



**GROUNDWATER MONITORING REPORT - 2014
FORMER TIDEWATER FACILITY
AND MERRY STREET
PAWTUCKET, RHODE ISLAND**

PREPARED FOR:
RIDEM
Providence, Rhode Island

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

December 2015
File No. 43654.00

December 7, 2015
File No. 05.000043654.00

Via E-Mail and U.S. Mail



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

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

Re: 2014 Groundwater Monitoring Report
Former Tidewater Facility
200 Taft Street
Pawtucket, Rhode Island

Dear Mr. Martella:

On behalf of the Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) is pleased to present to the Rhode Island Department of Environmental Management (RIDEM) the attached *2014 Groundwater Monitoring Report*. This *Groundwater Monitoring Report* describes groundwater monitoring activities that were performed at the above-referenced Site during the 2014 calendar year.

For the 2015 monitoring activities, groundwater elevation and NAPL thickness gauging has been completed in January 2015, April 2015, July 2015, and November 2015. Groundwater sampling was completed in November 2015. Results of the 2015 groundwater monitoring events will be presented in a *Groundwater Monitoring Report* which is anticipated to be submitted to RIDEM during the first quarter of 2016.

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'.

James J. Clark, P.E.
Senior Principal

MSK/JJC

Attachment: *2014 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 2014 *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 groundwater sampling round performed in October 2014. In addition, this report summarizes groundwater elevations, non-aqueous phase liquid (NAPL) gauging, and surface water observations made during 2014.

The groundwater analytical 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 Area 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. As described in previous reports, the Site includes 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.

1.20 SITE BACKGROUND

The former MGP operated from the 1880s until 1954 with peak shaving operations continuing until the late 1960s. The former 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.¹

As described in the RAE, groundwater elevation and NAPL gauging and groundwater quality monitoring are anticipated to be part of the final remedy for this Site. The following sections describe shoreline observations, groundwater elevation and NAPL gauging and groundwater quality monitoring performed in 2014. As described further herein, the results of this 2014 monitoring were generally consistent with previous data and do not alter the information presented or recommendations made in the July 2011 RAE.

2.00 SHORELINE OBSERVATIONS

The Site is visited on an at least a twice-monthly basis to record observations of any sheens along the shoreline. The shoreline of the Site is approximately 2,280 feet long and consists largely of manmade bulkheads. Certain portions of the shoreline, primarily the northern and southern extents, consists of natural slopes to the adjacent Seekonk River. Between January 2014 and December 2014, 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.² Sheen observations have been limited to the following two general shoreline areas:

- an approximate 10 foot section of the FGPA near MW-326S and TB-12/MW-3; and
- an approximate 10 foot section of the FPPA proximate to the Narragansett Bay Commission (NBC) Combined Sewer Outfall (CSO) near MW-103.

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 shoreline and remnants of wooden sheet piling (associated with a former dock). Sheens observed in the FPPA proximate to the NBC CSO near MW-103 are generally observed as bright to dull localized spots less than 3 feet in diameter observed very close to the shoreline. Sheens at the Site 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 2014 were generally consistent with previous observations as documented in the

¹ A SIR Addendum was prepared and submitted to the Department in July 2014.

² On July 1, 2014, slight bands of dull sheen were observed in the NFA, near the northern property boundary. The sheen was noted as originating from an upstream, off-Site area.



January 2011 SIDR, the July 2011 RAE and the 2013 Groundwater Monitoring Report. There were no sheens observed proximate to MW-4 where the cap was installed in 2009³, the SFA or the bulkhead area proximate to the FPPA in 2014. Sheen observations are summarized in Table 1.

3.00 GROUNDWATER AND NAPL MONITORING PROGRAM

In addition to the shoreline observations presented above, the monitoring program consists of gauging the monitoring well network for groundwater elevation and the presence of NAPL and groundwater sampling/analytical testing of select monitoring wells. Groundwater elevation and NAPL gauging of available monitoring wells was conducted on a quarterly basis in 2014 (January 2014, April 2014, July 2014, and October 2014). Twenty seven (27) monitoring wells were included in the October 2014 groundwater sampling round. All well locations are shown on the attached Figures 2A and 2B, *Exploration Location Plans*. Monitoring wells that were included in the October 2014 groundwater sampling round are highlighted on Figures 2A and 2B.

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 included in the October 2014 groundwater sampling round: four (4) in the NFA (MW-5, MW-7, MW-310S and MW-310D), ten (10) 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 (8) in the FPPA (M&E MW-2, MW-6, MW-109, MW-314S, MW-314D, MW-316S, MW-316D, and MW-337) and five (5) in the SFA (MW-107, MW-318S, MW-318D, MW-334S and MW-334D).⁴ These well locations were chosen to provide a representative evaluation of overall Site groundwater quality.

3.10 OBSERVATIONS OF NAPL

Between January 2014 and December 2014, GZA performed quarterly NAPL 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 each of the quarterly monitoring events. Comprehensive groundwater elevation and NAPL gauging data are included as Tables 2A and 2B, respectively, for the period from January 2014 through December 2014. A summary of wells exhibiting light Non-Aqueous Phase Liquid (LNAPL) and dense non-aqueous phase liquids (DNAPL) thicknesses since April 2009 are presented in Tables 2C and 2D and are shown on Figures 4A and 4B, respectively. Wells

³ 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* which was prepared by GZA and submitted to the Department.

⁴ MW-5 and MW-316S are 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 samples during the October 2014 monitoring event. Twenty five (25) groundwater samples were able to be collected as part of the October 2014 groundwater sampling round.



exhibiting LNAPL are observed in the FGPA and FPPA and wells exhibiting DNAPL are observed in the FGPA and SFA. Observations of LNAPL and DNAPL thicknesses within these monitoring wells during 2014 were generally consistent with previously observations *with* a few minor deviations, as described below.

During the 2014 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 was 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. Consistent with previous years, GZA removed approximately 9 gallons of NAPL/groundwater in 2014. 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 which is stored in a secure on-Site location for subsequent off-Site disposal.

Figures 4A and 4B, *Groundwater Analytical Data* depict well locations where either measurable LNAPL or DNAPL were observed during the 2014 groundwater monitoring activities.

In addition to the NAPL thicknesses shown in Tables 2C and 2D, during the 2014 annual groundwater sampling event, evidence of sheen was observed on purge water from monitoring wells MW-312S, MW-109, and MW-339D. Purge waters generated from wells MW-312S, MW-326S, MW-326D and MW-109 were observed to exhibit a petroleum-like odor and purge waters from MW-310S, MW-310D, MW-208, MW-312D, MW-339S, MW-339D, MW-334S, and MW-334D 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 2014 sampling event.

Notable NAPL observations in 2014 are as follows:

- **LNAPL:** Between January 2014 and December 2014, measurable levels of LNAPL (defined as equal to or greater than 0.01 feet) were detected in six (6) monitoring wells: five (5) in the FGPA and one (1) in the FPPA. As presented in Tables 2C and 3A, LNAPL thicknesses ranges varied in each well – in the FGPA: MW-3 {non-detect to 0.01 feet}, MW-210 {non-detect to 2.43 feet}, MW-312S {0.03 to 1.38 feet}, MW-313S {non-detect to 0.05 feet} and MW-326S {non-detect to 0.02 feet}; and in the FPPA: M&E MW-5 {trace to 1.97 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).

During the quarterly monitoring events in 2014, 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. Consistent with historic observations, 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 (or more) (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, the July 2011 RAE and the 2013 Groundwater Monitoring Report 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 0.10 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 2014 and December 2014, 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 {trace amounts to 1.44 feet}, MW-303 {1.5 to 5.59 feet} and MW-341 {1.85 to 2.65 feet}; and in the SFA: MW-320S {trace amounts to 1.15 feet} and MW-320D {13.4 to 13.9 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, measurable DNAPL has been detected consistently (since early 2011) at monitoring well MW-341, which is located downgradient of the former Gasholders No. 7 and 8. It should be noted that monitoring well MW-103, which was the only well on the FPPA where measurable DNAPL was detected during the 2010 Site investigations, has not shown evidence of DNAPL since 2011.

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 2014 (MW-303 and MW-341 installed on the FGPA portion of the Site). During the 2014 recovery rounds, 0.5 to 1 gallon of DNAPL was recovered each quarter from MW-341. DNAPL recovery at MW-303 was limited to approximately 0.1 gallons due to the viscosity of the DNAPL in this well.

In general, DNAPL thicknesses and recoverability rates observed during 2014 are consistent with historic observations. It should be noted that the measured DNAPL thickness in MW-320D has increased. DNAPL thickness in MW-320D was detected between 1.05 and 10 feet between 2009 and 2013, while DNAPL thickness ranged between 13.4 and 13.9 feet in 2014. 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. Although thicknesses of DNAPL were observed to increase in MW-320D during 2014, GZA has not observed the presence of sheen in the waterfront area adjacent to MW-320D, indicating that the DNAPL in this well is not particularly mobile.



3.20 GROUNDWATER FLOW DIRECTION

Between April 2009 and October 2014, 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 2014. The groundwater elevations recorded during the October 2014 gauging round were used to construct the *Groundwater Elevation Contour Plan* presented as Figure 3. Groundwater elevations during the 2014 gauging events are generally consistent with those recorded during previous monitoring events. As expected, review of groundwater elevations recorded during the 2014 reporting period indicated that the groundwater beneath the Site generally 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. As indicated on Figure 3 and consistent with Site topography, groundwater elevations decline steeply from west to east on the northern side of the Site. In general, groundwater elevations tend to flatten along the eastern side of the Site closer to the Seekonk River.

3.30 GROUNDWATER SAMPLING TECHNIQUES

During the 2014 annual event, groundwater samples were collected from twenty-five (25) of the twenty-seven (27) wells included in the program⁵. 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.

⁵ MW-5 and MW-316S are 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 samples during the October 2014 monitoring event.



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, 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.

3.40 INVESTIGATION-DERIVED WASTE MANAGEMENT

As described previously, NAPL/groundwater that was recovered during 2014 NAPL monitoring/recovery was containerized in a drum stored securely on-Site for subsequent off-Site disposal. One (1) drum of purgewater was also generated during the October 2014 sampling event. This purgewater was containerized in a labeled 55-gallon steel drum. Once the sampling event was complete, the drum was removed from the Site by Clean Harbors Environmental Services, Inc. (CHES) of East Providence, Rhode Island for proper off-Site disposal. A copy of the disposal manifest is included in Appendix B.

3.50 QA/QC SAMPLING AND ANALYSIS

During the 2014 sampling round, twenty-five (25) groundwater samples, two (2) blind duplicate samples and one (1) trip blank was 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 blank was below the laboratory reporting limit for all 67 targeted compounds. Two duplicate sample sets (Set #1 – M&E MW-2 and BD#1 and Set #2 – MW-312D and MW-BD-102314) were also submitted for VOCs, PAH, TPH, total cyanide and dissolved free 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 1,3,5-Trimethylbenzene, 4-Isopropyltoluene, Isopropylbenzene, n-Propylbenzene, sec-Butylbenzene, and Anthracene in one sample set (MW-312D and MW-BD-102314). Elevated RPDs in laboratory control samples were noted for TPH and Dibenzo (a,h) Anthracene. Given the nature of the observed Site impacts, the variability in the 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 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 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 of the applicable RIDEM groundwater standards have been detected over large areas of the Site, including the FPPA, the western portion of the FGPA and the western



portion of the SFA. Figures 4A and 4B, *Analytical Groundwater Data*, present the total VOC concentrations detected in groundwater samples during the October 2014 sampling round and wells with GB groundwater exceedances. As indicated on these figures, exceedances of the standards are limited to the following compounds: ethylbenzene, benzene, and naphthalene.

Analytical data from the 2014 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 2014 event were consistent with levels detected in previous sampling results. A summary of the 2014 data is presented below.

Volatile Organic Compounds

As indicated in Table 4A, VOCs were detected in twenty-one of the groundwater samples analyzed (21/25) in 2014. The total VOC concentrations detected during the 2014 monitoring event ranged from 0.0013 mg/L to 17.1 mg/L. Five wells (5/25) exceeded the GB Groundwater Objective for one or more VOCs. Three (3/25) samples exceeded the Method 2 GB Groundwater Objective for naphthalene, four (4/25) samples exceeded the Method 1 GB Groundwater Objective for benzene and one (1/25) sample exceeded the Method 1 GB Groundwater Objective for ethylbenzene.

