<b>UNITS</b>	<b>METHOD</b>	<b>DATE ANALYZED</b>	<b>ANALYST</b>
Total Cyanide	0.41	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.05	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 014

**SAMPLE DESCRIPTION:** BD-2**SAMPLE TYPE:** GRAB**SAMPLE DATE/TIME:** 7/27/2011 @ 15:55

<b>PARAMETER</b>	<b>SAMPLE RESULTS</b>	<b>DET. LIMIT</b>	<b>UNITS</b>	<b>METHOD</b>	<b>DATE ANALYZED</b>	<b>ANALYST</b>
Total Cyanide	0.68	0.01	mg/l	SM-4500CN-C E	8/2/11	EC
Dissolved Free Cyanide	0.02	0.01	mg/l	SM 4500CN C E	8/3/11	EC

## QA/QC Report

Client: GZA GeoEnvironmental Labs

WO #: 1107-14582

Date: 8/3/2011

## -Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Total Cyanide	mg/l	<0.01	7/29/2011
Total Cyanide	mg/l	<0.01	8/2/2011
Free Dissolved Cyanide	mg/l	<0.01	8/3/2011

## -LCS/LCS Duplicate Data Results-

Parameter	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Total Cyanide	0.10	0.099	99	0.104	104	5	7/29/2011
Total Cyanide	0.10	0.120	120	0.111	111	8	8/2/2011
Free Dissolved Cyanide	0.10	0.096	96	0.090	90	6	8/3/2011



## Case Narrative

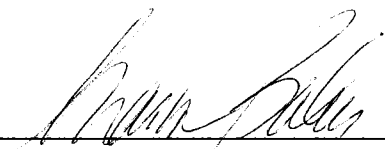
Date: 8/3/2011

GZA GeoEnvironmental Labs  
Attn: Ms. Michelle Miranda  
Engineers and Scientists  
106 South Street  
Hopkinton, MA 01748

Project: GZA FILE# 03.0043654.00 FOMERTIDEWATER FACILITY

RIAL WO#: 1107-14582

R.I. Analytical Laboratories received Fourteen Groundwater samples from the GZA GeoEnvironmental Labs on July 28, 2011. The samples were transported and delivered to the laboratory in a cooler on ice (at 5.2 degrees C). The samples were received in good condition. Upon arrival the samples were logged into our LIMS system and assigned a work order number of 1107-14582



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Sharon Baker  
Data Reporting / MIS Manager

W.O. # 1107-00128  
(for lab use only)

# RIAL

## CHAIN-OF-CUSTODY RECORD

Sample I.D.	Date/Time Sampled	Matrix A=Air S=Soil GW=Ground W. SW=Surface W. WW=Waste W. DW=Drinking W. P=Product Other (specify)	ANALYSIS REQUIRED	Total No. of Cont.	Note #
MW-333D	7/27/11 @ 1330	GW	GC Methane, Ethane, Ethene EPA 8260 EPA 8260-8010 List EPA 8021-Full List EPA 8021-8010 List (Chlor) EPA 8021-8020 List (BTEX) EPA 524.2 DW VOCs EPA 624 WW VOCs EPA 8270 SVOCs EPA 8270 PAH A BN EPA 8270 SVOCs EPA 8082-PCBs EPA 8081-Pest TPH-GC (Mod. 8100) TPH-GC w/Flng. EPH (MA DEP) VPH (MA DEP) Metals (MA DEP) MCP 14 Metals (MA) Metals (List Below) TCLP - Specify Below SPLP - Specify Below EPA 300 Cl NO3 SO4 TOTAL CYANIDE DISSOLVED FREE CYANID	2	1
MW-310S	7/27/11 @ 1030	GW		2	1
MW-310D	7/27/11 @ 1050	GW		2	1
MW-333S	7/27/11 @ 1310	GW		2	1
MW-326S	7/27/11 @ 1630	GW		2	1
MW-326D	7/27/11 @ 1620	GW		2	1
MW-208	7/27/11 @ 1145	GW		2	1
MW-339D	7/27/11 @ 1218	GW		2	1
MW-339S	7/27/11 @ 1050	GW		2	1
MW-201	7/27/11 @ 1240	GW		2	1
MW-312S	7/27/11 @ 1600	GW		2	1
MW-312D	7/27/11 @ 1555	GW		2	1
BD-1	7/27/11 @ 1218	GW		2	1
BD-2	7/27/11 @ 1555	GW		2	1

NOTES: (Unless otherwise noted, all samples have been refrigerated to 4 +/- 2°C)  
\*Specify "Other" preservatives and container types in this space.

### Report Method Blank and Laboratory Control Sample Results

- 1. NGRID PROJECT
- 2. Dissolved Free Cyanide-Field Filtered

due 8/3/11 by 1400hrs.  
LAB USE:  
A. Ford  
TEMP. OF COOLER 5.2 °C  
1107-1558

RELINQUISHED BY: [Signature]  
DATE/TIME: 7/28/11 1545  
RECEIVED BY: [Signature]  
DATE/TIME: 7/28/11 1545

Project Manager: Michelle Mirenda

### GZA GEOENVIRONMENTAL, INC.

106 South Street  
Hopkinton, MA 01748  
508-435-9244  
FAX 508-435-9912

GZA FILE NO: 03.0043654.00 TASK NO: 33 P.O. NO: 9-55217

PROJECT: Fomer Tidewater Facility

LOCATION: Pawtucket, RI

COLLECTOR(S): SN, MB SHEET 1 OF 1

plm



**GZA GeoEnvironmental, Inc.**  
**106 South Street**  
**Hopkinton, MA 01748**  
**(781) 278-4700**

Laboratory Identification Numbers:  
MA and ME: **MA092** NH: **2028**  
CT: **PH0579** RI: **LAO00236**  
NELAC - NYS DOH: **11063**

## **ANALYTICAL REPORT**

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project No.: **05.0043654.00**  
Work Order No.: **1107-00128**  
Date Received: **07/28/2011**  
Date Reported: **08/09/2011**

### **SAMPLE INFORMATION**

<b>Date Sampled</b>	<b>Matrix</b>	<b>Laboratory ID</b>	<b>Sample ID</b>
07/27/2011	Aqueous	1107-00128 001	MW-333D
07/27/2011	Aqueous	1107-00128 002	MW-310S
07/27/2011	Aqueous	1107-00128 003	MW-310D
07/27/2011	Aqueous	1107-00128 004	MW-333S
07/27/2011	Aqueous	1107-00128 005	MW-326S
07/27/2011	Aqueous	1107-00128 006	MW-326D
07/27/2011	Aqueous	1107-00128 007	MW-208
07/27/2011	Aqueous	1107-00128 008	MW-339D
07/27/2011	Aqueous	1107-00128 009	MW-339S
07/27/2011	Aqueous	1107-00128 010	MW-201
07/27/2011	Aqueous	1107-00128 011	MW-312S
07/27/2011	Aqueous	1107-00128 012	MW-312D
07/27/2011	Aqueous	1107-00128 013	BD#1
07/27/2011	Aqueous	1107-00128 014	BD#2
07/27/2011	Aqueous	1107-00128 015	Trip Blank 72811
07/27/2011	Aqueous	1107-00128 016	MW-201 RE
07/27/2011	Aqueous	1107-00128 017	MW-312S RE
07/27/2011	Aqueous	1107-00128 018	BD#2 RE



## ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**

Date Received: **07/28/2011**

Project No.: **05.0043654.00**

Date Reported: **08/09/2011**

Work Order No.: **1107-00128**

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### PROJECT NARRATIVE:

#### 1. Sample Receipt

The samples were received on 07/28/11 via   x\_GZA courier,   EC,   FEDEX, or   hand delivered. The temperature of the   x\_temperature blank/  cooler air, was 5.9 & 3.8 degrees C. The temperature requirement for most analyses is above freezing to 6 degrees C. The samples were received intact for all requested analyses.

The chain of custody indicates that the samples, when required, were chemically preserved in accordance with the method they reference.

#### 2. Subcontracted Analyses

Analyses for Total and Dissolved Cyanide were subcontracted to Rhode Island Analytical, Warwick RI (RIAL); Certification MA: MA-RI015, NH: 253700 A&B, CT: PH-0508, ME: RI015, RI: RI-033, NY:11726,

The data is included in GZA's report for ease of electronic data transfer and is indicated by "XXX" in the tech column. The data report from the subcontractor is attached.

\* Dissolved Cyanide - sample MW-310D: TCN and FCNDISS analysis was performed a second time to confirm the deviation between the two results. Two separate samples were provided for each of the two analyses.

#### 3. EPA Method 8260 - VOCs

The elevated reporting limits for samples MW-333D (1107-00128-001), MW-310D (1107-00128-003), MW-326S (1107-00128-005), MW-339D (1107-00128-008), MW-339S (1107-00128-009), MW-312S (1107-00128-011), MW-312D (1107-00128-012), BD#1 (1107-00128-013), and BD#2 (1107-00128-014) are due to initial dilution of the sample in order to get target compounds within the calibration range of the instrument. The dilution was based upon screening data for the sample.

Attach QC 8260 7/29/2011 "S" - Aqueous

#### 4. EPA Method 8270 - SVOCs (PAHs)

Per the Project Manager, a subset of the analyte list for Method 8270 (Semivolatile Organic Compounds by GC/MS) has been provided.

Data qualifier:

Any analytes reported from a diluted run of the original analysis have a "D" qualifier.

The percent recoveries for the surrogates in the diluted runs are as follows:

BD#1: Nitrobenzene-D5 - 34.7%, 2-Fluorobiphenyl - 37.4%, P-Terphenyl -D14 - 38.5%.  
MW-310D: Nitrobenzene-D5 - 44.6%, 2-Fluorobiphenyl - 47.6%, P-Terphenyl -D14 - 46.9%.  
MW-310D: Nitrobenzene-D5 - 48.4%, 2-Fluorobiphenyl - 50.1%, P-Terphenyl -D14 - 51.0%.  
MW-312D: Nitrobenzene-D5 - 43.8%, 2-Fluorobiphenyl - 45.1%, P-Terphenyl -D14 - 43.6%.  
BD#2 RE: Nitrobenzene-D5 - 64.4%, 2-Fluorobiphenyl - 75.8%, P-Terphenyl -D14 - 80.1%.



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**

Date Received: **07/28/2011**

Project No.: **05.0043654.00**

Date Reported: **08/09/2011**

Work Order No.: **1107-00128**

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The surrogate recovery for sample MW-326S (1107-00128-005) exceeded the acceptance criteria of 30-130%. Specific outlier includes: 2-fluorobiphenyl (28.9%). Methods 8270D permits one surrogate outside acceptance criteria.

The surrogate recovery for samples MW-326D (1107-00128-006) and MW-208 (1107-00128-007) exceeded the acceptance criteria of 30-130%. Specific outlier includes: p-terphenyl (28.6% and 28.8% respectively). Methods 8270D permits one surrogate outside acceptance criteria.

The percent recoveries for all surrogates in samples MW-201 (1107-00128-010), and MW-312S (1107-00128-011) were recovered outside the 30-130% QC acceptance limits. The samples were re-extracted as samples MW-201 RE (1107-00128-016) and MW-312S RE (1107-00128-017) one day outside of holding time and re-analyzed and all surrogate recoveries were within the 30-130% QC acceptance limits. Both sets of results are reported.

The percent recoveries for the surrogates Nitrobenzene-D5 and 2-Fluorobiphenyl in sample BD#2 (1107-00128-014) were recovered outside the 30-130% QC acceptance limits. The sample was re-extracted as sample BD#2 RE (1107-00128-018) one (1) day outside of holding time and re-analyzed and all surrogate recoveries were within the 30-130% QC acceptance limits. Both sets of results are reported.

Attach QC 8270 7/29/2011 "I" - Aqueous  
Attach QC 8270 8/01/2011 "I" - Aqueous  
Attach QC 8270 8/03/2011 "I" - Aqueous  
Attach QC 8270 8/4/2011 "I" - Aqueous

## 5. Total Petroleum Hydrocarbons

Attach QC TPH 08/01/11 - Aqueous  
Attach QC TPH 08/03/11 - Aqueous



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
Date Reported: **08/09/2011**  
Work Order No.: **1107-00128**

Data Authorized By: \_\_\_\_\_

GZA GeoEnvironmental, Inc. has NELAC validation for the following methods:

Wastewater: Methods 624,625,245.1,150.2,120.1, 200.7 (PP13, RCRA 8, and Fe, Mg, Mn, Al, Cr+6, V, Co, Mo, Sn, Ti).

Aqueous: Methods 8260B, 8270D, 8081B, 8082A, 7470, 150.2, 120.1, 1311, 6010C (PP13, RCRA 8, and Fe, Mg, Mn, Al, Cr+6, V, Co, Mo, Sn, Ti), 300.0 (Cl, Fl, SO4, NO3, NO2, Ophos), MA DEP EPH/VPH.

Soil: Methods 8260B, 8270D, 8081B, 8082A, 7471B, 9045, 1311, 6010C (PP13, RCRA8, and Fe, Mg, Mn, Al, V, Co, Mo, Sn, Ca), MA DEP VPH/EPH.

Abbreviations:

- % R = % Recovery
- DF = Dilution Factor
- DFS = Dilution Factor Solids
- CF = Calculation Factor
- DO = Diluted Out

Method Key:

- Method 8260: The current version of the method is 8260B.
- Method 8270: The current version of the method is 8270D.
- Method 6010: The current version of the method is 6010C.
- Method 8081: The current version of the method is 8081B.
- Method 8082: The current version of the method is 8082A.
- Method 7471: The current version of the method is 7471B.

The current Metals preparation methods are: 3010A (aqueous) and 3051 (solid).

Please note that the laboratory signed copy of the chain of custody record is an integral part of the data report.

The laboratory report shall not be reproduced except in full without the written consent of the laboratory.

Soil data is reported on a dry weight basis unless otherwise specified.

Matrix Spike / Matrix Spike Duplicate sets are performed as per method and are reported at the end of the analytical report if assigned on the Chain of Custody.



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-333D**

Sample No.: **001**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<250	250	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<25	25	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<250	250	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<250	250	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Benzene	EPA 8260	1600	25	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<250	250	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<250	250	ug/L	MQS	07/29/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-333D**

Sample No.: **001**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	980	25	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	93	50	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	340	25	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	80	25	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	35	25	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	430	25	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	3000	50	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	102	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	116	70-130	% R	MQS	07/29/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-333D**

Sample No.: **001**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	98.8	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	25		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/03/2011
Naphthalene	EPA 8270	980	20	ug/L	CMG	08/03/2011
2-Methylnaphthalene	EPA 8270	46	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	39	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	14	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	13	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	2.7	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	37.5	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	38.1	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	41.3	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/02/2011
Hydrocarbon Content		2000	200	ug/L	RJD	08/02/2011
Surrogate:						
***p-Terphenyl		46.8	40-130	% R	RJD	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	1.1	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM-4500CN-C E	0.02	0.01	mg/L	XXX	08/03/2011
RI Excel Deliverables						
GB Groundwater Objective	Excel Deliverable					



ANALYTICAL REPORT

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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-310S**  
 Sample Date: **07/27/2011**

Sample No.: **002**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon disulfide	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl tert-butyl ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone (MEK)	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-pentanone (MIBK)	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-310S**

Sample No.: **002**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	109	70-130	% R	MQS	07/29/2011



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Date Received: **07/28/2011**  
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 Work Order No.: **1107-00128**

Sample ID: **MW-310S**

Sample No.: **002**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***Toluene-D8	EPA 8260	113	70-130	% R	MQS	07/29/2011
***4-Bromofluorobenzene	EPA 8260	101	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	36.5	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	36.5	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	33.5	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	07/29/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/02/2011
Hydrocarbon Content		<200	200	ug/L	RJD	08/02/2011
Surrogate:						
***p-Terphenyl		47.4	40-130	% R	RJD	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.06	0.01	mg/L	XXX	07/29/2011
Dissolved Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/03/2011





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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-310D**

Sample No.: **003**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<50	50	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Benzene	EPA 8260	650	50	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Toluene	EPA 8260	190	50	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011



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 Work Order No.: **1107-00128**

Sample ID: **MW-310D**

Sample No.: **003**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	920	50	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	670	100	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	660	50	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	92	50	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	170	50	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	640	50	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	6800	100	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	102	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/29/2011





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 Work Order No.: **1107-00128**

Sample ID: **MW-310D**  
 Sample Date: **07/27/2011**

Sample No.: **003**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	98.9	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	50		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/05/2011
Naphthalene	EPA 8270	2500 D	40	ug/L	CMG	08/05/2011
2-Methylnaphthalene	EPA 8270	200 D	10	ug/L	CMG	08/05/2011
Acenaphthylene	EPA 8270	23	2.0	ug/L	CMG	08/03/2011
Acenaphthene	EPA 8270	54	2.0	ug/L	CMG	08/03/2011
Fluorene	EPA 8270	18	2.0	ug/L	CMG	08/03/2011
Phenanthrene	EPA 8270	12	2.0	ug/L	CMG	08/03/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/03/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	43.3	30-130	% R	CMG	08/03/2011
***2-Fluorobiphenyl	EPA 8270	42.5	30-130	% R	CMG	08/03/2011
***P-Terphenyl-D14	EPA 8270	43.4	30-130	% R	CMG	08/03/2011
Extraction	EPA 3510C	1.0		DF	JCH	08/03/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/02/2011
Hydrocarbon Content		8700	200	ug/L	RJD	08/02/2011
Surrogate:						
***p-Terphenyl		43.3	40-130	% R	RJD	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.12	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	0.15*	0.01	mg/l	XXX	08/03/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-333S**

Sample No.: **004**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	39	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	2.6	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-333S**

Sample No.: **004**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	130	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	4.8	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	24	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	5.0	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	1.5	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	9.7	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	42	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	97.2	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	111	70-130	% R	MQS	07/29/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-333S**

Sample No.: **004**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	98.2	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	13	2.0	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	36.0	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	33.6	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	30.0	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/02/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/02/2011
Hydrocarbon Content		320	200	ug/L	RJD	08/02/2011
Surrogate:						
***p-Terphenyl		44.0	40-130	% R	RJD	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.15	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.01	0.01	mg/l	XXX	08/03/2011



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Date Received: **07/28/2011**  
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 Work Order No.: **1107-00128**

Sample ID: **MW-326S**

Sample No.: **005**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	470	5.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<50	50	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	6.0	5.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<50	50	ug/L	MQS	07/29/2011





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Date Received: **07/28/2011**  
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Sample ID: **MW-326S**

Sample No.: **005**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	300	5.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	21	10	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	160	5.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	51	5.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	18	5.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	22	5.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	140	5.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	130	10	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	103	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	114	70-130	% R	MQS	07/29/2011



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Sample ID: **MW-326S**

Sample No.: **005**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	99.1	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	5.0		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	26	2.0	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	17	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	25	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	4.3	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	31.5	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	28.9	* 30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	31.5	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/02/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/02/2011
Hydrocarbon Content		2300	200	ug/L	RJD	08/02/2011
Surrogate:						
***p-Terphenyl		52.5	40-130	% R	RJD	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/01/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.49	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/03/2011





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 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-326D**

Sample No.: **006**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	57	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-326D**

Sample No.: **006**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	17	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	2.9	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	3.8	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	1.4	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	2.7	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	52	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	103	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	111	70-130	% R	MQS	07/29/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-326D**  
 Sample Date: **07/27/2011**

Sample No.: **006**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	99.2	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	20	2.0	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	2.2	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	42.6	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	39.4	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	28.6	* 30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/02/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/03/2011
Hydrocarbon Content		270	200	ug/L	RJD	08/03/2011
Surrogate:						
***p-Terphenyl		42.5	40-130	% R	RJD	08/03/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.67	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.01	0.01	mg/l	XXX	08/03/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-208**  
 Sample Date: **07/27/2011**

Sample No.: **007**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-208**  
 Sample Date: **07/27/2011**

Sample No.: **007**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	3.7	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	2.0	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	3.7	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	2.1	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	6.8	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	7.6	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	2.1	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	107	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	113	70-130	% R	MQS	07/29/2011



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 Work Order No.: **1107-00128**

Sample ID: **MW-208**  
 Sample Date: **07/27/2011**

Sample No.: **007**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	94.8	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/02/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	44.6	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	43.1	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	28.8	* 30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/02/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/03/2011
Hydrocarbon Content		310	200	ug/L	RJD	08/03/2011
Surrogate:						
***p-Terphenyl		42.2	40-130	% R	RJD	08/03/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.03	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/03/2011





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Date Received: **07/28/2011**  
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 Work Order No.: **1107-00128**

Sample ID: **MW-339D**  
 Sample Date: **07/27/2011**

Sample No.: **008**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<250	250	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<25	25	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<250	250	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<250	250	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Benzene	EPA 8260	36	25	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<250	250	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Toluene	EPA 8260	41	25	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<250	250	ug/L	MQS	07/29/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-339D**

Sample No.: **008**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	240	25	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	470	50	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	380	25	ug/L	MQS	07/29/2011
Styrene	EPA 8260	44	25	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	46	25	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	34	25	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	110	25	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	410	25	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	2700	50	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<25	25	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	96.0	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/29/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-339D**  
 Sample Date: **07/27/2011**

Sample No.: **008**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	102	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	25		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/03/2011
Naphthalene	EPA 8270	1100	40	ug/L	CMG	08/03/2011
2-Methylnaphthalene	EPA 8270	230	10	ug/L	CMG	08/03/2011
Acenaphthylene	EPA 8270	69	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	52	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	24	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	23	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	2.9	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	50.2	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	49.4	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	41.1	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/02/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/03/2011
Hydrocarbon Content		5400	200	ug/L	RJD	08/03/2011
Surrogate:						
***p-Terphenyl		49.2	40-130	% R	RJD	08/03/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.13	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.01	0.01	mg/l	XXX	08/03/2011



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 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-339S**  
 Sample Date: **07/27/2011**

Sample No.: **009**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<50	50	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<50	50	ug/L	MQS	07/29/2011



ANALYTICAL REPORT

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Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-339S**

Sample No.: **009**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	6.8	5.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	20	5.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	760	10	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<5.0	5.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	105	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	110	70-130	% R	MQS	07/29/2011



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Project Name.: **Former Tidewater Facility**  
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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-339S**

Sample No.: **009**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	98.6	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	5.0		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/03/2011
Naphthalene	EPA 8270	350	10	ug/L	CMG	08/03/2011
2-Methylnaphthalene	EPA 8270	75	2.0	ug/L	CMG	08/02/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluorene	EPA 8270	2.9	2.0	ug/L	CMG	08/02/2011
Phenanthrene	EPA 8270	5.0	2.0	ug/L	CMG	08/02/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/02/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	55.6	30-130	% R	CMG	08/02/2011
***2-Fluorobiphenyl	EPA 8270	51.8	30-130	% R	CMG	08/02/2011
***P-Terphenyl-D14	EPA 8270	44.2	30-130	% R	CMG	08/02/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/02/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/03/2011
Hydrocarbon Content		1100	200	ug/L	RJD	08/03/2011
Surrogate:						
***p-Terphenyl		56.3	40-130	% R	RJD	08/03/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.44	0.01	mg/L	XXX	07/29/2011
Dissolved Free Cyanide	SM 4500CN C E	0.08	0.01	mg/l	XXX	08/03/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-201**  
 Sample Date: **07/27/2011**

Sample No.: **010**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	50	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011





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 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-201**  
 Sample Date: **07/27/2011**

Sample No.: **010**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	35	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	5.3	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	17	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	15	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	4.7	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	2.1	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	5.6	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	10	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	106	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	112	70-130	% R	MQS	07/29/2011





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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-201**  
 Sample Date: **07/27/2011**

Sample No.: **010**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	96.3	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/04/2011
Naphthalene	EPA 8270	3.6	2.0	ug/L	CMG	08/04/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	2.2	2.0	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	4.4	2.0	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	3.8	2.0	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	17.2	* 30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	15.9	* 30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	17.6	* 30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	JCH	08/03/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/04/2011
Hydrocarbon Content		600	200	ug/L	RJD	08/04/2011
Surrogate:						
***p-Terphenyl		49.4	40-130	% R	RJD	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	4.0	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.13	0.01	mg/l	XXX	08/03/2011



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Date Received: **07/28/2011**  
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 Work Order No.: **1107-00128**

Sample ID: **MW-312S**

Sample No.: **011**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<50	50	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Benzene	EPA 8260	130	50	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011



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Sample ID: **MW-312S**

Sample No.: **011**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	1100	50	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<100	100	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	240	50	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	53	50	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	63	50	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	260	50	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	4300	100	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	104	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	110	70-130	% R	MQS	07/29/2011



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 Work Order No.: **1107-00128**

Sample ID: **MW-312S**

Sample No.: **011**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	100	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	50		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/04/2011
Naphthalene	EPA 8270	3000	20	ug/L	CMG	08/04/2011
2-Methylnaphthalene	EPA 8270	1000	20	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	160	20	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	1400	20	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	850	20	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	1800	20	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	570	20	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	610	20	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	860	20	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	300	20	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	260	20	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	160	20	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	53	20	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	190	20	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	68	20	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	26	20	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	86	20	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	27.0	* 30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	24.1	* 30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	25.7	* 30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	JCH	08/03/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/04/2011
Hydrocarbon Content		48000	200	ug/L	RJD	08/04/2011
Surrogate:						
***p-Terphenyl		71.7	40-130	% R	RJD	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.33	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.04	0.01	mg/l	XXX	08/03/2011



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Date Received: **07/28/2011**  
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 Work Order No.: **1107-00128**

Sample ID: **MW-312D**  
 Sample Date: **07/27/2011**

Sample No.: **012**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<50	50	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Benzene	EPA 8260	2800	50	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-312D**

Sample No.: **012**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	1500	50	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<100	100	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	410	50	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	85	50	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	420	50	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	5300	100	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	107	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	113	70-130	% R	MQS	07/29/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-312D**

Sample No.: **012**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	100	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	50		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/05/2011
Naphthalene	EPA 8270	900	D 20	ug/L	CMG	08/05/2011
2-Methylnaphthalene	EPA 8270	91	2.0	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	51	2.0	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	19	2.0	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	18	2.0	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	3.5	2.0	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	2.4	2.0	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	3.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	36.6	30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	35.8	30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	35.8	30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	JCH	08/03/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/04/2011
Hydrocarbon Content		6500	200	ug/L	RJD	08/04/2011
Surrogate:						
***p-Terphenyl		53.4	40-130	% R	RJD	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.74	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.02	0.01	mg/l	XXX	08/03/2011





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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **BD#1**

Sample No.: **013**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<20	20	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<20	20	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<20	20	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<20	20	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<20	20	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<10	10	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<100	100	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Benzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<100	100	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<20	20	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<100	100	ug/L	MQS	07/29/2011



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Sample ID: **BD#1**

Sample No.: **013**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<20	20	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<20	20	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<20	20	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	18	10	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<20	20	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	760	20	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<10	10	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	108	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	115	70-130	% R	MQS	07/29/2011



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 Work Order No.: **1107-00128**

Sample ID: **BD#1**

Sample No.: **013**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	100	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	10		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/05/2011
Naphthalene	EPA 8270	220	D 10	ug/L	CMG	08/05/2011
2-Methylnaphthalene	EPA 8270	53	2.0	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	4.1	2.0	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	39.8	30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	36.2	30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	36.4	30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	JCH	08/03/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/04/2011
Hydrocarbon Content		1000	200	ug/L	RJD	08/04/2011
Surrogate:						
***p-Terphenyl		58.1	40-130	% R	RJD	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.41	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.05	0.01	mg/l	XXX	08/03/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **BD#2**  
 Sample Date: **07/27/2011**

Sample No.: **014**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<50	50	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<500	500	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Benzene	EPA 8260	2700	50	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<500	500	ug/L	MQS	07/29/2011



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Sample ID: **BD#2**

Sample No.: **014**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	1600	50	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<100	100	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	420	50	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<100	100	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	87	50	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	430	50	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<100	100	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	5200	100	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<50	50	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	98.8	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	109	70-130	% R	MQS	07/29/2011



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **BD#2**  
 Sample Date: **07/27/2011**

Sample No.: **014**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	102	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	50		CF	MQS	07/29/2011
PAHS BY GCMS	EPA 8270				CMG	08/04/2011
Naphthalene	EPA 8270	460	2.0	ug/L	CMG	08/04/2011
2-Methylnaphthalene	EPA 8270	80	2.0	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	45	2.0	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	12	2.0	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	14	2.0	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	2.6	2.0	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	30.7	30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	29.8	* 30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	26.6	* 30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	JCH	08/03/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/04/2011
Hydrocarbon Content		8100	200	ug/L	RJD	08/04/2011
Surrogate:						
***p-Terphenyl		54.8	40-130	% R	RJD	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/03/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.68	0.01	mg/L	XXX	08/02/2011
Dissolved Free Cyanide	SM 4500CN C E	0.02	0.01	mg/l	XXX	08/03/2011





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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **Trip Blank 72811**

Sample No.: **015**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				MQS	07/29/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Acetone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Butanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	MQS	07/29/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Hexanone	EPA 8260	<10	10	ug/L	MQS	07/29/2011





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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **Trip Blank 72811**

Sample No.: **015**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	MQS	07/29/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	MQS	07/29/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	104	70-130	% R	MQS	07/29/2011
***Toluene-D8	EPA 8260	111	70-130	% R	MQS	07/29/2011



ANALYTICAL REPORT

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530 Broadway  
Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**

Date Received: **07/28/2011**

Project No.: **05.0043654.00**

Date Reported: **08/09/2011**

Work Order No.: **1107-00128**

Sample ID: **Trip Blank 72811**

Sample No.: **015**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	101	70-130	% R	MQS	07/29/2011
Preparation	EPA 5030B	1.0		CF	MQS	07/29/2011



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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-201 RE**

Sample No.: **016**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
PAHS BY GCMS	EPA 8270				CMG	08/04/2011
Naphthalene	EPA 8270	4.2	2.0	ug/L	CMG	08/04/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	5.3	2.0	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	11	2.0	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	8.6	2.0	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	40.8	30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	39.7	30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	41.9	30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/04/2011



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Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **MW-312S RE**

Sample No.: **017**

Sample Date: **07/27/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
PAHS BY GCMS	EPA 8270				CMG	08/05/2011
Naphthalene	EPA 8270	10000	200	ug/L	CMG	08/05/2011
2-Methylnaphthalene	EPA 8270	3100	200	ug/L	CMG	08/05/2011
Acenaphthylene	EPA 8270	400	200	ug/L	CMG	08/05/2011
Acenaphthene	EPA 8270	3900	200	ug/L	CMG	08/05/2011
Fluorene	EPA 8270	2000	200	ug/L	CMG	08/05/2011
Phenanthrene	EPA 8270	5600	200	ug/L	CMG	08/05/2011
Anthracene	EPA 8270	1700	200	ug/L	CMG	08/05/2011
Fluoranthene	EPA 8270	1800	200	ug/L	CMG	08/05/2011
Pyrene	EPA 8270	2500	200	ug/L	CMG	08/05/2011
Benzo [a] Anthracene	EPA 8270	800	200	ug/L	CMG	08/05/2011
Chrysene	EPA 8270	640	200	ug/L	CMG	08/05/2011
Benzo [b] Fluoranthene	EPA 8270	410	200	ug/L	CMG	08/05/2011
Benzo [k] Fluoranthene	EPA 8270	<200	200	ug/L	CMG	08/05/2011
Benzo [a] Pyrene	EPA 8270	450	200	ug/L	CMG	08/05/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<200	200	ug/L	CMG	08/05/2011
Dibenzo [a,h] Anthracene	EPA 8270	<200	200	ug/L	CMG	08/05/2011
Benzo [g,h,i] Perylene	EPA 8270	<200	200	ug/L	CMG	08/05/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	31.9	30-130	% R	CMG	08/05/2011
***2-Fluorobiphenyl	EPA 8270	78.3	30-130	% R	CMG	08/05/2011
***P-Terphenyl-D14	EPA 8270	76.2	30-130	% R	CMG	08/05/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/04/2011



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 Project No.: **05.0043654.00**

Date Received: **07/28/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00128**

Sample ID: **BD#2 RE**  
 Sample Date: **07/27/2011**

Sample No.: **018**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
PAHS BY GCMS	EPA 8270				CMG	08/06/2011
Naphthalene	EPA 8270	3000	D 100	ug/L	CMG	08/06/2011
2-Methylnaphthalene	EPA 8270	190	20	ug/L	CMG	08/06/2011
Acenaphthylene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Acenaphthene	EPA 8270	88	20	ug/L	CMG	08/06/2011
Fluorene	EPA 8270	27	20	ug/L	CMG	08/06/2011
Phenanthrene	EPA 8270	29	20	ug/L	CMG	08/06/2011
Anthracene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Fluoranthene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Pyrene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Benzo [a] Anthracene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Chrysene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Benzo [b] Fluoranthene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Benzo [k] Fluoranthene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Benzo [a] Pyrene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Dibenzo [a,h] Anthracene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Benzo [g,h,i] Perylene	EPA 8270	<20	20	ug/L	CMG	08/06/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	57.6	30-130	% R	CMG	08/06/2011
***2-Fluorobiphenyl	EPA 8270	61.1	30-130	% R	CMG	08/06/2011
***P-Terphenyl-D14	EPA 8270	68.0	30-130	% R	CMG	08/06/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/04/2011

EPA Method 8260 / 524.2 Aqueous Method Blank (MB) and Laboratory Control Sample/Duplicate (LCS/LCSD) Data

Method Blank

Date Analyzed:	7/29/2011	
Volatile Organics	Conc. ug/L	Acceptance Limit
dichlorodifluoromethane	< 1.0	< 1.0
chloromethane	< 1.0	< 1.0
vinyl chloride	< 0.5	< 0.5
bromomethane	< 1.0	< 1.0
chloroethane	< 0.5	< 0.5
trichlorofluoromethane	< 1.0	< 1.0
diethyl ether	< 2.5	< 2.5
acetone	< 10	< 10
1,1-dichloroethene	< 0.5	< 0.5
carbon disulfide	< 5.0	< 5.0
dichloromethane	< 1.0	< 1.0
methyl-tert-butyl-ether	< 0.5	< 0.5
trans-1,2-dichloroethene	< 0.5	< 0.5
1,1-dichloroethane	< 0.5	< 0.5
2-butanone	< 10	< 10
2,2-dichloropropane	< 0.5	< 0.5
cis-1,2-dichloroethene	< 0.5	< 0.5
chloroform	< 0.5	< 0.5
bromochloromethane	< 0.5	< 0.5
tetrahydrofuran	< 5.0	< 5.0
1,1,1-trichloroethane	< 0.5	< 0.5
1,1-dichloropropene	< 0.5	< 0.5
carbon tetrachloride	< 0.5	< 0.5
1,2-dichloroethane	< 0.5	< 0.5
benzene	< 0.5	< 0.5
trichloroethene	< 0.5	< 0.5
1,2-dichloropropane	< 0.5	< 0.5
bromodichloromethane	< 0.5	< 0.5
1,1,1,2-tetrachloroethane	< 0.5	< 0.5
4-methyl-2-pentanone	< 10	< 10
cis-1,3-dichloropropene	< 0.5	< 0.5
toluene	< 0.5	< 0.5
trans-1,3-dichloropropene	< 1.0	< 1.0
1,1,2-trichloroethane	< 0.5	< 0.5
2-hexanone	< 10	< 10
1,3-dichloropropane	< 0.5	< 0.5
tetrachloroethene	< 0.5	< 0.5
dibromochloromethane	< 0.5	< 0.5
1,2-dibromoethane (EDB)	< 1.0	< 1.0
chlorobenzene	< 0.5	< 0.5
1,1,1,2-tetrachloroethane	< 0.5	< 0.5
ethylbenzene	< 0.5	< 0.5
1,1,2,2-tetrachloroethane	< 0.5	< 0.5
m&p-xylene	< 1.0	< 1.0
o-xylene	< 0.5	< 0.5
styrene	< 0.5	< 0.5
bromofrom	< 1.0	< 1.0
isopropylbenzene	< 0.5	< 0.5
1,2,3-trichloropropane	< 0.5	< 0.5
bromobenzene	< 0.5	< 0.5
n-propylbenzene	< 0.5	< 0.5
2-chlorotoluene	< 0.5	< 0.5
1,3,5-trimethylbenzene	< 0.5	< 0.5
4-chlorotoluene	< 0.5	< 0.5
tert-butyl-benzene	< 0.5	< 0.5
1,2,4-trimethylbenzene	< 0.5	< 0.5
sec-butyl-benzene	< 0.5	< 0.5
p-isopropyltoluene	< 0.5	< 0.5
1,3-dichlorobenzene	< 0.5	< 0.5
1,4-dichlorobenzene	< 0.5	< 0.5
n-butylbenzene	< 0.5	< 0.5
1,2-dichlorobenzene	< 0.5	< 0.5
1,2-dibromo-3-chloropropane	< 2.5	< 2.5
1,2,4-trichlorobenzene	< 0.5	< 0.5
hexachlorobutadiene	< 0.5	< 0.5
naphthalene	< 1.0	< 1.0

Laboratory Control Sample

Date Analyzed:	7/29/2011	
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits
dichlorodifluoromethane	101	70-130
chloromethane	115	70-130
vinyl chloride	97.8	80-120
bromomethane	96.6	70-130
chloroethane	98.7	70-130
trichlorofluoromethane	87.2	70-130
diethyl ether	92.8	70-130
acetone	85.3	70-130
1,1-dichloroethene	93.8	80-120
carbon disulfide	91.9	70-130
dichloromethane	96.1	70-130
methyl-tert-butyl-ether	92.5	70-130
trans-1,2-dichloroethene	97.5	70-130
1,1-dichloroethane	97.2	70-130
2-butanone	96.4	70-130
2,2-dichloropropane	99.1	70-130
cis-1,2-dichloroethene	100	70-130
chloroform	93.5	80-120
bromochloromethane	98.9	70-130
tetrahydrofuran	110	70-130
1,1,1-trichloroethane	88.5	70-130
1,1-dichloropropene	96.1	70-130
carbon tetrachloride	91.0	70-130
1,2-dichloroethane	92.1	70-130
benzene	101	70-130
trichloroethene	99.0	70-130
1,2-dichloropropane	108	80-120
bromodichloromethane	94.3	70-130
1,1,1,2-tetrachloroethane	98.6	70-130
4-methyl-2-pentanone	102	70-130
cis-1,3-dichloropropene	104	70-130
toluene	103	80-120
trans-1,3-dichloropropene	98.9	70-130
1,1,2-trichloroethane	95.0	70-130
2-hexanone	97.5	70-130
1,3-dichloropropane	95.0	70-130
tetrachloroethene	90.1	70-130
dibromochloromethane	94.5	70-130
1,2-dibromoethane (EDB)	95.2	70-130
chlorobenzene	96.1	70-130
1,1,1,2-tetrachloroethane	92.1	70-130
ethylbenzene	95.9	80-120
1,1,2,2-tetrachloroethane	96.9	70-130
m&p-xylene	91.1	70-130
o-xylene	99.7	70-130
styrene	103	70-130
bromofrom	100	70-130
isopropylbenzene	103	70-130
1,2,3-trichloropropane	96.7	70-130
bromobenzene	100	70-130
n-propylbenzene	103	70-130
2-chlorotoluene	96.6	70-130
1,3,5-trimethylbenzene	99.4	70-130
4-chlorotoluene	97.3	70-130
tert-butyl-benzene	99.9	70-130
1,2,4-trimethylbenzene	99.1	70-130
sec-butyl-benzene	104	70-130
p-isopropyltoluene	100	70-130
1,3-dichlorobenzene	101	70-130
1,4-dichlorobenzene	101	70-130
n-butylbenzene	103	70-130
1,2-dichlorobenzene	99.4	70-130
1,2-dibromo-3-chloropropane	101	70-130
1,2,4-trichlorobenzene	105	70-130
hexachlorobutadiene	95.4	70-130
naphthalene	103	70-130

Laboratory Control Sample Duplicate

Date Analyzed:	7/29/2011					
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict	RPD	Limit	Verdict
dichlorodifluoromethane	103	70-130	ok	2.68	<25	ok
chloromethane	119	70-130	ok	3.15	<25	ok
vinyl chloride	98.9	70-130	ok	1.16	<25	ok
bromomethane	99.0	70-130	ok	2.52	<25	ok
chloroethane	97.6	70-130	ok	1.08	<25	ok
trichlorofluoromethane	89.8	70-130	ok	2.85	<25	ok
diethyl ether	97.4	70-130	ok	4.82	<25	ok
acetone	87.4	70-130	ok	2.45	<25	ok
1,1-dichloroethene	96.4	70-130	ok	2.79	<25	ok
carbon disulfide	96.7	70-130	ok	5.14	<25	ok
dichloromethane	98.8	70-130	ok	2.75	<25	ok
methyl-tert-butyl-ether	97.5	70-130	ok	5.32	<25	ok
trans-1,2-dichloroethene	102	70-130	ok	4.07	<25	ok
1,1-dichloroethane	99.8	70-130	ok	2.64	<25	ok
2-butanone	103	70-130	ok	6.38	<25	ok
2,2-dichloropropane	99.8	70-130	ok	0.70	<25	ok
cis-1,2-dichloroethene	104	70-130	ok	3.84	<25	ok
chloroform	95.2	70-130	ok	1.83	<25	ok
bromochloromethane	104	70-130	ok	5.08	<25	ok
tetrahydrofuran	116	70-130	ok	5.57	<25	ok
1,1,1-trichloroethane	94.5	70-130	ok	6.57	<25	ok
1,1-dichloropropene	102	70-130	ok	5.64	<25	ok
carbon tetrachloride	95.5	70-130	ok	4.84	<25	ok
1,2-dichloroethane	93.1	70-130	ok	1.07	<25	ok
benzene	106	70-130	ok	5.12	<25	ok
trichloroethene	103	70-130	ok	3.50	<25	ok
1,2-dichloropropane	110	70-130	ok	1.51	<25	ok
bromodichloromethane	97.2	70-130	ok	3.02	<25	ok
1,1,1,2-tetrachloroethane	102	70-130	ok	3.62	<25	ok
4-methyl-2-pentanone	107	70-130	ok	5.14	<25	ok
cis-1,3-dichloropropene	108	70-130	ok	3.42	<25	ok
toluene	106	70-130	ok	2.98	<25	ok
trans-1,3-dichloropropene	102	70-130	ok	3.03	<25	ok
1,1,2-trichloroethane	94.3	70-130	ok	0.74	<25	ok
2-hexanone	100	70-130	ok	2.59	<25	ok
1,3-dichloropropane	94.1	70-130	ok	1.03	<25	ok
tetrachloroethene	90.3	70-130	ok	0.26	<25	ok
dibromochloromethane	96.6	70-130	ok	2.21	<25	ok
1,2-dibromoethane (EDB)	98.3	70-130	ok	3.14	<25	ok
chlorobenzene	96.9	70-130	ok	0.85	<25	ok
1,1,1,2-tetrachloroethane	91.5	70-130	ok	0.63	<25	ok
ethylbenzene	98.6	70-130	ok	2.71	<25	ok
1,1,2,2-tetrachloroethane	96.9	70-130	ok	0.07	<25	ok
m&p-xylene	91.8	70-130	ok	0.77	<25	ok
o-xylene	99.2	70-130	ok	0.48	<25	ok
styrene	102	70-130	ok	0.19	<25	ok
bromofrom	99.6	70-130	ok	0.84	<25	ok
isopropylbenzene	102	70-130	ok	0.87	<25	ok
1,2,3-trichloropropane	97.3	70-130	ok	0.69	<25	ok
bromobenzene	99.7	70-130	ok	0.35	<25	ok
n-propylbenzene	101	70-130	ok	1.05	<25	ok
2-chlorotoluene	99.9	70-130	ok	3.37	<25	ok
1,3,5-trimethylbenzene	100	70-130	ok	0.83	<25	ok
4-chlorotoluene	98.1	70-130	ok	0.83	<25	ok
tert-butyl-benzene	98.8	70-130	ok	1.04	<25	ok
1,2,4-trimethylbenzene	99.1	70-130	ok	0.05	<25	ok
sec-butyl-benzene	103	70-130	ok	0.89	<25	ok
p-isopropyltoluene	100	70-130	ok	0.17	<25	ok
1,3-dichlorobenzene	99.1	70-130	ok	2.27	<25	ok
1,4-dichlorobenzene	99.1	70-130	ok	1.57	<25	ok
n-butylbenzene	102	70-130	ok	0.68	<25	ok
1,2-dichlorobenzene	102	70-130	ok	2.51	<25	ok
1,2-dibromo-3-chloropropane	104	70-130	ok	3.16	<25	ok
1,2,4-trichlorobenzene	105	70-130	ok	0.05	<25	ok
hexachlorobutadiene	96.4	70-130	ok	1.11	<25	ok
naphthalene	104	70-130	ok	0.96	<25	ok

Surrogates:	Recovery (%)	Acceptance Limits	Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	RPD	Acceptance Limits	Verdict
DIBROMOFLUOROMETHANE	108	70-130	DIBROMOFLUOROMETHANE	105	70-130	ok	108	70-130	ok	3.15	<25	ok
1,2-DICHLOROETHANE-D4	112	70-130	1,2-DICHLOROETHANE-D4	106	70-130	ok	107	70-130	ok	0.51	<25	ok
TOLUENE-D8	112	70-130	TOLUENE-D8	106	70-130	ok	112	70-130	ok	5.66	<25	ok
4-BROMOFLUOROBENZENE	98.0	70-130	4-BROMOFLUOROBENZENE	103	70-130	ok	100	70-130	ok	2.94	<25	ok
1,2-DICHLOROBENZENE-D4	105	70-130	1,2-DICHLOROBENZENE-D4	111	70-130	ok	111	70-130	ok	0.34	<25	ok

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Method Blank**

<b>Date Extracted:</b>	<b>08/03/11</b>	
<b>Date Analyzed:</b>	<b>08/03/11</b>	
<b>File Name:</b>	<b>M9124</b>	
<b>Semi-Volatile Organics</b>	<b>Result</b>	<b>(ug/L)</b>
naphthalene	ND	2.0
2-methylnaphthalene	ND	2.0
acenaphthylene	ND	2.0
acenaphthene	ND	2.0
fluorene	ND	2.0
phenanthrene	ND	2.0
anthracene	ND	2.0
fluoranthene	ND	2.0
pyrene	ND	2.0
benz [a] anthracene	ND	2.0
chrysene	ND	2.0
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0

<b>Surrogates:</b>	<b>Recovery (%)</b>	<b>Acceptance Limits</b>
NITROBENZENE-D5	60.5	30-130
2-FLUOROBIPHENYL	58.7	30-130
p-TERPHENYL-D14	68.8	30-130



EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

Date Extracted:	08/03/11	Date Analyzed:	08/03/11	File Name:	M9125				
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict	% Recovery	Acceptance Limits	Verdict	% Diff	Limits	Verdict
naphthalene	67.3	40-140	ok	64.6	40-140	ok	4.1	<20	ok
2-methylnaphthalene	67.0	40-140	ok	56.5	40-140	ok	17	<20	ok
acenaphthylene	71.8	40-140	ok	63.3	40-140	ok	13	<20	ok
acenaphthene	70.7	40-140	ok	63.6	30-130	ok	10	<20	ok
fluorene	73.6	40-140	ok	68.7	40-140	ok	6.8	<20	ok
phenanthrene	75.2	40-140	ok	70.6	40-140	ok	6.3	<20	ok
anthracene	75.4	40-140	ok	68.9	40-140	ok	9.0	<20	ok
fluoranthene	78.5	40-140	ok	71.5	40-140	ok	9.3	<20	ok
pyrene	81.4	40-140	ok	73.4	40-140	ok	10	<20	ok
benz [a] anthracene	73.8	40-140	ok	67.7	40-140	ok	8.6	<20	ok
chrysene	76.7	40-140	ok	73.9	40-140	ok	3.8	<20	ok
benzo [b] fluoranthene	77.1	40-140	ok	78.2	40-140	ok	1.4	<20	ok
benzo [k] fluoranthene	76.8	40-140	ok	65.1	40-140	ok	16	<20	ok
benzo [a] pyrene	79.6	40-140	ok	72.9	40-140	ok	8.9	<20	ok
indeno [1,2,3-cd] pyrene	75.5	40-140	ok	68.9	40-140	ok	9.2	<20	ok
dibenz [a,h] anthracene	77.3	40-140	ok	70.6	40-141	ok	9.1	<20	ok
benzo [ghi] perylene	73.9	40-140	ok	68.3	40-142	ok	7.8	<20	ok

Laboratory Control Sample Duplicate

Date Extracted:	08/03/11	Date Analyzed:	08/03/11	File Name:	M9126				
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict	% Recovery	Acceptance Limits	Verdict	% Diff	Limits	Verdict
naphthalene	67.3	40-140	ok	64.6	40-140	ok	4.1	<20	ok
2-methylnaphthalene	67.0	40-140	ok	56.5	40-140	ok	17	<20	ok
acenaphthylene	71.8	40-140	ok	63.3	40-140	ok	13	<20	ok
acenaphthene	70.7	40-140	ok	63.6	30-130	ok	10	<20	ok
fluorene	73.6	40-140	ok	68.7	40-140	ok	6.8	<20	ok
phenanthrene	75.2	40-140	ok	70.6	40-140	ok	6.3	<20	ok
anthracene	75.4	40-140	ok	68.9	40-140	ok	9.0	<20	ok
fluoranthene	78.5	40-140	ok	71.5	40-140	ok	9.3	<20	ok
pyrene	81.4	40-140	ok	73.4	40-140	ok	10	<20	ok
benz [a] anthracene	73.8	40-140	ok	67.7	40-140	ok	8.6	<20	ok
chrysene	76.7	40-140	ok	73.9	40-140	ok	3.8	<20	ok
benzo [b] fluoranthene	77.1	40-140	ok	78.2	40-140	ok	1.4	<20	ok
benzo [k] fluoranthene	76.8	40-140	ok	65.1	40-140	ok	16	<20	ok
benzo [a] pyrene	79.6	40-140	ok	72.9	40-140	ok	8.9	<20	ok
indeno [1,2,3-cd] pyrene	75.5	40-140	ok	68.9	40-140	ok	9.2	<20	ok
dibenz [a,h] anthracene	77.3	40-140	ok	70.6	40-141	ok	9.1	<20	ok
benzo [ghi] perylene	73.9	40-140	ok	68.3	40-142	ok	7.8	<20	ok

CAM criteria allows 15% of analytes to exceed criteria.

Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	Relative % Diff.	Limits	Verdict
NITROBENZENE-D5	64.6	30-130	ok	59.9	30-130	ok	7.7	<20	ok
2-FLUOROBIPHENYL	67.2	30-130	ok	61.2	30-130	ok	9.4	<20	ok
p-TERPHENYL-D14	71.6	30-130	ok	68.8	30-130	ok	4.1	<20	ok

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Method Blank**

<b>Date Extracted:</b>	<b>08/01/11</b>	
<b>Date Analyzed:</b>	<b>08/02/11</b>	
<b>File Name:</b>	<b>M9095</b>	
<b>Semi-Volatile Organics</b>	<b>Result</b>	<b>(ug/L)</b>
naphthalene	ND	2.0
2-methylnaphthalene	ND	2.0
acenaphthylene	ND	2.0
acenaphthene	ND	2.0
fluorene	ND	2.0
phenanthrene	ND	2.0
anthracene	ND	2.0
fluoranthene	ND	2.0
pyrene	ND	2.0
benz [a] anthracene	ND	2.0
chrysene	ND	2.0
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0

<b>Surrogates:</b>	<b>Recovery (%)</b>	<b>Acceptance Limits</b>
NITROBENZENE-D5	52.3	30-130
2-FLUOROBIPHENYL	61.2	30-130
p-TERPHENYL-D14	71.1	30-130

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

Date Extracted:	08/01/11	Date Analyzed:	08/02/11	File Name:	M9096
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits	Verdict		
naphthalene	56.4	40-140	ok		
2-methylnaphthalene	56.3	40-140	ok		
acenaphthylene	60.6	40-140	ok		
acenaphthene	62.3	40-140	ok		
fluorene	66.8	40-140	ok		
phenanthrene	66.7	40-140	ok		
anthracene	68.8	40-140	ok		
fluoranthene	68.3	40-140	ok		
pyrene	70.0	40-140	ok		
benz [a] anthracene	64.3	40-140	ok		
chrysene	70.3	40-140	ok		
benzo [b] fluoranthene	73.9	40-140	ok		
benzo [k] fluoranthene	61.7	40-140	ok		
benzo [a] pyrene	70.1	40-140	ok		
indeno [1,2,3-cd] pyrene	70.1	40-140	ok		
dibenz [a,h] anthracene	70.4	40-140	ok		
benzo [ghi] perylene	68.1	40-140	ok		

Laboratory Control Sample Duplicate

Date Extracted:	08/01/11	Date Analyzed:	08/02/11	File Name:	M9097
% Recovery	Acceptance Limits	Verdict	% Diff	Limits	Verdict
61.8	40-140	ok	9.1	<20	ok
58.8	40-140	ok	4.5	<20	ok
61.8	40-140	ok	2.0	<20	ok
60.2	30-130	ok	3.4	<20	ok
66.2	40-140	ok	0.84	<20	ok
70.1	40-140	ok	4.9	<20	ok
69.5	40-140	ok	0.95	<20	ok
71.4	40-140	ok	4.4	<20	ok
73.5	40-140	ok	4.8	<20	ok
69.5	40-140	ok	7.7	<20	ok
72.2	40-140	ok	2.6	<20	ok
73.6	40-140	ok	0.31	<20	ok
68.6	40-140	ok	11	<20	ok
72.7	40-140	ok	3.7	<20	ok
73.0	40-140	ok	4.0	<20	ok
72.9	40-141	ok	3.5	<20	ok
70.7	40-142	ok	3.8	<20	ok

CAM criteria allows 15% of analytes to exceed criteria.

Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	Relative % Diff.	Limits	Verdict
NITROBENZENE-D5	60.5	30-130	ok	60.6	30-130	ok	0.25	<20	ok
2-FLUOROBIPHENYL	62.1	30-130	ok	62.5	30-130	ok	0.59	<20	ok
p-TERPHENYL-D14	67.0	30-130	ok	72.1	30-130	ok	7.3	<20	ok

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Method Blank**

<b>Date Extracted:</b>	<b>07/29/11</b>	
<b>Date Analyzed:</b>	<b>07/29/11</b>	
<b>File Name:</b>	<b>M9063</b>	
<b>Semi-Volatile Organics</b>	<b>Result</b>	<b>(ug/L)</b>
naphthalene	ND	2.0
2-methylnaphthalene	ND	2.0
acenaphthylene	ND	2.0
acenaphthene	ND	2.0
fluorene	ND	2.0
phenanthrene	ND	2.0
anthracene	ND	2.0
fluoranthene	ND	2.0
pyrene	ND	2.0
benz [a] anthracene	ND	2.0
chrysene	ND	2.0
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0

<b>Surrogates:</b>	<b>Recovery (%)</b>	<b>Acceptance Limits</b>
NITROBENZENE-D5	61.8	30-130
2-FLUOROBIPHENYL	64.6	30-130
p-TERPHENYL-D14	73.2	30-130

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

Date Extracted:	07/29/11	Date Analyzed:	07/29/11	File Name:	M9064	Spike Concentration = 20ug/L		% Recovery	Acceptance Limits	Verdict
naphthalene	66.6	40-140	ok							
2-methylnaphthalene	65.2	40-140	ok							
acenaphthylene	71.8	40-140	ok							
acenaphthene	70.6	40-140	ok							
fluorene	76.5	40-140	ok							
phenanthrene	75.8	40-140	ok							
anthracene	77.1	40-140	ok							
fluoranthene	77.9	40-140	ok							
pyrene	79.9	40-140	ok							
benz [a] anthracene	79.4	40-140	ok							
chrysene	75.3	40-140	ok							
benzo [b] fluoranthene	76.8	40-140	ok							
benzo [k] fluoranthene	69.8	40-140	ok							
benzo [a] pyrene	73.9	40-140	ok							
indeno [1,2,3-cd] pyrene	74.2	40-140	ok							
dibenz [a,h] anthracene	74.3	40-140	ok							
benzo [ghi] perylene	73.2	40-140	ok							

Laboratory Control Sample Duplicate

Date Extracted:	07/29/11	Date Analyzed:	07/29/11	File Name:	M9065	% Recovery	Acceptance Limits	Verdict	% Diff	Limits
56.2	40-140	ok	17	<20						
54.2	40-140	ok	18	<20						
59.7	40-140	ok	18	<20						
58.8	30-130	ok	18	<20						
62.9	40-140	ok	19	<20						
64.0	40-140	ok	17	<20						
64.3	40-140	ok	18	<20						
66.4	40-140	ok	16	<20						
68.5	40-140	ok	15	<20						
65.9	40-140	ok	19	<20						
66.2	40-140	ok	13	<20						
63.8	40-140	ok	18	<20						
62.0	40-140	ok	12	<20						
63.9	40-140	ok	15	<20						
64.2	40-140	ok	15	<20						
62.7	40-141	ok	17	<20						
63.4	40-142	ok	14	<20						

CAM criteria allows 15% of analytes to exceed criteria.

Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	Relative % Diff.	Limits
NITROBENZENE-D5	70.9	30-130	ok	59.5	30-130	ok	17	<20
2-FLUOROBIPHENYL	72.2	30-130	ok	60.0	30-130	ok	18	<20
p-TERPHENYL-D14	78.0	30-130	ok	67.3	30-130	ok	15	<20

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Verdict**

ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok  
ok

**Verdict**

ok  
ok  
ok

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Method Blank**

<b>Date Extracted:</b>	<b>08/04/11</b>	
<b>Date Analyzed:</b>	<b>8/4/2011</b>	
<b>File Name:</b>	<b>M9145</b>	
<b>Semi-Volatile Organics</b>	<b>Result</b>	<b>Reporting Limit</b>
naphthalene	ND	2.0
2-methylnaphthalene	ND	2.0
acenaphthylene	ND	2.0
acenaphthene	ND	2.0
fluorene	ND	2.0
phenanthrene	ND	2.0
anthracene	ND	2.0
fluoranthene	ND	2.0
pyrene	ND	2.0
benz [a] anthracene	ND	2.0
chrysene	ND	2.0
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0
<b>Surrogates:</b>	<b>Recovery (%)</b>	<b>Acceptance Limits</b>
NITROBENZENE-D5	70.4	30-130
2-FLUOROBIPHENYL	70.6	30-130
p-TERPHENYL-D14	80.7	30-130



EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

Date Extracted:	08/04/11		
Date Analyzed:	8/4/2011		
File Name:	M9146		
Spike Concentration = 20ug/L			
% Recovery	Acceptance Limits	Verdict	
naphthalene	70.3	40-140	ok
2-methylnaphthalene	67.0	40-140	ok
acenaphthylene	71.0	40-140	ok
acenaphthene	70.2	40-140	ok
fluorene	77.0	40-140	ok
phenanthrene	77.7	40-140	ok
anthracene	76.8	40-140	ok
fluoranthene	80.2	40-140	ok
pyrene	83.2	40-140	ok
benz [a] anthracene	78.2	40-140	ok
chrysene	81.9	40-140	ok
benzo [b] fluoranthene	78.7	40-140	ok
benzo [k] fluoranthene	77.3	40-140	ok
benzo [a] pyrene	79.2	40-140	ok
indeno [1,2,3-cd] pyrene	78.0	40-140	ok
dibenz [a,h] anthracene	79.3	40-140	ok
benzo [ghi] perylene	77.7	40-140	ok

Laboratory Control Sample Duplicate

Date Extracted:	08/04/11					
Date Analyzed:	8/4/2011					
File Name:	M9147					
% Recovery	Acceptance Limits	Verdict	Relative	Limits	Verdict	
naphthalene	61.7	40-140	ok	13	<20	ok
2-methylnaphthalene	60.4	40-140	ok	10	<20	ok
acenaphthylene	63.3	40-140	ok	11	<20	ok
acenaphthene	63.8	30-130	ok	9.5	<20	ok
fluorene	66.6	40-140	ok	15	<20	ok
phenanthrene	67.5	40-140	ok	14	<20	ok
anthracene	69.3	40-140	ok	10	<20	ok
fluoranthene	70.5	40-140	ok	13	<20	ok
pyrene	72.9	40-140	ok	13	<20	ok
benz [a] anthracene	71.5	40-140	ok	9.0	<20	ok
chrysene	71.4	40-140	ok	14	<20	ok
benzo [b] fluoranthene	74.3	40-140	ok	5.7	<20	ok
benzo [k] fluoranthene	64.4	40-140	ok	18	<20	ok
benzo [a] pyrene	70.4	40-140	ok	12	<20	ok
indeno [1,2,3-cd] pyrene	70.6	40-140	ok	10.0	<20	ok
dibenz [a,h] anthracene	69.3	40-141	ok	13	<20	ok
benzo [ghi] perylene	69.7	40-142	ok	11	<20	ok

Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	Relative % Diff.	Limits	Verdict
NITROBENZENE-D5	70.8	30-130	ok	65.6	30-130	ok	7.6	<20	ok
2-FLUOROBIPHENYL	70.4	30-130	ok	67.0	30-130	ok	4.9	<20	ok
p-TERPHENYL-D14	80.0	30-130	ok	74.3	30-130	ok	7.3	<20	ok

GZA GEOENVIRONMENTAL, INC.  
 ENVIRONMENTAL CHEMISTRY LABORATORY  
 106 SOUTH STREET, HOPKINTON, MA 01748 (508)435-9244  
 MASSACHUSETTS LABORATORY I.D. NO. MA092

**TPH**  
**TOTAL PETROLEUM HYDROCARBONS IN AQUEOUS AND/OR SOLID MATRIX**

**QUALITY CONTROL**

**EXT. DATE:                      8/1/11                      Aqueous**

<b>METHOD BLANK</b>	<b>AQUEOUS</b>	<b>SOLID</b>			
	ug/L-PPB	mg/kg - PPM			
TPH	<200	<10			
<b>Surrogate:</b>	<b>Recovery (%)</b>	<b>Limits-Aqueous</b>	<b>Limits-Solid</b>		
***p-Terphenyl	56.8	40-130	40-130		

<b>LABORATORY CONTROL SAMPLE / DUPLICATE LCS</b>	<b>LCS</b>	<b>LCSD</b>	<b>Limits</b>	<b>RPD</b>	<b>Limits</b>
	Recovery (%)	Recovery (%)			
TPH	68.9	62.6	<b>40-150</b>	<b>9.58</b>	<b>&lt;30</b>
<b>Surrogate:</b>					
***p-Terphenyl	55.7	53.0			

\*Matrix Spike / Duplicate Spike performed as per method and reported if assigned on the Chain of Custody.

GZA GEOENVIRONMENTAL, INC.  
 ENVIRONMENTAL CHEMISTRY LABORATORY  
 106 SOUTH STREET, HOPKINTON, MA 01748 (508)435-9244  
 MASSACHUSETTS LABORATORY I.D. NO. MA092

**TPH**  
**TOTAL PETROLEUM HYDROCARBONS IN AQUEOUS AND/OR SOLID MATRIX**

**QUALITY CONTROL**

**EXT. DATE:                    8/3/11                    Aqueous**

<b>METHOD BLANK</b>	<b>AQUEOUS</b>	<b>SOLID</b>			
	ug/L-PPB	mg/kg - PPM			
TPH	<200	<10			
<b>Surrogate:</b>	<b>Recovery (%)</b>	<b>Limits-Aqueous</b>	<b>Limits-Solid</b>		
***p-Terphenyl	58.5	40-130	40-130		
<hr/>					
<b>LABORATORY CONTROL SAMPLE / DUPLICATE LCS</b>	<b>LCS</b>	<b>LCSD</b>	<b>Limits</b>	<b>RPD</b>	<b>Limits</b>
	Recovery (%)	Recovery (%)			
TPH	51.7	56.7	<b>40-150</b>	<b>9.23</b>	<b>&lt;30</b>
<b>Surrogate:</b>					
***p-Terphenyl	60.2	71.3			

\*Matrix Spike / Duplicate Spike performed as per method and reported if assigned on the Chain of Custody.

W.O.# 107-0028  
(for lab use only)

**CHAIN-OF-CUSTODY RECORD**

Sample ID	Date/Time Sampled	Matrix A=Air S=Soil GW=Ground W. SW=Surface W. WW=Waste W. DW=Drinking W. P=Product (specify)	ANALYSIS REQUIRED	Total No. of Cont.	Note #
MW-333D	7/27/11 13:30	GW	GC Methane, Ethane, Ethene EPA 8260 EPA 8260-Landfill List EPA 8021-Full List EPA 8021-8020 List (Chlor.) EPA 524.2 DW VOCs EPA 624 WW VOCs EPA 601 602 WW VOCs EPA 8270 SVOCs EPA 8270 PAH A BN EPA 625 WW SVOCs EPA 8082-PCBs EPA 8081-Pest TPH-GC (Mod. 8100) TPH-GC w/Fluor. EPH (MA DEP) VPH (MA DEP) Metals PPM-13 R-8 MCP 14 Metals (MA) Metals LF-15 (RI) Metals (List Below)** TCLP - Specify Below SPLP - Specify Below EPA 300 CI NO3 SO4 TOTAL CHLORIDE DISSOLVED CHLORIDE	7	
MW-310S	10:30	GW		7	
MW-310D	10:50	GW		7	
MW-333S	13:10	GW		7	
MW-326S	16:30	GW		7	
MW-326D	16:20	GW		7	
MW-200	11:45	GW		7	
MW-339D	12:10	GW		7	
MW-339S	10:50	GW		7	
MW-201	12:40	GW		7	
MW-312S	16:00	GW		7	
MW-312D	15:55	GW		7	
BD #1	12:10	GW		7	

RESERVATIVE (Cl-HCl, M-Methanol, N-HNO3, S-H2SO4, Na-NaOH, O-Other)\*  
CONTAINER TYPE (Plastic, G-Glass, V-Vial, T-Teflon, O-Other)\*  
REMOVED BY: Sophia Narkiewicz DATE/TIME: 7/27/11 19:17  
RELINQUISHED BY: Meg Kieratrick DATE/TIME: 7/27/11 14:47  
RECEIVED BY: Meg Kieratrick DATE/TIME: 7/27/11 14:47

NOTES: (Unless otherwise noted, all samples have been refrigerated to 4 +/- 2°C)  
\*Specify "Other" preservatives and container types in this space.  
DISSOLVED CHLORIDE SAMPLES WERE FIELD FILTERED.  
SEND RESULTS TO MEG KIERATRICK & SOPHIA NARKIEWICZ

TURNAROUND TIME: Standard Rush Days, Approved by: [Signature]  
LAB USE: 3.8 706 Temp Blank 3.9 Cooler Air  
GZA FILE NO: 050043654.00 TASK NO: 33 P.O. NO. 7/25/11  
PROJECT: TIP WATER GW SAMPLING  
LOCATION: TIP WATER, PAVIMENT, R-1  
COLLECTOR(S): MAT BOELEN & SOPHIA NARKIEWICZ SHEET 2 OF 2

Project Manager: MEG KIERATRICK  
GZA GEOENVIRONMENTAL, INC.  
530 Broadway  
Providence, RI 02903  
(401) 421-4140  
FAX (401) 751-8613





**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs  
Attn: Ms. Michelle Miranda  
Engineers and Scientists  
106 South Street  
Hopkinton, MA 01748

**Date Received:** 7/29/11  
**Date Reported:** 8/4/11  
**P.O. #:** 8-35223  
**Work Order #:** 1107-14700

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**DESCRIPTION:** GZA FILE# 05.0043654.00 FORMER TIDEWATER FACILITY

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Subject sample(s) has/have been analyzed by our Warwick, R.I. laboratory with the attached results.

Reference: All parameters were analyzed by U.S. EPA approved methodologies.  
The specific methodologies are listed in the methods column of the Certificate Of Analysis.

Data qualifiers (if present) are explained in full at the end of a given sample's analytical results.  
The Certificate of Analysis shall not be reproduced except in full, without written approval of R. I. Analytical.  
Results relate only to samples submitted to the laboratory for analysis.  
Test results are not blank corrected.

Certification #: RI-033, MA-RI015, CT-PH-0508, ME-RI015  
NH-253700 A & B, USDA S-41844

This Certificate represents all data associated with the referenced work order and is paginated for completeness. The complete Certificate includes one attachment; the original Chain of Custody.

If you have any questions regarding this work, or if we may be of further assistance, please contact our customer service department.

Approved by:

Sharon Baker  
MIS / Data Reporting Manager

enc: Chain of Custody

**R.I. Analytical Laboratories, Inc.**  
**CERTIFICATE OF ANALYSIS**

GZA GeoEnvironmental Labs

Date Received: 7/29/11

Work Order #: 1107-14700

GZA FILE# 05.0043654.00 FORMER TIDEWATER FACILITY

Sample # 001

**SAMPLE DESCRIPTION:** MW-7

**SAMPLE TYPE:** COMPOSITE

**SAMPLE DATE/TIME:** 7/28/2011

<b>PARAMETER</b>	<b>SAMPLE RESULTS</b>	<b>DET. LIMIT</b>	<b>UNITS</b>	<b>METHOD</b>	<b>DATE ANALYZED</b>	<b>ANALYST</b>
Total Cyanide	0.02	0.01	mg/l	SM-4500CN-C E	8/4/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC

Sample # 002

**SAMPLE DESCRIPTION:** MW-316D

**SAMPLE TYPE:** COMPOSITE

**SAMPLE DATE/TIME:** 7/28/2011

<b>PARAMETER</b>	<b>SAMPLE RESULTS</b>	<b>DET. LIMIT</b>	<b>UNITS</b>	<b>METHOD</b>	<b>DATE ANALYZED</b>	<b>ANALYST</b>
Total Cyanide	0.01	0.01	mg/l	SM-4500CN-C E	8/4/11	EC
Dissolved Free Cyanide	<0.01	0.01	mg/l	SM 4500CN C E	8/3/11	EC



## QA/QC Report

Client: GZA GeoEnvironmental Labs

WO #: 1107-14700

Date: 8/4/2011

## -Method Blanks Results-

Parameter	Units	Results	Date Analyzed
Total Cyanide	mg/l	<0.01	8/4/2011
Dissolved Free Cyanide	mg/l	<0.01	8/2/2011

## -LCS/LCS Duplicate Data Results-

Parameter	Spike Conc	LCS Conc	LCS % Rec	LCS Dup Conc	LCS DUP % Rec	% RPD	Date Analyzed
Total Cyanide	0.10	0.104	104	0.101	101	3	8/4/2011
Dissolved Free Cyanide	0.10	0.096	96	0.090	90	6	8/3/2011

## Case Narrative

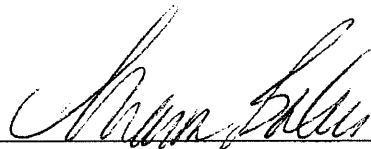
Date: 8/4/2011

GZA GeoEnvironmental Labs  
Attn: Ms. Michelle Mirenda  
Engineers and Scientists  
106 South Street  
Hopkinton, MA 01748

Project: GZA FILE# 05.0043654.00 FORMERTIDEWATER FACILITY

RIAL WO#: 1107-14700

R.I. Analytical Laboratories received Two Groundwater samples from the GZA GeoEnvironmental Labs on July 29, 2011. The samples were transported and delivered to the laboratory in a cooler on ice (at 1.0 degree C). The samples were received in good condition. Upon arrival the samples were logged into our LIMS system and assigned a work order number of 1107-14700.



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Sharon Baker  
Data Reporting / MIS Manager

21

W.O. # 1107-40137  
(for lab use only)

RIAL

CHAIN-OF-CUSTODY RECORD

Sample I.D.	Date/Time Sampled	Matrix A=Air S=Soil GW=Ground W. SW=Surface W. WW=Waste W. DW=Drinking W. P=Product (specify)	ANALYSIS REQUIRED	Total No. of Cont.	Note #
MW-7	7/28/2011	GW	GC Methane, Ethane, Ethene EPA 8260 EPA 8260-8010 List EPA 8021-Full List EPA 8021-8010 List (Chlor) EPA 8021-8020 List (BTEX) EPA 524.2 DW VOCs EPA 624 WW VOCs EPA 601 602 WW VOCs EPA 8270 SVOCs EPA 8270 PAH A BN EPA 625 WW SVOCs EPA 8082-PCBs EPA 8081-Pest TPH-GC (Mod 8100) TPH-GC w/Fluor EPH (MA DEP) VPH (MA DEP) Metals (List Below) MCP 14 Metals (MA) Metals (List Below) MCP 13 R-8 Metals (List Below) MCP 13 R-8 SPLP - Specify Below EPA 300 Cl NO3 SO4 TOTAL CYANIDE DISSOLVED FREE CYANIDE	2	1
MW-316D	7/28/2011	GW	GC Methane, Ethane, Ethene EPA 8260 EPA 8260-8010 List EPA 8021-Full List EPA 8021-8010 List (Chlor) EPA 8021-8020 List (BTEX) EPA 524.2 DW VOCs EPA 624 WW VOCs EPA 601 602 WW VOCs EPA 8270 SVOCs EPA 8270 PAH A BN EPA 625 WW SVOCs EPA 8082-PCBs EPA 8081-Pest TPH-GC (Mod 8100) TPH-GC w/Fluor EPH (MA DEP) VPH (MA DEP) Metals (List Below) MCP 14 Metals (MA) Metals (List Below) MCP 13 R-8 Metals (List Below) MCP 13 R-8 SPLP - Specify Below EPA 300 Cl NO3 SO4 TOTAL CYANIDE DISSOLVED FREE CYANIDE	2	1

912F

NOTES: (Unless otherwise noted, all samples have been refrigerated to 4 +/- 2°C)  
"Specify "Other" preservatives and container types in this space.

Report Method Blank and Laboratory Control Sample Results

- 1. NGRD PROJECT
- 2. Dissolved Free Cyanide-Field Filtered

RECEIVED BY: Michelle Mirenda DATE/TIME: 7/27/11 11:15  
 RELINQUISHED BY: [Signature] DATE/TIME: 7/27/11 11:15  
 RECEIVED BY: [Signature] DATE/TIME: 7/27/11 11:15

Project Manager: Michelle Mirenda

GZA GEOENVIRONMENTAL, INC.

106 South Street  
 Hopkinton, MA 01748  
 508-435-9244  
 FAX 508-435-9912

TURNAROUND TIME: Standard 4 DAYS Approved by: A. Ford TEMP. OF COOLER 1.0 °C  
 LAB USE: Temp Blank Cooler Air

GZA FILE NO: 05-027-0043654.00 TASK NO: 33 P.O. NO. 8-35223

PROJECT: Fomer Tidewater Facility

LOCATION: Pawtucket, RI

COLLECTOR(S): \_\_\_\_\_ SN \_\_\_\_\_ SHEET 1 OF 1

*See 8/11/11 by 1400 hrs. 1107-11700*

pm11697



**GZA GeoEnvironmental, Inc.**  
**106 South Street**  
**Hopkinton, MA 01748**  
**(781) 278-4700**

Laboratory Identification Numbers:  
MA and ME: **MA092** NH: **2028**  
CT: **PH0579** RI: **LAO00236**  
NELAC - NYS DOH: **11063**

## **ANALYTICAL REPORT**

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project No.: **05.0043654.00**  
Work Order No.: **1107-00137**  
Date Received: **07/29/2011**  
Date Reported: **08/09/2011**

### **SAMPLE INFORMATION**

Date Sampled	Matrix	Laboratory ID	Sample ID
07/28/2011	Aqueous	1107-00137 001	MW-7
07/28/2011	Aqueous	1107-00137 002	MW-316D
07/28/2011	Aqueous	1107-00137 003	MW-316S
07/28/2011	Aqueous	1107-00137 004	Trip Blank



## ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
530 Broadway  
Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**

Date Received: **07/29/2011**

Project No.: **05.0043654.00**

Date Reported: **08/09/2011**

Work Order No.: **1107-00137**

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### PROJECT NARRATIVE:

#### 1. Sample Receipt

The samples were received on 07/29/11 via \_x\_GZA courier, \_EC\_, \_FEDEX\_, or \_\_\_hand delivered. The temperature of the \_x\_temperature blank/\_cooler\_air, was 4.7 degrees C. The temperature requirement for most analyses is above freezing to 6 degrees C. The samples were received intact for all requested analyses.

The chain of custody indicates that the samples, when required, were chemically preserved in accordance with the method they reference.

#### 2. Subcontracted Analyses

Analyses for Total and Dissolved Cyanide were subcontracted to Rhode Island Analytical, Warwick RI (RIAL); Certification MA: MA-RI015, NH: 253700 A&B, CT: PH-0508, ME: RI015, RI: RI-033, NY:11726,

The data is included in GZA's report for ease of electronic data transfer and is indicated by "XXX" in the tech column. The data report from the subcontractor is attached.

#### 3. EPA Method 8260 - VOCs

The Laboratory Control Sample (LCS) (8/3/2011 S) had a(n) 8260 List analyte outside of the 70-130% acceptance criteria. Specific outlier includes: chloromethane (131%).

The Laboratory Control Sample Duplicate (LCSD) (8/3/2011 S) had a(n) 8260 List analyte outside of the 70-130% acceptance criteria. Specific outlier includes: chloromethane (144%).

The Method Blank (MB) (8/3/2011 S) had an 8260 List analyte above the reporting limit. The specific outlier includes: acetone (13ug/L). Method 8260 permits common lab contaminants to be present in the MB as long as they are <5 times the reporting limit. Any sample with acetone above the reporting limit has been flagged with a "B" qualifier.

Attach QC 8260 8/3/2011 "S" - Aqueous

#### 4. Total Petroleum Hydrocarbons

Attach QC TPH 08/04/11 - Aqueous

#### 5. EPA Method 8270 - SVOCs (PAHs)

Per the Project Manager, a subset of the analyte list for Method 8270 (Semivolatile Organic Compounds by GC/MS) has been provided.

Attach QC 8270 8/4/2011 "I" - Aqueous



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Data Authorized By: \_\_\_\_\_

GZA GeoEnvironmental, Inc. has NELAC validation for the following methods:

Wastewater: Methods 624,625,245.1,150.2,120.1, 200.7 (PP13, RCRA 8, and Fe, Mg, Mn, Al, Cr+6, V, Co, Mo, Sn, Ti).

Aqueous: Methods 8260B, 8270D, 8081B, 8082A, 7470, 150.2, 120.1, 1311, 6010C (PP13, RCRA 8, and Fe, Mg, Mn, Al, Cr+6, V, Co, Mo, Sn, Ti), 300.0 (Cl, Fl, SO4, NO3, NO2, Ophos), MA DEP EPH/VPH.

Soil: Methods 8260B, 8270D, 8081B, 8082A, 7471B, 9045, 1311, 6010C (PP13, RCRA8, and Fe, Mg, Mn, Al, V, Co, Mo, Sn, Ca), MA DEP VPH/EPH.

Abbreviations:

- % R = % Recovery
- DF = Dilution Factor
- DFS = Dilution Factor Solids
- CF = Calculation Factor
- DO = Diluted Out

Method Key:

- Method 8260: The current version of the method is 8260B.
- Method 8270: The current version of the method is 8270D.
- Method 6010: The current version of the method is 6010C.
- Method 8081: The current version of the method is 8081B.
- Method 8082: The current version of the method is 8082A.
- Method 7471: The current version of the method is 7471B.

The current Metals preparation methods are: 3010A (aqueous) and 3051 (solid).

Please note that the laboratory signed copy of the chain of custody record is an integral part of the data report.

The laboratory report shall not be reproduced except in full without the written consent of the laboratory.

Soil data is reported on a dry weight basis unless otherwise specified.

Matrix Spike / Matrix Spike Duplicate sets are performed as per method and are reported at the end of the analytical report if assigned on the Chain of Custody.



ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-7**

Sample No.: **001**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				KAC	08/03/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Acetone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Butanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Hexanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-7**

Sample No.: **001**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	99.7	70-130	% R	KAC	08/03/2011
***Toluene-D8	EPA 8260	110	70-130	% R	KAC	08/03/2011



ANALYTICAL REPORT

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 530 Broadway  
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Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
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Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-7**  
 Sample Date: **07/28/2011**

Sample No.: **001**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	91.8	70-130	% R	KAC	08/03/2011
Preparation	EPA 5030B	1.0		CF	KAC	08/03/2011
PAHS BY GCMS	EPA 8270				CMG	08/04/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	68.3	30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	64.0	30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	60.1	30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/04/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/04/2011
Hydrocarbon Content		<200	200	ug/L	RJD	08/04/2011
Surrogate:						
***p-Terphenyl		55.4	40-130	% R	RJD	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/04/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.02	0.01	mg/L	XXX	08/04/2011
Dissolved Free Cyanide	SM-4500CN-C E	<0.01	0.01	mg/L	XXX	08/03/2011
RI Excel Deliverables						
GB Groundwater Objective	Excel Deliverable					



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Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-316D**  
 Sample Date: **07/28/2011**

Sample No.: **002**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				KAC	08/03/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Vinyl chloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Acetone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Carbon disulfide	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Methyl tert-butyl ether	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Butanone (MEK)	EPA 8260	<10	10	ug/L	KAC	08/03/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Carbon tetrachloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Methyl-2-pentanone (MIBK)	EPA 8260	<10	10	ug/L	KAC	08/03/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011



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Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-316D**

Sample No.: **002**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
2-Hexanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
n-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromo-3-chloropropane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	102	70-130	% R	KAC	08/03/2011



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Project Name.: **Former Tidewater Facility**  
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Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-316D**

Sample No.: **002**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***Toluene-D8	EPA 8260	109	70-130	% R	KAC	08/03/2011
***4-Bromofluorobenzene	EPA 8260	93.7	70-130	% R	KAC	08/03/2011
Preparation	EPA 5030B	1.0		CF	KAC	08/03/2011
PAHS BY GCMS	EPA 8270				CMG	08/04/2011
Naphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
2-Methylnaphthalene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Acenaphthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluorene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Phenanthrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Chrysene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [b] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [k] Fluoranthene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [a] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Indeno [1,2,3-cd] Pyrene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Dibenzo [a,h] Anthracene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Benzo [g,h,i] Perylene	EPA 8270	<2.0	2.0	ug/L	CMG	08/04/2011
Surrogates:	EPA 8270					
***Nitrobenzene-D5	EPA 8270	67.3	30-130	% R	CMG	08/04/2011
***2-Fluorobiphenyl	EPA 8270	62.9	30-130	% R	CMG	08/04/2011
***P-Terphenyl-D14	EPA 8270	69.2	30-130	% R	CMG	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/04/2011
TOTAL PETROLEUM HYDROCARBON	Mod. EPA 8100				RJD	08/04/2011
Hydrocarbon Content		<200	200	ug/L	RJD	08/04/2011
Surrogate:						
***p-Terphenyl		56.5	40-130	% R	RJD	08/04/2011
Extraction	EPA 3510C	1.0		DF	BAF	08/04/2011
SUBCONTRACTED ANALYTES						
Total Cyanide	SM-4500CN-C E	0.01	0.01	mg/L	XXX	08/04/2011
Dissolved Cyanide	SM 4500CN C E	<0.01	0.01	mg/l	XXX	08/03/2011



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Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-316S**

Sample No.: **003**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				KAC	08/03/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Acetone	EPA 8260	12	B 10	ug/L	KAC	08/03/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Butanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Hexanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011





ANALYTICAL REPORT

GZA GeoEnvironmental, Inc.  
 530 Broadway  
 Providence, RI 02909

Meg Kilpatrick/S Narkiewicz

Project Name.: **Former Tidewater Facility**  
 Project No.: **05.0043654.00**

Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **MW-316S**

Sample No.: **003**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	100	70-130	% R	KAC	08/03/2011
***Toluene-D8	EPA 8260	112	70-130	% R	KAC	08/03/2011





ANALYTICAL REPORT

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530 Broadway  
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Project Name.: **Former Tidewater Facility**

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Project No.: **05.0043654.00**

Date Reported: **08/09/2011**

Work Order No.: **1107-00137**

Sample ID: **MW-316S**

Sample No.: **003**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	92.1	70-130	% R	KAC	08/03/2011
Preparation	EPA 5030B	1.0		CF	KAC	08/03/2011



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Project No.: **05.0043654.00**

Date Reported: **08/09/2011**

Work Order No.: **1107-00137**

Sample ID: **Trip Blank**

Sample No.: **004**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
VOLATILE ORGANICS	EPA 8260				KAC	08/03/2011
Dichlorodifluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Vinyl Chloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromomethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichlorofluoromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Diethylether	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Acetone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,1-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dichloromethane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Methyl-Tert-Butyl-Ether	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Butanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
2,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
cis-1,2-Dichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Chloroform	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrahydrofuran	EPA 8260	<10	10	ug/L	KAC	08/03/2011
1,1,1-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Carbon Tetrachloride	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Benzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Trichloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromodichloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromomethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Methyl-2-Pentanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011
cis-1,3-Dichloropropene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Toluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
trans-1,3-Dichloropropene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,1,2-Trichloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Hexanone	EPA 8260	<10	10	ug/L	KAC	08/03/2011



ANALYTICAL REPORT

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 Providence, RI 02909

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 Project No.: **05.0043654.00**

Date Received: **07/29/2011**  
 Date Reported: **08/09/2011**  
 Work Order No.: **1107-00137**

Sample ID: **Trip Blank**

Sample No.: **004**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
1,3-Dichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Tetrachloroethene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Dibromochloromethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromoethane (EDB)	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Chlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,1,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Ethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
m&p-Xylene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
o-Xylene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Styrene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromoform	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
Isopropylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,1,2,2-Tetrachloroethane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,3-Trichloropropane	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Bromobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
N-Propylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
2-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3,5-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
4-Chlorotoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
tert-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2,4-Trimethylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
sec-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
p-Isopropyltoluene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,3-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,4-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
n-Butylbenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
1,2-Dibromo-3-Chloropropane	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,4-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Hexachlorobutadiene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Naphthalene	EPA 8260	<2.0	2.0	ug/L	KAC	08/03/2011
1,2,3-Trichlorobenzene	EPA 8260	<1.0	1.0	ug/L	KAC	08/03/2011
Surrogates:	EPA 8260					
***1,2-Dichloroethane-D4	EPA 8260	109	70-130	% R	KAC	08/03/2011
***Toluene-D8	EPA 8260	112	70-130	% R	KAC	08/03/2011



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Project No.: **05.0043654.00**

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Work Order No.: **1107-00137**

Sample ID: **Trip Blank**

Sample No.: **004**

Sample Date: **07/28/2011**

Test Performed	Method	Results	Reporting Limit	Units	Tech	Analysis Date
***4-Bromofluorobenzene	EPA 8260	90.4	70-130	% R	KAC	08/03/2011
Preparation	EPA 5030B	1.0		CF	KAC	08/03/2011

GZA GEOENVIRONMENTAL, INC.  
 ENVIRONMENTAL CHEMISTRY LABORATORY  
 106 SOUTH STREET, HOPKINTON, MA 01748 (508)435-9244  
 MASSACHUSETTS LABORATORY I.D. NO. MA092

**TPH**  
**TOTAL PETROLEUM HYDROCARBONS IN AQUEOUS AND/OR SOLID MATRIX**

**QUALITY CONTROL**

**EXT. DATE:            08/04/11            Aqueous**

<b>METHOD BLANK</b>	<b>AQUEOUS</b>	<b>SOLID</b>			
	ug/L-PPB	mg/kg - PPM			
TPH	<200	<10			
<b>Surrogate:</b>	<b>Recovery (%)</b>	<b>Limits-Aqueous</b>	<b>Limits-Solid</b>		
***p-Terphenyl	57.6	40-130	40-130		
<hr/>					
<b>LABORATORY CONTROL SAMPLE / DUPLICATE LCS</b>	<b>LCS</b>	<b>LCSD</b>	<b>Limits</b>	<b>RPD</b>	<b>Limits</b>
	Recovery (%)	Recovery (%)			
TPH	70.4	69.7	<b>40-150</b>	<b>1.00</b>	<b>&lt;30</b>
<b>Surrogate:</b>					
***p-Terphenyl	64.7	64.0			

\*Matrix Spike / Duplicate Spike performed as per method and reported if assigned on the Chain of Custody.

EPA Method 8260 / 524.2 Aqueous Method Blank (MB) and Laboratory Control Sample/Duplicate (LCS/LCSD) Data

Method Blank

Date Analyzed:	8/3/2011	
Volatile Organics	Conc. ug/L	Acceptance Limit
dichlorodifluoromethane	< 1.0	< 1.0
chloromethane	< 1.0	< 1.0
vinyl chloride	< 0.5	< 0.5
bromomethane	< 1.0	< 1.0
chloroethane	< 0.5	< 0.5
trichlorofluoromethane	< 1.0	< 1.0
diethyl ether	< 2.5	< 2.5
acetone	23	< 10
1,1-dichloroethene	< 0.5	< 0.5
carbon disulfide	< 5.0	< 5.0
dichloromethane	< 1.0	< 1.0
methyl-tert-butyl-ether	< 0.5	< 0.5
trans-1,2-dichloroethene	< 0.5	< 0.5
1,1-dichloroethane	< 0.5	< 0.5
2-butanone	< 10	< 10
2,2-dichloropropane	< 0.5	< 0.5
cis-1,2-dichloroethene	< 0.5	< 0.5
chloroform	< 0.5	< 0.5
bromochloromethane	< 0.5	< 0.5
tetrahydrofuran	< 5.0	< 5.0
1,1,1-trichloroethane	< 0.5	< 0.5
1,1,1-trichloropropene	< 0.5	< 0.5
carbon tetrachloride	< 0.5	< 0.5
1,2-dichloroethane	< 0.5	< 0.5
benzene	< 0.5	< 0.5
trichloroethene	< 0.5	< 0.5
1,2-dichloropropane	< 0.5	< 0.5
bromodichloromethane	< 0.5	< 0.5
1,2-dibromomethane	< 0.5	< 0.5
4-methyl-2-pentanone	< 10	< 10
cis-1,3-dichloropropene	< 0.5	< 0.5
toluene	< 0.5	< 0.5
trans-1,3-dichloropropene	< 1.0	< 1.0
1,1,2-trichloroethane	< 0.5	< 0.5
2-hexanone	< 10	< 10
1,3-dichloropropane	< 0.5	< 0.5
tetrachloroethene	< 0.5	< 0.5
dibromochloromethane	< 0.5	< 0.5
1,2-dibromoethane (EDB)	< 1.0	< 1.0
chlorobenzene	< 0.5	< 0.5
1,1,1,2-tetrachloroethane	< 0.5	< 0.5
ethylbenzene	< 0.5	< 0.5
1,1,2,2-tetrachloroethane	< 0.5	< 0.5
m&p-xylene	< 1.0	< 1.0
o-xylene	< 0.5	< 0.5
styrene	< 0.5	< 0.5
bromoform	< 1.0	< 1.0
isopropylbenzene	< 0.5	< 0.5
1,2,3-trichloropropane	< 0.5	< 0.5
bromobenzene	< 0.5	< 0.5
n-propylbenzene	< 0.5	< 0.5
2-chlorotoluene	< 0.5	< 0.5
1,3,5-trimethylbenzene	< 0.5	< 0.5
4-chlorotoluene	< 0.5	< 0.5
tert-butyl-benzene	< 0.5	< 0.5
1,2,4-trimethylbenzene	< 0.5	< 0.5
sec-butyl-benzene	< 0.5	< 0.5
p-isopropyltoluene	< 0.5	< 0.5
1,3-dichlorobenzene	< 0.5	< 0.5
1,4-dichlorobenzene	< 0.5	< 0.5
n-butylbenzene	< 0.5	< 0.5
1,2-dichlorobenzene	< 0.5	< 0.5
1,2-dibromo-3-chloropropane	< 2.5	< 2.5
1,2,4-trichlorobenzene	< 0.5	< 0.5
hexachlorobutadiene	< 0.5	< 0.5
naphthalene	< 1.0	< 1.0

Laboratory Control Sample

Date Analyzed:	8/3/2011	
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits
dichlorodifluoromethane	125	70-130
chloromethane	131	70-130
vinyl chloride	109	80-120
bromomethane	103	70-130
chloroethane	108	70-130
trichlorofluoromethane	92.1	70-130
diethyl ether	92.9	70-130
acetone	99.9	70-130
1,1-dichloroethene	101	80-120
carbon disulfide	112	70-130
dichloromethane	94.2	70-130
methyl-tert-butyl-ether	88.5	70-130
trans-1,2-dichloroethene	97.1	70-130
1,1-dichloroethane	98.8	70-130
2-butanone	96.3	70-130
2,2-dichloropropane	105	70-130
cis-1,2-dichloroethene	99.7	70-130
chloroform	93.8	80-120
bromochloromethane	93.2	70-130
tetrahydrofuran	98.5	70-130
1,1,1-trichloroethane	91.9	70-130
1,1,1-trichloropropene	98.4	70-130
carbon tetrachloride	92.4	70-130
1,2-dichloroethane	91.2	70-130
benzene	101	70-130
trichloroethene	94.5	70-130
1,2-dichloropropane	103	80-120
bromodichloromethane	91.0	70-130
1,2-dibromomethane	90.7	70-130
4-methyl-2-pentanone	98.2	70-130
cis-1,3-dichloropropene	95.3	70-130
toluene	102	80-120
trans-1,3-dichloropropene	95.4	70-130
1,1,2-trichloroethane	89.1	70-130
2-hexanone	92.3	70-130
1,3-dichloropropane	89.5	70-130
tetrachloroethene	88.5	70-130
dibromochloromethane	87.5	70-130
1,2-dibromoethane (EDB)	88.9	70-130
chlorobenzene	92.7	70-130
1,1,1,2-tetrachloroethane	87.0	70-130
ethylbenzene	95.8	80-120
1,1,2,2-tetrachloroethane	86.3	70-130
m&p-xylene	90.5	70-130
o-xylene	97.1	70-130
styrene	99.3	70-130
bromoform	91.4	70-130
isopropylbenzene	100	70-130
1,2,3-trichloropropane	92.2	70-130
bromobenzene	92.4	70-130
n-propylbenzene	101	70-130
2-chlorotoluene	98.3	70-130
1,3,5-trimethylbenzene	98.2	70-130
4-chlorotoluene	98.0	70-130
tert-butyl-benzene	98.6	70-130
1,2,4-trimethylbenzene	99.5	70-130
sec-butyl-benzene	102	70-130
p-isopropyltoluene	99.8	70-130
1,3-dichlorobenzene	95.5	70-130
1,4-dichlorobenzene	94.5	70-130
n-butylbenzene	104	70-130
1,2-dichlorobenzene	95.9	70-130
1,2-dibromo-3-chloropropane	89.2	70-130
1,2,4-trichlorobenzene	95.9	70-130
hexachlorobutadiene	93.3	70-130
naphthalene	93.8	70-130

Laboratory Control Sample Duplicate

Date Analyzed:	8/3/2011	
Spike Concentration = 20ug/L	% Recovery	Acceptance Limits
dichlorodifluoromethane	130	70-130
chloromethane	144	70-130
vinyl chloride	114	70-130
bromomethane	109	70-130
chloroethane	110	70-130
trichlorofluoromethane	97.6	70-130
diethyl ether	96.1	70-130
acetone	103	70-130
1,1-dichloroethene	102	70-130
carbon disulfide	116	70-130
dichloromethane	97.1	70-130
methyl-tert-butyl-ether	94.9	70-130
trans-1,2-dichloroethene	102	70-130
1,1-dichloroethane	104	70-130
2-butanone	97.1	70-130
2,2-dichloropropane	109	70-130
cis-1,2-dichloroethene	106	70-130
chloroform	98.2	70-130
bromochloromethane	98.1	70-130
tetrahydrofuran	106	70-130
1,1,1-trichloroethane	95.4	70-130
1,1,1-trichloropropene	102	70-130
carbon tetrachloride	97.1	70-130
1,2-dichloroethane	93.7	70-130
benzene	105	70-130
trichloroethene	99.3	70-130
1,2-dichloropropane	109	70-130
bromodichloromethane	93.5	70-130
1,2-dibromomethane	93.4	70-130
4-methyl-2-pentanone	100.0	70-130
cis-1,3-dichloropropene	100	70-130
toluene	105	70-130
trans-1,3-dichloropropene	99.2	70-130
1,1,2-trichloroethane	93.0	70-130
2-hexanone	96.1	70-130
1,3-dichloropropane	92.2	70-130
tetrachloroethene	89.8	70-130
dibromochloromethane	91.2	70-130
1,2-dibromoethane (EDB)	94.7	70-130
chlorobenzene	97.3	70-130
1,1,1,2-tetrachloroethane	92.1	70-130
ethylbenzene	98.2	70-130
1,1,2,2-tetrachloroethane	92.8	70-130
m&p-xylene	94.9	70-130
o-xylene	96.6	70-130
styrene	102	70-130
bromoform	91.3	70-130
isopropylbenzene	101	70-130
1,2,3-trichloropropane	90.5	70-130
bromobenzene	91.3	70-130
n-propylbenzene	101	70-130
2-chlorotoluene	97.5	70-130
1,3,5-trimethylbenzene	99.3	70-130
4-chlorotoluene	97.9	70-130
tert-butyl-benzene	97.0	70-130
1,2,4-trimethylbenzene	97.7	70-130
sec-butyl-benzene	100	70-130
p-isopropyltoluene	97.4	70-130
1,3-dichlorobenzene	93.5	70-130
1,4-dichlorobenzene	95.8	70-130
n-butylbenzene	102	70-130
1,2-dichlorobenzene	96.1	70-130
1,2-dibromo-3-chloropropane	91.1	70-130
1,2,4-trichlorobenzene	96.5	70-130
hexachlorobutadiene	92.0	70-130
naphthalene	94.5	70-130

Surrogates:	Recovery (%)	Acceptance Limits	Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	RPD	Acceptance Limits	Verdict
DIBROMOFLUOROMETHANE	105	70-130	DIBROMOFLUOROMETHANE	105	70-130	ok	107	70-130	ok	1.65	<25	ok
1,2-DICHLOROETHANE-D4	108	70-130	1,2-DICHLOROETHANE-D4	102	70-130	ok	109	70-130	ok	6.91	<25	ok
TOLUENE-D8	108	70-130	TOLUENE-D8	110	70-130	ok	110	70-130	ok	0.05	<25	ok
4-BROMOFLUOROBENZENE	94.3	70-130	4-BROMOFLUOROBENZENE	102	70-130	ok	94.7	70-130	ok	7.36	<25	ok
1,2-DICHLOROBENZENE-D4	97.9	70-130	1,2-DICHLOROBENZENE-D4	110	70-130	ok	105	70-130	ok	4.40	<25	ok

EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

**Method Blank**

<b>Date Extracted:</b>	<b>08/04/11</b>	
<b>Date Analyzed:</b>	<b>8/4/2011</b>	
<b>File Name:</b>	<b>M9145</b>	
<b>Semi-Volatile Organics</b>	<b>Result</b>	<b>Reporting Limit</b>
naphthalene	ND	2.0
2-methylnaphthalene	ND	2.0
acenaphthylene	ND	2.0
acenaphthene	ND	2.0
fluorene	ND	2.0
phenanthrene	ND	2.0
anthracene	ND	2.0
fluoranthene	ND	2.0
pyrene	ND	2.0
benz [a] anthracene	ND	2.0
chrysene	ND	2.0
benzo [b] fluoranthene	ND	2.0
benzo [k] fluoranthene	ND	2.0
benzo [a] pyrene	ND	2.0
indeno [1,2,3-cd] pyrene	ND	2.0
dibenz [a,h] anthracene	ND	2.0
benzo [ghi] perylene	ND	2.0
<b>Surrogates:</b>	<b>Recovery (%)</b>	<b>Acceptance Limits</b>
NITROBENZENE-D5	70.4	30-130
2-FLUOROBIPHENYL	70.6	30-130
p-TERPHENYL-D14	80.7	30-130



EPA Method 8270/625 Aqueous Method Blank (MB) and Laboratory Control Sample (LCS) Data

Laboratory Control Sample

Date Extracted:	08/04/11		
Date Analyzed:	8/4/2011		
File Name:	M9146		
Spike Concentration = 20ug/L			
% Recovery	Acceptance Limits	Verdict	
naphthalene	70.3	40-140	ok
2-methylnaphthalene	67.0	40-140	ok
acenaphthylene	71.0	40-140	ok
acenaphthene	70.2	40-140	ok
fluorene	77.0	40-140	ok
phenanthrene	77.7	40-140	ok
anthracene	76.8	40-140	ok
fluoranthene	80.2	40-140	ok
pyrene	83.2	40-140	ok
benz [a] anthracene	78.2	40-140	ok
chrysene	81.9	40-140	ok
benzo [b] fluoranthene	78.7	40-140	ok
benzo [k] fluoranthene	77.3	40-140	ok
benzo [a] pyrene	79.2	40-140	ok
indeno [1,2,3-cd] pyrene	78.0	40-140	ok
dibenz [a,h] anthracene	79.3	40-140	ok
benzo [ghi] perylene	77.7	40-140	ok

Laboratory Control Sample Duplicate

Date Extracted:	08/04/11					
Date Analyzed:	8/4/2011					
File Name:	M9147					
% Recovery	Acceptance Limits	Verdict	Relative	Limits	Verdict	
naphthalene	61.7	40-140	ok	13	<20	ok
2-methylnaphthalene	60.4	40-140	ok	10	<20	ok
acenaphthylene	63.3	40-140	ok	11	<20	ok
acenaphthene	63.8	30-130	ok	9.5	<20	ok
fluorene	66.6	40-140	ok	15	<20	ok
phenanthrene	67.5	40-140	ok	14	<20	ok
anthracene	69.3	40-140	ok	10	<20	ok
fluoranthene	70.5	40-140	ok	13	<20	ok
pyrene	72.9	40-140	ok	13	<20	ok
benz [a] anthracene	71.5	40-140	ok	9.0	<20	ok
chrysene	71.4	40-140	ok	14	<20	ok
benzo [b] fluoranthene	74.3	40-140	ok	5.7	<20	ok
benzo [k] fluoranthene	64.4	40-140	ok	18	<20	ok
benzo [a] pyrene	70.4	40-140	ok	12	<20	ok
indeno [1,2,3-cd] pyrene	70.6	40-140	ok	10.0	<20	ok
dibenz [a,h] anthracene	69.3	40-141	ok	13	<20	ok
benzo [ghi] perylene	69.7	40-142	ok	11	<20	ok

Surrogates:	Recovery (%)	Acceptance Limits	Verdict	Recovery (%)	Acceptance Limits	Verdict	Relative % Diff.	Limits	Verdict
NITROBENZENE-D5	70.8	30-130	ok	65.6	30-130	ok	7.6	<20	ok
2-FLUOROBIPHENYL	70.4	30-130	ok	67.0	30-130	ok	4.9	<20	ok
p-TERPHENYL-D14	80.0	30-130	ok	74.3	30-130	ok	7.3	<20	ok

W.O.# 1107-00137  
(for lab use only)

**CHAIN-OF-CUSTODY RECORD**

Sample I.D.	Date/Time Sampled	Matrix A=Air S=Soil GW=Ground W. SW=Surface W. WW=Waste W. DW=Drinking W. P=Product Other (specify)	ANALYSIS REQUIRED	Total No. of Cont.	Note #
MN-7	7/20/11	GW	<input type="checkbox"/> pH <input type="checkbox"/> Cond <input checked="" type="checkbox"/> EPA 8260 Landfill List <input checked="" type="checkbox"/> EPA 8021 - Full List <input checked="" type="checkbox"/> EPA 8021-8010 List (Chlor) <input checked="" type="checkbox"/> EPA 8021-8020 List (BTEX) <input checked="" type="checkbox"/> EPA 524 DW VOCs <input checked="" type="checkbox"/> EPA 624 W VOCs <input checked="" type="checkbox"/> EPA 8270 SVOCs <input checked="" type="checkbox"/> EPA 8270 PAH <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> N <input checked="" type="checkbox"/> EPA 625 W SVOCs <input checked="" type="checkbox"/> EPA 8082-PCBs <input checked="" type="checkbox"/> EPA 8081-Pest <input checked="" type="checkbox"/> TPH-GC (Mod. 8100) <input checked="" type="checkbox"/> TPH-GC W/FING <input checked="" type="checkbox"/> EPH (MA DEP) <input checked="" type="checkbox"/> VPH (MA DEP) <input type="checkbox"/> Metals <input type="checkbox"/> PM-10 <input type="checkbox"/> R-8 <input type="checkbox"/> MCP 14 Metals (MA) <input type="checkbox"/> METALS LF-15 (RI) <input type="checkbox"/> Metals (List Below)** <input type="checkbox"/> TCLP - Specify Below <input type="checkbox"/> SPLP - Specify Below <input type="checkbox"/> EPA 300 <input type="checkbox"/> Cl <input type="checkbox"/> NO3 <input type="checkbox"/> SO4 <input checked="" type="checkbox"/> DISSOLVED CYANIDE <input checked="" type="checkbox"/> TOTAL CYANIDE	7	
MN-316D	7/20/11	GW		7	
MN-316S	7/20/11	GW		3	
TIP BLANK	7/20/11 0700	GW		3	

NOTES: (Unless otherwise noted, all samples have been refrigerated to 4 +/- 2°C)  
 \*Specify "Other" preservatives and container types in this space.  
 U-DISSOLVED CYANIDE SAMPLES WERE FIELD FILTERED  
 PRESERVE EMKIL RESULTS TO MCG KILPATRICK  
 SOPHIA NARKIEWICZ

TURNAROUND TIME: Standard / Rush  
 Days, Approved by: [Signature]  
 LAB USE: Temp Blank / Cooler Air  
 TEMP. OF COOLER: 4.7 °C

GZA FILE NO: 05-0043654.00 TASK NO: 33 P.O. NO. 113  
 PROJECT: TIDEWATER-6W SAMPLE U6  
 LOCATION: TIDEWATER, PANTUCKET, RI  
 COLLECTOR(S): SOPHIA NARKIEWICZ SHEET 1 OF 1

RECEIVED BY: [Signature] DATE/TIME: 7/20/11 18:00  
 RELINQUISHED BY: [Signature] DATE/TIME: 7/20/11 14:16

Project Manager: MCKEON PATRICK  
**GZA GEOENVIRONMENTAL, INC.**  
 140 Broadway  
 Providence, RI 02903  
 (401) 421-4140  
 FAX (401) 751-8613



*CERTIFICATE OF ANALYSIS*

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

**RE: Tidewater GH (43654.00)**  
**ESS Laboratory Work Order Number: 1207099**

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

Laurel Stoddard  
Laboratory Director

**REVIEWED**

**By ESS Laboratory at 4:31 pm, Jul 18, 2012**

**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.

ESS Laboratory certifies that the test results meet the requirements of NELAC and A2LA, except where noted within this project narrative.



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**SAMPLE RECEIPT**

The following samples were received on July 10, 2012 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.**

<b>Lab Number</b>	<b>SampleName</b>	<b>Matrix</b>	<b>Analysis</b>
1207099-01	MW-201	Ground Water	8100M, 8260B, 8270C, 9014
1207099-02	MW-208	Ground Water	8100M, 8260B, 8270C, 9014
1207099-03	MW-310S	Ground Water	8100M, 8260B, 8270C, 9014
1207099-04	MW-310D	Ground Water	8100M, 8260B, 8270C, 9014
1207099-05	MW-334S	Ground Water	8100M, 8260B, 8270C, 9014
1207099-06	MW-334D	Ground Water	8100M, 8260B, 8270C, 9014
1207099-07	MW-318D	Ground Water	8100M, 8260B, 8270C, 9014
1207099-08	MW-318S	Ground Water	8100M, 8260B, 8270C, 9014
1207099-09	BD071012	Ground Water	8100M, 8260B, 8270C, 9014
1207099-10	TBLK071012	Aqueous	8260B



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

CVG0122-CCV1 [Continuing Calibration recovery is below lower control limit \(C-\).](#)

1,4-Dioxane - Screen (64% @ 70-130%)

**8270C Polynuclear Aromatic Hydrocarbons**

1207099-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

1,2-Dichlorobenzene-d4 (% @ 30-130%), 2-Fluorobiphenyl (% @ 30-130%), Nitrobenzene-d5 (% @ 30-130%), p-Terphenyl-d14 (% @ 30-130%)

1207099-08 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

1,2-Dichlorobenzene-d4 (% @ 30-130%), 2-Fluorobiphenyl (% @ 30-130%), Nitrobenzene-d5 (% @ 30-130%), p-Terphenyl-d14 (% @ 30-130%)

**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  
Client Sample ID: MW-201  
Date Sampled: 07/10/12 12:06  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	1.77 (0.20)		1	07/13/12 4:07	CVG0082	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>107 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 07/10/12 12:06  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,1,1-Trichloroethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/13/12 22:24	CVG0101	CG21501
1,1,2-Trichloroethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,1-Dichloroethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,1-Dichloroethene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,1-Dichloropropene	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,2,3-Trichloropropane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
<b>1,2,4-Trimethylbenzene</b>	<b>0.0019</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/13/12 22:24	CVG0101	CG21501
1,2-Dibromoethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,2-Dichlorobenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,2-Dichloroethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,2-Dichloropropane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,3-Dichlorobenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,3-Dichloropropane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,4-Dichlorobenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
1,4-Dioxane - Screen	ND (0.500)		1	07/13/12 22:24	CVG0101	CG21501
1-Chlorohexane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
2,2-Dichloropropane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
2-Butanone	ND (0.0100)		1	07/13/12 22:24	CVG0101	CG21501
2-Chlorotoluene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
2-Hexanone	ND (0.0100)		1	07/13/12 22:24	CVG0101	CG21501
4-Chlorotoluene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
4-Isopropyltoluene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
4-Methyl-2-Pentanone	ND (0.0250)		1	07/13/12 22:24	CVG0101	CG21501
Acetone	ND (0.0100)		1	07/13/12 22:24	CVG0101	CG21501
<b>Benzene</b>	<b>0.0397</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 07/10/12 12:06  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
Bromochloromethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Bromodichloromethane	ND (0.0006)		1	07/13/12 22:24	CVG0101	CG21501
Bromoform	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Bromomethane	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
Carbon Disulfide	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Carbon Tetrachloride	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Chlorobenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Chloroethane	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
Chloroform	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Chloromethane	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
cis-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
cis-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 22:24	CVG0101	CG21501
Dibromochloromethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Dibromomethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Dichlorodifluoromethane	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
Diethyl Ether	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Di-isopropyl ether	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
<b>Ethylbenzene</b>	<b>0.0163</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Hexachlorobutadiene	ND (0.0006)		1	07/13/12 22:24	CVG0101	CG21501
Hexachloroethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
<b>Isopropylbenzene</b>	<b>0.0129</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Methyl tert-Butyl Ether	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Methylene Chloride	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
<b>Naphthalene</b>	<b>0.0032</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
<b>n-Butylbenzene</b>	<b>0.0056</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
<b>n-Propylbenzene</b>	<b>0.0124</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
<b>sec-Butylbenzene</b>	<b>0.0018</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Styrene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
tert-Butylbenzene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 07/10/12 12:06  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Tetrachloroethene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Tetrahydrofuran	ND (0.0050)		1	07/13/12 22:24	CVG0101	CG21501
Toluene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
trans-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
trans-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 22:24	CVG0101	CG21501
Trichloroethene	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Trichlorofluoromethane	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Vinyl Acetate	ND (0.0050)		1	07/13/12 22:24	CVG0101	CG21501
Vinyl Chloride	ND (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
<b>Xylene O</b>	<b>0.0021</b> (0.0010)		1	07/13/12 22:24	CVG0101	CG21501
Xylene P,M	ND (0.0020)		1	07/13/12 22:24	CVG0101	CG21501
Xylenes (Total)	ND (0.0030)		1	07/13/12 22:24		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/13/12 22:24		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	95 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	107 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	91 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 07/10/12 12:06  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Acenaphthene</b>	<b>0.006</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Acenaphthylene</b>	<b>0.002</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Anthracene</b>	<b>0.004</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Benzo(a)anthracene</b>	<b>0.0004</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Benzo(a)pyrene</b>	<b>0.0003</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Benzo(b)fluoranthene</b>	<b>0.0003</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Chrysene</b>	<b>0.0004</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Fluoranthene</b>	<b>0.002</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Fluorene</b>	<b>0.012</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Naphthalene</b>	<b>0.002</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Phenanthrene</b>	<b>0.012</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102
<b>Pyrene</b>	<b>0.003</b> (0.0002)		1	07/12/12 14:46	CVG0073	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	46 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	44 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	56 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	70 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 07/10/12 12:06  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-01  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0067 (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
Total Cyanide (LL)	0.0075 (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 07/10/12 12:36  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	1.00 (0.20)		1	07/13/12 4:50	CVG0082	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>99 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-208  
 Date Sampled: 07/10/12 12:36  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
 ESS Laboratory Sample ID: 1207099-02  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,1,1-Trichloroethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/13/12 22:53	CVG0101	CG21501
1,1,2-Trichloroethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,1-Dichloroethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,1-Dichloroethene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,1-Dichloropropene	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,2,3-Trichloropropane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/13/12 22:53	CVG0101	CG21501
1,2-Dibromoethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,2-Dichlorobenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,2-Dichloroethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,2-Dichloropropane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,3-Dichlorobenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,3-Dichloropropane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,4-Dichlorobenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
1,4-Dioxane - Screen	ND (0.500)		1	07/13/12 22:53	CVG0101	CG21501
1-Chlorohexane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
2,2-Dichloropropane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
2-Butanone	ND (0.0100)		1	07/13/12 22:53	CVG0101	CG21501
2-Chlorotoluene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
2-Hexanone	ND (0.0100)		1	07/13/12 22:53	CVG0101	CG21501
4-Chlorotoluene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
4-Isopropyltoluene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
4-Methyl-2-Pentanone	ND (0.0250)		1	07/13/12 22:53	CVG0101	CG21501
Acetone	ND (0.0100)		1	07/13/12 22:53	CVG0101	CG21501
<b>Benzene</b>	<b>0.0017 (0.0010)</b>		1	07/13/12 22:53	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 07/10/12 12:36  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
Bromochloromethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Bromodichloromethane	ND (0.0006)		1	07/13/12 22:53	CVG0101	CG21501
Bromoform	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Bromomethane	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
Carbon Disulfide	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Carbon Tetrachloride	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Chlorobenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Chloroethane	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
Chloroform	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Chloromethane	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
cis-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
cis-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 22:53	CVG0101	CG21501
Dibromochloromethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Dibromomethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Dichlorodifluoromethane	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
Diethyl Ether	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Di-isopropyl ether	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
<b>Ethylbenzene</b>	<b>0.0050</b> (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Hexachlorobutadiene	ND (0.0006)		1	07/13/12 22:53	CVG0101	CG21501
Hexachloroethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
<b>Isopropylbenzene</b>	<b>0.0037</b> (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Methyl tert-Butyl Ether	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Methylene Chloride	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
<b>Naphthalene</b>	<b>0.0028</b> (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
<b>n-Butylbenzene</b>	<b>0.0154</b> (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
<b>n-Propylbenzene</b>	<b>0.0019</b> (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
<b>sec-Butylbenzene</b>	<b>0.0077</b> (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Styrene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
tert-Butylbenzene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 07/10/12 12:36  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Tetrachloroethene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Tetrahydrofuran	ND (0.0050)		1	07/13/12 22:53	CVG0101	CG21501
Toluene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
trans-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
trans-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 22:53	CVG0101	CG21501
Trichloroethene	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Trichlorofluoromethane	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Vinyl Acetate	ND (0.0050)		1	07/13/12 22:53	CVG0101	CG21501
Vinyl Chloride	ND (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
<b>Xylene O</b>	<b>0.0039</b> (0.0010)		1	07/13/12 22:53	CVG0101	CG21501
Xylene P,M	ND (0.0020)		1	07/13/12 22:53	CVG0101	CG21501
<b>Xylenes (Total)</b>	<b>0.0039</b> (0.0030)		1	07/13/12 22:53		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/13/12 22:53		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	92 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 07/10/12 12:36  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Acenaphthene</b>	<b>0.003</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Acenaphthylene</b>	<b>0.002</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Anthracene</b>	<b>0.0005</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Chrysene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Fluoranthene</b>	<b>0.0003</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Fluorene</b>	<b>0.002</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Naphthalene</b>	<b>0.002</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Phenanthrene</b>	<b>0.002</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102
<b>Pyrene</b>	<b>0.0005</b> (0.0002)		1	07/12/12 15:32	CVG0073	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	48 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	52 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	53 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	73 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 07/10/12 12:36  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-02  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
<b>Total Cyanide (LL)</b>	<b>0.0299 (0.0050)</b>	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 07/10/12 14:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.20)		1	07/13/12 21:51	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>100 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 07/10/12 14:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,1,1-Trichloroethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/13/12 23:22	CVG0101	CG21501
1,1,2-Trichloroethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,1-Dichloroethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,1-Dichloroethene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,1-Dichloropropene	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,2,3-Trichloropropane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/13/12 23:22	CVG0101	CG21501
1,2-Dibromoethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,2-Dichlorobenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,2-Dichloroethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,2-Dichloropropane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,3-Dichlorobenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,3-Dichloropropane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,4-Dichlorobenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
1,4-Dioxane - Screen	ND (0.500)		1	07/13/12 23:22	CVG0101	CG21501
1-Chlorohexane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
2,2-Dichloropropane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
2-Butanone	ND (0.0100)		1	07/13/12 23:22	CVG0101	CG21501
2-Chlorotoluene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
2-Hexanone	ND (0.0100)		1	07/13/12 23:22	CVG0101	CG21501
4-Chlorotoluene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
4-Isopropyltoluene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
4-Methyl-2-Pentanone	ND (0.0250)		1	07/13/12 23:22	CVG0101	CG21501
Acetone	ND (0.0100)		1	07/13/12 23:22	CVG0101	CG21501
<b>Benzene</b>	<b>0.0029 (0.0010)</b>		1	07/13/12 23:22	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 07/10/12 14:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
Bromochloromethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Bromodichloromethane	ND (0.0006)		1	07/13/12 23:22	CVG0101	CG21501
Bromoform	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Bromomethane	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
Carbon Disulfide	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Carbon Tetrachloride	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Chlorobenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Chloroethane	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
Chloroform	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Chloromethane	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
cis-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
cis-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 23:22	CVG0101	CG21501
Dibromochloromethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Dibromomethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Dichlorodifluoromethane	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
Diethyl Ether	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Di-isopropyl ether	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
<b>Ethylbenzene</b>	<b>0.0012</b> (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Hexachlorobutadiene	ND (0.0006)		1	07/13/12 23:22	CVG0101	CG21501
Hexachloroethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Isopropylbenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Methyl tert-Butyl Ether	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Methylene Chloride	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
Naphthalene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
n-Butylbenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
n-Propylbenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
sec-Butylbenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Styrene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
tert-Butylbenzene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-310S  
 Date Sampled: 07/10/12 14:20  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
 ESS Laboratory Sample ID: 1207099-03  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Tetrachloroethene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Tetrahydrofuran	ND (0.0050)		1	07/13/12 23:22	CVG0101	CG21501
Toluene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
trans-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
trans-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 23:22	CVG0101	CG21501
Trichloroethene	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Trichlorofluoromethane	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Vinyl Acetate	ND (0.0050)		1	07/13/12 23:22	CVG0101	CG21501
Vinyl Chloride	ND (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
<b>Xylene O</b>	<b>0.0010</b> (0.0010)		1	07/13/12 23:22	CVG0101	CG21501
Xylene P,M	ND (0.0020)		1	07/13/12 23:22	CVG0101	CG21501
Xylenes (Total)	ND (0.0030)		1	07/13/12 23:22		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/13/12 23:22		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	94 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	91 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 07/10/12 14:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/11/12 14:40

**All methods used are in accordance with 40 CFR 136.**

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
<b>Acenaphthene</b>	<b>0.0004</b> (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Acenaphthylene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Anthracene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Chrysene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Fluoranthene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Fluorene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
<b>Naphthalene</b>	<b>0.0004</b> (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Phenanthrene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102
Pyrene	ND (0.0002)		1	07/12/12 21:44	CVG0073	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>46 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>50 %</i>		<i>30-130</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>56 %</i>		<i>30-130</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>69 %</i>		<i>30-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 07/10/12 14:20  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-03  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
<b>Total Cyanide (LL)</b>	<b>0.0531 (0.0050)</b>	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	11.6 (0.20)		1	07/13/12 6:15	CVG0082	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>92 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,1,1-Trichloroethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/13/12 23:50	CVG0101	CG21501
1,1,2-Trichloroethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,1-Dichloroethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,1-Dichloroethene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,1-Dichloropropene	ND (0.0020)		1	07/13/12 23:50	CVG0101	CG21501
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,2,3-Trichloropropane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>1,2,4-Trimethylbenzene</b>	<b>0.712</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/13/12 23:50	CVG0101	CG21501
1,2-Dibromoethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,2-Dichlorobenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,2-Dichloroethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,2-Dichloropropane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>1,3,5-Trimethylbenzene</b>	<b>0.180</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501
1,3-Dichlorobenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,3-Dichloropropane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,4-Dichlorobenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
1,4-Dioxane - Screen	ND (0.500)		1	07/13/12 23:50	CVG0101	CG21501
1-Chlorohexane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
2,2-Dichloropropane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
2-Butanone	ND (0.0100)		1	07/13/12 23:50	CVG0101	CG21501
2-Chlorotoluene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
2-Hexanone	ND (0.0100)		1	07/13/12 23:50	CVG0101	CG21501
4-Chlorotoluene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>4-Isopropyltoluene</b>	<b>0.0170</b> (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
4-Methyl-2-Pentanone	ND (0.0250)		1	07/13/12 23:50	CVG0101	CG21501
Acetone	ND (0.0100)		1	07/13/12 23:50	CVG0101	CG21501
<b>Benzene</b>	<b>0.618</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/13/12 23:50	CVG0101	CG21501
Bromochloromethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Bromodichloromethane	ND (0.0006)		1	07/13/12 23:50	CVG0101	CG21501
Bromoform	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Bromomethane	ND (0.0020)		1	07/13/12 23:50	CVG0101	CG21501
Carbon Disulfide	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Carbon Tetrachloride	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Chlorobenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Chloroethane	ND (0.0020)		1	07/13/12 23:50	CVG0101	CG21501
Chloroform	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Chloromethane	ND (0.0020)		1	07/13/12 23:50	CVG0101	CG21501
cis-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
cis-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 23:50	CVG0101	CG21501
Dibromochloromethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Dibromomethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Dichlorodifluoromethane	ND (0.0020)		1	07/13/12 23:50	CVG0101	CG21501
Diethyl Ether	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Di-isopropyl ether	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>Ethylbenzene</b>	<b>1.07</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501
Hexachlorobutadiene	ND (0.0006)		1	07/13/12 23:50	CVG0101	CG21501
Hexachloroethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>Isopropylbenzene</b>	<b>0.101</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501
Methyl tert-Butyl Ether	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Methylene Chloride	ND (0.0020)		1	07/13/12 23:50	CVG0101	CG21501
<b>Naphthalene</b>	<b>9.80</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501
n-Butylbenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>n-Propylbenzene</b>	<b>0.0524</b> (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>sec-Butylbenzene</b>	<b>0.0050</b> (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Styrene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
tert-Butylbenzene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Tetrachloroethene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Tetrahydrofuran	ND (0.0050)		1	07/13/12 23:50	CVG0101	CG21501
<b>Toluene</b>	<b>0.198</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501
trans-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
trans-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 23:50	CVG0101	CG21501
Trichloroethene	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Trichlorofluoromethane	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
Vinyl Acetate	ND (0.0050)		1	07/13/12 23:50	CVG0101	CG21501
Vinyl Chloride	ND (0.0010)		1	07/13/12 23:50	CVG0101	CG21501
<b>Xylene O</b>	<b>0.735</b> (0.100)		100	07/17/12 19:33	CVG0101	CG21501
<b>Xylene P,M</b>	<b>0.775</b> (0.200)		100	07/17/12 19:33	CVG0101	CG21501
<b>Xylenes (Total)</b>	<b>1.51</b> (0.300)		100	07/17/12 19:33		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/13/12 23:50		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	96 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	99 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-310D  
 Date Sampled: 07/10/12 14:50  
 Percent Solids: N/A  
 Initial Volume: 1000  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
 ESS Laboratory Sample ID: 1207099-04  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.394</b> (0.020)		100	07/16/12 10:58	CVG0104	CG21102
<b>Acenaphthene</b>	<b>0.158</b> (0.020)		100	07/16/12 10:58	CVG0104	CG21102
<b>Acenaphthylene</b>	<b>0.064</b> (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Anthracene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Benzo(a)anthracene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Benzo(a)pyrene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Benzo(b)fluoranthene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Benzo(g,h,i)perylene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Benzo(k)fluoranthene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Chrysene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Dibenzo(a,h)Anthracene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Fluoranthene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
<b>Fluorene</b>	<b>0.047</b> (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102
<b>Naphthalene</b>	<b>5.76</b> (0.200)		1000	07/16/12 11:34	CVG0104	CG21102
<b>Phenanthrene</b>	<b>0.029</b> (0.020)		100	07/16/12 10:58	CVG0104	CG21102
Pyrene	ND (0.020)		100	07/16/12 10:58	CVG0104	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	%	SD	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	%	SD	30-130
<i>Surrogate: Nitrobenzene-d5</i>	%	SD	30-130
<i>Surrogate: p-Terphenyl-d14</i>	%	SD	30-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-04  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0293 (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
Total Cyanide (LL)	0.132 (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 07/10/12 13:15  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.55 (0.20)		1	07/13/12 22:34	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>118 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 07/10/12 13:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 15:23	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
<b>1,2,4-Trimethylbenzene</b>	<b>0.0016</b> (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/15/12 15:23	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 15:23	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 15:23	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 15:23	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 15:23	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 15:23	CVG0103	CG21503
<b>Benzene</b>	<b>0.0021</b> (0.0010)		1	07/15/12 15:23	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 07/10/12 13:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 15:23	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Chlorobenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 15:23	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Ethylbenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 15:23	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Isopropylbenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
<b>Naphthalene</b>	<b>0.0429</b> (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
n-Propylbenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
sec-Butylbenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Styrene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 07/10/12 13:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 15:23	CVG0103	CG21503
<b>Toluene</b>	<b>0.0012</b> (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 15:23	CVG0103	CG21503
Trichloroethene	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 15:23	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
<b>Xylene O</b>	<b>0.0013</b> (0.0010)		1	07/15/12 15:23	CVG0103	CG21503
Xylene P,M	ND (0.0020)		1	07/15/12 15:23	CVG0103	CG21503
Xylenes (Total)	ND (0.0030)		1	07/15/12 15:23		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 15:23		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	97 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	103 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	91 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 07/10/12 13:15  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.003</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
<b>Acenaphthene</b>	<b>0.001</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
<b>Acenaphthylene</b>	<b>0.0002</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
<b>Anthracene</b>	<b>0.0005</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Chrysene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
<b>Fluoranthene</b>	<b>0.0006</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
<b>Fluorene</b>	<b>0.001</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
<b>Naphthalene</b>	<b>0.023</b> (0.002)		10	07/13/12 16:49	CVG0073	CG21102
<b>Phenanthrene</b>	<b>0.003</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102
<b>Pyrene</b>	<b>0.0004</b> (0.0002)		1	07/12/12 17:51	CVG0073	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	50 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	56 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	64 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	68 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 07/10/12 13:15  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-05  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
<b>Total Cyanide (LL)</b>	<b>0.0564</b> (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 07/10/12 14:25  
Percent Solids: N/A  
Initial Volume: 970  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.45 (0.21)		1	07/13/12 23:17	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>115 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 07/10/12 14:25  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 15:52	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/15/12 15:52	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 15:52	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 15:52	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 15:52	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 15:52	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 15:52	CVG0103	CG21503
<b>Benzene</b>	<b>0.0013 (0.0010)</b>		1	07/15/12 15:52	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-334D  
 Date Sampled: 07/10/12 14:25  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
 ESS Laboratory Sample ID: 1207099-06  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 15:52	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Chlorobenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
<b>cis-1,2-Dichloroethene</b>	<b>0.0012</b> (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 15:52	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Ethylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 15:52	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Isopropylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
<b>Naphthalene</b>	<b>0.0213</b> (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
n-Propylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
sec-Butylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Styrene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 07/10/12 14:25  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 15:52	CVG0103	CG21503
Toluene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 15:52	CVG0103	CG21503
<b>Trichloroethene</b>	<b>0.0023</b> (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 15:52	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Xylene O	ND (0.0010)		1	07/15/12 15:52	CVG0103	CG21503
Xylene P,M	ND (0.0020)		1	07/15/12 15:52	CVG0103	CG21503
Xylenes (Total)	ND (0.0030)		1	07/15/12 15:52		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 15:52		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	96 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-334D  
 Date Sampled: 07/10/12 14:25  
 Percent Solids: N/A  
 Initial Volume: 950  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
 ESS Laboratory Sample ID: 1207099-06  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.002</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
<b>Acenaphthene</b>	<b>0.0008</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Acenaphthylene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
<b>Anthracene</b>	<b>0.0005</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Chrysene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
<b>Fluoranthene</b>	<b>0.0007</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
<b>Fluorene</b>	<b>0.001</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
<b>Naphthalene</b>	<b>0.008</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
<b>Phenanthrene</b>	<b>0.003</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102
<b>Pyrene</b>	<b>0.0005</b> (0.0002)		1	07/12/12 18:38	CVG0073	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	38 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	43 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	50 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	63 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 07/10/12 14:25  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-06  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
<b>Total Cyanide (LL)</b>	<b>0.0326 (0.0050)</b>	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 965  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.21)		1	07/14/12 0:00	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>112 %</i>		<i>40-140</i>			





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-07  
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>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,1,1-Trichloroethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/17/12 13:47	CVG0122	CG21716
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,1-Dichloroethene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/17/12 13:47	CVG0122	CG21716
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,2-Dichloroethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,2-Dichloropropane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
1,4-Dioxane - Screen	ND (0.500)		1	07/17/12 13:47	CVG0122	CG21716
1-Chlorohexane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
2-Butanone	ND (0.0100)		1	07/17/12 13:47	CVG0122	CG21716
2-Chlorotoluene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
2-Hexanone	ND (0.0100)		1	07/17/12 13:47	CVG0122	CG21716
4-Chlorotoluene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
4-Methyl-2-Pentanone	ND (0.0250)		1	07/17/12 13:47	CVG0122	CG21716
Acetone	ND (0.0100)		1	07/17/12 13:47	CVG0122	CG21716
Benzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-07  
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>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
Bromochloromethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Bromodichloromethane	ND (0.0006)		1	07/17/12 13:47	CVG0122	CG21716
Bromoform	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Bromomethane	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
Carbon Disulfide	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Carbon Tetrachloride	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Chlorobenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Chloroethane	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
Chloroform	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Chloromethane	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
cis-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
cis-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 13:47	CVG0122	CG21716
Dibromochloromethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Dibromomethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
Diethyl Ether	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Di-isopropyl ether	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Ethylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Hexachlorobutadiene	ND (0.0006)		1	07/17/12 13:47	CVG0122	CG21716
Hexachloroethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Isopropylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Methyl tert-Butyl Ether	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Methylene Chloride	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
Naphthalene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
n-Butylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
n-Propylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
sec-Butylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Styrene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
tert-Butylbenzene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-07  
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>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Tetrachloroethene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Tetrahydrofuran	ND (0.0050)		1	07/17/12 13:47	CVG0122	CG21716
Toluene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
trans-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
trans-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 13:47	CVG0122	CG21716
Trichloroethene	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Vinyl Acetate	ND (0.0050)		1	07/17/12 13:47	CVG0122	CG21716
Vinyl Chloride	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Xylene O	ND (0.0010)		1	07/17/12 13:47	CVG0122	CG21716
Xylene P,M	ND (0.0020)		1	07/17/12 13:47	CVG0122	CG21716
Xylenes (Total)	ND (0.0030)		1	07/17/12 13:47		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/17/12 13:47		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>93 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A  
Initial Volume: 900  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.0008</b> (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Acenaphthene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Acenaphthylene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Anthracene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Chrysene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Fluoranthene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Fluorene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
<b>Naphthalene</b>	<b>0.010</b> (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Phenanthrene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102
Pyrene	ND (0.0002)		1	07/12/12 19:25	CVG0073	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	40 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	45 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	50 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	60 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 07/10/12 14:50  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-07  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
Total Cyanide (LL)	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 07/10/12 12:40  
Percent Solids: N/A  
Initial Volume: 985  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	4.13 (0.20)		1	07/13/12 11:14	CVG0082	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>105 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 07/10/12 12:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,1,1,2,2-Tetrachloroethane	ND (0.0250)		50	07/15/12 16:49	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,1-Dichloropropene	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,2,4-Trimethylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.250)		50	07/15/12 16:49	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
1,4-Dioxane - Screen	ND (25.0)		50	07/15/12 16:49	CVG0103	CG21503
1-Chlorohexane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
2-Butanone	ND (0.500)		50	07/15/12 16:49	CVG0103	CG21503
2-Chlorotoluene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
2-Hexanone	ND (0.500)		50	07/15/12 16:49	CVG0103	CG21503
4-Chlorotoluene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (1.25)		50	07/15/12 16:49	CVG0103	CG21503
Acetone	ND (0.500)		50	07/15/12 16:49	CVG0103	CG21503
<b>Benzene</b>	<b>0.0630 (0.0500)</b>		50	07/15/12 16:49	CVG0103	CG21503





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 07/10/12 12:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
Bromochloromethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Bromodichloromethane	ND (0.0300)		50	07/15/12 16:49	CVG0103	CG21503
Bromoform	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Bromomethane	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
Carbon Disulfide	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Chlorobenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Chloroethane	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
Chloroform	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Chloromethane	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0200)		50	07/15/12 16:49	CVG0103	CG21503
Dibromochloromethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Dibromomethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
Diethyl Ether	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Di-isopropyl ether	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Ethylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0300)		50	07/15/12 16:49	CVG0103	CG21503
Hexachloroethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Isopropylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Methylene Chloride	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
<b>Naphthalene</b>	<b>1.22</b> (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
n-Butylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
n-Propylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
sec-Butylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Styrene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
tert-Butylbenzene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 07/10/12 12:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Tetrachloroethene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Tetrahydrofuran	ND (0.250)		50	07/15/12 16:49	CVG0103	CG21503
<b>Toluene</b>	<b>0.0575</b> (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0200)		50	07/15/12 16:49	CVG0103	CG21503
Trichloroethene	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Vinyl Acetate	ND (0.250)		50	07/15/12 16:49	CVG0103	CG21503
Vinyl Chloride	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Xylene O	ND (0.0500)		50	07/15/12 16:49	CVG0103	CG21503
Xylene P,M	ND (0.100)		50	07/15/12 16:49	CVG0103	CG21503
Xylenes (Total)	ND (0.150)		50	07/15/12 16:49		[CALC]
Trihalomethanes (Total)	ND (0.180)			07/15/12 16:49		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	92 %		70-130
<i>Surrogate: Toluene-d8</i>	99 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 07/10/12 12:40  
Percent Solids: N/A  
Initial Volume: 950  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.060 (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Acenaphthene	0.009 (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Acenaphthylene	0.024 (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Anthracene	0.007 (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Benzo(a)anthracene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Benzo(a)pyrene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Benzo(b)fluoranthene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Benzo(g,h,i)perylene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Benzo(k)fluoranthene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Chrysene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Dibenzo(a,h)Anthracene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Fluoranthene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Fluorene	0.020 (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Naphthalene	0.753 (0.021)		100	07/16/12 12:20	CVG0089	CG21102
Phenanthrene	0.019 (0.002)		10	07/13/12 17:35	CVG0089	CG21102
Pyrene	ND (0.002)		10	07/13/12 17:35	CVG0089	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	%	SD	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	%	SD	30-130
<i>Surrogate: Nitrobenzene-d5</i>	%	SD	30-130
<i>Surrogate: p-Terphenyl-d14</i>	%	SD	30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 07/10/12 12:40  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-08  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
<b>Total Cyanide (LL)</b>	<b>0.0359 (0.0050)</b>	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071012  
Date Sampled: 07/10/12 13:30  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.57 (0.20)		1	07/14/12 0:43	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>123 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071012  
Date Sampled: 07/10/12 13:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 17:18	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
<b>1,2,4-Trimethylbenzene</b>	<b>0.0015</b> (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/15/12 17:18	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 17:18	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 17:18	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 17:18	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 17:18	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 17:18	CVG0103	CG21503
<b>Benzene</b>	<b>0.0020</b> (0.0010)		1	07/15/12 17:18	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071012  
Date Sampled: 07/10/12 13:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 17:18	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Chlorobenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 17:18	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Ethylbenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 17:18	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Isopropylbenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
<b>Naphthalene</b>	<b>0.0406</b> (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
n-Propylbenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
sec-Butylbenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Styrene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071012  
Date Sampled: 07/10/12 13:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 17:18	CVG0103	CG21503
<b>Toluene</b>	<b>0.0011</b> (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 17:18	CVG0103	CG21503
Trichloroethene	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 17:18	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
<b>Xylene O</b>	<b>0.0011</b> (0.0010)		1	07/15/12 17:18	CVG0103	CG21503
Xylene P,M	ND (0.0020)		1	07/15/12 17:18	CVG0103	CG21503
Xylenes (Total)	ND (0.0030)		1	07/15/12 17:18		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 17:18		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	103 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071012  
Date Sampled: 07/10/12 13:30  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/11/12 14:40

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.003</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
<b>Acenaphthene</b>	<b>0.001</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
<b>Acenaphthylene</b>	<b>0.0003</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
<b>Anthracene</b>	<b>0.0005</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Chrysene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
<b>Fluoranthene</b>	<b>0.0006</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
<b>Fluorene</b>	<b>0.001</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
<b>Naphthalene</b>	<b>0.032</b> (0.002)		10	07/13/12 18:20	CVG0073	CG21102
<b>Phenanthrene</b>	<b>0.003</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102
<b>Pyrene</b>	<b>0.0004</b> (0.0002)		1	07/12/12 20:58	CVG0073	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	43 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	50 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	56 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	76 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071012  
Date Sampled: 07/10/12 13:30  
Percent Solids: N/A

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-09  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/12/12 12:15	mg/L	CG21206
<b>Total Cyanide (LL)</b>	<b>0.0747 (0.0050)</b>	9014		1	EEM	07/12/12 12:15	mg/L	CG21206



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TBLK071012  
Date Sampled: 07/10/12 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-10  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,1,1-Trichloroethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/13/12 19:04	CVG0101	CG21501
1,1,2-Trichloroethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,1-Dichloroethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,1-Dichloroethene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,1-Dichloropropene	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,2,3-Trichloropropane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/13/12 19:04	CVG0101	CG21501
1,2-Dibromoethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,2-Dichlorobenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,2-Dichloroethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,2-Dichloropropane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,3-Dichlorobenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,3-Dichloropropane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,4-Dichlorobenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
1,4-Dioxane - Screen	ND (0.500)		1	07/13/12 19:04	CVG0101	CG21501
1-Chlorohexane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
2,2-Dichloropropane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
2-Butanone	ND (0.0100)		1	07/13/12 19:04	CVG0101	CG21501
2-Chlorotoluene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
2-Hexanone	ND (0.0100)		1	07/13/12 19:04	CVG0101	CG21501
4-Chlorotoluene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
4-Isopropyltoluene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
4-Methyl-2-Pentanone	ND (0.0250)		1	07/13/12 19:04	CVG0101	CG21501
Acetone	ND (0.0100)		1	07/13/12 19:04	CVG0101	CG21501
Benzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TBLK071012  
Date Sampled: 07/10/12 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
ESS Laboratory Sample ID: 1207099-10  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromobenzene	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501
Bromochloromethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Bromodichloromethane	ND (0.0006)		1	07/13/12 19:04	CVG0101	CG21501
Bromoform	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Bromomethane	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501
Carbon Disulfide	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Carbon Tetrachloride	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Chlorobenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Chloroethane	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501
Chloroform	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Chloromethane	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501
cis-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
cis-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 19:04	CVG0101	CG21501
Dibromochloromethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Dibromomethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Dichlorodifluoromethane	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501
Diethyl Ether	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Di-isopropyl ether	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Ethylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Hexachlorobutadiene	ND (0.0006)		1	07/13/12 19:04	CVG0101	CG21501
Hexachloroethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Isopropylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Methyl tert-Butyl Ether	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Methylene Chloride	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501
Naphthalene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
n-Butylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
n-Propylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
sec-Butylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Styrene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
tert-Butylbenzene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: TBLK071012  
 Date Sampled: 07/10/12 00:00  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207099  
 ESS Laboratory Sample ID: 1207099-10  
 Sample Matrix: Aqueous  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tertiary-amyl methyl ether	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Tetrachloroethene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Tetrahydrofuran	ND (0.0050)		1	07/13/12 19:04	CVG0101	CG21501
Toluene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
trans-1,2-Dichloroethene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
trans-1,3-Dichloropropene	ND (0.0004)		1	07/13/12 19:04	CVG0101	CG21501
Trichloroethene	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Trichlorofluoromethane	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Vinyl Acetate	ND (0.0050)		1	07/13/12 19:04	CVG0101	CG21501
Vinyl Chloride	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Xylene O	ND (0.0010)		1	07/13/12 19:04	CVG0101	CG21501
Xylene P,M	ND (0.0020)		1	07/13/12 19:04	CVG0101	CG21501

	<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>103 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>91 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21203 - 3510C**

**Blank**

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacontane (C30)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.116</i>		mg/L	<i>0.1000</i>		<i>116</i>	<i>40-140</i>			
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**LCS**

Decane (C10)	0.032	0.005	mg/L	0.05000		64	40-140			
Docosane (C22)	0.045	0.005	mg/L	0.05000		89	40-140			
Dodecane (C12)	0.037	0.005	mg/L	0.05000		74	40-140			
Eicosane (C20)	0.044	0.005	mg/L	0.05000		88	40-140			
Hexacosane (C26)	0.046	0.005	mg/L	0.05000		93	40-140			
Hexadecane (C16)	0.043	0.005	mg/L	0.05000		86	40-140			
Nonadecane (C19)	0.038	0.005	mg/L	0.05000		76	40-140			
Nonane (C9)	0.025	0.005	mg/L	0.05000		49	30-140			
Octacosane (C28)	0.048	0.005	mg/L	0.05000		97	40-140			
Octadecane (C18)	0.044	0.005	mg/L	0.05000		88	40-140			
Tetracosane (C24)	0.046	0.005	mg/L	0.05000		91	40-140			
Tetradecane (C14)	0.041	0.005	mg/L	0.05000		82	40-140			
Triacontane (C30)	0.052	0.005	mg/L	0.05000		103	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.105</i>		mg/L	<i>0.1000</i>		<i>105</i>	<i>40-140</i>			
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**LCS Dup**

Decane (C10)	0.029	0.005	mg/L	0.05000		58	40-140	10	25	
Docosane (C22)	0.045	0.005	mg/L	0.05000		90	40-140	0.4	25	
Dodecane (C12)	0.033	0.005	mg/L	0.05000		65	40-140	14	25	
Eicosane (C20)	0.044	0.005	mg/L	0.05000		88	40-140	0.02	25	
Hexacosane (C26)	0.047	0.005	mg/L	0.05000		94	40-140	1	25	
Hexadecane (C16)	0.039	0.005	mg/L	0.05000		78	40-140	10	25	
Nonadecane (C19)	0.038	0.005	mg/L	0.05000		75	40-140	1	25	
Nonane (C9)	0.023	0.005	mg/L	0.05000		45	30-140	9	25	
Octacosane (C28)	0.049	0.005	mg/L	0.05000		98	40-140	1	25	
Octadecane (C18)	0.043	0.005	mg/L	0.05000		86	40-140	3	25	
Tetracosane (C24)	0.046	0.005	mg/L	0.05000		92	40-140	1	25	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21203 - 3510C**

Tetradecane (C14)	0.036	0.005	mg/L	0.05000		73	40-140	12	25	
Triacontane (C30)	0.052	0.005	mg/L	0.05000		104	40-140	1	25	

<i>Surrogate: O-Terphenyl</i>	<i>0.100</i>		mg/L	<i>0.1000</i>		<i>100</i>	<i>40-140</i>			
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**8260B Volatile Organic Compounds**

**Batch CG21501 - 5030B**

<b>Blank</b>										
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21501 - 5030B**

Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0239		mg/L	0.02500		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0255		mg/L	0.02500		102	70-130			
Surrogate: Dibromofluoromethane	0.0230		mg/L	0.02500		92	70-130			
Surrogate: Toluene-d8	0.0245		mg/L	0.02500		98	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	9.05		ug/L	10.00		90	70-130			
1,1,1-Trichloroethane	10.7		ug/L	10.00		107	70-130			
1,1,2,2-Tetrachloroethane	8.50		ug/L	10.00		85	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21501 - 5030B**

1,1,2-Trichloroethane	9.02		ug/L	10.00		90	70-130			
1,1-Dichloroethane	8.90		ug/L	10.00		89	70-130			
1,1-Dichloroethene	10.6		ug/L	10.00		106	70-130			
1,1-Dichloropropene	10.4		ug/L	10.00		104	70-130			
1,2,3-Trichlorobenzene	11.0		ug/L	10.00		110	70-130			
1,2,3-Trichloropropane	8.14		ug/L	10.00		81	70-130			
1,2,4-Trichlorobenzene	11.3		ug/L	10.00		113	70-130			
1,2,4-Trimethylbenzene	10.0		ug/L	10.00		100	70-130			
1,2-Dibromo-3-Chloropropane	7.85		ug/L	10.00		78	70-130			
1,2-Dibromoethane	8.89		ug/L	10.00		89	70-130			
1,2-Dichlorobenzene	8.40		ug/L	10.00		84	70-130			
1,2-Dichloroethane	10.4		ug/L	10.00		104	70-130			
1,2-Dichloropropane	8.77		ug/L	10.00		88	70-130			
1,3,5-Trimethylbenzene	10.1		ug/L	10.00		101	70-130			
1,3-Dichlorobenzene	8.63		ug/L	10.00		86	70-130			
1,3-Dichloropropane	8.97		ug/L	10.00		90	70-130			
1,4-Dichlorobenzene	9.09		ug/L	10.00		91	70-130			
1,4-Dioxane - Screen	258		ug/L	200.0		129	0-332			
1-Chlorohexane	12.0		ug/L	10.00		120	70-130			
2,2-Dichloropropane	10.5		ug/L	10.00		105	70-130			
2-Butanone	51.6		ug/L	50.00		103	70-130			
2-Chlorotoluene	8.54		ug/L	10.00		85	70-130			
2-Hexanone	42.8		ug/L	50.00		86	70-130			
4-Chlorotoluene	8.84		ug/L	10.00		88	70-130			
4-Isopropyltoluene	9.59		ug/L	10.00		96	70-130			
4-Methyl-2-Pentanone	45.9		ug/L	50.00		92	70-130			
Acetone	60.6		ug/L	50.00		121	70-130			
Benzene	8.70		ug/L	10.00		87	70-130			
Bromobenzene	9.22		ug/L	10.00		92	70-130			
Bromochloromethane	9.19		ug/L	10.00		92	70-130			
Bromodichloromethane	10.2		ug/L	10.00		102	70-130			
Bromoform	9.90		ug/L	10.00		99	70-130			
Bromomethane	11.1		ug/L	10.00		111	70-130			
Carbon Disulfide	9.74		ug/L	10.00		97	70-130			
Carbon Tetrachloride	10.6		ug/L	10.00		106	70-130			
Chlorobenzene	8.69		ug/L	10.00		87	70-130			
Chloroethane	10.1		ug/L	10.00		101	70-130			
Chloroform	9.14		ug/L	10.00		91	70-130			
Chloromethane	9.32		ug/L	10.00		93	70-130			
cis-1,2-Dichloroethene	10.2		ug/L	10.00		102	70-130			
cis-1,3-Dichloropropene	9.31		ug/L	10.00		93	70-130			
Dibromochloromethane	9.59		ug/L	10.00		96	70-130			
Dibromomethane	9.16		ug/L	10.00		92	70-130			
Dichlorodifluoromethane	9.15		ug/L	10.00		92	70-130			
Diethyl Ether	9.54		ug/L	10.00		95	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21501 - 5030B**