The presence of these compounds in groundwater samples is typical for former MGP and power plant sites and consistent with historical sampling results for the Tidewater Site. None of the VOCs detected in groundwater in 2014 exceeded UCLs. The following sections discuss the dissolved-phased VOC analytical results for the 2014 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 2014 monitoring event and analyzed for VOCs. The groundwater sample from MW-310D had eight VOC detections, with two exceedances of the GB Groundwater Objectives for benzene and naphthalene. Benzene was detected in MW-310D at a concentration of 0.652 mg/L, exceeding the GB Groundwater Objective of 0.14 mg/L. Naphthalene was detected in MW-310D at a concentration of 8.96 mg/L, exceeding the Method 2 derived GB Groundwater Objective of 2.67 mg/L. Ethylbenzene was detected at a concentration of 0.918 mg/L, below the GB Groundwater Objective of 1.6 mg/L. There were no other exceedances of GB Groundwater Objectives. VOC compounds were not detected in MW-7 and only two VOC compounds were detected in MW-310S. Benzene was detected in MW-310S at a concentration of 0.002 mg/L, well below the GB Groundwater Objective. Naphthalene was detected in MW-310S at a concentration of 0.0013 mg/L, well below the GB Groundwater Objective. Ethylbenzene was not detected in 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, July 2012 and August 2013), consistent with the 2014 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 2014 monitoring event and analyzed for VOCs. Exceedances of the GB Groundwater Objectives for VOCs were detected in four (4) monitoring wells: MW-312D, MW-326S, MW-333D, and MW-339D. Benzene was detected in eight samples (8/10) at concentrations ranging from 0.0016 mg/L to 5.98 mg/L, with three samples (3/10) exceeding the GB Groundwater Objective (MW-312D, 5.98 mg/L; MW-326S, 0.352 mg/L; and MW-333D, 1.76 mg/L). Naphthalene was detected in eight samples (8/10) at concentrations ranging from 0.0026 mg/L to 8.17 mg/L, with two samples (2/10) exceeding the GB Groundwater Objective (MW-312D, 8.17 mg/L; and MW-339D, 4.29 mg/L). Ethylbenzene was detected in seven samples (7/10) at concentrations ranging from 0.0012 mg/L to 1.93 mg/L, with one sample (1/10) exceeding the GB Groundwater Objective (MW-312D, 1.93 mg/L).

Dissolved phase VOC results for the FGPA in 2014 were consistent with historic groundwater results, with exceedances of the GB Groundwater Objectives limited to naphthalene, ethylbenzene and benzene. 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)

Seven (7) groundwater samples were collected in this area during the 2014 monitoring event for VOC analysis (M&E MW-2, MW-6, MW-109, MW-314S, MW-314D, MW-316D and MW-337). Two samples (2/7; MW-314D and MW-316D) were non-detect for VOCs during the 2014 event. For the targeted⁶ VOCs within the eight groundwater samples collected, benzene was detected in two samples (MW-6 – 0.0115 mg/L and MW-109 – 0.135 mg/L), naphthalene was detected in four samples (M&E MW-2 – 0.0112 mg/L, MW-6 – 0.0024 mg/L, MW-109 – 0.248 mg/L and MW-314S – 0.0014 mg/L) and ethylbenzene was detected in two samples (MW-6 – 0.0079 mg/L and MW-109 – 0.0349 mg/L).

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

⁶ For the context of this report, “targeted VOCs” means compounds that have detected in excess of RIDEM GB Groundwater Objectives: benzene, ethylbenzene and naphthalene.



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 2014 sampling event (MW-107, MW-318S, MW-318D, MW-334S, MW-334D). MW-107 was non-detect for VOCs during the 2014 event. For the targeted VOCs within the five groundwater samples collected, benzene was detected in three samples (MW-318S – 0.0516 mg/L, MW-334S – 0.0032 mg/L and MW-334D – 0.0084 mg/L), naphthalene was detected in four samples (MW-318S – 0.883 mg/L, MW-318D – 0.0013 mg/L, MW-334S – 0.0692 mg/L and MW-334D – 0.0178 mg/L) and ethylbenzene was detected in one sample (MW-318S – 0.0062 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 2014 sampling event.

Cyanide

As indicated in Table 4B, low levels of total cyanide were detected in each of the groundwater samples analyzed (25/25) in 2014. The total cyanide concentrations detected ranged between 0.011 mg/L to 1.16 mg/L (MW-201, located in the FGPA). Dissolved and total cyanide results were generally similar in concentration. The dissolved cyanide concentrations detected ranged between 0.01 mg/L to 1 mg/L. The total and dissolved cyanide levels detected in 2014 are consistent with (or lower than) 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⁻) 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.

Polycyclic Aromatic Hydrocarbons (PAHs)

As indicated in Table 4B, PAHs were detected in twenty-four groundwater samples (24/25). Of the groundwater samples submitted for PAH analysis, two samples (MW-310D – 4.87 mg/L and MW-312D – 3.02 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. PAHs results in 2014 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 (TPH)

As indicated in Table 4B, TPH was detected in sixteen groundwater samples (16/25) at concentrations ranging from 0.2 mg/L to 11.6 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, 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) was detected in MW-310D in the NFA at a concentration of 11.6 mg/L.

4.00 CONCLUSIONS

As part of the annual groundwater monitoring for 2014, twenty-five (25) monitoring wells were sampled in October 2014, all accessible wells were gauged for groundwater elevation and the presence of NAPL on a quarterly basis, and inspections of 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 2014 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 substantial 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 substantial and observed very intermittently.
- Eleven (11) monitoring wells exhibited the presence of measureable NAPL in 2014, with six (6/11) monitoring wells exhibiting LNAPL thicknesses up to 2.43 feet and five (5/11) monitoring wells exhibiting DNAPL thicknesses up to 13.9 feet. Approximately 9 gallons of NAPL/groundwater was recovered from Site monitoring wells and was containerized for subsequent off-Site disposal. 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 2014 monitoring round. Compounds detected in excess of the GB Groundwater Objectives were limited to naphthalene, benzene and ethylbenzene. The presence of these compounds in groundwater samples is typical for former MGP and power plant sites. The most significant dissolved phase groundwater impacts were generally detected in the FGPA and NFA.

For 2015 and going forward (consistent with the July 2011 RAE), groundwater samples were submitted of analysis of VOCs only. There were no other changes to the existing monitoring 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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TABLES

**TABLE 1
SUMMARY OF SHEEN OBSERVATIONS**

File No. 05.00043654.00
6/2/2015

Former Tidewater Facility
Pawtucket, Rhode Island

Date	Time	Approximate Tidal Stage	Sheen Observation Location	Sheen Characteristics
1/13/2014	14:30	Low to Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of dull sheen
1/30/2014	No sheens observed - shoreline is frozen			
2/20/2014	No sheens observed - shoreline is frozen			
2/28/2014	No sheens observed - shoreline is frozen			
3/11/2014	14:30	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of dull to bright sheen
3/28/2014	No sheens observed - high wind			
4/2/2014	8:15	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bright bands of sheen
4/9/2014	11:50	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of dull sheen
4/22/2014	No sheens observed - high tide and high wind			
4/24/2014	10:30	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of dull sheen
4/29/2014	No sheens observed at high tide.			
5/8/2014	9:00	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of dull sheen
5/15/2014	9:40	High	54" CSO pipe outfall washout adjacent to MW-103	Slight bands of dull sheen
5/22/2014	10:40	Low to Mid	54" CSO pipe outfall washout adjacent to MW-103	Very slight bands of dull sheen
5/22/2014	11:15	Low to Mid	Adjacent to MW-326 S/D	Slight bands of dull sheen
6/25/2014	No sheens observed at high tide.			
6/30/2014	No sheens observed at high tide.			
7/1/2014	8:55	Mid	Along edge of Site near NFA - appears to be coming from upgradient of the Site	Slight bands of dull sheen
7/23/2014	No sheens observed at high tide.			
7/28/2014	No sheens observed at mid tide.			
7/30/2014	No sheens observed at high tide.			
8/8/2014	No sheens observed at high tide.			
8/28/2014	No sheens observed at high tide.			
9/5/2014	No sheens observed at mid tide.			
9/12/2014	No sheens observed at high tide.			
10/15/2014	No sheens observed at high tide.			
10/22/2014	No sheens observed at mid tide - very rainy and windy.			
10/24/2014	No sheens observed at mid tide - very rainy and windy.			
11/4/2014	No sheens observed at mid to low tide.			
11/21/2014	13:30	Low	54" CSO pipe outfall washout adjacent to MW-103	Slight to moderate bands of bright to dull sheen
11/21/2014	14:00	Low	Adjacent to MW-326 S/D	Slight bands of dull sheen
12/4/2014	11:45	Low	Adjacent to MW-326 S/D	Bright spots of sheen
12/16/2014	11:30	Mid	54" CSO pipe outfall washout adjacent to MW-103	Slight bright bands of sheen
12/30/2014	No sheens observed at mid to high tide - very rainy and windy.			

Notes:

1. SFA refers to the South Fill Area.
2. FPPA refers to the Former Power Plant Area.
3. FGPA refers to the Former Gas Plant Area.
4. NFA refers to the North Fill Area.
5. This table shows observations that were made along the Site shoreline. Observations were made at least twice a month.
6. This table shows observations that were made during 2014. The January 2011 SIDR, July 2011 RAE and previous groundwater monitoring reports presents sheen observations between 2009 and 2013.