Di-isopropyl ether	9.61		ug/L	10.00		96	70-130			
Ethyl tertiary-butyl ether	9.71		ug/L	10.00		97	70-130			
Ethylbenzene	10.1		ug/L	10.00		101	70-130			
Hexachlorobutadiene	11.6		ug/L	10.00		116	70-130			
Hexachloroethane	10.4		ug/L	10.00		104	70-130			
Isopropylbenzene	9.04		ug/L	10.00		90	70-130			
Methyl tert-Butyl Ether	9.59		ug/L	10.00		96	70-130			
Methylene Chloride	10.3		ug/L	10.00		103	70-130			
Naphthalene	10.8		ug/L	10.00		108	70-130			
n-Butylbenzene	11.1		ug/L	10.00		111	70-130			
n-Propylbenzene	9.99		ug/L	10.00		100	70-130			
sec-Butylbenzene	9.72		ug/L	10.00		97	70-130			
Styrene	9.25		ug/L	10.00		92	70-130			
tert-Butylbenzene	9.91		ug/L	10.00		99	70-130			
Tertiary-amyl methyl ether	9.51		ug/L	10.00		95	70-130			
Tetrachloroethene	9.76		ug/L	10.00		98	70-130			
Tetrahydrofuran	10.8		ug/L	10.00		108	70-130			
Toluene	9.48		ug/L	10.00		95	70-130			
trans-1,2-Dichloroethene	9.82		ug/L	10.00		98	70-130			
trans-1,3-Dichloropropene	9.24		ug/L	10.00		92	70-130			
Trichloroethene	9.87		ug/L	10.00		99	70-130			
Trichlorofluoromethane	11.1		ug/L	10.00		111	70-130			
Vinyl Acetate	10.8		ug/L	10.00		108	70-130			
Vinyl Chloride	10.4		ug/L	10.00		104	70-130			
Xylene O	9.01		ug/L	10.00		90	70-130			
Xylene P,M	18.5		ug/L	20.00		93	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0277		mg/L	0.02500		111	70-130			
Surrogate: 4-Bromofluorobenzene	0.0259		mg/L	0.02500		104	70-130			
Surrogate: Dibromofluoromethane	0.0249		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0257		mg/L	0.02500		103	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	8.95		ug/L	10.00		90	70-130	1	25	
1,1,1-Trichloroethane	10.6		ug/L	10.00		106	70-130	0.9	25	
1,1,2,2-Tetrachloroethane	8.58		ug/L	10.00		86	70-130	0.9	25	
1,1,2-Trichloroethane	8.84		ug/L	10.00		88	70-130	2	25	
1,1-Dichloroethane	9.00		ug/L	10.00		90	70-130	1	25	
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130	2	25	
1,1-Dichloropropene	10.2		ug/L	10.00		102	70-130	2	25	
1,2,3-Trichlorobenzene	9.33		ug/L	10.00		93	70-130	17	25	
1,2,3-Trichloropropane	8.21		ug/L	10.00		82	70-130	0.9	25	
1,2,4-Trichlorobenzene	11.1		ug/L	10.00		111	70-130	2	25	
1,2,4-Trimethylbenzene	9.51		ug/L	10.00		95	70-130	5	25	
1,2-Dibromo-3-Chloropropane	7.48		ug/L	10.00		75	70-130	5	25	
1,2-Dibromoethane	9.10		ug/L	10.00		91	70-130	2	25	
1,2-Dichlorobenzene	8.19		ug/L	10.00		82	70-130	3	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21501 - 5030B**

1,2-Dichloroethane	10.5		ug/L	10.00		105	70-130	1	25	
1,2-Dichloropropane	8.61		ug/L	10.00		86	70-130	2	25	
1,3,5-Trimethylbenzene	9.68		ug/L	10.00		97	70-130	4	25	
1,3-Dichlorobenzene	8.29		ug/L	10.00		83	70-130	4	25	
1,3-Dichloropropane	9.03		ug/L	10.00		90	70-130	0.7	25	
1,4-Dichlorobenzene	9.04		ug/L	10.00		90	70-130	0.6	25	
1,4-Dioxane - Screen	222		ug/L	200.0		111	0-332	15	200	
1-Chlorohexane	11.2		ug/L	10.00		112	70-130	7	25	
2,2-Dichloropropane	10.3		ug/L	10.00		103	70-130	2	25	
2-Butanone	50.4		ug/L	50.00		101	70-130	2	25	
2-Chlorotoluene	9.04		ug/L	10.00		90	70-130	6	25	
2-Hexanone	42.6		ug/L	50.00		85	70-130	0.6	25	
4-Chlorotoluene	8.62		ug/L	10.00		86	70-130	3	25	
4-Isopropyltoluene	8.90		ug/L	10.00		89	70-130	7	25	
4-Methyl-2-Pentanone	45.5		ug/L	50.00		91	70-130	0.8	25	
Acetone	58.1		ug/L	50.00		116	70-130	4	25	
Benzene	8.61		ug/L	10.00		86	70-130	1	25	
Bromobenzene	8.82		ug/L	10.00		88	70-130	4	25	
Bromochloromethane	9.26		ug/L	10.00		93	70-130	0.8	25	
Bromodichloromethane	10.4		ug/L	10.00		104	70-130	1	25	
Bromoform	9.86		ug/L	10.00		99	70-130	0.4	25	
Bromomethane	11.0		ug/L	10.00		110	70-130	0.7	25	
Carbon Disulfide	9.66		ug/L	10.00		97	70-130	0.8	25	
Carbon Tetrachloride	10.3		ug/L	10.00		103	70-130	3	25	
Chlorobenzene	8.52		ug/L	10.00		85	70-130	2	25	
Chloroethane	10.1		ug/L	10.00		101	70-130	0.1	25	
Chloroform	9.02		ug/L	10.00		90	70-130	1	25	
Chloromethane	8.92		ug/L	10.00		89	70-130	4	25	
cis-1,2-Dichloroethene	9.98		ug/L	10.00		100	70-130	2	25	
cis-1,3-Dichloropropene	9.33		ug/L	10.00		93	70-130	0.2	25	
Dibromochloromethane	9.62		ug/L	10.00		96	70-130	0.3	25	
Dibromomethane	9.07		ug/L	10.00		91	70-130	1	25	
Dichlorodifluoromethane	8.91		ug/L	10.00		89	70-130	3	25	
Diethyl Ether	9.68		ug/L	10.00		97	70-130	1	25	
Di-isopropyl ether	9.36		ug/L	10.00		94	70-130	3	25	
Ethyl tertiary-butyl ether	9.61		ug/L	10.00		96	70-130	1	25	
Ethylbenzene	9.80		ug/L	10.00		98	70-130	3	25	
Hexachlorobutadiene	10.4		ug/L	10.00		104	70-130	12	25	
Hexachloroethane	9.92		ug/L	10.00		99	70-130	5	25	
Isopropylbenzene	8.53		ug/L	10.00		85	70-130	6	25	
Methyl tert-Butyl Ether	9.68		ug/L	10.00		97	70-130	0.9	25	
Methylene Chloride	10.4		ug/L	10.00		104	70-130	2	25	
Naphthalene	10.3		ug/L	10.00		103	70-130	5	25	
n-Butylbenzene	10.3		ug/L	10.00		103	70-130	7	25	
n-Propylbenzene	8.71		ug/L	10.00		87	70-130	14	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21501 - 5030B**

sec-Butylbenzene	9.10		ug/L	10.00		91	70-130	7	25	
Styrene	9.03		ug/L	10.00		90	70-130	2	25	
tert-Butylbenzene	9.33		ug/L	10.00		93	70-130	6	25	
Tertiary-amyl methyl ether	9.44		ug/L	10.00		94	70-130	0.7	25	
Tetrachloroethene	9.63		ug/L	10.00		96	70-130	1	25	
Tetrahydrofuran	10.2		ug/L	10.00		102	70-130	6	25	
Toluene	9.18		ug/L	10.00		92	70-130	3	25	
trans-1,2-Dichloroethene	9.84		ug/L	10.00		98	70-130	0.2	25	
trans-1,3-Dichloropropene	9.23		ug/L	10.00		92	70-130	0.1	25	
Trichloroethene	9.68		ug/L	10.00		97	70-130	2	25	
Trichlorofluoromethane	10.6		ug/L	10.00		106	70-130	5	25	
Vinyl Acetate	11.1		ug/L	10.00		111	70-130	2	25	
Vinyl Chloride	10.3		ug/L	10.00		103	70-130	0.7	25	
Xylene O	8.88		ug/L	10.00		89	70-130	1	25	
Xylene P,M	18.2		ug/L	20.00		91	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0279		mg/L	0.02500		112	70-130			
Surrogate: 4-Bromofluorobenzene	0.0261		mg/L	0.02500		104	70-130			
Surrogate: Dibromofluoromethane	0.0251		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0258		mg/L	0.02500		103	70-130			

**Batch CG21503 - 5030B**

<b>Blank</b>										
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21503 - 5030B**

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							
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							





CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21503 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0245		mg/L	0.02500		98	70-130			
Surrogate: 4-Bromofluorobenzene	0.0257		mg/L	0.02500		103	70-130			
Surrogate: Dibromofluoromethane	0.0228		mg/L	0.02500		91	70-130			
Surrogate: Toluene-d8	0.0244		mg/L	0.02500		98	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	9.43		ug/L	10.00		94	70-130			
1,1,1-Trichloroethane	11.1		ug/L	10.00		111	70-130			
1,1,2,2-Tetrachloroethane	8.69		ug/L	10.00		87	70-130			
1,1,2-Trichloroethane	9.17		ug/L	10.00		92	70-130			
1,1-Dichloroethane	9.01		ug/L	10.00		90	70-130			
1,1-Dichloroethene	10.5		ug/L	10.00		105	70-130			
1,1-Dichloropropene	9.96		ug/L	10.00		100	70-130			
1,2,3-Trichlorobenzene	10.9		ug/L	10.00		109	70-130			
1,2,3-Trichloropropane	8.43		ug/L	10.00		84	70-130			
1,2,4-Trichlorobenzene	11.8		ug/L	10.00		118	70-130			
1,2,4-Trimethylbenzene	10.1		ug/L	10.00		101	70-130			
1,2-Dibromo-3-Chloropropane	8.79		ug/L	10.00		88	70-130			
1,2-Dibromoethane	9.44		ug/L	10.00		94	70-130			
1,2-Dichlorobenzene	8.49		ug/L	10.00		85	70-130			
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130			
1,2-Dichloropropane	8.32		ug/L	10.00		83	70-130			
1,3,5-Trimethylbenzene	10.4		ug/L	10.00		104	70-130			
1,3-Dichlorobenzene	8.80		ug/L	10.00		88	70-130			
1,3-Dichloropropane	9.28		ug/L	10.00		93	70-130			
1,4-Dichlorobenzene	9.29		ug/L	10.00		93	70-130			
1,4-Dioxane - Screen	349		ug/L	200.0		174	0-332			
1-Chlorohexane	11.7		ug/L	10.00		117	70-130			
2,2-Dichloropropane	10.7		ug/L	10.00		107	70-130			
2-Butanone	51.6		ug/L	50.00		103	70-130			
2-Chlorotoluene	9.26		ug/L	10.00		93	70-130			
2-Hexanone	44.9		ug/L	50.00		90	70-130			
4-Chlorotoluene	8.99		ug/L	10.00		90	70-130			
4-Isopropyltoluene	9.74		ug/L	10.00		97	70-130			
4-Methyl-2-Pentanone	45.7		ug/L	50.00		91	70-130			
Acetone	52.1		ug/L	50.00		104	70-130			
Benzene	8.41		ug/L	10.00		84	70-130			
Bromobenzene	9.07		ug/L	10.00		91	70-130			
Bromochloromethane	9.18		ug/L	10.00		92	70-130			
Bromodichloromethane	10.5		ug/L	10.00		105	70-130			
Bromoform	10.5		ug/L	10.00		105	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21503 - 5030B**

Bromomethane	9.53		ug/L	10.00		95	70-130			
Carbon Disulfide	8.81		ug/L	10.00		88	70-130			
Carbon Tetrachloride	11.3		ug/L	10.00		113	70-130			
Chlorobenzene	8.80		ug/L	10.00		88	70-130			
Chloroethane	9.93		ug/L	10.00		99	70-130			
Chloroform	9.27		ug/L	10.00		93	70-130			
Chloromethane	8.33		ug/L	10.00		83	70-130			
cis-1,2-Dichloroethene	9.93		ug/L	10.00		99	70-130			
cis-1,3-Dichloropropene	9.00		ug/L	10.00		90	70-130			
Dibromochloromethane	10.3		ug/L	10.00		103	70-130			
Dibromomethane	9.30		ug/L	10.00		93	70-130			
Dichlorodifluoromethane	9.56		ug/L	10.00		96	70-130			
Diethyl Ether	9.73		ug/L	10.00		97	70-130			
Di-isopropyl ether	9.11		ug/L	10.00		91	70-130			
Ethyl tertiary-butyl ether	9.86		ug/L	10.00		99	70-130			
Ethylbenzene	10.1		ug/L	10.00		101	70-130			
Hexachlorobutadiene	12.0		ug/L	10.00		120	70-130			
Hexachloroethane	10.4		ug/L	10.00		104	70-130			
Isopropylbenzene	9.10		ug/L	10.00		91	70-130			
Methyl tert-Butyl Ether	10.1		ug/L	10.00		101	70-130			
Methylene Chloride	10.2		ug/L	10.00		102	70-130			
Naphthalene	12.0		ug/L	10.00		120	70-130			
n-Butylbenzene	11.2		ug/L	10.00		112	70-130			
n-Propylbenzene	9.20		ug/L	10.00		92	70-130			
sec-Butylbenzene	9.91		ug/L	10.00		99	70-130			
Styrene	9.35		ug/L	10.00		94	70-130			
tert-Butylbenzene	9.82		ug/L	10.00		98	70-130			
Tertiary-amyl methyl ether	9.62		ug/L	10.00		96	70-130			
Tetrachloroethene	10.1		ug/L	10.00		101	70-130			
Tetrahydrofuran	10.3		ug/L	10.00		103	70-130			
Toluene	9.14		ug/L	10.00		91	70-130			
trans-1,2-Dichloroethene	9.96		ug/L	10.00		100	70-130			
trans-1,3-Dichloropropene	9.01		ug/L	10.00		90	70-130			
Trichloroethene	9.98		ug/L	10.00		100	70-130			
Trichlorofluoromethane	11.5		ug/L	10.00		115	70-130			
Vinyl Acetate	11.4		ug/L	10.00		114	70-130			
Vinyl Chloride	10.0		ug/L	10.00		100	70-130			
Xylene O	9.21		ug/L	10.00		92	70-130			
Xylene P,M	19.3		ug/L	20.00		97	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0292		mg/L	0.02500		117	70-130			
Surrogate: 4-Bromofluorobenzene	0.0264		mg/L	0.02500		106	70-130			
Surrogate: Dibromofluoromethane	0.0251		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0260		mg/L	0.02500		104	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	8.88		ug/L	10.00		89	70-130	6	25	
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*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21503 - 5030B**

1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130	2	25	
1,1,2,2-Tetrachloroethane	8.52		ug/L	10.00		85	70-130	2	25	
1,1,2-Trichloroethane	8.84		ug/L	10.00		88	70-130	4	25	
1,1-Dichloroethane	8.85		ug/L	10.00		88	70-130	2	25	
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130	2	25	
1,1-Dichloropropene	9.28		ug/L	10.00		93	70-130	7	25	
1,2,3-Trichlorobenzene	9.75		ug/L	10.00		98	70-130	11	25	
1,2,3-Trichloropropane	8.38		ug/L	10.00		84	70-130	0.6	25	
1,2,4-Trichlorobenzene	10.9		ug/L	10.00		109	70-130	8	25	
1,2,4-Trimethylbenzene	9.91		ug/L	10.00		99	70-130	2	25	
1,2-Dibromo-3-Chloropropane	7.98		ug/L	10.00		80	70-130	10	25	
1,2-Dibromoethane	9.14		ug/L	10.00		91	70-130	3	25	
1,2-Dichlorobenzene	8.34		ug/L	10.00		83	70-130	2	25	
1,2-Dichloroethane	11.2		ug/L	10.00		112	70-130	0.9	25	
1,2-Dichloropropane	8.52		ug/L	10.00		85	70-130	2	25	
1,3,5-Trimethylbenzene	9.99		ug/L	10.00		100	70-130	4	25	
1,3-Dichlorobenzene	8.55		ug/L	10.00		86	70-130	3	25	
1,3-Dichloropropane	8.94		ug/L	10.00		89	70-130	4	25	
1,4-Dichlorobenzene	8.84		ug/L	10.00		88	70-130	5	25	
1,4-Dioxane - Screen	218		ug/L	200.0		109	0-332	46	200	
1-Chlorohexane	11.0		ug/L	10.00		110	70-130	6	25	
2,2-Dichloropropane	10.6		ug/L	10.00		106	70-130	0.6	25	
2-Butanone	49.4		ug/L	50.00		99	70-130	4	25	
2-Chlorotoluene	9.04		ug/L	10.00		90	70-130	2	25	
2-Hexanone	42.0		ug/L	50.00		84	70-130	6	25	
4-Chlorotoluene	8.73		ug/L	10.00		87	70-130	3	25	
4-Isopropyltoluene	9.22		ug/L	10.00		92	70-130	5	25	
4-Methyl-2-Pentanone	45.3		ug/L	50.00		91	70-130	0.8	25	
Acetone	50.4		ug/L	50.00		101	70-130	3	25	
Benzene	8.53		ug/L	10.00		85	70-130	1	25	
Bromobenzene	9.03		ug/L	10.00		90	70-130	0.4	25	
Bromochloromethane	9.35		ug/L	10.00		94	70-130	2	25	
Bromodichloromethane	10.3		ug/L	10.00		103	70-130	1	25	
Bromoform	10.2		ug/L	10.00		102	70-130	3	25	
Bromomethane	9.15		ug/L	10.00		92	70-130	4	25	
Carbon Disulfide	8.89		ug/L	10.00		89	70-130	0.9	25	
Carbon Tetrachloride	11.1		ug/L	10.00		111	70-130	2	25	
Chlorobenzene	8.53		ug/L	10.00		85	70-130	3	25	
Chloroethane	9.85		ug/L	10.00		98	70-130	0.8	25	
Chloroform	9.10		ug/L	10.00		91	70-130	2	25	
Chloromethane	8.04		ug/L	10.00		80	70-130	4	25	
cis-1,2-Dichloroethene	10.0		ug/L	10.00		100	70-130	0.7	25	
cis-1,3-Dichloropropene	9.05		ug/L	10.00		90	70-130	0.6	25	
Dibromochloromethane	9.90		ug/L	10.00		99	70-130	4	25	
Dibromomethane	9.13		ug/L	10.00		91	70-130	2	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21503 - 5030B**

Dichlorodifluoromethane	9.33		ug/L	10.00		93	70-130	2	25	
Diethyl Ether	9.26		ug/L	10.00		93	70-130	5	25	
Di-isopropyl ether	9.18		ug/L	10.00		92	70-130	0.8	25	
Ethyl tertiary-butyl ether	9.57		ug/L	10.00		96	70-130	3	25	
Ethylbenzene	9.82		ug/L	10.00		98	70-130	3	25	
Hexachlorobutadiene	10.4		ug/L	10.00		104	70-130	14	25	
Hexachloroethane	10.1		ug/L	10.00		101	70-130	3	25	
Isopropylbenzene	8.90		ug/L	10.00		89	70-130	2	25	
Methyl tert-Butyl Ether	9.88		ug/L	10.00		99	70-130	2	25	
Methylene Chloride	10.0		ug/L	10.00		100	70-130	2	25	
Naphthalene	10.6		ug/L	10.00		106	70-130	13	25	
n-Butylbenzene	10.4		ug/L	10.00		104	70-130	8	25	
n-Propylbenzene	9.02		ug/L	10.00		90	70-130	2	25	
sec-Butylbenzene	9.43		ug/L	10.00		94	70-130	5	25	
Styrene	9.04		ug/L	10.00		90	70-130	3	25	
tert-Butylbenzene	9.53		ug/L	10.00		95	70-130	3	25	
Tertiary-amyl methyl ether	9.49		ug/L	10.00		95	70-130	1	25	
Tetrachloroethene	9.50		ug/L	10.00		95	70-130	7	25	
Tetrahydrofuran	10.2		ug/L	10.00		102	70-130	1	25	
Toluene	9.09		ug/L	10.00		91	70-130	0.5	25	
trans-1,2-Dichloroethene	9.88		ug/L	10.00		99	70-130	0.8	25	
trans-1,3-Dichloropropene	8.96		ug/L	10.00		90	70-130	0.6	25	
Trichloroethene	9.65		ug/L	10.00		96	70-130	3	25	
Trichlorofluoromethane	11.4		ug/L	10.00		114	70-130	0.7	25	
Vinyl Acetate	10.6		ug/L	10.00		106	70-130	8	25	
Vinyl Chloride	9.88		ug/L	10.00		99	70-130	2	25	
Xylene O	8.81		ug/L	10.00		88	70-130	4	25	
Xylene P,M	18.7		ug/L	20.00		94	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	0.0292		mg/L	0.02500		117	70-130			
Surrogate: 4-Bromofluorobenzene	0.0262		mg/L	0.02500		105	70-130			
Surrogate: Dibromofluoromethane	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Toluene-d8	0.0257		mg/L	0.02500		103	70-130			

**Batch CG21716 - 5030B**

<b>Blank</b>										
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21716 - 5030B**

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							
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							



CERTIFICATE OF ANALYSIS

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Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21716 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0258		mg/L	0.02500		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.0260		mg/L	0.02500		104	70-130			
Surrogate: Dibromofluoromethane	0.0232		mg/L	0.02500		93	70-130			
Surrogate: Toluene-d8	0.0243		mg/L	0.02500		97	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	8.83		ug/L	10.00		88	70-130			
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130			
1,1,2,2-Tetrachloroethane	8.40		ug/L	10.00		84	70-130			
1,1,2-Trichloroethane	8.70		ug/L	10.00		87	70-130			
1,1-Dichloroethane	8.71		ug/L	10.00		87	70-130			
1,1-Dichloroethene	10.0		ug/L	10.00		100	70-130			
1,1-Dichloropropene	9.08		ug/L	10.00		91	70-130			
1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,2,3-Trichloropropane	8.17		ug/L	10.00		82	70-130			
1,2,4-Trichlorobenzene	11.2		ug/L	10.00		112	70-130			
1,2,4-Trimethylbenzene	9.67		ug/L	10.00		97	70-130			
1,2-Dibromo-3-Chloropropane	8.66		ug/L	10.00		87	70-130			
1,2-Dibromoethane	8.97		ug/L	10.00		90	70-130			
1,2-Dichlorobenzene	8.48		ug/L	10.00		85	70-130			
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130			
1,2-Dichloropropane	8.21		ug/L	10.00		82	70-130			
1,3,5-Trimethylbenzene	9.90		ug/L	10.00		99	70-130			
1,3-Dichlorobenzene	8.18		ug/L	10.00		82	70-130			
1,3-Dichloropropane	8.69		ug/L	10.00		87	70-130			
1,4-Dichlorobenzene	8.87		ug/L	10.00		89	70-130			
1,4-Dioxane - Screen	304		ug/L	200.0		152	0-332			
1-Chlorohexane	11.2		ug/L	10.00		112	70-130			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
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ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21716 - 5030B**

2,2-Dichloropropane	11.0		ug/L	10.00		110	70-130			
2-Butanone	51.1		ug/L	50.00		102	70-130			
2-Chlorotoluene	8.22		ug/L	10.00		82	70-130			
2-Hexanone	42.5		ug/L	50.00		85	70-130			
4-Chlorotoluene	8.96		ug/L	10.00		90	70-130			
4-Isopropyltoluene	9.29		ug/L	10.00		93	70-130			
4-Methyl-2-Pentanone	43.3		ug/L	50.00		87	70-130			
Acetone	56.3		ug/L	50.00		113	70-130			
Benzene	8.20		ug/L	10.00		82	70-130			
Bromobenzene	8.92		ug/L	10.00		89	70-130			
Bromochloromethane	8.92		ug/L	10.00		89	70-130			
Bromodichloromethane	10.2		ug/L	10.00		102	70-130			
Bromoform	10.1		ug/L	10.00		101	70-130			
Bromomethane	10.4		ug/L	10.00		104	70-130			
Carbon Disulfide	8.90		ug/L	10.00		89	70-130			
Carbon Tetrachloride	10.9		ug/L	10.00		109	70-130			
Chlorobenzene	8.54		ug/L	10.00		85	70-130			
Chloroethane	9.99		ug/L	10.00		100	70-130			
Chloroform	9.09		ug/L	10.00		91	70-130			
Chloromethane	8.09		ug/L	10.00		81	70-130			
cis-1,2-Dichloroethene	9.66		ug/L	10.00		97	70-130			
cis-1,3-Dichloropropene	8.87		ug/L	10.00		89	70-130			
Dibromochloromethane	9.60		ug/L	10.00		96	70-130			
Dibromomethane	8.84		ug/L	10.00		88	70-130			
Dichlorodifluoromethane	9.24		ug/L	10.00		92	70-130			
Diethyl Ether	9.48		ug/L	10.00		95	70-130			
Di-isopropyl ether	8.87		ug/L	10.00		89	70-130			
Ethyl tertiary-butyl ether	9.53		ug/L	10.00		95	70-130			
Ethylbenzene	9.63		ug/L	10.00		96	70-130			
Hexachlorobutadiene	11.2		ug/L	10.00		112	70-130			
Hexachloroethane	10.2		ug/L	10.00		102	70-130			
Isopropylbenzene	8.84		ug/L	10.00		88	70-130			
Methyl tert-Butyl Ether	9.66		ug/L	10.00		97	70-130			
Methylene Chloride	9.89		ug/L	10.00		99	70-130			
Naphthalene	11.4		ug/L	10.00		114	70-130			
n-Butylbenzene	10.4		ug/L	10.00		104	70-130			
n-Propylbenzene	9.45		ug/L	10.00		94	70-130			
sec-Butylbenzene	9.38		ug/L	10.00		94	70-130			
Styrene	8.83		ug/L	10.00		88	70-130			
tert-Butylbenzene	9.36		ug/L	10.00		94	70-130			
Tertiary-amyl methyl ether	9.16		ug/L	10.00		92	70-130			
Tetrachloroethene	9.44		ug/L	10.00		94	70-130			
Tetrahydrofuran	9.35		ug/L	10.00		94	70-130			
Toluene	8.98		ug/L	10.00		90	70-130			
trans-1,2-Dichloroethene	9.71		ug/L	10.00		97	70-130			





*CERTIFICATE OF ANALYSIS*

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**Quality Control Data**

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

**Batch CG21716 - 5030B**

trans-1,3-Dichloropropene	9.13		ug/L	10.00		91	70-130			
Trichloroethene	9.52		ug/L	10.00		95	70-130			
Trichlorofluoromethane	11.2		ug/L	10.00		112	70-130			
Vinyl Acetate	10.4		ug/L	10.00		104	70-130			
Vinyl Chloride	9.93		ug/L	10.00		99	70-130			
Xylene O	8.68		ug/L	10.00		87	70-130			
Xylene P,M	18.2		ug/L	20.00		91	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0301		mg/L	0.02500		120	70-130			
Surrogate: 4-Bromofluorobenzene	0.0261		mg/L	0.02500		105	70-130			
Surrogate: Dibromofluoromethane	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Toluene-d8	0.0259		mg/L	0.02500		104	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	8.86		ug/L	10.00		89	70-130	0.3	25	
1,1,1-Trichloroethane	11.1		ug/L	10.00		111	70-130	0.8	25	
1,1,2,2-Tetrachloroethane	8.07		ug/L	10.00		81	70-130	4	25	
1,1,2-Trichloroethane	8.53		ug/L	10.00		85	70-130	2	25	
1,1-Dichloroethane	8.50		ug/L	10.00		85	70-130	2	25	
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130	0.3	25	
1,1-Dichloropropene	9.96		ug/L	10.00		100	70-130	9	25	
1,2,3-Trichlorobenzene	9.60		ug/L	10.00		96	70-130	6	25	
1,2,3-Trichloropropane	8.26		ug/L	10.00		83	70-130	1	25	
1,2,4-Trichlorobenzene	10.8		ug/L	10.00		108	70-130	4	25	
1,2,4-Trimethylbenzene	9.30		ug/L	10.00		93	70-130	4	25	
1,2-Dibromo-3-Chloropropane	8.69		ug/L	10.00		87	70-130	0.3	25	
1,2-Dibromoethane	8.89		ug/L	10.00		89	70-130	0.9	25	
1,2-Dichlorobenzene	7.88		ug/L	10.00		79	70-130	7	25	
1,2-Dichloroethane	11.0		ug/L	10.00		110	70-130	1	25	
1,2-Dichloropropane	8.02		ug/L	10.00		80	70-130	2	25	
1,3,5-Trimethylbenzene	9.55		ug/L	10.00		96	70-130	4	25	
1,3-Dichlorobenzene	8.03		ug/L	10.00		80	70-130	2	25	
1,3-Dichloropropane	8.65		ug/L	10.00		86	70-130	0.5	25	
1,4-Dichlorobenzene	8.67		ug/L	10.00		87	70-130	2	25	
1,4-Dioxane - Screen	215		ug/L	200.0		108	0-332	34	200	
1-Chlorohexane	11.1		ug/L	10.00		111	70-130	1	25	
2,2-Dichloropropane	10.8		ug/L	10.00		108	70-130	2	25	
2-Butanone	48.3		ug/L	50.00		97	70-130	6	25	
2-Chlorotoluene	8.02		ug/L	10.00		80	70-130	2	25	
2-Hexanone	42.2		ug/L	50.00		84	70-130	0.9	25	
4-Chlorotoluene	8.70		ug/L	10.00		87	70-130	3	25	
4-Isopropyltoluene	8.99		ug/L	10.00		90	70-130	3	25	
4-Methyl-2-Pentanone	43.0		ug/L	50.00		86	70-130	0.7	25	
Acetone	51.2		ug/L	50.00		102	70-130	10	25	
Benzene	8.23		ug/L	10.00		82	70-130	0.4	25	
Bromobenzene	8.48		ug/L	10.00		85	70-130	5	25	
Bromochloromethane	8.86		ug/L	10.00		89	70-130	0.7	25	



CERTIFICATE OF ANALYSIS

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Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1207099

**Quality Control Data**

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

**Batch CG21716 - 5030B**

Bromodichloromethane	10.2		ug/L	10.00		102	70-130	0	25	
Bromoform	10.0		ug/L	10.00		100	70-130	0.7	25	
Bromomethane	10.7		ug/L	10.00		107	70-130	3	25	
Carbon Disulfide	8.80		ug/L	10.00		88	70-130	1	25	
Carbon Tetrachloride	11.4		ug/L	10.00		114	70-130	4	25	
Chlorobenzene	8.41		ug/L	10.00		84	70-130	2	25	
Chloroethane	9.79		ug/L	10.00		98	70-130	2	25	
Chloroform	9.17		ug/L	10.00		92	70-130	0.9	25	
Chloromethane	8.03		ug/L	10.00		80	70-130	0.7	25	
cis-1,2-Dichloroethene	9.56		ug/L	10.00		96	70-130	1	25	
cis-1,3-Dichloropropene	8.87		ug/L	10.00		89	70-130	0	25	
Dibromochloromethane	9.62		ug/L	10.00		96	70-130	0.2	25	
Dibromomethane	8.82		ug/L	10.00		88	70-130	0.2	25	
Dichlorodifluoromethane	9.00		ug/L	10.00		90	70-130	3	25	
Diethyl Ether	9.30		ug/L	10.00		93	70-130	2	25	
Di-isopropyl ether	8.74		ug/L	10.00		87	70-130	1	25	
Ethyl tertiary-butyl ether	9.58		ug/L	10.00		96	70-130	0.5	25	
Ethylbenzene	9.70		ug/L	10.00		97	70-130	0.7	25	
Hexachlorobutadiene	10.2		ug/L	10.00		102	70-130	10	25	
Hexachloroethane	9.62		ug/L	10.00		96	70-130	6	25	
Isopropylbenzene	8.53		ug/L	10.00		85	70-130	4	25	
Methyl tert-Butyl Ether	9.47		ug/L	10.00		95	70-130	2	25	
Methylene Chloride	9.55		ug/L	10.00		96	70-130	3	25	
Naphthalene	9.39		ug/L	10.00		94	70-130	19	25	
n-Butylbenzene	10.2		ug/L	10.00		102	70-130	3	25	
n-Propylbenzene	9.29		ug/L	10.00		93	70-130	2	25	
sec-Butylbenzene	8.86		ug/L	10.00		89	70-130	6	25	
Styrene	8.72		ug/L	10.00		87	70-130	1	25	
tert-Butylbenzene	9.13		ug/L	10.00		91	70-130	2	25	
Tertiary-amyl methyl ether	8.98		ug/L	10.00		90	70-130	2	25	
Tetrachloroethene	9.37		ug/L	10.00		94	70-130	0.7	25	
Tetrahydrofuran	10.1		ug/L	10.00		101	70-130	7	25	
Toluene	8.84		ug/L	10.00		88	70-130	2	25	
trans-1,2-Dichloroethene	9.37		ug/L	10.00		94	70-130	4	25	
trans-1,3-Dichloropropene	9.01		ug/L	10.00		90	70-130	1	25	
Trichloroethene	9.52		ug/L	10.00		95	70-130	0	25	
Trichlorofluoromethane	11.3		ug/L	10.00		113	70-130	1	25	
Vinyl Acetate	10.1		ug/L	10.00		101	70-130	3	25	
Vinyl Chloride	9.85		ug/L	10.00		98	70-130	0.8	25	
Xylene O	8.68		ug/L	10.00		87	70-130	0	25	
Xylene P,M	17.8		ug/L	20.00		89	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0296		mg/L	0.02500		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0266		mg/L	0.02500		106	70-130			
Surrogate: Dibromofluoromethane	0.0251		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0260		mg/L	0.02500		104	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270C Polynuclear Aromatic Hydrocarbons

**Batch CG21102 - 3510C**

**Blank**

2-Methylnaphthalene	ND	0.002	mg/L							
Acenaphthene	ND	0.002	mg/L							
Acenaphthylene	ND	0.002	mg/L							
Anthracene	ND	0.002	mg/L							
Benzo(a)anthracene	ND	0.002	mg/L							
Benzo(a)pyrene	ND	0.002	mg/L							
Benzo(b)fluoranthene	ND	0.002	mg/L							
Benzo(g,h,i)perylene	ND	0.002	mg/L							
Benzo(k)fluoranthene	ND	0.002	mg/L							
Chrysene	ND	0.002	mg/L							
Dibenzo(a,h)Anthracene	ND	0.002	mg/L							
Fluoranthene	ND	0.002	mg/L							
Fluorene	ND	0.002	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L							
Naphthalene	ND	0.002	mg/L							
Phenanthrene	ND	0.002	mg/L							
Pyrene	ND	0.002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.000328		mg/L	0.0006250		52	30-130			
Surrogate: 2-Fluorobiphenyl	0.000375		mg/L	0.0006250		60	30-130			
Surrogate: Nitrobenzene-d5	0.000405		mg/L	0.0006250		65	30-130			
Surrogate: p-Terphenyl-d14	0.000418		mg/L	0.0006250		67	30-130			

**LCS**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140			
Anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Chrysene	ND	0.002	mg/L	0.0005000			40-140			
Dibenzo(a,h)Anthracene	0.0005	0.002	mg/L	0.0005000		104	40-140			
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Fluorene	ND	0.002	mg/L	0.0005000			40-140			
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Naphthalene	ND	0.002	mg/L	0.0005000			40-140			
Phenanthrene	ND	0.002	mg/L	0.0005000			40-140			
Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.000305		mg/L	0.0006250		49	30-130			
Surrogate: 2-Fluorobiphenyl	0.000358		mg/L	0.0006250		57	30-130			
Surrogate: Nitrobenzene-d5	0.000368		mg/L	0.0006250		59	30-130			
Surrogate: p-Terphenyl-d14	0.000422		mg/L	0.0006250		68	30-130			

**LCS Dup**



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270C Polynuclear Aromatic Hydrocarbons

**Batch CG21102 - 3510C**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Chrysene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Dibenzo(a,h)Anthracene	0.0006	0.002	mg/L	0.0005000		111	40-140	7	20	
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Fluorene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Naphthalene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Phenanthrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.000292		mg/L	0.0006250		47	30-130			
Surrogate: 2-Fluorobiphenyl	0.000338		mg/L	0.0006250		54	30-130			
Surrogate: Nitrobenzene-d5	0.000370		mg/L	0.0006250		59	30-130			
Surrogate: p-Terphenyl-d14	0.000415		mg/L	0.0006250		66	30-130			

Classical Chemistry

**Batch CG21206 - TCN Prep**

<b>Blank</b>										
Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							
<b>LCS</b>										
Dissolved Cyanide	0.0206	0.0050	mg/L	0.02006		103	90-110			
Total Cyanide (LL)	0.0206	0.0050	mg/L	0.02006		103	90-110			
<b>LCS</b>										
Dissolved Cyanide	0.145	0.0050	mg/L	0.1504		96	90-110			
Total Cyanide (LL)	0.145	0.0050	mg/L	0.1504		96	90-110			
<b>LCS Dup</b>										
Dissolved Cyanide	0.144	0.0050	mg/L	0.1504		96	90-110	0.4	20	
Total Cyanide (LL)	0.144	0.0050	mg/L	0.1504		96	90-110	0.4	20	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207099

**Notes and Definitions**

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- C- Continuing Calibration recovery is below lower control limit (C-).
- 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: 1207099

**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/labs/waterlabs-instate.php>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water: RI0002  
[http://www.maine.gov/dep/blwq/topic/vessel/lab\\_list.pdf](http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf)

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://www4.egov.nh.gov/des/nhelap/namesearch.asp>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313  
<http://www.wadsworth.org/labcert/elap/comm.html>

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301  
[http://www.mde.state.md.us/assets/document/WSP\\_labs-2009apr20.pdf](http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf)

**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.cpsc.gov/cgi-bin/labapplist.aspx>

**Sample and Cooler Receipt Checklist**

Client: GZA GeoEnvironmental, Inc.  
Client Project ID: \_\_\_\_\_  
Shipped/Delivered Via: ESS Courier

ESS Project ID: 12070099  
Date Project Due: 7/17/12  
Days For Project: 4 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
- 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	1 L Glass	2	H2SO4
1	Yes	1 L Glass	2	NP
1	Yes	250 ml Plastic	2	NaOH
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	2	H2SO4
2	Yes	1 L Glass	2	NP
2	Yes	250 ml Plastic	2	NaOH
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	2	H2SO4
3	Yes	1 L Glass	2	NP
3	Yes	250 ml Plastic	2	NaOH
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	2	H2SO4
4	Yes	1 L Glass	2	NP
4	Yes	250 ml Plastic	2	NaOH
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	2	H2SO4
5	Yes	1 L Glass	2	NP
5	Yes	250 ml Plastic	2	NaOH
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	2	H2SO4
6	Yes	1 L Glass	2	NP
6	Yes	250 ml Plastic	2	NaOH
6	Yes	40 ml - VOA	3	HCL
7	Yes	1 L Glass	1	H2SO4



**Sample and Cooler Receipt Checklist**

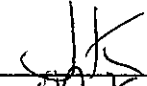
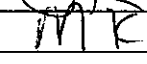
Client: GZA GeoEnvironmental, Inc.

ESS Project ID: 12070099

7 Yes  
7 Yes  
7 Yes  
8 Yes  
8 Yes  
8 Yes  
8 Yes  
9 Yes  
9 Yes  
9 Yes  
9 Yes  
10 Yes

1 L Glass 2  
250 ml Plastic 2  
40 ml - VOA 3  
1 L Glass 2  
1 L Glass 2  
250 ml Plastic 2  
40 ml - VOA 3  
1 L Glass 2  
1 L Glass 2  
250 ml Plastic 2  
40 ml - VOA 3  
40 ml - VOA 3

NP  
NaOH  
HCL  
H2SO4  
NP  
NaOH  
HCL  
H2SO4  
NP  
NaOH  
HCL  
HCL

Completed By:   
Reviewed By: 

Date/Time: 7/11/12 104P  
Date/Time: 7/11/12

Turn Time:  Standard Other \_\_\_\_\_  
 If faster than 5 days, prior approval by laboratory is required # \_\_\_\_\_  
 State whose samples were collected from: MA (R) CT NH NJ NY ME Other \_\_\_\_\_  
 Is this project for any of the following: USACE Other \_\_\_\_\_  
 Navy \_\_\_\_\_

Reporting Limits: \_\_\_\_\_  
 Electronic Deliverable: Yes  No \_\_\_\_\_  
 Format: Excel  Access \_\_\_\_\_ PDF  Other \_\_\_\_\_  
 ESS LAB PROJECT ID: 1207099

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															
										VOC	TPH	PAH	Total Cyanide	Disolve Cyanide											
1	7-10-12	1206	X	GW	X	MW-201	1235	9	6VP	X	X	X	X	X											
2	7-10-12	1236	X	GW	X	MW-208	1235	9	6VP	X	X	X	X	X											
3	7-10-12	1420	X	GW	X	MW-310 S	1235	9	6VP	X	X	X	X	X											
4	7-10-12	1450	X	GW	X	MW-310 D	1235	9	6VP	X	X	X	X	X											
5	7-10-12	1315	X	GW	X	MW-334 S	1235	9	6VP	X	X	X	X	X											
6	7-10-12	1425	X	GW	X	MW-334 D	1235	9	6VP	X	X	X	X	X											
7	7-10-12	1450	X	GW	X	MW-318 D	1235	8	6VP	X	X	X	X	X											
8	7-10-12	1240	X	GW	X	MW-318 S	1235	9	6VP	X	X	X	X	X											
10	7-10-12	0700	X	GW	X	TBLK070A	2	3	V	X															
9	7-10-12	1330	X	GW	X	BDO7012	1235	9	6VP	X	X	X	X	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 Internal Use Only:  Yes  No NA:  Pickup  
 Seals Intact:  Yes  No  
 Cooler Temp: 20.2  2.1  2.4  Technicians \_\_\_\_\_  
 Relinquished by: (Signature) [Signature] Date/Time 7/10/12 17:20 Received by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Relinquished by: (Signature) [Signature] Date/Time 7/10/12 17:30 Received by: (Signature) [Signature] Date/Time 7/11/12 11:05  
 Comments: Disolved Cyanide were field filtered, also email 501.mia.markiewicz@qea.com  
 Relinquished by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_ Received by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Relinquished by: (Signature) [Signature] Date/Time 7/10/12 17:30 Received by: (Signature) [Signature] Date/Time 7/11/12 11:05  
 Relinquished by: (Signature) [Signature] Date/Time 7/10/12 17:30 Received by: (Signature) [Signature] Date/Time 7/11/12 11:05



*CERTIFICATE OF ANALYSIS*

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

**RE: Tidewater GH (03.043654.00)**  
**ESS Laboratory Work Order Number: 1207134**

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 4:26 pm, Jul 20, 2012**

**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.

ESS Laboratory certifies that the test results meet the requirements of NELAC and A2LA, except where noted within this project narrative.



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**SAMPLE RECEIPT**

The following samples were received on July 11, 2012 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.**

<b>Lab Number</b>	<b>SampleName</b>	<b>Matrix</b>	<b>Analysis</b>
1207134-01	MW-7	Ground Water	8100M, 8260B, 8270C, 9014
1207134-02	MW-312D	Ground Water	8100M, 8260B, 8270C, 9014
1207134-03	MW-326S	Ground Water	8100M, 8260B, 8270C, 9014
1207134-04	MW-326D	Ground Water	8100M, 8260B, 8270C, 9014
1207134-05	MW-333S	Ground Water	8100M, 8260B, 8270C, 9014
1207134-06	MW-333D	Ground Water	8100M, 8260B, 8270C, 9014
1207134-07	MW-6	Ground Water	8100M, 8260B, 8270C, 9014
1207134-08	MW-107	Ground Water	8100M, 8260B, 8270C, 9014
1207134-09	MW-109	Ground Water	8100M, 8260B, 8270C, 9014
1207134-10	MW-337	Ground Water	8100M, 8260B, 8270C, 9014
1207134-11	MW-316S	Ground Water	8260B
1207134-12	MW-316D	Ground Water	8100M, 8260B, 8270C, 9014
1207134-13	BD071112	Ground Water	8100M, 8260B, 8270C, 9014
1207134-14	TBLK071112	Aqueous	8260B



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

CVG0122-CCV1 Continuing Calibration recovery is below lower control limit (C-).

1,4-Dioxane - Screen (64% @ 70-130%)

**8270C Polynuclear Aromatic Hydrocarbons**

1207134-02 Surrogate recovery(ies) diluted below the MRL (SD).

1,2-Dichlorobenzene-d4 (% @ 30-130%), 2-Fluorobiphenyl (% @ 30-130%), Nitrobenzene-d5 (% @ 30-130%), p-Terphenyl-d14 (% @ 30-130%)

1207134-03 Surrogate recovery(ies) below lower control limit (S-).

1,2-Dichlorobenzene-d4 (% @ 30-130%)

1207134-06 Surrogate recovery(ies) diluted below the MRL (SD).

1,2-Dichlorobenzene-d4 (% @ 30-130%), 2-Fluorobiphenyl (% @ 30-130%), Nitrobenzene-d5 (% @ 30-130%), p-Terphenyl-d14 (% @ 30-130%)

1207134-09 Surrogate recovery(ies) diluted below the MRL (SD).

1,2-Dichlorobenzene-d4 (% @ 30-130%), 2-Fluorobiphenyl (% @ 30-130%), Nitrobenzene-d5 (% @ 30-130%), p-Terphenyl-d14 (% @ 30-130%)

CG21221-BSD1 Relative percent difference for duplicate is outside of criteria (D+).

2-Methylnaphthalene (200%), Acenaphthylene (200%), Naphthalene (33%)

**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  
Client Sample ID: MW-7  
Date Sampled: 07/11/12 15:25  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	ND (0.20)		1	07/14/12 3:35	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>111 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-7  
 Date Sampled: 07/11/12 15:25  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-01  
 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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/17/12 14:16	CVG0122	CG21716
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/17/12 14:16	CVG0122	CG21716
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/17/12 14:16	CVG0122	CG21716
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/17/12 14:16	CVG0122	CG21716
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/17/12 14:16	CVG0122	CG21716
1,2-Dichloropropane	ND (0.0010)	3	1	07/17/12 14:16	CVG0122	CG21716
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
1,4-Dioxane - Screen	ND (0.500)		1	07/17/12 14:16	CVG0122	CG21716
1-Chlorohexane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
2-Butanone	ND (0.0100)		1	07/17/12 14:16	CVG0122	CG21716
2-Chlorotoluene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
2-Hexanone	ND (0.0100)		1	07/17/12 14:16	CVG0122	CG21716
4-Chlorotoluene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
4-Methyl-2-Pentanone	ND (0.0250)		1	07/17/12 14:16	CVG0122	CG21716
Acetone	ND (0.0100)		1	07/17/12 14:16	CVG0122	CG21716
Benzene	ND (0.0010)	0.14	1	07/17/12 14:16	CVG0122	CG21716





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-7  
 Date Sampled: 07/11/12 15:25  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-01  
 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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
Bromochloromethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Bromodichloromethane	ND (0.0006)		1	07/17/12 14:16	CVG0122	CG21716
Bromoform	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Bromomethane	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
Carbon Disulfide	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/17/12 14:16	CVG0122	CG21716
Chlorobenzene	ND (0.0010)	3.2	1	07/17/12 14:16	CVG0122	CG21716
Chloroethane	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
Chloroform	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Chloromethane	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/17/12 14:16	CVG0122	CG21716
cis-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 14:16	CVG0122	CG21716
Dibromochloromethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Dibromomethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
Diethyl Ether	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Di-isopropyl ether	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Ethylbenzene	ND (0.0010)	1.6	1	07/17/12 14:16	CVG0122	CG21716
Hexachlorobutadiene	ND (0.0006)		1	07/17/12 14:16	CVG0122	CG21716
Hexachloroethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Isopropylbenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/17/12 14:16	CVG0122	CG21716
Methylene Chloride	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
Naphthalene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
n-Butylbenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
n-Propylbenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
sec-Butylbenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Styrene	ND (0.0010)	2.2	1	07/17/12 14:16	CVG0122	CG21716
tert-Butylbenzene	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-7  
 Date Sampled: 07/11/12 15:25  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-01  
 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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Tetrachloroethene	ND (0.0010)	0.15	1	07/17/12 14:16	CVG0122	CG21716
Tetrahydrofuran	ND (0.0050)		1	07/17/12 14:16	CVG0122	CG21716
Toluene	ND (0.0010)	1.7	1	07/17/12 14:16	CVG0122	CG21716
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/17/12 14:16	CVG0122	CG21716
trans-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 14:16	CVG0122	CG21716
Trichloroethene	ND (0.0010)	0.54	1	07/17/12 14:16	CVG0122	CG21716
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Vinyl Acetate	ND (0.0050)		1	07/17/12 14:16	CVG0122	CG21716
Vinyl Chloride	ND (0.0010)	0.002	1	07/17/12 14:16	CVG0122	CG21716
Xylene O	ND (0.0010)		1	07/17/12 14:16	CVG0122	CG21716
Xylene P,M	ND (0.0020)		1	07/17/12 14:16	CVG0122	CG21716
Xylenes (Total)	ND (0.0030)		1	07/17/12 14:16		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/17/12 14:16		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	94 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-7  
Date Sampled: 07/11/12 15:25  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Acenaphthene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Acenaphthylene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Anthracene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Chrysene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Fluoranthene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Fluorene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
<b>Naphthalene</b>	<b>0.001</b> (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Phenanthrene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102
Pyrene	ND (0.0002)		1	07/13/12 1:06	CVG0085	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	45 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	47 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	48 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	60 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-7  
Date Sampled: 07/11/12 15:25  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-01  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.0205 (0.0050)</b>	9014		1	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 07/11/12 14:15  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	10.7 (0.20)		1	07/14/12 4:18	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>108 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 07/11/12 14:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.100)	3.1	100	07/15/12 21:09	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0500)		100	07/15/12 21:09	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,1-Dichloroethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,1-Dichloroethene	ND (0.100)	0.007	100	07/15/12 21:09	CVG0103	CG21503
1,1-Dichloropropene	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
<b>1,2,4-Trimethylbenzene</b>	<b>0.432</b> (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.500)	0.002	100	07/15/12 21:09	CVG0103	CG21503
1,2-Dibromoethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,2-Dichloroethane	ND (0.100)	0.11	100	07/15/12 21:09	CVG0103	CG21503
1,2-Dichloropropane	ND (0.100)	3	100	07/15/12 21:09	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,3-Dichloropropane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
1,4-Dioxane - Screen	ND (50.0)		100	07/15/12 21:09	CVG0103	CG21503
1-Chlorohexane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
2,2-Dichloropropane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
2-Butanone	ND (1.00)		100	07/15/12 21:09	CVG0103	CG21503
2-Chlorotoluene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
2-Hexanone	ND (1.00)		100	07/15/12 21:09	CVG0103	CG21503
4-Chlorotoluene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
4-Isopropyltoluene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (2.50)		100	07/15/12 21:09	CVG0103	CG21503
Acetone	ND (1.00)		100	07/15/12 21:09	CVG0103	CG21503
<b>Benzene</b>	<b>2.29</b> (0.100)	0.14	100	07/15/12 21:09	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 07/11/12 14:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
Bromochloromethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Bromodichloromethane	ND (0.0600)		100	07/15/12 21:09	CVG0103	CG21503
Bromoform	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Bromomethane	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
Carbon Disulfide	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Carbon Tetrachloride	ND (0.100)	0.07	100	07/15/12 21:09	CVG0103	CG21503
Chlorobenzene	ND (0.100)	3.2	100	07/15/12 21:09	CVG0103	CG21503
Chloroethane	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
Chloroform	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Chloromethane	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.100)	2.4	100	07/15/12 21:09	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0400)		100	07/15/12 21:09	CVG0103	CG21503
Dibromochloromethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Dibromomethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
Diethyl Ether	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Di-isopropyl ether	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
<b>Ethylbenzene</b>	<b>1.63</b> (0.100)	1.6	100	07/15/12 21:09	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0600)		100	07/15/12 21:09	CVG0103	CG21503
Hexachloroethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Isopropylbenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.100)	5	100	07/15/12 21:09	CVG0103	CG21503
Methylene Chloride	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
<b>Naphthalene</b>	<b>6.75</b> (0.100)		100	07/15/12 21:09	CVG0103	CG21503
n-Butylbenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
n-Propylbenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
sec-Butylbenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Styrene	ND (0.100)	2.2	100	07/15/12 21:09	CVG0103	CG21503
tert-Butylbenzene	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-312D  
 Date Sampled: 07/11/12 14:15  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-02  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Tetrachloroethene	ND (0.100)	0.15	100	07/15/12 21:09	CVG0103	CG21503
Tetrahydrofuran	ND (0.500)		100	07/15/12 21:09	CVG0103	CG21503
Toluene	ND (0.100)	1.7	100	07/15/12 21:09	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.100)	2.8	100	07/15/12 21:09	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0400)		100	07/15/12 21:09	CVG0103	CG21503
Trichloroethene	ND (0.100)	0.54	100	07/15/12 21:09	CVG0103	CG21503
Trichlorofluoromethane	ND (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Vinyl Acetate	ND (0.500)		100	07/15/12 21:09	CVG0103	CG21503
Vinyl Chloride	ND (0.100)	0.002	100	07/15/12 21:09	CVG0103	CG21503
<b>Xylene O</b>	<b>0.422</b> (0.100)		100	07/15/12 21:09	CVG0103	CG21503
Xylene P,M	ND (0.200)		100	07/15/12 21:09	CVG0103	CG21503
<b>Xylenes (Total)</b>	<b>0.422</b> (0.300)		100	07/15/12 21:09		[CALC]
Trihalomethanes (Total)	ND (0.360)			07/15/12 21:09		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	97 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	92 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 07/11/12 14:15  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
<b>2-Methylnaphthalene</b>	<b>0.172</b> (0.020)		100	07/16/12 13:51	CVG0104	CG21102
<b>Acenaphthene</b>	<b>0.108</b> (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Acenaphthylene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Anthracene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Benzo(a)anthracene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Benzo(a)pyrene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Benzo(b)fluoranthene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Benzo(g,h,i)perylene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Benzo(k)fluoranthene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Chrysene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Dibenzo(a,h)Anthracene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Fluoranthene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
<b>Fluorene</b>	<b>0.031</b> (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102
<b>Naphthalene</b>	<b>2.98</b> (0.200)		1000	07/16/12 17:42	CVG0104	CG21102
<b>Phenanthrene</b>	<b>0.033</b> (0.020)		100	07/16/12 13:51	CVG0104	CG21102
Pyrene	ND (0.020)		100	07/16/12 13:51	CVG0104	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	%	SD	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	%	SD	30-130
<i>Surrogate: Nitrobenzene-d5</i>	%	SD	30-130
<i>Surrogate: p-Terphenyl-d14</i>	%	SD	30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 07/11/12 14:15  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-02  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.480 (0.0250)</b>	9014		5	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 07/11/12 09:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	6.43 (0.20)		1	07/14/12 5:01	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>104 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 07/11/12 09:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/15/12 18:16	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 18:16	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/15/12 18:16	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
<b>1,2,4-Trimethylbenzene</b>	<b>0.0674</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/15/12 18:16	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/15/12 18:16	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)	3	1	07/15/12 18:16	CVG0103	CG21503
<b>1,3,5-Trimethylbenzene</b>	<b>0.0098</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 18:16	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 18:16	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 18:16	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
<b>4-Isopropyltoluene</b>	<b>0.0019</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 18:16	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 18:16	CVG0103	CG21503
<b>Benzene</b>	<b>0.368</b> (0.0100)	0.14	10	07/17/12 12:49	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 07/11/12 09:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 18:16	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/15/12 18:16	CVG0103	CG21503
Chlorobenzene	ND (0.0010)	3.2	1	07/15/12 18:16	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/15/12 18:16	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 18:16	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
<b>Ethylbenzene</b>	<b>0.186</b> (0.0100)	1.6	10	07/17/12 12:49	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 18:16	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
<b>Isopropylbenzene</b>	<b>0.0419</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/15/12 18:16	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
<b>Naphthalene</b>	<b>0.0474</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
<b>n-Propylbenzene</b>	<b>0.0152</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
<b>sec-Butylbenzene</b>	<b>0.0015</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Styrene	ND (0.0010)	2.2	1	07/15/12 18:16	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 07/11/12 09:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)	0.15	1	07/15/12 18:16	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 18:16	CVG0103	CG21503
<b>Toluene</b>	<b>0.0022</b> (0.0010)	1.7	1	07/15/12 18:16	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/15/12 18:16	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 18:16	CVG0103	CG21503
Trichloroethene	ND (0.0010)	0.54	1	07/15/12 18:16	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 18:16	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)	0.002	1	07/15/12 18:16	CVG0103	CG21503
<b>Xylene O</b>	<b>0.0735</b> (0.0010)		1	07/15/12 18:16	CVG0103	CG21503
<b>Xylene P,M</b>	<b>0.0120</b> (0.0020)		1	07/15/12 18:16	CVG0103	CG21503
<b>Xylenes (Total)</b>	<b>0.0855</b> (0.0030)		1	07/15/12 18:16		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 18:16		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	99 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	89 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 07/11/12 09:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	0.024 (0.002)		10	07/13/12 21:22	CVG0085	CG21102
Acenaphthene	0.038 (0.002)		10	07/13/12 21:22	CVG0085	CG21102
Acenaphthylene	0.0008 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Anthracene	0.001 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Benzo(a)anthracene	0.0003 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Benzo(a)pyrene	0.0003 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Benzo(b)fluoranthene	0.0003 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Chrysene	0.0003 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Fluoranthene	0.001 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Fluorene	0.006 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Naphthalene	0.008 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Phenanthrene	0.002 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102
Pyrene	0.002 (0.0002)		1	07/13/12 7:54	CVG0085	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>%</i>	<i>S-</i>	<i>30-130</i>
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>49 %</i>		<i>30-130</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>39 %</i>		<i>30-130</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>60 %</i>		<i>30-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 07/11/12 09:20  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-03  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.297 (0.0250)</b>	9014		5	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 07/11/12 09:45  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	0.45 (0.20)		1	07/14/12 5:45	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>95 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 07/11/12 09:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/15/12 18:45	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 18:45	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/15/12 18:45	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
<b>1,2,4-Trimethylbenzene</b>	<b>0.0023</b> (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/15/12 18:45	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/15/12 18:45	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)	3	1	07/15/12 18:45	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 18:45	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 18:45	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 18:45	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 18:45	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 18:45	CVG0103	CG21503
<b>Benzene</b>	<b>0.0588</b> (0.0010)	0.14	1	07/15/12 18:45	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 07/11/12 09:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 18:45	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/15/12 18:45	CVG0103	CG21503
Chlorobenzene	ND (0.0010)	3.2	1	07/15/12 18:45	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/15/12 18:45	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 18:45	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
<b>Ethylbenzene</b>	<b>0.0201</b> (0.0010)	1.6	1	07/15/12 18:45	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 18:45	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
<b>Isopropylbenzene</b>	<b>0.0022</b> (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/15/12 18:45	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
<b>Naphthalene</b>	<b>0.0448</b> (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
n-Propylbenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
sec-Butylbenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Styrene	ND (0.0010)	2.2	1	07/15/12 18:45	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 07/11/12 09:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)	0.15	1	07/15/12 18:45	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 18:45	CVG0103	CG21503
Toluene	ND (0.0010)	1.7	1	07/15/12 18:45	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/15/12 18:45	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 18:45	CVG0103	CG21503
Trichloroethene	ND (0.0010)	0.54	1	07/15/12 18:45	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 18:45	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)	0.002	1	07/15/12 18:45	CVG0103	CG21503
<b>Xylene O</b>	<b>0.0038</b> (0.0010)		1	07/15/12 18:45	CVG0103	CG21503
Xylene P,M	ND (0.0020)		1	07/15/12 18:45	CVG0103	CG21503
<b>Xylenes (Total)</b>	<b>0.0038</b> (0.0030)		1	07/15/12 18:45		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 18:45		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	102 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	92 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 07/11/12 09:45  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
<b>Acenaphthene</b>	<b>0.001</b> (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Acenaphthylene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Anthracene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Chrysene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Fluoranthene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
<b>Fluorene</b>	<b>0.0002</b> (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
<b>Naphthalene</b>	<b>0.012</b> (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
<b>Phenanthrene</b>	<b>0.0004</b> (0.0002)		1	07/13/12 1:51	CVG0085	CG21102
Pyrene	ND (0.0002)		1	07/13/12 1:51	CVG0085	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	37 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	34 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	41 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	62 %		30-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 07/11/12 09:45  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-04  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.665 (0.0250)</b>	9014		5	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 07/11/12 12:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

All methods used are in accordance with 40 CFR 136.

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	1.07 (0.20)		1	07/14/12 6:28	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>112 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 07/11/12 12:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/15/12 19:14	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 19:14	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/15/12 19:14	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
<b>1,2,4-Trimethylbenzene</b>	<b>0.0136</b> (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/15/12 19:14	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/15/12 19:14	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)	3	1	07/15/12 19:14	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 19:14	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 19:14	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 19:14	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 19:14	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 19:14	CVG0103	CG21503
<b>Benzene</b>	<b>0.0287</b> (0.0010)	0.14	1	07/15/12 19:14	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 07/11/12 12:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 19:14	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/15/12 19:14	CVG0103	CG21503
Chlorobenzene	ND (0.0010)	3.2	1	07/15/12 19:14	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/15/12 19:14	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 19:14	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
<b>Ethylbenzene</b>	<b>0.212</b> (0.0100)	1.6	10	07/17/12 13:18	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 19:14	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
<b>Isopropylbenzene</b>	<b>0.0068</b> (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/15/12 19:14	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
<b>Naphthalene</b>	<b>0.0122</b> (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
<b>n-Propylbenzene</b>	<b>0.0024</b> (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
sec-Butylbenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Styrene	ND (0.0010)	2.2	1	07/15/12 19:14	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 07/11/12 12:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)	0.15	1	07/15/12 19:14	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 19:14	CVG0103	CG21503
<b>Toluene</b>	<b>0.0014</b> (0.0010)	1.7	1	07/15/12 19:14	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/15/12 19:14	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 19:14	CVG0103	CG21503
Trichloroethene	ND (0.0010)	0.54	1	07/15/12 19:14	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 19:14	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)	0.002	1	07/15/12 19:14	CVG0103	CG21503
<b>Xylene O</b>	<b>0.0144</b> (0.0010)		1	07/15/12 19:14	CVG0103	CG21503
<b>Xylene P,M</b>	<b>0.0023</b> (0.0020)		1	07/15/12 19:14	CVG0103	CG21503
<b>Xylenes (Total)</b>	<b>0.0167</b> (0.0030)		1	07/15/12 19:14		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 19:14		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	97 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 07/11/12 12:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Acenaphthene</b>	<b>0.002</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Acenaphthylene</b>	<b>0.001</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Anthracene</b>	<b>0.0002</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Chrysene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Fluoranthene</b>	<b>0.0002</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Fluorene</b>	<b>0.0006</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Naphthalene</b>	<b>0.005</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Phenanthrene</b>	<b>0.0005</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102
<b>Pyrene</b>	<b>0.0003</b> (0.0002)		1	07/13/12 5:38	CVG0085	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	44 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	45 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	50 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	65 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 07/11/12 12:20  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-05  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014	<u>Limit</u>	1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.0815</b> (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 07/11/12 12:00  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	7.82 (0.20)		1	07/14/12 7:10	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>106 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-333D  
 Date Sampled: 07/11/12 12:00  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-06  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.100)	3.1	100	07/15/12 20:40	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0500)		100	07/15/12 20:40	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,1-Dichloroethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,1-Dichloroethene	ND (0.100)	0.007	100	07/15/12 20:40	CVG0103	CG21503
1,1-Dichloropropene	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
<b>1,2,4-Trimethylbenzene</b>	<b>0.344</b> (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.500)	0.002	100	07/15/12 20:40	CVG0103	CG21503
1,2-Dibromoethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,2-Dichloroethane	ND (0.100)	0.11	100	07/15/12 20:40	CVG0103	CG21503
1,2-Dichloropropane	ND (0.100)	3	100	07/15/12 20:40	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,3-Dichloropropane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
1,4-Dioxane - Screen	ND (50.0)		100	07/15/12 20:40	CVG0103	CG21503
1-Chlorohexane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
2,2-Dichloropropane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
2-Butanone	ND (1.00)		100	07/15/12 20:40	CVG0103	CG21503
2-Chlorotoluene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
2-Hexanone	ND (1.00)		100	07/15/12 20:40	CVG0103	CG21503
4-Chlorotoluene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
4-Isopropyltoluene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (2.50)		100	07/15/12 20:40	CVG0103	CG21503
Acetone	ND (1.00)		100	07/15/12 20:40	CVG0103	CG21503
<b>Benzene</b>	<b>1.77</b> (0.100)	0.14	100	07/15/12 20:40	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 07/11/12 12:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
Bromochloromethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Bromodichloromethane	ND (0.0600)		100	07/15/12 20:40	CVG0103	CG21503
Bromoform	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Bromomethane	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
Carbon Disulfide	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Carbon Tetrachloride	ND (0.100)	0.07	100	07/15/12 20:40	CVG0103	CG21503
Chlorobenzene	ND (0.100)	3.2	100	07/15/12 20:40	CVG0103	CG21503
Chloroethane	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
Chloroform	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Chloromethane	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.100)	2.4	100	07/15/12 20:40	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0400)		100	07/15/12 20:40	CVG0103	CG21503
Dibromochloromethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Dibromomethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
Diethyl Ether	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Di-isopropyl ether	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
<b>Ethylbenzene</b>	<b>0.981</b> (0.100)	1.6	100	07/15/12 20:40	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0600)		100	07/15/12 20:40	CVG0103	CG21503
Hexachloroethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Isopropylbenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.100)	5	100	07/15/12 20:40	CVG0103	CG21503
Methylene Chloride	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
<b>Naphthalene</b>	<b>3.55</b> (0.100)		100	07/15/12 20:40	CVG0103	CG21503
n-Butylbenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
n-Propylbenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
sec-Butylbenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Styrene	ND (0.100)	2.2	100	07/15/12 20:40	CVG0103	CG21503
tert-Butylbenzene	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 07/11/12 12:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Tetrachloroethene	ND (0.100)	0.15	100	07/15/12 20:40	CVG0103	CG21503
Tetrahydrofuran	ND (0.500)		100	07/15/12 20:40	CVG0103	CG21503
Toluene	ND (0.100)	1.7	100	07/15/12 20:40	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.100)	2.8	100	07/15/12 20:40	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0400)		100	07/15/12 20:40	CVG0103	CG21503
Trichloroethene	ND (0.100)	0.54	100	07/15/12 20:40	CVG0103	CG21503
Trichlorofluoromethane	ND (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Vinyl Acetate	ND (0.500)		100	07/15/12 20:40	CVG0103	CG21503
Vinyl Chloride	ND (0.100)	0.002	100	07/15/12 20:40	CVG0103	CG21503
<b>Xylene O</b>	<b>0.205</b> (0.100)		100	07/15/12 20:40	CVG0103	CG21503
Xylene P,M	ND (0.200)		100	07/15/12 20:40	CVG0103	CG21503
Xylenes (Total)	ND (0.300)		100	07/15/12 20:40		[CALC]
Trihalomethanes (Total)	ND (0.360)			07/15/12 20:40		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	91 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-333D  
 Date Sampled: 07/11/12 12:00  
 Percent Solids: N/A  
 Initial Volume: 1000  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-06  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
<b>2-Methylnaphthalene</b>	<b>0.066</b> (0.020)		100	07/16/12 14:37	CVG0104	CG21102
<b>Acenaphthene</b>	<b>0.073</b> (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Acenaphthylene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Anthracene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Benzo(a)anthracene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Benzo(a)pyrene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Benzo(b)fluoranthene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Benzo(g,h,i)perylene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Benzo(k)fluoranthene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Chrysene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Dibenzo(a,h)Anthracene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Fluoranthene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Fluorene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102
<b>Naphthalene</b>	<b>2.07</b> (0.200)		1000	07/16/12 18:28	CVG0104	CG21102
<b>Phenanthrene</b>	<b>0.022</b> (0.020)		100	07/16/12 14:37	CVG0104	CG21102
Pyrene	ND (0.020)		100	07/16/12 14:37	CVG0104	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	%	SD	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	%	SD	30-130
<i>Surrogate: Nitrobenzene-d5</i>	%	SD	30-130
<i>Surrogate: p-Terphenyl-d14</i>	%	SD	30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 07/11/12 12:00  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-06  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.742 (0.0250)</b>	9014		5	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 07/11/12 11:35  
Percent Solids: N/A  
Initial Volume: 960  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	3.65 (0.21)		1	07/14/12 7:54	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>121 %</i>		<i>40-140</i>			





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-6  
 Date Sampled: 07/11/12 11:35  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-07  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/15/12 19:43	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 19:43	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/15/12 19:43	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/15/12 19:43	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/15/12 19:43	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)	3	1	07/15/12 19:43	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 19:43	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 19:43	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 19:43	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 19:43	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 19:43	CVG0103	CG21503
<b>Benzene</b>	<b>0.0213 (0.0010)</b>	<b>0.14</b>	<b>1</b>	07/15/12 19:43	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 07/11/12 11:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 19:43	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/15/12 19:43	CVG0103	CG21503
Chlorobenzene	ND (0.0010)	3.2	1	07/15/12 19:43	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/15/12 19:43	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 19:43	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
<b>Ethylbenzene</b>	<b>0.0243</b> (0.0010)	1.6	1	07/15/12 19:43	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 19:43	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
<b>Isopropylbenzene</b>	<b>0.0033</b> (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/15/12 19:43	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
<b>Naphthalene</b>	<b>0.0035</b> (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
<b>n-Propylbenzene</b>	<b>0.0027</b> (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
sec-Butylbenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Styrene	ND (0.0010)	2.2	1	07/15/12 19:43	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 07/11/12 11:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)	0.15	1	07/15/12 19:43	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 19:43	CVG0103	CG21503
<b>Toluene</b>	<b>0.0011</b> (0.0010)	1.7	1	07/15/12 19:43	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/15/12 19:43	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 19:43	CVG0103	CG21503
Trichloroethene	ND (0.0010)	0.54	1	07/15/12 19:43	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 19:43	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)	0.002	1	07/15/12 19:43	CVG0103	CG21503
<b>Xylene O</b>	<b>0.0212</b> (0.0010)		1	07/15/12 19:43	CVG0103	CG21503
<b>Xylene P,M</b>	<b>0.0028</b> (0.0020)		1	07/15/12 19:43	CVG0103	CG21503
<b>Xylenes (Total)</b>	<b>0.0240</b> (0.0030)		1	07/15/12 19:43		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 19:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	98 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	103 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	96 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 07/11/12 11:35  
Percent Solids: N/A  
Initial Volume: 960  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
<b>Acenaphthene</b>	<b>0.010</b> (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
<b>Acenaphthylene</b>	<b>0.057</b> (0.002)		10	07/13/12 19:51	CVG0085	CG21102
<b>Anthracene</b>	<b>0.0006</b> (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Chrysene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
<b>Fluoranthene</b>	<b>0.0007</b> (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
<b>Fluorene</b>	<b>0.010</b> (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
<b>Naphthalene</b>	<b>0.002</b> (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
<b>Phenanthrene</b>	<b>0.007</b> (0.0002)		1	07/13/12 6:23	CVG0085	CG21102
<b>Pyrene</b>	<b>0.0004</b> (0.0002)		1	07/13/12 6:23	CVG0085	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	44 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	47 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	43 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	68 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 07/11/12 11:35  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-07  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0063 (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
Total Cyanide (LL)	0.174 (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 07/11/12 09:25  
Percent Solids: N/A  
Initial Volume: 960  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	ND (0.21)		1	07/14/12 8:37	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>111 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-107  
 Date Sampled: 07/11/12 09:25  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-08  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/15/12 20:12	CVG0103	CG21503
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/15/12 20:12	CVG0103	CG21503
1,1,2-Trichloroethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,1-Dichloroethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/15/12 20:12	CVG0103	CG21503
1,1-Dichloropropene	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,2,3-Trichloropropane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/15/12 20:12	CVG0103	CG21503
1,2-Dibromoethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,2-Dichlorobenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/15/12 20:12	CVG0103	CG21503
1,2-Dichloropropane	ND (0.0010)	3	1	07/15/12 20:12	CVG0103	CG21503
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,3-Dichlorobenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,3-Dichloropropane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,4-Dichlorobenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
1,4-Dioxane - Screen	ND (0.500)		1	07/15/12 20:12	CVG0103	CG21503
1-Chlorohexane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
2,2-Dichloropropane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
2-Butanone	ND (0.0100)		1	07/15/12 20:12	CVG0103	CG21503
2-Chlorotoluene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
2-Hexanone	ND (0.0100)		1	07/15/12 20:12	CVG0103	CG21503
4-Chlorotoluene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
4-Isopropyltoluene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
4-Methyl-2-Pentanone	ND (0.0250)		1	07/15/12 20:12	CVG0103	CG21503
Acetone	ND (0.0100)		1	07/15/12 20:12	CVG0103	CG21503
Benzene	ND (0.0010)	0.14	1	07/15/12 20:12	CVG0103	CG21503





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 07/11/12 09:25  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
Bromochloromethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Bromodichloromethane	ND (0.0006)		1	07/15/12 20:12	CVG0103	CG21503
Bromoform	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Bromomethane	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
Carbon Disulfide	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/15/12 20:12	CVG0103	CG21503
Chlorobenzene	ND (0.0010)	3.2	1	07/15/12 20:12	CVG0103	CG21503
Chloroethane	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
Chloroform	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Chloromethane	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/15/12 20:12	CVG0103	CG21503
cis-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 20:12	CVG0103	CG21503
Dibromochloromethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Dibromomethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Dichlorodifluoromethane	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
Diethyl Ether	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Di-isopropyl ether	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Ethylbenzene	ND (0.0010)	1.6	1	07/15/12 20:12	CVG0103	CG21503
Hexachlorobutadiene	ND (0.0006)		1	07/15/12 20:12	CVG0103	CG21503
Hexachloroethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Isopropylbenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/15/12 20:12	CVG0103	CG21503
Methylene Chloride	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
Naphthalene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
n-Butylbenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
n-Propylbenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
sec-Butylbenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Styrene	ND (0.0010)	2.2	1	07/15/12 20:12	CVG0103	CG21503
tert-Butylbenzene	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 07/11/12 09:25  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: VAC

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Tetrachloroethene	ND (0.0010)	0.15	1	07/15/12 20:12	CVG0103	CG21503
Tetrahydrofuran	ND (0.0050)		1	07/15/12 20:12	CVG0103	CG21503
Toluene	ND (0.0010)	1.7	1	07/15/12 20:12	CVG0103	CG21503
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/15/12 20:12	CVG0103	CG21503
trans-1,3-Dichloropropene	ND (0.0004)		1	07/15/12 20:12	CVG0103	CG21503
Trichloroethene	ND (0.0010)	0.54	1	07/15/12 20:12	CVG0103	CG21503
Trichlorofluoromethane	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Vinyl Acetate	ND (0.0050)		1	07/15/12 20:12	CVG0103	CG21503
Vinyl Chloride	ND (0.0010)	0.002	1	07/15/12 20:12	CVG0103	CG21503
Xylene O	ND (0.0010)		1	07/15/12 20:12	CVG0103	CG21503
Xylene P,M	ND (0.0020)		1	07/15/12 20:12	CVG0103	CG21503
Xylenes (Total)	ND (0.0030)		1	07/15/12 20:12		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/15/12 20:12		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	97 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	91 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 07/11/12 09:25  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Acenaphthene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Acenaphthylene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Anthracene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Chrysene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Fluoranthene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Fluorene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
<b>Naphthalene</b>	<b>0.002</b> (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Phenanthrene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102
Pyrene	ND (0.0002)		1	07/13/12 2:37	CVG0085	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	40 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	44 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	45 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	63 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 07/11/12 09:25  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-08  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.0306 (0.0050)</b>	9014		1	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 07/11/12 15:20  
Percent Solids: N/A  
Initial Volume: 955  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	3.62 (0.21)		1	07/14/12 9:46	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>104 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 07/11/12 15:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-09  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,1,1-Trichloroethane	ND (0.0100)	3.1	10	07/17/12 20:02	CVG0122	CG21716
1,1,2,2-Tetrachloroethane	ND (0.0050)		10	07/17/12 20:02	CVG0122	CG21716
1,1,2-Trichloroethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,1-Dichloroethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,1-Dichloroethene	ND (0.0100)	0.007	10	07/17/12 20:02	CVG0122	CG21716
1,1-Dichloropropene	ND (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
1,2,3-Trichlorobenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,2,3-Trichloropropane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,2,4-Trichlorobenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
<b>1,2,4-Trimethylbenzene</b>	<b>0.295</b> (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,2-Dibromo-3-Chloropropane	ND (0.0500)	0.002	10	07/17/12 20:02	CVG0122	CG21716
1,2-Dibromoethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,2-Dichlorobenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,2-Dichloroethane	ND (0.0100)	0.11	10	07/17/12 20:02	CVG0122	CG21716
1,2-Dichloropropane	ND (0.0100)	3	10	07/17/12 20:02	CVG0122	CG21716
<b>1,3,5-Trimethylbenzene</b>	<b>0.0172</b> (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,3-Dichlorobenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,3-Dichloropropane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,4-Dichlorobenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
1,4-Dioxane - Screen	ND (5.00)		10	07/17/12 20:02	CVG0122	CG21716
1-Chlorohexane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
2,2-Dichloropropane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
2-Butanone	ND (0.100)		10	07/17/12 20:02	CVG0122	CG21716
2-Chlorotoluene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
2-Hexanone	ND (0.100)		10	07/17/12 20:02	CVG0122	CG21716
4-Chlorotoluene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
<b>4-Isopropyltoluene</b>	<b>0.0104</b> (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
4-Methyl-2-Pentanone	ND (0.250)		10	07/17/12 20:02	CVG0122	CG21716
Acetone	ND (0.100)		10	07/17/12 20:02	CVG0122	CG21716
<b>Benzene</b>	<b>0.0402</b> (0.0100)	0.14	10	07/17/12 20:02	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 07/11/12 15:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-09  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
Bromochloromethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Bromodichloromethane	ND (0.0060)		10	07/17/12 20:02	CVG0122	CG21716
Bromoform	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Bromomethane	ND (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
Carbon Disulfide	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Carbon Tetrachloride	ND (0.0100)	0.07	10	07/17/12 20:02	CVG0122	CG21716
Chlorobenzene	ND (0.0100)	3.2	10	07/17/12 20:02	CVG0122	CG21716
Chloroethane	ND (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
Chloroform	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Chloromethane	ND (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
cis-1,2-Dichloroethene	ND (0.0100)	2.4	10	07/17/12 20:02	CVG0122	CG21716
cis-1,3-Dichloropropene	ND (0.0040)		10	07/17/12 20:02	CVG0122	CG21716
Dibromochloromethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Dibromomethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Dichlorodifluoromethane	ND (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
Diethyl Ether	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Di-isopropyl ether	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Ethyl tertiary-butyl ether	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
<b>Ethylbenzene</b>	<b>0.0928</b> (0.0100)	1.6	10	07/17/12 20:02	CVG0122	CG21716
Hexachlorobutadiene	ND (0.0060)		10	07/17/12 20:02	CVG0122	CG21716
Hexachloroethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
<b>Isopropylbenzene</b>	<b>0.0337</b> (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Methyl tert-Butyl Ether	ND (0.0100)	5	10	07/17/12 20:02	CVG0122	CG21716
Methylene Chloride	ND (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
<b>Naphthalene</b>	<b>0.559</b> (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
n-Butylbenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
<b>n-Propylbenzene</b>	<b>0.0189</b> (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
sec-Butylbenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Styrene	ND (0.0100)	2.2	10	07/17/12 20:02	CVG0122	CG21716
tert-Butylbenzene	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 07/11/12 15:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-09  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Tetrachloroethene	ND (0.0100)	0.15	10	07/17/12 20:02	CVG0122	CG21716
Tetrahydrofuran	ND (0.0500)		10	07/17/12 20:02	CVG0122	CG21716
Toluene	ND (0.0100)	1.7	10	07/17/12 20:02	CVG0122	CG21716
trans-1,2-Dichloroethene	ND (0.0100)	2.8	10	07/17/12 20:02	CVG0122	CG21716
trans-1,3-Dichloropropene	ND (0.0040)		10	07/17/12 20:02	CVG0122	CG21716
Trichloroethene	ND (0.0100)	0.54	10	07/17/12 20:02	CVG0122	CG21716
Trichlorofluoromethane	ND (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
Vinyl Acetate	ND (0.0500)		10	07/17/12 20:02	CVG0122	CG21716
Vinyl Chloride	ND (0.0100)	0.002	10	07/17/12 20:02	CVG0122	CG21716
<b>Xylene O</b>	<b>0.0457</b> (0.0100)		10	07/17/12 20:02	CVG0122	CG21716
<b>Xylene P,M</b>	<b>0.0415</b> (0.0200)		10	07/17/12 20:02	CVG0122	CG21716
<b>Xylenes (Total)</b>	<b>0.0872</b> (0.0300)		10	07/17/12 20:02		[CALC]
Trihalomethanes (Total)	ND (0.0360)			07/17/12 20:02		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	91 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 07/11/12 15:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
<b>2-Methylnaphthalene</b>	<b>0.026</b> (0.002)		10	07/13/12 19:06	CVG0089	CG21102
<b>Acenaphthene</b>	<b>0.004</b> (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Acenaphthylene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Anthracene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Benzo(a)anthracene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Benzo(a)pyrene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Benzo(b)fluoranthene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Benzo(g,h,i)perylene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Benzo(k)fluoranthene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Chrysene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Dibenzo(a,h)Anthracene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Fluoranthene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
<b>Fluorene</b>	<b>0.002</b> (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Indeno(1,2,3-cd)Pyrene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102
<b>Naphthalene</b>	<b>0.204</b> (0.020)		100	07/16/12 13:05	CVG0089	CG21102
<b>Phenanthrene</b>	<b>0.002</b> (0.002)		10	07/13/12 19:06	CVG0089	CG21102
Pyrene	ND (0.002)		10	07/13/12 19:06	CVG0089	CG21102

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	%	SD	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	%	SD	30-130
<i>Surrogate: Nitrobenzene-d5</i>	%	SD	30-130
<i>Surrogate: p-Terphenyl-d14</i>	%	SD	30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 07/11/12 15:20  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-09  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609
<b>Total Cyanide (LL)</b>	<b>0.235 (0.0250)</b>	9014		5	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 07/11/12 10:30  
Percent Solids: N/A  
Initial Volume: 910  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-10  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 7/12/12 11:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	0.91 (0.22)		1	07/14/12 10:30	CVG0098	CG21203
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>105 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 07/11/12 10:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-10  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/17/12 16:11	CVG0122	CG21716
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/17/12 16:11	CVG0122	CG21716
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/17/12 16:11	CVG0122	CG21716
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/17/12 16:11	CVG0122	CG21716
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/17/12 16:11	CVG0122	CG21716
1,2-Dichloropropane	ND (0.0010)	3	1	07/17/12 16:11	CVG0122	CG21716
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
1,4-Dioxane - Screen	ND (0.500)		1	07/17/12 16:11	CVG0122	CG21716
1-Chlorohexane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
2-Butanone	ND (0.0100)		1	07/17/12 16:11	CVG0122	CG21716
2-Chlorotoluene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
2-Hexanone	ND (0.0100)		1	07/17/12 16:11	CVG0122	CG21716
4-Chlorotoluene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
4-Methyl-2-Pentanone	ND (0.0250)		1	07/17/12 16:11	CVG0122	CG21716
Acetone	ND (0.0100)		1	07/17/12 16:11	CVG0122	CG21716
Benzene	ND (0.0010)	0.14	1	07/17/12 16:11	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 07/11/12 10:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-10  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
Bromochloromethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Bromodichloromethane	ND (0.0006)		1	07/17/12 16:11	CVG0122	CG21716
Bromoform	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Bromomethane	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
Carbon Disulfide	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/17/12 16:11	CVG0122	CG21716
Chlorobenzene	ND (0.0010)	3.2	1	07/17/12 16:11	CVG0122	CG21716
Chloroethane	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
Chloroform	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Chloromethane	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/17/12 16:11	CVG0122	CG21716
cis-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 16:11	CVG0122	CG21716
Dibromochloromethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Dibromomethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
Diethyl Ether	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Di-isopropyl ether	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Ethylbenzene	ND (0.0010)	1.6	1	07/17/12 16:11	CVG0122	CG21716
Hexachlorobutadiene	ND (0.0006)		1	07/17/12 16:11	CVG0122	CG21716
Hexachloroethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Isopropylbenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/17/12 16:11	CVG0122	CG21716
Methylene Chloride	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
Naphthalene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
n-Butylbenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
n-Propylbenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
sec-Butylbenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Styrene	ND (0.0010)	2.2	1	07/17/12 16:11	CVG0122	CG21716
tert-Butylbenzene	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-337  
 Date Sampled: 07/11/12 10:30  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-10  
 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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Tetrachloroethene	ND (0.0010)	0.15	1	07/17/12 16:11	CVG0122	CG21716
Tetrahydrofuran	ND (0.0050)		1	07/17/12 16:11	CVG0122	CG21716
Toluene	ND (0.0010)	1.7	1	07/17/12 16:11	CVG0122	CG21716
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/17/12 16:11	CVG0122	CG21716
trans-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 16:11	CVG0122	CG21716
Trichloroethene	ND (0.0010)	0.54	1	07/17/12 16:11	CVG0122	CG21716
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Vinyl Acetate	ND (0.0050)		1	07/17/12 16:11	CVG0122	CG21716
Vinyl Chloride	ND (0.0010)	0.002	1	07/17/12 16:11	CVG0122	CG21716
Xylene O	ND (0.0010)		1	07/17/12 16:11	CVG0122	CG21716
Xylene P,M	ND (0.0020)		1	07/17/12 16:11	CVG0122	CG21716
Xylenes (Total)	ND (0.0030)		1	07/17/12 16:11		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/17/12 16:11		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	101 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	106 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	92 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 07/11/12 10:30  
Percent Solids: N/A  
Initial Volume: 980  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-10  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

**All methods used are in accordance with 40 CFR 136.**

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
<b>Acenaphthene</b>	<b>0.0004</b> (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
<b>Acenaphthylene</b>	<b>0.0004</b> (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Anthracene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Chrysene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
<b>Fluoranthene</b>	<b>0.001</b> (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
<b>Fluorene</b>	<b>0.0009</b> (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
<b>Naphthalene</b>	<b>0.0002</b> (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
Phenanthrene	ND (0.0002)		1	07/13/12 4:07	CVG0085	CG21221
<b>Pyrene</b>	<b>0.001</b> (0.0002)		1	07/13/12 4:07	CVG0085	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	<i>46 %</i>		<i>30-130</i>
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>45 %</i>		<i>30-130</i>
<i>Surrogate: Nitrobenzene-d5</i>	<i>46 %</i>		<i>30-130</i>
<i>Surrogate: p-Terphenyl-d14</i>	<i>68 %</i>		<i>30-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 07/11/12 10:30  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-10  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0099 (0.0050)	9014	Limit	1	EEM	07/16/12 15:15	mg/L	CG21609
Total Cyanide (LL)	0.127 (0.0050)	9014		1	EEM	07/16/12 15:15	mg/L	CG21609



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316S  
Date Sampled: 07/11/12 13:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-11  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/17/12 14:44	CVG0122	CG21716
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/17/12 14:44	CVG0122	CG21716
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/17/12 14:44	CVG0122	CG21716
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/17/12 14:44	CVG0122	CG21716
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/17/12 14:44	CVG0122	CG21716
1,2-Dichloropropane	ND (0.0010)	3	1	07/17/12 14:44	CVG0122	CG21716
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
1,4-Dioxane - Screen	ND (0.500)		1	07/17/12 14:44	CVG0122	CG21716
1-Chlorohexane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
2-Butanone	ND (0.0100)		1	07/17/12 14:44	CVG0122	CG21716
2-Chlorotoluene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
2-Hexanone	ND (0.0100)		1	07/17/12 14:44	CVG0122	CG21716
4-Chlorotoluene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
4-Methyl-2-Pentanone	ND (0.0250)		1	07/17/12 14:44	CVG0122	CG21716
Acetone	ND (0.0100)		1	07/17/12 14:44	CVG0122	CG21716
Benzene	ND (0.0010)	0.14	1	07/17/12 14:44	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316S  
Date Sampled: 07/11/12 13:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-11  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
Bromochloromethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Bromodichloromethane	ND (0.0006)		1	07/17/12 14:44	CVG0122	CG21716
Bromoform	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Bromomethane	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
Carbon Disulfide	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/17/12 14:44	CVG0122	CG21716
Chlorobenzene	ND (0.0010)	3.2	1	07/17/12 14:44	CVG0122	CG21716
Chloroethane	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
Chloroform	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Chloromethane	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/17/12 14:44	CVG0122	CG21716
cis-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 14:44	CVG0122	CG21716
Dibromochloromethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Dibromomethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
Diethyl Ether	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Di-isopropyl ether	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Ethylbenzene	ND (0.0010)	1.6	1	07/17/12 14:44	CVG0122	CG21716
Hexachlorobutadiene	ND (0.0006)		1	07/17/12 14:44	CVG0122	CG21716
Hexachloroethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Isopropylbenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/17/12 14:44	CVG0122	CG21716
Methylene Chloride	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
Naphthalene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
n-Butylbenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
n-Propylbenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
sec-Butylbenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Styrene	ND (0.0010)	2.2	1	07/17/12 14:44	CVG0122	CG21716
tert-Butylbenzene	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316S  
Date Sampled: 07/11/12 13:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-11  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Tetrachloroethene	ND (0.0010)	0.15	1	07/17/12 14:44	CVG0122	CG21716
Tetrahydrofuran	ND (0.0050)		1	07/17/12 14:44	CVG0122	CG21716
Toluene	ND (0.0010)	1.7	1	07/17/12 14:44	CVG0122	CG21716
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/17/12 14:44	CVG0122	CG21716
trans-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 14:44	CVG0122	CG21716
Trichloroethene	ND (0.0010)	0.54	1	07/17/12 14:44	CVG0122	CG21716
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Vinyl Acetate	ND (0.0050)		1	07/17/12 14:44	CVG0122	CG21716
Vinyl Chloride	ND (0.0010)	0.002	1	07/17/12 14:44	CVG0122	CG21716
Xylene O	ND (0.0010)		1	07/17/12 14:44	CVG0122	CG21716
Xylene P,M	ND (0.0020)		1	07/17/12 14:44	CVG0122	CG21716
Xylenes (Total)	ND (0.0030)		1	07/17/12 14:44		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/17/12 14:44		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	94 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 07/11/12 13:30  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-12  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	ND (0.20)		1	07/17/12 23:05	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>109 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 07/11/12 13:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-12  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/17/12 15:14	CVG0122	CG21716
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/17/12 15:14	CVG0122	CG21716
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/17/12 15:14	CVG0122	CG21716
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/17/12 15:14	CVG0122	CG21716
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/17/12 15:14	CVG0122	CG21716
1,2-Dichloropropane	ND (0.0010)	3	1	07/17/12 15:14	CVG0122	CG21716
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
1,4-Dioxane - Screen	ND (0.500)		1	07/17/12 15:14	CVG0122	CG21716
1-Chlorohexane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
2-Butanone	ND (0.0100)		1	07/17/12 15:14	CVG0122	CG21716
2-Chlorotoluene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
2-Hexanone	ND (0.0100)		1	07/17/12 15:14	CVG0122	CG21716
4-Chlorotoluene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
4-Methyl-2-Pentanone	ND (0.0250)		1	07/17/12 15:14	CVG0122	CG21716
Acetone	ND (0.0100)		1	07/17/12 15:14	CVG0122	CG21716
Benzene	ND (0.0010)	0.14	1	07/17/12 15:14	CVG0122	CG21716





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 07/11/12 13:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-12  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
Bromochloromethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Bromodichloromethane	ND (0.0006)		1	07/17/12 15:14	CVG0122	CG21716
Bromoform	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Bromomethane	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
Carbon Disulfide	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/17/12 15:14	CVG0122	CG21716
Chlorobenzene	ND (0.0010)	3.2	1	07/17/12 15:14	CVG0122	CG21716
Chloroethane	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
Chloroform	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Chloromethane	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/17/12 15:14	CVG0122	CG21716
cis-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 15:14	CVG0122	CG21716
Dibromochloromethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Dibromomethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
Diethyl Ether	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Di-isopropyl ether	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Ethylbenzene	ND (0.0010)	1.6	1	07/17/12 15:14	CVG0122	CG21716
Hexachlorobutadiene	ND (0.0006)		1	07/17/12 15:14	CVG0122	CG21716
Hexachloroethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Isopropylbenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/17/12 15:14	CVG0122	CG21716
Methylene Chloride	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
Naphthalene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
n-Butylbenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
n-Propylbenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
sec-Butylbenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Styrene	ND (0.0010)	2.2	1	07/17/12 15:14	CVG0122	CG21716
tert-Butylbenzene	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 07/11/12 13:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-12  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Tetrachloroethene	ND (0.0010)	0.15	1	07/17/12 15:14	CVG0122	CG21716
Tetrahydrofuran	ND (0.0050)		1	07/17/12 15:14	CVG0122	CG21716
Toluene	ND (0.0010)	1.7	1	07/17/12 15:14	CVG0122	CG21716
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/17/12 15:14	CVG0122	CG21716
trans-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 15:14	CVG0122	CG21716
Trichloroethene	ND (0.0010)	0.54	1	07/17/12 15:14	CVG0122	CG21716
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Vinyl Acetate	ND (0.0050)		1	07/17/12 15:14	CVG0122	CG21716
Vinyl Chloride	ND (0.0010)	0.002	1	07/17/12 15:14	CVG0122	CG21716
Xylene O	ND (0.0010)		1	07/17/12 15:14	CVG0122	CG21716
Xylene P,M	ND (0.0020)		1	07/17/12 15:14	CVG0122	CG21716
Xylenes (Total)	ND (0.0030)		1	07/17/12 15:14		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/17/12 15:14		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-316D  
 Date Sampled: 07/11/12 13:30  
 Percent Solids: N/A  
 Initial Volume: 950  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-12  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Acenaphthene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Acenaphthylene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Anthracene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Chrysene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Fluoranthene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Fluorene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
<b>Naphthalene</b>	<b>0.0004</b> (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Phenanthrene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221
Pyrene	ND (0.0002)		1	07/13/12 4:53	CVG0085	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	42 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	45 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	43 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	63 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 07/11/12 13:30  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-12  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
<b>Total Cyanide (LL)</b>	<b>0.0083</b> (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071112  
Date Sampled: 07/11/12 10:00  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-13  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	ND (0.20)		1	07/17/12 23:48	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>111 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: BD071112  
 Date Sampled: 07/11/12 10:00  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
 ESS Laboratory Sample ID: 1207134-13  
 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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,1,1-Trichloroethane	ND (0.0010)	3.1	1	07/17/12 15:43	CVG0122	CG21716
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/17/12 15:43	CVG0122	CG21716
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,1-Dichloroethene	ND (0.0010)	0.007	1	07/17/12 15:43	CVG0122	CG21716
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.002	1	07/17/12 15:43	CVG0122	CG21716
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,2-Dichloroethane	ND (0.0010)	0.11	1	07/17/12 15:43	CVG0122	CG21716
1,2-Dichloropropane	ND (0.0010)	3	1	07/17/12 15:43	CVG0122	CG21716
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
1,4-Dioxane - Screen	ND (0.500)		1	07/17/12 15:43	CVG0122	CG21716
1-Chlorohexane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
2-Butanone	ND (0.0100)		1	07/17/12 15:43	CVG0122	CG21716
2-Chlorotoluene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
2-Hexanone	ND (0.0100)		1	07/17/12 15:43	CVG0122	CG21716
4-Chlorotoluene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
4-Methyl-2-Pentanone	ND (0.0250)		1	07/17/12 15:43	CVG0122	CG21716
Acetone	ND (0.0100)		1	07/17/12 15:43	CVG0122	CG21716
Benzene	ND (0.0010)	0.14	1	07/17/12 15:43	CVG0122	CG21716



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071112  
Date Sampled: 07/11/12 10:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-13  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
Bromochloromethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Bromodichloromethane	ND (0.0006)		1	07/17/12 15:43	CVG0122	CG21716
Bromoform	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Bromomethane	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
Carbon Disulfide	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Carbon Tetrachloride	ND (0.0010)	0.07	1	07/17/12 15:43	CVG0122	CG21716
Chlorobenzene	ND (0.0010)	3.2	1	07/17/12 15:43	CVG0122	CG21716
Chloroethane	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
Chloroform	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Chloromethane	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
cis-1,2-Dichloroethene	ND (0.0010)	2.4	1	07/17/12 15:43	CVG0122	CG21716
cis-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 15:43	CVG0122	CG21716
Dibromochloromethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Dibromomethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
Diethyl Ether	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Di-isopropyl ether	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Ethylbenzene	ND (0.0010)	1.6	1	07/17/12 15:43	CVG0122	CG21716
Hexachlorobutadiene	ND (0.0006)		1	07/17/12 15:43	CVG0122	CG21716
Hexachloroethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Isopropylbenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Methyl tert-Butyl Ether	ND (0.0010)	5	1	07/17/12 15:43	CVG0122	CG21716
Methylene Chloride	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
Naphthalene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
n-Butylbenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
n-Propylbenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
sec-Butylbenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Styrene	ND (0.0010)	2.2	1	07/17/12 15:43	CVG0122	CG21716
tert-Butylbenzene	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071112  
Date Sampled: 07/11/12 10:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-13  
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>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Tetrachloroethene	ND (0.0010)	0.15	1	07/17/12 15:43	CVG0122	CG21716
Tetrahydrofuran	ND (0.0050)		1	07/17/12 15:43	CVG0122	CG21716
Toluene	ND (0.0010)	1.7	1	07/17/12 15:43	CVG0122	CG21716
trans-1,2-Dichloroethene	ND (0.0010)	2.8	1	07/17/12 15:43	CVG0122	CG21716
trans-1,3-Dichloropropene	ND (0.0004)		1	07/17/12 15:43	CVG0122	CG21716
Trichloroethene	ND (0.0010)	0.54	1	07/17/12 15:43	CVG0122	CG21716
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Vinyl Acetate	ND (0.0050)		1	07/17/12 15:43	CVG0122	CG21716
Vinyl Chloride	ND (0.0010)	0.002	1	07/17/12 15:43	CVG0122	CG21716
Xylene O	ND (0.0010)		1	07/17/12 15:43	CVG0122	CG21716
Xylene P,M	ND (0.0020)		1	07/17/12 15:43	CVG0122	CG21716
Xylenes (Total)	ND (0.0030)		1	07/17/12 15:43		[CALC]
Trihalomethanes (Total)	ND (0.0036)			07/17/12 15:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	95 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071112  
Date Sampled: 07/11/12 10:00  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-13  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Acenaphthene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Acenaphthylene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Anthracene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Benzo(a)anthracene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Benzo(a)pyrene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Benzo(b)fluoranthene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Benzo(g,h,i)perylene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Benzo(k)fluoranthene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Chrysene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Fluoranthene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Fluorene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Naphthalene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Phenanthrene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221
Pyrene	ND (0.0002)		1	07/13/12 22:53	CVG0089	CG21221

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: 1,2-Dichlorobenzene-d4	47 %		30-130
Surrogate: 2-Fluorobiphenyl	47 %		30-130
Surrogate: Nitrobenzene-d5	46 %		30-130
Surrogate: p-Terphenyl-d14	62 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD071112  
Date Sampled: 07/11/12 10:00  
Percent Solids: N/A

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-13  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
<b>Total Cyanide (LL)</b>	<b>0.0162 (0.0050)</b>	9014		1	DPS	07/17/12 13:30	mg/L	CG21712



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TBLK071112  
Date Sampled: 07/11/12 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-14  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,1,1-Trichloroethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,1,2,2-Tetrachloroethane	ND (0.0005)		1	07/14/12 20:17	CVG0102	CG21502
1,1,2-Trichloroethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,1-Dichloroethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,1-Dichloroethene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,1-Dichloropropene	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,2,3-Trichloropropane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,2-Dibromo-3-Chloropropane	ND (0.0050)		1	07/14/12 20:17	CVG0102	CG21502
1,2-Dibromoethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,2-Dichlorobenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,2-Dichloroethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,2-Dichloropropane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,3-Dichlorobenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,3-Dichloropropane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,4-Dichlorobenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
1,4-Dioxane - Screen	ND (0.500)		1	07/14/12 20:17	CVG0102	CG21502
1-Chlorohexane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
2,2-Dichloropropane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
2-Butanone	ND (0.0100)		1	07/14/12 20:17	CVG0102	CG21502
2-Chlorotoluene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
2-Hexanone	ND (0.0100)		1	07/14/12 20:17	CVG0102	CG21502
4-Chlorotoluene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
4-Isopropyltoluene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
4-Methyl-2-Pentanone	ND (0.0250)		1	07/14/12 20:17	CVG0102	CG21502
Acetone	ND (0.0100)		1	07/14/12 20:17	CVG0102	CG21502
Benzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TBLK071112  
Date Sampled: 07/11/12 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-14  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromobenzene	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502
Bromochloromethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Bromodichloromethane	ND (0.0006)		1	07/14/12 20:17	CVG0102	CG21502
Bromoform	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Bromomethane	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502
Carbon Disulfide	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Carbon Tetrachloride	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Chlorobenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Chloroethane	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502
Chloroform	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Chloromethane	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502
cis-1,2-Dichloroethene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
cis-1,3-Dichloropropene	ND (0.0004)		1	07/14/12 20:17	CVG0102	CG21502
Dibromochloromethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Dibromomethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Dichlorodifluoromethane	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502
Diethyl Ether	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Di-isopropyl ether	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Ethylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Hexachlorobutadiene	ND (0.0006)		1	07/14/12 20:17	CVG0102	CG21502
Hexachloroethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Isopropylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Methyl tert-Butyl Ether	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Methylene Chloride	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502
Naphthalene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
n-Butylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
n-Propylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
sec-Butylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Styrene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
tert-Butylbenzene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TBLK071112  
Date Sampled: 07/11/12 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1207134  
ESS Laboratory Sample ID: 1207134-14  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: VAC

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tertiary-amyl methyl ether	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Tetrachloroethene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Tetrahydrofuran	ND (0.0050)		1	07/14/12 20:17	CVG0102	CG21502
Toluene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
trans-1,2-Dichloroethene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
trans-1,3-Dichloropropene	ND (0.0004)		1	07/14/12 20:17	CVG0102	CG21502
Trichloroethene	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Trichlorofluoromethane	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Vinyl Acetate	ND (0.0050)		1	07/14/12 20:17	CVG0102	CG21502
Vinyl Chloride	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Xylene O	ND (0.0010)		1	07/14/12 20:17	CVG0102	CG21502
Xylene P,M	ND (0.0020)		1	07/14/12 20:17	CVG0102	CG21502

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	93 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21203 - 3510C**

**Blank**

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacotane (C30)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.116</i>		mg/L	<i>0.1000</i>		<i>116</i>	<i>40-140</i>			
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**LCS**

Decane (C10)	0.032	0.005	mg/L	0.05000		64	40-140			
Docosane (C22)	0.045	0.005	mg/L	0.05000		89	40-140			
Dodecane (C12)	0.037	0.005	mg/L	0.05000		74	40-140			
Eicosane (C20)	0.044	0.005	mg/L	0.05000		88	40-140			
Hexacosane (C26)	0.046	0.005	mg/L	0.05000		93	40-140			
Hexadecane (C16)	0.043	0.005	mg/L	0.05000		86	40-140			
Nonadecane (C19)	0.038	0.005	mg/L	0.05000		76	40-140			
Nonane (C9)	0.025	0.005	mg/L	0.05000		49	30-140			
Octacosane (C28)	0.048	0.005	mg/L	0.05000		97	40-140			
Octadecane (C18)	0.044	0.005	mg/L	0.05000		88	40-140			
Tetracosane (C24)	0.046	0.005	mg/L	0.05000		91	40-140			
Tetradecane (C14)	0.041	0.005	mg/L	0.05000		82	40-140			
Triacotane (C30)	0.052	0.005	mg/L	0.05000		103	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.105</i>		mg/L	<i>0.1000</i>		<i>105</i>	<i>40-140</i>			
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**LCS Dup**

Decane (C10)	0.029	0.005	mg/L	0.05000		58	40-140	10	25	
Docosane (C22)	0.045	0.005	mg/L	0.05000		90	40-140	0.4	25	
Dodecane (C12)	0.033	0.005	mg/L	0.05000		65	40-140	14	25	
Eicosane (C20)	0.044	0.005	mg/L	0.05000		88	40-140	0.02	25	
Hexacosane (C26)	0.047	0.005	mg/L	0.05000		94	40-140	1	25	
Hexadecane (C16)	0.039	0.005	mg/L	0.05000		78	40-140	10	25	
Nonadecane (C19)	0.038	0.005	mg/L	0.05000		75	40-140	1	25	
Nonane (C9)	0.023	0.005	mg/L	0.05000		45	30-140	9	25	
Octacosane (C28)	0.049	0.005	mg/L	0.05000		98	40-140	1	25	
Octadecane (C18)	0.043	0.005	mg/L	0.05000		86	40-140	3	25	
Tetracosane (C24)	0.046	0.005	mg/L	0.05000		92	40-140	1	25	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>8100M Total Petroleum Hydrocarbons</b>										
<b>Batch CG21203 - 3510C</b>										
Tetradecane (C14)	0.036	0.005	mg/L	0.05000		73	40-140	12	25	
Triacotane (C30)	0.052	0.005	mg/L	0.05000		104	40-140	1	25	
<i>Surrogate: O-Terphenyl</i>	<i>0.100</i>		mg/L	<i>0.1000</i>		<i>100</i>	<i>40-140</i>			
<b>Batch CG21720 - 3510C</b>										
<b>Blank</b>										
Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacotane (C30)	ND	0.005	mg/L							
<i>Surrogate: O-Terphenyl</i>	<i>0.111</i>		mg/L	<i>0.1000</i>		<i>111</i>	<i>40-140</i>			
<b>LCS</b>										
Decane (C10)	0.035	0.005	mg/L	0.05000		70	40-140			
Docosane (C22)	0.050	0.005	mg/L	0.05000		100	40-140			
Dodecane (C12)	0.040	0.005	mg/L	0.05000		80	40-140			
Eicosane (C20)	0.049	0.005	mg/L	0.05000		98	40-140			
Hexacosane (C26)	0.049	0.005	mg/L	0.05000		97	40-140			
Hexadecane (C16)	0.046	0.005	mg/L	0.05000		92	40-140			
Nonadecane (C19)	0.042	0.005	mg/L	0.05000		84	40-140			
Nonane (C9)	0.026	0.005	mg/L	0.05000		52	30-140			
Octacosane (C28)	0.049	0.005	mg/L	0.05000		99	40-140			
Octadecane (C18)	0.048	0.005	mg/L	0.05000		96	40-140			
Tetracosane (C24)	0.050	0.005	mg/L	0.05000		100	40-140			
Tetradecane (C14)	0.043	0.005	mg/L	0.05000		87	40-140			
Triacotane (C30)	0.051	0.005	mg/L	0.05000		103	40-140			
<i>Surrogate: O-Terphenyl</i>	<i>0.111</i>		mg/L	<i>0.1000</i>		<i>111</i>	<i>40-140</i>			
<b>LCS Dup</b>										
Decane (C10)	0.034	0.005	mg/L	0.05000		68	40-140	3	25	
Docosane (C22)	0.050	0.005	mg/L	0.05000		99	40-140	0.2	25	
Dodecane (C12)	0.040	0.005	mg/L	0.05000		80	40-140	0.07	25	
Eicosane (C20)	0.049	0.005	mg/L	0.05000		99	40-140	0.7	25	
Hexacosane (C26)	0.049	0.005	mg/L	0.05000		99	40-140	1	25	
Hexadecane (C16)	0.047	0.005	mg/L	0.05000		94	40-140	2	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21720 - 3510C**

Nonadecane (C19)	0.047	0.005	mg/L	0.05000		94	40-140	11	25	
Nonane (C9)	0.024	0.005	mg/L	0.05000		47	30-140	10	25	
Octacosane (C28)	0.049	0.005	mg/L	0.05000		99	40-140	0.4	25	
Octadecane (C18)	0.049	0.005	mg/L	0.05000		98	40-140	2	25	
Tetracosane (C24)	0.050	0.005	mg/L	0.05000		101	40-140	0.6	25	
Tetradecane (C14)	0.045	0.005	mg/L	0.05000		90	40-140	3	25	
Triacontane (C30)	0.052	0.005	mg/L	0.05000		103	40-140	0.8	25	
<i>Surrogate: O-Terphenyl</i>	<i>0.112</i>		mg/L	<i>0.1000</i>		<i>112</i>	<i>40-140</i>			

**8260B Volatile Organic Compounds**

**Batch CG21502 - 5030B**

<b>Blank</b>										
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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21502 - 5030B**

Bromochloromethane	ND	0.0010	mg/L							
Bromodichloromethane	ND	0.0006	mg/L							
Bromoform	ND	0.0010	mg/L							
Bromomethane	ND	0.0020	mg/L							
Carbon Disulfide	ND	0.0010	mg/L							
Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0244		mg/L	0.02500		97	70-130			
Surrogate: 4-Bromofluorobenzene	0.0258		mg/L	0.02500		103	70-130			
Surrogate: Dibromofluoromethane	0.0233		mg/L	0.02500		93	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21502 - 5030B**

<i>Surrogate: Toluene-d8</i>	<i>0.0242</i>		mg/L	<i>0.02500</i>		<i>97</i>	<i>70-130</i>			
<b>LCS</b>										
1,1,1,2-Tetrachloroethane	9.03		ug/L	10.00		90	70-130			
1,1,1-Trichloroethane	10.9		ug/L	10.00		109	70-130			
1,1,2,2-Tetrachloroethane	8.61		ug/L	10.00		86	70-130			
1,1,2-Trichloroethane	8.93		ug/L	10.00		89	70-130			
1,1-Dichloroethane	9.02		ug/L	10.00		90	70-130			
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130			
1,1-Dichloropropene	9.90		ug/L	10.00		99	70-130			
1,2,3-Trichlorobenzene	10.5		ug/L	10.00		105	70-130			
1,2,3-Trichloropropane	8.46		ug/L	10.00		85	70-130			
1,2,4-Trichlorobenzene	12.3		ug/L	10.00		123	70-130			
1,2,4-Trimethylbenzene	9.91		ug/L	10.00		99	70-130			
1,2-Dibromo-3-Chloropropane	8.81		ug/L	10.00		88	70-130			
1,2-Dibromoethane	9.22		ug/L	10.00		92	70-130			
1,2-Dichlorobenzene	8.53		ug/L	10.00		85	70-130			
1,2-Dichloroethane	10.6		ug/L	10.00		106	70-130			
1,2-Dichloropropane	8.32		ug/L	10.00		83	70-130			
1,3,5-Trimethylbenzene	10.2		ug/L	10.00		102	70-130			
1,3-Dichlorobenzene	8.83		ug/L	10.00		88	70-130			
1,3-Dichloropropane	9.01		ug/L	10.00		90	70-130			
1,4-Dichlorobenzene	9.24		ug/L	10.00		92	70-130			
1,4-Dioxane - Screen	332		ug/L	200.0		166	0-332			
1-Chlorohexane	11.6		ug/L	10.00		116	70-130			
2,2-Dichloropropane	10.3		ug/L	10.00		103	70-130			
2-Butanone	51.8		ug/L	50.00		104	70-130			
2-Chlorotoluene	8.92		ug/L	10.00		89	70-130			
2-Hexanone	43.8		ug/L	50.00		88	70-130			
4-Chlorotoluene	8.85		ug/L	10.00		88	70-130			
4-Isopropyltoluene	9.75		ug/L	10.00		98	70-130			
4-Methyl-2-Pentanone	45.7		ug/L	50.00		91	70-130			
Acetone	51.0		ug/L	50.00		102	70-130			
Benzene	8.46		ug/L	10.00		85	70-130			
Bromobenzene	9.05		ug/L	10.00		90	70-130			
Bromochloromethane	9.25		ug/L	10.00		92	70-130			
Bromodichloromethane	10.2		ug/L	10.00		102	70-130			
Bromoform	10.2		ug/L	10.00		102	70-130			
Bromomethane	10.6		ug/L	10.00		106	70-130			
Carbon Disulfide	9.06		ug/L	10.00		91	70-130			
Carbon Tetrachloride	10.8		ug/L	10.00		108	70-130			
Chlorobenzene	8.58		ug/L	10.00		86	70-130			
Chloroethane	10.4		ug/L	10.00		104	70-130			
Chloroform	9.17		ug/L	10.00		92	70-130			
Chloromethane	8.64		ug/L	10.00		86	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21502 - 5030B**

cis-1,2-Dichloroethene	9.94		ug/L	10.00		99	70-130			
cis-1,3-Dichloropropene	8.85		ug/L	10.00		88	70-130			
Dibromochloromethane	9.96		ug/L	10.00		100	70-130			
Dibromomethane	8.97		ug/L	10.00		90	70-130			
Dichlorodifluoromethane	9.35		ug/L	10.00		94	70-130			
Diethyl Ether	9.65		ug/L	10.00		96	70-130			
Di-isopropyl ether	9.04		ug/L	10.00		90	70-130			
Ethyl tertiary-butyl ether	9.67		ug/L	10.00		97	70-130			
Ethylbenzene	9.89		ug/L	10.00		99	70-130			
Hexachlorobutadiene	12.0		ug/L	10.00		120	70-130			
Hexachloroethane	10.0		ug/L	10.00		100	70-130			
Isopropylbenzene	9.05		ug/L	10.00		90	70-130			
Methyl tert-Butyl Ether	9.99		ug/L	10.00		100	70-130			
Methylene Chloride	10.0		ug/L	10.00		100	70-130			
Naphthalene	12.5		ug/L	10.00		125	70-130			
n-Butylbenzene	11.0		ug/L	10.00		110	70-130			
n-Propylbenzene	9.53		ug/L	10.00		95	70-130			
sec-Butylbenzene	9.87		ug/L	10.00		99	70-130			
Styrene	9.22		ug/L	10.00		92	70-130			
tert-Butylbenzene	9.76		ug/L	10.00		98	70-130			
Tertiary-amyl methyl ether	9.24		ug/L	10.00		92	70-130			
Tetrachloroethene	9.83		ug/L	10.00		98	70-130			
Tetrahydrofuran	9.90		ug/L	10.00		99	70-130			
Toluene	9.14		ug/L	10.00		91	70-130			
trans-1,2-Dichloroethene	9.80		ug/L	10.00		98	70-130			
trans-1,3-Dichloropropene	8.77		ug/L	10.00		88	70-130			
Trichloroethene	9.65		ug/L	10.00		96	70-130			
Trichlorofluoromethane	10.9		ug/L	10.00		109	70-130			
Vinyl Acetate	10.7		ug/L	10.00		107	70-130			
Vinyl Chloride	10.4		ug/L	10.00		104	70-130			
Xylene O	8.85		ug/L	10.00		88	70-130			
Xylene P,M	19.1		ug/L	20.00		95	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0282		mg/L	0.02500		113	70-130			
Surrogate: 4-Bromofluorobenzene	0.0261		mg/L	0.02500		104	70-130			
Surrogate: Dibromofluoromethane	0.0253		mg/L	0.02500		101	70-130			
Surrogate: Toluene-d8	0.0258		mg/L	0.02500		103	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.29		ug/L	10.00		93	70-130	3	25	
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130	0.2	25	
1,1,2,2-Tetrachloroethane	8.44		ug/L	10.00		84	70-130	2	25	
1,1,2-Trichloroethane	8.90		ug/L	10.00		89	70-130	0.3	25	
1,1-Dichloroethane	8.94		ug/L	10.00		89	70-130	0.9	25	
1,1-Dichloroethene	10.4		ug/L	10.00		104	70-130	2	25	
1,1-Dichloropropene	9.05		ug/L	10.00		90	70-130	9	25	
1,2,3-Trichlorobenzene	9.98		ug/L	10.00		100	70-130	5	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21502 - 5030B**

1,2,3-Trichloropropane	8.13		ug/L	10.00		81	70-130	4	25	
1,2,4-Trichlorobenzene	11.2		ug/L	10.00		112	70-130	9	25	
1,2,4-Trimethylbenzene	10.1		ug/L	10.00		101	70-130	2	25	
1,2-Dibromo-3-Chloropropane	8.13		ug/L	10.00		81	70-130	8	25	
1,2-Dibromoethane	9.39		ug/L	10.00		94	70-130	2	25	
1,2-Dichlorobenzene	8.34		ug/L	10.00		83	70-130	2	25	
1,2-Dichloroethane	10.8		ug/L	10.00		108	70-130	2	25	
1,2-Dichloropropane	8.33		ug/L	10.00		83	70-130	0.1	25	
1,3,5-Trimethylbenzene	9.99		ug/L	10.00		100	70-130	2	25	
1,3-Dichlorobenzene	8.60		ug/L	10.00		86	70-130	3	25	
1,3-Dichloropropane	8.99		ug/L	10.00		90	70-130	0.2	25	
1,4-Dichlorobenzene	9.27		ug/L	10.00		93	70-130	0.3	25	
1,4-Dioxane - Screen	242		ug/L	200.0		121	0-332	32	200	
1-Chlorohexane	11.8		ug/L	10.00		118	70-130	2	25	
2,2-Dichloropropane	10.4		ug/L	10.00		104	70-130	0.7	25	
2-Butanone	51.4		ug/L	50.00		103	70-130	0.8	25	
2-Chlorotoluene	8.37		ug/L	10.00		84	70-130	6	25	
2-Hexanone	44.1		ug/L	50.00		88	70-130	0.6	25	
4-Chlorotoluene	8.72		ug/L	10.00		87	70-130	1	25	
4-Isopropyltoluene	9.32		ug/L	10.00		93	70-130	5	25	
4-Methyl-2-Pentanone	45.7		ug/L	50.00		91	70-130	0.07	25	
Acetone	53.4		ug/L	50.00		107	70-130	5	25	
Benzene	8.43		ug/L	10.00		84	70-130	0.4	25	
Bromobenzene	8.80		ug/L	10.00		88	70-130	3	25	
Bromochloromethane	9.08		ug/L	10.00		91	70-130	2	25	
Bromodichloromethane	10.0		ug/L	10.00		100	70-130	2	25	
Bromoform	10.3		ug/L	10.00		103	70-130	0.3	25	
Bromomethane	10.4		ug/L	10.00		104	70-130	2	25	
Carbon Disulfide	9.14		ug/L	10.00		91	70-130	0.9	25	
Carbon Tetrachloride	10.4		ug/L	10.00		104	70-130	3	25	
Chlorobenzene	8.58		ug/L	10.00		86	70-130	0	25	
Chloroethane	10.4		ug/L	10.00		104	70-130	0.2	25	
Chloroform	9.29		ug/L	10.00		93	70-130	1	25	
Chloromethane	8.70		ug/L	10.00		87	70-130	0.7	25	
cis-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130	2	25	
cis-1,3-Dichloropropene	8.84		ug/L	10.00		88	70-130	0.1	25	
Dibromochloromethane	9.94		ug/L	10.00		99	70-130	0.2	25	
Dibromomethane	8.96		ug/L	10.00		90	70-130	0.1	25	
Dichlorodifluoromethane	9.19		ug/L	10.00		92	70-130	2	25	
Diethyl Ether	9.64		ug/L	10.00		96	70-130	0.1	25	
Di-isopropyl ether	9.20		ug/L	10.00		92	70-130	2	25	
Ethyl tertiary-butyl ether	9.68		ug/L	10.00		97	70-130	0.1	25	
Ethylbenzene	10.1		ug/L	10.00		101	70-130	2	25	
Hexachlorobutadiene	10.8		ug/L	10.00		108	70-130	10	25	
Hexachloroethane	9.78		ug/L	10.00		98	70-130	2	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21502 - 5030B**

Isopropylbenzene	9.04		ug/L	10.00		90	70-130	0.1	25	
Methyl tert-Butyl Ether	9.91		ug/L	10.00		99	70-130	0.8	25	
Methylene Chloride	10.2		ug/L	10.00		102	70-130	1	25	
Naphthalene	10.7		ug/L	10.00		107	70-130	15	25	
n-Butylbenzene	11.0		ug/L	10.00		110	70-130	0.7	25	
n-Propylbenzene	9.71		ug/L	10.00		97	70-130	2	25	
sec-Butylbenzene	9.58		ug/L	10.00		96	70-130	3	25	
Styrene	9.19		ug/L	10.00		92	70-130	0.3	25	
tert-Butylbenzene	9.52		ug/L	10.00		95	70-130	2	25	
Tertiary-amyl methyl ether	9.20		ug/L	10.00		92	70-130	0.4	25	
Tetrachloroethene	10.1		ug/L	10.00		101	70-130	3	25	
Tetrahydrofuran	9.59		ug/L	10.00		96	70-130	3	25	
Toluene	9.15		ug/L	10.00		92	70-130	0.1	25	
trans-1,2-Dichloroethene	9.83		ug/L	10.00		98	70-130	0.3	25	
trans-1,3-Dichloropropene	8.71		ug/L	10.00		87	70-130	0.7	25	
Trichloroethene	9.78		ug/L	10.00		98	70-130	1	25	
Trichlorofluoromethane	11.4		ug/L	10.00		114	70-130	4	25	
Vinyl Acetate	10.7		ug/L	10.00		107	70-130	0.6	25	
Vinyl Chloride	10.2		ug/L	10.00		102	70-130	1	25	
Xylene O	9.02		ug/L	10.00		90	70-130	2	25	
Xylene P,M	19.2		ug/L	20.00		96	70-130	0.6	25	
Surrogate: 1,2-Dichloroethane-d4	0.0278		mg/L	0.02500		111	70-130			
Surrogate: 4-Bromofluorobenzene	0.0256		mg/L	0.02500		102	70-130			
Surrogate: Dibromofluoromethane	0.0246		mg/L	0.02500		98	70-130			
Surrogate: Toluene-d8	0.0258		mg/L	0.02500		103	70-130			

**Batch CG21503 - 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							





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21503 - 5030B**

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							
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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21503 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0245		mg/L	0.02500		98	70-130			
Surrogate: 4-Bromofluorobenzene	0.0257		mg/L	0.02500		103	70-130			
Surrogate: Dibromofluoromethane	0.0228		mg/L	0.02500		91	70-130			
Surrogate: Toluene-d8	0.0244		mg/L	0.02500		98	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	9.43		ug/L	10.00		94	70-130			
1,1,1-Trichloroethane	11.1		ug/L	10.00		111	70-130			
1,1,2,2-Tetrachloroethane	8.69		ug/L	10.00		87	70-130			
1,1,2-Trichloroethane	9.17		ug/L	10.00		92	70-130			
1,1-Dichloroethane	9.01		ug/L	10.00		90	70-130			
1,1-Dichloroethene	10.5		ug/L	10.00		105	70-130			
1,1-Dichloropropene	9.96		ug/L	10.00		100	70-130			
1,2,3-Trichlorobenzene	10.9		ug/L	10.00		109	70-130			
1,2,3-Trichloropropane	8.43		ug/L	10.00		84	70-130			
1,2,4-Trichlorobenzene	11.8		ug/L	10.00		118	70-130			
1,2,4-Trimethylbenzene	10.1		ug/L	10.00		101	70-130			
1,2-Dibromo-3-Chloropropane	8.79		ug/L	10.00		88	70-130			
1,2-Dibromoethane	9.44		ug/L	10.00		94	70-130			
1,2-Dichlorobenzene	8.49		ug/L	10.00		85	70-130			
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130			
1,2-Dichloropropane	8.32		ug/L	10.00		83	70-130			
1,3,5-Trimethylbenzene	10.4		ug/L	10.00		104	70-130			
1,3-Dichlorobenzene	8.80		ug/L	10.00		88	70-130			
1,3-Dichloropropane	9.28		ug/L	10.00		93	70-130			
1,4-Dichlorobenzene	9.29		ug/L	10.00		93	70-130			
1,4-Dioxane - Screen	349		ug/L	200.0		174	0-332			
1-Chlorohexane	11.7		ug/L	10.00		117	70-130			
2,2-Dichloropropane	10.7		ug/L	10.00		107	70-130			
2-Butanone	51.6		ug/L	50.00		103	70-130			
2-Chlorotoluene	9.26		ug/L	10.00		93	70-130			
2-Hexanone	44.9		ug/L	50.00		90	70-130			
4-Chlorotoluene	8.99		ug/L	10.00		90	70-130			
4-Isopropyltoluene	9.74		ug/L	10.00		97	70-130			
4-Methyl-2-Pentanone	45.7		ug/L	50.00		91	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21503 - 5030B**

Acetone	52.1		ug/L	50.00		104	70-130			
Benzene	8.41		ug/L	10.00		84	70-130			
Bromobenzene	9.07		ug/L	10.00		91	70-130			
Bromochloromethane	9.18		ug/L	10.00		92	70-130			
Bromodichloromethane	10.5		ug/L	10.00		105	70-130			
Bromoform	10.5		ug/L	10.00		105	70-130			
Bromomethane	9.53		ug/L	10.00		95	70-130			
Carbon Disulfide	8.81		ug/L	10.00		88	70-130			
Carbon Tetrachloride	11.3		ug/L	10.00		113	70-130			
Chlorobenzene	8.80		ug/L	10.00		88	70-130			
Chloroethane	9.93		ug/L	10.00		99	70-130			
Chloroform	9.27		ug/L	10.00		93	70-130			
Chloromethane	8.33		ug/L	10.00		83	70-130			
cis-1,2-Dichloroethene	9.93		ug/L	10.00		99	70-130			
cis-1,3-Dichloropropene	9.00		ug/L	10.00		90	70-130			
Dibromochloromethane	10.3		ug/L	10.00		103	70-130			
Dibromomethane	9.30		ug/L	10.00		93	70-130			
Dichlorodifluoromethane	9.56		ug/L	10.00		96	70-130			
Diethyl Ether	9.73		ug/L	10.00		97	70-130			
Di-isopropyl ether	9.11		ug/L	10.00		91	70-130			
Ethyl tertiary-butyl ether	9.86		ug/L	10.00		99	70-130			
Ethylbenzene	10.1		ug/L	10.00		101	70-130			
Hexachlorobutadiene	12.0		ug/L	10.00		120	70-130			
Hexachloroethane	10.4		ug/L	10.00		104	70-130			
Isopropylbenzene	9.10		ug/L	10.00		91	70-130			
Methyl tert-Butyl Ether	10.1		ug/L	10.00		101	70-130			
Methylene Chloride	10.2		ug/L	10.00		102	70-130			
Naphthalene	12.0		ug/L	10.00		120	70-130			
n-Butylbenzene	11.2		ug/L	10.00		112	70-130			
n-Propylbenzene	9.20		ug/L	10.00		92	70-130			
sec-Butylbenzene	9.91		ug/L	10.00		99	70-130			
Styrene	9.35		ug/L	10.00		94	70-130			
tert-Butylbenzene	9.82		ug/L	10.00		98	70-130			
Tertiary-amyl methyl ether	9.62		ug/L	10.00		96	70-130			
Tetrachloroethene	10.1		ug/L	10.00		101	70-130			
Tetrahydrofuran	10.3		ug/L	10.00		103	70-130			
Toluene	9.14		ug/L	10.00		91	70-130			
trans-1,2-Dichloroethene	9.96		ug/L	10.00		100	70-130			
trans-1,3-Dichloropropene	9.01		ug/L	10.00		90	70-130			
Trichloroethene	9.98		ug/L	10.00		100	70-130			
Trichlorofluoromethane	11.5		ug/L	10.00		115	70-130			
Vinyl Acetate	11.4		ug/L	10.00		114	70-130			
Vinyl Chloride	10.0		ug/L	10.00		100	70-130			
Xylene O	9.21		ug/L	10.00		92	70-130			
Xylene P,M	19.3		ug/L	20.00		97	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21503 - 5030B**

Surrogate: 1,2-Dichloroethane-d4	0.0292		mg/L	0.02500		117	70-130			
Surrogate: 4-Bromofluorobenzene	0.0264		mg/L	0.02500		106	70-130			
Surrogate: Dibromofluoromethane	0.0251		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0260		mg/L	0.02500		104	70-130			

<b>LCS Dup</b>										
1,1,1,2-Tetrachloroethane	8.88		ug/L	10.00		89	70-130	6	25	
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130	2	25	
1,1,2,2-Tetrachloroethane	8.52		ug/L	10.00		85	70-130	2	25	
1,1,2-Trichloroethane	8.84		ug/L	10.00		88	70-130	4	25	
1,1-Dichloroethane	8.85		ug/L	10.00		88	70-130	2	25	
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130	2	25	
1,1-Dichloropropene	9.28		ug/L	10.00		93	70-130	7	25	
1,2,3-Trichlorobenzene	9.75		ug/L	10.00		98	70-130	11	25	
1,2,3-Trichloropropane	8.38		ug/L	10.00		84	70-130	0.6	25	
1,2,4-Trichlorobenzene	10.9		ug/L	10.00		109	70-130	8	25	
1,2,4-Trimethylbenzene	9.91		ug/L	10.00		99	70-130	2	25	
1,2-Dibromo-3-Chloropropane	7.98		ug/L	10.00		80	70-130	10	25	
1,2-Dibromoethane	9.14		ug/L	10.00		91	70-130	3	25	
1,2-Dichlorobenzene	8.34		ug/L	10.00		83	70-130	2	25	
1,2-Dichloroethane	11.2		ug/L	10.00		112	70-130	0.9	25	
1,2-Dichloropropane	8.52		ug/L	10.00		85	70-130	2	25	
1,3,5-Trimethylbenzene	9.99		ug/L	10.00		100	70-130	4	25	
1,3-Dichlorobenzene	8.55		ug/L	10.00		86	70-130	3	25	
1,3-Dichloropropane	8.94		ug/L	10.00		89	70-130	4	25	
1,4-Dichlorobenzene	8.84		ug/L	10.00		88	70-130	5	25	
1,4-Dioxane - Screen	218		ug/L	200.0		109	0-332	46	200	
1-Chlorohexane	11.0		ug/L	10.00		110	70-130	6	25	
2,2-Dichloropropane	10.6		ug/L	10.00		106	70-130	0.6	25	
2-Butanone	49.4		ug/L	50.00		99	70-130	4	25	
2-Chlorotoluene	9.04		ug/L	10.00		90	70-130	2	25	
2-Hexanone	42.0		ug/L	50.00		84	70-130	6	25	
4-Chlorotoluene	8.73		ug/L	10.00		87	70-130	3	25	
4-Isopropyltoluene	9.22		ug/L	10.00		92	70-130	5	25	
4-Methyl-2-Pentanone	45.3		ug/L	50.00		91	70-130	0.8	25	
Acetone	50.4		ug/L	50.00		101	70-130	3	25	
Benzene	8.53		ug/L	10.00		85	70-130	1	25	
Bromobenzene	9.03		ug/L	10.00		90	70-130	0.4	25	
Bromochloromethane	9.35		ug/L	10.00		94	70-130	2	25	
Bromodichloromethane	10.3		ug/L	10.00		103	70-130	1	25	
Bromoform	10.2		ug/L	10.00		102	70-130	3	25	
Bromomethane	9.15		ug/L	10.00		92	70-130	4	25	
Carbon Disulfide	8.89		ug/L	10.00		89	70-130	0.9	25	
Carbon Tetrachloride	11.1		ug/L	10.00		111	70-130	2	25	
Chlorobenzene	8.53		ug/L	10.00		85	70-130	3	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21503 - 5030B**

Chloroethane	9.85		ug/L	10.00		98	70-130	0.8	25	
Chloroform	9.10		ug/L	10.00		91	70-130	2	25	
Chloromethane	8.04		ug/L	10.00		80	70-130	4	25	
cis-1,2-Dichloroethene	10.0		ug/L	10.00		100	70-130	0.7	25	
cis-1,3-Dichloropropene	9.05		ug/L	10.00		90	70-130	0.6	25	
Dibromochloromethane	9.90		ug/L	10.00		99	70-130	4	25	
Dibromomethane	9.13		ug/L	10.00		91	70-130	2	25	
Dichlorodifluoromethane	9.33		ug/L	10.00		93	70-130	2	25	
Diethyl Ether	9.26		ug/L	10.00		93	70-130	5	25	
Di-isopropyl ether	9.18		ug/L	10.00		92	70-130	0.8	25	
Ethyl tertiary-butyl ether	9.57		ug/L	10.00		96	70-130	3	25	
Ethylbenzene	9.82		ug/L	10.00		98	70-130	3	25	
Hexachlorobutadiene	10.4		ug/L	10.00		104	70-130	14	25	
Hexachloroethane	10.1		ug/L	10.00		101	70-130	3	25	
Isopropylbenzene	8.90		ug/L	10.00		89	70-130	2	25	
Methyl tert-Butyl Ether	9.88		ug/L	10.00		99	70-130	2	25	
Methylene Chloride	10.0		ug/L	10.00		100	70-130	2	25	
Naphthalene	10.6		ug/L	10.00		106	70-130	13	25	
n-Butylbenzene	10.4		ug/L	10.00		104	70-130	8	25	
n-Propylbenzene	9.02		ug/L	10.00		90	70-130	2	25	
sec-Butylbenzene	9.43		ug/L	10.00		94	70-130	5	25	
Styrene	9.04		ug/L	10.00		90	70-130	3	25	
tert-Butylbenzene	9.53		ug/L	10.00		95	70-130	3	25	
Tertiary-amyl methyl ether	9.49		ug/L	10.00		95	70-130	1	25	
Tetrachloroethene	9.50		ug/L	10.00		95	70-130	7	25	
Tetrahydrofuran	10.2		ug/L	10.00		102	70-130	1	25	
Toluene	9.09		ug/L	10.00		91	70-130	0.5	25	
trans-1,2-Dichloroethene	9.88		ug/L	10.00		99	70-130	0.8	25	
trans-1,3-Dichloropropene	8.96		ug/L	10.00		90	70-130	0.6	25	
Trichloroethene	9.65		ug/L	10.00		96	70-130	3	25	
Trichlorofluoromethane	11.4		ug/L	10.00		114	70-130	0.7	25	
Vinyl Acetate	10.6		ug/L	10.00		106	70-130	8	25	
Vinyl Chloride	9.88		ug/L	10.00		99	70-130	2	25	
Xylene O	8.81		ug/L	10.00		88	70-130	4	25	
Xylene P,M	18.7		ug/L	20.00		94	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	0.0292		mg/L	0.02500		117	70-130			
Surrogate: 4-Bromofluorobenzene	0.0262		mg/L	0.02500		105	70-130			
Surrogate: Dibromofluoromethane	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Toluene-d8	0.0257		mg/L	0.02500		103	70-130			

**Batch CG21716 - 5030B**

<b>Blank</b>										
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21716 - 5030B**

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							
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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21716 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0258		mg/L	0.02500		103	70-130			
Surrogate: 4-Bromofluorobenzene	0.0260		mg/L	0.02500		104	70-130			
Surrogate: Dibromofluoromethane	0.0232		mg/L	0.02500		93	70-130			
Surrogate: Toluene-d8	0.0243		mg/L	0.02500		97	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	8.83		ug/L	10.00		88	70-130			
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130			
1,1,2,2-Tetrachloroethane	8.40		ug/L	10.00		84	70-130			
1,1,2-Trichloroethane	8.70		ug/L	10.00		87	70-130			
1,1-Dichloroethane	8.71		ug/L	10.00		87	70-130			
1,1-Dichloroethene	10.0		ug/L	10.00		100	70-130			
1,1-Dichloropropene	9.08		ug/L	10.00		91	70-130			
1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,2,3-Trichloropropane	8.17		ug/L	10.00		82	70-130			
1,2,4-Trichlorobenzene	11.2		ug/L	10.00		112	70-130			
1,2,4-Trimethylbenzene	9.67		ug/L	10.00		97	70-130			
1,2-Dibromo-3-Chloropropane	8.66		ug/L	10.00		87	70-130			
1,2-Dibromoethane	8.97		ug/L	10.00		90	70-130			
1,2-Dichlorobenzene	8.48		ug/L	10.00		85	70-130			
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130			





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21716 - 5030B**

1,2-Dichloropropane	8.21		ug/L	10.00		82	70-130			
1,3,5-Trimethylbenzene	9.90		ug/L	10.00		99	70-130			
1,3-Dichlorobenzene	8.18		ug/L	10.00		82	70-130			
1,3-Dichloropropane	8.69		ug/L	10.00		87	70-130			
1,4-Dichlorobenzene	8.87		ug/L	10.00		89	70-130			
1,4-Dioxane - Screen	304		ug/L	200.0		152	0-332			
1-Chlorohexane	11.2		ug/L	10.00		112	70-130			
2,2-Dichloropropane	11.0		ug/L	10.00		110	70-130			
2-Butanone	51.1		ug/L	50.00		102	70-130			
2-Chlorotoluene	8.22		ug/L	10.00		82	70-130			
2-Hexanone	42.5		ug/L	50.00		85	70-130			
4-Chlorotoluene	8.96		ug/L	10.00		90	70-130			
4-Isopropyltoluene	9.29		ug/L	10.00		93	70-130			
4-Methyl-2-Pentanone	43.3		ug/L	50.00		87	70-130			
Acetone	56.3		ug/L	50.00		113	70-130			
Benzene	8.20		ug/L	10.00		82	70-130			
Bromobenzene	8.92		ug/L	10.00		89	70-130			
Bromochloromethane	8.92		ug/L	10.00		89	70-130			
Bromodichloromethane	10.2		ug/L	10.00		102	70-130			
Bromoform	10.1		ug/L	10.00		101	70-130			
Bromomethane	10.4		ug/L	10.00		104	70-130			
Carbon Disulfide	8.90		ug/L	10.00		89	70-130			
Carbon Tetrachloride	10.9		ug/L	10.00		109	70-130			
Chlorobenzene	8.54		ug/L	10.00		85	70-130			
Chloroethane	9.99		ug/L	10.00		100	70-130			
Chloroform	9.09		ug/L	10.00		91	70-130			
Chloromethane	8.09		ug/L	10.00		81	70-130			
cis-1,2-Dichloroethene	9.66		ug/L	10.00		97	70-130			
cis-1,3-Dichloropropene	8.87		ug/L	10.00		89	70-130			
Dibromochloromethane	9.60		ug/L	10.00		96	70-130			
Dibromomethane	8.84		ug/L	10.00		88	70-130			
Dichlorodifluoromethane	9.24		ug/L	10.00		92	70-130			
Diethyl Ether	9.48		ug/L	10.00		95	70-130			
Di-isopropyl ether	8.87		ug/L	10.00		89	70-130			
Ethyl tertiary-butyl ether	9.53		ug/L	10.00		95	70-130			
Ethylbenzene	9.63		ug/L	10.00		96	70-130			
Hexachlorobutadiene	11.2		ug/L	10.00		112	70-130			
Hexachloroethane	10.2		ug/L	10.00		102	70-130			
Isopropylbenzene	8.84		ug/L	10.00		88	70-130			
Methyl tert-Butyl Ether	9.66		ug/L	10.00		97	70-130			
Methylene Chloride	9.89		ug/L	10.00		99	70-130			
Naphthalene	11.4		ug/L	10.00		114	70-130			
n-Butylbenzene	10.4		ug/L	10.00		104	70-130			
n-Propylbenzene	9.45		ug/L	10.00		94	70-130			
sec-Butylbenzene	9.38		ug/L	10.00		94	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21716 - 5030B**

Styrene	8.83		ug/L	10.00		88	70-130			
tert-Butylbenzene	9.36		ug/L	10.00		94	70-130			
Tertiary-amyl methyl ether	9.16		ug/L	10.00		92	70-130			
Tetrachloroethene	9.44		ug/L	10.00		94	70-130			
Tetrahydrofuran	9.35		ug/L	10.00		94	70-130			
Toluene	8.98		ug/L	10.00		90	70-130			
trans-1,2-Dichloroethene	9.71		ug/L	10.00		97	70-130			
trans-1,3-Dichloropropene	9.13		ug/L	10.00		91	70-130			
Trichloroethene	9.52		ug/L	10.00		95	70-130			
Trichlorofluoromethane	11.2		ug/L	10.00		112	70-130			
Vinyl Acetate	10.4		ug/L	10.00		104	70-130			
Vinyl Chloride	9.93		ug/L	10.00		99	70-130			
Xylene O	8.68		ug/L	10.00		87	70-130			
Xylene P,M	18.2		ug/L	20.00		91	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0301		mg/L	0.02500		120	70-130			
Surrogate: 4-Bromofluorobenzene	0.0261		mg/L	0.02500		105	70-130			
Surrogate: Dibromofluoromethane	0.0254		mg/L	0.02500		102	70-130			
Surrogate: Toluene-d8	0.0259		mg/L	0.02500		104	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	8.86		ug/L	10.00		89	70-130	0.3	25	
1,1,1-Trichloroethane	11.1		ug/L	10.00		111	70-130	0.8	25	
1,1,2,2-Tetrachloroethane	8.07		ug/L	10.00		81	70-130	4	25	
1,1,2-Trichloroethane	8.53		ug/L	10.00		85	70-130	2	25	
1,1-Dichloroethane	8.50		ug/L	10.00		85	70-130	2	25	
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130	0.3	25	
1,1-Dichloropropene	9.96		ug/L	10.00		100	70-130	9	25	
1,2,3-Trichlorobenzene	9.60		ug/L	10.00		96	70-130	6	25	
1,2,3-Trichloropropane	8.26		ug/L	10.00		83	70-130	1	25	
1,2,4-Trichlorobenzene	10.8		ug/L	10.00		108	70-130	4	25	
1,2,4-Trimethylbenzene	9.30		ug/L	10.00		93	70-130	4	25	
1,2-Dibromo-3-Chloropropane	8.69		ug/L	10.00		87	70-130	0.3	25	
1,2-Dibromoethane	8.89		ug/L	10.00		89	70-130	0.9	25	
1,2-Dichlorobenzene	7.88		ug/L	10.00		79	70-130	7	25	
1,2-Dichloroethane	11.0		ug/L	10.00		110	70-130	1	25	
1,2-Dichloropropane	8.02		ug/L	10.00		80	70-130	2	25	
1,3,5-Trimethylbenzene	9.55		ug/L	10.00		96	70-130	4	25	
1,3-Dichlorobenzene	8.03		ug/L	10.00		80	70-130	2	25	
1,3-Dichloropropane	8.65		ug/L	10.00		86	70-130	0.5	25	
1,4-Dichlorobenzene	8.67		ug/L	10.00		87	70-130	2	25	
1,4-Dioxane - Screen	215		ug/L	200.0		108	0-332	34	200	
1-Chlorohexane	11.1		ug/L	10.00		111	70-130	1	25	
2,2-Dichloropropane	10.8		ug/L	10.00		108	70-130	2	25	
2-Butanone	48.3		ug/L	50.00		97	70-130	6	25	
2-Chlorotoluene	8.02		ug/L	10.00		80	70-130	2	25	
2-Hexanone	42.2		ug/L	50.00		84	70-130	0.9	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21716 - 5030B**

4-Chlorotoluene	8.70		ug/L	10.00		87	70-130	3	25	
4-Isopropyltoluene	8.99		ug/L	10.00		90	70-130	3	25	
4-Methyl-2-Pentanone	43.0		ug/L	50.00		86	70-130	0.7	25	
Acetone	51.2		ug/L	50.00		102	70-130	10	25	
Benzene	8.23		ug/L	10.00		82	70-130	0.4	25	
Bromobenzene	8.48		ug/L	10.00		85	70-130	5	25	
Bromochloromethane	8.86		ug/L	10.00		89	70-130	0.7	25	
Bromodichloromethane	10.2		ug/L	10.00		102	70-130	0	25	
Bromoform	10.0		ug/L	10.00		100	70-130	0.7	25	
Bromomethane	10.7		ug/L	10.00		107	70-130	3	25	
Carbon Disulfide	8.80		ug/L	10.00		88	70-130	1	25	
Carbon Tetrachloride	11.4		ug/L	10.00		114	70-130	4	25	
Chlorobenzene	8.41		ug/L	10.00		84	70-130	2	25	
Chloroethane	9.79		ug/L	10.00		98	70-130	2	25	
Chloroform	9.17		ug/L	10.00		92	70-130	0.9	25	
Chloromethane	8.03		ug/L	10.00		80	70-130	0.7	25	
cis-1,2-Dichloroethene	9.56		ug/L	10.00		96	70-130	1	25	
cis-1,3-Dichloropropene	8.87		ug/L	10.00		89	70-130	0	25	
Dibromochloromethane	9.62		ug/L	10.00		96	70-130	0.2	25	
Dibromomethane	8.82		ug/L	10.00		88	70-130	0.2	25	
Dichlorodifluoromethane	9.00		ug/L	10.00		90	70-130	3	25	
Diethyl Ether	9.30		ug/L	10.00		93	70-130	2	25	
Di-isopropyl ether	8.74		ug/L	10.00		87	70-130	1	25	
Ethyl tertiary-butyl ether	9.58		ug/L	10.00		96	70-130	0.5	25	
Ethylbenzene	9.70		ug/L	10.00		97	70-130	0.7	25	
Hexachlorobutadiene	10.2		ug/L	10.00		102	70-130	10	25	
Hexachloroethane	9.62		ug/L	10.00		96	70-130	6	25	
Isopropylbenzene	8.53		ug/L	10.00		85	70-130	4	25	
Methyl tert-Butyl Ether	9.47		ug/L	10.00		95	70-130	2	25	
Methylene Chloride	9.55		ug/L	10.00		96	70-130	3	25	
Naphthalene	9.39		ug/L	10.00		94	70-130	19	25	
n-Butylbenzene	10.2		ug/L	10.00		102	70-130	3	25	
n-Propylbenzene	9.29		ug/L	10.00		93	70-130	2	25	
sec-Butylbenzene	8.86		ug/L	10.00		89	70-130	6	25	
Styrene	8.72		ug/L	10.00		87	70-130	1	25	
tert-Butylbenzene	9.13		ug/L	10.00		91	70-130	2	25	
Tertiary-amyl methyl ether	8.98		ug/L	10.00		90	70-130	2	25	
Tetrachloroethene	9.37		ug/L	10.00		94	70-130	0.7	25	
Tetrahydrofuran	10.1		ug/L	10.00		101	70-130	7	25	
Toluene	8.84		ug/L	10.00		88	70-130	2	25	
trans-1,2-Dichloroethene	9.37		ug/L	10.00		94	70-130	4	25	
trans-1,3-Dichloropropene	9.01		ug/L	10.00		90	70-130	1	25	
Trichloroethene	9.52		ug/L	10.00		95	70-130	0	25	
Trichlorofluoromethane	11.3		ug/L	10.00		113	70-130	1	25	
Vinyl Acetate	10.1		ug/L	10.00		101	70-130	3	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207134

**Quality Control Data**

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

**Batch CG21716 - 5030B**

Vinyl Chloride	9.85		ug/L	10.00		98	70-130	0.8	25	
Xylene O	8.68		ug/L	10.00		87	70-130	0	25	
Xylene P,M	17.8		ug/L	20.00		89	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0296		mg/L	0.02500		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0266		mg/L	0.02500		106	70-130			
Surrogate: Dibromofluoromethane	0.0251		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0260		mg/L	0.02500		104	70-130			

8270C Polynuclear Aromatic Hydrocarbons

**Batch CG21102 - 3510C**

**Blank**

2-Methylnaphthalene	ND	0.002	mg/L							
Acenaphthene	ND	0.002	mg/L							
Acenaphthylene	ND	0.002	mg/L							
Anthracene	ND	0.002	mg/L							
Benzo(a)anthracene	ND	0.002	mg/L							
Benzo(a)pyrene	ND	0.002	mg/L							
Benzo(b)fluoranthene	ND	0.002	mg/L							
Benzo(g,h,i)perylene	ND	0.002	mg/L							
Benzo(k)fluoranthene	ND	0.002	mg/L							
Chrysene	ND	0.002	mg/L							
Dibenzo(a,h)Anthracene	ND	0.002	mg/L							
Fluoranthene	ND	0.002	mg/L							
Fluorene	ND	0.002	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L							
Naphthalene	ND	0.002	mg/L							
Phenanthrene	ND	0.002	mg/L							
Pyrene	ND	0.002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.000328		mg/L	0.0006250		52	30-130			
Surrogate: 2-Fluorobiphenyl	0.000375		mg/L	0.0006250		60	30-130			
Surrogate: Nitrobenzene-d5	0.000405		mg/L	0.0006250		65	30-130			
Surrogate: p-Terphenyl-d14	0.000418		mg/L	0.0006250		67	30-130			

**LCS**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140			
Anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Chrysene	ND	0.002	mg/L	0.0005000			40-140			
Dibenzo(a,h)Anthracene	0.0005	0.002	mg/L	0.0005000		104	40-140			
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140			



*CERTIFICATE OF ANALYSIS*

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ESS Laboratory Work Order: 1207134

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270C Polynuclear Aromatic Hydrocarbons

**Batch CG21102 - 3510C**

Fluorene	ND	0.002	mg/L	0.0005000			40-140			
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Naphthalene	ND	0.002	mg/L	0.0005000			40-140			
Phenanthrene	ND	0.002	mg/L	0.0005000			40-140			
Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.000305		mg/L	0.0006250		49	30-130			
Surrogate: 2-Fluorobiphenyl	0.000358		mg/L	0.0006250		57	30-130			
Surrogate: Nitrobenzene-d5	0.000368		mg/L	0.0006250		59	30-130			
Surrogate: p-Terphenyl-d14	0.000422		mg/L	0.0006250		68	30-130			

**LCS Dup**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Chrysene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Dibenzo(a,h)Anthracene	0.0006	0.002	mg/L	0.0005000		111	40-140	7	20	
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Fluorene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Naphthalene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Phenanthrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.000292		mg/L	0.0006250		47	30-130			
Surrogate: 2-Fluorobiphenyl	0.000338		mg/L	0.0006250		54	30-130			
Surrogate: Nitrobenzene-d5	0.000370		mg/L	0.0006250		59	30-130			
Surrogate: p-Terphenyl-d14	0.000415		mg/L	0.0006250		66	30-130			

**Batch CG21221 - 3510C**

**Blank**

2-Methylnaphthalene	ND	0.002	mg/L							
Acenaphthene	ND	0.002	mg/L							
Acenaphthylene	ND	0.002	mg/L							
Anthracene	ND	0.002	mg/L							
Benzo(a)anthracene	ND	0.002	mg/L							
Benzo(a)pyrene	ND	0.002	mg/L							
Benzo(b)fluoranthene	ND	0.002	mg/L							
Benzo(g,h,i)perylene	ND	0.002	mg/L							
Benzo(k)fluoranthene	ND	0.002	mg/L							
Chrysene	ND	0.002	mg/L							
Dibenzo(a,h)Anthracene	ND	0.002	mg/L							
Fluoranthene	ND	0.002	mg/L							



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
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ESS Laboratory Work Order: 1207134

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270C Polynuclear Aromatic Hydrocarbons

**Batch CG21221 - 3510C**

Fluorene	ND	0.002	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L							
Naphthalene	ND	0.002	mg/L							
Phenanthrene	ND	0.002	mg/L							
Pyrene	ND	0.002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.000260		mg/L	0.0006250		42	30-130			
Surrogate: 2-Fluorobiphenyl	0.000278		mg/L	0.0006250		44	30-130			
Surrogate: Nitrobenzene-d5	0.000280		mg/L	0.0006250		45	30-130			
Surrogate: p-Terphenyl-d14	0.000318		mg/L	0.0006250		51	30-130			

**LCS**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140			
Anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Chrysene	ND	0.002	mg/L	0.0005000			40-140			
Dibenzo(a,h)Anthracene	0.0005	0.002	mg/L	0.0005000		96	40-140			
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Fluorene	ND	0.002	mg/L	0.0005000			40-140			
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Naphthalene	ND	0.002	mg/L	0.0005000			40-140			
Phenanthrene	ND	0.002	mg/L	0.0005000			40-140			
Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.000292		mg/L	0.0006250		47	30-130			
Surrogate: 2-Fluorobiphenyl	0.000320		mg/L	0.0006250		51	30-130			
Surrogate: Nitrobenzene-d5	0.000328		mg/L	0.0006250		52	30-130			
Surrogate: p-Terphenyl-d14	0.000415		mg/L	0.0006250		66	30-130			

**LCS Dup**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140	200	20	D+
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140	200	20	D+
Anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Chrysene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Dibenzo(a,h)Anthracene	0.0005	0.002	mg/L	0.0005000		93	40-140	4	20	
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Fluorene	ND	0.002	mg/L	0.0005000			40-140	200	20	



CERTIFICATE OF ANALYSIS

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ESS Laboratory Work Order: 1207134

**Quality Control Data**

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8270C Polynuclear Aromatic Hydrocarbons

**Batch CG21221 - 3510C**

Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Naphthalene	0.0006	0.002	mg/L	0.0005000		122	40-140	33	20	D+
Phenanthrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.000352		mg/L	0.0006250		56	30-130			
Surrogate: 2-Fluorobiphenyl	0.000370		mg/L	0.0006250		59	30-130			
Surrogate: Nitrobenzene-d5	0.000388		mg/L	0.0006250		62	30-130			
Surrogate: p-Terphenyl-d14	0.000430		mg/L	0.0006250		69	30-130			

Classical Chemistry

**Batch CG21609 - TCN Prep**

<b>Blank</b>										
Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							

<b>LCS</b>										
Dissolved Cyanide	0.0205	0.0050	mg/L	0.02006		102	90-110			
Total Cyanide (LL)	0.0205	0.0050	mg/L	0.02006		102	90-110			

<b>LCS</b>										
Dissolved Cyanide	0.143	0.0050	mg/L	0.1504		95	90-110			
Total Cyanide (LL)	0.143	0.0050	mg/L	0.1504		95	90-110			

<b>LCS Dup</b>										
Dissolved Cyanide	0.143	0.0050	mg/L	0.1504		95	90-110	0.2	20	
Total Cyanide (LL)	0.143	0.0050	mg/L	0.1504		95	90-110	0.2	20	

**Batch CG21712 - TCN Prep**

<b>Blank</b>										
Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							

<b>LCS</b>										
Dissolved Cyanide	0.0203	0.0050	mg/L	0.02006		101	90-110			
Total Cyanide (LL)	0.0203	0.0050	mg/L	0.02006		101	90-110			

<b>LCS</b>										
Dissolved Cyanide	0.143	0.0050	mg/L	0.1504		95	90-110			
Total Cyanide (LL)	0.143	0.0050	mg/L	0.1504		95	90-110			

<b>LCS Dup</b>										
Dissolved Cyanide	0.143	0.0050	mg/L	0.1504		95	90-110	0.2	20	
Total Cyanide (LL)	0.143	0.0050	mg/L	0.1504		95	90-110	0.2	20	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207134

**Notes and Definitions**

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- S- Surrogate recovery(ies) below lower control limit (S-).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- C- Continuing Calibration recovery is below lower control limit (C-).
- 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: 1207134

**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/labs/waterlabs-instate.php>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutOfStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water: RI0002  
[http://www.maine.gov/dep/blwq/topic/vessel/lab\\_list.pdf](http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf)

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://www4.egov.nh.gov/des/nhelap/namesearch.asp>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313  
<http://www.wadsworth.org/labcert/elap/comm.html>

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301  
[http://www.mde.state.md.us/assets/document/WSP\\_labs-2009apr20.pdf](http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf)

**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.cpsc.gov/cgi-bin/labapplist.aspx>

**Sample and Cooler Receipt Checklist**

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

ESS Project ID: 12070134  
Date Project Due: 7/18/12  
Days For Project: 4 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"/> No   |
| 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: 1.2"/>   |                               | 16. Are ESS labels on correct containers? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <input type="text" value="Iced With: Ice"/>   |                               | 17. Were samples received intact?         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? \_\_\_\_\_

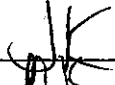
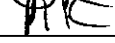
Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	1 L Glass	2	H2SO4
1	Yes	1 L Glass	2	NP
1	Yes	250 ml Plastic	2	NaOH
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	2	H2SO4
2	Yes	1 L Glass	2	NP
2	Yes	250 ml Plastic	2	NaOH
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	2	H2SO4
3	Yes	1 L Glass	2	NP
3	Yes	250 ml Plastic	2	NaOH
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	2	H2SO4
4	Yes	1 L Glass	2	NP
4	Yes	250 ml Plastic	2	NaOH
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	2	H2SO4
5	Yes	1 L Glass	2	NP
5	Yes	250 ml Plastic	2	NaOH
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	2	H2SO4
6	Yes	1 L Glass	2	NP
6	Yes	250 ml Plastic	2	NaOH
6	Yes	40 ml - VOA	3	HCL
7	Yes	1 L Glass	2	H2SO4

**Sample and Cooler Receipt Checklist**

Client: GZA GeoEnvironmental, Inc.