**TABLE 2A
SUMMARY OF GROUNDWATER MEASUREMENTS**

Former Tidewater Facility
Pawtucket, Rhode Island

Site Area	Well ID	Measured Well Depth (Feet below Top of PVC)	Top of PVC Elevation (Feet)	Range of LNAPL Observed (feet)	Range of DNAPL Observed (feet)	January 2014 Groundwater Gauging Information						April 2014 Groundwater Gauging Information						July 2014 Groundwater Gauging Information						October 2014 Groundwater Gauging Information						
						Depth To Water (ft)	Total Well Depth (ft)	GW Elevation (feet)	LNAPL Thickness (feet)	DNAPL Thickness (feet)	Corrected Groundwater Elevation (feet)	Depth To Water (ft)	Total Well Depth (ft)	GW Elevation (feet)	LNAPL Thickness (feet)	DNAPL Thickness (feet)	Corrected Groundwater Elevation (feet)	Depth To Water (ft)	Total Well Depth (ft)	GW Elevation (feet)	LNAPL Thickness (feet)	DNAPL Thickness (feet)	Corrected Groundwater Elevation (feet)	Depth To Water (ft)	Total Well Depth (ft)	GW Elevation (feet)	LNAPL Thickness (feet)	DNAPL Thickness (feet)	Corrected Groundwater Elevation (feet)	
NFA	MW-5	11.60	32.23	NP	NP	dry	11.85	dry	NP	NP	dry	11.75	dry	NP	NP	dry	11.9	dry	NP	NP	dry	12.1	dry	NP	NP	dry	9.56			
NFA	MW-7	27.45	31.98	NP	NP	21.21	27.5	10.77	NP	NP	10.77	17.02	27.5	14.96	NP	NP	14.96	20.31	27.45	11.67	NP	NP	11.67	22.42	27.6	9.56	NP	NP	9.56	
NFA	MW-204	16.77	9.47	NP	NP	8.17	16.8	1.30	NP	NP	1.30	6.07	16.75	3.40	NP	NP	3.40	7.29	16.85	2.18	NP	NP	2.18	6.75	17	2.72	NP	NP	2.72	
NFA	MW-205	15.00	12.20	NP	NP	2.34	15.1	9.86	NP	NP	9.86	1.62	15	10.58	NP	NP	10.58	Not Accessible						Not Accessible						
NFA	MW-206	28.77	37.22	NP	NP	27.25	29	9.97	NP	NP	9.97	24.97	29.1	12.25	NP	NP	12.25	26.85	29.1	10.37	NP	NP	10.37	28.37	29.25	8.85	NP	NP	8.85	
NFA	MW-310S	17.35	9.59	NP	NP	7.94	16.8	1.65	NP	NP	1.65	5.89	16.7	3.70	NP	NP	3.70	7.19	16.9	2.40	NP	NP	2.40	6.81	16.3	2.78	NP	NP	2.78	
NFA	MW-310D	36.20	9.18	NP	NP	7.51	36.2	1.67	NP	NP	1.67	5.47	39.2	3.71	NP	NP	3.71	6.56	36.3	2.62	NP	NP	2.62	6.3	36.3	2.88	NP	NP	2.88	
NFA	MW-311	22.00	10.26	NP	NP	8.3	21.9	1.96	NP	NP	1.96	7.46	21.85	2.80	NP	NP	2.80	7.82	21.85	2.44	NP	NP	2.44	7.64	22	2.62	NP	NP	2.62	
FGPA	MW-201	15.00	13.76	NP	NP	8.97	15.1	4.79	NP	NP	4.79	7.59	15	6.17	NP	NP	6.17	10.72	12.22	3.04	NP	NP	3.04	12.26	15.25	1.50	NP	NP	1.50	
FGPA	MW-202	13.80	14.39	NP	NP	5.24	13.9	9.15	NP	NP	9.15	2.12	12.8	12.27	NP	NP	12.27	3.36	12.8	11.03	NP	NP	11.03	6.40	14.10	7.99	NP	NP	7.99	
FGPA	MW-203	14.80	10.29	NP	NP	8.8	14.85	1.49	NP	NP	1.49	7.05	14.9	3.24	NP	NP	3.24	8.9	14.95	1.39	NP	NP	1.39	8.74	15	1.55	NP	NP	1.55	
FGPA	MW-207 (2)	11.75	14.50	NP	NP	Destroyed						Destroyed						Destroyed												
FGPA	MW-208	21.75	28.23	NP	NP	17.05	21.9	11.18	NP	NP	11.18	12.13	21.8	16.10	NP	NP	16.10	15.78	21.8	12.45	NP	NP	12.45	18.18	21.95	10.05	NP	NP	10.05	
FGPA	MW-209	21.05	24.74	NP	NP	13.78	21.1	10.96	NP	NP	10.96	9.35	21	15.39	NP	NP	15.39	12.58	21.05	12.16	NP	NP	12.16	14.84	21.15	9.90	NP	NP	9.90	
FGPA	MW-210	17.08	11.35	trace-2.54	NP	10.28	17.2	1.07	NP	NP	1.75	9	2.35	2.43	NP	NP	4.42	9.66	17.25	1.69	0.01	NP	NP	1.70	9.76	17.4	1.59	NP	NP	1.59
FGPA	MW-3	17.00	11.46	trace - 5.57	NP	10.86	17	0.60	NP	NP	0.60	8.73	17	2.73	0.01	NP	2.74	9.32	17	2.14	0.01	NP	2.15	9.86	16.9	1.60	0.01	NP	1.61	
FGPA	MW-4	17.65	10.58	NP	trace - 1.44	11.36	17.65	-0.78	NP	1.44	-0.78	7.31	16.2	3.27	NP	trace	3.27	8.07	18	2.51	NP	0.05	2.51	8.15	17.65	2.43	NP	0.05	2.43	
FGPA	MW-303	41.85	9.07	NP	trace - 5.59	9.5	41.85	-0.43	NP	5.35	-0.43	5.64	41.9	3.43	NP	5.59	3.43	6.6	42	2.47	NP	1.5	2.47	6.6	41.9	2.47	NP	2.9	2.47	
FGPA	MW-312S	23.55	10.64	trace - 1.38	trace	9.77	23.5	0.87	0.03	NP	0.90	8.03	23.4	2.61	0.24	NP	2.81	10.37	23.4	0.27	1.38	NP	1.44	9	23.5	1.64	0.39	NP	1.97	
FGPA	MW-312D	31.90	10.57	NP	trace	10.68	32	-0.11	NP	NP	-0.11	7.07	31.9	3.50	NP	NP	3.50	8.31	31.95	2.26	NP	NP	2.26	8.03	31.8	2.54	NP	NP	2.54	
FGPA	MW-313S	24.90	11.74	trace - 4.52	trace	11.62	24.78	0.12	trace	NP	0.12	8.85	24.6	2.89	0.05	NP	2.93	9.37	24.6	2.37	0.01	NP	2.38	9.98	24.8	1.76	NP	NP	1.76	
FGPA	MW-313D	47.35	12.01	NP	NP	11.76	47.32	0.25	NP	NP	0.25	8.74	47.25	3.27	NP	NP	3.27	9.45	47.3	2.56	NP	NP	2.56	10.11	47.3	1.90	NP	NP	1.90	
FGPA	MW-326S	26.60	12.61	trace - 0.3	NP	12.55	26.6	0.06	trace	NP	0.06	8.99	26.6	3.62	0.02	NP	3.64	10.2	26.62	2.41	NP	NP	2.41	11.06	26.6	1.55	NP	NP	1.55	
FGPA	MW-326D	45.05	11.91	NP	NP	11.48	45.05	0.43	NP	NP	0.43	8.85	45.1	3.06	NP	NP	3.06	9.45	45.1	2.46	NP	NP	2.46	10.09	45.2	1.82	NP	NP	1.82	
FGPA	MW-333S	18.30	12.30	NP	NP	10.61	17.7	1.69	NP	NP	1.69	8.88	17.7	3.42	NP	NP	3.42	12.64	17.92	-0.34	NP	NP	-0.34	10.2	17.8	2.10	NP	NP	2.10	
FGPA	MW-333D	45.20	12.30	NP	NP	10.68	44.9	1.62	NP	NP	1.62	8.91	44.9	3.39	NP	NP	3.39	9.8	44.91	2.50	NP	NP	2.50	10.06	45.2	2.24	NP	NP	2.24	
FGPA	MW-335S	15.75	11.50	NP	NP	9.8	15.65	1.70	NP	NP	1.70	8.14	15.75	3.36	NP	NP	3.36	10.24	15.8	1.26	NP	NP	1.26	9.78	15.8	1.72	NP	NP	1.72	
FGPA	MW-335D	36.50	11.96	NP	NP	10.19	36	1.77	NP	NP	1.77	8.42	36	3.54	NP	NP	3.54	9.49	36	2.47	NP	NP	2.47	9.35	36	2.61	NP	NP	2.61	
FGPA	MW-336	15.00	12.73	NP	NP	12.08	15.1	0.65	NP	NP	0.65	10.03	15.4	2.70	NP	NP	2.70	10.21	15.1	2.52	NP	NP	2.52	11.47	15.2	1.26	NP	NP	1.26	
FGPA	MW-339S	12.35	15.26	NP	NP	7.98	12.5	7.28	NP	NP	7.28	4.71	12.3	10.55	NP	NP	10.55	7.06	12.55	8.20	NP	NP	8.20	8.77	11.6	6.49	NP	NP	6.49	
FGPA	MW-339D	20.95	15.42	NP	trace	7.63	21.1	7.79	NP	trace	7.79	4.47	12.15	10.95	NP	trace	10.95	6.78	12.55	8.64	NP	trace	8.64	8.43	21.2	6.99	NP	trace	6.99	
FGPA	MW-341	30.10	19.62	NP	trace - 2.65	10.15	30.15	9.47	NP	1.85	9.47	6.08	30.15	13.54	NP	1.91	13.54	9.1	30.15	10.52	NP	2.1	10.52	11.18	30.15	8.44	NP	2.65	8.44	
FPPA	M&E MW-1	15.05	9.36	NP	NP	7.79	17.42	1.57	NP	NP	1.57	8.27	16.1	1.09	NP	NP	1.09	Not Accessible						8.03	15.3	1.33	NP	NP	1.33	
FPPA	M&E MW-2	13.85	10.81	NP	NP	8.34	13.87	2.47	NP	NP	2.47	11.11	13.8	-0.30	NP	NP	-0.30	8.68	13.94	2.13	NP	NP	2.13	8.75	13.6	2.06	NP	NP	2.06	
FPPA	M&E MW-4 (1)	7.81		NP	NP	Not Found						Not Found						Not Found												
FPPA	M&E MW-5 (3)	16.88	8.92	trace - 3.24	NP	6.8	14.65	2.12	trace	NP	2.12	9.55	14.65	-0.63	1.97	NP	1.04	7.05	14.65	1.87	0.05	NP	1.91	7.36	14.65	1.56	0.04	NP	1.59	
FPPA	MW-6	19.03	13.49	NP	NP	12.16	18.8	1.33	NP	NP	1.33	11.61	19.05	1.88	NP	NP	1.88	11.9	19.1	1.59	NP	NP	1.59	11.86	18.75	1.63	NP	NP	1.63	
FPPA	MW-101	16.00	10.94	NP	NP	11.58	15.9	-0.64	NP	NP	-0.64	9.88	16.10	1.06	NP	NP	1.06	9.45	16.12	1.49	NP	NP	1.49	9.39	16	1.55	NP	NP	1.55	
FPPA	MW-102	26.80	19.74	NP	NP	18.13	26.95	1.61	NP	NP	1.61	18.02	26.5	1.72	NP	NP	1.72	17.96	26.87	1.78	NP	NP	1.78	17.97	26.65	1.77	NP	NP	1.77	
FPPA	MW-103	16.90	11.33	trace - 0.31	trace - 0.08	9.18	16.8	2.15	NP	NP	2.15	9.79	16.85	1.54	NP	NP	1.54	9.3	16.97	2.03	NP	NP	2.03	8.89	16.85	2.44	trace	NP	2.44	
FPPA	MW-104	14.90	11.77	NP	NP	9.01	14.90	2.76	NP	NP	2.76	Not Found						10.25	15.90	1.52	NP	NP	1.52	10.29	14.85	1.48	NP	NP	1.48	
FPPA	MW-105	27.55	22.14	NP	NP	20.49	27.2	1.65	NP	NP	1.65	19.51	27.5	2.63	NP	NP	2.63	20.16	27.6	1.98	NP	NP	1.98	20.28	27.6	1.86	NP	NP	1.86	
FPPA	MW-109	19.30	14.09	NP	NP	12.09	19.3	2.00	NP	NP	2.00	10.45	19.25	3.64	NP	NP	3.64	11.76	19.32	2.33	NP	NP	2.33	11.99	19.3	2.10	NP	NP	2.10	
FPPA	MW-314S	24.																												

TABLE 2B
SUMMARY OF NAPL MEASUREMENTS

Former Tidewater Facility
Pawtucket, Rhode Island

Site Area	Well ID	Measured Well Depth (Feet below Top of PVC)	Top of PVC Elevation (Feet)	Range of LNAPL Observed (feet)	Range of DNAPL Observed (feet)	January 2014					April 2014					July 2014					October 2014				
						Depth to Water (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to DNAPL (feet)	DNAPL Thickness (feet)	Depth to Water (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to DNAPL (feet)	DNAPL Thickness (feet)	Depth to Water (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to DNAPL (feet)	DNAPL Thickness (feet)	Depth to Water (feet)	Depth to LNAPL (feet)	LNAPL Thickness (feet)	Depth to DNAPL (feet)	DNAPL Thickness (feet)
NFA	MW-5	11.60	32.23	NP	NP	dry	-	NP	-	NP	dry	-	NP	-	NP	dry	-	NP	-	NP	dry	-	NP	-	NP
NFA	MW-7	27.45	31.98	NP	NP	21.21	-	NP	-	NP	17.02	-	NP	-	NP	20.31	-	NP	-	NP	22.42	-	NP	-	NP
NFA	MW-204	16.77	9.47	NP	NP	8.17	-	NP	-	NP	6.07	-	NP	-	NP	7.29	-	NP	-	NP	6.75	-	NP	-	NP
NFA	MW-205	15.00	12.20	NP	NP	-	-	NP	-	NP	1.62	-	NP	-	NP	Not Accessible					Not Accessible				
NFA	MW-206	28.77	37.22	NP	NP	27.25	-	NP	-	NP	24.97	-	NP	-	NP	26.85	-	NP	-	NP	28.37	-	NP	-	NP
NFA	MW-310S	17.35	9.59	NP	NP	-	-	NP	-	NP	5.89	-	NP	-	NP	7.19	-	NP	-	NP	6.81	-	NP	-	NP
NFA	MW-310D	36.20	9.18	NP	NP	7.51	-	NP	-	NP	5.47	-	NP	-	NP	6.56	-	NP	-	NP	6.30	-	NP	-	NP
NFA	MW-311	22.00	10.26	NP	NP	8.30	-	NP	-	NP	7.46	-	NP	-	NP	7.82	-	NP	-	NP	7.64	-	NP	-	NP
FGPA	MW-201	15.00	13.76	NP	NP	8.97	-	NP	-	NP	7.59	-	NP	-	NP	10.72	-	NP	-	NP	12.26	-	NP	-	NP
FGPA	MW-202	13.80	14.39	NP	NP	5.24	-	NP	-	NP	5.24	-	NP	-	NP	2.12	-	NP	-	NP	3.36	-	NP	-	NP
FGPA	MW-203	14.80	10.29	NP	NP	8.80	-	NP	-	NP	7.05	-	NP	-	NP	8.90	-	NP	-	NP	8.74	-	NP	-	NP
FGPA	MW-207 (2)	11.75	14.50	NP	NP	Destroyed					Destroyed					Destroyed					Destroyed				
FGPA	MW-208	21.75	28.23	NP	NP	17.05	-	NP	-	NP	12.13	-	NP	-	NP	15.78	-	NP	-	NP	18.18	-	NP	-	NP
FGPA	MW-209	21.05	24.74	NP	NP	13.78	-	NP	-	NP	9.35	-	NP	-	NP	12.58	-	NP	-	NP	14.84	-	NP	-	NP
FGPA	MW-210	17.28	11.35	trace-2.54	NP	10.28	9.48	0.8	-	NP	9.00	6.57	2.43	-	NP	9.66	9.65	0.01	-	NP	9.76	-	NP	-	NP
FGPA	MW-3	17.00	11.46	trace - 5.57	NP	10.86	-	NP	-	NP	8.73	8.72	0.01	-	NP	9.32	9.31	0.01	-	NP	9.86	9.85	0.01	-	NP
FGPA	MW-4	17.65	10.58	NP	trace - 1.44	11.36	-	NP	16.21	1.44	7.31	-	NP	trace	8.07	-	NP	17.95	0.05	8.15	-	NP	17.6	0.05	
FGPA	MW-303	41.85	9.07	NP	trace - 5.59	9.50	-	NP	36.5	5.35	5.64	9.50	-	NP	36.31	5.59	6.60	-	NP	40.5	1.5	6.60	-	NP	
FGPA	MW-312S	23.55	10.64	trace - 1.38	trace	9.77	9.74	0.03	-	NP	8.03	7.79	0.24	-	NP	10.37	8.99	1.38	-	NP	9.00	8.61	0.39	-	NP
FGPA	MW-312D	31.90	10.57	NP	trace	10.68	-	NP	-	NP	7.07	-	NP	-	NP	8.31	-	NP	-	NP	8.03	-	NP	-	NP
FGPA	MW-313S	24.90	11.74	trace - 4.52	trace	11.62	trace	trace	-	NP	8.85	8.8	0.05	-	NP	9.37	9.36	0.01	-	NP	9.98	-	NP	-	NP
FGPA	MW-313D	47.35	12.01	NP	NP	11.76	-	NP	-	NP	8.74	-	NP	-	NP	9.45	-	NP	-	NP	10.11	-	NP	-	NP
FGPA	MW-326S	26.60	12.61	trace - 0.3	NP	12.55	trace	trace	-	NP	8.99	8.97	0.02	-	NP	10.20	-	NP	-	NP	11.06	-	NP	-	NP
FGPA	MW-326D	45.05	11.91	NP	NP	11.48	-	NP	-	NP	8.85	-	NP	-	NP	9.45	-	NP	-	NP	10.09	-	NP	-	NP
FGPA	MW-333S	18.30	12.30	NP	NP	10.61	-	NP	-	NP	8.88	-	NP	-	NP	12.64	-	NP	-	NP	10.20	-	NP	-	NP
FGPA	MW-333D	45.20	12.30	NP	NP	10.68	-	NP	-	NP	8.91	-	NP	-	NP	9.80	-	NP	-	NP	10.06	-	NP	-	NP
FGPA	MW-335S	15.75	11.50	NP	NP	9.80	-	NP	-	NP	8.14	-	NP	-	NP	10.24	-	NP	-	NP	9.78	-	NP	-	NP
FGPA	MW-335D	36.50	11.96	NP	NP	10.19	-	NP	-	NP	8.42	-	NP	-	NP	9.49	-	NP	-	NP	9.35	-	NP	-	NP
FGPA	MW-336	15.00	12.73	NP	NP	12.08	-	NP	-	NP	10.03	-	NP	-	NP	10.21	-	NP	-	NP	11.47	-	NP	-	NP
FGPA	MW-339S	12.35	15.26	NP	NP	7.98	-	NP	-	NP	4.71	-	NP	-	NP	7.06	-	NP	-	NP	8.77	-	NP	-	NP
FGPA	MW-339D	20.95	15.42	NP	trace	7.63	-	NP	trace	trace	4.47	-	NP	trace	trace	6.78	-	NP	trace	trace	8.43	-	NP	trace	trace
FGPA	MW-341	30.10	19.62	NP	trace - 2.57	10.15	-	NP	28.3	1.85	6.08	-	NP	28.24	1.91	9.10	-	NP	28.05	2.1	11.18	-	NP	27.5	2.65
FPPA	M&E MW-1	15.05	9.36	NP	NP	7.79	-	NP	-	NP	8.27	-	NP	-	NP	Not Accessible					8.03	-	NP	-	NP
FPPA	M&E MW-2	13.85	10.81	NP	NP	8.34	-	NP	-	NP	11.11	-	NP	-	NP	8.68	-	NP	-	NP	8.75	-	NP	-	NP
FPPA	M&E MW-4 (1)	7.81	-	NP	NP	Not Found					Not Found					Not Found					Not Found				
FPPA	M&E MW-5 (3)	16.88	8.92	trace - 3.24	NP	6.80	trace	trace	-	NP	9.55	7.58	1.97	-	NP	7.05	7	0.05	-	NP	7.36	7.32	0.04	-	NP
FPPA	MW-6	19.03	13.49	NP	NP	12.16	-	NP	-	NP	11.61	-	NP	-	NP	11.90	-	NP	-	NP	11.86	-	NP	-	NP
FPPA	MW-101	16.00	10.94	NP	NP	11.58	-	NP	-	NP	11.58	-	NP	-	NP	9.45	-	NP	-	NP	9.39	-	NP	-	NP
FPPA	MW-102	26.80	19.74	NP	NP	18.13	-	NP	-	NP	18.02	-	NP	-	NP	17.96	-	NP	-	NP	17.97	-	NP	-	NP
FPPA	MW-103	16.90	11.33	trace - 0.31	trace - 0.08	9.18	-	NP	-	NP	9.79	-	NP	-	NP	9.30	-	NP	-	NP	8.89	trace	trace	-	NP
FPPA	MW-104	14.90	11.77	NP	NP	9.01	-	NP	-	NP	-	-	-	-	NP	10.25	-	NP	-	NP	10.29	-	NP	-	NP
FPPA	MW-105	27.55	22.14	NP	NP	20.49	-	NP	-	NP	19.51	-	NP	-	NP	20.16	-	NP	-	NP	20.28	-	NP	-	NP
FPPA	MW-109	19.30	14.09	NP	NP	12.09	-	NP	-	NP	10.45	-	NP	-	NP	11.76	-	NP	-	NP	11.99	-	NP	-	NP
FPPA	MW-314S	24.50	10.37	0.01	NP	9.82	-	NP	-	NP	10.87	-	NP	-	NP	8.19	-	NP	-	NP	8.76	-	NP	-	NP
FPPA	MW-314D	43.40	10.38	NP	NP	7.73	-	NP	-	NP	11.14	-	NP	-	NP	8.12	-	NP	-	NP	8.80	-	NP	-	NP
FPPA	MW-315S	26.40	10.98	NP	NP	8.58	-	NP	-	NP	11.96	-	NP	-	NP	8.90	-	NP	-	NP	8.22	-	NP	-	NP
FPPA	MW-315D	41.70	10.69	NP	NP	8.45	-	NP	-	NP	11.81	-	NP	-	NP	8.80	-	NP	-	NP	8.03	-	NP	-	NP
FPPA	MW-316S	22.30	24.52	NP	NP	22.27	-	NP	-	NP	20.53	-	NP	-	NP	21.72	-	NP	-	NP	22.38	-	NP	-	NP
FPPA	MW-316D	31.55	24.68	NP	NP	22.38	-	NP	-	NP	21.12	-	NP	-	NP	21.75	-	NP	-	NP	23.32	-	NP	-	NP
FPPA	MW-317S	27.40	25.35	NP	NP	23.78	-	NP	-	NP	22.94	-	NP	-	NP	23.40	-	NP	-	NP	23.50	-	NP	-	NP
FPPA	MW-317D	36.20	25.47	NP	NP	22.28	-	NP	-	NP	21.92	-	NP	-	NP	22.07	-	NP	-	NP	22.71	-	NP	-	NP
FPPA	MW-337	20.00	13.53	NP	NP	12.18	-	NP	-	NP	11.58	-	NP	-	NP	11.90	-	NP	-	NP	11.80	-	NP	-	NP
FPPA	MW-338S	18.45	13.94	NP	NP	12.58	-	NP	-	NP	11.86	-	NP	-	NP	12.38	-	NP	-	NP	12.35	-	NP	-	NP
FPPA	MW-338D	39.65	13.48	NP	NP	11.31	-	NP	-	NP	13.84	-	NP	-	NP	11.44	-	NP	-	NP	10.77	-	NP	-	NP
FPPA	MW-400 (5)	24.30	29.62	NP	NP	Well installed in early April 2014.					16.12	-	NP	-	NP	18.08	-	NP	-	NP	19.66	-	NP	-	NP
FPPA	MW-401 (5)	19.30	24.99	NP	NP	Well installed in early April 2014.					11.53	-	NP	-	NP	13.55	-	NP	-	NP	15.08	-	NP	-	NP
SFA	MW-1	23.20	19.59	NP	trace - 0.8	18.00	-	NP	-	NP	18.36	-	NP	-	NP	17.66	-	NP	-	NP	17.62	-	NP	-	NP
SFA	MW-107	27.35	21.80	NP	NP	20.19	-	NP	-	NP	19.36	-	NP	-	NP	19.83	-	NP	-	NP	19.92	-	NP	-	NP
SFA	MW-318S	27.00	18.96	NP	NP	17.24	-	NP	-	NP	16.98	-	NP	-	NP	17.05	-	NP	-	NP	16.87	-	NP	-	NP
SFA	MW-318D (4)	43.60	18.70	NP	NP	16.95	-	NP	-	NP	19.29	-	NP	-	NM	17.01	-	NP	-	NM	15.20	-	NP	-	NM
SFA	MW-319S	27.10	19.96	NP	NP	18.22	-	NP	-	NP	18.28	-	NP	-	NP	18.05	-	NP	-	NP	17.78	-	NP	-	NP
SFA	MW-319D	43.85	20.33	NP	NP	18.29	-	NP	-	NP	20.29	-	NP	-	NP	18.49	-	NP	-	NP	17.56	-	NP	-	NP
SFA	MW-320S	10.95	7.73	NP	trace - 1.88	6.10	-	NP	trace	trace	7.90	-	NP	10.8	0.15	5.90	-	NP	trace	trace	5.76	-	NP	9.8	1.15
SFA	MW-320D	25.70	8.69	NP	0.55 - 13.72	7.48	-	NP	11.98	13.72	8.05	-	NP	11.8	13.9	7.44	-	NP	12	13.7	7.55	-	NP	12.3	13.4
SFA	MW-321S	12.55	6.47	NP	NP	4.94	-	NP	-	NP	4.65	-	NP	-	NP	4.63	-	NP	-	NP					

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

6/1/2015
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	
Former Gas Plant Area														
MW-3 (1) (3)		0.02			trace	trace	0.05	trace	5.57	0.80	1.71	1.64	0.27	
MW-4 (2) (3)		NP			NP	NP	NP	NP	NP	NP	NP	NP	NP	
MW-210 (3)		0.05			0.05	NP		NP	0.23	0.92	2.54	2.48	2.02	
MW-312S				NP	NP	0.45	0.13	trace	trace	trace	trace	0.20	0.28	
MW-313S			0.10		trace	NP	NP	NP	4.52	0.22	0.04	0.05	0.02	
MW-326S					NP	trace	0.30	trace	NP	trace	trace	0.03	0.01	
Former Power Plant Area														
M&E MW-5 (5)	1.35	0.44			NP	0.04	1.17				3.24	3.16	1.12	
MW-102 (4) (6)	NP	NP			NP	NP		NP	NP			NP		
MW-103 (4)	NP	NP			NP	0.01	NP	trace	0.31	trace	trace	0.02	0.18	
MW-109 (4)	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**

6/1/2015
GZA File 05.00043654.00

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	1/27/2014	4/24/2014	7/30/2014	10/22/2014
	Former Gas Plant Area															
MW-3 (1) (3)	0.80	0.03	0.15	0.05	0.02	0.03	0.02	trace	NP	NP	0.05	trace	NP	0.01	0.01	0.01
MW-4 (2) (3)	NP	NP	NP	NP	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	0.8	2.43	0.01	NP
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	0.03	0.24	1.38	0.39
MW-313S	trace	0.01	0.02	0.09	NP	NP	trace	NP	NP	NP	trace	NP	trace	0.05	0.01	NP
MW-326S	trace	0.01	0.02	0.03	NP	NP	NP	NP	NP	NP	NP	trace	trace	0.02	NP	NP
	Former Power Plant Area															
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	trace	1.97	0.05	0.04
MW-102 (4) (6)			NP	NP	NP	NP	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	NP	NP	NP	trace
MW-109 (4)			NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
MW-314S	NP	NP	NP	NP	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**

6/1/2015
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	
	Former Gas Plant Area													
MW-4 (1) (4)		NP			trace	trace	trace	trace	1.15	trace	trace	trace	trace	
MW-303			NP		trace	2.53	0.55	0.50	trace	0.88	0.15	0.55	0.75	
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	1.45	1.00	1.75	1.45	1.95	
	Former Power Plant Area													
MW-103	NP	NP			NP	trace	0.08	NP	NP	NP	NP	NP	NP	
	South Fill Area													
MW-1 (2) (3)	0.29	0.80			trace	trace	NP	0.50	trace	NP	0.40	0.67		
MW-320S			0.18		NP	1.88	NP	0.20	trace	trace	trace	trace		
MW-320D			3.70		1.10	8.98	1.50	10.00	3.20	2.15	4.15	3.38		

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

6/1/2015
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	1/27/2014	4/24/2014	7/30/2014	10/22/2014
	Former Gas Plant Area															
MW-4 (1) (4)	trace	trace	trace	trace	NP	NP	0.25	trace	trace	trace	0.7	NP	1.44	trace	0.05	0.05
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	5.35	5.59	1.5	2.9
MW-312S	NP	NP	NP	NP	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	NP	NP	NP	NP
MW-313S	NP	NP	NP	NP	NP	trace	NP	trace	NP	NP	NP	NP	NP	NP	NP	NP
MW-339D	NP	NP	NP	trace	trace	trace	trace	NP	trace	trace	NP	trace	trace	trace	trace	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	1.85	1.91	2.1	2.65
	Former Power Plant Area															
MW-103	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
	South Fill Area															
MW-1 (2) (3)	0.15	0.60	trace	trace	trace	trace	NP	NP	trace	trace	NP	NP	NP	NP	NP	NP
MW-320S	trace	trace	trace	0.98	0.1	0.05	trace	0.75	trace	trace	trace	0.18	trace	0.15	trace	1.15
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	13.72	13.9	13.7	13.4