ESS Project ID: 12070134

7	Yes	1 L Glass	2	NP
7	Yes	250 ml Plastic	2	NaOH
7	Yes	40 ml - VOA	3	HCL
8	Yes	1 L Glass	2	H2SO4
8	Yes	1 L Glass	2	NP
8	Yes	250 ml Plastic	2	NaOH
8	Yes	40 ml - VOA	3	HCL
9	Yes	1 L Glass	2	H2SO4
9	Yes	1 L Glass	2	NP
9	Yes	250 ml Plastic	2	NaOH
9	Yes	40 ml - VOA	3	HCL
10	Yes	1 L Glass	2	H2SO4
10	Yes	1 L Glass	2	NP
10	Yes	250 ml Plastic	2	NaOH
10	Yes	40 ml - VOA	3	HCL
11	Yes	40 ml - VOA	3	HCL
12	Yes	1 L Glass	2	H2SO4
12	Yes	1 L Glass	2	NP
12	Yes	250 ml Plastic	2	NaOH
12	Yes	40 ml - VOA	3	HCL
13	Yes	1 L Glass	2	H2SO4
13	Yes	1 L Glass	2	NP
13	Yes	250 ml Plastic	2	NaOH
13	Yes	40 ml - VOA	3	HCL
14	Yes	40 ml - VOA	3	HCL

Completed By:   
 Reviewed By: 

Date/Time: 7/12/12 1100  
 Date/Time: 7/12/12

# CHAIN OF CUSTODY

## ESS Laboratory

Division of Thielisch 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  CT NH NJ NY ME Other \_\_\_\_\_  
 MA-MCP Navy USACE Other \_\_\_\_\_  
 Is this project for any of the following: \_\_\_\_\_  
 Reporting Limits \_\_\_\_\_  
 Electronic Deliverable Yes  No \_\_\_\_\_  
 Format: Excel  Access \_\_\_\_\_ PDF  Other \_\_\_\_\_  
 ESS LAB PROJECT ID: 207135H

Co. Name: **GZA**  
 Project # **43654-00** Project Name (20 Char or less) **TIDEWATER**  
 Contact Person **Meg Kilpatrick** Address **530 Broadway**  
 City **Providence** State **RI** Zip **02909** Email Address \_\_\_\_\_  
 Telephone # **401-421-4140** Fax # \_\_\_\_\_

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															
										VOC 92608	TPH Bloom	PAH 8-700	Total Cyanide 400	Disinolved Cyanide 400											
1	7-11-12	1525	X	GW	X	MW-7	12	9	VGA	X	X	X	X	X											
2	7-11-12	1415	X	GW	X	MW-312D	3.5	9		X	X	X	X	X											
3	7-11-12	0920	X	GW	X	MW-326 S		9		X	X	X	X	X											
4	7-11-12	0945	X	GW	X	MW-326 D		9		X	X	X	X	X											
5	7-11-12	1220	X	GW	X	MW-333 S		9		X	X	X	X	X											
6	7-11-12	1200	X	GW	X	MW-333 D		9		X	X	X	X	X											
7	7-11-12	1135	X	GW	X	MW-6		9		X	X	X	X	X											
8	7-11-12	0925	X	GW	X	MW-107		9		X	X	X	X	X											
9	7-11-12	1520	X	GW	X	MW-109		9		X	X	X	X	X											
10	7-11-12	1030	X	GW	X	MW-337		9		X	X	X	X	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 \_\_\_\_\_ Internal Use Only  
 Seals Intact Yes  No NA:  [ ] Pickup  
 Cooler Temp 1.8, 5.2, 5.3, 9.2  
 Sampled by: **SN/EB** MKE S-V-C DL'S M-E-T **GB** GROUNDWATER LIMITS  
 Comments: **Disinolved cyanide were field filtered.** Also email SOPHIA.NURKAWICZ gpa.com  
 Relinquished by: (Signature) **[Signature]** Date/Time **7/11/12 1005** Relinquished by: (Signature) **[Signature]** Date/Time **7/11/12**  
 Received by: (Signature) **[Signature]** Date/Time **7/11/12** Received by: (Signature) **[Signature]** Date/Time **7/11/12**

**ESS Laboratory**  
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 185 Frances Avenue, Cranston, RI 02910-2211  
 Tel. (401) 461-7181 Fax (401) 461-4486  
 www.esslaboratory.com

**CHAIN OF CUSTODY** 1207134 Page 2 of 2  
 Reporting Limits: Cap GARDIAN WATER  
 Electronic Deliverable: Yes  No   
 Format: Excel  Access  PDF  Other

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

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	Writes Required Analysis
11	7-11-12	1300	X	GW		MW-316S	35	9	VGA	VOC G2603 TPH Bloom PAH G270C Total G2400 Dissolved organics G2010
12	7-11-12	1330	X	GW		MW-316D	9	9	V	
13	7-11-12	1000	X	GW		BD0711R	9	9	V	
14	7-11-12	0700	X			TBLK0711R	2	3	V	

Co. Name: GZA Project # 43654100 TIDEWATER  
 Contact Person: NOA KILPATRICK Address: 530 BERTAWAY  
 City: PROVIDENCE State: RI Zip: 02909  
 Telephone # 401-421-4140 Fax # \_\_\_\_\_ Email Address: noa.kilpatrick@gza.com

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  
 Seals Intact: Yes  No NA:   Pickup  
 Cooler Temp: 5.2, 5.3, 3.2  Technicians \_\_\_\_\_  
 Relinquished by (Signature): [Signature] Date/Time: 7/11/12 1005 Relinquished by (Signature): \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Received by (Signature): [Signature] Date/Time: 7/11/12 1100 Received by (Signature): \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments: SW/OS MAKE SURE DL'S MEET @S GROUNDWATER LIMITS. ALSO EMAIL: SOPHIA.MARKER@GZA.COM



*CERTIFICATE OF ANALYSIS*

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

**RE: Tidewater GH (43654.00)**  
**ESS Laboratory Work Order Number: 1207141**

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 5:20 pm, Jul 25, 2012*

**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.

ESS Laboratory certifies that the test results meet the requirements of NELAC and A2LA, except where noted within this project narrative.

**Subcontracted Analyses**

ESS Laboratory - Hopkinton - Hopkinton, Volatile Compounds  
MA





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**SAMPLE RECEIPT**

The following samples were received on July 12, 2012 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.**

**Revision 1 July 25, 2012: This report has been revised to include full list of VOC Compounds.**

<b>Lab Number</b>	<b>SampleName</b>	<b>Matrix</b>	<b>Analysis</b>
1207141-01	MW-339S	Ground Water	8100M, 8260, 8270C, 9014
1207141-02	MW-339D	Ground Water	8100M, 8260, 8270C, 9014
1207141-03	MW-312S	Ground Water	8100M, 8260, 8270C, 9014
1207141-04	MW-314S	Ground Water	8100M, 8260, 8270C, 9014
1207141-05	MW-314D	Ground Water	8100M, 8260, 8270C, 9014
1207141-06	M and E - 2	Ground Water	8100M, 8260, 8270C, 9014
1207141-07	Trip Blank	Aqueous	8260



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

NG21604-BS2 [Blank Spike recovery is below lower control limit \(B-\).](#)

Tertiary-amyl methyl ether (66% @ 70-130%)

NG21604-BSD2 [Relative percent difference for Blank Spike Duplicate is outside of criteria \(DB+\).](#)

Tertiary-amyl methyl ether (85% @ 70-130%)

**8270C Polynuclear Aromatic Hydrocarbons**

1207141-02 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)

1207141-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

1,2-Dichlorobenzene-d4 (% @ 30-130%), 2-Fluorobiphenyl (% @ 30-130%), Nitrobenzene-d5 (% @ 30-130%), p-Terphenyl-d14 (% @ 30-130%)

1207141-03 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)

1207141-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

1,2-Dichlorobenzene-d4 (% @ 30-130%), 2-Fluorobiphenyl (% @ 30-130%), Nitrobenzene-d5 (% @ 30-130%), p-Terphenyl-d14 (% @ 30-130%)

CG21221-BSD1 [Relative percent difference for duplicate is outside of criteria \(D+\).](#)

2-Methylnaphthalene (200%), Acenaphthylene (200%), Naphthalene (33%)

**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  
Client Sample ID: MW-339S  
Date Sampled: 07/12/12 10:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	0.83 (0.20)		1	07/18/12 0:32	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>108 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 07/12/12 10:20  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
<b>2-Methylnaphthalene</b>	<b>0.066</b> (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Acenaphthene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Acenaphthylene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Anthracene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Benzo(a)anthracene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Benzo(a)pyrene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Benzo(b)fluoranthene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Benzo(g,h,i)perylene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Benzo(k)fluoranthene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Chrysene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Dibenzo(a,h)Anthracene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Fluoranthene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
<b>Fluorene</b>	<b>0.002</b> (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221
<b>Naphthalene</b>	<b>0.287</b> (0.020)		100	07/16/12 19:14	CVG0104	CG21221
<b>Phenanthrene</b>	<b>0.003</b> (0.002)		10	07/16/12 15:23	CVG0104	CG21221
Pyrene	ND (0.002)		10	07/16/12 15:23	CVG0104	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	56 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	68 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	52 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	72 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 07/12/12 10:20  
Percent Solids: N/A

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-01  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
<b>Total Cyanide (LL)</b>	<b>0.520 (0.0250)</b>	9014		5	DPS	07/17/12 13:30	mg/L	CG21712



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-339S  
 Date Sampled: 07/12/12 10:20  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 25  
 Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
 ESS Laboratory Sample ID: 1207141-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,1,1-Trichloroethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,1,2,2-Tetrachloroethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,1,2-Trichloroethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,1-Dichloroethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,1-Dichloroethene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,1-Dichloropropene	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
1,2,3-Trichlorobenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,2,3-Trichloropropane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,2,4-Trichlorobenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
<b>1,2,4-Trimethylbenzene</b>	<b>0.0092</b> (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,2-Dibromo-3-Chloropropane	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
1,2-Dibromoethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,2-Dichlorobenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,2-Dichloroethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,2-Dichloropropane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,3,5-Trimethylbenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,3-Dichlorobenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,3-Dichloropropane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,4-Dichlorobenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
1,4-Dioxane	ND (2.50)		5	07/16/12 21:39	N2G0019	NG21604
2,2-Dichloropropane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
2-Butanone	ND (0.0500)		5	07/16/12 21:39	N2G0019	NG21604
2-Chlorotoluene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
2-Hexanone	ND (0.0500)		5	07/16/12 21:39	N2G0019	NG21604
4-Chlorotoluene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
4-Isopropyltoluene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
4-Methyl-2-Pentanone	ND (0.0500)		5	07/16/12 21:39	N2G0019	NG21604
Acetone	ND (0.0500)		5	07/16/12 21:39	N2G0019	NG21604
Benzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Bromobenzene	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 07/12/12 10:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromochloromethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Bromodichloromethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Bromoform	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Bromomethane	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
Carbon Disulfide	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Carbon Tetrachloride	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Chlorobenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Chloroethane	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
Chloroform	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Chloromethane	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
cis-1,2-Dichloroethene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
cis-1,3-Dichloropropene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Dibromochloromethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Dibromomethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Dichlorodifluoromethane	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
Diethyl Ether	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Di-isopropyl ether	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Ethyl tertiary-butyl ether	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Ethylbenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Hexachlorobutadiene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Hexachloroethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Isopropylbenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Methyl tert-Butyl Ether	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Methylene Chloride	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
<b>Naphthalene</b>	<b>0.350</b> (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
n-Butylbenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
n-Propylbenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
sec-Butylbenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Styrene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
tert-Butylbenzene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Tertiary-amyl methyl ether	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-339S  
 Date Sampled: 07/12/12 10:20  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 25  
 Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
 ESS Laboratory Sample ID: 1207141-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tetrachloroethene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Tetrahydrofuran	ND (0.0250)		5	07/16/12 21:39	N2G0019	NG21604
Toluene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
trans-1,2-Dichloroethene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
trans-1,3-Dichloropropene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Trichloroethene	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Trichlorofluoromethane	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Vinyl Acetate	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604
Vinyl Chloride	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Xylene O	ND (0.0050)		5	07/16/12 21:39	N2G0019	NG21604
Xylene P,M	ND (0.0100)		5	07/16/12 21:39	N2G0019	NG21604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	96 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	91 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	95 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 07/12/12 11:30  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	8.40 (0.20)		1	07/18/12 1:15	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>109 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 07/12/12 11:30  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
<b>2-Methylnaphthalene</b>	<b>0.275</b> (0.020)		100	07/16/12 20:01	CVG0104	CG21221
<b>Acenaphthene</b>	<b>0.090</b> (0.020)		100	07/16/12 20:01	CVG0104	CG21221
<b>Acenaphthylene</b>	<b>0.105</b> (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Anthracene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Benzo(a)anthracene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Benzo(a)pyrene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Benzo(b)fluoranthene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Benzo(g,h,i)perylene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Benzo(k)fluoranthene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Chrysene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Dibenzo(a,h)Anthracene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Fluoranthene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
<b>Fluorene</b>	<b>0.040</b> (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221
<b>Naphthalene</b>	<b>2.13</b> (0.200)		1000	07/17/12 13:59	CVG0104	CG21221
<b>Phenanthrene</b>	<b>0.041</b> (0.020)		100	07/16/12 20:01	CVG0104	CG21221
Pyrene	ND (0.020)		100	07/16/12 20:01	CVG0104	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	%	SD	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	%	SD	30-130
<i>Surrogate: Nitrobenzene-d5</i>	%	SD	30-130
<i>Surrogate: p-Terphenyl-d14</i>	%	SD	30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 07/12/12 11:30  
Percent Solids: N/A

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-02  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
<b>Total Cyanide (LL)</b>	<b>0.0925 (0.0050)</b>	9014		1	DPS	07/17/12 13:30	mg/L	CG21712



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 07/12/12 11:30  
Percent Solids: N/A  
Initial Volume: 0.5  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,1,1-Trichloroethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,1,1,2-Tetrachloroethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,1,2-Trichloroethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,1-Dichloroethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,1-Dichloroethene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,1-Dichloropropene	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
1,2,3-Trichlorobenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,2,3-Trichloropropane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,2,4-Trichlorobenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
<b>1,2,4-Trimethylbenzene</b>	<b>0.449</b> (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,2-Dibromo-3-Chloropropane	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
1,2-Dibromoethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,2-Dichlorobenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,2-Dichloroethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,2-Dichloropropane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
<b>1,3,5-Trimethylbenzene</b>	<b>0.122</b> (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,3-Dichlorobenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,3-Dichloropropane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,4-Dichlorobenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
1,4-Dioxane	ND (25.0)		50	07/16/12 22:15	N2G0019	NG21604
2,2-Dichloropropane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
2-Butanone	ND (0.500)		50	07/16/12 22:15	N2G0019	NG21604
2-Chlorotoluene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
2-Hexanone	ND (0.500)		50	07/16/12 22:15	N2G0019	NG21604
4-Chlorotoluene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
4-Isopropyltoluene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
4-Methyl-2-Pentanone	ND (0.500)		50	07/16/12 22:15	N2G0019	NG21604
Acetone	ND (0.500)		50	07/16/12 22:15	N2G0019	NG21604
<b>Benzene</b>	<b>0.0660</b> (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Bromobenzene	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 07/12/12 11:30  
Percent Solids: N/A  
Initial Volume: 0.5  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromochloromethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Bromodichloromethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Bromoform	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Bromomethane	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
Carbon Disulfide	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Carbon Tetrachloride	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Chlorobenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Chloroethane	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
Chloroform	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Chloromethane	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
cis-1,2-Dichloroethene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
cis-1,3-Dichloropropene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Dibromochloromethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Dibromomethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Dichlorodifluoromethane	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
Diethyl Ether	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Di-isopropyl ether	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Ethyl tertiary-butyl ether	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
<b>Ethylbenzene</b>	<b>0.260</b> (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Hexachlorobutadiene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Hexachloroethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Isopropylbenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Methyl tert-Butyl Ether	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Methylene Chloride	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
<b>Naphthalene</b>	<b>3.13</b> (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
n-Butylbenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
n-Propylbenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
sec-Butylbenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Styrene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
tert-Butylbenzene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Tertiary-amyl methyl ether	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 07/12/12 11:30  
Percent Solids: N/A  
Initial Volume: 0.5  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tetrachloroethene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Tetrahydrofuran	ND (0.250)		50	07/16/12 22:15	N2G0019	NG21604
<b>Toluene</b>	<b>0.0500</b> (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
trans-1,2-Dichloroethene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
trans-1,3-Dichloropropene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Trichloroethene	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Trichlorofluoromethane	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
Vinyl Acetate	ND (0.100)		50	07/16/12 22:15	N2G0019	NG21604
Vinyl Chloride	ND (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
<b>Xylene O</b>	<b>0.418</b> (0.0500)		50	07/16/12 22:15	N2G0019	NG21604
<b>Xylene P,M</b>	<b>0.446</b> (0.100)		50	07/16/12 22:15	N2G0019	NG21604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	98 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	90 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	97 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 07/12/12 09:45  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	8.61 (0.20)		1	07/18/12 4:07	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>114 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-312S  
 Date Sampled: 07/12/12 09:45  
 Percent Solids: N/A  
 Initial Volume: 1000  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
 ESS Laboratory Sample ID: 1207141-03  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	0.068 (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Acenaphthene	0.214 (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Acenaphthylene	0.026 (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Anthracene	0.032 (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Benzo(a)anthracene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Benzo(a)pyrene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Benzo(b)fluoranthene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Benzo(g,h,i)perylene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Benzo(k)fluoranthene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Chrysene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Dibenzo(a,h)Anthracene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Fluoranthene	0.022 (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Fluorene	0.078 (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Naphthalene	2.58 (0.200)		1000	07/17/12 14:50	CVG0104	CG21221
Phenanthrene	0.115 (0.020)		100	07/16/12 20:47	CVG0104	CG21221
Pyrene	0.031 (0.020)		100	07/16/12 20:47	CVG0104	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	%	SD	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	%	SD	30-130
<i>Surrogate: Nitrobenzene-d5</i>	%	SD	30-130
<i>Surrogate: p-Terphenyl-d14</i>	%	SD	30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 07/12/12 09:45  
Percent Solids: N/A

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-03  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
<b>Total Cyanide (LL)</b>	<b>0.319 (0.0250)</b>	9014		5	DPS	07/17/12 13:30	mg/L	CG21712



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 07/12/12 09:45  
Percent Solids: N/A  
Initial Volume: 0.5  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,1,1-Trichloroethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,1,1,2-Tetrachloroethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,1,2-Trichloroethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,1-Dichloroethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,1-Dichloroethene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,1-Dichloropropene	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
1,2,3-Trichlorobenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,2,3-Trichloropropane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,2,4-Trichlorobenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
<b>1,2,4-Trimethylbenzene</b>	<b>0.186</b> (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,2-Dibromo-3-Chloropropane	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
1,2-Dibromoethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,2-Dichlorobenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,2-Dichloroethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,2-Dichloropropane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,3,5-Trimethylbenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,3-Dichlorobenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,3-Dichloropropane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,4-Dichlorobenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
1,4-Dioxane	ND (25.0)		50	07/16/12 22:52	N2G0019	NG21604
2,2-Dichloropropane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
2-Butanone	ND (0.500)		50	07/16/12 22:52	N2G0019	NG21604
2-Chlorotoluene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
2-Hexanone	ND (0.500)		50	07/16/12 22:52	N2G0019	NG21604
4-Chlorotoluene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
4-Isopropyltoluene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
4-Methyl-2-Pentanone	ND (0.500)		50	07/16/12 22:52	N2G0019	NG21604
Acetone	ND (0.500)		50	07/16/12 22:52	N2G0019	NG21604
<b>Benzene</b>	<b>0.0685</b> (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Bromobenzene	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 07/12/12 09:45  
Percent Solids: N/A  
Initial Volume: 0.5  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromochloromethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Bromodichloromethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Bromoform	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Bromomethane	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
Carbon Disulfide	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Carbon Tetrachloride	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Chlorobenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Chloroethane	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
Chloroform	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Chloromethane	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
cis-1,2-Dichloroethene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
cis-1,3-Dichloropropene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Dibromochloromethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Dibromomethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Dichlorodifluoromethane	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
Diethyl Ether	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Di-isopropyl ether	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Ethyl tertiary-butyl ether	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
<b>Ethylbenzene</b>	<b>0.856</b> (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Hexachlorobutadiene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Hexachloroethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Isopropylbenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Methyl tert-Butyl Ether	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Methylene Chloride	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
<b>Naphthalene</b>	<b>2.85</b> (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
n-Butylbenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
n-Propylbenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
sec-Butylbenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Styrene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
tert-Butylbenzene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Tertiary-amyl methyl ether	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 07/12/12 09:45  
Percent Solids: N/A  
Initial Volume: 0.5  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tetrachloroethene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Tetrahydrofuran	ND (0.250)		50	07/16/12 22:52	N2G0019	NG21604
Toluene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
trans-1,2-Dichloroethene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
trans-1,3-Dichloropropene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Trichloroethene	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Trichlorofluoromethane	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Vinyl Acetate	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604
Vinyl Chloride	ND (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
<b>Xylene O</b>	<b>0.119</b> (0.0500)		50	07/16/12 22:52	N2G0019	NG21604
Xylene P,M	ND (0.100)		50	07/16/12 22:52	N2G0019	NG21604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>92 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>96 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 07/12/12 09:05  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	4.65 (0.20)		1	07/18/12 4:51	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>114 %</i>		<i>40-140</i>			





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 07/12/12 09:05  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
<b>2-Methylnaphthalene</b>	<b>0.0003</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Acenaphthene</b>	<b>0.003</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Acenaphthylene</b>	<b>0.0006</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Anthracene</b>	<b>0.0005</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Benzo(a)anthracene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Benzo(a)pyrene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Benzo(b)fluoranthene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Benzo(g,h,i)perylene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Benzo(k)fluoranthene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Chrysene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Fluoranthene</b>	<b>0.0002</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Fluorene</b>	<b>0.001</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Naphthalene</b>	<b>0.004</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Phenanthrene</b>	<b>0.0005</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221
<b>Pyrene</b>	<b>0.0003</b> (0.0002)		1	07/14/12 9:13	CVG0088	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	40 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	45 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	46 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	62 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 07/12/12 09:05  
Percent Solids: N/A

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-04  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
<b>Total Cyanide (LL)</b>	<b>0.0637 (0.0050)</b>	9014		1	DPS	07/17/12 13:30	mg/L	CG21712



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 07/12/12 09:05  
Percent Solids: N/A  
Initial Volume: 10  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,1,1-Trichloroethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,1,2,2-Tetrachloroethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,1,2-Trichloroethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,1-Dichloroethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,1-Dichloroethene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,1-Dichloropropene	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
1,2,3-Trichlorobenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,2,3-Trichloropropane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,2,4-Trichlorobenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
<b>1,2,4-Trimethylbenzene</b>	<b>0.0053</b> (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,2-Dibromo-3-Chloropropane	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
1,2-Dibromoethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,2-Dichlorobenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,2-Dichloroethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,2-Dichloropropane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,3,5-Trimethylbenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,3-Dichlorobenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,3-Dichloropropane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,4-Dichlorobenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
1,4-Dioxane	ND (1.25)		3	07/16/12 23:28	N2G0019	NG21604
2,2-Dichloropropane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
2-Butanone	ND (0.0250)		3	07/16/12 23:28	N2G0019	NG21604
2-Chlorotoluene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
2-Hexanone	ND (0.0250)		3	07/16/12 23:28	N2G0019	NG21604
4-Chlorotoluene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
4-Isopropyltoluene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
4-Methyl-2-Pentanone	ND (0.0250)		3	07/16/12 23:28	N2G0019	NG21604
Acetone	ND (0.0250)		3	07/16/12 23:28	N2G0019	NG21604
Benzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Bromobenzene	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 07/12/12 09:05  
Percent Solids: N/A  
Initial Volume: 10  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromochloromethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Bromodichloromethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Bromoform	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Bromomethane	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
Carbon Disulfide	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Carbon Tetrachloride	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Chlorobenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Chloroethane	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
Chloroform	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Chloromethane	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
cis-1,2-Dichloroethene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
cis-1,3-Dichloropropene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Dibromochloromethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Dibromomethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Dichlorodifluoromethane	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
Diethyl Ether	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Di-isopropyl ether	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Ethyl tertiary-butyl ether	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Ethylbenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Hexachlorobutadiene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Hexachloroethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
<b>Isopropylbenzene</b>	<b>0.0028</b> (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Methyl tert-Butyl Ether	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Methylene Chloride	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
<b>Naphthalene</b>	<b>0.0083</b> (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
n-Butylbenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
n-Propylbenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
sec-Butylbenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Styrene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
tert-Butylbenzene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Tertiary-amyl methyl ether	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-314S  
 Date Sampled: 07/12/12 09:05  
 Percent Solids: N/A  
 Initial Volume: 10  
 Final Volume: 25  
 Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
 ESS Laboratory Sample ID: 1207141-04  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tetrachloroethene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Tetrahydrofuran	ND (0.0125)		3	07/16/12 23:28	N2G0019	NG21604
Toluene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
trans-1,2-Dichloroethene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
trans-1,3-Dichloropropene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Trichloroethene	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Trichlorofluoromethane	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Vinyl Acetate	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604
Vinyl Chloride	ND (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
<b>Xylene O</b>	<b>0.0052</b> (0.0025)		3	07/16/12 23:28	N2G0019	NG21604
Xylene P,M	ND (0.0050)		3	07/16/12 23:28	N2G0019	NG21604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	93 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	90 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	93 %		70-130
<i>Surrogate: Toluene-d8</i>	98 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 07/12/12 10:30  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	1.69 (0.20)		1	07/18/12 5:34	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>100 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 07/12/12 10:30  
Percent Solids: N/A  
Initial Volume: 980  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

All methods used are in accordance with 40 CFR 136.

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
<b>Acenaphthene</b>	<b>0.003</b> (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
<b>Acenaphthylene</b>	<b>0.0003</b> (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Anthracene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Benzo(a)anthracene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Benzo(a)pyrene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Benzo(b)fluoranthene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Benzo(g,h,i)perylene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Benzo(k)fluoranthene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Chrysene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
<b>Fluoranthene</b>	<b>0.0002</b> (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
<b>Fluorene</b>	<b>0.0004</b> (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
<b>Naphthalene</b>	<b>0.004</b> (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
<b>Phenanthrene</b>	<b>0.0002</b> (0.0002)		1	07/14/12 10:34	CVG0088	CG21221
<b>Pyrene</b>	<b>0.0003</b> (0.0002)		1	07/14/12 10:34	CVG0088	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	40 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	30 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	42 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	72 %		30-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 07/12/12 10:30  
Percent Solids: N/A

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-05  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	ND (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
<b>Total Cyanide (LL)</b>	<b>0.144 (0.0050)</b>	9014		1	DPS	07/17/12 13:30	mg/L	CG21712



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-314D  
 Date Sampled: 07/12/12 10:30  
 Percent Solids: N/A  
 Initial Volume: 25  
 Final Volume: 25  
 Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
 ESS Laboratory Sample ID: 1207141-05  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,1,1-Trichloroethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,1,2,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,1-Dichloroethene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,2-Dibromo-3-Chloropropane	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,2-Dichloroethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,2-Dichloropropane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
1,4-Dioxane	ND (0.500)		1	07/17/12 0:04	N2G0019	NG21604
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
2-Butanone	ND (0.0100)		1	07/17/12 0:04	N2G0019	NG21604
2-Chlorotoluene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
2-Hexanone	ND (0.0100)		1	07/17/12 0:04	N2G0019	NG21604
4-Chlorotoluene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
4-Methyl-2-Pentanone	ND (0.0100)		1	07/17/12 0:04	N2G0019	NG21604
Acetone	ND (0.0100)		1	07/17/12 0:04	N2G0019	NG21604
Benzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Bromobenzene	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 07/12/12 10:30  
Percent Solids: N/A  
Initial Volume: 25  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromochloromethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Bromodichloromethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Bromoform	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Bromomethane	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
Carbon Disulfide	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Carbon Tetrachloride	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Chlorobenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Chloroethane	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
Chloroform	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Chloromethane	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
cis-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
cis-1,3-Dichloropropene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Dibromochloromethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Dibromomethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
Diethyl Ether	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Di-isopropyl ether	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Ethylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Hexachlorobutadiene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Hexachloroethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Isopropylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Methyl tert-Butyl Ether	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Methylene Chloride	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
Naphthalene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
n-Butylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
n-Propylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
sec-Butylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Styrene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
tert-Butylbenzene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Tertiary-amyl methyl ether	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-314D  
 Date Sampled: 07/12/12 10:30  
 Percent Solids: N/A  
 Initial Volume: 25  
 Final Volume: 25  
 Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
 ESS Laboratory Sample ID: 1207141-05  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MQS

All methods used are in accordance with 40 CFR 136.

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tetrachloroethene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Tetrahydrofuran	ND (0.0050)		1	07/17/12 0:04	N2G0019	NG21604
Toluene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
trans-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
trans-1,3-Dichloropropene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Trichloroethene	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Vinyl Acetate	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604
Vinyl Chloride	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Xylene O	ND (0.0010)		1	07/17/12 0:04	N2G0019	NG21604
Xylene P,M	ND (0.0020)		1	07/17/12 0:04	N2G0019	NG21604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>95 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>88 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>95 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>99 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E - 2  
Date Sampled: 07/12/12 09:50  
Percent Solids: N/A  
Initial Volume: 950  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: TAJ  
Prepared: 7/17/12 15:30

All methods used are in accordance with 40 CFR 136.

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Total Petroleum Hydrocarbons	0.27 (0.21)		1	07/18/12 6:17	CVG0128	CG21720
	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>			
<i>Surrogate: O-Terphenyl</i>	<i>110 %</i>		<i>40-140</i>			



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E - 2  
Date Sampled: 07/12/12 09:50  
Percent Solids: N/A  
Initial Volume: 980  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 7/12/12 12:00

**All methods used are in accordance with 40 CFR 136.**

**8270C Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
2-Methylnaphthalene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Acenaphthene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Acenaphthylene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Anthracene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Benzo(a)anthracene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Benzo(a)pyrene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Benzo(b)fluoranthene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Benzo(g,h,i)perylene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Benzo(k)fluoranthene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Chrysene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Dibenzo(a,h)Anthracene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Fluoranthene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Fluorene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
<b>Naphthalene</b>	<b>0.001</b> (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Phenanthrene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221
Pyrene	ND (0.0002)		1	07/14/12 11:20	CVG0088	CG21221

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	44 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	41 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	42 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	65 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E - 2  
Date Sampled: 07/12/12 09:50  
Percent Solids: N/A

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-06  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>Method</u>	<u>RI - GB</u> <u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0083 (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712
Total Cyanide (LL)	0.0325 (0.0050)	9014		1	DPS	07/17/12 13:30	mg/L	CG21712





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E - 2  
Date Sampled: 07/12/12 09:50  
Percent Solids: N/A  
Initial Volume: 25  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,1,1-Trichloroethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,1,2,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,1-Dichloroethene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,2-Dibromo-3-Chloropropane	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,2-Dichloroethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,2-Dichloropropane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
1,4-Dioxane	ND (0.500)		1	07/17/12 0:40	N2G0019	NG21604
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
2-Butanone	ND (0.0100)		1	07/17/12 0:40	N2G0019	NG21604
2-Chlorotoluene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
2-Hexanone	ND (0.0100)		1	07/17/12 0:40	N2G0019	NG21604
4-Chlorotoluene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
4-Methyl-2-Pentanone	ND (0.0100)		1	07/17/12 0:40	N2G0019	NG21604
Acetone	ND (0.0100)		1	07/17/12 0:40	N2G0019	NG21604
Benzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Bromobenzene	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E - 2  
Date Sampled: 07/12/12 09:50  
Percent Solids: N/A  
Initial Volume: 25  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromochloromethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Bromodichloromethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Bromoform	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Bromomethane	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
Carbon Disulfide	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Carbon Tetrachloride	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Chlorobenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Chloroethane	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
Chloroform	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Chloromethane	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
cis-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
cis-1,3-Dichloropropene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Dibromochloromethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Dibromomethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
Diethyl Ether	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Di-isopropyl ether	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Ethylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Hexachlorobutadiene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Hexachloroethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Isopropylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Methyl tert-Butyl Ether	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Methylene Chloride	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
Naphthalene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
n-Butylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
n-Propylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
sec-Butylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Styrene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
tert-Butylbenzene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Tertiary-amyl methyl ether	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E - 2  
Date Sampled: 07/12/12 09:50  
Percent Solids: N/A  
Initial Volume: 25  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tetrachloroethene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Tetrahydrofuran	ND (0.0050)		1	07/17/12 0:40	N2G0019	NG21604
Toluene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
trans-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
trans-1,3-Dichloropropene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Trichloroethene	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Vinyl Acetate	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604
Vinyl Chloride	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Xylene O	ND (0.0010)		1	07/17/12 0:40	N2G0019	NG21604
Xylene P,M	ND (0.0020)		1	07/17/12 0:40	N2G0019	NG21604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>94 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>101 %</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: 07/12/12 00:00  
Percent Solids: N/A  
Initial Volume: 25  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-07  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
1,1,1,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,1,1-Trichloroethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,1,2,2-Tetrachloroethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,1,2-Trichloroethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,1-Dichloroethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,1-Dichloroethene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,1-Dichloropropene	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
1,2,3-Trichlorobenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,2,3-Trichloropropane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,2,4-Trichlorobenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,2,4-Trimethylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,2-Dibromo-3-Chloropropane	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
1,2-Dibromoethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,2-Dichlorobenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,2-Dichloroethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,2-Dichloropropane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,3,5-Trimethylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,3-Dichlorobenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,3-Dichloropropane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,4-Dichlorobenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
1,4-Dioxane	ND (0.500)		1	07/17/12 1:15	N2G0019	NG21604
2,2-Dichloropropane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
2-Butanone	ND (0.0100)		1	07/17/12 1:15	N2G0019	NG21604
2-Chlorotoluene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
2-Hexanone	ND (0.0100)		1	07/17/12 1:15	N2G0019	NG21604
4-Chlorotoluene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
4-Isopropyltoluene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
4-Methyl-2-Pentanone	ND (0.0100)		1	07/17/12 1:15	N2G0019	NG21604
Acetone	ND (0.0100)		1	07/17/12 1:15	N2G0019	NG21604
Benzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Bromobenzene	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: Trip Blank  
Date Sampled: 07/12/12 00:00  
Percent Solids: N/A  
Initial Volume: 25  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-07  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Bromochloromethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Bromodichloromethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Bromoform	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Bromomethane	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
Carbon Disulfide	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Carbon Tetrachloride	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Chlorobenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Chloroethane	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
Chloroform	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Chloromethane	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
cis-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
cis-1,3-Dichloropropene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Dibromochloromethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Dibromomethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Dichlorodifluoromethane	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
Diethyl Ether	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Di-isopropyl ether	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Ethyl tertiary-butyl ether	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Ethylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Hexachlorobutadiene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Hexachloroethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Isopropylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Methyl tert-Butyl Ether	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Methylene Chloride	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
Naphthalene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
n-Butylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
n-Propylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
sec-Butylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Styrene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
tert-Butylbenzene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Tertiary-amyl methyl ether	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: Trip Blank  
Date Sampled: 07/12/12 00:00  
Percent Solids: N/A  
Initial Volume: 25  
Final Volume: 25  
Extraction Method: 5030

ESS Laboratory Work Order: 1207141  
ESS Laboratory Sample ID: 1207141-07  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MQS

**All methods used are in accordance with 40 CFR 136.**

**8260B Volatile Organic Compounds**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>RI - GB</u>		<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
		<u>Limit</u>	<u>DF</u>			
Tetrachloroethene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Tetrahydrofuran	ND (0.0050)		1	07/17/12 1:15	N2G0019	NG21604
Toluene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
trans-1,2-Dichloroethene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
trans-1,3-Dichloropropene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Trichloroethene	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Trichlorofluoromethane	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Vinyl Acetate	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604
Vinyl Chloride	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Xylene O	ND (0.0010)		1	07/17/12 1:15	N2G0019	NG21604
Xylene P,M	ND (0.0020)		1	07/17/12 1:15	N2G0019	NG21604

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>91 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>99 %</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: 1207141

**Quality Control Data**

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

**Batch CG21720 - 3510C**

**Blank**

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacontane (C30)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.111</i>		mg/L	<i>0.1000</i>		<i>111</i>	<i>40-140</i>			
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**LCS**

Decane (C10)	0.035	0.005	mg/L	0.05000		70	40-140			
Docosane (C22)	0.050	0.005	mg/L	0.05000		100	40-140			
Dodecane (C12)	0.040	0.005	mg/L	0.05000		80	40-140			
Eicosane (C20)	0.049	0.005	mg/L	0.05000		98	40-140			
Hexacosane (C26)	0.049	0.005	mg/L	0.05000		97	40-140			
Hexadecane (C16)	0.046	0.005	mg/L	0.05000		92	40-140			
Nonadecane (C19)	0.042	0.005	mg/L	0.05000		84	40-140			
Nonane (C9)	0.026	0.005	mg/L	0.05000		52	30-140			
Octacosane (C28)	0.049	0.005	mg/L	0.05000		99	40-140			
Octadecane (C18)	0.048	0.005	mg/L	0.05000		96	40-140			
Tetracosane (C24)	0.050	0.005	mg/L	0.05000		100	40-140			
Tetradecane (C14)	0.043	0.005	mg/L	0.05000		87	40-140			
Triacontane (C30)	0.051	0.005	mg/L	0.05000		103	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.111</i>		mg/L	<i>0.1000</i>		<i>111</i>	<i>40-140</i>			
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**LCS Dup**

Decane (C10)	0.034	0.005	mg/L	0.05000		68	40-140	3	25	
Docosane (C22)	0.050	0.005	mg/L	0.05000		99	40-140	0.2	25	
Dodecane (C12)	0.040	0.005	mg/L	0.05000		80	40-140	0.07	25	
Eicosane (C20)	0.049	0.005	mg/L	0.05000		99	40-140	0.7	25	
Hexacosane (C26)	0.049	0.005	mg/L	0.05000		99	40-140	1	25	
Hexadecane (C16)	0.047	0.005	mg/L	0.05000		94	40-140	2	25	
Nonadecane (C19)	0.047	0.005	mg/L	0.05000		94	40-140	11	25	
Nonane (C9)	0.024	0.005	mg/L	0.05000		47	30-140	10	25	
Octacosane (C28)	0.049	0.005	mg/L	0.05000		99	40-140	0.4	25	
Octadecane (C18)	0.049	0.005	mg/L	0.05000		98	40-140	2	25	
Tetracosane (C24)	0.050	0.005	mg/L	0.05000		101	40-140	0.6	25	





CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

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

**Batch CG21720 - 3510C**

Tetradecane (C14)	0.045	0.005	mg/L	0.05000		90	40-140	3	25	
Triacontane (C30)	0.052	0.005	mg/L	0.05000		103	40-140	0.8	25	

Surrogate: O-Terphenyl 0.112 mg/L 0.1000 112 40-140

8270C Polynuclear Aromatic Hydrocarbons

**Batch CG21221 - 3510C**

**Blank**

2-Methylnaphthalene	ND	0.002	mg/L							
Acenaphthene	ND	0.002	mg/L							
Acenaphthylene	ND	0.002	mg/L							
Anthracene	ND	0.002	mg/L							
Benzo(a)anthracene	ND	0.002	mg/L							
Benzo(a)pyrene	ND	0.002	mg/L							
Benzo(b)fluoranthene	ND	0.002	mg/L							
Benzo(g,h,i)perylene	ND	0.002	mg/L							
Benzo(k)fluoranthene	ND	0.002	mg/L							
Chrysene	ND	0.002	mg/L							
Dibenzo(a,h)Anthracene	ND	0.002	mg/L							
Fluoranthene	ND	0.002	mg/L							
Fluorene	ND	0.002	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L							
Naphthalene	ND	0.002	mg/L							
Phenanthrene	ND	0.002	mg/L							
Pyrene	ND	0.002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.000260		mg/L	0.0006250		42	30-130			
Surrogate: 2-Fluorobiphenyl	0.000278		mg/L	0.0006250		44	30-130			
Surrogate: Nitrobenzene-d5	0.000280		mg/L	0.0006250		45	30-130			
Surrogate: p-Terphenyl-d14	0.000318		mg/L	0.0006250		51	30-130			

**LCS**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140			
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140			
Anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140			
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Chrysene	ND	0.002	mg/L	0.0005000			40-140			
Dibenzo(a,h)Anthracene	0.0005	0.002	mg/L	0.0005000		96	40-140			
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140			
Fluorene	ND	0.002	mg/L	0.0005000			40-140			
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Naphthalene	ND	0.002	mg/L	0.0005000			40-140			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8270C Polynuclear Aromatic Hydrocarbons**

**Batch CG21221 - 3510C**

Phenanthrene	ND	0.002	mg/L	0.0005000			40-140			
Pyrene	ND	0.002	mg/L	0.0005000			40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.000292		mg/L	0.0006250		47	30-130			
Surrogate: 2-Fluorobiphenyl	0.000320		mg/L	0.0006250		51	30-130			
Surrogate: Nitrobenzene-d5	0.000328		mg/L	0.0006250		52	30-130			
Surrogate: p-Terphenyl-d14	0.000415		mg/L	0.0006250		66	30-130			

**LCS Dup**

2-Methylnaphthalene	ND	0.002	mg/L	0.0005000			40-140	200	20	D+
Acenaphthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Acenaphthylene	ND	0.002	mg/L	0.0005000			40-140	200	20	D+
Anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)anthracene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(a)pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(b)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(g,h,i)perylene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Benzo(k)fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Chrysene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Dibenzo(a,h)Anthracene	0.0005	0.002	mg/L	0.0005000		93	40-140	4	20	
Fluoranthene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Fluorene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Indeno(1,2,3-cd)Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Naphthalene	0.0006	0.002	mg/L	0.0005000		122	40-140	33	20	D+
Phenanthrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Pyrene	ND	0.002	mg/L	0.0005000			40-140	200	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.000352		mg/L	0.0006250		56	30-130			
Surrogate: 2-Fluorobiphenyl	0.000370		mg/L	0.0006250		59	30-130			
Surrogate: Nitrobenzene-d5	0.000388		mg/L	0.0006250		62	30-130			
Surrogate: p-Terphenyl-d14	0.000430		mg/L	0.0006250		69	30-130			

**Classical Chemistry**

**Batch CG21712 - TCN Prep**

**Blank**

Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							

**LCS**

Dissolved Cyanide	0.0203	0.0050	mg/L	0.02006		101	90-110			
Total Cyanide (LL)	0.0203	0.0050	mg/L	0.02006		101	90-110			

**LCS**

Dissolved Cyanide	0.143	0.0050	mg/L	0.1504		95	90-110			
Total Cyanide (LL)	0.143	0.0050	mg/L	0.1504		95	90-110			

**LCS Dup**

Dissolved Cyanide	0.143	0.0050	mg/L	0.1504		95	90-110	0.2	20	
Total Cyanide (LL)	0.143	0.0050	mg/L	0.1504		95	90-110	0.2	20	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

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

**Batch NG21604 - 5030**

**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	0.0010	mg/L							
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0010	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	0.0020	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	ND	0.500	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	0.0100	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	0.0010	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	0.0010	mg/L							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

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

**Batch NG21604 - 5030**

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	0.0010	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	0.0020	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	0.0010	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0020	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	ND		mg/L	0.01000		97	70-130			
Surrogate: 4-Bromofluorobenzene	ND		mg/L	0.01000		90	70-130			
Surrogate: Dibromofluoromethane	ND		mg/L	0.01000		95	70-130			
Surrogate: Toluene-d8	ND		mg/L	0.01000		96	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	0.0196	0.0010	mg/L	0.02000		98	70-130			
1,1,1-Trichloroethane	0.0201	0.0010	mg/L	0.02000		100	70-130			
1,1,2,2-Tetrachloroethane	0.0177	0.0010	mg/L	0.02000		89	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0208	0.0010	mg/L	0.02000		104	70-130			
1,1,2-Trichloroethane	0.0186	0.0010	mg/L	0.02000		93	70-130			
1,1-Dichloroethane	0.0206	0.0010	mg/L	0.02000		103	70-130			
1,1-Dichloroethene	0.0208	0.0010	mg/L	0.02000		104	70-130			
1,1-Dichloropropene	0.0201	0.0020	mg/L	0.02000		100	70-130			
1,2,3-Trichlorobenzene	0.0191	0.0010	mg/L	0.02000		96	70-130			
1,2,3-Trichloropropane	0.0174	0.0010	mg/L	0.02000		87	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

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

**Batch NG21604 - 5030**

1,2,4-Trichlorobenzene	0.0185	0.0010	mg/L	0.02000		93	70-130			
1,2,4-Trimethylbenzene	0.0205	0.0010	mg/L	0.02000		103	70-130			
1,2-Dibromo-3-Chloropropane	0.0176	0.0020	mg/L	0.02000		88	70-130			
1,2-Dibromoethane	0.0187	0.0010	mg/L	0.02000		94	70-130			
1,2-Dichlorobenzene	0.0193	0.0010	mg/L	0.02000		96	70-130			
1,2-Dichloroethane	0.0180	0.0010	mg/L	0.02000		90	70-130			
1,2-Dichloropropane	0.0203	0.0010	mg/L	0.02000		101	70-130			
1,3,5-Trimethylbenzene	0.0205	0.0010	mg/L	0.02000		103	70-130			
1,3-Dichlorobenzene	0.0201	0.0010	mg/L	0.02000		100	70-130			
1,3-Dichloropropane	0.0184	0.0010	mg/L	0.02000		92	70-130			
1,4-Dichlorobenzene	0.0196	0.0010	mg/L	0.02000		98	70-130			
2,2-Dichloropropane	0.0211	0.0010	mg/L	0.02000		106	70-130			
2-Butanone	0.177	0.0100	mg/L	0.2000		88	70-130			
2-Chlorotoluene	0.0199	0.0010	mg/L	0.02000		100	70-130			
2-Hexanone	0.187	0.0100	mg/L	0.2000		94	70-130			
4-Chlorotoluene	0.0193	0.0010	mg/L	0.02000		97	70-130			
4-Isopropyltoluene	0.0217	0.0010	mg/L	0.02000		108	70-130			
4-Methyl-2-Pentanone	0.177	0.0100	mg/L	0.2000		89	70-130			
Acetone	0.176	0.0100	mg/L	0.2000		88	70-130			
Benzene	0.0200	0.0010	mg/L	0.02000		100	70-130			
Bromobenzene	0.0189	0.0020	mg/L	0.02000		94	70-130			
Bromochloromethane	0.0194	0.0010	mg/L	0.02000		97	70-130			
Bromodichloromethane	0.0180	0.0010	mg/L	0.02000		90	70-130			
Bromoform	0.0186	0.0010	mg/L	0.02000		93	70-130			
Bromomethane	0.0223	0.0020	mg/L	0.02000		111	70-130			
Carbon Disulfide	0.0206	0.0010	mg/L	0.02000		103	70-130			
Carbon Tetrachloride	0.0209	0.0010	mg/L	0.02000		104	70-130			
Chlorobenzene	0.0213	0.0010	mg/L	0.02000		106	70-130			
Chloroethane	0.0225	0.0020	mg/L	0.02000		112	70-130			
Chloroform	0.0191	0.0010	mg/L	0.02000		96	70-130			
Chloromethane	0.0240	0.0020	mg/L	0.02000		120	70-130			
cis-1,2-Dichloroethene	0.0206	0.0010	mg/L	0.02000		103	70-130			
cis-1,3-Dichloropropene	0.0196	0.0010	mg/L	0.02000		98	70-130			
Dibromochloromethane	0.0201	0.0010	mg/L	0.02000		101	70-130			
Dibromomethane	0.0186	0.0010	mg/L	0.02000		93	70-130			
Dichlorodifluoromethane	0.0245	0.0020	mg/L	0.02000		123	70-130			
Diethyl Ether	0.0180	0.0010	mg/L	0.02000		90	70-130			
Di-isopropyl ether	0.0193	0.0010	mg/L	0.02000		96	70-130			
Ethyl tertiary-butyl ether	0.0151	0.0010	mg/L	0.02000		76	70-130			
Ethylbenzene	0.0217	0.0010	mg/L	0.02000		108	70-130			
Hexachlorobutadiene	0.0212	0.0010	mg/L	0.02000		106	70-130			
Hexachloroethane	0.0218	0.0010	mg/L	0.02000		109	70-130			
Isopropylbenzene	0.0208	0.0010	mg/L	0.02000		104	70-130			
Methyl tert-Butyl Ether	0.0155	0.0010	mg/L	0.02000		78	70-130			
Methylene Chloride	0.0181	0.0020	mg/L	0.02000		91	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

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

**Batch NG21604 - 5030**

Naphthalene	0.0184	0.0010	mg/L	0.02000		92	70-130			
n-Butylbenzene	0.0215	0.0010	mg/L	0.02000		107	70-130			
n-Propylbenzene	0.0208	0.0010	mg/L	0.02000		104	70-130			
sec-Butylbenzene	0.0216	0.0010	mg/L	0.02000		108	70-130			
Styrene	0.0193	0.0010	mg/L	0.02000		96	70-130			
tert-Butylbenzene	0.0212	0.0010	mg/L	0.02000		106	70-130			
Tertiary-amyl methyl ether	0.0131	0.0020	mg/L	0.02000		66	70-130			B-
Tetrachloroethene	0.0212	0.0010	mg/L	0.02000		106	70-130			
Tetrahydrofuran	0.0182	0.0050	mg/L	0.02000		91	70-130			
Toluene	0.0208	0.0010	mg/L	0.02000		104	70-130			
trans-1,2-Dichloroethene	0.0211	0.0010	mg/L	0.02000		106	70-130			
trans-1,3-Dichloropropene	0.0165	0.0010	mg/L	0.02000		82	70-130			
Trichloroethene	0.0215	0.0010	mg/L	0.02000		108	70-130			
Trichlorofluoromethane	0.0223	0.0010	mg/L	0.02000		112	70-130			
Vinyl Acetate	0.0179	0.0020	mg/L	0.02000		89	70-130			
Vinyl Chloride	0.0224	0.0010	mg/L	0.02000		112	70-130			
Xylene O	0.0200	0.0010	mg/L	0.02000		100	70-130			
Xylene P,M	0.0417	0.0020	mg/L	0.04000		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.00920		mg/L	0.01000		92	70-130			
Surrogate: 4-Bromofluorobenzene	0.00947		mg/L	0.01000		95	70-130			
Surrogate: Dibromofluoromethane	0.00929		mg/L	0.01000		93	70-130			
Surrogate: Toluene-d8	0.00971		mg/L	0.01000		97	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	0.0188	0.0010	mg/L	0.02000		94	70-130	4	25	
1,1,1-Trichloroethane	0.0199	0.0010	mg/L	0.02000		100	70-130	0.7	25	
1,1,2,2-Tetrachloroethane	0.0188	0.0010	mg/L	0.02000		94	70-130	6	25	
1,1,2-Trichloro-1,2,2-trifluoroethane	0.0201	0.0010	mg/L	0.02000		101	70-130	4	25	
1,1,2-Trichloroethane	0.0189	0.0010	mg/L	0.02000		94	70-130	1	25	
1,1-Dichloroethane	0.0202	0.0010	mg/L	0.02000		101	70-130	2	25	
1,1-Dichloroethene	0.0198	0.0010	mg/L	0.02000		99	70-130	5	25	
1,1-Dichloropropene	0.0195	0.0020	mg/L	0.02000		98	70-130	3	25	
1,2,3-Trichlorobenzene	0.0191	0.0010	mg/L	0.02000		95	70-130	0.2	25	
1,2,3-Trichloropropane	0.0188	0.0010	mg/L	0.02000		94	70-130	8	25	
1,2,4-Trichlorobenzene	0.0187	0.0010	mg/L	0.02000		94	70-130	1	25	
1,2,4-Trimethylbenzene	0.0196	0.0010	mg/L	0.02000		98	70-130	4	25	
1,2-Dibromo-3-Chloropropane	0.0179	0.0020	mg/L	0.02000		90	70-130	2	25	
1,2-Dibromoethane	0.0192	0.0010	mg/L	0.02000		96	70-130	2	25	
1,2-Dichlorobenzene	0.0190	0.0010	mg/L	0.02000		95	70-130	2	25	
1,2-Dichloroethane	0.0190	0.0010	mg/L	0.02000		95	70-130	5	25	
1,2-Dichloropropane	0.0207	0.0010	mg/L	0.02000		104	70-130	2	25	
1,3,5-Trimethylbenzene	0.0198	0.0010	mg/L	0.02000		99	70-130	3	25	
1,3-Dichlorobenzene	0.0193	0.0010	mg/L	0.02000		96	70-130	4	25	
1,3-Dichloropropane	0.0186	0.0010	mg/L	0.02000		93	70-130	1	25	
1,4-Dichlorobenzene	0.0193	0.0010	mg/L	0.02000		96	70-130	2	25	
2,2-Dichloropropane	0.0205	0.0010	mg/L	0.02000		102	70-130	3	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

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

**Batch NG21604 - 5030**

2-Butanone	0.196	0.0100	mg/L	0.2000		98	70-130	10	25	
2-Chlorotoluene	0.0191	0.0010	mg/L	0.02000		95	70-130	5	25	
2-Hexanone	0.198	0.0100	mg/L	0.2000		99	70-130	5	25	
4-Chlorotoluene	0.0188	0.0010	mg/L	0.02000		94	70-130	3	25	
4-Isopropyltoluene	0.0200	0.0010	mg/L	0.02000		100	70-130	8	25	
4-Methyl-2-Pentanone	0.200	0.0100	mg/L	0.2000		100	70-130	12	25	
Acetone	0.184	0.0100	mg/L	0.2000		92	70-130	4	25	
Benzene	0.0198	0.0010	mg/L	0.02000		99	70-130	1	25	
Bromobenzene	0.0188	0.0020	mg/L	0.02000		94	70-130	0.5	25	
Bromochloromethane	0.0197	0.0010	mg/L	0.02000		98	70-130	1	25	
Bromodichloromethane	0.0186	0.0010	mg/L	0.02000		93	70-130	4	25	
Bromoform	0.0190	0.0010	mg/L	0.02000		95	70-130	2	25	
Bromomethane	0.0218	0.0020	mg/L	0.02000		109	70-130	2	25	
Carbon Disulfide	0.0191	0.0010	mg/L	0.02000		96	70-130	7	25	
Carbon Tetrachloride	0.0199	0.0010	mg/L	0.02000		99	70-130	5	25	
Chlorobenzene	0.0200	0.0010	mg/L	0.02000		100	70-130	6	25	
Chloroethane	0.0204	0.0020	mg/L	0.02000		102	70-130	10	25	
Chloroform	0.0190	0.0010	mg/L	0.02000		95	70-130	0.6	25	
Chloromethane	0.0228	0.0020	mg/L	0.02000		114	70-130	5	25	
cis-1,2-Dichloroethene	0.0204	0.0010	mg/L	0.02000		102	70-130	0.9	25	
cis-1,3-Dichloropropene	0.0206	0.0010	mg/L	0.02000		103	70-130	5	25	
Dibromochloromethane	0.0202	0.0010	mg/L	0.02000		101	70-130	0.05	25	
Dibromomethane	0.0198	0.0010	mg/L	0.02000		99	70-130	6	25	
Dichlorodifluoromethane	0.0230	0.0020	mg/L	0.02000		115	70-130	6	25	
Diethyl Ether	0.0194	0.0010	mg/L	0.02000		97	70-130	7	25	
Di-isopropyl ether	0.0200	0.0010	mg/L	0.02000		100	70-130	4	25	
Ethyl tertiary-butyl ether	0.0176	0.0010	mg/L	0.02000		88	70-130	15	25	
Ethylbenzene	0.0202	0.0010	mg/L	0.02000		101	70-130	7	25	
Hexachlorobutadiene	0.0195	0.0010	mg/L	0.02000		98	70-130	8	25	
Hexachloroethane	0.0209	0.0010	mg/L	0.02000		105	70-130	4	25	
Isopropylbenzene	0.0197	0.0010	mg/L	0.02000		99	70-130	5	25	
Methyl tert-Butyl Ether	0.0176	0.0010	mg/L	0.02000		88	70-130	12	25	
Methylene Chloride	0.0182	0.0020	mg/L	0.02000		91	70-130	0.7	25	
Naphthalene	0.0193	0.0010	mg/L	0.02000		96	70-130	5	25	
n-Butylbenzene	0.0199	0.0010	mg/L	0.02000		100	70-130	7	25	
n-Propylbenzene	0.0195	0.0010	mg/L	0.02000		98	70-130	6	25	
sec-Butylbenzene	0.0202	0.0010	mg/L	0.02000		101	70-130	7	25	
Styrene	0.0191	0.0010	mg/L	0.02000		95	70-130	1	25	
tert-Butylbenzene	0.0196	0.0010	mg/L	0.02000		98	70-130	8	25	
Tertiary-amyl methyl ether	0.0170	0.0020	mg/L	0.02000		85	70-130	26	25	DB+
Tetrachloroethene	0.0194	0.0010	mg/L	0.02000		97	70-130	9	25	
Tetrahydrofuran	0.0188	0.0050	mg/L	0.02000		94	70-130	3	25	
Toluene	0.0203	0.0010	mg/L	0.02000		101	70-130	2	25	
trans-1,2-Dichloroethene	0.0201	0.0010	mg/L	0.02000		101	70-130	5	25	
trans-1,3-Dichloropropene	0.0175	0.0010	mg/L	0.02000		88	70-130	6	25	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Quality Control Data**

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

**Batch NG21604 - 5030**

Trichloroethene	0.0206	0.0010	mg/L	0.02000		103	70-130	4	25	
Trichlorofluoromethane	0.0209	0.0010	mg/L	0.02000		105	70-130	6	25	
Vinyl Acetate	0.0195	0.0020	mg/L	0.02000		97	70-130	9	25	
Vinyl Chloride	0.0212	0.0010	mg/L	0.02000		106	70-130	5	25	
Xylene O	0.0188	0.0010	mg/L	0.02000		94	70-130	6	25	
Xylene P,M	0.0391	0.0020	mg/L	0.04000		98	70-130	7	25	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.00999</i>		mg/L	<i>0.01000</i>		<i>100</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.00937</i>		mg/L	<i>0.01000</i>		<i>94</i>	<i>70-130</i>			
<i>Surrogate: Dibromofluoromethane</i>	<i>0.00976</i>		mg/L	<i>0.01000</i>		<i>98</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.00994</i>		mg/L	<i>0.01000</i>		<i>99</i>	<i>70-130</i>			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**Notes and Definitions**

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



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1207141

**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/labs/waterlabs-instate.php>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutOfStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water: RI0002  
[http://www.maine.gov/dep/blwq/topic/vessel/lab\\_list.pdf](http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf)

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://www4.egov.nh.gov/des/nhelap/namesearch.asp>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313  
<http://www.wadsworth.org/labcert/elap/comm.html>

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301  
[http://www.mde.state.md.us/assets/document/WSP\\_labs-2009apr20.pdf](http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf)

**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.cpsc.gov/cgi-bin/labapplist.aspx>

**Sample and Cooler Receipt Checklist**

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

ESS Project ID: 12070141  
Date Project Due: 7/19/12  
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"/> No   |
| 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: 2.1"/>   |                               | 16. Are ESS labels on correct containers? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| <input type="text" value="Iced With: Ice"/>   |                               | 17. Were samples received intact?         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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	1 L Glass	2	H2SO4
1	Yes	1 L Glass	2	NP
1	Yes	250 ml Plastic	2	NaOH
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	2	H2SO4
2	Yes	1 L Glass	2	NP
2	Yes	250 ml Plastic	2	NaOH
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	2	H2SO4
3	Yes	1 L Glass	2	NP
3	Yes	250 ml Plastic	2	NaOH
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	2	H2SO4
4	Yes	1 L Glass	2	NP
4	Yes	250 ml Plastic	2	NaOH
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	2	H2SO4
5	Yes	1 L Glass	2	NP
5	Yes	250 ml Plastic	2	NaOH
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	2	H2SO4
6	Yes	1 L Glass	2	NP
6	Yes	250 ml Plastic	2	NaOH
6	Yes	40 ml - VOA	3	HCL
7	Yes	40 ml - VOA	3	HCL

**Sample and Cooler Receipt Checklist**

Client: GZA GeoEnvironmental, Inc.

ESS Project ID: 12070141

Completed By: [Signature]

Date/Time: 7/12/12 1520

Reviewed By: [Signature]

Date/Time: 7/12/12

# 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 1

Turn Time: Standard Other: \_\_\_\_\_  
 If faster than 5 days, prior approval by laboratory is required # \_\_\_\_\_  
 State where samples were collected from: MA (R) CT NH NJ NY ME Other: \_\_\_\_\_  
 Reporting Limits: 21000 ESS LAB PROJECT ID: 207141  
 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				
										VOE @2608	TH @1000	PAH @2702	Total cyanide	Dissolved cyanide
7	7-12-12	0700	X	X		TRIPBLANK 0700R12	2	3	V	X	X	X	X	
1	7-12-12	1020	X	X	GW	MW-339S	12	9	GA	X	X	X	X	
2	7-12-12	1130	X	X	GW	MW-339D	1	9	1	X	X	X	X	
3	7-12-12	0945	X	X	GW	MW-3/2 S	1	9	1	X	X	X	X	
4	7-12-12	0905	X	X	GW	MW-3/4 S	1	9	1	X	X	X	X	
5	7-12-12	1030	X	X	GW	MW-3/4 D	1	9	1	X	X	X	X	
6	7-12-12	0950	X	X	GW	M+E-2	V	9	V	X	X	X	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 Internal Use Only:  Yes  No  
 Seals Intact:  Yes  No NA:  [ ] Pickup [ ] Technicians \_\_\_\_\_  
 Cooler Temp: 2.1, 3.9  
 Relinquished by: (Signature) [Signature] Date/Time 7/12/12 1350 Received by: (Signature) [Signature] Date/Time \_\_\_\_\_  
 Relinquished by: (Signature) [Signature] Date/Time \_\_\_\_\_ Received by: (Signature) \_\_\_\_\_ Date/Time \_\_\_\_\_  
 Preservation Code: 1- NP, 2- HCl, 3- H<sub>2</sub>SO<sub>4</sub>, 4- HNO<sub>3</sub>, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAct, 9- \_\_\_\_\_  
 Sampled by: SN/EB  
 Comments: Dissolved cyanide. Name field omitted. National Grid Project Refs.  
 Relinquished by: (Signature) [Signature] Date/Time 7/12/12 1350 Received by: (Signature) [Signature] Date/Time \_\_\_\_\_

\*By circling MA-MCP, client acknowledges samples were collected. Please fax all changes to Chain of Custody in writing. 1 (White) Lab Copy 2 (Yellow) Client Receipt 10/26/04 A

## **Appendix D Supplemental QA/QC Information for 2011 and 2012**

During the 2011 sampling round, twenty-six (26) groundwater samples, two (2) blind duplicate samples and three (3) trip blanks were submitted to GZA's Environmental Chemistry Lab (ECL) in Hopkinton, MA for analysis. The samples were transported to the laboratory under chain of custody protocol. As indicated on page 2 of each laboratory report, the samples were received intact, within the proper temperature range and appropriately preserved. Analytical results for the trip blanks were below the laboratory reporting limit for all 67 targeted compounds. Two duplicate sample sets (Set #1 – MW-339S and BD#1 and Set #2 – MW-312D and BD#2) were also submitted for VOCs, PAH, TPH, total cyanide and dissolved cyanide analysis to evaluate sample reproducibility. The relative percent difference (RPD) was calculated for each compound. Elevated RPDs (more than 40% difference) were noted for PAHs in one sample set (MW-312D and BD#2). Given the nature of the observed Site impacts, the variability in the PAHs results in these samples does not significantly affect data usability.

During the 2012 sampling round, twenty-six (26) groundwater samples, two (2) blind duplicate samples and three (3) trip blanks were submitted to ESS Laboratory in Cranston, RI for analysis. The samples were transported to the laboratory under chain of custody protocol. As indicated on page 2 of each laboratory report, the samples were received intact, within the proper temperature range and appropriately preserved. Analytical results for the trip blanks were below the laboratory reporting limit for all 74 targeted compounds. Two duplicate sample sets (Set #1 – MW-7 and BD071112 and Set #2 – MW-334S and BD-71012) were also submitted for VOCs, PAH, TPH, total cyanide and dissolved cyanide analysis to evaluate sample reproducibility. The 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 forms for 2011 and 2012 are provided for reference in Appendix D.