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	
	1/30/2014	12:30	9.48	10.28	17.3	0.50	Low	
	4/24/2014	13:40	6.57	9	17.3	1.00	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	
8/8/2013		10:00	8.4	9.38	23.5	0.75	High	
4/24/2014		13:20	7.79	8.03	23.5	0.50	High	
7/30/2014		14:00	8.99	10.37	23.5	1.50	High	
10/24/2014		13:00	8.61	9	23.5	0.50	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
	10/30/2013	8:00	7.97	8.30	14.65	0.50	Mid	elevations adjusted for broken PVC
	4/24/2014	14:00	7.58	9.55	14.65	1.50	High	elevations adjusted for broken PVC
MW-103	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.
4/24/2014	12:00	5.64	36.31	41.9	>0.1 gallons	High	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		
1/30/2014	12:00	10.15	28.3	30.15	1	Low		
4/24/2014	13:00	6.08	28.24	30.15	1	High		
7/30/2014	13:30	9.10	28.05	30.15	0.5	High		
10/24/2014	13:30	11.18	27.51	30.15	1	Low		
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

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
					10/23/2014 1410604-03 Aqueous	10/23/2014 1410603-18 Aqueous	10/23/2014 1410603-19 Aqueous	10/23/2014 1410604-06 Aqueous	10/23/2014 1410604-07 Aqueous	10/23/2014 1410604-01 Aqueous	10/23/2014 1410604-02 Aqueous	10/22/2014 1410603-04 Aqueous	10/22/2014 1410603-05 Aqueous	10/22/2014 1410603-06 Aqueous	10/22/2014 1410603-07 Aqueous	10/23/2014 1410604-04 Aqueous	10/23/2014 1410604-05 Aqueous	10/22/2014 1410603-03 Aqueous	10/23/2014 1410603-15 Aqueous	10/23/2014 1410603-16 Aqueous	10/22/2014 1410603-01 Aqueous
	1,1,1,2-Tetrachloroethane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,1-Trichloroethane	mg/L	68	3.1	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,2,2-Tetrachloroethane	mg/L	NE	NE	<0.0005	<0.0005	<0.0500	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<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	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethene	mg/L	23	0.007	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloropropene	mg/L	NE	NE	<0.002	<0.0020	<0.200	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020
	1,2,3-Trichlorobenzene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,2,3-Trichloropropane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,2,4-Trichlorobenzene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,2,4-Trimethylbenzene	mg/L	NE	NE	<0.001	<0.0010	0.652	0.0066	<0.001	0.114	0.378	0.0183	<0.0010	<0.0010	0.155	0.0082	0.4	<0.0010	<0.0010	0.14	<0.0010
	1,2-Dibromo-3-Chloropropane	mg/L	NE	0.002	<0.005	<0.0050	<0.500	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050
	1,2-Dibromoethane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichloroethane	mg/L	670	0.11	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichloropropane	mg/L	140	3	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,3,5-Trimethylbenzene	mg/L	NE	NE	<0.001	<0.0010	0.162	<0.001	<0.001	0.0131	0.0182	0.0082	<0.0010	<0.0010	0.0024	0.0026	0.0855	<0.0010	<0.0010	0.005	<0.0010
	1,3-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,3-Dichloropropane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,4-Dichlorobenzene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	1,4-Dioxane - Screen	mg/L	NE	NE	<0.5	<0.500	<50.0	<0.5	<0.5	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500	<0.5	<0.5	<0.500	<0.500	<0.500	<0.500
	1-Chlorohexane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	2,2-Dichloropropane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	2-Butanone	mg/L	NE	NE	<0.01	<0.0100	<1.00	<0.01	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100
	2-Chlorotoluene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	2-Hexanone	mg/L	NE	NE	<0.01	<0.0100	<1.00	<0.01	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100
	4-Chlorotoluene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	4-Isopropyltoluene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	0.0026	0.0063	<0.0010	<0.0010	<0.0010	0.0022	<0.001	0.0073	<0.0010	<0.0010	0.0037	<0.0010
	4-Methyl-2-Pentanone	mg/L	NE	NE	<0.025	<0.0250	<2.50	<0.025	<0.025	<0.025	<0.025	<0.0250	<0.0250	<0.0250	<0.0250	<0.025	<0.025	<0.0250	<0.0250	<0.0250	<0.0250
	Acetone	mg/L	NE	NE	<0.01	<0.0100	<1.00	<0.01	<0.01	0.0347	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	0.0546	<0.01	<0.0100	<0.0100	<0.0100	<0.0100
	Benzene	mg/L	18	0.14	<0.001	0.002	0.652	0.133	0.0016	0.0437	5.98	0.352	0.0049	<0.0010	1.76	<0.001	0.0265	<0.0010	0.0115	0.135	<0.0010
	Bromobenzene	mg/L	NE	NE	<0.002	<0.0020	<0.200	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020
	Bromochloromethane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Bromodichloromethane	mg/L	NE	NE	<0.0006	<0.0006	<0.0600	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<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	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Bromomethane	mg/L	NE	NE	<0.002	<0.0020	<0.200	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020
	Carbon Disulfide	mg/L	NE	NE	<0.001	<0.0010	<0.100	0.0094	<0.001	0.0097	<0.001	<0.0010	<0.0010	0.0071	<0.0010	<0.001	<0.001	<0.0010	<0.0010	0.0015	<0.0010
	Carbon Tetrachloride	mg/L	NE	0.07	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Chlorobenzene	mg/L	56	3.2	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroethane	mg/L	NE	NE	<0.002	<0.0020	<0.200	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020
	Chloroform	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Chloromethane	mg/L	NE	NE	<0.002	<0.0020	<0.200	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020
	cis-1,2-Dichloroethene	mg/L	69	2.4	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	cis-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0400	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Dibromochloromethane	mg/L	NE																		

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
					10/23/2014 1410604-03 Aqueous	10/23/2014 1410603-18 Aqueous	10/23/2014 1410603-19 Aqueous	10/23/2014 1410604-06 Aqueous	10/23/2014 1410604-07 Aqueous	10/23/2014 1410604-01 Aqueous	10/23/2014 1410604-02 Aqueous	10/22/2014 1410603-04 Aqueous	10/22/2014 1410603-05 Aqueous	10/22/2014 1410603-06 Aqueous	10/22/2014 1410603-07 Aqueous	10/23/2014 1410604-04 Aqueous	10/23/2014 1410604-05 Aqueous	10/22/2014 1410603-03 Aqueous	10/23/2014 1410603-15 Aqueous	10/23/2014 1410603-16 Aqueous	10/22/2014 1410603-01 Aqueous
	tert-Butylbenzene	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Tertiary-amyl methyl ether	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Tetrachloroethene	mg/L	NE	0.15	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Tetrahydrofuran	mg/L	NE	NE	<0.005	<0.0050	<0.500	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050
	Toluene	mg/L	21	1.7	<0.001	<0.0010	0.173	0.0012	<0.001	0.0069	0.0088	0.0011	<0.0010	<0.0010	0.0055	<0.001	0.0398	<0.0010	<0.0010	0.003	<0.0010
	trans-1,2-Dichloroethene	mg/L	79	2.8	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	trans-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0400	<0.0004	<0.0004	<0.0004	<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	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Trichlorofluoromethane	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Trihalomethanes (Total)	mg/L	NE	NE	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Vinyl Acetate	mg/L	NE	NE	<0.005	<0.0050	<0.500	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.005	<0.0050	<0.0050	<0.0050	<0.0050
	Vinyl Chloride	mg/L	NE	0.002	<0.001	<0.0010	<0.100	<0.001	<0.001	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010	<0.001	<0.001	<0.0010	<0.0010	<0.0010	<0.0010
	Xylene O	mg/L	NE	NE	<0.001	<0.0010	0.646	0.0056	<0.001	0.0935	0.515	0.0126	<0.0010	<0.0010	0.089	0.001	0.344	<0.0010	0.0073	0.0185	<0.0010
	Xylene P,M	mg/L	NE	NE	<0.002	<0.0020	0.659	<0.002	<0.002	0.0263	0.0448	0.0059	<0.0020	<0.0020	0.0143	<0.002	0.317	<0.0020	<0.0020	0.0082	<0.0020
	Xylenes (Total)	mg/L	NE	NE	<0.002	<0.0020	1.3	0.0056	<0.002	0.12	0.56	0.0186	<0.0020	<0.0020	0.103	<0.002	0.661	<0.0020	0.0073	0.0266	<0.0020
	Total VOCs	mg/L	NE	NE	<0.6445	0.0033	12.822	0.2232	0.0048	2.9975	17.1305	0.5179	0.0087	0.0071	4.9981	0.3664	5.7799	0.0112	0.0321	0.634	0.0014

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 2014. The January 2011 SIDR, the July 2011 RAE and previous groundwater monitoring reports presents historical analytical results.

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-316D	MW-337	MW-107	MW-318S	MW-318D	MW-334S	MW-334D
					10/22/2014 1410603-02 Aqueous	10/23/2014 1410603-17 Aqueous	10/23/2014 1410603-14 Aqueous	10/23/2014 1410603-09 Aqueous	10/23/2014 1410603-12 Aqueous	10/23/2014 1410603-13 Aqueous	10/23/2014 1410603-10 Aqueous	10/23/2014 1410603-11 Aqueous
	1,1,1,2-Tetrachloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,1-Trichloroethane	mg/L	68	3.1	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,2,2-Tetrachloroethane	mg/L	NE	NE	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	1,1,2-Trichloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethene	mg/L	23	0.007	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloropropene	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	1,2,3-Trichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2,3-Trichloropropane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2,4-Trichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2,4-Trimethylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	0.0303	<0.0010	0.0015	<0.0010
	1,2-Dibromo-3-Chloropropane	mg/L	NE	0.002	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	1,2-Dibromoethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichloroethane	mg/L	670	0.11	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichloropropane	mg/L	140	3	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,3,5-Trimethylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	0.0124	<0.0010	<0.0010	<0.0010
	1,3-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,3-Dichloropropane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,4-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,4-Dioxane - Screen	mg/L	NE	NE	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500
	1-Chlorohexane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	2,2-Dichloropropane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	2-Butanone	mg/L	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	2-Chlorotoluene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	2-Hexanone	mg/L	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	4-Chlorotoluene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	4-Isopropyltoluene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	4-Methyl-2-Pentanone	mg/L	NE	NE	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250	<0.0250
	Acetone	mg/L	NE	NE	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100
	Benzene	mg/L	18	0.14	<0.0010	<0.0010	0.0036	<0.0010	0.0516	<0.0010	0.0032	0.0084
	Bromobenzene	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Bromochloromethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Bromodichloromethane	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Bromoform	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Bromomethane	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Carbon Disulfide	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Carbon Tetrachloride	mg/L	NE	0.07	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chlorobenzene	mg/L	56	3.2	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroethane	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Chloroform	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloromethane	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	cis-1,2-Dichloroethene	mg/L	69	2.4	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0013
	cis-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Dibromochloromethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Dibromomethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Dichlorodifluoromethane	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Diethyl Ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Di-isopropyl ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Ethyl tertiary-butyl ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Ethylbenzene	mg/L	16	1.6	<0.0010	<0.0010	<0.0010	<0.0010	0.0062	<0.0010	<0.0010	<0.0010
	Hexachlorobutadiene	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Hexachloroethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Isopropylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Methyl tert-Butyl Ether	mg/L	NE	5	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Methylene Chloride	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Naphthalene	mg/L	NE	2.67	<0.0010	<0.0010	<0.0010	<0.0010	0.883	0.0013	0.0692	0.0178
	n-Butylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	n-Propylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	<0.0010
	sec-Butylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Styrene	mg/L	50	2.2	<0.0010	<0.0010	<0.0010	<0.0010	0.0024	<0.0010	<0.0010	<0.0010

TABLE 4A
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Former Tidewater Facility
Pawtucket, Rhode Island

EPA 8260	VOLATILE ORGANICS	Units	RIDEM GB Groundwater UCL	RIDEM GB Groundwater Objective	MW-314D	MW-316D	MW-337	MW-107	MW-318S	MW-318D	MW-334S	MW-334D
					10/22/2014 1410603-02 Aqueous	10/23/2014 1410603-17 Aqueous	10/23/2014 1410603-14 Aqueous	10/23/2014 1410603-09 Aqueous	10/23/2014 1410603-12 Aqueous	10/23/2014 1410603-13 Aqueous	10/23/2014 1410603-10 Aqueous	10/23/2014 1410603-11 Aqueous
	tert-Butylbenzene	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Tertiary-amyl methyl ether	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Tetrachloroethene	mg/L	NE	0.15	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Tetrahydrofuran	mg/L	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Toluene	mg/L	21	1.7	<0.0010	<0.0010	<0.0010	<0.0010	0.0441	<0.0010	0.0016	0.0012
	trans-1,2-Dichloroethene	mg/L	79	2.8	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	trans-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Trichloroethene	mg/L	87	0.54	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0024
	Trichlorofluoromethane	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Trihalomethanes (Total)	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Vinyl Acetate	mg/L	NE	NE	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Vinyl Chloride	mg/L	NE	0.002	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Xylene O	mg/L	NE	NE	<0.0010	<0.0010	<0.0010	<0.0010	0.0253	<0.0010	0.0013	<0.0010
	Xylene P,M	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	0.0556	<0.0020	0.0022	<0.0020
	Xylenes (Total)	mg/L	NE	NE	<0.0020	<0.0020	<0.0020	<0.0020	0.0809	<0.0020	0.0035	<0.0020
	Total VOCs	mg/L	NE	NE	<0.6445	<0.6445	0.0036	<0.6445	1.1121	0.0013	0.079	0.0311

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 2014. The January 2011 SIDR, the July 2011 RAE and previous groundwater monitoring reports presents historical analytical results.