*CERTIFICATE OF ANALYSIS*

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

**RE: Tidewater GH (03.0043654)**  
**ESS Laboratory Work Order Number: 1308084**

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 5:55 pm, Aug 13, 2013**

**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: 1308084

**SAMPLE RECEIPT**

The following samples were received on August 06, 2013 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>SampleName</u>	<u>Matrix</u>	<u>Analysis</u>
1308084-01	MW-109	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-02	M and E MW-2	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-03	MW-314S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-04	MW-314D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-05	BD-1	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-06	MW-310S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-07	MW-310D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-08	MW-312S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-09	MW-312D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308084-10	Trip Blank - 8613	Aqueous	8260B



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

- CH30905-BS1 **Blank Spike recovery is below lower control limit (B-).**  
Bromomethane (69% @ 70-130%)
- CH30905-BSD1 **Blank Spike recovery is below lower control limit (B-).**  
Dichlorodifluoromethane (69% @ 70-130%)
- CH31237-BLK1 **Surrogate recovery(ies) above upper control limit (S+).**  
Dibromofluoromethane (134% @ 70-130%)
- CH31329-BS1 **Blank Spike recovery is below lower control limit (B-).**  
Dichlorodifluoromethane (69% @ 70-130%)
- CWH0120-CCV1 **Continuing Calibration recovery is above upper control limit (C+).**  
1,4-Dioxane - Screen (178% @ 70-130%)
- CWH0120-CCV1 **Continuing Calibration recovery is below lower control limit (C-).**  
Bromomethane (53% @ 70-130%)
- CWH0154-CCV1 **Continuing Calibration recovery is above upper control limit (C+).**  
1,4-Dioxane - Screen (152% @ 70-130%)
- CWH0172-CCV1 **Continuing Calibration recovery is above upper control limit (C+).**  
1,4-Dioxane - Screen (191% @ 70-130%)

**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: 1308084

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

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

**Prep Methods**

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3580A - Waste Dilution
- 5030B - 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: MW-109  
Date Sampled: 08/06/13 14:20  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	2.79 (0.19)		8100M		1	08/08/13 10:05	CWH0093	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>93 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 08/06/13 14:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>1,2,4-Trimethylbenzene</b>	<b>0.126</b> (0.0100)	0.0010	8260B		10	08/13/13 12:05	CWH0154	CH31237
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>1,3,5-Trimethylbenzene</b>	<b>0.0057</b> (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/12/13 13:09	CWH0154	CH31237
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/12/13 13:09	CWH0154	CH31237
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/12/13 13:09	CWH0154	CH31237
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/12/13 13:09	CWH0154	CH31237
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>4-Isopropyltoluene</b>	<b>0.0046</b> (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/12/13 13:09	CWH0154	CH31237
Acetone	ND (0.0100)	0.0027	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Benzene</b>	<b>0.115</b> (0.0100)	0.0010	8260B		10	08/13/13 12:05	CWH0154	CH31237



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-109  
 Date Sampled: 08/06/13 14:20  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
 ESS Laboratory Sample ID: 1308084-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
Bromoform	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/12/13 13:09	CWH0154	CH31237
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/12/13 13:09	CWH0154	CH31237
Chloroform	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Ethylbenzene</b>	<b>0.0404</b> (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Isopropylbenzene</b>	<b>0.0194</b> (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Naphthalene</b>	<b>0.163</b> (0.0100)	0.0020	8260B		10	08/13/13 12:05	CWH0154	CH31237
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>n-Propylbenzene</b>	<b>0.0101</b> (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
Styrene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-109  
 Date Sampled: 08/06/13 14:20  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
 ESS Laboratory Sample ID: 1308084-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Toluene</b>	<b>0.0030</b> (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/12/13 13:09	CWH0154	CH31237
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/12/13 13:09	CWH0154	CH31237
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/12/13 13:09	CWH0154	CH31237
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Xylene O</b>	<b>0.0183</b> (0.0010)	0.0001	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Xylene P,M</b>	<b>0.0128</b> (0.0020)	0.0002	8260B		1	08/12/13 13:09	CWH0154	CH31237
<b>Xylenes (Total)</b>	<b>0.0311</b> (0.0020)		8260B		1	08/12/13 13:09		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/12/13 13:09		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	110 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	120 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	125 %		70-130
<i>Surrogate: Toluene-d8</i>	89 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 08/06/13 14:20  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.0309 (0.0019)		8270C SIM		10	08/09/13 19:53	CWH0086	CH30609
Acenaphthene	0.0033 (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Acenaphthylene	0.0004 (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Anthracene	0.0004 (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Chrysene	ND (0.00005)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Fluoranthene	ND (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Fluorene	0.0019 (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Naphthalene	0.0965 (0.0019)		8270C SIM		10	08/09/13 19:53	CWH0086	CH30609
Phenanthrene	0.0019 (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609
Pyrene	0.0002 (0.0002)		8270C SIM		1	08/07/13 16:06	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	34 %		30-130
Surrogate: 2-Fluorobiphenyl	49 %		30-130
Surrogate: Nitrobenzene-d5	40 %		30-130
Surrogate: p-Terphenyl-d14	65 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-109  
Date Sampled: 08/06/13 14:20  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-01  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.132 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.143 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E MW-2  
Date Sampled: 08/06/13 12:10  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	08/12/13 14:57	CWH0160	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>115 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E MW-2  
Date Sampled: 08/06/13 12:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/08/13 20:21	CWH0120	CH30905
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/08/13 20:21	CWH0120	CH30905
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/08/13 20:21	CWH0120	CH30905
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/08/13 20:21	CWH0120	CH30905
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/08/13 20:21	CWH0120	CH30905
Acetone	ND (0.0100)	0.0027	8260B		1	08/08/13 20:21	CWH0120	CH30905
Benzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E MW-2  
Date Sampled: 08/06/13 12:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Bromoform	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/08/13 20:21	CWH0120	CH30905
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/08/13 20:21	CWH0120	CH30905
Chloroform	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Ethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Isopropylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Styrene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E MW-2  
Date Sampled: 08/06/13 12:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/08/13 20:21	CWH0120	CH30905
Toluene	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 20:21	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/08/13 20:21	CWH0120	CH30905
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/08/13 20:21	CWH0120	CH30905
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Xylene O	ND (0.0010)	0.0001	8260B		1	08/08/13 20:21	CWH0120	CH30905
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/08/13 20:21	CWH0120	CH30905
Xylenes (Total)	ND (0.0020)		8260B		1	08/08/13 20:21		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/08/13 20:21		[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>113 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>122 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>98 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E MW-2  
Date Sampled: 08/06/13 12:10  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Acenaphthene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Acenaphthylene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Anthracene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Chrysene	ND (0.00005)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Fluoranthene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Fluorene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Naphthalene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Phenanthrene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609
Pyrene	ND (0.0002)		8270C SIM		1	08/07/13 16:55	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	36 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	49 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	51 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	70 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: M and E MW-2  
Date Sampled: 08/06/13 12:10  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-02  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0395 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.0450 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 08/06/13 13:15  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	2.08 (0.19)		8100M		1	08/08/13 12:08	CWH0093	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		69 %		40-140				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 08/06/13 13:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/08/13 22:35	CWH0120	CH30905
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/08/13 22:35	CWH0120	CH30905
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/08/13 22:35	CWH0120	CH30905
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/08/13 22:35	CWH0120	CH30905
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/08/13 22:35	CWH0120	CH30905
Acetone	ND (0.0100)	0.0027	8260B		1	08/08/13 22:35	CWH0120	CH30905
Benzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 08/06/13 13:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Bromoform	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/08/13 22:35	CWH0120	CH30905
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/08/13 22:35	CWH0120	CH30905
Chloroform	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Ethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
<b>Isopropylbenzene</b>	<b>J 0.0007 (0.0010)</b>	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Styrene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-314S  
 Date Sampled: 08/06/13 13:15  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
 ESS Laboratory Sample ID: 1308084-03  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/08/13 22:35	CWH0120	CH30905
Toluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 22:35	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/08/13 22:35	CWH0120	CH30905
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/08/13 22:35	CWH0120	CH30905
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Xylene O	ND (0.0010)	0.0001	8260B		1	08/08/13 22:35	CWH0120	CH30905
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/08/13 22:35	CWH0120	CH30905
Xylenes (Total)	ND (0.0020)		8260B		1	08/08/13 22:35		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/08/13 22:35		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>116 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>95 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 08/06/13 13:15  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
<b>Acenaphthene</b>	<b>0.0025</b> (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
<b>Acenaphthylene</b>	<b>0.0004</b> (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
<b>Anthracene</b>	<b>0.0004</b> (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Chrysene	ND (0.00005)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
<b>Fluoranthene</b>	<b>0.0003</b> (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
<b>Fluorene</b>	<b>0.0008</b> (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
<b>Naphthalene</b>	<b>0.0003</b> (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
Phenanthrene	ND (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609
<b>Pyrene</b>	<b>0.0004</b> (0.0002)		8270C SIM		1	08/07/13 17:44	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	49 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	64 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	64 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	64 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314S  
Date Sampled: 08/06/13 13:15  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-03  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0894 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.0902 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.53 (0.19)		8100M		1	08/12/13 15:31	CWH0160	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		123 %		40-140				





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/08/13 22:08	CWH0120	CH30905
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/08/13 22:08	CWH0120	CH30905
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/08/13 22:08	CWH0120	CH30905
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/08/13 22:08	CWH0120	CH30905
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/08/13 22:08	CWH0120	CH30905
Acetone	ND (0.0100)	0.0027	8260B		1	08/08/13 22:08	CWH0120	CH30905
Benzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Bromoform	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/08/13 22:08	CWH0120	CH30905
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/08/13 22:08	CWH0120	CH30905
Chloroform	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Ethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Isopropylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Styrene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	J 0.0004 (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/08/13 22:08	CWH0120	CH30905
Toluene	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 22:08	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/08/13 22:08	CWH0120	CH30905
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/08/13 22:08	CWH0120	CH30905
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Xylene O	ND (0.0010)	0.0001	8260B		1	08/08/13 22:08	CWH0120	CH30905
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/08/13 22:08	CWH0120	CH30905
Xylenes (Total)	ND (0.0020)		8260B		1	08/08/13 22:08		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/08/13 22:08		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	105 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	108 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	121 %		70-130
<i>Surrogate: Toluene-d8</i>	95 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
<b>Acenaphthene</b>	<b>0.0031</b> (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
<b>Acenaphthylene</b>	<b>0.0002</b> (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Anthracene	ND (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Chrysene	ND (0.00005)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Fluoranthene	ND (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Fluorene	ND (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
<b>Naphthalene</b>	<b>0.0004</b> (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
Phenanthrene	ND (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609
<b>Pyrene</b>	<b>0.0002</b> (0.0002)		8270C SIM		1	08/07/13 18:34	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	51 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	65 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	69 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	76 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-314D  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-04  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.154 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.317 (0.0250)		9014		5	JLK	08/09/13 11:42	mg/L	CH30908



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-1  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/9/13 16:25

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.89 (0.19)		8100M		1	08/09/13 20:30	CWH0130	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>106 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-1  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/08/13 21:41	CWH0120	CH30905
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/08/13 21:41	CWH0120	CH30905
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/08/13 21:41	CWH0120	CH30905
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/08/13 21:41	CWH0120	CH30905
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/08/13 21:41	CWH0120	CH30905
Acetone	ND (0.0100)	0.0027	8260B		1	08/08/13 21:41	CWH0120	CH30905
Benzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: BD-1  
 Date Sampled: 08/06/13 12:45  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
 ESS Laboratory Sample ID: 1308084-05  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Bromoform	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/08/13 21:41	CWH0120	CH30905
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/08/13 21:41	CWH0120	CH30905
Chloroform	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Ethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Isopropylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Styrene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-1  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/08/13 21:41	CWH0120	CH30905
Toluene	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 21:41	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/08/13 21:41	CWH0120	CH30905
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/08/13 21:41	CWH0120	CH30905
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Xylene O	ND (0.0010)	0.0001	8260B		1	08/08/13 21:41	CWH0120	CH30905
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/08/13 21:41	CWH0120	CH30905
Xylenes (Total)	ND (0.0020)		8260B		1	08/08/13 21:41		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/08/13 21:41		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	110 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	110 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	121 %		70-130
<i>Surrogate: Toluene-d8</i>	95 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-1  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
<b>Acenaphthene</b>	<b>0.0024</b> (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Acenaphthylene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Anthracene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Chrysene	ND (0.00005)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Fluoranthene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Fluorene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Naphthalene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Phenanthrene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609
Pyrene	ND (0.0002)		8270C SIM		1	08/07/13 19:23	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	41 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	49 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	53 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	67 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-1  
Date Sampled: 08/06/13 12:45  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-05  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.333 (0.0250)		9014		5	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.337 (0.0250)		9014		5	JLK	08/09/13 11:42	mg/L	CH30908



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 08/06/13 12:15  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	08/12/13 16:10	CWH0160	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>98 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 08/06/13 12:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/13/13 11:38	CWH0172	CH31329
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/13/13 11:38	CWH0172	CH31329
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/13/13 11:38	CWH0172	CH31329
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/13/13 11:38	CWH0172	CH31329
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/13/13 11:38	CWH0172	CH31329
Acetone	ND (0.0100)	0.0027	8260B		1	08/13/13 11:38	CWH0172	CH31329
<b>Benzene</b>	<b>0.0035 (0.0010)</b>	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 08/06/13 12:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Bromoform	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/13/13 11:38	CWH0172	CH31329
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/13/13 11:38	CWH0172	CH31329
Chloroform	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
<b>Ethylbenzene</b>	<b>J 0.0004</b> (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
<b>Isopropylbenzene</b>	<b>J 0.0004</b> (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Styrene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 08/06/13 12:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/13/13 11:38	CWH0172	CH31329
Toluene	ND (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/13/13 11:38	CWH0172	CH31329
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/13/13 11:38	CWH0172	CH31329
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/13/13 11:38	CWH0172	CH31329
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
<b>Xylene O</b>	<b>J 0.0006</b> (0.0010)	0.0001	8260B		1	08/13/13 11:38	CWH0172	CH31329
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/13/13 11:38	CWH0172	CH31329
Xylenes (Total)	ND (0.0020)		8260B		1	08/13/13 11:38		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/13/13 11:38		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	114 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	112 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	127 %		70-130
<i>Surrogate: Toluene-d8</i>	89 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 08/06/13 12:15  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
<b>Acenaphthene</b>	<b>0.0008</b> (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Acenaphthylene	ND (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Anthracene	ND (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Chrysene	ND (0.00005)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Fluoranthene	ND (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
<b>Fluorene</b>	<b>0.0002</b> (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
<b>Naphthalene</b>	<b>0.0002</b> (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Phenanthrene	ND (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609
Pyrene	ND (0.0002)		8270C SIM		1	08/07/13 20:12	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	43 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	51 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	52 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	65 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310S  
Date Sampled: 08/06/13 12:15  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-06  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0414 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.0548 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 08/06/13 12:37  
Percent Solids: N/A  
Initial Volume: 1030  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	13.5 (0.19)		8100M		1	08/08/13 14:43	CWH0093	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		82 %		40-140				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 08/06/13 12:37  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
<b>1,1,1,2-Tetrachloroethane</b>	<b>0.130</b> (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0500)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,1-Dichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,1-Dichloroethene	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,1-Dichloropropene	ND (0.200)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>1,2,4-Trimethylbenzene</b>	<b>0.473</b> (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.500)	0.100	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2-Dibromoethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2-Dichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,2-Dichloropropane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>1,3,5-Trimethylbenzene</b>	<b>0.102</b> (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,3-Dichloropropane	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
1,4-Dioxane - Screen	ND (50.0)	19.0	8260B		100	08/08/13 23:55	CWH0120	CH30905
1-Chlorohexane	ND (0.100)	0.0400	8260B		100	08/08/13 23:55	CWH0120	CH30905
2,2-Dichloropropane	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
2-Butanone	ND (1.00)	0.340	8260B		100	08/08/13 23:55	CWH0120	CH30905
2-Chlorotoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
2-Hexanone	ND (1.00)	0.150	8260B		100	08/08/13 23:55	CWH0120	CH30905
4-Chlorotoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
4-Isopropyltoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (2.50)	0.160	8260B		100	08/08/13 23:55	CWH0120	CH30905
Acetone	ND (1.00)	0.270	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Benzene</b>	<b>0.678</b> (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 08/06/13 12:37  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.200)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Bromochloromethane	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
Bromodichloromethane	ND (0.0600)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
Bromoform	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Bromomethane	ND (0.200)	0.0400	8260B		100	08/08/13 23:55	CWH0120	CH30905
Carbon Disulfide	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
Carbon Tetrachloride	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
Chlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
Chloroethane	ND (0.200)	0.0400	8260B		100	08/08/13 23:55	CWH0120	CH30905
Chloroform	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Chloromethane	ND (0.200)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0400)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Dibromochloromethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Dibromomethane	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.200)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
Diethyl Ether	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
Di-isopropyl ether	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Ethylbenzene</b>	<b>0.720</b> (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0600)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Hexachloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Isopropylbenzene</b>	<b>J 0.0630</b> (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
Methylene Chloride	ND (0.200)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Naphthalene</b>	<b>6.60</b> (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
n-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
n-Propylbenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
sec-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
Styrene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
tert-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 08/06/13 12:37  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Tetrachloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Tetrahydrofuran	ND (0.500)	0.160	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Toluene</b>	<b>0.174</b> (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.100)	0.0300	8260B		100	08/08/13 23:55	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0400)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Trichloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
Trichlorofluoromethane	ND (0.100)	0.0400	8260B		100	08/08/13 23:55	CWH0120	CH30905
Vinyl Acetate	ND (0.500)	0.0500	8260B		100	08/08/13 23:55	CWH0120	CH30905
Vinyl Chloride	ND (0.100)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Xylene O</b>	<b>0.489</b> (0.100)	0.0100	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Xylene P,M</b>	<b>0.478</b> (0.200)	0.0200	8260B		100	08/08/13 23:55	CWH0120	CH30905
<b>Xylenes (Total)</b>	<b>0.967</b> (0.200)		8260B		100	08/08/13 23:55		[CALC]
Trihalomethanes (Total)	ND (0.360)		8260B			08/08/13 23:55		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	108 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	110 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	118 %		70-130
<i>Surrogate: Toluene-d8</i>	94 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 08/06/13 12:37  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.403</b> (0.0187)		8270C SIM		100	08/09/13 18:13	CWH0129	CH30609
<b>Acenaphthene</b>	<b>0.0914</b> (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
<b>Acenaphthylene</b>	<b>0.0454</b> (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
<b>Anthracene</b>	<b>0.0024</b> (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Benzo(a)anthracene	ND (0.0005)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Benzo(a)pyrene	ND (0.0005)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Benzo(b)fluoranthene	ND (0.0005)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Benzo(g,h,i)perylene	ND (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Benzo(k)fluoranthene	ND (0.0005)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Chrysene	ND (0.0005)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Dibenzo(a,h)Anthracene	ND (0.0005)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Fluoranthene	ND (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
<b>Fluorene</b>	<b>0.0311</b> (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.0005)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
<b>Naphthalene</b>	<b>4.57</b> (0.187)		8270C SIM		1000	08/09/13 19:03	CWH0129	CH30609
<b>Phenanthrene</b>	<b>0.0207</b> (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609
Pyrene	ND (0.0019)		8270C SIM		10	08/09/13 17:21	CWH0129	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	54 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	65 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	117 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	91 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-310D  
Date Sampled: 08/06/13 12:37  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-07  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.133 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.139 (0.0050)		9014		1	JLK	08/09/13 11:42	mg/L	CH30908



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 08/06/13 14:31  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	8.84 (0.20)		8100M		1	08/08/13 15:22	CWH0093	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>100 %</i>		<i>40-140</i>				





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-312S  
 Date Sampled: 08/06/13 14:31  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
 ESS Laboratory Sample ID: 1308084-08  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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 (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0500)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,1-Dichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,1-Dichloroethene	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,1-Dichloropropene	ND (0.200)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
<b>1,2,4-Trimethylbenzene</b>	<b>0.104</b> (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.500)	0.100	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2-Dibromoethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2-Dichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,2-Dichloropropane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
<b>1,3,5-Trimethylbenzene</b>	<b>J 0.0240</b> (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,3-Dichloropropane	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
1,4-Dioxane - Screen	ND (50.0)	19.0	8260B		100	08/08/13 23:28	CWH0120	CH30905
1-Chlorohexane	ND (0.100)	0.0400	8260B		100	08/08/13 23:28	CWH0120	CH30905
2,2-Dichloropropane	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
2-Butanone	ND (1.00)	0.340	8260B		100	08/08/13 23:28	CWH0120	CH30905
2-Chlorotoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
2-Hexanone	ND (1.00)	0.150	8260B		100	08/08/13 23:28	CWH0120	CH30905
4-Chlorotoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
4-Isopropyltoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (2.50)	0.160	8260B		100	08/08/13 23:28	CWH0120	CH30905
Acetone	ND (1.00)	0.270	8260B		100	08/08/13 23:28	CWH0120	CH30905
Benzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 08/06/13 14:31  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.200)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Bromochloromethane	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
Bromodichloromethane	ND (0.0600)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
Bromoform	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Bromomethane	ND (0.200)	0.0400	8260B		100	08/08/13 23:28	CWH0120	CH30905
Carbon Disulfide	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
Carbon Tetrachloride	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
Chlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
Chloroethane	ND (0.200)	0.0400	8260B		100	08/08/13 23:28	CWH0120	CH30905
Chloroform	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Chloromethane	ND (0.200)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0400)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Dibromochloromethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Dibromomethane	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.200)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
Diethyl Ether	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
Di-isopropyl ether	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
<b>Ethylbenzene</b>	<b>0.546</b> (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0600)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Hexachloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
<b>Isopropylbenzene</b>	<b>J 0.0220</b> (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
Methylene Chloride	ND (0.200)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
<b>Naphthalene</b>	<b>2.03</b> (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
n-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
n-Propylbenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
sec-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
Styrene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
tert-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 08/06/13 14:31  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Tetrachloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Tetrahydrofuran	ND (0.500)	0.160	8260B		100	08/08/13 23:28	CWH0120	CH30905
Toluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.100)	0.0300	8260B		100	08/08/13 23:28	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0400)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Trichloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Trichlorofluoromethane	ND (0.100)	0.0400	8260B		100	08/08/13 23:28	CWH0120	CH30905
Vinyl Acetate	ND (0.500)	0.0500	8260B		100	08/08/13 23:28	CWH0120	CH30905
Vinyl Chloride	ND (0.100)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
<b>Xylene O</b>	<b>J 0.0880</b> (0.100)	0.0100	8260B		100	08/08/13 23:28	CWH0120	CH30905
<b>Xylene P,M</b>	<b>J 0.0270</b> (0.200)	0.0200	8260B		100	08/08/13 23:28	CWH0120	CH30905
Xylenes (Total)	ND (0.200)		8260B		100	08/08/13 23:28		[CALC]
Trihalomethanes (Total)	ND (0.360)		8260B			08/08/13 23:28		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	109 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	112 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	122 %		70-130
<i>Surrogate: Toluene-d8</i>	94 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 08/06/13 14:31  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.101 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Acenaphthene	0.221 (0.0187)		8270C SIM		100	08/07/13 22:40	CWH0086	CH30609
Acenaphthylene	0.0336 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Anthracene	0.0377 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Benzo(a)anthracene	0.0145 (0.0005)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Benzo(a)pyrene	0.0123 (0.0005)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Benzo(b)fluoranthene	0.0090 (0.0005)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Benzo(g,h,i)perylene	0.0043 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Benzo(k)fluoranthene	0.0033 (0.0005)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Chrysene	0.0137 (0.0005)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Dibenzo(a,h)Anthracene	0.0012 (0.0005)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Fluoranthene	0.0327 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Fluorene	0.0811 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	0.0045 (0.0005)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Naphthalene	1.78 (0.187)		8270C SIM		1000	08/09/13 20:42	CWH0086	CH30609
Phenanthrene	0.114 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609
Pyrene	0.0439 (0.0019)		8270C SIM		10	08/07/13 21:51	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	52 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	75 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	73 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	85 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312S  
Date Sampled: 08/06/13 14:31  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-08  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.300 (0.0250)		9014		5	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.307 (0.0250)		9014		5	JLK	08/09/13 11:42	mg/L	CH30908



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 08/06/13 13:51  
Percent Solids: N/A  
Initial Volume: 1030  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/7/13 12:30

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	9.42 (0.19)		8100M		1	08/08/13 16:02	CWH0093	CH30610
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		78 %		40-140				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 08/06/13 13:51  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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 (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0500)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,1-Dichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,1-Dichloroethene	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,1-Dichloropropene	ND (0.200)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2,4-Trimethylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.500)	0.100	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2-Dibromoethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2-Dichloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,2-Dichloropropane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>1,3,5-Trimethylbenzene</b>	<b>J 0.0260</b> (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,3-Dichloropropane	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
1,4-Dioxane - Screen	ND (50.0)	19.0	8260B		100	08/08/13 23:01	CWH0120	CH30905
1-Chlorohexane	ND (0.100)	0.0400	8260B		100	08/08/13 23:01	CWH0120	CH30905
2,2-Dichloropropane	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
2-Butanone	ND (1.00)	0.340	8260B		100	08/08/13 23:01	CWH0120	CH30905
2-Chlorotoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
2-Hexanone	ND (1.00)	0.150	8260B		100	08/08/13 23:01	CWH0120	CH30905
4-Chlorotoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
4-Isopropyltoluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (2.50)	0.160	8260B		100	08/08/13 23:01	CWH0120	CH30905
Acetone	ND (1.00)	0.270	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>Benzene</b>	<b>3.56</b> (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 08/06/13 13:51  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.200)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Bromochloromethane	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
Bromodichloromethane	ND (0.0600)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
Bromoform	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Bromomethane	ND (0.200)	0.0400	8260B		100	08/08/13 23:01	CWH0120	CH30905
Carbon Disulfide	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
Carbon Tetrachloride	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
Chlorobenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
Chloroethane	ND (0.200)	0.0400	8260B		100	08/08/13 23:01	CWH0120	CH30905
Chloroform	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Chloromethane	ND (0.200)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0400)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Dibromochloromethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Dibromomethane	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.200)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
Diethyl Ether	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
Di-isopropyl ether	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>Ethylbenzene</b>	<b>1.26</b> (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0600)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Hexachloroethane	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>Isopropylbenzene</b>	<b>J 0.0540</b> (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
Methylene Chloride	ND (0.200)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>Naphthalene</b>	<b>4.30</b> (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
n-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>n-Propylbenzene</b>	<b>J 0.0220</b> (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
sec-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
Styrene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
tert-Butylbenzene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 08/06/13 13:51  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Tetrachloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Tetrahydrofuran	ND (0.500)	0.160	8260B		100	08/08/13 23:01	CWH0120	CH30905
Toluene	ND (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.100)	0.0300	8260B		100	08/08/13 23:01	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0400)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Trichloroethene	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
Trichlorofluoromethane	ND (0.100)	0.0400	8260B		100	08/08/13 23:01	CWH0120	CH30905
Vinyl Acetate	ND (0.500)	0.0500	8260B		100	08/08/13 23:01	CWH0120	CH30905
Vinyl Chloride	ND (0.100)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>Xylene O</b>	<b>0.309</b> (0.100)	0.0100	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>Xylene P,M</b>	<b>J 0.0300</b> (0.200)	0.0200	8260B		100	08/08/13 23:01	CWH0120	CH30905
<b>Xylenes (Total)</b>	<b>0.339</b> (0.200)		8260B		100	08/08/13 23:01		[CALC]
Trihalomethanes (Total)	ND (0.360)		8260B			08/08/13 23:01		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	107 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	107 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	122 %		70-130
<i>Surrogate: Toluene-d8</i>	93 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 08/06/13 13:51  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/7/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.189 (0.0187)		8270C SIM		100	08/08/13 0:19	CWH0086	CH30609
Acenaphthene	0.0771 (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Acenaphthylene	0.0033 (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Anthracene	0.0050 (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Benzo(a)anthracene	ND (0.0005)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Benzo(a)pyrene	ND (0.0005)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Benzo(b)fluoranthene	ND (0.0005)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Benzo(g,h,i)perylene	ND (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Benzo(k)fluoranthene	ND (0.0005)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Chrysene	ND (0.0005)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Dibenzo(a,h)Anthracene	ND (0.0005)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Fluoranthene	0.0023 (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Fluorene	0.0255 (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Indeno(1,2,3-cd)Pyrene	ND (0.0005)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Naphthalene	2.98 (0.187)		8270C SIM		1000	08/09/13 21:31	CWH0086	CH30609
Phenanthrene	0.0246 (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609
Pyrene	0.0028 (0.0019)		8270C SIM		10	08/07/13 23:30	CWH0086	CH30609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	47 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	58 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	75 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	73 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-312D  
Date Sampled: 08/06/13 13:51  
Percent Solids: N/A

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-09  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.523 (0.0250)		9014		5	JLK	08/09/13 11:42	mg/L	CH30908
Total Cyanide (LL)	0.531 (0.0250)		9014		5	JLK	08/09/13 11:42	mg/L	CH30908



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: Trip Blank - 8613  
Date Sampled: 08/06/13 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-10  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MJM

**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)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/08/13 19:01	CWH0120	CH30905
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/08/13 19:01	CWH0120	CH30905
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/08/13 19:01	CWH0120	CH30905
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/08/13 19:01	CWH0120	CH30905
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/08/13 19:01	CWH0120	CH30905
Acetone	ND (0.0100)	0.0027	8260B		1	08/08/13 19:01	CWH0120	CH30905
Benzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: Trip Blank - 8613  
Date Sampled: 08/06/13 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
ESS Laboratory Sample ID: 1308084-10  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Bromoform	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/08/13 19:01	CWH0120	CH30905
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/08/13 19:01	CWH0120	CH30905
Chloroform	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Ethylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Isopropylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Styrene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: Trip Blank - 8613  
 Date Sampled: 08/06/13 00:00  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308084  
 ESS Laboratory Sample ID: 1308084-10  
 Sample Matrix: Aqueous  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/08/13 19:01	CWH0120	CH30905
Toluene	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/08/13 19:01	CWH0120	CH30905
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/08/13 19:01	CWH0120	CH30905
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/08/13 19:01	CWH0120	CH30905
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905
Xylene O	ND (0.0010)	0.0001	8260B		1	08/08/13 19:01	CWH0120	CH30905
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/08/13 19:01	CWH0120	CH30905

	<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>110 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>119 %</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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30610 - 3510C**

**Blank**

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacontane (C30)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.115</i>		mg/L	<i>0.1000</i>		<i>115</i>	<i>40-140</i>			
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**LCS**

Decane (C10)	0.036	0.005	mg/L	0.05000		72	40-140			
Docosane (C22)	0.059	0.005	mg/L	0.05000		118	40-140			
Dodecane (C12)	0.047	0.005	mg/L	0.05000		95	40-140			
Eicosane (C20)	0.058	0.005	mg/L	0.05000		116	40-140			
Hexacosane (C26)	0.058	0.005	mg/L	0.05000		116	40-140			
Hexadecane (C16)	0.058	0.005	mg/L	0.05000		116	40-140			
Nonadecane (C19)	0.058	0.005	mg/L	0.05000		116	40-140			
Nonane (C9)	0.028	0.005	mg/L	0.05000		56	30-140			
Octacosane (C28)	0.057	0.005	mg/L	0.05000		114	40-140			
Octadecane (C18)	0.058	0.005	mg/L	0.05000		116	40-140			
Tetracosane (C24)	0.060	0.005	mg/L	0.05000		120	40-140			
Tetradecane (C14)	0.056	0.005	mg/L	0.05000		113	40-140			
Total Petroleum Hydrocarbons	0.786	0.20	mg/L	0.7000		112	40-140			
Triacontane (C30)	0.055	0.005	mg/L	0.05000		110	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.116</i>		mg/L	<i>0.1000</i>		<i>116</i>	<i>40-140</i>			
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**LCS Dup**

Decane (C10)	0.040	0.005	mg/L	0.05000		80	40-140	10	25	
Docosane (C22)	0.062	0.005	mg/L	0.05000		123	40-140	5	25	
Dodecane (C12)	0.050	0.005	mg/L	0.05000		101	40-140	6	25	
Eicosane (C20)	0.061	0.005	mg/L	0.05000		121	40-140	5	25	
Hexacosane (C26)	0.060	0.005	mg/L	0.05000		120	40-140	4	25	
Hexadecane (C16)	0.060	0.005	mg/L	0.05000		121	40-140	4	25	
Nonadecane (C19)	0.061	0.005	mg/L	0.05000		122	40-140	5	25	
Nonane (C9)	0.031	0.005	mg/L	0.05000		62	30-140	11	25	
Octacosane (C28)	0.059	0.005	mg/L	0.05000		119	40-140	4	25	
Octadecane (C18)	0.061	0.005	mg/L	0.05000		121	40-140	5	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30610 - 3510C**

Tetracosane (C24)	0.062	0.005	mg/L	0.05000		125	40-140	4	25	
Tetradecane (C14)	0.059	0.005	mg/L	0.05000		118	40-140	4	25	
Total Petroleum Hydrocarbons	0.836	0.20	mg/L	0.7000		119	40-140	6	25	
Triacotane (C30)	0.057	0.005	mg/L	0.05000		114	40-140	3	25	

<i>Surrogate: O-Terphenyl</i>	<i>0.119</i>		mg/L	<i>0.1000</i>		<i>119</i>	<i>40-140</i>			
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**Batch CH30927 - 3510C**

**Blank**

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacotane (C30)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.108</i>		mg/L	<i>0.1000</i>		<i>108</i>	<i>40-140</i>			
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**LCS**

Decane (C10)	0.044	0.005	mg/L	0.05000		87	40-140			
Docosane (C22)	0.054	0.005	mg/L	0.05000		108	40-140			
Dodecane (C12)	0.048	0.005	mg/L	0.05000		96	40-140			
Eicosane (C20)	0.053	0.005	mg/L	0.05000		106	40-140			
Hexacosane (C26)	0.054	0.005	mg/L	0.05000		108	40-140			
Hexadecane (C16)	0.052	0.005	mg/L	0.05000		104	40-140			
Nonadecane (C19)	0.053	0.005	mg/L	0.05000		107	40-140			
Nonane (C9)	0.037	0.005	mg/L	0.05000		73	30-140			
Octacosane (C28)	0.054	0.005	mg/L	0.05000		107	40-140			
Octadecane (C18)	0.053	0.005	mg/L	0.05000		106	40-140			
Tetracosane (C24)	0.055	0.005	mg/L	0.05000		110	40-140			
Tetradecane (C14)	0.051	0.005	mg/L	0.05000		101	40-140			
Total Petroleum Hydrocarbons	0.780	0.20	mg/L	0.7000		111	40-140			
Triacotane (C30)	0.054	0.005	mg/L	0.05000		107	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.0474</i>		mg/L	<i>0.1000</i>		<i>47</i>	<i>40-140</i>			
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**LCS Dup**

Decane (C10)	0.045	0.005	mg/L	0.05000		90	40-140	3	25	
Docosane (C22)	0.054	0.005	mg/L	0.05000		109	40-140	1	25	
Dodecane (C12)	0.049	0.005	mg/L	0.05000		98	40-140	3	25	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30927 - 3510C**

Eicosane (C20)	0.053	0.005	mg/L	0.05000		107	40-140	1	25	
Hexacosane (C26)	0.054	0.005	mg/L	0.05000		108	40-140	0.5	25	
Hexadecane (C16)	0.053	0.005	mg/L	0.05000		106	40-140	1	25	
Nonadecane (C19)	0.054	0.005	mg/L	0.05000		107	40-140	0.6	25	
Nonane (C9)	0.038	0.005	mg/L	0.05000		75	30-140	3	25	
Octacosane (C28)	0.054	0.005	mg/L	0.05000		109	40-140	1	25	
Octadecane (C18)	0.053	0.005	mg/L	0.05000		107	40-140	1	25	
Tetracosane (C24)	0.055	0.005	mg/L	0.05000		111	40-140	0.5	25	
Tetradecane (C14)	0.052	0.005	mg/L	0.05000		103	40-140	2	25	
Total Petroleum Hydrocarbons	0.785	0.20	mg/L	0.7000		112	40-140	0.7	25	
Triacontane (C30)	0.054	0.005	mg/L	0.05000		108	40-140	0.3	25	

Surrogate: *O-Terphenyl* 0.0477 mg/L 0.1000 48 40-140

**8260B Volatile Organic Compounds**

**Batch CH30905 - 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							





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30905 - 5030B**

4-Methyl-2-Pentanone	ND	0.0250	mg/L							
Acetone	ND	0.0100	mg/L							
Benzene	ND	0.0010	mg/L							
Bromobenzene	ND	0.0020	mg/L							
Bromochloromethane	ND	0.0010	mg/L							
Bromodichloromethane	ND	0.0006	mg/L							
Bromoform	ND	0.0010	mg/L							
Bromomethane	ND	0.0020	mg/L							
Carbon Disulfide	ND	0.0010	mg/L							
Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30905 - 5030B**

Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	25.3		ug/L	25.00		101	70-130			
Surrogate: 4-Bromofluorobenzene	27.4		ug/L	25.00		110	70-130			
Surrogate: Dibromofluoromethane	29.6		ug/L	25.00		118	70-130			
Surrogate: Toluene-d8	23.8		ug/L	25.00		95	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	10.3		ug/L	10.00		103	70-130			
1,1,1-Trichloroethane	10.1		ug/L	10.00		101	70-130			
1,1,2,2-Tetrachloroethane	11.0		ug/L	10.00		110	70-130			
1,1,2-Trichloroethane	9.36		ug/L	10.00		94	70-130			
1,1-Dichloroethane	9.69		ug/L	10.00		97	70-130			
1,1-Dichloroethene	10.8		ug/L	10.00		108	70-130			
1,1-Dichloropropene	11.7		ug/L	10.00		117	70-130			
1,2,3-Trichlorobenzene	12.4		ug/L	10.00		124	70-130			
1,2,3-Trichloropropane	9.24		ug/L	10.00		92	70-130			
1,2,4-Trichlorobenzene	12.7		ug/L	10.00		127	70-130			
1,2,4-Trimethylbenzene	11.4		ug/L	10.00		114	70-130			
1,2-Dibromo-3-Chloropropane	9.90		ug/L	10.00		99	70-130			
1,2-Dibromoethane	10.6		ug/L	10.00		106	70-130			
1,2-Dichlorobenzene	11.2		ug/L	10.00		112	70-130			
1,2-Dichloroethane	9.93		ug/L	10.00		99	70-130			
1,2-Dichloropropane	9.79		ug/L	10.00		98	70-130			
1,3,5-Trimethylbenzene	11.8		ug/L	10.00		118	70-130			
1,3-Dichlorobenzene	11.1		ug/L	10.00		111	70-130			
1,3-Dichloropropane	10.7		ug/L	10.00		107	70-130			
1,4-Dichlorobenzene	10.8		ug/L	10.00		108	70-130			
1,4-Dioxane - Screen	488		ug/L	200.0		244	0-332			
1-Chlorohexane	9.44		ug/L	10.00		94	70-130			
2,2-Dichloropropane	10.8		ug/L	10.00		108	70-130			
2-Butanone	51.0		ug/L	50.00		102	70-130			
2-Chlorotoluene	11.7		ug/L	10.00		117	70-130			
2-Hexanone	50.6		ug/L	50.00		101	70-130			
4-Chlorotoluene	10.5		ug/L	10.00		105	70-130			
4-Isopropyltoluene	11.6		ug/L	10.00		116	70-130			
4-Methyl-2-Pentanone	50.6		ug/L	50.00		101	70-130			
Acetone	50.5		ug/L	50.00		101	70-130			
Benzene	10.3		ug/L	10.00		103	70-130			
Bromobenzene	11.6		ug/L	10.00		116	70-130			
Bromochloromethane	10.1		ug/L	10.00		101	70-130			
Bromodichloromethane	10.3		ug/L	10.00		103	70-130			
Bromoform	10.1		ug/L	10.00		101	70-130			
Bromomethane	6.88		ug/L	10.00		69	70-130			B-
Carbon Disulfide	10.0		ug/L	10.00		100	70-130			
Carbon Tetrachloride	10.2		ug/L	10.00		102	70-130			
Chlorobenzene	11.1		ug/L	10.00		111	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30905 - 5030B**

Chloroethane	9.78		ug/L	10.00		98	70-130			
Chloroform	10.6		ug/L	10.00		106	70-130			
Chloromethane	8.39		ug/L	10.00		84	70-130			
cis-1,2-Dichloroethene	10.2		ug/L	10.00		102	70-130			
cis-1,3-Dichloropropene	10.8		ug/L	10.00		108	70-130			
Dibromochloromethane	9.06		ug/L	10.00		91	70-130			
Dibromomethane	10.4		ug/L	10.00		104	70-130			
Dichlorodifluoromethane	7.30		ug/L	10.00		73	70-130			
Diethyl Ether	10.3		ug/L	10.00		103	70-130			
Di-isopropyl ether	10.0		ug/L	10.00		100	70-130			
Ethyl tertiary-butyl ether	7.84		ug/L	10.00		78	70-130			
Ethylbenzene	10.8		ug/L	10.00		108	70-130			
Hexachlorobutadiene	11.5		ug/L	10.00		115	70-130			
Hexachloroethane	10.6		ug/L	10.00		106	70-130			
Isopropylbenzene	11.1		ug/L	10.00		111	70-130			
Methyl tert-Butyl Ether	8.77		ug/L	10.00		88	70-130			
Methylene Chloride	9.36		ug/L	10.00		94	70-130			
Naphthalene	11.3		ug/L	10.00		113	70-130			
n-Butylbenzene	12.0		ug/L	10.00		120	70-130			
n-Propylbenzene	10.8		ug/L	10.00		108	70-130			
sec-Butylbenzene	11.8		ug/L	10.00		118	70-130			
Styrene	10.5		ug/L	10.00		105	70-130			
tert-Butylbenzene	11.5		ug/L	10.00		115	70-130			
Tertiary-amyl methyl ether	7.51		ug/L	10.00		75	70-130			
Tetrachloroethene	8.85		ug/L	10.00		88	70-130			
Tetrahydrofuran	11.2		ug/L	10.00		112	70-130			
Toluene	10.3		ug/L	10.00		103	70-130			
trans-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130			
trans-1,3-Dichloropropene	9.21		ug/L	10.00		92	70-130			
Trichloroethene	10.5		ug/L	10.00		105	70-130			
Trichlorofluoromethane	9.55		ug/L	10.00		96	70-130			
Vinyl Acetate	12.3		ug/L	10.00		123	70-130			
Vinyl Chloride	9.91		ug/L	10.00		99	70-130			
Xylene O	10.9		ug/L	10.00		109	70-130			
Xylene P,M	23.2		ug/L	20.00		116	70-130			
Surrogate: 1,2-Dichloroethane-d4	23.2		ug/L	25.00		93	70-130			
Surrogate: 4-Bromofluorobenzene	25.1		ug/L	25.00		101	70-130			
Surrogate: Dibromofluoromethane	24.4		ug/L	25.00		97	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.00		105	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.60		ug/L	10.00		96	70-130	7	25	
1,1,1-Trichloroethane	10.0		ug/L	10.00		100	70-130	1	25	
1,1,2,2-Tetrachloroethane	9.99		ug/L	10.00		100	70-130	10	25	
1,1,2-Trichloroethane	9.85		ug/L	10.00		98	70-130	5	25	
1,1-Dichloroethane	10.4		ug/L	10.00		104	70-130	7	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30905 - 5030B**

1,1-Dichloroethene	10.2		ug/L	10.00		102	70-130	6	25	
1,1-Dichloropropene	11.2		ug/L	10.00		112	70-130	4	25	
1,2,3-Trichlorobenzene	11.2		ug/L	10.00		112	70-130	11	25	
1,2,3-Trichloropropane	9.04		ug/L	10.00		90	70-130	2	25	
1,2,4-Trichlorobenzene	11.8		ug/L	10.00		118	70-130	7	25	
1,2,4-Trimethylbenzene	11.1		ug/L	10.00		111	70-130	3	25	
1,2-Dibromo-3-Chloropropane	10.8		ug/L	10.00		108	70-130	9	25	
1,2-Dibromoethane	10.1		ug/L	10.00		101	70-130	5	25	
1,2-Dichlorobenzene	10.8		ug/L	10.00		108	70-130	4	25	
1,2-Dichloroethane	10.2		ug/L	10.00		102	70-130	3	25	
1,2-Dichloropropane	9.89		ug/L	10.00		99	70-130	1	25	
1,3,5-Trimethylbenzene	11.7		ug/L	10.00		117	70-130	1	25	
1,3-Dichlorobenzene	10.9		ug/L	10.00		109	70-130	2	25	
1,3-Dichloropropane	10.2		ug/L	10.00		102	70-130	5	25	
1,4-Dichlorobenzene	10.0		ug/L	10.00		100	70-130	7	25	
1,4-Dioxane - Screen	432		ug/L	200.0		216	0-332	12	200	
1-Chlorohexane	9.54		ug/L	10.00		95	70-130	1	25	
2,2-Dichloropropane	10.9		ug/L	10.00		109	70-130	1	25	
2-Butanone	50.6		ug/L	50.00		101	70-130	0.7	25	
2-Chlorotoluene	11.6		ug/L	10.00		116	70-130	0.7	25	
2-Hexanone	47.1		ug/L	50.00		94	70-130	7	25	
4-Chlorotoluene	10.2		ug/L	10.00		102	70-130	3	25	
4-Isopropyltoluene	10.9		ug/L	10.00		109	70-130	6	25	
4-Methyl-2-Pentanone	50.0		ug/L	50.00		100	70-130	1	25	
Acetone	44.0		ug/L	50.00		88	70-130	14	25	
Benzene	10.6		ug/L	10.00		106	70-130	3	25	
Bromobenzene	10.8		ug/L	10.00		108	70-130	8	25	
Bromochloromethane	10.8		ug/L	10.00		108	70-130	6	25	
Bromodichloromethane	10.7		ug/L	10.00		107	70-130	4	25	
Bromoform	9.50		ug/L	10.00		95	70-130	6	25	
Bromomethane	7.67		ug/L	10.00		77	70-130	11	25	
Carbon Disulfide	10.2		ug/L	10.00		102	70-130	2	25	
Carbon Tetrachloride	10.2		ug/L	10.00		102	70-130	0.3	25	
Chlorobenzene	10.3		ug/L	10.00		103	70-130	7	25	
Chloroethane	8.67		ug/L	10.00		87	70-130	12	25	
Chloroform	10.4		ug/L	10.00		104	70-130	1	25	
Chloromethane	8.45		ug/L	10.00		84	70-130	0.7	25	
cis-1,2-Dichloroethene	11.0		ug/L	10.00		110	70-130	7	25	
cis-1,3-Dichloropropene	11.2		ug/L	10.00		112	70-130	4	25	
Dibromochloromethane	8.95		ug/L	10.00		90	70-130	1	25	
Dibromomethane	10.3		ug/L	10.00		103	70-130	0.8	25	
Dichlorodifluoromethane	6.87		ug/L	10.00		69	70-130	6	25	B-
Diethyl Ether	9.38		ug/L	10.00		94	70-130	9	25	
Di-isopropyl ether	10.1		ug/L	10.00		101	70-130	1	25	
Ethyl tertiary-butyl ether	8.28		ug/L	10.00		83	70-130	5	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH30905 - 5030B**

Ethylbenzene	10.4		ug/L	10.00		104	70-130	4	25	
Hexachlorobutadiene	10.6		ug/L	10.00		106	70-130	8	25	
Hexachloroethane	10.8		ug/L	10.00		108	70-130	2	25	
Isopropylbenzene	11.1		ug/L	10.00		111	70-130	0.2	25	
Methyl tert-Butyl Ether	9.26		ug/L	10.00		93	70-130	5	25	
Methylene Chloride	9.76		ug/L	10.00		98	70-130	4	25	
Naphthalene	10.5		ug/L	10.00		105	70-130	8	25	
n-Butylbenzene	11.0		ug/L	10.00		110	70-130	9	25	
n-Propylbenzene	10.6		ug/L	10.00		106	70-130	2	25	
sec-Butylbenzene	11.5		ug/L	10.00		115	70-130	2	25	
Styrene	10.2		ug/L	10.00		102	70-130	3	25	
tert-Butylbenzene	10.7		ug/L	10.00		107	70-130	7	25	
Tertiary-amyl methyl ether	7.52		ug/L	10.00		75	70-130	0.1	25	
Tetrachloroethene	8.00		ug/L	10.00		80	70-130	10	25	
Tetrahydrofuran	9.97		ug/L	10.00		100	70-130	12	25	
Toluene	10.5		ug/L	10.00		105	70-130	2	25	
trans-1,2-Dichloroethene	10.2		ug/L	10.00		102	70-130	0.8	25	
trans-1,3-Dichloropropene	9.12		ug/L	10.00		91	70-130	1	25	
Trichloroethene	10.1		ug/L	10.00		101	70-130	3	25	
Trichlorofluoromethane	8.97		ug/L	10.00		90	70-130	6	25	
Vinyl Acetate	12.0		ug/L	10.00		120	70-130	2	25	
Vinyl Chloride	10.2		ug/L	10.00		102	70-130	3	25	
Xylene O	10.1		ug/L	10.00		101	70-130	8	25	
Xylene P,M	21.8		ug/L	20.00		109	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	23.8		ug/L	25.00		95	70-130			
Surrogate: 4-Bromofluorobenzene	23.8		ug/L	25.00		95	70-130			
Surrogate: Dibromofluoromethane	26.0		ug/L	25.00		104	70-130			
Surrogate: Toluene-d8	25.1		ug/L	25.00		100	70-130			

**Batch CH31237 - 5030B**

<b>Blank</b>										
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31237 - 5030B**

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							
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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31237 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0289		mg/L	0.02500		116	70-130			
Surrogate: 4-Bromofluorobenzene	0.0286		mg/L	0.02500		114	70-130			
Surrogate: Dibromofluoromethane	0.0334		mg/L	0.02500		134	70-130			S+
Surrogate: Toluene-d8	0.0229		mg/L	0.02500		92	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130			
1,1,1-Trichloroethane	10.6		ug/L	10.00		106	70-130			
1,1,2,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130			
1,1,2-Trichloroethane	10.0		ug/L	10.00		100	70-130			
1,1-Dichloroethane	10.3		ug/L	10.00		103	70-130			
1,1-Dichloroethene	11.0		ug/L	10.00		110	70-130			
1,1-Dichloropropene	11.4		ug/L	10.00		114	70-130			
1,2,3-Trichlorobenzene	11.5		ug/L	10.00		115	70-130			
1,2,3-Trichloropropane	9.47		ug/L	10.00		95	70-130			
1,2,4-Trichlorobenzene	12.3		ug/L	10.00		123	70-130			
1,2,4-Trimethylbenzene	11.1		ug/L	10.00		111	70-130			
1,2-Dibromo-3-Chloropropane	9.82		ug/L	10.00		98	70-130			
1,2-Dibromoethane	10.5		ug/L	10.00		105	70-130			
1,2-Dichlorobenzene	11.0		ug/L	10.00		110	70-130			
1,2-Dichloroethane	10.1		ug/L	10.00		101	70-130			
1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,3,5-Trimethylbenzene	12.0		ug/L	10.00		120	70-130			
1,3-Dichlorobenzene	11.4		ug/L	10.00		114	70-130			
1,3-Dichloropropane	10.7		ug/L	10.00		107	70-130			
1,4-Dichlorobenzene	10.9		ug/L	10.00		109	70-130			
1,4-Dioxane - Screen	376		ug/L	200.0		188	0-332			
1-Chlorohexane	9.93		ug/L	10.00		99	70-130			
2,2-Dichloropropane	11.9		ug/L	10.00		119	70-130			
2-Butanone	52.7		ug/L	50.00		105	70-130			
2-Chlorotoluene	12.0		ug/L	10.00		120	70-130			
2-Hexanone	51.5		ug/L	50.00		103	70-130			





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31237 - 5030B**

4-Chlorotoluene	11.1		ug/L	10.00		111	70-130			
4-Isopropyltoluene	11.5		ug/L	10.00		115	70-130			
4-Methyl-2-Pentanone	53.5		ug/L	50.00		107	70-130			
Acetone	49.2		ug/L	50.00		98	70-130			
Benzene	11.2		ug/L	10.00		112	70-130			
Bromobenzene	11.4		ug/L	10.00		114	70-130			
Bromochloromethane	10.5		ug/L	10.00		105	70-130			
Bromodichloromethane	10.7		ug/L	10.00		107	70-130			
Bromoform	10.6		ug/L	10.00		106	70-130			
Bromomethane	10.6		ug/L	10.00		106	70-130			
Carbon Disulfide	11.1		ug/L	10.00		111	70-130			
Carbon Tetrachloride	11.1		ug/L	10.00		111	70-130			
Chlorobenzene	11.0		ug/L	10.00		110	70-130			
Chloroethane	9.45		ug/L	10.00		94	70-130			
Chloroform	10.5		ug/L	10.00		105	70-130			
Chloromethane	8.75		ug/L	10.00		88	70-130			
cis-1,2-Dichloroethene	10.8		ug/L	10.00		108	70-130			
cis-1,3-Dichloropropene	11.4		ug/L	10.00		114	70-130			
Dibromochloromethane	9.70		ug/L	10.00		97	70-130			
Dibromomethane	10.4		ug/L	10.00		104	70-130			
Dichlorodifluoromethane	7.37		ug/L	10.00		74	70-130			
Diethyl Ether	10.6		ug/L	10.00		106	70-130			
Di-isopropyl ether	10.6		ug/L	10.00		106	70-130			
Ethyl tertiary-butyl ether	9.79		ug/L	10.00		98	70-130			
Ethylbenzene	10.6		ug/L	10.00		106	70-130			
Hexachlorobutadiene	11.1		ug/L	10.00		111	70-130			
Hexachloroethane	12.0		ug/L	10.00		120	70-130			
Isopropylbenzene	11.5		ug/L	10.00		115	70-130			
Methyl tert-Butyl Ether	10.6		ug/L	10.00		106	70-130			
Methylene Chloride	10.4		ug/L	10.00		104	70-130			
Naphthalene	10.6		ug/L	10.00		106	70-130			
n-Butylbenzene	11.6		ug/L	10.00		116	70-130			
n-Propylbenzene	11.0		ug/L	10.00		110	70-130			
sec-Butylbenzene	12.0		ug/L	10.00		120	70-130			
Styrene	10.7		ug/L	10.00		107	70-130			
tert-Butylbenzene	11.2		ug/L	10.00		112	70-130			
Tertiary-amyl methyl ether	9.57		ug/L	10.00		96	70-130			
Tetrachloroethene	7.69		ug/L	10.00		77	70-130			
Tetrahydrofuran	9.97		ug/L	10.00		100	70-130			
Toluene	11.0		ug/L	10.00		110	70-130			
trans-1,2-Dichloroethene	10.2		ug/L	10.00		102	70-130			
trans-1,3-Dichloropropene	9.55		ug/L	10.00		96	70-130			
Trichloroethene	10.5		ug/L	10.00		105	70-130			
Trichlorofluoromethane	9.55		ug/L	10.00		96	70-130			
Vinyl Acetate	11.8		ug/L	10.00		118	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.  
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ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31237 - 5030B**

Vinyl Chloride	11.2		ug/L	10.00		112	70-130			
Xylene O	10.9		ug/L	10.00		109	70-130			
Xylene P,M	22.3		ug/L	20.00		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0240		mg/L	0.02500		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0246		mg/L	0.02500		99	70-130			
Surrogate: Dibromofluoromethane	0.0251		mg/L	0.02500		101	70-130			
Surrogate: Toluene-d8	0.0261		mg/L	0.02500		104	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130	0.1	25	
1,1,1-Trichloroethane	10.3		ug/L	10.00		103	70-130	3	25	
1,1,2,2-Tetrachloroethane	10.5		ug/L	10.00		105	70-130	1	25	
1,1,2-Trichloroethane	9.83		ug/L	10.00		98	70-130	2	25	
1,1-Dichloroethane	10.1		ug/L	10.00		101	70-130	3	25	
1,1-Dichloroethene	10.4		ug/L	10.00		104	70-130	6	25	
1,1-Dichloropropene	11.8		ug/L	10.00		118	70-130	4	25	
1,2,3-Trichlorobenzene	11.0		ug/L	10.00		110	70-130	4	25	
1,2,3-Trichloropropane	9.67		ug/L	10.00		97	70-130	2	25	
1,2,4-Trichlorobenzene	11.0		ug/L	10.00		110	70-130	11	25	
1,2,4-Trimethylbenzene	11.5		ug/L	10.00		115	70-130	3	25	
1,2-Dibromo-3-Chloropropane	9.45		ug/L	10.00		94	70-130	4	25	
1,2-Dibromoethane	10.3		ug/L	10.00		103	70-130	2	25	
1,2-Dichlorobenzene	11.0		ug/L	10.00		110	70-130	0.2	25	
1,2-Dichloroethane	9.98		ug/L	10.00		100	70-130	1	25	
1,2-Dichloropropane	9.75		ug/L	10.00		98	70-130	4	25	
1,3,5-Trimethylbenzene	11.8		ug/L	10.00		118	70-130	2	25	
1,3-Dichlorobenzene	11.2		ug/L	10.00		112	70-130	2	25	
1,3-Dichloropropane	11.0		ug/L	10.00		110	70-130	3	25	
1,4-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	4	25	
1,4-Dioxane - Screen	289		ug/L	200.0		144	0-332	26	200	
1-Chlorohexane	10.3		ug/L	10.00		103	70-130	4	25	
2,2-Dichloropropane	11.2		ug/L	10.00		112	70-130	6	25	
2-Butanone	52.7		ug/L	50.00		105	70-130	0.04	25	
2-Chlorotoluene	12.1		ug/L	10.00		121	70-130	0.9	25	
2-Hexanone	50.3		ug/L	50.00		101	70-130	2	25	
4-Chlorotoluene	11.0		ug/L	10.00		110	70-130	1	25	
4-Isopropyltoluene	11.1		ug/L	10.00		111	70-130	4	25	
4-Methyl-2-Pentanone	49.6		ug/L	50.00		99	70-130	8	25	
Acetone	48.1		ug/L	50.00		96	70-130	2	25	
Benzene	11.3		ug/L	10.00		113	70-130	0.09	25	
Bromobenzene	11.1		ug/L	10.00		111	70-130	3	25	
Bromochloromethane	10.9		ug/L	10.00		109	70-130	4	25	
Bromodichloromethane	10.6		ug/L	10.00		106	70-130	1	25	
Bromoform	10.2		ug/L	10.00		102	70-130	4	25	
Bromomethane	10.3		ug/L	10.00		103	70-130	2	25	
Carbon Disulfide	11.0		ug/L	10.00		110	70-130	1	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31237 - 5030B**

Carbon Tetrachloride	10.6		ug/L	10.00		106	70-130	4	25	
Chlorobenzene	10.6		ug/L	10.00		106	70-130	4	25	
Chloroethane	9.31		ug/L	10.00		93	70-130	1	25	
Chloroform	10.5		ug/L	10.00		105	70-130	0	25	
Chloromethane	9.46		ug/L	10.00		95	70-130	8	25	
cis-1,2-Dichloroethene	10.4		ug/L	10.00		104	70-130	3	25	
cis-1,3-Dichloropropene	11.4		ug/L	10.00		114	70-130	0.4	25	
Dibromochloromethane	9.23		ug/L	10.00		92	70-130	5	25	
Dibromomethane	10.3		ug/L	10.00		103	70-130	1	25	
Dichlorodifluoromethane	7.15		ug/L	10.00		72	70-130	3	25	
Diethyl Ether	10.0		ug/L	10.00		100	70-130	5	25	
Di-isopropyl ether	9.88		ug/L	10.00		99	70-130	7	25	
Ethyl tertiary-butyl ether	10.0		ug/L	10.00		100	70-130	2	25	
Ethylbenzene	10.6		ug/L	10.00		106	70-130	0.5	25	
Hexachlorobutadiene	11.9		ug/L	10.00		119	70-130	7	25	
Hexachloroethane	12.1		ug/L	10.00		121	70-130	0.2	25	
Isopropylbenzene	11.4		ug/L	10.00		114	70-130	2	25	
Methyl tert-Butyl Ether	10.2		ug/L	10.00		102	70-130	4	25	
Methylene Chloride	10.6		ug/L	10.00		106	70-130	3	25	
Naphthalene	9.89		ug/L	10.00		99	70-130	7	25	
n-Butylbenzene	11.6		ug/L	10.00		116	70-130	0.5	25	
n-Propylbenzene	11.1		ug/L	10.00		111	70-130	1	25	
sec-Butylbenzene	11.6		ug/L	10.00		116	70-130	3	25	
Styrene	10.4		ug/L	10.00		104	70-130	2	25	
tert-Butylbenzene	11.4		ug/L	10.00		114	70-130	2	25	
Tertiary-amyl methyl ether	9.55		ug/L	10.00		96	70-130	0.2	25	
Tetrachloroethene	7.61		ug/L	10.00		76	70-130	1	25	
Tetrahydrofuran	10.4		ug/L	10.00		104	70-130	4	25	
Toluene	10.8		ug/L	10.00		108	70-130	2	25	
trans-1,2-Dichloroethene	10.4		ug/L	10.00		104	70-130	2	25	
trans-1,3-Dichloropropene	8.81		ug/L	10.00		88	70-130	8	25	
Trichloroethene	10.4		ug/L	10.00		104	70-130	1	25	
Trichlorofluoromethane	10.2		ug/L	10.00		102	70-130	6	25	
Vinyl Acetate	11.6		ug/L	10.00		116	70-130	2	25	
Vinyl Chloride	10.8		ug/L	10.00		108	70-130	3	25	
Xylene O	11.1		ug/L	10.00		111	70-130	1	25	
Xylene P,M	21.8		ug/L	20.00		109	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	0.0235		mg/L	0.02500		94	70-130			
Surrogate: 4-Bromofluorobenzene	0.0238		mg/L	0.02500		95	70-130			
Surrogate: Dibromofluoromethane	0.0252		mg/L	0.02500		101	70-130			
Surrogate: Toluene-d8	0.0261		mg/L	0.02500		104	70-130			

**Batch CH31329 - 5030B**

<b>Blank</b>										
1,1,1,2-Tetrachloroethane	ND	0.0010	mg/L							
1,1,1-Trichloroethane	ND	0.0010	mg/L							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31329 - 5030B**

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							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31329 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	29.3		ug/L	25.00		117	70-130			
Surrogate: 4-Bromofluorobenzene	28.7		ug/L	25.00		115	70-130			
Surrogate: Dibromofluoromethane	33.4		ug/L	25.00		133	70-130			
Surrogate: Toluene-d8	22.1		ug/L	25.00		88	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	9.52		ug/L	10.00		95	70-130			
1,1,1-Trichloroethane	10.6		ug/L	10.00		106	70-130			
1,1,2,2-Tetrachloroethane	10.6		ug/L	10.00		106	70-130			
1,1,2-Trichloroethane	9.74		ug/L	10.00		97	70-130			
1,1-Dichloroethane	10.8		ug/L	10.00		108	70-130			
1,1-Dichloroethene	10.5		ug/L	10.00		105	70-130			
1,1-Dichloropropene	11.2		ug/L	10.00		112	70-130			
1,2,3-Trichlorobenzene	11.9		ug/L	10.00		119	70-130			
1,2,3-Trichloropropane	9.17		ug/L	10.00		92	70-130			
1,2,4-Trichlorobenzene	12.2		ug/L	10.00		122	70-130			
1,2,4-Trimethylbenzene	11.2		ug/L	10.00		112	70-130			
1,2-Dibromo-3-Chloropropane	9.95		ug/L	10.00		100	70-130			
1,2-Dibromoethane	9.35		ug/L	10.00		94	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31329 - 5030B**

1,2-Dichlorobenzene	11.1		ug/L	10.00		111	70-130			
1,2-Dichloroethane	10.5		ug/L	10.00		105	70-130			
1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,3,5-Trimethylbenzene	12.3		ug/L	10.00		123	70-130			
1,3-Dichlorobenzene	11.2		ug/L	10.00		112	70-130			
1,3-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,4-Dichlorobenzene	10.7		ug/L	10.00		107	70-130			
1,4-Dioxane - Screen	399		ug/L	200.0		199	0-332			
1-Chlorohexane	9.44		ug/L	10.00		94	70-130			
2,2-Dichloropropane	11.5		ug/L	10.00		115	70-130			
2-Butanone	53.2		ug/L	50.00		106	70-130			
2-Chlorotoluene	11.6		ug/L	10.00		116	70-130			
2-Hexanone	51.5		ug/L	50.00		103	70-130			
4-Chlorotoluene	10.6		ug/L	10.00		106	70-130			
4-Isopropyltoluene	12.0		ug/L	10.00		120	70-130			
4-Methyl-2-Pentanone	53.1		ug/L	50.00		106	70-130			
Acetone	51.3		ug/L	50.00		103	70-130			
Benzene	11.6		ug/L	10.00		116	70-130			
Bromobenzene	11.5		ug/L	10.00		115	70-130			
Bromochloromethane	10.4		ug/L	10.00		104	70-130			
Bromodichloromethane	10.5		ug/L	10.00		105	70-130			
Bromoform	9.61		ug/L	10.00		96	70-130			
Bromomethane	8.11		ug/L	10.00		81	70-130			
Carbon Disulfide	10.4		ug/L	10.00		104	70-130			
Carbon Tetrachloride	11.0		ug/L	10.00		110	70-130			
Chlorobenzene	10.3		ug/L	10.00		103	70-130			
Chloroethane	9.98		ug/L	10.00		100	70-130			
Chloroform	10.5		ug/L	10.00		105	70-130			
Chloromethane	8.27		ug/L	10.00		83	70-130			
cis-1,2-Dichloroethene	10.9		ug/L	10.00		109	70-130			
cis-1,3-Dichloropropene	10.8		ug/L	10.00		108	70-130			
Dibromochloromethane	8.99		ug/L	10.00		90	70-130			
Dibromomethane	10.3		ug/L	10.00		103	70-130			
Dichlorodifluoromethane	6.87		ug/L	10.00		69	70-130			
Diethyl Ether	10.0		ug/L	10.00		100	70-130			
Di-isopropyl ether	10.4		ug/L	10.00		104	70-130			
Ethyl tertiary-butyl ether	9.80		ug/L	10.00		98	70-130			
Ethylbenzene	10.2		ug/L	10.00		102	70-130			
Hexachlorobutadiene	11.2		ug/L	10.00		112	70-130			
Hexachloroethane	11.6		ug/L	10.00		116	70-130			
Isopropylbenzene	11.3		ug/L	10.00		113	70-130			
Methyl tert-Butyl Ether	10.2		ug/L	10.00		102	70-130			
Methylene Chloride	10.4		ug/L	10.00		104	70-130			
Naphthalene	10.2		ug/L	10.00		102	70-130			
n-Butylbenzene	11.6		ug/L	10.00		116	70-130			

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CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31329 - 5030B**

n-Propylbenzene	10.9		ug/L	10.00		109	70-130			
sec-Butylbenzene	11.8		ug/L	10.00		118	70-130			
Styrene	9.56		ug/L	10.00		96	70-130			
tert-Butylbenzene	10.9		ug/L	10.00		109	70-130			
Tertiary-amyl methyl ether	9.49		ug/L	10.00		95	70-130			
Tetrachloroethene	7.21		ug/L	10.00		72	70-130			
Tetrahydrofuran	10.8		ug/L	10.00		108	70-130			
Toluene	10.6		ug/L	10.00		106	70-130			
trans-1,2-Dichloroethene	9.91		ug/L	10.00		99	70-130			
trans-1,3-Dichloropropene	8.88		ug/L	10.00		89	70-130			
Trichloroethene	10.9		ug/L	10.00		109	70-130			
Trichlorofluoromethane	9.73		ug/L	10.00		97	70-130			
Vinyl Acetate	12.4		ug/L	10.00		124	70-130			
Vinyl Chloride	10.5		ug/L	10.00		105	70-130			
Xylene O	10.2		ug/L	10.00		102	70-130			
Xylene P,M	21.5		ug/L	20.00		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	24.4		ug/L	25.00		98	70-130			
Surrogate: 4-Bromofluorobenzene	23.4		ug/L	25.00		93	70-130			
Surrogate: Dibromofluoromethane	26.4		ug/L	25.00		105	70-130			
Surrogate: Toluene-d8	24.7		ug/L	25.00		99	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	10.0		ug/L	10.00		100	70-130	5	25	
1,1,1-Trichloroethane	10.5		ug/L	10.00		105	70-130	0.6	25	
1,1,2,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130	2	25	
1,1,2-Trichloroethane	10.1		ug/L	10.00		101	70-130	4	25	
1,1-Dichloroethane	10.2		ug/L	10.00		102	70-130	5	25	
1,1-Dichloroethene	10.6		ug/L	10.00		106	70-130	0.7	25	
1,1-Dichloropropene	10.7		ug/L	10.00		107	70-130	5	25	
1,2,3-Trichlorobenzene	10.5		ug/L	10.00		105	70-130	13	25	
1,2,3-Trichloropropane	9.24		ug/L	10.00		92	70-130	0.8	25	
1,2,4-Trichlorobenzene	11.5		ug/L	10.00		115	70-130	6	25	
1,2,4-Trimethylbenzene	10.6		ug/L	10.00		106	70-130	6	25	
1,2-Dibromo-3-Chloropropane	9.57		ug/L	10.00		96	70-130	4	25	
1,2-Dibromoethane	10.0		ug/L	10.00		100	70-130	7	25	
1,2-Dichlorobenzene	11.2		ug/L	10.00		112	70-130	1	25	
1,2-Dichloroethane	10.1		ug/L	10.00		101	70-130	3	25	
1,2-Dichloropropane	10.8		ug/L	10.00		108	70-130	5	25	
1,3,5-Trimethylbenzene	11.6		ug/L	10.00		116	70-130	6	25	
1,3-Dichlorobenzene	11.0		ug/L	10.00		110	70-130	1	25	
1,3-Dichloropropane	10.6		ug/L	10.00		106	70-130	3	25	
1,4-Dichlorobenzene	10.3		ug/L	10.00		103	70-130	4	25	
1,4-Dioxane - Screen	388		ug/L	200.0		194	0-332	3	200	
1-Chlorohexane	9.91		ug/L	10.00		99	70-130	5	25	
2,2-Dichloropropane	11.1		ug/L	10.00		111	70-130	3	25	
2-Butanone	51.2		ug/L	50.00		102	70-130	4	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31329 - 5030B**

2-Chlorotoluene	11.6		ug/L	10.00		116	70-130	0.2	25	
2-Hexanone	51.0		ug/L	50.00		102	70-130	1	25	
4-Chlorotoluene	10.6		ug/L	10.00		106	70-130	0.3	25	
4-Isopropyltoluene	10.2		ug/L	10.00		102	70-130	16	25	
4-Methyl-2-Pentanone	52.5		ug/L	50.00		105	70-130	1	25	
Acetone	46.0		ug/L	50.00		92	70-130	11	25	
Benzene	10.9		ug/L	10.00		109	70-130	6	25	
Bromobenzene	11.1		ug/L	10.00		111	70-130	4	25	
Bromochloromethane	10.4		ug/L	10.00		104	70-130	0.6	25	
Bromodichloromethane	10.3		ug/L	10.00		103	70-130	2	25	
Bromoform	9.76		ug/L	10.00		98	70-130	2	25	
Bromomethane	7.95		ug/L	10.00		80	70-130	2	25	
Carbon Disulfide	10.3		ug/L	10.00		103	70-130	0.6	25	
Carbon Tetrachloride	10.5		ug/L	10.00		105	70-130	5	25	
Chlorobenzene	10.5		ug/L	10.00		105	70-130	2	25	
Chloroethane	9.94		ug/L	10.00		99	70-130	0.4	25	
Chloroform	10.0		ug/L	10.00		100	70-130	4	25	
Chloromethane	8.30		ug/L	10.00		83	70-130	0.4	25	
cis-1,2-Dichloroethene	10.6		ug/L	10.00		106	70-130	3	25	
cis-1,3-Dichloropropene	11.0		ug/L	10.00		110	70-130	2	25	
Dibromochloromethane	8.96		ug/L	10.00		90	70-130	0.3	25	
Dibromomethane	10.7		ug/L	10.00		107	70-130	3	25	
Dichlorodifluoromethane	7.25		ug/L	10.00		72	70-130	5	25	
Diethyl Ether	10.2		ug/L	10.00		102	70-130	2	25	
Di-isopropyl ether	10.3		ug/L	10.00		103	70-130	1	25	
Ethyl tertiary-butyl ether	9.61		ug/L	10.00		96	70-130	2	25	
Ethylbenzene	10.2		ug/L	10.00		102	70-130	1	25	
Hexachlorobutadiene	10.6		ug/L	10.00		106	70-130	6	25	
Hexachloroethane	10.6		ug/L	10.00		106	70-130	9	25	
Isopropylbenzene	11.2		ug/L	10.00		112	70-130	2	25	
Methyl tert-Butyl Ether	10.2		ug/L	10.00		102	70-130	0.4	25	
Methylene Chloride	10.1		ug/L	10.00		101	70-130	2	25	
Naphthalene	9.66		ug/L	10.00		97	70-130	6	25	
n-Butylbenzene	10.7		ug/L	10.00		107	70-130	8	25	
n-Propylbenzene	10.6		ug/L	10.00		106	70-130	3	25	
sec-Butylbenzene	11.6		ug/L	10.00		116	70-130	2	25	
Styrene	9.93		ug/L	10.00		99	70-130	4	25	
tert-Butylbenzene	10.4		ug/L	10.00		104	70-130	5	25	
Tertiary-amyl methyl ether	9.15		ug/L	10.00		92	70-130	4	25	
Tetrachloroethene	7.64		ug/L	10.00		76	70-130	6	25	
Tetrahydrofuran	10.8		ug/L	10.00		108	70-130	0.5	25	
Toluene	10.3		ug/L	10.00		103	70-130	3	25	
trans-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130	2	25	
trans-1,3-Dichloropropene	8.84		ug/L	10.00		88	70-130	0.5	25	
Trichloroethene	11.2		ug/L	10.00		112	70-130	3	25	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

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

**Batch CH31329 - 5030B**

Trichlorofluoromethane	9.64		ug/L	10.00		96	70-130	0.9	25	
Vinyl Acetate	11.4		ug/L	10.00		114	70-130	8	25	
Vinyl Chloride	11.0		ug/L	10.00		110	70-130	5	25	
Xylene O	10.9		ug/L	10.00		109	70-130	7	25	
Xylene P,M	21.9		ug/L	20.00		109	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	24.3		ug/L	25.00		97	70-130			
Surrogate: 4-Bromofluorobenzene	24.9		ug/L	25.00		99	70-130			
Surrogate: Dibromofluoromethane	25.3		ug/L	25.00		101	70-130			
Surrogate: Toluene-d8	26.2		ug/L	25.00		105	70-130			

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

**Batch CH30609 - 3510C**

<b>Blank</b>										
2-Methylnaphthalene	ND	0.0002	mg/L							
Acenaphthene	ND	0.0002	mg/L							
Acenaphthylene	ND	0.0002	mg/L							
Anthracene	ND	0.0002	mg/L							
Benzo(a)anthracene	ND	0.00005	mg/L							
Benzo(a)pyrene	ND	0.00005	mg/L							
Benzo(b)fluoranthene	ND	0.00005	mg/L							
Benzo(g,h,i)perylene	ND	0.0002	mg/L							
Benzo(k)fluoranthene	ND	0.00005	mg/L							
Chrysene	ND	0.00005	mg/L							
Dibenzo(a,h)Anthracene	ND	0.00005	mg/L							
Fluoranthene	ND	0.0002	mg/L							
Fluorene	ND	0.0002	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.00005	mg/L							
Naphthalene	ND	0.0002	mg/L							
Phenanthrene	ND	0.0002	mg/L							
Pyrene	ND	0.0002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.00141		mg/L	0.002500		56	30-130			
Surrogate: 2-Fluorobiphenyl	0.00190		mg/L	0.002500		76	30-130			
Surrogate: Nitrobenzene-d5	0.00192		mg/L	0.002500		77	30-130			
Surrogate: p-Terphenyl-d14	0.00190		mg/L	0.002500		76	30-130			

<b>LCS</b>										
2-Methylnaphthalene	0.0024	0.0002	mg/L	0.004000		60	40-140			
Acenaphthene	0.0026	0.0002	mg/L	0.004000		65	40-140			
Acenaphthylene	0.0024	0.0002	mg/L	0.004000		59	40-140			
Anthracene	0.0027	0.0002	mg/L	0.004000		68	40-140			
Benzo(a)anthracene	0.0030	0.00005	mg/L	0.004000		74	40-140			
Benzo(a)pyrene	0.0027	0.00005	mg/L	0.004000		67	40-140			
Benzo(b)fluoranthene	0.0028	0.00005	mg/L	0.004000		69	40-140			
Benzo(g,h,i)perylene	0.0028	0.0002	mg/L	0.004000		71	40-140			
Benzo(k)fluoranthene	0.0028	0.00005	mg/L	0.004000		69	40-140			
Chrysene	0.0029	0.00005	mg/L	0.004000		73	40-140			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

**Batch CH30609 - 3510C**

Dibenzo(a,h)Anthracene	0.0030	0.00005	mg/L	0.004000		76	40-140			
Fluoranthene	0.0029	0.0002	mg/L	0.004000		71	40-140			
Fluorene	0.0028	0.0002	mg/L	0.004000		70	40-140			
Indeno(1,2,3-cd)Pyrene	0.0030	0.00005	mg/L	0.004000		75	40-140			
Naphthalene	0.0024	0.0002	mg/L	0.004000		59	40-140			
Phenanthrene	0.0027	0.0002	mg/L	0.004000		67	40-140			
Pyrene	0.0030	0.0002	mg/L	0.004000		76	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.00165		mg/L	0.002500		66	30-130			
Surrogate: 2-Fluorobiphenyl	0.00205		mg/L	0.002500		82	30-130			
Surrogate: Nitrobenzene-d5	0.00207		mg/L	0.002500		83	30-130			
Surrogate: p-Terphenyl-d14	0.00249		mg/L	0.002500		100	30-130			

**LCS Dup**

2-Methylnaphthalene	0.0025	0.0002	mg/L	0.004000		62	40-140	3	20	
Acenaphthene	0.0027	0.0002	mg/L	0.004000		67	40-140	3	20	
Acenaphthylene	0.0025	0.0002	mg/L	0.004000		62	40-140	4	20	
Anthracene	0.0028	0.0002	mg/L	0.004000		71	40-140	4	20	
Benzo(a)anthracene	0.0029	0.00005	mg/L	0.004000		73	40-140	1	20	
Benzo(a)pyrene	0.0027	0.00005	mg/L	0.004000		68	40-140	0.8	20	
Benzo(b)fluoranthene	0.0027	0.00005	mg/L	0.004000		68	40-140	2	20	
Benzo(g,h,i)perylene	0.0029	0.0002	mg/L	0.004000		73	40-140	3	20	
Benzo(k)fluoranthene	0.0028	0.00005	mg/L	0.004000		70	40-140	0.5	20	
Chrysene	0.0029	0.00005	mg/L	0.004000		72	40-140	1	20	
Dibenzo(a,h)Anthracene	0.0032	0.00005	mg/L	0.004000		80	40-140	5	20	
Fluoranthene	0.0029	0.0002	mg/L	0.004000		73	40-140	2	20	
Fluorene	0.0029	0.0002	mg/L	0.004000		73	40-140	5	20	
Indeno(1,2,3-cd)Pyrene	0.0030	0.00005	mg/L	0.004000		76	40-140	2	20	
Naphthalene	0.0024	0.0002	mg/L	0.004000		61	40-140	4	20	
Phenanthrene	0.0028	0.0002	mg/L	0.004000		70	40-140	4	20	
Pyrene	0.0031	0.0002	mg/L	0.004000		76	40-140	1	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.00170		mg/L	0.002500		68	30-130			
Surrogate: 2-Fluorobiphenyl	0.00210		mg/L	0.002500		84	30-130			
Surrogate: Nitrobenzene-d5	0.00214		mg/L	0.002500		85	30-130			
Surrogate: p-Terphenyl-d14	0.00246		mg/L	0.002500		98	30-130			

**Classical Chemistry**

**Batch CH30908 - TCN Prep**

<b>Blank</b>										
Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							

<b>LCS</b>										
Dissolved Cyanide	0.0216	0.0050	mg/L	0.02006		108	90-110			
Total Cyanide (LL)	0.0216	0.0050	mg/L	0.02006		108	90-110			

<b>LCS</b>										
Dissolved Cyanide	0.147	0.0050	mg/L	0.1504		98	90-110			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>Classical Chemistry</b>										
<b>Batch CH30908 - TCN Prep</b>										
Total Cyanide (LL)	0.147	0.0050	mg/L	0.1504		98	90-110			
<b>LCS Dup</b>										
Dissolved Cyanide	0.149	0.0050	mg/L	0.1504		99	90-110	1	20	
Total Cyanide (LL)	0.149	0.0050	mg/L	0.1504		99	90-110	1	20	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**Notes and Definitions**

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



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308084

**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/labs/waterlabs-instate.php>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002  
[http://www.maine.gov/dep/blwq/topic/vessel/lab\\_list.pdf](http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf)

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://www4.egov.nh.gov/des/nhelap/namesearch.asp>

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/DEP\\_OPRA/](http://datamine2.state.nj.us/dep/DEP_OPRA/)

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301  
[http://www.mde.state.md.us/assets/document/WSP\\_labs-2009apr20.pdf](http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf)

**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: 13080084  
Date Project Due: 8/13/13  
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: 5.9
- 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?  N/A
- 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: \_\_\_\_\_

No COT 8/16/13

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

1 Vial of Sample 2 (came in same bag) has no label COT 8/16/13

Who was called?: \_\_\_\_\_ By whom? \_\_\_\_\_

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative	plt	time
1	Yes	1 L Glass	2	HCL		
1	Yes	1 L Glass	2	NP		
1	Yes	250 ml Plastic	2	NaOH		
1	Yes	40 ml - VOA	3	HCL		
2	Yes	1 L Glass	2	HCL		
2	Yes	1 L Glass	2	NP		
2	Yes	250 ml Plastic	2	NaOH		
2	Yes	40 ml - VOA	3	HCL		
3	Yes	1 L Glass	2	HCL		
3	Yes	1 L Glass	2	NP		
3	Yes	250 ml Plastic	2	NaOH		
3	Yes	40 ml - VOA	3	HCL		
4	Yes	1 L Glass	2	HCL		
4	Yes	1 L Glass	2	NP		
4	Yes	250 ml Plastic	2	NaOH		
4	Yes	40 ml - VOA	3	HCL		
5	Yes	1 L Glass	2	HCL		
5	Yes	1 L Glass	2	NP		
5	Yes	250 ml Plastic	2	NaOH		
5	Yes	40 ml - VOA	3	HCL		
6	Yes	1 L Glass	2	HCL		
6	Yes	1 L Glass	2	NP		
6	Yes	250 ml Plastic	2	NaOH		
6	Yes	40 ml - VOA	3	HCL		
7	Yes	1 L Glass	2	HCL		

} > 12 175

### Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.