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

Former Tidewater Facility
Pawtucket, RI

Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON	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
					10/23/2014 1410604-03 Aqueous	10/23/2014 1410603-18 Aqueous	10/23/2014 1410603-19 Aqueous	10/23/2014 1410604-06 Aqueous	10/23/2014 1410604-07 Aqueous	10/23/2014 1410604-01 Aqueous	10/23/2014 1410604-02 Aqueous	10/22/2014 1410603-04 Aqueous	10/22/2014 1410603-05 Aqueous	10/22/2014 1410603-06 Aqueous	10/22/2014 1410603-07 Aqueous	10/23/2014 1410604-04 Aqueous	10/23/2014 1410604-05 Aqueous
	Hydrocarbon Content	mg/L	NE	NE	<0.19	<0.19	11.6	1.65	0.48	6.22	8.39	5.85	<0.19	<0.19	3.54	1.03	7.04
EPA 8270	PAHS BY GCMS																
	2-Methylnaphthalene	mg/L	NE	NE	<0.0002	<0.0002	0.319	0.0002	0.0002	0.0309	0.13	0.0205	<0.0002	<0.0002	0.0145	0.0276	0.19
	Acenaphthene	mg/L	NE	NE	<0.0002	0.0021	0.115	0.0052	0.0014	0.134	0.0905	0.0447	<0.0002	0.0005	0.038	0.0005	0.0564
	Acenaphthylene	mg/L	NE	NE	<0.0002	0.0003	0.0436	0.0011	0.0005	0.0087	<0.0095	0.0003	<0.0002	0.0003	0.001	0.0006	0.0696
	Anthracene	mg/L	NE	NE	<0.0002	<0.0002	<0.0093	0.0025	0.0002	0.0207	0.0219	0.0009	<0.0002	<0.0002	0.0013	0.0005	0.0037
	Benzo [a] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.0023	0.0003	<0.00005	0.0056	<0.0024	0.0006	<0.00005	<0.00005	0.0003	0.0001	<0.0002
	Benzo [a] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.0023	0.0001	<0.00005	0.0044	<0.0024	0.0008	<0.00005	<0.00005	0.0002	<0.00005	<0.0002
	Benzo [b] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.0023	0.0001	<0.00005	0.0032	<0.0024	0.0006	<0.00005	<0.00005	0.0002	0.00007	<0.0002
	Benzo [g,h,i] Perylene	mg/L	NE	NE	<0.0002	<0.0002	<0.0093	<0.0002	<0.0002	0.002	<0.0095	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0009
	Benzo [k] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.0023	<0.00005	<0.00005	0.0011	<0.0024	0.0002	<0.00005	<0.00005	0.00006	<0.00005	<0.0002
	Chrysene	mg/L	NE	NE	<0.00005	<0.00005	<0.0023	0.0002	<0.00005	0.0051	<0.0024	0.0007	<0.00005	<0.00005	0.0003	0.0001	<0.0002
	Dibenzo [a,h] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.0023	<0.00005	<0.00005	0.0005	<0.0024	0.0001	<0.00005	<0.00005	<0.00005	<0.00005	<0.0002
	Fluoranthene	mg/L	NE	NE	<0.0002	<0.0002	<0.0093	0.0015	<0.0002	0.0128	<0.0095	0.0013	<0.0002	<0.0002	0.001	0.0004	0.001
	Fluorene	mg/L	NE	NE	<0.0002	0.0006	0.0354	0.0103	0.002	0.0443	0.0233	0.004	<0.0002	<0.0002	0.0061	0.0011	0.0287
	Indeno [1,2,3-cd] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.0023	0.00008	<0.00005	0.002	<0.0024	0.0004	<0.00005	<0.00005	0.0001	<0.00005	<0.0002
	Naphthalene	mg/L	NE	2.67	0.0012	0.0002	4.87	0.0065	0.0047	0.742	3.02	0.0042	0.0003	0.0002	0.433	0.101	1.42
	Phenanthrene	mg/L	NE	NE	<0.0002	<0.0002	0.0205	0.0075	0.0012	0.0817	0.0218	0.0021	<0.0002	<0.0002	0.0067	0.0014	0.0259
	Pyrene	mg/L	NE	NE	<0.0002	<0.0002	<0.0093	0.0019	0.0002	0.0186	<0.0095	0.0025	<0.0002	<0.0002	0.0011	0.0005	0.0012
EPA 9014	SUBCONTRACTED ANALYTES																
	Dissolved Free Cyanide	mg/L	NE	NE	0.02	0.069	0.136	1	0.09	0.5	0.8	0.3	0.71	0.02	0.732	0.2	0.09
	Total Cyanide	mg/L	NE	NE	0.0454	0.0685	0.135	1.16	0.108	0.638	0.875	0.338	0.709	0.028	0.725	0.218	0.144

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 2014. The January 2011 SIDR, the July 2011 RAE and previous groundwater monitoring reports presents historical analytical results.

**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 10/22/2014 1410603-03 Aqueous	MW-6 10/23/2014 1410603-15 Aqueous	MW-109 10/23/2014 1410603-16 Aqueous	MW-314S 10/22/2014 1410603-01 Aqueous	MW-314D 10/22/2014 1410603-02 Aqueous	MW-316D 10/23/2014 1410603-17 Aqueous	MW-337 10/23/2014 1410603-14 Aqueous	MW-107 10/23/2014 1410603-09 Aqueous	MW-318S 10/23/2014 1410603-12 Aqueous	MW-318D 10/23/2014 1410603-13 Aqueous	MW-334S 10/23/2014 1410603-10 Aqueous	MW-334D 10/23/2014 1410603-11 Aqueous
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON														
	Hydrocarbon Content	mg/L	NE	NE	<0.19	1.47	1.81	0.57	0.37	<0.19	1.32	<0.19	1.51	<0.19	0.2
EPA 8270	PAHS BY GCMS														
	2-Methylnaphthalene	mg/L	NE	NE	<0.0002	<0.0002	0.0105	<0.0002	<0.0002	<0.0002	<0.0002	0.0544	<0.0002	0.0007	0.0007
	Acenaphthene	mg/L	NE	NE	<0.0002	0.0052	0.0024	0.0013	0.0013	<0.0002	0.0015	<0.0002	0.0057	<0.0002	0.0004
	Acenaphthylene	mg/L	NE	NE	<0.0002	0.0317	0.0003	<0.0002	<0.0002	<0.0002	0.0021	<0.0002	0.022	<0.0002	<0.0002
	Anthracene	mg/L	NE	NE	<0.0002	0.0003	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.005	<0.0002	0.0004
	Benzo [a] Anthracene	mg/L	NE	NE	<0.00005	0.00006	<0.00005	<0.00005	<0.00005	<0.00005	0.00007	<0.00005	0.0006	<0.00005	0.00006
	Benzo [a] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0006	<0.00005	<0.00005
	Benzo [b] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0007	<0.00005	<0.00005
	Benzo [g,h,i] Perylene	mg/L	NE	NE	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002
	Benzo [k] Fluoranthene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0003	<0.00005	<0.00005
	Chrysene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00006	<0.00005	0.0005	<0.00005	<0.00005
	Dibenzo [a,h] Anthracene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00009	<0.00005	<0.00005
	Fluoranthene	mg/L	NE	NE	<0.0002	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	0.0011	<0.0002	0.0027	<0.0002	0.0005
	Fluorene	mg/L	NE	NE	<0.0002	0.0058	0.0015	0.0003	<0.0002	<0.0002	0.0021	<0.0002	0.0228	<0.0002	0.0006
	Indeno [1,2,3-cd] Pyrene	mg/L	NE	NE	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0005	<0.00005	<0.00005
	Naphthalene	mg/L	NE	2.67	0.0003	0.0003	0.0727	<0.0002	<0.0002	<0.0002	0.0003	<0.0002	0.43	<0.0002	0.0044
	Phenanthrene	mg/L	NE	NE	<0.0002	0.0029	0.0015	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0235	<0.0002	0.0027
	Pyrene	mg/L	NE	NE	<0.0002	0.0002	0.0002	0.0003	<0.0002	<0.0002	0.0012	<0.0002	0.0017	<0.0002	0.0004
EPA 9014	SUBCONTRACTED ANALYTES														
	Dissolved Free Cyanide	mg/L	NE	NE	0.058	0.153	0.213	0.128	0.162	<0.005	0.237	0.031	0.01	0.015	0.011
	Total Cyanide	mg/L	NE	NE	0.0734	0.178	0.212	0.176	0.16	0.011	0.328	0.0458	0.027	0.0234	0.0127

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
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 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 2014. The January 2011 SIDR, the July 2011 RAE and previous groundwater monitoring reports presents historical analytical results.

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	Trip Blank 10/22/2014 1410603-20 Aqueous	MW-312D 10/23/2014 1410604-02 Aqueous	MW-BD-102314 10/23/2014 1410604-08 Aqueous	M and E MW-2 10/22/2014 1410603-03 Aqueous	BD 1 10/22/2014 1410603-08 Aqueous
EPA 8260	VOLATILE ORGANICS								
	1,1,1,2-Tetrachloroethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,1,1-Trichloroethane	mg/L	68	3.1	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,1,2,2-Tetrachloroethane	mg/L	NE	NE	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	1,1,2-Trichloroethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,1-Dichloroethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,1-Dichloroethene	mg/L	23	0.007	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,1-Dichloropropene	mg/L	NE	NE	<0.0020	<0.002	<0.002	<0.0020	<0.0020
	1,2,3-Trichlorobenzene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,2,3-Trichloropropane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,2,4-Trichlorobenzene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,2,4-Trimethylbenzene	mg/L	NE	NE	<0.0010	0.378	0.376	<0.0010	<0.0010
	1,2-Dibromo-3-Chloropropane	mg/L	NE	0.002	<0.0050	<0.005	<0.005	<0.0050	<0.0050
	1,2-Dibromoethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,2-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,2-Dichloroethane	mg/L	670	0.11	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,2-Dichloropropane	mg/L	140	3	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,3,5-Trimethylbenzene	mg/L	NE	NE	<0.0010	0.0182	0.0274	<0.0010	<0.0010
	1,3-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,3-Dichloropropane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,4-Dichlorobenzene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	1,4-Dioxane - Screen	mg/L	NE	NE	<0.500	<0.5	<0.5	<0.500	<0.500
	1-Chlorohexane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	2,2-Dichloropropane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	2-Butanone	mg/L	NE	NE	<0.0100	<0.01	<0.01	<0.0100	<0.0100
	2-Chlorotoluene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	2-Hexanone	mg/L	NE	NE	<0.0100	<0.01	<0.01	<0.0100	<0.0100
	4-Chlorotoluene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	4-Isopropyltoluene	mg/L	NE	NE	<0.0010	0.0063	0.0096	<0.0010	<0.0010
	4-Methyl-2-Pentanone	mg/L	NE	NE	<0.0250	<0.025	<0.025	<0.0250	<0.0250
	Acetone	mg/L	NE	NE	<0.0100	<0.01	<0.01	<0.0100	<0.0100
	Benzene	mg/L	18	0.14	<0.0010	5.98	5.94	<0.0010	<0.0010
	Bromobenzene	mg/L	NE	NE	<0.0020	<0.002	<0.002	<0.0020	<0.0020
	Bromochloromethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Bromodichloromethane	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Bromoform	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Bromomethane	mg/L	NE	NE	<0.0020	<0.002	<0.002	<0.0020	<0.0020
	Carbon Disulfide	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Carbon Tetrachloride	mg/L	NE	0.07	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Chlorobenzene	mg/L	56	3.2	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Chloroethane	mg/L	NE	NE	<0.0020	<0.002	<0.002	<0.0020	<0.0020
	Chloroform	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Chloromethane	mg/L	NE	NE	<0.0020	<0.002	<0.002	<0.0020	<0.0020
	cis-1,2-Dichloroethene	mg/L	69	2.4	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	cis-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Dibromochloromethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Dibromomethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Dichlorodifluoromethane	mg/L	NE	NE	<0.0020	<0.002	<0.002	<0.0020	<0.0020
	Diethyl Ether	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Di-isopropyl ether	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Ethyl tertiary-butyl ether	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Ethylbenzene	mg/L	16	1.6	<0.0010	1.93	1.91	<0.0010	<0.0010
	Hexachlorobutadiene	mg/L	NE	NE	<0.0006	<0.0006	<0.0006	<0.0006	<0.0006
	Hexachloroethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Isopropylbenzene	mg/L	NE	NE	<0.0010	0.056	0.0862	<0.0010	<0.0010
	Methyl tert-Butyl Ether	mg/L	NE	5	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Methylene Chloride	mg/L	NE	NE	<0.0020	<0.002	<0.002	<0.0020	<0.0020
	Naphthalene	mg/L	NE	2.67	<0.0010	8.17	8.13	0.0112	0.0139
	n-Butylbenzene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	n-Propylbenzene	mg/L	NE	NE	<0.0010	0.0219	0.0337	<0.0010	<0.0010
	sec-Butylbenzene	mg/L	NE	NE	<0.0010	<0.001	0.0011	<0.0010	<0.0010
	Styrene	mg/L	50	2.2	<0.0010	0.0015	0.0017	<0.0010	<0.0010

**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	Trip Blank	MW-312D	MW-BD-102314	M and E MW-2	BD 1
					10/22/2014 1410603-20 Aqueous	10/23/2014 1410604-02 Aqueous	10/23/2014 1410604-08 Aqueous	10/22/2014 1410603-03 Aqueous	10/22/2014 1410603-08 Aqueous
	tert-Butylbenzene	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Tertiary-amyl methyl ether	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Tetrachloroethene	mg/L	NE	0.15	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Tetrahydrofuran	mg/L	NE	NE	<0.0050	<0.005	<0.005	<0.0050	<0.0050
	Toluene	mg/L	21	1.7	<0.0010	0.0088	0.009	<0.0010	<0.0010
	trans-1,2-Dichloroethene	mg/L	79	2.8	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	trans-1,3-Dichloropropene	mg/L	NE	NE	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
	Trichloroethene	mg/L	87	0.54	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Trichlorofluoromethane	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Trihalomethanes (Total)	mg/L	NE	NE	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Vinyl Acetate	mg/L	NE	NE	<0.0050	<0.005	<0.005	<0.0050	<0.0050
	Vinyl Chloride	mg/L	NE	0.002	<0.0010	<0.001	<0.001	<0.0010	<0.0010
	Xylene O	mg/L	NE	NE	<0.0010	0.515	0.512	<0.0010	<0.0010
	Xylene P,M	mg/L	NE	NE	<0.0020	0.0448	0.0468	<0.0020	<0.0020
	Xylenes (Total)	mg/L	NE	NE	<0.0020	0.56	0.559	<0.0020	<0.0020
	Total VOCs	mg/L	NE	NE	<0.6445	17.13	17.0835	0.0112	0.0139

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 MW-BD-102314 was collected from MW-312D
 Blind Duplicate sample BD 1 was collected from M and E MW-2

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-312D 10/23/2014 1410604-02 Aqueous	MW-BD-102314 10/23/2014 1410604-08 Aqueous	M and E MW-2 10/22/2014 1410603-03 Aqueous	BD 1 10/22/2014 1410603-08 Aqueous	
Mod. EPA 8100	TOTAL PETROLEUM HYDROCARBON							
	Hydrocarbon Content	mg/L	NE	NE	8.39	10.1	<0.19	<0.19
EPA 8270	PAHS BY GCMS							
	2-Methylnaphthalene	mg/L	NE	NE	0.13	0.159	<0.0002	<0.0002
	Acenaphthene	mg/L	NE	NE	0.0905	0.106	<0.0002	<0.0002
	Acenaphthylene	mg/L	NE	NE	<0.0095	<0.0093	<0.0002	<0.0002
	Anthracene	mg/L	NE	NE	0.0219	<0.0093	<0.0002	<0.0002
	Benzo [a] Anthracene	mg/L	NE	NE	<0.0024	<0.0023	<0.00005	<0.00005
	Benzo [a] Pyrene	mg/L	NE	NE	<0.0024	<0.0023	<0.00005	<0.00005
	Benzo [b] Fluoranthene	mg/L	NE	NE	<0.0024	<0.0023	<0.00005	<0.00005
	Benzo [g,h,i] Perylene	mg/L	NE	NE	<0.0095	<0.0093	<0.0002	<0.0002
	Benzo [k] Fluoranthene	mg/L	NE	NE	<0.0024	<0.0023	<0.00005	<0.00005
	Chrysene	mg/L	NE	NE	<0.0024	<0.0023	<0.00005	<0.00005
	Dibenzo [a,h] Anthracene	mg/L	NE	NE	<0.0024	<0.0023	<0.00005	<0.00005
	Fluoranthene	mg/L	NE	NE	<0.0095	<0.0093	<0.0002	<0.0002
	Fluorene	mg/L	NE	NE	0.0233	0.0261	<0.0002	<0.0002
	Indeno [1,2,3-cd] Pyrene	mg/L	NE	NE	<0.0024	<0.0023	<0.00005	<0.00005
	Naphthalene	mg/L	NE	2.67	3.02	3.26	0.0003	0.0009
	Phenanthrene	mg/L	NE	NE	0.0218	0.0232	<0.0002	0.0003
	Pyrene	mg/L	NE	NE	<0.0095	<0.0093	<0.0002	<0.0002
EPA 9014	SUBCONTRACTED ANALYTES							
	Total Cyanide	mg/L	NE	NE	0.8	0.7	0.058	0.055
	Dissolved Free Cyanide	mg/L	NE	NE	0.875	0.902	0.0734	0.0653

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 MW-BD-102314 was collected from MW-312D

Blind Duplicate sample BD 1 was collected from M and E MW-2

TABLE 5A
GROUNDWATER MONITORING DATA

6/1/2015
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	VHB	GZA		GZA	GZA	GZA	GZA	GZA	GZA
			1996	2006	January 2010	July 2010	December 2010	July 2011	July 2012	August 2013	October 2014	
			Note (5)	Note (5)			Note (2)	Note (6)	Note (2)	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 Disulfide	NE	NE										
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-aryl 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						
TOTAL PETROLEUM HYDROCARBON (ppm)												
Hydrocarbon Content	NE	NE			<	0.2						
PAHS BY GCMS (ppm)												
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						
INORGANICS (ppm)												
Total Cyanide	NE	NE			0.020	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
- 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 5B
GROUNDWATER MONITORING DATA

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	VHB	GZA		GZA		GZA		GZA		GZA		
			1996	2006	January 2010	July 2010	December 2010	July 2011	July 2012	August 2013	October 2014				
VOCs (ppm)			Result	Result	Result	DL	Result	DL	Note (6)		Result	DL	Result	Result	Result
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	<0.02	<0.001	<	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	<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	<0.001	<0.001
Acetone	NE	NE			<	0.025	<	0.010			<	0.010	<0.01	<0.01	<0.01
Benzene	18	0.14	<0.02	<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.001
Carbon Disulfide	NE	NE									<	0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride	NE	0.07			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.001
Chloroform	NE	NE		0.0048	<	0.001	<	0.001			<	0.001	<0.001	0.0018	<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	<0.02	<0.001	<	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	<0.001
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.001
Naphthalene	NE	2.67		<0.001	<	0.002	0.0035	0.002			<	0.002	<0.001	<0.001	<0.001
n-Butylbenzene	NE	NE		<0.001	<	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	<0.001
sec-Butylbenzene	NE	NE		<0.001	<	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	<0.001
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001	<0.001
Tetrachloroethene	NE	0.15			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.001
Toluene	21	1.7	<0.02		<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.001
Trichloroethene	87	0.54			<	0.001	<	0.001			<	0.001	<0.001	0.0003 J	<0.001
Vinyl Chloride	NE	0.002			<	0.001	<	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	<0.001
Xylene P,M	NE	NE	<0.02	<0.002	<	0.002	<	0.002			<	0.002	<0.002	<0.002	<0.002
Xylenes (Total)	NE	NE	<0.04	<0.03	<	0.003	<	0.003			<	0.003	<0.003	<0.002	<0.003
Total VOCs	NE	NE	<0.14	0.0048	<	0.188	0.0035				<	0.122	<0.6415	0.0021	<0.6445
TOTAL PETROLEUM HYDROCARBON (ppm)															
Hydrocarbon Content	NE	NE			<	0.2	<	0.2			<	0.2	<0.2	<0.19	<0.19
PAHS BY GCMS (ppm)															
2-Methylnaphthalene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Acenaphthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Acenaphthylene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Benzo [a] Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0005	<0.0005
Benzo [a] Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0005	<0.0005
Benzo [b] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0005	<0.0005
Benzo [g,h,i] Perylene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0005	<0.0005
Chrysene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0005	<0.0005
Dibenzo [a,h] Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0005	<0.0005
Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Fluorene	NE	NE	<0.02	<0.0003	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Indeno [1,2,3-cd] Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0005	<0.0005
Naphthalene	NE	2.67	<0.02	<0.0003	<	0.002	<	0.002			<	0.002	0.001	0.0004	0.0012
Phenanthrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.0002	<0.0002
INORGANICS (ppm)															
Total Cyanide	NE	NE	<0.02	<0.05	<	0.010	<	0.010			0.02	0.010	0.0205	0.0316	0.0454
Dissolved Free Cyanide	NE	NE		<0.05	<	0.010	<	0.010			<	0.010	<0.005	0.0239	0.02
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	0.023	<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

North Fill Area
Former Tidewater Facility
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By:		MW-310S											
	RIDE M GB GW UCL	RIDE M GB GW Objectives	AES	VHB	GZA		GZA		GZA		GZA		GZA	
			1996	2006	January 2010	June 2010	December 2010	July 2011	July 2012	August 2013	October 2014			
			Note (4)	Note (4)	Note (4)			Note (6)						
VOCs (ppm)						Result	DL		Result	DL	Result	Result		
1,1,1,2-Tetrachloroethane	NE	NE				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
1,1-Dichloroethene	23	0.007				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.002		<	0.002	<0.005	<0.005	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
4-Isopropyltoluene	NE	NE									<0.001	<0.001	<0.001	<0.0010
Acetone	NE	NE				<	0.01		<	0.01	<0.01	<0.01	<0.01	<0.0100
Benzene	18	0.14				<	0.001		<	0.001	0.0029	0.0035	0.002	0.002
Carbon Disulfide	NE	NE							<	0.001	<0.001	<0.001	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Chloroform	NE	NE				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Ethylbenzene	16	1.6				<	0.001		<	0.001	0.0012	0.0004 J	0.0004 J	<0.0010
Isopropylbenzene	NE	NE				<	0.001		<	0.001	<0.001	0.0004 J	0.0004 J	<0.0010
Methyl tert-Butyl Ether	NE	5				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Naphthalene	NE	2.67				<	0.002		<	0.002	<0.001	<0.001	0.0013	0.0013
n-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
n-Propylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
sec-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Styrene	50	2.2				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001	<0.001	<0.0010
Tetrachloroethene	NE	0.15				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Toluene	21	1.7				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Trichloroethene	87	0.54				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Vinyl Chloride	NE	0.002				<	0.001		<	0.001	<0.001	<0.001	<0.001	<0.0010
Xylene O	NE	NE				<	0.001		<	0.001	<0.001	0.0006 J	0.0006 J	<0.0010
Xylene P,M	NE	NE				<	0.002		<	0.002	<0.002	<0.002	<0.002	<0.0020
Xylenes (Total)	NE	NE				<	0.003		<	0.003	<0.003	0.0006 J	0.0006 J	<0.003
Total VOCs	NE	NE				<	0.122		<	0.122	0.0041	0.0049	0.0033	0.0033
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE				0.41	0.2		<	0.2	<0.2	<0.19	<0.19	<0.19
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	<0.0002	<0.0002
Acenaphthene	NE	NE				<	0.002		<	0.002	0.0004	0.0008	0.0021	0.0021
Acenaphthylene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	0.0003	0.0003
Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	<0.0002	<0.0002
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0005	<0.0005	<0.0005
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0005	<0.0005	<0.0005
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0005	<0.0005	<0.0005
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0005	<0.0005	<0.0005
Chrysene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0005	<0.0005	<0.0005
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0005	<0.0005	<0.0005
Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	<0.0002	<0.0002
Fluorene	NE	NE				<	0.002		<	0.002	<0.0002	0.0002	0.0006	0.0006
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0005	<0.0005	<0.0005
Naphthalene	NE	2.67				<	0.002		<	0.002	0.0004	0.0002	0.0002	0.0002
Phenanthrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	<0.0002	<0.0002
Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	<0.0002	<0.0002
INORGANICS (ppm)														
Total Cyanide	NE	NE				0.090	0.010		0.06	0.010	0.0531	0.0548	0.069	0.069
Dissolved Free Cyanide	NE	NE				<	0.010		<	0.010	<0.005	0.0414	0.0685	0.0685
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 RIDE M GB Groundwater Objective

=detection limit equals or exceeds the RIDE M 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 RIDE M GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5D
GROUNDWATER MONITORING DATA