ESS Project ID: 13080084

7	Yes	1 L Glass	2
7	Yes	250 ml Plastic	2
7	Yes	40 ml - VOA	3
8	Yes	1 L Glass	2
8	Yes	1 L Glass	2
8	Yes	250 ml Plastic	2
8	Yes	40 ml - VOA	3
9	Yes	1 L Glass	2
9	Yes	1 L Glass	2
9	Yes	250 ml Plastic	2
9	Yes	40 ml - VOA	3
10	Yes	40 ml - VOA	1

NP  
 NaOH  
 HCL  
 HCL  
 NP  
 NaOH  
 HCL  
 HCL  
 NP  
 NaOH  
 HCL  
 HCL

*pl+ time*  
 } 712 1755

Completed By: \_\_\_\_\_

Date/Time: 8/6/13 1757

Reviewed By: \_\_\_\_\_

Date/Time: 8/4/13 18:40







*CERTIFICATE OF ANALYSIS*

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

**RE: Tidewater GH (03.0043654)**  
**ESS Laboratory Work Order Number: 1308127**

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 2:52 pm, Aug 19, 2013**

**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: 1308127

**SAMPLE RECEIPT**

The following samples were received on August 07, 2013 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>SampleName</u>	<u>Matrix</u>	<u>Analysis</u>
1308127-01	MW-326S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-02	MW-326D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-03	MW-339D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-04	MW-339S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-05	MW-333S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-06	MW-333D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-07	MW-201	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-08	MW-6	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-09	MW-337	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-10	MW-316D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-11	MW-334D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-12	MW-318S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-13	MW-334S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-14	MW-107	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-15	MW-318D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-16	BD-2	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308127-17	MW-316S	Ground Water	8260B
1308127-18	TB-8713	Aqueous	8260B



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

- CH31238-BS1 Blank Spike recovery is below lower control limit (B-).  
Dichlorodifluoromethane (67% @ 70-130%)
- CH31238-BSD1 Blank Spike recovery is below lower control limit (B-).  
Dichlorodifluoromethane (65% @ 70-130%)
- CWH0189-CCV1 Continuing Calibration recovery is below lower control limit (C-).  
1,4-Dioxane - Screen (46% @ 70-130%), Naphthalene (69% @ 70-130%)

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

- 1308127-01 Present in Method Blank (B).  
Naphthalene
- 1308127-02 Present in Method Blank (B).  
Naphthalene
- 1308127-03 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-03 Present in Method Blank (B).  
Naphthalene
- 1308127-04 Present in Method Blank (B).  
Naphthalene
- 1308127-05 Present in Method Blank (B).  
Naphthalene
- 1308127-06 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-06 Present in Method Blank (B).  
Naphthalene
- 1308127-07 Present in Method Blank (B).  
Naphthalene
- 1308127-08 Present in Method Blank (B).  
Naphthalene
- 1308127-09 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-09 Present in Method Blank (B).  
Naphthalene
- 1308127-10 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-11 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-11 Present in Method Blank (B).  
Naphthalene
- 1308127-12 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-12 Present in Method Blank (B).  
Naphthalene
- 1308127-13 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-13 Present in Method Blank (B).  
Naphthalene
- 1308127-14 Elevated Method Reporting Limits due to sample matrix (EL).
- 1308127-15 Elevated Method Reporting Limits due to sample matrix (EL).



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Tidewater GH

ESS Laboratory Work Order: 1308127

1308127-16 [Elevated Method Reporting Limits due to sample matrix \(EL\).](#)

1308127-16 [Present in Method Blank \(B\).](#)

Naphthalene

CWH0213-TUN1 [Pentachlorophenol tailing factor > 2.](#)

**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: 1308127

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

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

**Prep Methods**

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3580A - Waste Dilution
- 5030B - 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: MW-326S  
Date Sampled: 08/07/13 11:46  
Percent Solids: N/A  
Initial Volume: 1050  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/9/13 16:25

All methods used are in accordance with 40 CFR 136.

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	11.1 (0.19)		8100M		1	08/10/13 4:16	CWH0130	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>114 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 08/07/13 11:46  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 21:34	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.0478</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>1,3,5-Trimethylbenzene</b>	<b>0.0112</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 21:34	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 21:34	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 21:34	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Benzene</b>	<b>0.444</b> (0.0100)		8260B		10	08/12/13 15:41	CWH0146	CH31204





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 08/07/13 11:46  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Ethylbenzene</b>	<b>0.154</b> (0.0100)		8260B		10	08/12/13 15:41	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Isopropylbenzene</b>	<b>0.0370</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.0516</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>n-Propylbenzene</b>	<b>0.0128</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Styrene</b>	<b>0.0018</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 08/07/13 11:46  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Toluene</b>	<b>0.0025</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 21:34	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Xylene O</b>	<b>0.0509</b> (0.0010)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Xylene P,M</b>	<b>0.0132</b> (0.0020)		8260B		1	08/09/13 21:34	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.0641</b> (0.0020)		8260B		1	08/09/13 21:34		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 21:34		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	82 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	81 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	93 %		70-130
<i>Surrogate: Toluene-d8</i>	94 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-326S  
 Date Sampled: 08/07/13 11:46  
 Percent Solids: N/A  
 Initial Volume: 990  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 8/8/13 17:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.0407 (0.0020)		8270C SIM		10	08/15/13 23:06	CWH0195	CH30842
Acenaphthene	0.0545 (0.0020)		8270C SIM		10	08/15/13 23:06	CWH0195	CH30842
Acenaphthylene	0.0006 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Anthracene	0.0018 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Benzo(a)anthracene	0.0014 (0.00005)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Benzo(a)pyrene	0.0012 (0.00005)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Benzo(b)fluoranthene	0.0009 (0.00005)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Benzo(g,h,i)perylene	0.0006 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Benzo(k)fluoranthene	0.0009 (0.00005)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Chrysene	0.0013 (0.00005)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Dibenzo(a,h)Anthracene	0.0002 (0.00005)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Fluoranthene	0.0027 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Fluorene	0.0058 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Indeno(1,2,3-cd)Pyrene	0.0006 (0.00005)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Naphthalene	<b>B</b> 0.0068 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Phenanthrene	0.0031 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842
Pyrene	0.0037 (0.0002)		8270C SIM		1	08/15/13 5:44	CWH0195	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	30 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	42 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	37 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	69 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326S  
Date Sampled: 08/07/13 11:46  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-01  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.337 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214
Total Cyanide (LL)	0.339 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 08/07/13 11:22  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/9/13 16:25

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.66 (0.19)		8100M		1	08/10/13 4:55	CWH0130	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		89 %		40-140				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-326D  
 Date Sampled: 08/07/13 11:22  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-02  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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	08/09/13 14:46	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.0086</b> (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 14:46	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 14:46	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 14:46	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 14:46	CWH0146	CH31204
<b>Benzene</b>	<b>0.0809</b> (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 08/07/13 11:22  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
<b>Ethylbenzene</b>	<b>0.0401</b> (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
<b>Isopropylbenzene</b>	<b>0.0026</b> (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.123</b> (0.0100)		8260B		10	08/12/13 16:06	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-326D  
 Date Sampled: 08/07/13 11:22  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-02  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
<b>Xylene O</b>	<b>0.0100</b> (0.0010)		8260B		1	08/09/13 14:46	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 14:46	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.0100</b> (0.0020)		8260B		1	08/09/13 14:46		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 14:46		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	105 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	86 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	99 %		70-130
<i>Surrogate: Toluene-d8</i>	101 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 08/07/13 11:22  
Percent Solids: N/A  
Initial Volume: 940  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/8/13 17:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.0009 (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Acenaphthene	0.0016 (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Acenaphthylene	ND (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Anthracene	ND (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Chrysene	ND (0.00005)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Fluoranthene	ND (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Fluorene	ND (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
<b>Naphthalene</b>	<b>B 0.0644</b> (0.0021)		8270C SIM		10	08/15/13 23:55	CWH0194	CH30842
Phenanthrene	ND (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842
Pyrene	ND (0.0002)		8270C SIM		1	08/15/13 2:33	CWH0194	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	49 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	52 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	61 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	82 %		30-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-326D  
Date Sampled: 08/07/13 11:22  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-02  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.766 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214
Total Cyanide (LL)	0.808 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 08/07/13 13:35  
Percent Solids: N/A  
Initial Volume: 1050  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/9/13 16:25

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	9.78 (0.19)		8100M		1	08/10/13 5:34	CWH0130	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>106 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 08/07/13 13:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 21:09	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.437</b> (0.0500)		8260B		50	08/12/13 16:57	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>1,3,5-Trimethylbenzene</b>	<b>0.100</b> (0.0500)		8260B		50	08/12/13 16:57	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 21:09	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 21:09	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 21:09	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>4-Isopropyltoluene</b>	<b>0.0087</b> (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>Benzene</b>	<b>0.0232</b> (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 08/07/13 13:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 21:09	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>Ethylbenzene</b>	<b>0.190</b> (0.0500)		8260B		50	08/12/13 16:57	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>Isopropylbenzene</b>	<b>0.0472</b> (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>Naphthalene</b>	<b>3.91</b> (0.0500)		8260B		50	08/12/13 16:57	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>n-Propylbenzene</b>	<b>0.0340</b> (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>Styrene</b>	<b>0.0342</b> (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 08/07/13 13:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>Toluene</b>	<b>0.0471</b> (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 21:09	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 21:09	CWH0146	CH31204
<b>Xylene O</b>	<b>0.344</b> (0.0500)		8260B		50	08/12/13 16:57	CWH0146	CH31204
<b>Xylene P,M</b>	<b>0.330</b> (0.100)		8260B		50	08/12/13 16:57	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.674</b> (0.100)		8260B		50	08/12/13 16:57		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 21:09		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	80 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	87 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	92 %		70-130
<i>Surrogate: Toluene-d8</i>	96 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 08/07/13 13:35  
Percent Solids: N/A  
Initial Volume: 960  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-03  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/8/13 17:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.303 (0.0417)		8270C SIM		200	08/16/13 13:04	CWH0212	CH30842
Acenaphthene	0.0591 (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Acenaphthylene	0.0789 (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Anthracene	0.0041 (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0005)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0005)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0005)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0005)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Chrysene	ND (0.0005)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0005)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Fluoranthene	ND (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Fluorene	0.0314 (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0005)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Naphthalene	B 1.63 (0.0417)		8270C SIM		200	08/16/13 13:04	CWH0212	CH30842
Phenanthrene	0.0271 (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842
Pyrene	ND (0.0021)		8270C SIM		10	08/16/13 0:44	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	52 %		30-130
Surrogate: 2-Fluorobiphenyl	53 %		30-130
Surrogate: Nitrobenzene-d5	66 %		30-130
Surrogate: p-Terphenyl-d14	70 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339D  
Date Sampled: 08/07/13 13:35  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-03  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0761 (0.0050)		9014		1	JLK	08/12/13 11:23	mg/L	CH31214
Total Cyanide (LL)	0.0777 (0.0050)		9014		1	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 08/07/13 13:10  
Percent Solids: N/A  
Initial Volume: 1060  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/9/13 16:25

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.61 (0.19)		8100M		1	08/10/13 6:12	CWH0130	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		89 %		40-140				





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 08/07/13 13:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 15:12	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.0092</b> (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>1,3,5-Trimethylbenzene</b>	<b>0.0032</b> (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 15:12	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 15:12	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 15:12	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>Benzene</b>	<b>0.0011</b> (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 08/07/13 13:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.286</b> (0.0200)		8260B		20	08/12/13 16:32	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>Styrene</b>	<b>0.0016</b> (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 08/07/13 13:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 15:12	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>Xylene O</b>	<b>0.0013</b> (0.0010)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>Xylene P,M</b>	<b>0.0021</b> (0.0020)		8260B		1	08/09/13 15:12	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.0034</b> (0.0020)		8260B		1	08/09/13 15:12		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 15:12		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	103 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	84 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	100 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 08/07/13 13:10  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-04  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.0323</b> (0.0037)		8270C SIM		20	08/16/13 2:25	CWH0195	CH30842
<b>Acenaphthene</b>	<b>0.0004</b> (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Acenaphthylene	ND (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
<b>Anthracene</b>	<b>0.0003</b> (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Chrysene	ND (0.00005)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
<b>Fluoranthene</b>	<b>0.0002</b> (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
<b>Fluorene</b>	<b>0.0009</b> (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
<b>Naphthalene</b>	<b>B 0.129</b> (0.0037)		8270C SIM		20	08/16/13 2:25	CWH0195	CH30842
<b>Phenanthrene</b>	<b>0.0014</b> (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842
<b>Pyrene</b>	<b>0.0002</b> (0.0002)		8270C SIM		1	08/15/13 7:22	CWH0195	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	42 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	45 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	62 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	79 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-339S  
Date Sampled: 08/07/13 13:10  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-04  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.335 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214
Total Cyanide (LL)	0.364 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 08/07/13 09:39  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/9/13 16:25

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	08/10/13 6:51	CWH0130	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>91 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 08/07/13 09:39  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/12/13 14:11	CWH0155	CH31238
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/12/13 14:11	CWH0155	CH31238
1-Chlorohexane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
2-Butanone	ND (0.0100)		8260B		1	08/12/13 14:11	CWH0155	CH31238
2-Chlorotoluene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
2-Hexanone	ND (0.0100)		8260B		1	08/12/13 14:11	CWH0155	CH31238
4-Chlorotoluene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Acetone	ND (0.0100)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Benzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 08/07/13 09:39  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-05  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Bromochloromethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Bromodichloromethane	ND (0.0006)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Bromoform	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Bromomethane	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Carbon Disulfide	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Chlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Chloroethane	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Chloroform	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Chloromethane	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Dibromochloromethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Dibromomethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Diethyl Ether	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Di-isopropyl ether	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Ethylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Hexachloroethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Isopropylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Methylene Chloride	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Naphthalene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
n-Butylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
n-Propylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
sec-Butylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Styrene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
tert-Butylbenzene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-333S  
 Date Sampled: 08/07/13 09:39  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-05  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Tetrachloroethene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Tetrahydrofuran	ND (0.0050)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Toluene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Trichloroethene	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Vinyl Acetate	ND (0.0050)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Vinyl Chloride	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Xylene O	ND (0.0010)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Xylene P,M	ND (0.0020)		8260B		1	08/12/13 14:11	CWH0155	CH31238
Xylenes (Total)	ND (0.0020)		8260B		1	08/12/13 14:11		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/12/13 14:11		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	94 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	83 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	97 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-333S  
 Date Sampled: 08/07/13 09:39  
 Percent Solids: N/A  
 Initial Volume: 1000  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-05  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Acenaphthene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Acenaphthylene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Anthracene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Chrysene	ND (0.00005)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Fluoranthene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Fluorene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
<b>Naphthalene</b>	<b>B 0.0012</b> (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Phenanthrene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842
Pyrene	ND (0.0002)		8270C SIM		1	08/15/13 8:12	CWH0195	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	44 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	48 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	60 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	84 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333S  
Date Sampled: 08/07/13 09:39  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-05  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0137 (0.0050)		9014		1	JLK	08/12/13 15:08	mg/L	CH31214
Total Cyanide (LL)	0.0140 (0.0050)		9014		1	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 08/07/13 09:52  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	6.60 (0.20)		8100M		1	08/13/13 20:07	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		81 %		40-140				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 08/07/13 09:52  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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	08/09/13 20:43	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.353 (0.100)</b>		8260B		100	08/12/13 17:48	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 20:43	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 20:43	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 20:43	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Benzene</b>	<b>2.67 (0.100)</b>		8260B		100	08/12/13 17:48	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-333D  
 Date Sampled: 08/07/13 09:52  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-06  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Ethylbenzene</b>	<b>1.14</b> (0.100)		8260B		100	08/12/13 17:48	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Isopropylbenzene</b>	<b>0.0900</b> (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Naphthalene</b>	<b>3.96</b> (0.100)		8260B		100	08/12/13 17:48	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>n-Propylbenzene</b>	<b>0.0346</b> (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Styrene</b>	<b>0.0039</b> (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 08/07/13 09:52  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Toluene</b>	<b>0.0152</b> (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 20:43	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Xylene O</b>	<b>0.163</b> (0.100)		8260B		100	08/12/13 17:48	CWH0146	CH31204
<b>Xylene P,M</b>	<b>0.0393</b> (0.0020)		8260B		1	08/09/13 20:43	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.202</b> (0.100)		8260B		100	08/12/13 17:48		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 20:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>87 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>88 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>95 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>96 %</i>		<i>70-130</i>





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 08/07/13 09:52  
Percent Solids: N/A  
Initial Volume: 960  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-06  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.0755 (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Acenaphthene	0.0584 (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Acenaphthylene	0.0024 (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Anthracene	0.0037 (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Benzo(a)anthracene	ND (0.0005)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Benzo(a)pyrene	ND (0.0005)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Benzo(b)fluoranthene	ND (0.0005)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Benzo(g,h,i)perylene	ND (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Benzo(k)fluoranthene	ND (0.0005)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Chrysene	ND (0.0005)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Dibenzo(a,h)Anthracene	ND (0.0005)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Fluoranthene	ND (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Fluorene	0.0153 (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0005)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Naphthalene	B 1.98 (0.0417)		8270C SIM		200	08/16/13 13:53	CWH0213	CH30842
Phenanthrene	0.0169 (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842
Pyrene	ND (0.0021)		8270C SIM		10	08/16/13 8:07	CWH0213	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	54 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	60 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	87 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	86 %		30-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-333D  
Date Sampled: 08/07/13 09:52  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-06  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	3.95 (0.125)		9014		25	JLK	08/12/13 15:08	mg/L	CH31214
Total Cyanide (LL)	4.05 (0.125)		9014		25	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 08/07/13 14:40  
Percent Solids: N/A  
Initial Volume: 1020  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	1.86 (0.20)		8100M		1	08/13/13 22:43	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		85 %		40-140				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 08/07/13 14:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 20:17	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.0248</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>1,3,5-Trimethylbenzene</b>	<b>0.0024</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 20:17	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 20:17	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 20:17	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Benzene</b>	<b>0.0948</b> (0.0100)		8260B		10	08/12/13 15:15	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 08/07/13 14:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Ethylbenzene</b>	<b>0.0658</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Isopropylbenzene</b>	<b>0.0274</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.0781</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>n-Butylbenzene</b>	<b>0.0068</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>n-Propylbenzene</b>	<b>0.0227</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>sec-Butylbenzene</b>	<b>0.0026</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Styrene</b>	<b>0.0043</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-201  
 Date Sampled: 08/07/13 14:40  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-07  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 20:17	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Xylene O</b>	<b>0.0252</b> (0.0010)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Xylene P,M</b>	<b>0.0051</b> (0.0020)		8260B		1	08/09/13 20:17	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.0303</b> (0.0020)		8260B		1	08/09/13 20:17		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 20:17		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	91 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	87 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	96 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 08/07/13 14:40  
Percent Solids: N/A  
Initial Volume: 980  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-07  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.0004 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Acenaphthene	0.0061 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Acenaphthylene	0.0019 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Anthracene	0.0030 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Benzo(a)anthracene	0.0005 (0.00005)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Benzo(a)pyrene	0.0003 (0.00005)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Benzo(b)fluoranthene	0.0003 (0.00005)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Benzo(k)fluoranthene	0.0001 (0.00005)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Chrysene	0.0005 (0.00005)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Dibenzo(a,h)Anthracene	0.00006 (0.00005)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Fluoranthene	0.0014 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Fluorene	0.0108 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Indeno(1,2,3-cd)Pyrene	0.0002 (0.00005)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Naphthalene	<b>B</b> 0.0306 (0.0020)		8270C SIM		10	08/16/13 9:45	CWH0195	CH30842
Phenanthrene	0.0094 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842
Pyrene	0.0024 (0.0002)		8270C SIM		1	08/15/13 9:50	CWH0195	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	45 %		30-130
Surrogate: 2-Fluorobiphenyl	46 %		30-130
Surrogate: Nitrobenzene-d5	53 %		30-130
Surrogate: p-Terphenyl-d14	69 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-201  
Date Sampled: 08/07/13 14:40  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-07  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	2.37 (0.125)		9014		25	JLK	08/12/13 15:08	mg/L	CH31214
Total Cyanide (LL)	3.68 (0.125)		9014		25	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 08/07/13 16:00  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	2.98 (0.19)		8100M		1	08/13/13 23:22	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		87 %		40-140				





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 08/07/13 16:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/12/13 14:37	CWH0155	CH31238
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>1,2,4-Trimethylbenzene</b>	<b>0.0012</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/12/13 14:37	CWH0155	CH31238
1-Chlorohexane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
2-Butanone	ND (0.0100)		8260B		1	08/12/13 14:37	CWH0155	CH31238
2-Chlorotoluene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
2-Hexanone	ND (0.0100)		8260B		1	08/12/13 14:37	CWH0155	CH31238
4-Chlorotoluene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Acetone	ND (0.0100)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Benzene</b>	<b>0.0263</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 08/07/13 16:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Bromochloromethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Bromodichloromethane	ND (0.0006)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Bromoform	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Bromomethane	ND (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Carbon Disulfide	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Chlorobenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Chloroethane	ND (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Chloroform	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Chloromethane	ND (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Dibromochloromethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Dibromomethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Diethyl Ether	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Di-isopropyl ether	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Ethylbenzene</b>	<b>0.0193</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Hexachloroethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Isopropylbenzene</b>	<b>0.0037</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Methylene Chloride	ND (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Naphthalene</b>	<b>0.0045</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
n-Butylbenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>n-Propylbenzene</b>	<b>0.0027</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
sec-Butylbenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Styrene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
tert-Butylbenzene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 08/07/13 16:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Tetrachloroethene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Tetrahydrofuran	ND (0.0050)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Toluene</b>	<b>0.0012</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Trichloroethene	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Vinyl Acetate	ND (0.0050)		8260B		1	08/12/13 14:37	CWH0155	CH31238
Vinyl Chloride	ND (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Xylene O</b>	<b>0.0186</b> (0.0010)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Xylene P,M</b>	<b>0.0028</b> (0.0020)		8260B		1	08/12/13 14:37	CWH0155	CH31238
<b>Xylenes (Total)</b>	<b>0.0213</b> (0.0020)		8260B		1	08/12/13 14:37		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/12/13 14:37		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>89 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>96 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 08/07/13 16:00  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-08  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
<b>Acenaphthene</b>	<b>0.0067</b> (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
<b>Acenaphthylene</b>	<b>0.0414</b> (0.0019)		8270C SIM		10	08/16/13 10:34	CWH0195	CH30842
<b>Anthracene</b>	<b>0.0005</b> (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Chrysene	ND (0.00005)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
<b>Fluoranthene</b>	<b>0.0004</b> (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
<b>Fluorene</b>	<b>0.0063</b> (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
<b>Naphthalene</b>	<b>B 0.0018</b> (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
<b>Phenanthrene</b>	<b>0.0037</b> (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842
<b>Pyrene</b>	<b>0.0003</b> (0.0002)		8270C SIM		1	08/15/13 10:41	CWH0195	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	42 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	46 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	50 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	71 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-6  
Date Sampled: 08/07/13 16:00  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-08  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.263 (0.0250)		9014		5	JLK	08/12/13 15:08	mg/L	CH31214
Total Cyanide (LL)	0.271 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 08/07/13 15:35  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

All methods used are in accordance with 40 CFR 136.

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	1.36 (0.19)		8100M		1	08/14/13 0:01	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>106 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 08/07/13 15:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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	08/14/13 13:17	CWH0189	CH31430
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/14/13 13:17	CWH0189	CH31430
1-Chlorohexane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
2-Butanone	ND (0.0100)		8260B		1	08/14/13 13:17	CWH0189	CH31430
2-Chlorotoluene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
2-Hexanone	ND (0.0100)		8260B		1	08/14/13 13:17	CWH0189	CH31430
4-Chlorotoluene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Acetone	ND (0.0100)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Benzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 08/07/13 15:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Bromochloromethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Bromodichloromethane	ND (0.0006)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Bromoform	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Bromomethane	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Carbon Disulfide	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Chlorobenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Chloroethane	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Chloroform	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Chloromethane	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Dibromochloromethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Dibromomethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Diethyl Ether	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Di-isopropyl ether	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Ethylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Hexachloroethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Isopropylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Methylene Chloride	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Naphthalene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
n-Butylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
n-Propylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
sec-Butylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Styrene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
tert-Butylbenzene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 08/07/13 15:35  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Tetrachloroethene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Tetrahydrofuran	ND (0.0050)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Toluene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Trichloroethene	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Vinyl Acetate	ND (0.0050)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Vinyl Chloride	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Xylene O	ND (0.0010)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Xylene P,M	ND (0.0020)		8260B		1	08/14/13 13:17	CWH0189	CH31430
Xylenes (Total)	ND (0.0020)		8260B		1	08/14/13 13:17		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/14/13 13:17		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	89 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	95 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	92 %		70-130
<i>Surrogate: Toluene-d8</i>	99 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 08/07/13 15:35  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-09  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
<b>Acenaphthene</b>	<b>0.0009</b> (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
<b>Acenaphthylene</b>	<b>0.0010</b> (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Anthracene	ND (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
<b>Fluoranthene</b>	<b>0.0012</b> (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
<b>Fluorene</b>	<b>0.0016</b> (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
<b>Naphthalene</b>	<b>B 0.0014</b> (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
Phenanthrene	ND (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842
<b>Pyrene</b>	<b>0.0012</b> (0.0009)		8270C SIM		5	08/15/13 16:28	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	64 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	54 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	60 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	83 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-337  
Date Sampled: 08/07/13 15:35  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-09  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.267 (0.0250)		9014		5	JLK	08/12/13 15:08	mg/L	CH31214
Total Cyanide (LL)	0.282 (0.0250)		9014		5	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 08/07/13 14:15  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-10  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	08/14/13 0:40	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>90 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 08/07/13 14:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-10  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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	08/09/13 16:03	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 16:03	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 16:03	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 16:03	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Benzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 08/07/13 14:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-10  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Naphthalene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 08/07/13 14:15  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-10  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Xylene O	ND (0.0010)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 16:03	CWH0146	CH31204
Xylenes (Total)	ND (0.0020)		8260B		1	08/09/13 16:03		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 16:03		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	111 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	84 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	103 %		70-130
<i>Surrogate: Toluene-d8</i>	96 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 08/07/13 14:15  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-10  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Acenaphthene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Acenaphthylene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Anthracene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Fluoranthene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Fluorene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Naphthalene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Phenanthrene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842
Pyrene	ND (0.0009)		8270C SIM		5	08/15/13 17:17	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	50 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	42 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	45 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	62 %		30-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316D  
Date Sampled: 08/07/13 14:15  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-10  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0129 (0.0050)		9014		1	JLK	08/12/13 15:08	mg/L	CH31214
Total Cyanide (LL)	0.0129 (0.0050)		9014		1	JLK	08/12/13 11:23	mg/L	CH31214



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 08/07/13 12:50  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-11  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.33 (0.19)		8100M		1	08/14/13 1:19	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>90 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-334D  
 Date Sampled: 08/07/13 12:50  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-11  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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	08/09/13 16:28	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 16:28	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 16:28	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 16:28	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 16:28	CWH0146	CH31204
<b>Benzene</b>	<b>0.0015</b> (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 08/07/13 12:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-11  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
<b>cis-1,2-Dichloroethene</b>	<b>0.0012</b> (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.0132</b> (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-334D  
 Date Sampled: 08/07/13 12:50  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
 ESS Laboratory Sample ID: 1308127-11  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 16:28	CWH0146	CH31204
<b>Trichloroethene</b>	<b>0.0021</b> (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Xylene O	ND (0.0010)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 16:28	CWH0146	CH31204
Xylenes (Total)	ND (0.0020)		8260B		1	08/09/13 16:28		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 16:28		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	109 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	82 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	107 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 08/07/13 12:50  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-11  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.0013</b> (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Acenaphthene	ND (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Acenaphthylene	ND (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Anthracene	ND (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Fluoranthene	ND (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Fluorene	ND (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
<b>Naphthalene</b>	<b>B 0.0067</b> (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
<b>Phenanthrene</b>	<b>0.0029</b> (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842
Pyrene	ND (0.0009)		8270C SIM		5	08/15/13 18:06	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	41 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	47 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	47 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	74 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334D  
Date Sampled: 08/07/13 12:50  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-11  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0245 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0256 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 1040  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-12  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	3.42 (0.19)		8100M		1	08/14/13 1:58	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>84 %</i>		<i>40-140</i>				





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-12  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 19:26	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.0430</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>1,3,5-Trimethylbenzene</b>	<b>0.0177</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 19:26	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 19:26	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 19:26	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>4-Isopropyltoluene</b>	<b>0.0012</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Benzene</b>	<b>0.0733</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-12  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Ethylbenzene</b>	<b>0.0099</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.988</b> (0.100)		8260B		100	08/12/13 18:13	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>n-Propylbenzene</b>	<b>0.0020</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Styrene</b>	<b>0.0051</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-12  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Toluene</b>	<b>0.0659</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 19:26	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Xylene O</b>	<b>0.0374</b> (0.0010)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Xylene P,M</b>	<b>0.0830</b> (0.0020)		8260B		1	08/09/13 19:26	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.120</b> (0.0020)		8260B		1	08/09/13 19:26		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 19:26		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	87 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	102 %		70-130
<i>Surrogate: Toluene-d8</i>	95 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-12  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.0397 (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Acenaphthene	0.0046 (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Acenaphthylene	0.0129 (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Anthracene	0.0036 (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Fluoranthene	0.0010 (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Fluorene	0.0111 (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Naphthalene	<b>B 0.351</b> (0.0093)		8270C SIM		50	08/16/13 11:24	CWH0212	CH30842
Phenanthrene	0.0106 (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842
Pyrene	ND (0.0009)		8270C SIM		5	08/15/13 18:56	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	37 %		30-130
Surrogate: 2-Fluorobiphenyl	38 %		30-130
Surrogate: Nitrobenzene-d5	44 %		30-130
Surrogate: p-Terphenyl-d14	62 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318S  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-12  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0119 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0125 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 08/07/13 11:30  
Percent Solids: N/A  
Initial Volume: 1040  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-13  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: DPS  
Prepared: 8/10/13 9:45

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.52 (0.19)		8100M		1	08/14/13 2:37	CWH0182	CH30927
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>108 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 08/07/13 11:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-13  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 16:53	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.0011 (0.0010)</b>		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 16:53	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 16:53	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 16:53	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 16:53	CWH0146	CH31204
<b>Benzene</b>	<b>0.0020 (0.0010)</b>		8260B		1	08/09/13 16:53	CWH0146	CH31204





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 08/07/13 11:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-13  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.0334</b> (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 08/07/13 11:30  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-13  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 16:53	CWH0146	CH31204
<b>Toluene</b>	<b>0.0010</b> (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Xylene O	ND (0.0010)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 16:53	CWH0146	CH31204
Xylenes (Total)	ND (0.0020)		8260B		1	08/09/13 16:53		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 16:53		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	110 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	84 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	108 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 08/07/13 11:30  
Percent Solids: N/A  
Initial Volume: 1040  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-13  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
<b>2-Methylnaphthalene</b>	<b>0.0019</b> (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Acenaphthene	ND (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Acenaphthylene	ND (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Anthracene	ND (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Fluoranthene	ND (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Fluorene	ND (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
<b>Naphthalene</b>	<b>B 0.0142</b> (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
<b>Phenanthrene</b>	<b>0.0027</b> (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842
Pyrene	ND (0.0010)		8270C SIM		5	08/15/13 19:45	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	50 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	54 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	58 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	81 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-334S  
Date Sampled: 08/07/13 11:30  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-13  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0286 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0352 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 08/07/13 09:20  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-14  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/10/13 13:15

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	08/13/13 16:52	CWH0182	CH31006
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>88 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 08/07/13 09:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-14  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 17:19	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 17:19	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 17:19	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 17:19	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Benzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 08/07/13 09:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-14  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Naphthalene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 08/07/13 09:20  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-14  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Xylene O	ND (0.0010)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 17:19	CWH0146	CH31204
Xylenes (Total)	ND (0.0020)		8260B		1	08/09/13 17:19		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 17:19		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	110 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	84 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	108 %		70-130
<i>Surrogate: Toluene-d8</i>	96 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 08/07/13 09:20  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-14  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

**All methods used are in accordance with 40 CFR 136.**

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Acenaphthene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Acenaphthylene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Anthracene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Fluoranthene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Fluorene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Naphthalene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Phenanthrene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842
Pyrene	ND (0.0009)		8270C SIM		5	08/15/13 20:35	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	49 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	51 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	55 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	70 %		30-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-107  
Date Sampled: 08/07/13 09:20  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-14  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0445 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0472 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 08/07/13 12:10  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-15  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/10/13 13:15

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	08/13/13 17:31	CWH0182	CH31006
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		85 %		40-140				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 08/07/13 12:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-15  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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	08/09/13 17:44	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 17:44	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 17:44	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 17:44	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Benzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 08/07/13 12:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-15  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Naphthalene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 08/07/13 12:10  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-15  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Xylene O	ND (0.0010)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 17:44	CWH0146	CH31204
Xylenes (Total)	ND (0.0020)		8260B		1	08/09/13 17:44		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 17:44		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>83 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>97 %</i>		<i>70-130</i>



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 08/07/13 12:10  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-15  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Acenaphthene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Acenaphthylene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Anthracene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Fluoranthene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Fluorene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Naphthalene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Phenanthrene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842
Pyrene	ND (0.0009)		8270C SIM		5	08/15/13 21:26	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	60 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	49 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	57 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	77 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-318D  
Date Sampled: 08/07/13 12:10  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-15  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0138 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0163 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-2  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-16  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/10/13 13:15

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	3.64 (0.19)		8100M		1	08/13/13 18:10	CWH0182	CH31006
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>94 %</i>		<i>40-140</i>				





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-2  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-16  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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	08/09/13 19:01	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>1,2,4-Trimethylbenzene</b>	<b>0.0452</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>1,3,5-Trimethylbenzene</b>	<b>0.0182</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 19:01	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 19:01	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 19:01	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>4-Isopropyltoluene</b>	<b>0.0012</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Benzene</b>	<b>0.0772</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-2  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-16  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Ethylbenzene</b>	<b>0.0097</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Naphthalene</b>	<b>0.998</b> (0.100)		8260B		100	08/12/13 18:39	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>n-Propylbenzene</b>	<b>0.0018</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Styrene</b>	<b>0.0049</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-2  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-16  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Toluene</b>	<b>0.0658</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 19:01	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Xylene O</b>	<b>0.0390</b> (0.0010)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Xylene P,M</b>	<b>0.0869</b> (0.0020)		8260B		1	08/09/13 19:01	CWH0146	CH31204
<b>Xylenes (Total)</b>	<b>0.126</b> (0.0020)		8260B		1	08/09/13 19:01		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 19:01		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	115 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	94 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	111 %		70-130
<i>Surrogate: Toluene-d8</i>	95 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-2  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-16  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/9/13 10:00

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	0.0514 (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Acenaphthene	0.0063 (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Acenaphthylene	0.0168 (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Anthracene	0.0043 (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Chrysene	ND (0.0002)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Fluoranthene	0.0012 (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Fluorene	0.0147 (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Naphthalene	B 0.434 (0.0093)		8270C SIM		50	08/16/13 12:14	CWH0212	CH30842
Phenanthrene	0.0133 (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842
Pyrene	ND (0.0009)		8270C SIM		5	08/15/13 22:16	CWH0212	CH30842

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	44 %		30-130
Surrogate: 2-Fluorobiphenyl	48 %		30-130
Surrogate: Nitrobenzene-d5	53 %		30-130
Surrogate: p-Terphenyl-d14	75 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: BD-2  
Date Sampled: 08/07/13 10:40  
Percent Solids: N/A

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-16  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0119 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0122 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316S  
Date Sampled: 08/07/13 13:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-17  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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	08/09/13 18:35	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 18:35	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 18:35	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 18:35	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Benzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316S  
Date Sampled: 08/07/13 13:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-17  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Naphthalene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-316S  
Date Sampled: 08/07/13 13:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-17  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Xylene O	ND (0.0010)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 18:35	CWH0146	CH31204
Xylenes (Total)	ND (0.0020)		8260B		1	08/09/13 18:35		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 18:35		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	113 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	83 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	110 %		70-130
<i>Surrogate: Toluene-d8</i>	97 %		70-130





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TB-8713  
Date Sampled: 08/07/13 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-18  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MJM

**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	08/09/13 14:21	CWH0146	CH31204
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,1-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,1-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,1-Dichloropropene	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2-Dibromoethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2-Dichloroethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,3-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1,4-Dioxane - Screen	ND (0.500)		8260B		1	08/09/13 14:21	CWH0146	CH31204
1-Chlorohexane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
2,2-Dichloropropane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
2-Butanone	ND (0.0100)		8260B		1	08/09/13 14:21	CWH0146	CH31204
2-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
2-Hexanone	ND (0.0100)		8260B		1	08/09/13 14:21	CWH0146	CH31204
4-Chlorotoluene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
4-Isopropyltoluene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Acetone	ND (0.0100)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Benzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TB-8713  
Date Sampled: 08/07/13 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-18  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Bromochloromethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Bromodichloromethane	ND (0.0006)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Bromoform	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Bromomethane	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Carbon Disulfide	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Carbon Tetrachloride	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Chlorobenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Chloroethane	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Chloroform	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Chloromethane	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Dibromochloromethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Dibromomethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Dichlorodifluoromethane	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Diethyl Ether	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Di-isopropyl ether	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Ethylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Hexachlorobutadiene	ND (0.0006)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Hexachloroethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Isopropylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Methylene Chloride	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Naphthalene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
n-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
n-Propylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
sec-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Styrene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
tert-Butylbenzene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TB-8713  
Date Sampled: 08/07/13 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308127  
ESS Laboratory Sample ID: 1308127-18  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Tetrachloroethene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Tetrahydrofuran	ND (0.0050)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Toluene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Trichloroethene	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Trichlorofluoromethane	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Vinyl Acetate	ND (0.0050)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Vinyl Chloride	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Xylene O	ND (0.0010)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Xylene P,M	ND (0.0020)		8260B		1	08/09/13 14:21	CWH0146	CH31204
Xylenes (Total)	ND (0.0020)		8260B		1	08/09/13 14:21		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/09/13 14:21		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	83 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	98 %		70-130
<i>Surrogate: Toluene-d8</i>	99 %		70-130



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH30927 - 3510C**

**Blank**

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacontane (C30)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.108</i>		mg/L	<i>0.1000</i>		<i>108</i>	<i>40-140</i>			
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**LCS**

Decane (C10)	0.044	0.005	mg/L	0.05000		87	40-140			
Docosane (C22)	0.054	0.005	mg/L	0.05000		108	40-140			
Dodecane (C12)	0.048	0.005	mg/L	0.05000		96	40-140			
Eicosane (C20)	0.053	0.005	mg/L	0.05000		106	40-140			
Hexacosane (C26)	0.054	0.005	mg/L	0.05000		108	40-140			
Hexadecane (C16)	0.052	0.005	mg/L	0.05000		104	40-140			
Nonadecane (C19)	0.053	0.005	mg/L	0.05000		107	40-140			
Nonane (C9)	0.037	0.005	mg/L	0.05000		73	30-140			
Octacosane (C28)	0.054	0.005	mg/L	0.05000		107	40-140			
Octadecane (C18)	0.053	0.005	mg/L	0.05000		106	40-140			
Tetracosane (C24)	0.055	0.005	mg/L	0.05000		110	40-140			
Tetradecane (C14)	0.051	0.005	mg/L	0.05000		101	40-140			
Total Petroleum Hydrocarbons	0.780	0.20	mg/L	0.7000		111	40-140			
Triacontane (C30)	0.054	0.005	mg/L	0.05000		107	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.106</i>		mg/L	<i>0.1000</i>		<i>106</i>	<i>40-140</i>			
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**LCS Dup**

Decane (C10)	0.045	0.005	mg/L	0.05000		90	40-140	3	25	
Docosane (C22)	0.054	0.005	mg/L	0.05000		109	40-140	1	25	
Dodecane (C12)	0.049	0.005	mg/L	0.05000		98	40-140	3	25	
Eicosane (C20)	0.053	0.005	mg/L	0.05000		107	40-140	1	25	
Hexacosane (C26)	0.054	0.005	mg/L	0.05000		108	40-140	0.5	25	
Hexadecane (C16)	0.053	0.005	mg/L	0.05000		106	40-140	1	25	
Nonadecane (C19)	0.054	0.005	mg/L	0.05000		107	40-140	0.6	25	
Nonane (C9)	0.038	0.005	mg/L	0.05000		75	30-140	3	25	
Octacosane (C28)	0.054	0.005	mg/L	0.05000		109	40-140	1	25	
Octadecane (C18)	0.053	0.005	mg/L	0.05000		107	40-140	1	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
<b>8100M Total Petroleum Hydrocarbons</b>										
<b>Batch CH30927 - 3510C</b>										
Tetracosane (C24)	0.055	0.005	mg/L	0.05000		111	40-140	0.5	25	
Tetradecane (C14)	0.052	0.005	mg/L	0.05000		103	40-140	2	25	
Total Petroleum Hydrocarbons	0.785	0.20	mg/L	0.7000		112	40-140	0.7	25	
Triacontane (C30)	0.054	0.005	mg/L	0.05000		108	40-140	0.3	25	
<i>Surrogate: O-Terphenyl</i>	<i>0.105</i>		mg/L	<i>0.1000</i>		<i>105</i>	<i>40-140</i>			
<b>Batch CH31006 - 3510C</b>										
<b>Blank</b>										
Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacontane (C30)	ND	0.005	mg/L							
<i>Surrogate: O-Terphenyl</i>	<i>0.104</i>		mg/L	<i>0.1000</i>		<i>104</i>	<i>40-140</i>			
<b>LCS</b>										
Decane (C10)	0.039	0.005	mg/L	0.05000		77	40-140			
Docosane (C22)	0.046	0.005	mg/L	0.05000		93	40-140			
Dodecane (C12)	0.042	0.005	mg/L	0.05000		83	40-140			
Eicosane (C20)	0.046	0.005	mg/L	0.05000		91	40-140			
Hexacosane (C26)	0.046	0.005	mg/L	0.05000		92	40-140			
Hexadecane (C16)	0.045	0.005	mg/L	0.05000		89	40-140			
Nonadecane (C19)	0.046	0.005	mg/L	0.05000		93	40-140			
Nonane (C9)	0.031	0.005	mg/L	0.05000		63	30-140			
Octacosane (C28)	0.046	0.005	mg/L	0.05000		93	40-140			
Octadecane (C18)	0.045	0.005	mg/L	0.05000		91	40-140			
Tetracosane (C24)	0.047	0.005	mg/L	0.05000		94	40-140			
Tetradecane (C14)	0.043	0.005	mg/L	0.05000		86	40-140			
Total Petroleum Hydrocarbons	0.606	0.20	mg/L	0.7000		87	40-140			
Triacontane (C30)	0.046	0.005	mg/L	0.05000		92	40-140			
<i>Surrogate: O-Terphenyl</i>	<i>0.0900</i>		mg/L	<i>0.1000</i>		<i>90</i>	<i>40-140</i>			
<b>LCS Dup</b>										
Decane (C10)	0.035	0.005	mg/L	0.05000		70	40-140	10	25	
Docosane (C22)	0.042	0.005	mg/L	0.05000		85	40-140	9	25	
Dodecane (C12)	0.038	0.005	mg/L	0.05000		76	40-140	9	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31006 - 3510C**

Eicosane (C20)	0.042	0.005	mg/L	0.05000		83	40-140	9	25	
Hexacosane (C26)	0.042	0.005	mg/L	0.05000		85	40-140	8	25	
Hexadecane (C16)	0.041	0.005	mg/L	0.05000		81	40-140	9	25	
Nonadecane (C19)	0.042	0.005	mg/L	0.05000		84	40-140	10	25	
Nonane (C9)	0.028	0.005	mg/L	0.05000		57	30-140	10	25	
Octacosane (C28)	0.043	0.005	mg/L	0.05000		85	40-140	8	25	
Octadecane (C18)	0.042	0.005	mg/L	0.05000		83	40-140	9	25	
Tetracosane (C24)	0.043	0.005	mg/L	0.05000		86	40-140	9	25	
Tetradecane (C14)	0.040	0.005	mg/L	0.05000		79	40-140	9	25	
Total Petroleum Hydrocarbons	0.555	0.20	mg/L	0.7000		79	40-140	9	25	
Triacontane (C30)	0.042	0.005	mg/L	0.05000		84	40-140	8	25	

Surrogate: *O-Terphenyl*

0.0806

mg/L

0.1000

81

40-140

**8260B Volatile Organic Compounds**

**Batch CH31204 - 5030B**

**LCS**

1,1,1,2-Tetrachloroethane	9.52		ug/L	10.00		95	70-130			
1,1,1-Trichloroethane	10.5		ug/L	10.00		105	70-130			
1,1,2,2-Tetrachloroethane	10.0		ug/L	10.00		100	70-130			
1,1,2-Trichloroethane	9.61		ug/L	10.00		96	70-130			
1,1-Dichloroethane	9.67		ug/L	10.00		97	70-130			
1,1-Dichloroethene	9.78		ug/L	10.00		98	70-130			
1,1-Dichloropropene	11.0		ug/L	10.00		110	70-130			
1,2,3-Trichlorobenzene	9.77		ug/L	10.00		98	70-130			
1,2,3-Trichloropropane	9.40		ug/L	10.00		94	70-130			
1,2,4-Trichlorobenzene	9.44		ug/L	10.00		94	70-130			
1,2,4-Trimethylbenzene	10.8		ug/L	10.00		108	70-130			
1,2-Dibromo-3-Chloropropane	10.2		ug/L	10.00		102	70-130			
1,2-Dibromoethane	9.88		ug/L	10.00		99	70-130			
1,2-Dichlorobenzene	10.1		ug/L	10.00		101	70-130			
1,2-Dichloroethane	10.9		ug/L	10.00		109	70-130			
1,2-Dichloropropane	9.18		ug/L	10.00		92	70-130			
1,3,5-Trimethylbenzene	11.2		ug/L	10.00		112	70-130			
1,3-Dichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,3-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,4-Dichlorobenzene	9.92		ug/L	10.00		99	70-130			
1,4-Dioxane - Screen	187		ug/L	200.0		93	0-332			
1-Chlorohexane	9.14		ug/L	10.00		91	70-130			
2,2-Dichloropropane	9.48		ug/L	10.00		95	70-130			
2-Butanone	48.9		ug/L	50.00		98	70-130			
2-Chlorotoluene	10.9		ug/L	10.00		109	70-130			
2-Hexanone	52.2		ug/L	50.00		104	70-130			
4-Chlorotoluene	10.8		ug/L	10.00		108	70-130			
4-Isopropyltoluene	10.8		ug/L	10.00		108	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31204 - 5030B**

4-Methyl-2-Pentanone	47.1		ug/L	50.00		94	70-130			
Acetone	49.8		ug/L	50.00		100	70-130			
Benzene	10.2		ug/L	10.00		102	70-130			
Bromobenzene	10.3		ug/L	10.00		103	70-130			
Bromochloromethane	10.2		ug/L	10.00		102	70-130			
Bromodichloromethane	9.15		ug/L	10.00		92	70-130			
Bromoform	9.11		ug/L	10.00		91	70-130			
Bromomethane	9.43		ug/L	10.00		94	70-130			
Carbon Disulfide	9.05		ug/L	10.00		90	70-130			
Carbon Tetrachloride	9.61		ug/L	10.00		96	70-130			
Chlorobenzene	9.39		ug/L	10.00		94	70-130			
Chloroethane	9.33		ug/L	10.00		93	70-130			
Chloroform	10.0		ug/L	10.00		100	70-130			
Chloromethane	9.42		ug/L	10.00		94	70-130			
cis-1,2-Dichloroethene	9.43		ug/L	10.00		94	70-130			
cis-1,3-Dichloropropene	8.75		ug/L	10.00		88	70-130			
Dibromochloromethane	8.82		ug/L	10.00		88	70-130			
Dibromomethane	10.1		ug/L	10.00		101	70-130			
Dichlorodifluoromethane	9.10		ug/L	10.00		91	70-130			
Diethyl Ether	9.11		ug/L	10.00		91	70-130			
Di-isopropyl ether	8.90		ug/L	10.00		89	70-130			
Ethyl tertiary-butyl ether	9.15		ug/L	10.00		92	70-130			
Ethylbenzene	10.5		ug/L	10.00		105	70-130			
Hexachlorobutadiene	8.49		ug/L	10.00		85	70-130			
Hexachloroethane	9.05		ug/L	10.00		90	70-130			
Isopropylbenzene	10.7		ug/L	10.00		107	70-130			
Methyl tert-Butyl Ether	9.19		ug/L	10.00		92	70-130			
Methylene Chloride	9.71		ug/L	10.00		97	70-130			
Naphthalene	9.59		ug/L	10.00		96	70-130			
n-Butylbenzene	10.7		ug/L	10.00		107	70-130			
n-Propylbenzene	10.7		ug/L	10.00		107	70-130			
sec-Butylbenzene	10.9		ug/L	10.00		109	70-130			
Styrene	9.40		ug/L	10.00		94	70-130			
tert-Butylbenzene	11.0		ug/L	10.00		110	70-130			
Tertiary-amyl methyl ether	8.62		ug/L	10.00		86	70-130			
Tetrachloroethene	9.60		ug/L	10.00		96	70-130			
Tetrahydrofuran	8.73		ug/L	10.00		87	70-130			
Toluene	10.2		ug/L	10.00		102	70-130			
trans-1,2-Dichloroethene	9.69		ug/L	10.00		97	70-130			
trans-1,3-Dichloropropene	7.65		ug/L	10.00		76	70-130			
Trichloroethene	10.4		ug/L	10.00		104	70-130			
Trichlorofluoromethane	10.4		ug/L	10.00		104	70-130			
Vinyl Acetate	8.36		ug/L	10.00		84	70-130			
Vinyl Chloride	12.1		ug/L	10.00		121	70-130			
Xylene O	10.5		ug/L	10.00		105	70-130			





CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31204 - 5030B**

Xylene P,M	21.1		ug/L	20.00		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	25.0		ug/L	25.00		100	70-130			
Surrogate: 4-Bromofluorobenzene	22.2		ug/L	25.00		89	70-130			
Surrogate: Dibromofluoromethane	25.3		ug/L	25.00		101	70-130			
Surrogate: Toluene-d8	24.0		ug/L	25.00		96	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130	6	25	
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130	4	25	
1,1,2,2-Tetrachloroethane	10.6		ug/L	10.00		106	70-130	5	25	
1,1,2-Trichloroethane	10.0		ug/L	10.00		100	70-130	4	25	
1,1-Dichloroethane	10.2		ug/L	10.00		102	70-130	6	25	
1,1-Dichloroethene	10.0		ug/L	10.00		100	70-130	2	25	
1,1-Dichloropropene	11.5		ug/L	10.00		115	70-130	5	25	
1,2,3-Trichlorobenzene	10.3		ug/L	10.00		103	70-130	5	25	
1,2,3-Trichloropropane	9.96		ug/L	10.00		100	70-130	6	25	
1,2,4-Trichlorobenzene	9.98		ug/L	10.00		100	70-130	6	25	
1,2,4-Trimethylbenzene	11.3		ug/L	10.00		113	70-130	5	25	
1,2-Dibromo-3-Chloropropane	10.7		ug/L	10.00		107	70-130	5	25	
1,2-Dibromoethane	10.1		ug/L	10.00		101	70-130	2	25	
1,2-Dichlorobenzene	10.6		ug/L	10.00		106	70-130	4	25	
1,2-Dichloroethane	11.0		ug/L	10.00		110	70-130	1	25	
1,2-Dichloropropane	9.69		ug/L	10.00		97	70-130	5	25	
1,3,5-Trimethylbenzene	11.9		ug/L	10.00		119	70-130	6	25	
1,3-Dichlorobenzene	11.0		ug/L	10.00		110	70-130	5	25	
1,3-Dichloropropane	10.6		ug/L	10.00		106	70-130	3	25	
1,4-Dichlorobenzene	10.3		ug/L	10.00		103	70-130	4	25	
1,4-Dioxane - Screen	179		ug/L	200.0		89	0-332	4	200	
1-Chlorohexane	9.86		ug/L	10.00		99	70-130	8	25	
2,2-Dichloropropane	9.68		ug/L	10.00		97	70-130	2	25	
2-Butanone	49.0		ug/L	50.00		98	70-130	0.06	25	
2-Chlorotoluene	11.4		ug/L	10.00		114	70-130	4	25	
2-Hexanone	52.3		ug/L	50.00		105	70-130	0.2	25	
4-Chlorotoluene	11.4		ug/L	10.00		114	70-130	6	25	
4-Isopropyltoluene	11.3		ug/L	10.00		113	70-130	4	25	
4-Methyl-2-Pentanone	48.4		ug/L	50.00		97	70-130	3	25	
Acetone	47.1		ug/L	50.00		94	70-130	5	25	
Benzene	10.6		ug/L	10.00		106	70-130	4	25	
Bromobenzene	10.7		ug/L	10.00		107	70-130	4	25	
Bromochloromethane	10.3		ug/L	10.00		103	70-130	2	25	
Bromodichloromethane	9.61		ug/L	10.00		96	70-130	5	25	
Bromoform	9.50		ug/L	10.00		95	70-130	4	25	
Bromomethane	10.2		ug/L	10.00		102	70-130	7	25	
Carbon Disulfide	9.72		ug/L	10.00		97	70-130	7	25	
Carbon Tetrachloride	10.4		ug/L	10.00		104	70-130	8	25	
Chlorobenzene	9.85		ug/L	10.00		98	70-130	5	25	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31204 - 5030B**

Chloroethane	9.51		ug/L	10.00		95	70-130	2	25	
Chloroform	10.6		ug/L	10.00		106	70-130	5	25	
Chloromethane	9.89		ug/L	10.00		99	70-130	5	25	
cis-1,2-Dichloroethene	10.0		ug/L	10.00		100	70-130	6	25	
cis-1,3-Dichloropropene	9.26		ug/L	10.00		93	70-130	6	25	
Dibromochloromethane	9.29		ug/L	10.00		93	70-130	5	25	
Dibromomethane	10.5		ug/L	10.00		105	70-130	3	25	
Dichlorodifluoromethane	9.19		ug/L	10.00		92	70-130	1	25	
Diethyl Ether	9.49		ug/L	10.00		95	70-130	4	25	
Di-isopropyl ether	9.47		ug/L	10.00		95	70-130	6	25	
Ethyl tertiary-butyl ether	9.52		ug/L	10.00		95	70-130	4	25	
Ethylbenzene	11.0		ug/L	10.00		110	70-130	5	25	
Hexachlorobutadiene	9.30		ug/L	10.00		93	70-130	9	25	
Hexachloroethane	9.45		ug/L	10.00		94	70-130	4	25	
Isopropylbenzene	11.4		ug/L	10.00		114	70-130	6	25	
Methyl tert-Butyl Ether	9.61		ug/L	10.00		96	70-130	4	25	
Methylene Chloride	10.2		ug/L	10.00		102	70-130	5	25	
Naphthalene	9.94		ug/L	10.00		99	70-130	4	25	
n-Butylbenzene	11.3		ug/L	10.00		113	70-130	6	25	
n-Propylbenzene	11.3		ug/L	10.00		113	70-130	5	25	
sec-Butylbenzene	11.6		ug/L	10.00		116	70-130	6	25	
Styrene	9.79		ug/L	10.00		98	70-130	4	25	
tert-Butylbenzene	11.5		ug/L	10.00		115	70-130	5	25	
Tertiary-amyl methyl ether	9.05		ug/L	10.00		90	70-130	5	25	
Tetrachloroethene	9.85		ug/L	10.00		98	70-130	3	25	
Tetrahydrofuran	8.64		ug/L	10.00		86	70-130	1	25	
Toluene	10.8		ug/L	10.00		108	70-130	6	25	
trans-1,2-Dichloroethene	9.84		ug/L	10.00		98	70-130	2	25	
trans-1,3-Dichloropropene	8.10		ug/L	10.00		81	70-130	6	25	
Trichloroethene	10.7		ug/L	10.00		107	70-130	4	25	
Trichlorofluoromethane	10.7		ug/L	10.00		107	70-130	3	25	
Vinyl Acetate	8.78		ug/L	10.00		88	70-130	5	25	
Vinyl Chloride	12.8		ug/L	10.00		128	70-130	5	25	
Xylene O	10.9		ug/L	10.00		109	70-130	4	25	
Xylene P,M	22.1		ug/L	20.00		110	70-130	5	25	
Surrogate: 1,2-Dichloroethane-d4	24.7		ug/L	25.00		99	70-130			
Surrogate: 4-Bromofluorobenzene	22.5		ug/L	25.00		90	70-130			
Surrogate: Dibromofluoromethane	25.4		ug/L	25.00		101	70-130			
Surrogate: Toluene-d8	24.3		ug/L	25.00		97	70-130			

**Batch CH31238 - 5030B**

<b>Blank</b>										
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31238 - 5030B**

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							
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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31238 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0218		mg/L	0.02500		87	70-130			
Surrogate: 4-Bromofluorobenzene	0.0204		mg/L	0.02500		82	70-130			
Surrogate: Dibromofluoromethane	0.0235		mg/L	0.02500		94	70-130			
Surrogate: Toluene-d8	0.0241		mg/L	0.02500		96	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	10.0		ug/L	10.00		100	70-130			
1,1,1-Trichloroethane	9.40		ug/L	10.00		94	70-130			
1,1,2,2-Tetrachloroethane	11.1		ug/L	10.00		111	70-130			
1,1,2-Trichloroethane	10.1		ug/L	10.00		101	70-130			
1,1-Dichloroethane	9.65		ug/L	10.00		96	70-130			
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130			
1,1-Dichloropropene	10.8		ug/L	10.00		108	70-130			
1,2,3-Trichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,2,3-Trichloropropane	10.0		ug/L	10.00		100	70-130			
1,2,4-Trichlorobenzene	10.3		ug/L	10.00		103	70-130			
1,2,4-Trimethylbenzene	11.2		ug/L	10.00		112	70-130			
1,2-Dibromo-3-Chloropropane	10.8		ug/L	10.00		108	70-130			
1,2-Dibromoethane	10.7		ug/L	10.00		107	70-130			
1,2-Dichlorobenzene	10.7		ug/L	10.00		107	70-130			
1,2-Dichloroethane	8.98		ug/L	10.00		90	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31238 - 5030B**

1,2-Dichloropropane	9.81		ug/L	10.00		98	70-130			
1,3,5-Trimethylbenzene	11.7		ug/L	10.00		117	70-130			
1,3-Dichlorobenzene	10.8		ug/L	10.00		108	70-130			
1,3-Dichloropropane	10.8		ug/L	10.00		108	70-130			
1,4-Dichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,4-Dioxane - Screen	197		ug/L	200.0		99	0-332			
1-Chlorohexane	10.8		ug/L	10.00		108	70-130			
2,2-Dichloropropane	9.03		ug/L	10.00		90	70-130			
2-Butanone	50.2		ug/L	50.00		100	70-130			
2-Chlorotoluene	11.4		ug/L	10.00		114	70-130			
2-Hexanone	57.6		ug/L	50.00		115	70-130			
4-Chlorotoluene	11.2		ug/L	10.00		112	70-130			
4-Isopropyltoluene	11.0		ug/L	10.00		110	70-130			
4-Methyl-2-Pentanone	51.0		ug/L	50.00		102	70-130			
Acetone	48.7		ug/L	50.00		97	70-130			
Benzene	10.5		ug/L	10.00		105	70-130			
Bromobenzene	11.3		ug/L	10.00		113	70-130			
Bromochloromethane	10.1		ug/L	10.00		101	70-130			
Bromodichloromethane	8.76		ug/L	10.00		88	70-130			
Bromoform	10.0		ug/L	10.00		100	70-130			
Bromomethane	8.23		ug/L	10.00		82	70-130			
Carbon Disulfide	10.1		ug/L	10.00		101	70-130			
Carbon Tetrachloride	8.93		ug/L	10.00		89	70-130			
Chlorobenzene	10.1		ug/L	10.00		101	70-130			
Chloroethane	9.68		ug/L	10.00		97	70-130			
Chloroform	9.21		ug/L	10.00		92	70-130			
Chloromethane	8.88		ug/L	10.00		89	70-130			
cis-1,2-Dichloroethene	10.0		ug/L	10.00		100	70-130			
cis-1,3-Dichloropropene	9.55		ug/L	10.00		96	70-130			
Dibromochloromethane	9.47		ug/L	10.00		95	70-130			
Dibromomethane	9.86		ug/L	10.00		99	70-130			
Dichlorodifluoromethane	6.66		ug/L	10.00		67	70-130			
Diethyl Ether	10.3		ug/L	10.00		103	70-130			B-
Di-isopropyl ether	9.92		ug/L	10.00		99	70-130			
Ethyl tertiary-butyl ether	9.82		ug/L	10.00		98	70-130			
Ethylbenzene	11.2		ug/L	10.00		112	70-130			
Hexachlorobutadiene	8.69		ug/L	10.00		87	70-130			
Hexachloroethane	9.78		ug/L	10.00		98	70-130			
Isopropylbenzene	11.7		ug/L	10.00		117	70-130			
Methyl tert-Butyl Ether	9.76		ug/L	10.00		98	70-130			
Methylene Chloride	10.5		ug/L	10.00		105	70-130			
Naphthalene	10.9		ug/L	10.00		109	70-130			
n-Butylbenzene	10.8		ug/L	10.00		108	70-130			
n-Propylbenzene	11.4		ug/L	10.00		114	70-130			
sec-Butylbenzene	11.5		ug/L	10.00		115	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31238 - 5030B**

Styrene	10.2		ug/L	10.00		102	70-130			
tert-Butylbenzene	11.6		ug/L	10.00		116	70-130			
Tertiary-amyl methyl ether	9.45		ug/L	10.00		94	70-130			
Tetrachloroethene	9.94		ug/L	10.00		99	70-130			
Tetrahydrofuran	10.3		ug/L	10.00		103	70-130			
Toluene	10.6		ug/L	10.00		106	70-130			
trans-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130			
trans-1,3-Dichloropropene	8.18		ug/L	10.00		82	70-130			
Trichloroethene	9.83		ug/L	10.00		98	70-130			
Trichlorofluoromethane	8.40		ug/L	10.00		84	70-130			
Vinyl Acetate	9.53		ug/L	10.00		95	70-130			
Vinyl Chloride	10.5		ug/L	10.00		105	70-130			
Xylene O	11.4		ug/L	10.00		114	70-130			
Xylene P,M	23.0		ug/L	20.00		115	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0196		mg/L	0.02500		78	70-130			
Surrogate: 4-Bromofluorobenzene	0.0213		mg/L	0.02500		85	70-130			
Surrogate: Dibromofluoromethane	0.0231		mg/L	0.02500		92	70-130			
Surrogate: Toluene-d8	0.0255		mg/L	0.02500		102	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.41		ug/L	10.00		94	70-130	7	25	
1,1,1-Trichloroethane	9.11		ug/L	10.00		91	70-130	3	25	
1,1,2,2-Tetrachloroethane	10.6		ug/L	10.00		106	70-130	5	25	
1,1,2-Trichloroethane	9.67		ug/L	10.00		97	70-130	5	25	
1,1-Dichloroethane	9.38		ug/L	10.00		94	70-130	3	25	
1,1-Dichloroethene	10.2		ug/L	10.00		102	70-130	1	25	
1,1-Dichloropropene	10.6		ug/L	10.00		106	70-130	2	25	
1,2,3-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	3	25	
1,2,3-Trichloropropane	9.78		ug/L	10.00		98	70-130	3	25	
1,2,4-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	2	25	
1,2,4-Trimethylbenzene	11.1		ug/L	10.00		111	70-130	0.8	25	
1,2-Dibromo-3-Chloropropane	10.3		ug/L	10.00		103	70-130	5	25	
1,2-Dibromoethane	9.85		ug/L	10.00		98	70-130	8	25	
1,2-Dichlorobenzene	10.5		ug/L	10.00		105	70-130	2	25	
1,2-Dichloroethane	8.81		ug/L	10.00		88	70-130	2	25	
1,2-Dichloropropane	9.46		ug/L	10.00		95	70-130	4	25	
1,3,5-Trimethylbenzene	11.5		ug/L	10.00		115	70-130	2	25	
1,3-Dichlorobenzene	10.8		ug/L	10.00		108	70-130	0.9	25	
1,3-Dichloropropane	10.3		ug/L	10.00		103	70-130	5	25	
1,4-Dichlorobenzene	9.80		ug/L	10.00		98	70-130	6	25	
1,4-Dioxane - Screen	188		ug/L	200.0		94	0-332	5	200	
1-Chlorohexane	10.3		ug/L	10.00		103	70-130	4	25	
2,2-Dichloropropane	8.72		ug/L	10.00		87	70-130	3	25	
2-Butanone	46.3		ug/L	50.00		93	70-130	8	25	
2-Chlorotoluene	11.2		ug/L	10.00		112	70-130	2	25	
2-Hexanone	51.6		ug/L	50.00		103	70-130	11	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31238 - 5030B**

4-Chlorotoluene	11.0		ug/L	10.00		110	70-130	1	25	
4-Isopropyltoluene	10.8		ug/L	10.00		108	70-130	2	25	
4-Methyl-2-Pentanone	48.7		ug/L	50.00		97	70-130	5	25	
Acetone	44.3		ug/L	50.00		89	70-130	9	25	
Benzene	10.4		ug/L	10.00		104	70-130	2	25	
Bromobenzene	10.7		ug/L	10.00		107	70-130	5	25	
Bromochloromethane	9.76		ug/L	10.00		98	70-130	4	25	
Bromodichloromethane	8.68		ug/L	10.00		87	70-130	0.9	25	
Bromoform	9.35		ug/L	10.00		94	70-130	7	25	
Bromomethane	8.05		ug/L	10.00		80	70-130	2	25	
Carbon Disulfide	9.70		ug/L	10.00		97	70-130	4	25	
Carbon Tetrachloride	8.71		ug/L	10.00		87	70-130	2	25	
Chlorobenzene	9.56		ug/L	10.00		96	70-130	6	25	
Chloroethane	9.30		ug/L	10.00		93	70-130	4	25	
Chloroform	8.91		ug/L	10.00		89	70-130	3	25	
Chloromethane	8.77		ug/L	10.00		88	70-130	1	25	
cis-1,2-Dichloroethene	9.78		ug/L	10.00		98	70-130	3	25	
cis-1,3-Dichloropropene	9.23		ug/L	10.00		92	70-130	3	25	
Dibromochloromethane	9.06		ug/L	10.00		91	70-130	4	25	
Dibromomethane	9.52		ug/L	10.00		95	70-130	4	25	
Dichlorodifluoromethane	6.50		ug/L	10.00		65	70-130	2	25	B-
Diethyl Ether	10.2		ug/L	10.00		102	70-130	1	25	
Di-isopropyl ether	9.78		ug/L	10.00		98	70-130	1	25	
Ethyl tertiary-butyl ether	9.52		ug/L	10.00		95	70-130	3	25	
Ethylbenzene	10.6		ug/L	10.00		106	70-130	5	25	
Hexachlorobutadiene	8.59		ug/L	10.00		86	70-130	1	25	
Hexachloroethane	9.64		ug/L	10.00		96	70-130	1	25	
Isopropylbenzene	11.3		ug/L	10.00		113	70-130	3	25	
Methyl tert-Butyl Ether	9.41		ug/L	10.00		94	70-130	4	25	
Methylene Chloride	10.5		ug/L	10.00		105	70-130	0.1	25	
Naphthalene	10.4		ug/L	10.00		104	70-130	5	25	
n-Butylbenzene	10.7		ug/L	10.00		107	70-130	2	25	
n-Propylbenzene	11.1		ug/L	10.00		111	70-130	2	25	
sec-Butylbenzene	11.3		ug/L	10.00		113	70-130	2	25	
Styrene	9.85		ug/L	10.00		98	70-130	4	25	
tert-Butylbenzene	11.2		ug/L	10.00		112	70-130	3	25	
Tertiary-amyl methyl ether	9.24		ug/L	10.00		92	70-130	2	25	
Tetrachloroethene	9.56		ug/L	10.00		96	70-130	4	25	
Tetrahydrofuran	9.39		ug/L	10.00		94	70-130	9	25	
Toluene	10.4		ug/L	10.00		104	70-130	2	25	
trans-1,2-Dichloroethene	9.68		ug/L	10.00		97	70-130	4	25	
trans-1,3-Dichloropropene	7.92		ug/L	10.00		79	70-130	3	25	
Trichloroethene	9.55		ug/L	10.00		96	70-130	3	25	
Trichlorofluoromethane	8.32		ug/L	10.00		83	70-130	1	25	
Vinyl Acetate	9.34		ug/L	10.00		93	70-130	2	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31238 - 5030B**

Vinyl Chloride	10.2		ug/L	10.00		102	70-130	3	25	
Xylene O	10.7		ug/L	10.00		107	70-130	6	25	
Xylene P,M	21.7		ug/L	20.00		108	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	0.0196		mg/L	0.02500		78	70-130			
Surrogate: 4-Bromofluorobenzene	0.0211		mg/L	0.02500		84	70-130			
Surrogate: Dibromofluoromethane	0.0230		mg/L	0.02500		92	70-130			
Surrogate: Toluene-d8	0.0247		mg/L	0.02500		99	70-130			

**Batch CH31430 - 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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31430 - 5030B**

Carbon Disulfide	ND	0.0010	mg/L							
Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0221		mg/L	0.02500		89	70-130			
Surrogate: 4-Bromofluorobenzene	0.0237		mg/L	0.02500		95	70-130			
Surrogate: Dibromofluoromethane	0.0224		mg/L	0.02500		90	70-130			
Surrogate: Toluene-d8	0.0246		mg/L	0.02500		98	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	9.20		ug/L	10.00		92	70-130			
1,1,1-Trichloroethane	9.97		ug/L	10.00		100	70-130			





CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31430 - 5030B**

1,1,2,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130			
1,1,2-Trichloroethane	10.1		ug/L	10.00		101	70-130			
1,1-Dichloroethane	9.43		ug/L	10.00		94	70-130			
1,1-Dichloroethene	9.92		ug/L	10.00		99	70-130			
1,1-Dichloropropene	9.87		ug/L	10.00		99	70-130			
1,2,3-Trichlorobenzene	10.5		ug/L	10.00		105	70-130			
1,2,3-Trichloropropane	10.4		ug/L	10.00		104	70-130			
1,2,4-Trichlorobenzene	9.62		ug/L	10.00		96	70-130			
1,2,4-Trimethylbenzene	9.22		ug/L	10.00		92	70-130			
1,2-Dibromo-3-Chloropropane	8.50		ug/L	10.00		85	70-130			
1,2-Dibromoethane	9.61		ug/L	10.00		96	70-130			
1,2-Dichlorobenzene	10.6		ug/L	10.00		106	70-130			
1,2-Dichloroethane	9.35		ug/L	10.00		94	70-130			
1,2-Dichloropropane	9.08		ug/L	10.00		91	70-130			
1,3,5-Trimethylbenzene	9.60		ug/L	10.00		96	70-130			
1,3-Dichlorobenzene	10.3		ug/L	10.00		103	70-130			
1,3-Dichloropropane	9.54		ug/L	10.00		95	70-130			
1,4-Dichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,4-Dioxane - Screen	208		ug/L	200.0		104	0-332			
1-Chlorohexane	8.51		ug/L	10.00		85	70-130			
2,2-Dichloropropane	9.35		ug/L	10.00		94	70-130			
2-Butanone	49.8		ug/L	50.00		100	70-130			
2-Chlorotoluene	9.78		ug/L	10.00		98	70-130			
2-Hexanone	42.2		ug/L	50.00		84	70-130			
4-Chlorotoluene	9.45		ug/L	10.00		94	70-130			
4-Isopropyltoluene	9.21		ug/L	10.00		92	70-130			
4-Methyl-2-Pentanone	47.0		ug/L	50.00		94	70-130			
Acetone	48.1		ug/L	50.00		96	70-130			
Benzene	10.3		ug/L	10.00		103	70-130			
Bromobenzene	10.2		ug/L	10.00		102	70-130			
Bromochloromethane	11.0		ug/L	10.00		110	70-130			
Bromodichloromethane	9.05		ug/L	10.00		90	70-130			
Bromoform	8.72		ug/L	10.00		87	70-130			
Bromomethane	8.52		ug/L	10.00		85	70-130			
Carbon Disulfide	9.89		ug/L	10.00		99	70-130			
Carbon Tetrachloride	10.0		ug/L	10.00		100	70-130			
Chlorobenzene	10.2		ug/L	10.00		102	70-130			
Chloroethane	9.41		ug/L	10.00		94	70-130			
Chloroform	10.2		ug/L	10.00		102	70-130			
Chloromethane	7.93		ug/L	10.00		79	70-130			
cis-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130			
cis-1,3-Dichloropropene	8.94		ug/L	10.00		89	70-130			
Dibromochloromethane	8.44		ug/L	10.00		84	70-130			
Dibromomethane	10.0		ug/L	10.00		100	70-130			
Dichlorodifluoromethane	7.55		ug/L	10.00		76	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31430 - 5030B**

Diethyl Ether	8.96		ug/L	10.00		90	70-130			
Di-isopropyl ether	8.45		ug/L	10.00		84	70-130			
Ethyl tertiary-butyl ether	8.48		ug/L	10.00		85	70-130			
Ethylbenzene	9.50		ug/L	10.00		95	70-130			
Hexachlorobutadiene	9.70		ug/L	10.00		97	70-130			
Hexachloroethane	8.45		ug/L	10.00		84	70-130			
Isopropylbenzene	9.63		ug/L	10.00		96	70-130			
Methyl tert-Butyl Ether	9.05		ug/L	10.00		90	70-130			
Methylene Chloride	10.5		ug/L	10.00		105	70-130			
Naphthalene	8.42		ug/L	10.00		84	70-130			
n-Butylbenzene	8.76		ug/L	10.00		88	70-130			
n-Propylbenzene	9.29		ug/L	10.00		93	70-130			
sec-Butylbenzene	9.61		ug/L	10.00		96	70-130			
Styrene	9.38		ug/L	10.00		94	70-130			
tert-Butylbenzene	9.53		ug/L	10.00		95	70-130			
Tertiary-amyl methyl ether	8.49		ug/L	10.00		85	70-130			
Tetrachloroethene	9.83		ug/L	10.00		98	70-130			
Tetrahydrofuran	7.90		ug/L	10.00		79	70-130			
Toluene	10.8		ug/L	10.00		108	70-130			
trans-1,2-Dichloroethene	9.90		ug/L	10.00		99	70-130			
trans-1,3-Dichloropropene	7.60		ug/L	10.00		76	70-130			
Trichloroethene	9.86		ug/L	10.00		99	70-130			
Trichlorofluoromethane	10.2		ug/L	10.00		102	70-130			
Vinyl Acetate	8.49		ug/L	10.00		85	70-130			
Vinyl Chloride	10.4		ug/L	10.00		104	70-130			
Xylene O	10.2		ug/L	10.00		102	70-130			
Xylene P,M	19.9		ug/L	20.00		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0251		mg/L	0.02500		100	70-130			
Surrogate: 4-Bromofluorobenzene	0.0246		mg/L	0.02500		99	70-130			
Surrogate: Dibromofluoromethane	0.0265		mg/L	0.02500		106	70-130			
Surrogate: Toluene-d8	0.0238		mg/L	0.02500		95	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	8.90		ug/L	10.00		89	70-130	3	25	
1,1,1-Trichloroethane	9.44		ug/L	10.00		94	70-130	5	25	
1,1,2,2-Tetrachloroethane	10.1		ug/L	10.00		101	70-130	3	25	
1,1,2-Trichloroethane	9.55		ug/L	10.00		96	70-130	5	25	
1,1-Dichloroethane	8.71		ug/L	10.00		87	70-130	8	25	
1,1-Dichloroethene	9.26		ug/L	10.00		93	70-130	7	25	
1,1-Dichloropropene	9.47		ug/L	10.00		95	70-130	4	25	
1,2,3-Trichlorobenzene	9.67		ug/L	10.00		97	70-130	8	25	
1,2,3-Trichloropropane	10.3		ug/L	10.00		103	70-130	1	25	
1,2,4-Trichlorobenzene	9.41		ug/L	10.00		94	70-130	2	25	
1,2,4-Trimethylbenzene	9.36		ug/L	10.00		94	70-130	2	25	
1,2-Dibromo-3-Chloropropane	8.04		ug/L	10.00		80	70-130	6	25	
1,2-Dibromoethane	9.49		ug/L	10.00		95	70-130	1	25	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31430 - 5030B**

1,2-Dichlorobenzene	10.5		ug/L	10.00		105	70-130	2	25	
1,2-Dichloroethane	8.74		ug/L	10.00		87	70-130	7	25	
1,2-Dichloropropane	8.73		ug/L	10.00		87	70-130	4	25	
1,3,5-Trimethylbenzene	9.94		ug/L	10.00		99	70-130	3	25	
1,3-Dichlorobenzene	10.3		ug/L	10.00		103	70-130	0	25	
1,3-Dichloropropane	9.46		ug/L	10.00		95	70-130	0.8	25	
1,4-Dichlorobenzene	10.1		ug/L	10.00		101	70-130	1	25	
1,4-Dioxane - Screen	148		ug/L	200.0		74	0-332	34	200	
1-Chlorohexane	8.66		ug/L	10.00		87	70-130	2	25	
2,2-Dichloropropane	8.64		ug/L	10.00		86	70-130	8	25	
2-Butanone	44.9		ug/L	50.00		90	70-130	10	25	
2-Chlorotoluene	9.67		ug/L	10.00		97	70-130	1	25	
2-Hexanone	40.2		ug/L	50.00		80	70-130	5	25	
4-Chlorotoluene	9.45		ug/L	10.00		94	70-130	0	25	
4-Isopropyltoluene	9.32		ug/L	10.00		93	70-130	1	25	
4-Methyl-2-Pentanone	43.9		ug/L	50.00		88	70-130	7	25	
Acetone	40.7		ug/L	50.00		81	70-130	17	25	
Benzene	9.70		ug/L	10.00		97	70-130	6	25	
Bromobenzene	10.1		ug/L	10.00		101	70-130	2	25	
Bromochloromethane	10.4		ug/L	10.00		104	70-130	5	25	
Bromodichloromethane	8.65		ug/L	10.00		86	70-130	5	25	
Bromoform	8.53		ug/L	10.00		85	70-130	2	25	
Bromomethane	8.02		ug/L	10.00		80	70-130	6	25	
Carbon Disulfide	9.42		ug/L	10.00		94	70-130	5	25	
Carbon Tetrachloride	9.72		ug/L	10.00		97	70-130	3	25	
Chlorobenzene	10.2		ug/L	10.00		102	70-130	0.3	25	
Chloroethane	8.24		ug/L	10.00		82	70-130	13	25	
Chloroform	9.42		ug/L	10.00		94	70-130	8	25	
Chloromethane	7.22		ug/L	10.00		72	70-130	9	25	
cis-1,2-Dichloroethene	9.57		ug/L	10.00		96	70-130	5	25	
cis-1,3-Dichloropropene	8.37		ug/L	10.00		84	70-130	7	25	
Dibromochloromethane	8.44		ug/L	10.00		84	70-130	0	25	
Dibromomethane	9.28		ug/L	10.00		93	70-130	8	25	
Dichlorodifluoromethane	7.23		ug/L	10.00		72	70-130	4	25	
Diethyl Ether	8.49		ug/L	10.00		85	70-130	5	25	
Di-isopropyl ether	7.98		ug/L	10.00		80	70-130	6	25	
Ethyl tertiary-butyl ether	8.09		ug/L	10.00		81	70-130	5	25	
Ethylbenzene	9.54		ug/L	10.00		95	70-130	0.4	25	
Hexachlorobutadiene	8.79		ug/L	10.00		88	70-130	10	25	
Hexachloroethane	8.42		ug/L	10.00		84	70-130	0.4	25	
Isopropylbenzene	9.70		ug/L	10.00		97	70-130	0.7	25	
Methyl tert-Butyl Ether	8.48		ug/L	10.00		85	70-130	7	25	
Methylene Chloride	9.77		ug/L	10.00		98	70-130	7	25	
Naphthalene	7.99		ug/L	10.00		80	70-130	5	25	
n-Butylbenzene	8.61		ug/L	10.00		86	70-130	2	25	



*CERTIFICATE OF ANALYSIS*

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ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31430 - 5030B**

n-Propylbenzene	9.45		ug/L	10.00		94	70-130	2	25	
sec-Butylbenzene	9.76		ug/L	10.00		98	70-130	2	25	
Styrene	9.32		ug/L	10.00		93	70-130	0.6	25	
tert-Butylbenzene	9.70		ug/L	10.00		97	70-130	2	25	
Tertiary-amyl methyl ether	8.02		ug/L	10.00		80	70-130	6	25	
Tetrachloroethene	9.86		ug/L	10.00		99	70-130	0.3	25	
Tetrahydrofuran	7.76		ug/L	10.00		78	70-130	2	25	
Toluene	10.1		ug/L	10.00		101	70-130	7	25	
trans-1,2-Dichloroethene	9.51		ug/L	10.00		95	70-130	4	25	
trans-1,3-Dichloropropene	7.22		ug/L	10.00		72	70-130	5	25	
Trichloroethene	9.49		ug/L	10.00		95	70-130	4	25	
Trichlorofluoromethane	9.83		ug/L	10.00		98	70-130	3	25	
Vinyl Acetate	7.99		ug/L	10.00		80	70-130	6	25	
Vinyl Chloride	9.78		ug/L	10.00		98	70-130	6	25	
Xylene O	10.1		ug/L	10.00		101	70-130	0.3	25	
Xylene P,M	20.0		ug/L	20.00		100	70-130	0.2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0235		mg/L	0.02500		94	70-130			
Surrogate: 4-Bromofluorobenzene	0.0241		mg/L	0.02500		96	70-130			
Surrogate: Dibromofluoromethane	0.0247		mg/L	0.02500		99	70-130			
Surrogate: Toluene-d8	0.0244		mg/L	0.02500		97	70-130			

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

**Batch CH30842 - 3510C**

<b>Blank</b>										
2-Methylnaphthalene	ND	0.0002	mg/L							
Acenaphthene	ND	0.0002	mg/L							
Acenaphthylene	ND	0.0002	mg/L							
Anthracene	ND	0.0002	mg/L							
Benzo(a)anthracene	ND	0.00005	mg/L							
Benzo(a)pyrene	ND	0.00005	mg/L							
Benzo(b)fluoranthene	ND	0.00005	mg/L							
Benzo(g,h,i)perylene	ND	0.0002	mg/L							
Benzo(k)fluoranthene	ND	0.00005	mg/L							
Chrysene	ND	0.00005	mg/L							
Dibenzo(a,h)Anthracene	ND	0.00005	mg/L							
Fluoranthene	ND	0.0002	mg/L							
Fluorene	ND	0.0002	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.00005	mg/L							
Naphthalene	0.0004	0.0002	mg/L							
Phenanthrene	ND	0.0002	mg/L							
Pyrene	ND	0.0002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.00119		mg/L	0.002500		48	30-130			
Surrogate: 2-Fluorobiphenyl	0.00127		mg/L	0.002500		51	30-130			
Surrogate: Nitrobenzene-d5	0.00160		mg/L	0.002500		64	30-130			
Surrogate: p-Terphenyl-d14	0.00186		mg/L	0.002500		75	30-130			



CERTIFICATE OF ANALYSIS

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**Quality Control Data**

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8270C(SIM) Polynuclear Aromatic Hydrocarbons

**Batch CH30842 - 3510C**

**LCS**

2-Methylnaphthalene	0.0024	0.0002	mg/L	0.004000		61	40-140			
Acenaphthene	0.0023	0.0002	mg/L	0.004000		57	40-140			
Acenaphthylene	0.0021	0.0002	mg/L	0.004000		52	40-140			
Anthracene	0.0024	0.0002	mg/L	0.004000		61	40-140			
Benzo(a)anthracene	0.0025	0.00005	mg/L	0.004000		63	40-140			
Benzo(a)pyrene	0.0023	0.00005	mg/L	0.004000		57	40-140			
Benzo(b)fluoranthene	0.0025	0.00005	mg/L	0.004000		62	40-140			
Benzo(g,h,i)perylene	0.0026	0.0002	mg/L	0.004000		66	40-140			
Benzo(k)fluoranthene	0.0023	0.00005	mg/L	0.004000		57	40-140			
Chrysene	0.0025	0.00005	mg/L	0.004000		62	40-140			
Dibenzo(a,h)Anthracene	0.0029	0.00005	mg/L	0.004000		72	40-140			
Fluoranthene	0.0023	0.0002	mg/L	0.004000		57	40-140			
Fluorene	0.0024	0.0002	mg/L	0.004000		60	40-140			
Indeno(1,2,3-cd)Pyrene	0.0033	0.00005	mg/L	0.004000		82	40-140			
Naphthalene	0.0024	0.0002	mg/L	0.004000		59	40-140			
Phenanthrene	0.0024	0.0002	mg/L	0.004000		60	40-140			
Pyrene	0.0025	0.0002	mg/L	0.004000		62	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.00130		mg/L	0.002500		52	30-130			
Surrogate: 2-Fluorobiphenyl	0.00142		mg/L	0.002500		57	30-130			
Surrogate: Nitrobenzene-d5	0.00170		mg/L	0.002500		68	30-130			
Surrogate: p-Terphenyl-d14	0.00202		mg/L	0.002500		81	30-130			

**LCS Dup**

2-Methylnaphthalene	0.0027	0.0002	mg/L	0.004000		67	40-140	10	20	
Acenaphthene	0.0026	0.0002	mg/L	0.004000		64	40-140	11	20	
Acenaphthylene	0.0024	0.0002	mg/L	0.004000		59	40-140	13	20	
Anthracene	0.0028	0.0002	mg/L	0.004000		69	40-140	13	20	
Benzo(a)anthracene	0.0028	0.00005	mg/L	0.004000		71	40-140	12	20	
Benzo(a)pyrene	0.0026	0.00005	mg/L	0.004000		66	40-140	14	20	
Benzo(b)fluoranthene	0.0028	0.00005	mg/L	0.004000		70	40-140	12	20	
Benzo(g,h,i)perylene	0.0030	0.0002	mg/L	0.004000		75	40-140	13	20	
Benzo(k)fluoranthene	0.0026	0.00005	mg/L	0.004000		65	40-140	14	20	
Chrysene	0.0028	0.00005	mg/L	0.004000		69	40-140	11	20	
Dibenzo(a,h)Anthracene	0.0033	0.00005	mg/L	0.004000		81	40-140	12	20	
Fluoranthene	0.0026	0.0002	mg/L	0.004000		66	40-140	14	20	
Fluorene	0.0027	0.0002	mg/L	0.004000		67	40-140	10	20	
Indeno(1,2,3-cd)Pyrene	0.0031	0.00005	mg/L	0.004000		77	40-140	5	20	
Naphthalene	0.0027	0.0002	mg/L	0.004000		67	40-140	12	20	
Phenanthrene	0.0028	0.0002	mg/L	0.004000		69	40-140	14	20	
Pyrene	0.0028	0.0002	mg/L	0.004000		69	40-140	10	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.00141		mg/L	0.002500		56	30-130			
Surrogate: 2-Fluorobiphenyl	0.00157		mg/L	0.002500		63	30-130			
Surrogate: Nitrobenzene-d5	0.00182		mg/L	0.002500		73	30-130			
Surrogate: p-Terphenyl-d14	0.00215		mg/L	0.002500		86	30-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Quality Control Data**

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

**Batch CH31214 - TCN Prep**

**Blank**

Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							

**LCS**

Dissolved Cyanide	0.0197	0.0050	mg/L	0.02006		98	90-110			
Total Cyanide (LL)	0.0197	0.0050	mg/L	0.02006		98	90-110			

**LCS**

Dissolved Cyanide	0.148	0.0050	mg/L	0.1504		98	90-110			
Total Cyanide (LL)	0.148	0.0050	mg/L	0.1504		98	90-110			

**LCS Dup**

Dissolved Cyanide	0.144	0.0050	mg/L	0.1504		95	90-110	3	20	
Total Cyanide (LL)	0.144	0.0050	mg/L	0.1504		95	90-110	3	20	

**Batch CH31308 - TCN Prep**

**Blank**

Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							

**LCS**

Dissolved Cyanide	0.0218	0.0050	mg/L	0.02006		108	90-110			
Total Cyanide (LL)	0.0218	0.0050	mg/L	0.02006		108	90-110			

**LCS**

Dissolved Cyanide	0.149	0.0050	mg/L	0.1504		99	90-110			
Total Cyanide (LL)	0.149	0.0050	mg/L	0.1504		99	90-110			

**LCS Dup**

Dissolved Cyanide	0.148	0.0050	mg/L	0.1504		99	90-110	0.6	20	
Total Cyanide (LL)	0.148	0.0050	mg/L	0.1504		99	90-110	0.6	20	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**Notes and Definitions**

- U Analyte included in the analysis, but not detected
- PT Pentachlorophenol tailing factor > 2.
- EL Elevated Method Reporting Limits due to sample matrix (EL).
- D Diluted.
- C- Continuing Calibration recovery is below lower control limit (C-).
- B- Blank Spike recovery is below lower control limit (B-).
- B Present in Method Blank (B).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308127

**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/labs/waterlabs-instate.php>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002  
[http://www.maine.gov/dep/blwq/topic/vessel/lab\\_list.pdf](http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf)

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://www4.egov.nh.gov/des/nhelap/namesearch.asp>

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/DEP\\_OPRA/](http://datamine2.state.nj.us/dep/DEP_OPRA/)

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301  
[http://www.mde.state.md.us/assets/document/WSP\\_labs-2009apr20.pdf](http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf)

**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: ~~ESS Courier~~ *Client*

ESS Project ID: 13080127

Date Project Due: 8/14/13

Days For Project: 5 Day

*8/8/13*

**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: 5.2

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?  \* Yes

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.

*\* Vials w/ air bubbles marked CEO 8/8/13*

Who was called?: \_\_\_\_\_

By whom? \_\_\_\_\_

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	1 L Glass	2	HCL
1	Yes	1 L Glass	2	NP
1	Yes	250 ml Plastic	2	NaOH
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	2	HCL
2	Yes	1 L Glass	2	NP
2	Yes	250 ml Plastic	2	NaOH
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	2	HCL
3	Yes	1 L Glass	2	NP
3	Yes	250 ml Plastic	2	NaOH
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	2	HCL
4	Yes	1 L Glass	2	NP
4	Yes	250 ml Plastic	2	NaOH
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	2	HCL
5	Yes	1 L Glass	2	NP
5	Yes	250 ml Plastic	2	NaOH
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	2	HCL
6	Yes	1 L Glass	2	NP
6	Yes	250 ml Plastic	2	NaOH
6	Yes	40 ml - VOA	3	HCL
7	Yes	1 L Glass	2	HCL

**Sample and Cooler Receipt Checklist**

Client: GZA GeoEnvironmental Inc

ESS Project ID: 13080127

7	Yes	1 L Glass	2	NP
7	Yes	250 ml Plastic	2	NaOH
7	Yes	40 ml - VOA	3	HCL
8	Yes	1 L Glass	2	HCL
8	Yes	1 L Glass	2	NP
8	Yes	250 ml Plastic	2	NaOH
8	Yes	40 ml - VOA	3	HCL
9	Yes	1 L Glass	2	HCL
9	Yes	1 L Glass	2	NP
9	Yes	250 ml Plastic	2	NaOH
9	Yes	40 ml - VOA	3	HCL
10	Yes	1 L Glass	2	HCL
10	Yes	1 L Glass	2	NP
10	Yes	250 ml Plastic	2	NaOH
10	Yes	40 ml - VOA	3	HCL
11	Yes	1 L Glass	2	HCL
11	Yes	1 L Glass	2	NP
11	Yes	250 ml Plastic	2	NaOH
11	Yes	40 ml - VOA	3	HCL
12	Yes	1 L Glass	2	HCL
12	Yes	1 L Glass	2	NP
12	Yes	250 ml Plastic	2	NaOH
12	Yes	40 ml - VOA	3	HCL
13	Yes	1 L Glass	2	HCL
13	Yes	1 L Glass	2	NP
13	Yes	250 ml Plastic	2	NaOH
13	Yes	40 ml - VOA	3	HCL
14	Yes	1 L Glass	2	HCL
14	Yes	1 L Glass	2	NP
14	Yes	250 ml Plastic	2	NaOH
14	Yes	40 ml - VOA	3	HCL
15	Yes	1 L Glass	2	HCL
15	Yes	1 L Glass	2	NP
15	Yes	250 ml Plastic	2	NaOH
15	Yes	40 ml - VOA	3	HCL
16	Yes	1 L Glass	2	HCL
16	Yes	1 L Glass	2	NP
16	Yes	250 ml Plastic	2	NaOH
16	Yes	40 ml - VOA	3	HCL
17	Yes	40 ml - VOA	3	HCL
18	Yes	40 ml - VOA	1	HCL

Completed By: AW

Date/Time: 8/13/13 0025

Reviewed By: CUD

Date/Time: 8/13/13

**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: Standard Other: \_\_\_\_\_  
 If faster than 3 days, prior approval by laboratory is required # \_\_\_\_\_  
 State where samples were collected from:  
 MA (R) CT NH NJ NY ME Other \_\_\_\_\_  
 Is this project for any of the following: USACE Other \_\_\_\_\_  
 MA-MCP Navy \_\_\_\_\_

Reporting Limits: R10EM GB  
 Electronic Deliverable: \_\_\_\_\_  
 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	8-7-15	11:46	X	GW	GW	MW-3265	155	9	100% Dissolved Cyanide	
2		11:22	X	GW	GW	MW-326d				
3		13:55	X	GW	GW	MW-339d				
4		13:10	X	GW	GW	MW-339S				
5		9:39	X	GV	GV	MW-333S				
6		9:52	X	GW	GW	MW-333d				
7		14:10	X	GW	GW	MW-201				
8		16:00	X	GW	GW	MW-6				
9		15:35	X	GW	GW	MW-337				
10		14:15	X	GW	GW	MW-316d				

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

Seals Intact: Yes  No NA:  8/7/15

Cooler Temp: 5.2 S.4 7.4 S.1 4.6 ice [ ] Technicians [ ]  
 8/7/15 1720

Relinquished by: (Signature) [Signature] Date/Time: 8/7/15 1720  
 Received by: (Signature) [Signature] Date/Time: 8/7/15 1720

Relinquished by: (Signature) [Signature] Date/Time: \_\_\_\_\_  
 Received by: (Signature) \_\_\_\_\_ Date/Time: \_\_\_\_\_

Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-McOH, 7-Absorbic Acid, 8-ZnAct, 9- \_\_\_\_\_

Sampled by: Sophia Narkiewicz + Matt Segon Email: Sophia.Narkiewicz@esslab.com

Comments: Dissolved Cyanide are field filtered.





*CERTIFICATE OF ANALYSIS*

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

**RE: Tidewater GH (03.0043654)**  
**ESS Laboratory Work Order Number: 1308137**

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 5:40 pm, Aug 15, 2013**

**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: 1308137

**SAMPLE RECEIPT**

The following samples were received on August 08, 2013 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>SampleName</u>	<u>Matrix</u>	<u>Analysis</u>
1308137-01	MW-7	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308137-02	MW-208	Ground Water	8100M, 8260B, 8270C SIM, 9014
1308137-03	TB-080813	Aqueous	8260B



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**PROJECT NARRATIVE**

**8260B Volatile Organic Compounds**

CH31238-BS1 **Blank Spike recovery is below lower control limit (B-).**  
Dichlorodifluoromethane (67% @ 70-130%)  
CH31238-BSD1 **Blank Spike recovery is below lower control limit (B-).**  
Dichlorodifluoromethane (65% @ 70-130%)  
CWH0208-CCV1 **Continuing Calibration recovery is below lower control limit (C-).**  
1,4-Dioxane - Screen (61% @ 70-130%)

**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: 1308137

**CURRENT SW-846 METHODOLOGY VERSIONS**

**Analytical Methods**

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

**Prep Methods**

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3580A - Waste Dilution
- 5030B - 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: MW-7  
Date Sampled: 08/08/13 09:50  
Percent Solids: N/A  
Initial Volume: 1070  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/10/13 13:15

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	ND (0.19)		8100M		1	08/13/13 18:49	CWH0182	CH31006
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>108 %</i>		<i>40-140</i>				



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-7  
Date Sampled: 08/08/13 09:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/12/13 20:47	CWH0155	CH31238
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/12/13 20:47	CWH0155	CH31238
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/12/13 20:47	CWH0155	CH31238
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/12/13 20:47	CWH0155	CH31238
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/12/13 20:47	CWH0155	CH31238
Acetone	ND (0.0100)	0.0027	8260B		1	08/12/13 20:47	CWH0155	CH31238
Benzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-7  
Date Sampled: 08/08/13 09:50  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-01  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Bromoform	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/12/13 20:47	CWH0155	CH31238
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/12/13 20:47	CWH0155	CH31238
<b>Chloroform</b>	<b>0.0018</b> (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Ethylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Isopropylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Styrene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-7  
 Date Sampled: 08/08/13 09:50  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
 ESS Laboratory Sample ID: 1308137-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/12/13 20:47	CWH0155	CH31238
Toluene	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/12/13 20:47	CWH0155	CH31238
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
<b>Trichloroethene</b>	<b>J 0.0003</b> (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/12/13 20:47	CWH0155	CH31238
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/12/13 20:47	CWH0155	CH31238
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Xylene O	ND (0.0010)	0.0001	8260B		1	08/12/13 20:47	CWH0155	CH31238
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/12/13 20:47	CWH0155	CH31238
Xylenes (Total)	ND (0.0020)		8260B		1	08/12/13 20:47		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/12/13 20:47		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	110 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	84 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	106 %		70-130
<i>Surrogate: Toluene-d8</i>	94 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: MW-7  
 Date Sampled: 08/08/13 09:50  
 Percent Solids: N/A  
 Initial Volume: 1070  
 Final Volume: 0.25  
 Extraction Method: 3510C

ESS Laboratory Work Order: 1308137  
 ESS Laboratory Sample ID: 1308137-01  
 Sample Matrix: Ground Water  
 Units: mg/L  
 Analyst: IBM  
 Prepared: 8/10/13 11:20

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Acenaphthene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Acenaphthylene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Anthracene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Chrysene	ND (0.00005)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Fluoranthene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Fluorene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
<b>Naphthalene</b>	<b>0.0004</b> (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Phenanthrene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002
Pyrene	ND (0.0002)		8270C SIM		1	08/14/13 0:59	CWH0173	CH31002

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	42 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	42 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	55 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	70 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-7  
Date Sampled: 08/08/13 09:50  
Percent Solids: N/A

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-01  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0239 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0316 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 08/08/13 10:24  
Percent Solids: N/A  
Initial Volume: 1000  
Final Volume: 1  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: ML  
Prepared: 8/10/13 13:15

**All methods used are in accordance with 40 CFR 136.**

**8100M Total Petroleum Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Total Petroleum Hydrocarbons	0.90 (0.20)		8100M		1	08/13/13 19:28	CWH0182	CH31006
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		83 %		40-140				





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 08/08/13 10:24  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/15/13 12:38	CWH0208	CH31533
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/15/13 12:38	CWH0208	CH31533
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/15/13 12:38	CWH0208	CH31533
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/15/13 12:38	CWH0208	CH31533
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>4-Isopropyltoluene</b>	<b>J 0.0009</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/15/13 12:38	CWH0208	CH31533
Acetone	ND (0.0100)	0.0027	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>Benzene</b>	<b>J 0.0006</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533





*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 08/08/13 10:24  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

**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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
Bromoform	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/15/13 12:38	CWH0208	CH31533
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/15/13 12:38	CWH0208	CH31533
Chloroform	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>Ethylbenzene</b>	<b>0.0096</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>Isopropylbenzene</b>	<b>0.0027</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Naphthalene	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>n-Butylbenzene</b>	<b>0.0132</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>n-Propylbenzene</b>	<b>0.0012</b> (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>sec-Butylbenzene</b>	<b>0.0066</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
Styrene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 08/08/13 10:24  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>Toluene</b>	<b>J 0.0004</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/15/13 12:38	CWH0208	CH31533
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/15/13 12:38	CWH0208	CH31533
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/15/13 12:38	CWH0208	CH31533
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>Xylene O</b>	<b>0.0044</b> (0.0010)	0.0001	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>Xylene P,M</b>	<b>J 0.0009</b> (0.0020)	0.0002	8260B		1	08/15/13 12:38	CWH0208	CH31533
<b>Xylenes (Total)</b>	<b>0.0053</b> (0.0020)		8260B		1	08/15/13 12:38		[CALC]
Trihalomethanes (Total)	ND (0.0036)		8260B			08/15/13 12:38		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	89 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	91 %		70-130
<i>Surrogate: Toluene-d8</i>	95 %		70-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 08/08/13 10:24  
Percent Solids: N/A  
Initial Volume: 1040  
Final Volume: 0.25  
Extraction Method: 3510C

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-02  
Sample Matrix: Ground Water  
Units: mg/L  
Analyst: IBM  
Prepared: 8/10/13 11:20

All methods used are in accordance with 40 CFR 136.

**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
2-Methylnaphthalene	ND (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Acenaphthene</b>	<b>0.0023</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Acenaphthylene</b>	<b>0.0020</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Anthracene</b>	<b>0.0005</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Chrysene	ND (0.00005)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Fluoranthene</b>	<b>0.0002</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Fluorene</b>	<b>0.0015</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Naphthalene</b>	<b>0.0013</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Phenanthrene</b>	<b>0.0020</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002
<b>Pyrene</b>	<b>0.0003</b> (0.0002)		8270C SIM		1	08/14/13 1:49	CWH0173	CH31002

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	32 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	37 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	38 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	55 %		30-130



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: MW-208  
Date Sampled: 08/08/13 10:24  
Percent Solids: N/A

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-02  
Sample Matrix: Ground Water

All methods used are in accordance with 40 CFR 136.

**Classical Chemistry**

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Units</u>	<u>Batch</u>
Dissolved Cyanide	0.0237 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308
Total Cyanide (LL)	0.0302 (0.0050)		9014		1	JLK	08/13/13 9:26	mg/L	CH31308



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TB-080813  
Date Sampled: 08/08/13 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-03  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MJM

**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)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,1,1-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,1,2,2-Tetrachloroethane	ND (0.0005)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,1,2-Trichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,1-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,1-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,1-Dichloropropene	ND (0.0020)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2,3-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2,3-Trichloropropane	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2,4-Trichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2,4-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2-Dibromo-3-Chloropropane	ND (0.0050)	0.0010	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2-Dibromoethane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2-Dichloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,2-Dichloropropane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,3,5-Trimethylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,3-Dichlorobenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,3-Dichloropropane	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,4-Dichlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
1,4-Dioxane - Screen	ND (0.500)	0.190	8260B		1	08/12/13 19:04	CWH0155	CH31238
1-Chlorohexane	ND (0.0010)	0.0004	8260B		1	08/12/13 19:04	CWH0155	CH31238
2,2-Dichloropropane	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
2-Butanone	ND (0.0100)	0.0034	8260B		1	08/12/13 19:04	CWH0155	CH31238
2-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
2-Hexanone	ND (0.0100)	0.0015	8260B		1	08/12/13 19:04	CWH0155	CH31238
4-Chlorotoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
4-Isopropyltoluene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
4-Methyl-2-Pentanone	ND (0.0250)	0.0016	8260B		1	08/12/13 19:04	CWH0155	CH31238
Acetone	ND (0.0100)	0.0027	8260B		1	08/12/13 19:04	CWH0155	CH31238
Benzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
Client Project ID: Tidewater GH  
Client Sample ID: TB-080813  
Date Sampled: 08/08/13 00:00  
Percent Solids: N/A  
Initial Volume: 5  
Final Volume: 5  
Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
ESS Laboratory Sample ID: 1308137-03  
Sample Matrix: Aqueous  
Units: mg/L  
Analyst: MJM

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>
Bromobenzene	ND (0.0020)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Bromochloromethane	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
Bromodichloromethane	ND (0.0006)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Bromoform	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Bromomethane	ND (0.0020)	0.0004	8260B		1	08/12/13 19:04	CWH0155	CH31238
Carbon Disulfide	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Carbon Tetrachloride	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Chlorobenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Chloroethane	ND (0.0020)	0.0004	8260B		1	08/12/13 19:04	CWH0155	CH31238
Chloroform	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Chloromethane	ND (0.0020)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
cis-1,2-Dichloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
cis-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Dibromochloromethane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Dibromomethane	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
Dichlorodifluoromethane	ND (0.0020)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
Diethyl Ether	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
Di-isopropyl ether	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Ethyl tertiary-butyl ether	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Ethylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Hexachlorobutadiene	ND (0.0006)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Hexachloroethane	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Isopropylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Methyl tert-Butyl Ether	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
Methylene Chloride	ND (0.0020)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
<b>Naphthalene</b>	<b>J 0.0006 (0.0010)</b>	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
n-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
n-Propylbenzene	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
sec-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Styrene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
tert-Butylbenzene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
 Client Project ID: Tidewater GH  
 Client Sample ID: TB-080813  
 Date Sampled: 08/08/13 00:00  
 Percent Solids: N/A  
 Initial Volume: 5  
 Final Volume: 5  
 Extraction Method: 5030B

ESS Laboratory Work Order: 1308137  
 ESS Laboratory Sample ID: 1308137-03  
 Sample Matrix: Aqueous  
 Units: mg/L  
 Analyst: MJM

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>
Tertiary-amyl methyl ether	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Tetrachloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Tetrahydrofuran	ND (0.0050)	0.0016	8260B		1	08/12/13 19:04	CWH0155	CH31238
Toluene	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
trans-1,2-Dichloroethene	ND (0.0010)	0.0003	8260B		1	08/12/13 19:04	CWH0155	CH31238
trans-1,3-Dichloropropene	ND (0.0004)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Trichloroethene	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Trichlorofluoromethane	ND (0.0010)	0.0004	8260B		1	08/12/13 19:04	CWH0155	CH31238
Vinyl Acetate	ND (0.0050)	0.0005	8260B		1	08/12/13 19:04	CWH0155	CH31238
Vinyl Chloride	ND (0.0010)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238
Xylene O	ND (0.0010)	0.0001	8260B		1	08/12/13 19:04	CWH0155	CH31238
Xylene P,M	ND (0.0020)	0.0002	8260B		1	08/12/13 19:04	CWH0155	CH31238

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>84 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>95 %</i>		<i>70-130</i>





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31006 - 3510C**

**Blank**

Decane (C10)	ND	0.005	mg/L							
Docosane (C22)	ND	0.005	mg/L							
Dodecane (C12)	ND	0.005	mg/L							
Eicosane (C20)	ND	0.005	mg/L							
Hexacosane (C26)	ND	0.005	mg/L							
Hexadecane (C16)	ND	0.005	mg/L							
Nonadecane (C19)	ND	0.005	mg/L							
Nonane (C9)	ND	0.005	mg/L							
Octacosane (C28)	ND	0.005	mg/L							
Octadecane (C18)	ND	0.005	mg/L							
Tetracosane (C24)	ND	0.005	mg/L							
Tetradecane (C14)	ND	0.005	mg/L							
Total Petroleum Hydrocarbons	ND	0.20	mg/L							
Triacontane (C30)	ND	0.005	mg/L							

<i>Surrogate: O-Terphenyl</i>	<i>0.104</i>		mg/L	<i>0.1000</i>		<i>104</i>	<i>40-140</i>			
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**LCS**

Decane (C10)	0.039	0.005	mg/L	0.05000		77	40-140			
Docosane (C22)	0.046	0.005	mg/L	0.05000		93	40-140			
Dodecane (C12)	0.042	0.005	mg/L	0.05000		83	40-140			
Eicosane (C20)	0.046	0.005	mg/L	0.05000		91	40-140			
Hexacosane (C26)	0.046	0.005	mg/L	0.05000		92	40-140			
Hexadecane (C16)	0.045	0.005	mg/L	0.05000		89	40-140			
Nonadecane (C19)	0.046	0.005	mg/L	0.05000		93	40-140			
Nonane (C9)	0.031	0.005	mg/L	0.05000		63	30-140			
Octacosane (C28)	0.046	0.005	mg/L	0.05000		93	40-140			
Octadecane (C18)	0.045	0.005	mg/L	0.05000		91	40-140			
Tetracosane (C24)	0.047	0.005	mg/L	0.05000		94	40-140			
Tetradecane (C14)	0.043	0.005	mg/L	0.05000		86	40-140			
Total Petroleum Hydrocarbons	0.606	0.20	mg/L	0.7000		87	40-140			
Triacontane (C30)	0.046	0.005	mg/L	0.05000		92	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.0900</i>		mg/L	<i>0.1000</i>		<i>90</i>	<i>40-140</i>			
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**LCS Dup**

Decane (C10)	0.035	0.005	mg/L	0.05000		70	40-140	10	25	
Docosane (C22)	0.042	0.005	mg/L	0.05000		85	40-140	9	25	
Dodecane (C12)	0.038	0.005	mg/L	0.05000		76	40-140	9	25	
Eicosane (C20)	0.042	0.005	mg/L	0.05000		83	40-140	9	25	
Hexacosane (C26)	0.042	0.005	mg/L	0.05000		85	40-140	8	25	
Hexadecane (C16)	0.041	0.005	mg/L	0.05000		81	40-140	9	25	
Nonadecane (C19)	0.042	0.005	mg/L	0.05000		84	40-140	10	25	
Nonane (C9)	0.028	0.005	mg/L	0.05000		57	30-140	10	25	
Octacosane (C28)	0.043	0.005	mg/L	0.05000		85	40-140	8	25	
Octadecane (C18)	0.042	0.005	mg/L	0.05000		83	40-140	9	25	





*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31006 - 3510C**

Tetracosane (C24)	0.043	0.005	mg/L	0.05000		86	40-140	9	25	
Tetradecane (C14)	0.040	0.005	mg/L	0.05000		79	40-140	9	25	
Total Petroleum Hydrocarbons	0.555	0.20	mg/L	0.7000		79	40-140	9	25	
Triacotane (C30)	0.042	0.005	mg/L	0.05000		84	40-140	8	25	

*Surrogate: O-Terphenyl*      *0.0806*      mg/L      *0.1000*      *81*      *40-140*

**8260B Volatile Organic Compounds**

**Batch CH31238 - 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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31238 - 5030B**

Bromomethane	ND	0.0020	mg/L							
Carbon Disulfide	ND	0.0010	mg/L							
Carbon Tetrachloride	ND	0.0010	mg/L							
Chlorobenzene	ND	0.0010	mg/L							
Chloroethane	ND	0.0020	mg/L							
Chloroform	ND	0.0010	mg/L							
Chloromethane	ND	0.0020	mg/L							
cis-1,2-Dichloroethene	ND	0.0010	mg/L							
cis-1,3-Dichloropropene	ND	0.0004	mg/L							
Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0218		mg/L	0.02500		87	70-130			
Surrogate: 4-Bromofluorobenzene	0.0204		mg/L	0.02500		82	70-130			
Surrogate: Dibromofluoromethane	0.0235		mg/L	0.02500		94	70-130			
Surrogate: Toluene-d8	0.0241		mg/L	0.02500		96	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	10.0		ug/L	10.00		100	70-130			
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*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31238 - 5030B**

1,1,1-Trichloroethane	9.40		ug/L	10.00		94	70-130			
1,1,2,2-Tetrachloroethane	11.1		ug/L	10.00		111	70-130			
1,1,2-Trichloroethane	10.1		ug/L	10.00		101	70-130			
1,1-Dichloroethane	9.65		ug/L	10.00		96	70-130			
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130			
1,1-Dichloropropene	10.8		ug/L	10.00		108	70-130			
1,2,3-Trichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,2,3-Trichloropropane	10.0		ug/L	10.00		100	70-130			
1,2,4-Trichlorobenzene	10.3		ug/L	10.00		103	70-130			
1,2,4-Trimethylbenzene	11.2		ug/L	10.00		112	70-130			
1,2-Dibromo-3-Chloropropane	10.8		ug/L	10.00		108	70-130			
1,2-Dibromoethane	10.7		ug/L	10.00		107	70-130			
1,2-Dichlorobenzene	10.7		ug/L	10.00		107	70-130			
1,2-Dichloroethane	8.98		ug/L	10.00		90	70-130			
1,2-Dichloropropane	9.81		ug/L	10.00		98	70-130			
1,3,5-Trimethylbenzene	11.7		ug/L	10.00		117	70-130			
1,3-Dichlorobenzene	10.8		ug/L	10.00		108	70-130			
1,3-Dichloropropane	10.8		ug/L	10.00		108	70-130			
1,4-Dichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,4-Dioxane - Screen	197		ug/L	200.0		99	0-332			
1-Chlorohexane	10.8		ug/L	10.00		108	70-130			
2,2-Dichloropropane	9.03		ug/L	10.00		90	70-130			
2-Butanone	50.2		ug/L	50.00		100	70-130			
2-Chlorotoluene	11.4		ug/L	10.00		114	70-130			
2-Hexanone	57.6		ug/L	50.00		115	70-130			
4-Chlorotoluene	11.2		ug/L	10.00		112	70-130			
4-Isopropyltoluene	11.0		ug/L	10.00		110	70-130			
4-Methyl-2-Pentanone	51.0		ug/L	50.00		102	70-130			
Acetone	48.7		ug/L	50.00		97	70-130			
Benzene	10.5		ug/L	10.00		105	70-130			
Bromobenzene	11.3		ug/L	10.00		113	70-130			
Bromochloromethane	10.1		ug/L	10.00		101	70-130			
Bromodichloromethane	8.76		ug/L	10.00		88	70-130			
Bromoform	10.0		ug/L	10.00		100	70-130			
Bromomethane	8.23		ug/L	10.00		82	70-130			
Carbon Disulfide	10.1		ug/L	10.00		101	70-130			
Carbon Tetrachloride	8.93		ug/L	10.00		89	70-130			
Chlorobenzene	10.1		ug/L	10.00		101	70-130			
Chloroethane	9.68		ug/L	10.00		97	70-130			
Chloroform	9.21		ug/L	10.00		92	70-130			
Chloromethane	8.88		ug/L	10.00		89	70-130			
cis-1,2-Dichloroethene	10.0		ug/L	10.00		100	70-130			
cis-1,3-Dichloropropene	9.55		ug/L	10.00		96	70-130			
Dibromochloromethane	9.47		ug/L	10.00		95	70-130			
Dibromomethane	9.86		ug/L	10.00		99	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31238 - 5030B**

Dichlorodifluoromethane	6.66		ug/L	10.00		67	70-130			B-
Diethyl Ether	10.3		ug/L	10.00		103	70-130			
Di-isopropyl ether	9.92		ug/L	10.00		99	70-130			
Ethyl tertiary-butyl ether	9.82		ug/L	10.00		98	70-130			
Ethylbenzene	11.2		ug/L	10.00		112	70-130			
Hexachlorobutadiene	8.69		ug/L	10.00		87	70-130			
Hexachloroethane	9.78		ug/L	10.00		98	70-130			
Isopropylbenzene	11.7		ug/L	10.00		117	70-130			
Methyl tert-Butyl Ether	9.76		ug/L	10.00		98	70-130			
Methylene Chloride	10.5		ug/L	10.00		105	70-130			
Naphthalene	10.9		ug/L	10.00		109	70-130			
n-Butylbenzene	10.8		ug/L	10.00		108	70-130			
n-Propylbenzene	11.4		ug/L	10.00		114	70-130			
sec-Butylbenzene	11.5		ug/L	10.00		115	70-130			
Styrene	10.2		ug/L	10.00		102	70-130			
tert-Butylbenzene	11.6		ug/L	10.00		116	70-130			
Tertiary-amyl methyl ether	9.45		ug/L	10.00		94	70-130			
Tetrachloroethene	9.94		ug/L	10.00		99	70-130			
Tetrahydrofuran	10.3		ug/L	10.00		103	70-130			
Toluene	10.6		ug/L	10.00		106	70-130			
trans-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130			
trans-1,3-Dichloropropene	8.18		ug/L	10.00		82	70-130			
Trichloroethene	9.83		ug/L	10.00		98	70-130			
Trichlorofluoromethane	8.40		ug/L	10.00		84	70-130			
Vinyl Acetate	9.53		ug/L	10.00		95	70-130			
Vinyl Chloride	10.5		ug/L	10.00		105	70-130			
Xylene O	11.4		ug/L	10.00		114	70-130			
Xylene P,M	23.0		ug/L	20.00		115	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0196		mg/L	0.02500		78	70-130			
Surrogate: 4-Bromofluorobenzene	0.0213		mg/L	0.02500		85	70-130			
Surrogate: Dibromofluoromethane	0.0231		mg/L	0.02500		92	70-130			
Surrogate: Toluene-d8	0.0255		mg/L	0.02500		102	70-130			

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.41		ug/L	10.00		94	70-130	7	25	
1,1,1-Trichloroethane	9.11		ug/L	10.00		91	70-130	3	25	
1,1,2,2-Tetrachloroethane	10.6		ug/L	10.00		106	70-130	5	25	
1,1,2-Trichloroethane	9.67		ug/L	10.00		97	70-130	5	25	
1,1-Dichloroethane	9.38		ug/L	10.00		94	70-130	3	25	
1,1-Dichloroethene	10.2		ug/L	10.00		102	70-130	1	25	
1,1-Dichloropropene	10.6		ug/L	10.00		106	70-130	2	25	
1,2,3-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	3	25	
1,2,3-Trichloropropane	9.78		ug/L	10.00		98	70-130	3	25	
1,2,4-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	2	25	
1,2,4-Trimethylbenzene	11.1		ug/L	10.00		111	70-130	0.8	25	
1,2-Dibromo-3-Chloropropane	10.3		ug/L	10.00		103	70-130	5	25	



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
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**Quality Control Data**

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

**Batch CH31238 - 5030B**

1,2-Dibromoethane	9.85		ug/L	10.00		98	70-130	8	25	
1,2-Dichlorobenzene	10.5		ug/L	10.00		105	70-130	2	25	
1,2-Dichloroethane	8.81		ug/L	10.00		88	70-130	2	25	
1,2-Dichloropropane	9.46		ug/L	10.00		95	70-130	4	25	
1,3,5-Trimethylbenzene	11.5		ug/L	10.00		115	70-130	2	25	
1,3-Dichlorobenzene	10.8		ug/L	10.00		108	70-130	0.9	25	
1,3-Dichloropropane	10.3		ug/L	10.00		103	70-130	5	25	
1,4-Dichlorobenzene	9.80		ug/L	10.00		98	70-130	6	25	
1,4-Dioxane - Screen	188		ug/L	200.0		94	0-332	5	200	
1-Chlorohexane	10.3		ug/L	10.00		103	70-130	4	25	
2,2-Dichloropropane	8.72		ug/L	10.00		87	70-130	3	25	
2-Butanone	46.3		ug/L	50.00		93	70-130	8	25	
2-Chlorotoluene	11.2		ug/L	10.00		112	70-130	2	25	
2-Hexanone	51.6		ug/L	50.00		103	70-130	11	25	
4-Chlorotoluene	11.0		ug/L	10.00		110	70-130	1	25	
4-Isopropyltoluene	10.8		ug/L	10.00		108	70-130	2	25	
4-Methyl-2-Pentanone	48.7		ug/L	50.00		97	70-130	5	25	
Acetone	44.3		ug/L	50.00		89	70-130	9	25	
Benzene	10.4		ug/L	10.00		104	70-130	2	25	
Bromobenzene	10.7		ug/L	10.00		107	70-130	5	25	
Bromochloromethane	9.76		ug/L	10.00		98	70-130	4	25	
Bromodichloromethane	8.68		ug/L	10.00		87	70-130	0.9	25	
Bromoform	9.35		ug/L	10.00		94	70-130	7	25	
Bromomethane	8.05		ug/L	10.00		80	70-130	2	25	
Carbon Disulfide	9.70		ug/L	10.00		97	70-130	4	25	
Carbon Tetrachloride	8.71		ug/L	10.00		87	70-130	2	25	
Chlorobenzene	9.56		ug/L	10.00		96	70-130	6	25	
Chloroethane	9.30		ug/L	10.00		93	70-130	4	25	
Chloroform	8.91		ug/L	10.00		89	70-130	3	25	
Chloromethane	8.77		ug/L	10.00		88	70-130	1	25	
cis-1,2-Dichloroethene	9.78		ug/L	10.00		98	70-130	3	25	
cis-1,3-Dichloropropene	9.23		ug/L	10.00		92	70-130	3	25	
Dibromochloromethane	9.06		ug/L	10.00		91	70-130	4	25	
Dibromomethane	9.52		ug/L	10.00		95	70-130	4	25	
Dichlorodifluoromethane	6.50		ug/L	10.00		65	70-130	2	25	
Diethyl Ether	10.2		ug/L	10.00		102	70-130	1	25	
Di-isopropyl ether	9.78		ug/L	10.00		98	70-130	1	25	
Ethyl tertiary-butyl ether	9.52		ug/L	10.00		95	70-130	3	25	
Ethylbenzene	10.6		ug/L	10.00		106	70-130	5	25	
Hexachlorobutadiene	8.59		ug/L	10.00		86	70-130	1	25	
Hexachloroethane	9.64		ug/L	10.00		96	70-130	1	25	
Isopropylbenzene	11.3		ug/L	10.00		113	70-130	3	25	
Methyl tert-Butyl Ether	9.41		ug/L	10.00		94	70-130	4	25	
Methylene Chloride	10.5		ug/L	10.00		105	70-130	0.1	25	
Naphthalene	10.4		ug/L	10.00		104	70-130	5	25	

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*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
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ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31238 - 5030B**

n-Butylbenzene	10.7		ug/L	10.00		107	70-130	2	25	
n-Propylbenzene	11.1		ug/L	10.00		111	70-130	2	25	
sec-Butylbenzene	11.3		ug/L	10.00		113	70-130	2	25	
Styrene	9.85		ug/L	10.00		98	70-130	4	25	
tert-Butylbenzene	11.2		ug/L	10.00		112	70-130	3	25	
Tertiary-amyl methyl ether	9.24		ug/L	10.00		92	70-130	2	25	
Tetrachloroethene	9.56		ug/L	10.00		96	70-130	4	25	
Tetrahydrofuran	9.39		ug/L	10.00		94	70-130	9	25	
Toluene	10.4		ug/L	10.00		104	70-130	2	25	
trans-1,2-Dichloroethene	9.68		ug/L	10.00		97	70-130	4	25	
trans-1,3-Dichloropropene	7.92		ug/L	10.00		79	70-130	3	25	
Trichloroethene	9.55		ug/L	10.00		96	70-130	3	25	
Trichlorofluoromethane	8.32		ug/L	10.00		83	70-130	1	25	
Vinyl Acetate	9.34		ug/L	10.00		93	70-130	2	25	
Vinyl Chloride	10.2		ug/L	10.00		102	70-130	3	25	
Xylene O	10.7		ug/L	10.00		107	70-130	6	25	
Xylene P,M	21.7		ug/L	20.00		108	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	0.0196		mg/L	0.02500		78	70-130			
Surrogate: 4-Bromofluorobenzene	0.0211		mg/L	0.02500		84	70-130			
Surrogate: Dibromofluoromethane	0.0230		mg/L	0.02500		92	70-130			
Surrogate: Toluene-d8	0.0247		mg/L	0.02500		99	70-130			

**Batch CH31533 - 5030B**

<b>Blank</b>										
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31533 - 5030B**

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							
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							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31533 - 5030B**

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							
Surrogate: 1,2-Dichloroethane-d4	0.0226		mg/L	0.02500		90	70-130			
Surrogate: 4-Bromofluorobenzene	0.0240		mg/L	0.02500		96	70-130			
Surrogate: Dibromofluoromethane	0.0227		mg/L	0.02500		91	70-130			
Surrogate: Toluene-d8	0.0247		mg/L	0.02500		99	70-130			

**LCS**

1,1,1,2-Tetrachloroethane	9.45		ug/L	10.00		94	70-130			
1,1,1-Trichloroethane	9.96		ug/L	10.00		100	70-130			
1,1,2,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130			
1,1,2-Trichloroethane	9.64		ug/L	10.00		96	70-130			
1,1-Dichloroethane	8.98		ug/L	10.00		90	70-130			
1,1-Dichloroethene	9.74		ug/L	10.00		97	70-130			
1,1-Dichloropropene	9.91		ug/L	10.00		99	70-130			
1,2,3-Trichlorobenzene	10.9		ug/L	10.00		109	70-130			
1,2,3-Trichloropropane	11.1		ug/L	10.00		111	70-130			
1,2,4-Trichlorobenzene	10.0		ug/L	10.00		100	70-130			
1,2,4-Trimethylbenzene	9.63		ug/L	10.00		96	70-130			
1,2-Dibromo-3-Chloropropane	8.92		ug/L	10.00		89	70-130			
1,2-Dibromoethane	9.86		ug/L	10.00		99	70-130			
1,2-Dichlorobenzene	10.6		ug/L	10.00		106	70-130			
1,2-Dichloroethane	9.20		ug/L	10.00		92	70-130			
1,2-Dichloropropane	8.71		ug/L	10.00		87	70-130			
1,3,5-Trimethylbenzene	10.1		ug/L	10.00		101	70-130			
1,3-Dichlorobenzene	10.6		ug/L	10.00		106	70-130			
1,3-Dichloropropane	9.74		ug/L	10.00		97	70-130			
1,4-Dichlorobenzene	10.5		ug/L	10.00		105	70-130			
1,4-Dioxane - Screen	194		ug/L	200.0		97	0-332			
1-Chlorohexane	9.17		ug/L	10.00		92	70-130			
2,2-Dichloropropane	9.14		ug/L	10.00		91	70-130			
2-Butanone	50.3		ug/L	50.00		101	70-130			
2-Chlorotoluene	10.1		ug/L	10.00		101	70-130			
2-Hexanone	50.5		ug/L	50.00		101	70-130			
4-Chlorotoluene	9.47		ug/L	10.00		95	70-130			
4-Isopropyltoluene	9.66		ug/L	10.00		97	70-130			
4-Methyl-2-Pentanone	46.7		ug/L	50.00		93	70-130			
Acetone	53.6		ug/L	50.00		107	70-130			
Benzene	10.0		ug/L	10.00		100	70-130			
Bromobenzene	10.4		ug/L	10.00		104	70-130			
Bromochloromethane	10.6		ug/L	10.00		106	70-130			





CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31533 - 5030B**

Bromodichloromethane	8.82		ug/L	10.00		88	70-130			
Bromoform	8.93		ug/L	10.00		89	70-130			
Bromomethane	8.29		ug/L	10.00		83	70-130			
Carbon Disulfide	9.81		ug/L	10.00		98	70-130			
Carbon Tetrachloride	9.99		ug/L	10.00		100	70-130			
Chlorobenzene	10.5		ug/L	10.00		105	70-130			
Chloroethane	8.04		ug/L	10.00		80	70-130			
Chloroform	9.79		ug/L	10.00		98	70-130			
Chloromethane	8.00		ug/L	10.00		80	70-130			
cis-1,2-Dichloroethene	9.82		ug/L	10.00		98	70-130			
cis-1,3-Dichloropropene	8.71		ug/L	10.00		87	70-130			
Dibromochloromethane	8.75		ug/L	10.00		88	70-130			
Dibromomethane	9.81		ug/L	10.00		98	70-130			
Dichlorodifluoromethane	7.56		ug/L	10.00		76	70-130			
Diethyl Ether	8.78		ug/L	10.00		88	70-130			
Di-isopropyl ether	8.24		ug/L	10.00		82	70-130			
Ethyl tertiary-butyl ether	8.23		ug/L	10.00		82	70-130			
Ethylbenzene	9.90		ug/L	10.00		99	70-130			
Hexachlorobutadiene	9.93		ug/L	10.00		99	70-130			
Hexachloroethane	9.18		ug/L	10.00		92	70-130			
Isopropylbenzene	9.89		ug/L	10.00		99	70-130			
Methyl tert-Butyl Ether	8.73		ug/L	10.00		87	70-130			
Methylene Chloride	9.81		ug/L	10.00		98	70-130			
Naphthalene	9.29		ug/L	10.00		93	70-130			
n-Butylbenzene	9.12		ug/L	10.00		91	70-130			
n-Propylbenzene	9.83		ug/L	10.00		98	70-130			
sec-Butylbenzene	10.1		ug/L	10.00		101	70-130			
Styrene	9.71		ug/L	10.00		97	70-130			
tert-Butylbenzene	9.98		ug/L	10.00		100	70-130			
Tertiary-amyl methyl ether	8.31		ug/L	10.00		83	70-130			
Tetrachloroethene	10.0		ug/L	10.00		100	70-130			
Tetrahydrofuran	8.52		ug/L	10.00		85	70-130			
Toluene	10.2		ug/L	10.00		102	70-130			
trans-1,2-Dichloroethene	9.88		ug/L	10.00		99	70-130			
trans-1,3-Dichloropropene	7.31		ug/L	10.00		73	70-130			
Trichloroethene	9.51		ug/L	10.00		95	70-130			
Trichlorofluoromethane	9.81		ug/L	10.00		98	70-130			
Vinyl Acetate	8.88		ug/L	10.00		89	70-130			
Vinyl Chloride	10.3		ug/L	10.00		103	70-130			
Xylene O	10.4		ug/L	10.00		104	70-130			
Xylene P,M	21.0		ug/L	20.00		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0237		mg/L	0.02500		95	70-130			
Surrogate: 4-Bromofluorobenzene	0.0248		mg/L	0.02500		99	70-130			
Surrogate: Dibromofluoromethane	0.0250		mg/L	0.02500		100	70-130			
Surrogate: Toluene-d8	0.0248		mg/L	0.02500		99	70-130			



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31533 - 5030B**

**LCS Dup**

1,1,1,2-Tetrachloroethane	9.24		ug/L	10.00		92	70-130	2	25	
1,1,1-Trichloroethane	9.55		ug/L	10.00		96	70-130	4	25	
1,1,2,2-Tetrachloroethane	9.87		ug/L	10.00		99	70-130	6	25	
1,1,2-Trichloroethane	9.58		ug/L	10.00		96	70-130	0.6	25	
1,1-Dichloroethane	8.89		ug/L	10.00		89	70-130	1	25	
1,1-Dichloroethene	9.83		ug/L	10.00		98	70-130	0.9	25	
1,1-Dichloropropene	9.73		ug/L	10.00		97	70-130	2	25	
1,2,3-Trichlorobenzene	9.57		ug/L	10.00		96	70-130	13	25	
1,2,3-Trichloropropane	10.2		ug/L	10.00		102	70-130	8	25	
1,2,4-Trichlorobenzene	9.32		ug/L	10.00		93	70-130	8	25	
1,2,4-Trimethylbenzene	9.41		ug/L	10.00		94	70-130	2	25	
1,2-Dibromo-3-Chloropropane	8.27		ug/L	10.00		83	70-130	8	25	
1,2-Dibromoethane	9.67		ug/L	10.00		97	70-130	2	25	
1,2-Dichlorobenzene	10.6		ug/L	10.00		106	70-130	0.6	25	
1,2-Dichloroethane	8.85		ug/L	10.00		88	70-130	4	25	
1,2-Dichloropropane	8.81		ug/L	10.00		88	70-130	1	25	
1,3,5-Trimethylbenzene	10.1		ug/L	10.00		101	70-130	0.1	25	
1,3-Dichlorobenzene	10.5		ug/L	10.00		105	70-130	0.7	25	
1,3-Dichloropropane	9.57		ug/L	10.00		96	70-130	2	25	
1,4-Dichlorobenzene	10.1		ug/L	10.00		101	70-130	3	25	
1,4-Dioxane - Screen	147		ug/L	200.0		74	0-332	28	200	
1-Chlorohexane	9.05		ug/L	10.00		90	70-130	1	25	
2,2-Dichloropropane	8.82		ug/L	10.00		88	70-130	4	25	
2-Butanone	49.7		ug/L	50.00		99	70-130	1	25	
2-Chlorotoluene	9.95		ug/L	10.00		100	70-130	1	25	
2-Hexanone	48.0		ug/L	50.00		96	70-130	5	25	
4-Chlorotoluene	9.64		ug/L	10.00		96	70-130	2	25	
4-Isopropyltoluene	9.57		ug/L	10.00		96	70-130	0.9	25	
4-Methyl-2-Pentanone	46.2		ug/L	50.00		92	70-130	1	25	
Acetone	50.7		ug/L	50.00		101	70-130	6	25	
Benzene	9.97		ug/L	10.00		100	70-130	0.5	25	
Bromobenzene	10.2		ug/L	10.00		102	70-130	2	25	
Bromochloromethane	10.3		ug/L	10.00		103	70-130	3	25	
Bromodichloromethane	8.85		ug/L	10.00		88	70-130	0.3	25	
Bromoform	9.01		ug/L	10.00		90	70-130	0.9	25	
Bromomethane	7.72		ug/L	10.00		77	70-130	7	25	
Carbon Disulfide	9.74		ug/L	10.00		97	70-130	0.7	25	
Carbon Tetrachloride	9.91		ug/L	10.00		99	70-130	0.8	25	
Chlorobenzene	10.3		ug/L	10.00		103	70-130	1	25	
Chloroethane	8.40		ug/L	10.00		84	70-130	4	25	
Chloroform	9.62		ug/L	10.00		96	70-130	2	25	
Chloromethane	7.40		ug/L	10.00		74	70-130	8	25	
cis-1,2-Dichloroethene	9.86		ug/L	10.00		99	70-130	0.4	25	
cis-1,3-Dichloropropene	8.71		ug/L	10.00		87	70-130	0	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

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

**Batch CH31533 - 5030B**

Dibromochloromethane	8.53		ug/L	10.00		85	70-130	3	25	
Dibromomethane	9.51		ug/L	10.00		95	70-130	3	25	
Dichlorodifluoromethane	7.32		ug/L	10.00		73	70-130	3	25	
Diethyl Ether	8.60		ug/L	10.00		86	70-130	2	25	
Di-isopropyl ether	8.22		ug/L	10.00		82	70-130	0.2	25	
Ethyl tertiary-butyl ether	8.25		ug/L	10.00		82	70-130	0.2	25	
Ethylbenzene	9.88		ug/L	10.00		99	70-130	0.2	25	
Hexachlorobutadiene	9.37		ug/L	10.00		94	70-130	6	25	
Hexachloroethane	8.96		ug/L	10.00		90	70-130	2	25	
Isopropylbenzene	9.95		ug/L	10.00		100	70-130	0.6	25	
Methyl tert-Butyl Ether	8.73		ug/L	10.00		87	70-130	0	25	
Methylene Chloride	10.0		ug/L	10.00		100	70-130	2	25	
Naphthalene	7.99		ug/L	10.00		80	70-130	15	25	
n-Butylbenzene	8.85		ug/L	10.00		88	70-130	3	25	
n-Propylbenzene	9.66		ug/L	10.00		97	70-130	2	25	
sec-Butylbenzene	9.94		ug/L	10.00		99	70-130	1	25	
Styrene	9.62		ug/L	10.00		96	70-130	0.9	25	
tert-Butylbenzene	9.95		ug/L	10.00		100	70-130	0.3	25	
Tertiary-amyl methyl ether	8.16		ug/L	10.00		82	70-130	2	25	
Tetrachloroethene	10.3		ug/L	10.00		103	70-130	3	25	
Tetrahydrofuran	7.99		ug/L	10.00		80	70-130	6	25	
Toluene	10.2		ug/L	10.00		102	70-130	0.8	25	
trans-1,2-Dichloroethene	9.61		ug/L	10.00		96	70-130	3	25	
trans-1,3-Dichloropropene	7.42		ug/L	10.00		74	70-130	1	25	
Trichloroethene	9.58		ug/L	10.00		96	70-130	0.7	25	
Trichlorofluoromethane	9.91		ug/L	10.00		99	70-130	1	25	
Vinyl Acetate	8.08		ug/L	10.00		81	70-130	9	25	
Vinyl Chloride	10.1		ug/L	10.00		101	70-130	1	25	
Xylene O	10.4		ug/L	10.00		104	70-130	0.6	25	
Xylene P,M	20.4		ug/L	20.00		102	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	0.0231		mg/L	0.02500		92	70-130			
Surrogate: 4-Bromofluorobenzene	0.0246		mg/L	0.02500		98	70-130			
Surrogate: Dibromofluoromethane	0.0247		mg/L	0.02500		99	70-130			
Surrogate: Toluene-d8	0.0248		mg/L	0.02500		99	70-130			

8270C(SIM) Polynuclear Aromatic Hydrocarbons

**Batch CH31002 - 3510C**

**Blank**

2-Methylnaphthalene	ND	0.0002	mg/L							
Acenaphthene	ND	0.0002	mg/L							
Acenaphthylene	ND	0.0002	mg/L							
Anthracene	ND	0.0002	mg/L							
Benzo(a)anthracene	ND	0.00005	mg/L							
Benzo(a)pyrene	ND	0.00005	mg/L							
Benzo(b)fluoranthene	ND	0.00005	mg/L							



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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**8270C(SIM) Polynuclear Aromatic Hydrocarbons**

**Batch CH31002 - 3510C**

Benzo(g,h,i)perylene	ND	0.0002	mg/L							
Benzo(k)fluoranthene	ND	0.00005	mg/L							
Chrysene	ND	0.00005	mg/L							
Dibenzo(a,h)Anthracene	ND	0.00005	mg/L							
Fluoranthene	ND	0.0002	mg/L							
Fluorene	ND	0.0002	mg/L							
Indeno(1,2,3-cd)Pyrene	ND	0.00005	mg/L							
Naphthalene	ND	0.0002	mg/L							
Phenanthrene	ND	0.0002	mg/L							
Pyrene	ND	0.0002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.00134		mg/L	0.002500		54	30-130			
Surrogate: 2-Fluorobiphenyl	0.00145		mg/L	0.002500		58	30-130			
Surrogate: Nitrobenzene-d5	0.00180		mg/L	0.002500		72	30-130			
Surrogate: p-Terphenyl-d14	0.00204		mg/L	0.002500		82	30-130			

**LCS**

2-Methylnaphthalene	0.0027	0.0002	mg/L	0.004000		67	40-140			
Acenaphthene	0.0026	0.0002	mg/L	0.004000		64	40-140			
Acenaphthylene	0.0023	0.0002	mg/L	0.004000		57	40-140			
Anthracene	0.0028	0.0002	mg/L	0.004000		70	40-140			
Benzo(a)anthracene	0.0028	0.00005	mg/L	0.004000		71	40-140			
Benzo(a)pyrene	0.0026	0.00005	mg/L	0.004000		64	40-140			
Benzo(b)fluoranthene	0.0026	0.00005	mg/L	0.004000		65	40-140			
Benzo(g,h,i)perylene	0.0029	0.0002	mg/L	0.004000		72	40-140			
Benzo(k)fluoranthene	0.0027	0.00005	mg/L	0.004000		67	40-140			
Chrysene	0.0028	0.00005	mg/L	0.004000		69	40-140			
Dibenzo(a,h)Anthracene	0.0032	0.00005	mg/L	0.004000		81	40-140			
Fluoranthene	0.0025	0.0002	mg/L	0.004000		64	40-140			
Fluorene	0.0026	0.0002	mg/L	0.004000		66	40-140			
Indeno(1,2,3-cd)Pyrene	0.0031	0.00005	mg/L	0.004000		78	40-140			
Naphthalene	0.0024	0.0002	mg/L	0.004000		61	40-140			
Phenanthrene	0.0027	0.0002	mg/L	0.004000		69	40-140			
Pyrene	0.0028	0.0002	mg/L	0.004000		70	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.00163		mg/L	0.002500		65	30-130			
Surrogate: 2-Fluorobiphenyl	0.00173		mg/L	0.002500		69	30-130			
Surrogate: Nitrobenzene-d5	0.00208		mg/L	0.002500		83	30-130			
Surrogate: p-Terphenyl-d14	0.00244		mg/L	0.002500		98	30-130			

**LCS Dup**

2-Methylnaphthalene	0.0029	0.0002	mg/L	0.004000		73	40-140	9	20	
Acenaphthene	0.0028	0.0002	mg/L	0.004000		69	40-140	8	20	
Acenaphthylene	0.0025	0.0002	mg/L	0.004000		64	40-140	11	20	
Anthracene	0.0030	0.0002	mg/L	0.004000		76	40-140	8	20	
Benzo(a)anthracene	0.0031	0.00005	mg/L	0.004000		78	40-140	11	20	
Benzo(a)pyrene	0.0029	0.00005	mg/L	0.004000		74	40-140	14	20	
Benzo(b)fluoranthene	0.0029	0.00005	mg/L	0.004000		72	40-140	11	20	
Benzo(g,h,i)perylene	0.0033	0.0002	mg/L	0.004000		83	40-140	14	20	



*CERTIFICATE OF ANALYSIS*

Client Name: GZA GeoEnvironmental, Inc.  
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ESS Laboratory Work Order: 1308137

**Quality Control Data**

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8270C(SIM) Polynuclear Aromatic Hydrocarbons

**Batch CH31002 - 3510C**

Benzo(k)fluoranthene	0.0030	0.00005	mg/L	0.004000		76	40-140	13	20	
Chrysene	0.0031	0.00005	mg/L	0.004000		78	40-140	12	20	
Dibenzo(a,h)Anthracene	0.0036	0.00005	mg/L	0.004000		91	40-140	12	20	
Fluoranthene	0.0028	0.0002	mg/L	0.004000		70	40-140	10	20	
Fluorene	0.0030	0.0002	mg/L	0.004000		74	40-140	12	20	
Indeno(1,2,3-cd)Pyrene	0.0035	0.00005	mg/L	0.004000		87	40-140	11	20	
Naphthalene	0.0027	0.0002	mg/L	0.004000		68	40-140	11	20	
Phenanthrene	0.0031	0.0002	mg/L	0.004000		76	40-140	11	20	
Pyrene	0.0032	0.0002	mg/L	0.004000		80	40-140	13	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.00155		mg/L	0.002500		62	30-130			
Surrogate: 2-Fluorobiphenyl	0.00172		mg/L	0.002500		69	30-130			
Surrogate: Nitrobenzene-d5	0.00204		mg/L	0.002500		82	30-130			
Surrogate: p-Terphenyl-d14	0.00250		mg/L	0.002500		100	30-130			

Classical Chemistry

**Batch CH31308 - TCN Prep**

<b>Blank</b>										
Dissolved Cyanide	ND	0.0050	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							
<b>LCS</b>										
Dissolved Cyanide	0.0218	0.0050	mg/L	0.02006		108	90-110			
Total Cyanide (LL)	0.0218	0.0050	mg/L	0.02006		108	90-110			
<b>LCS</b>										
Dissolved Cyanide	0.149	0.0050	mg/L	0.1504		99	90-110			
Total Cyanide (LL)	0.149	0.0050	mg/L	0.1504		99	90-110			
<b>LCS Dup</b>										
Dissolved Cyanide	0.148	0.0050	mg/L	0.1504		99	90-110	0.6	20	
Total Cyanide (LL)	0.148	0.0050	mg/L	0.1504		99	90-110	0.6	20	



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**Notes and Definitions**

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



*CERTIFICATE OF ANALYSIS*

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

ESS Laboratory Work Order: 1308137

**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/labs/waterlabs-instate.php>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750  
[http://www.ct.gov/dph/lib/dph/environmental\\_health/environmental\\_laboratories/pdf/OutofStateCommercialLaboratories.pdf](http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf)

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002  
[http://www.maine.gov/dep/blwq/topic/vessel/lab\\_list.pdf](http://www.maine.gov/dep/blwq/topic/vessel/lab_list.pdf)

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://www4.egov.nh.gov/des/nhelap/namesearch.asp>

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/DEP\\_OPRA/](http://datamine2.state.nj.us/dep/DEP_OPRA/)

United States Department of Agriculture Soil Permit: S-54210

Maryland Potable Water: 301  
[http://www.mde.state.md.us/assets/document/WSP\\_labs-2009apr20.pdf](http://www.mde.state.md.us/assets/document/WSP_labs-2009apr20.pdf)

**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.cpsc.gov/cgi-bin/labapplist.aspx>

**Sample and Cooler Receipt Checklist**

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

ESS Project ID: 13080137  
Date Project Due: 8/15/13  
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: 3.8  
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	pH	Time
1	Yes	1 L Glass	2	HCL	} 7.12	1238
1	Yes	1 L Glass	2	NP		
1	Yes	250 ml Plastic	2	NaOH		
1	Yes	40 ml - VOA	3	HCL		
2	Yes	1 L Glass	2	HCL		
2	Yes	1 L Glass	2	NP		
2	Yes	250 ml Plastic	2	NaOH		
2	Yes	40 ml - VOA	3	HCL		
3	Yes	40 ml - VOA	1	HCL		
3	Yes	40 ml - VOA	1	HCL		

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

Date/Time: 8/15/13 1239  
Date/Time: 8/8/13 13:50