6/1/2015
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		GZA	
	RIDEM GB GW UCL	RIDEM GB GW Objectives	1996	2006	January 2010	June 2010	December 2010	July 2011	July 2012	August 2013	October 2014			
		Note (4)	Note (4)	Note (4)		Note (6)								
VOCs (ppm)							Result	DL		Result	DL	Result	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE					<	0.025		<	0.05	<0.001	0.13 D	<0.100
1,1-Dichloroethene	23	0.007					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
1,2,4-Trimethylbenzene	NE	NE					0.32	0.025		0.64	0.05	0.712	0.473 D	0.652
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.050		<	0.10	<0.005	<0.5 D	<0.500
1,3,5-Trimethylbenzene	NE	NE					0.84	0.025		0.17	0.05	0.18	0.102 D	0.162
4-Isopropyltoluene	NE	NE										0.017	<0.1 D	<0.100
Acetone	NE	NE					<	0.250		<	0.50	<0.01	<1 D	<1.00
Benzene	18	0.14					0.29	0.025		0.65	0.05	0.618	0.678 D	0.652
Carbon Disulfide	NE	NE								<	0.05	<0.001	<0.1 D	<0.100
Carbon Tetrachloride	NE	0.07					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
Chloroform	NE	NE					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
cis-1,2-Dichloroethene	69	2.4					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
Ethylbenzene	16	1.6					0.4	0.025		0.92	0.05	1.07	0.72 D	0.918
Isopropylbenzene	NE	NE					0.05	0.025		0.092	0.05	0.101	0.063 J D	<0.100
Methyl tert-Butyl Ether	NE	5					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
Naphthalene	NE	2.67					3.9	0.050		6.8	0.10	9.8	6.6 D	8.96
n-Butylbenzene	NE	NE					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
n-Propylbenzene	NE	NE					<	0.025		<	0.05	0.0524	<0.1 D	<0.100
sec-Butylbenzene	NE	NE					<	0.025		<	0.05	0.005	<0.1 D	<0.100
Styrene	50	2.2					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
Tertiary-amyl methyl ether	NE	NE										<0.001	<0.1 D	<0.100
Tetrachloroethene	NE	0.15					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
Toluene	21	1.7					0.061	0.025		0.19	0.05	0.198	0.174 D	0.173
Trichloroethene	87	0.54					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
Vinyl Chloride	NE	0.002					<	0.025		<	0.05	<0.001	<0.1 D	<0.100
Xylene O	NE	NE					0.33	0.025		0.66	0.05	0.735	0.489 D	0.646
Xylene P,M	NE	NE					0.29	0.050		0.67	0.10	0.775	0.478 D	0.659
Xylenes (Total)	NE	NE					0.62	0.075		1.33	0.15	1.51	0.967 D	1.3
Total VOCs	NE	NE					6.48			10.79		14.26	9.907	12.822
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE					6.8	1		8.7	0.2	11.6	13.5	11.6
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE					0.17 D	0.05		0.2	0.01	0.394	0.403 D	0.319
Acenaphthene	NE	NE					0.088	0.002		0.054	0.002	0.158	0.0914 D	0.115
Acenaphthylene	NE	NE					0.027	0.002		0.023	0.002	0.064	0.0454 D	0.0436
Anthracene	NE	NE					0.010	0.002		<	0.002	<0.02	0.0024 D	<0.0093
Benzo [a] Anthracene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0023
Benzo [a] Pyrene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0023
Benzo [b] Fluoranthene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0023
Benzo [g,h,i] Perylene	NE	NE					<	0.002		<	0.002	<0.02	<0.0019 D	<0.0093
Benzo [k] Fluoranthene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0023
Chrysene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0023
Dibenzo [a,h] Anthracene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0023
Fluoranthene	NE	NE					<	0.002		<	0.002	<0.02	<0.0019 D	<0.0093
Fluorene	NE	NE					0.022	0.002		0.018	0.002	0.047	0.0311 D	0.0354
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0023
Naphthalene	NE	2.67					2.2 D	0.05		2.5	0.04	5.76	4.57 D	4.87
Phenanthrene	NE	NE					0.010	0.002		0.012	0.002	0.029	0.0207 D	0.0205
Pyrene	NE	NE					<	0.002		<	0.002	<0.02	<0.0019 D	<0.0093
INORGANICS (ppm)														
Total Cyanide	NE	NE					0.18	0.010		0.12	0.010	0.132	0.139	0.136
Dissolved Free Cyanide	NE	NE					0.070	0.010		0.15	0.010	0.0293	0.133	0.135
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:		MW-201										
	RIDE M GB GW UCL	RIDE M GB GW Objectives	AES	VHB	GZA		GZA		GZA	GZA	GZA	GZA	GZA
			1996	2006	January 2010	June 2010	December 2010	July 2011	July 2012	August 2013	October 2014		
			Note (4)						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	<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		0.0907	0.017	0.001	0.0094	0.001		0.0047	0.001	0.0019	0.0248
1,2-Dibromo-3-Chloropropane	NE	0.002		<	0.005	<	0.005		<	0.005	<0.005	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE		0.0024	<	0.001	<	0.001		<	0.001	<0.001	0.0024
4-Isopropyltoluene	NE	NE									<0.001	<0.001	<0.001
Acetone	NE	NE		<	0.025	<	0.025		<	0.025	<0.01	<0.01	<0.01
Benzene	18	0.14		0.0047	0.032	0.001	0.050	0.001		0.050	0.001	0.0397	0.0948 D
Carbon Disulfide	NE	NE								<	0.001	<0.001	<0.001
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
cis-1,2-Dichloroethene	69	2.4		<	0.001	<	0.001		<	0.001	<0.001	<0.001	<0.001
Ethylbenzene	16	1.6		0.0228	0.055	0.001	0.064	0.001		0.035	0.001	0.0163	0.0658
Isopropylbenzene	NE	NE		0.0164	0.025	0.001	0.020	0.001		0.017	0.001	0.0129	0.0274
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.001	<	0.001		<	0.001	<0.001	<0.001
Naphthalene	NE	2.67		0.0028	0.019	0.002	0.020	0.002		0.010	0.002	0.0032	0.0781
n-Butylbenzene	NE	NE		<0.001	0.0067	0.001	0.0062	0.001		0.0056	0.001	0.0056	0.0068
n-Propylbenzene	NE	NE		0.0149	0.018	0.001	0.018	0.001		0.015	0.001	0.0124	0.0227
sec-Butylbenzene	NE	NE		0.0031	0.0024	0.001	0.0024	0.001		0.0021	0.001	0.0018	0.0026
Styrene	50	2.2		<	0.001	<	0.001		<	0.001	<0.001	0.0043	0.0015
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001	<0.001
Tetrachloroethene	NE	0.15		<	0.001	<	0.001		<	0.001	<0.001	<0.001	<0.001
Toluene	21	1.7		0.0018	<	0.001	0.0024	0.001		<	0.001	<0.001	<0.001
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		0.0113	0.021	0.001	0.0062	0.001		0.0053	0.001	0.0021	0.0252
Xylene P,M	NE	NE		0.0024	<	0.002	<	0.002		<	0.002	<0.002	0.0051
Xylenes (Total)	NE	NE		0.0137	0.021	0.003	0.0062	0.003		0.0053	0.003	0.0021	0.0303
Total VOCs	NE	NE		0.1733	0.1961	0.188	0.1986	0.188		0.1447	0.188	0.0959	0.3987
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE			0.66	0.2	<	0.2		0.6	0.2	1.77	1.86
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE		0.00076	<	0.002	0.0068	0.002		<	0.002	<0.0002	0.0004
Acenaphthene	NE	NE		0.0088	0.0052	0.002	<	0.002		0.0053 D	0.002	0.006	0.0061
Acenaphthylene	NE	NE		0.00209	<	0.002	<	0.002		<	0.002	0.002	0.0019
Anthracene	NE	NE		0.0035	<	0.002	<	0.002		<	0.002	0.004	0.003
Benzo [a] Anthracene	NE	NE		0.00102	<	0.002	<	0.002		<	0.002	0.0004	0.0005
Benzo [a] Pyrene	NE	NE		0.00085	<	0.002	<	0.002		<	0.002	0.0003	0.0003
Benzo [b] Fluoranthene	NE	NE		0.00051	<	0.002	<	0.002		<	0.002	0.0003	0.0003
Benzo [g,h,i] Perylene	NE	NE		0.00035	<	0.002	<	0.002		<	0.002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE		0.00063	<	0.002	<	0.002		<	0.002	<0.0002	0.0001
Chrysene	NE	NE		0.00112	<	0.002	<	0.002		<	0.002	0.0004	0.0005
Dibenzo [a,h] Anthracene	NE	NE		0.00023	<	0.002	<	0.002		<	0.002	<0.0002	0.00006
Fluoranthene	NE	NE		0.00503	<	0.002	<	0.002		<	0.002	0.002	0.0014
Fluorene	NE	NE		0.014	0.011	0.002	<	0.002		0.011 D	0.002	0.012	0.0108
Indeno [1,2,3-cd] Pyrene	NE	NE		0.00039	<	0.002	<	0.002		<	0.002	<0.0002	0.0002
Naphthalene	NE	2.67		0.012	0.0069	0.002	<	0.002		0.0042 D	0.002	0.002	0.0306 B D
Phenanthrene	NE	NE		0.012	0.085	0.002	<	0.002		0.086 D	0.002	0.012	0.0094
Pyrene	NE	NE		0.00356	<	0.002	<	0.002		<	0.002	0.003	0.0024
INORGANICS (ppm)													
Total Cyanide	NE	NE		2.52	4.1	0.010	3.5	0.010		4.0	0.010	0.0075	3.68 D
Dissolved Free Cyanide	NE	NE		<0.05	0.020	0.010	0.15	0.010		0.13	0.010	0.0067	2.37 D
Physiologically Available Cyanide	NE	NE		0.215									
Arsenic	NE	NE		<0.0050									
Beryllium	NE	NE		<0.001									
Chromium	NE	NE		<0.020									
Copper	NE	NE		<0.020									
Lead	NE	NE		0.0181									
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" qualifier indicates analytes reported from a diluted run of the original analysis.
- "J" qualifier indicates analyte concentration is estimated
- "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 RIDE M GB Groundwater Objective
- =detection limit equals or exceeds the RIDE M 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 RIDE M GB Groundwater Objective during groundwater monitoring at the Site between 1996 and present.

TABLE 5F
GROUNDWATER MONITORING DATA

6/1/2015
GZA File No. 05.00043654.00

Former Gas Plant Area
Former Tidewater Facility
Pawtucket, Rhode Island

ANALYTICAL	Sample ID:		MW-208										
	Collected By:		AES	VHB	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	October 2014
	GW UCL	Objectives	Note (4)						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	<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	<	0.002	<0.005	<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	0.0009 J	<0.001
Acetone	NE	NE		<	0.025	<	0.01	<	0.01	<	0.01	<0.01	<0.01
Benzene	18	0.14		0.0016	0.004	0.001	<	0.001	<	0.001	0.0017	0.0006 J	0.0016
Carbon Disulfide	NE	NE											<0.001
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		0.0012	0.0033	0.001	<	0.001	<	0.001	0.0037	0.001	0.0096
Isopropylbenzene	NE	NE		0.0126	0.011	0.001	<	0.001	<	0.001	0.0037	0.001	0.0027
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.001	<	0.001	<	0.001	<0.001	<0.001	<0.001
Naphthalene	NE	2.67		0.0014	0.0023	0.002	<	0.002	<	0.002	0.0021	0.002	0.0028
n-Butylbenzene	NE	NE		<0.001	0.015	0.001	0.0012	0.001	<	0.001	0.0076	0.001	0.0154
n-Propylbenzene	NE	NE		0.0075	0.0090	0.001	<	0.001	<	0.001	0.0021	0.001	0.0019
sec-Butylbenzene	NE	NE		0.0092	0.0074	0.001	<	0.001	<	0.001	0.0068	0.001	0.0077
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	0.0017	0.001	<	0.001	<	0.001	<0.001	0.0004 J	<0.001
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		0.0036	0.0025	0.001	<	0.001	<	0.001	0.002	0.001	0.0039
Xylene P,M	NE	NE		<0.002	<	0.002	<	0.002	<	0.002	<0.002	<0.002	0.0009 J
Xylenes (Total)	NE	NE		0.0036	0.0025	0.003	<	0.003	<	0.003	0.002	0.003	0.0039
Total VOCs	NE	NE		0.0371	0.056	0.185	0.0012	0.122		0.028	0.122	0.0421	0.0405
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE			0.57	0.2	0.8	0.2		0.31	0.2	1	0.9
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE		<0.0002	<	0.002	0.033	0.002	<	0.002	<0.0002	<0.0002	0.0002
Acenaphthene	NE	NE		0.00156	<	0.002	0.0067	0.002	<	0.002	0.003	0.0023	0.0014
Acenaphthylene	NE	NE		0.0013	<	0.002	<	0.002	<	0.002	0.002	0.002	0.0005
Anthracene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	0.0005	0.0005	0.0002
Benzo [a] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Benzo [a] Pyrene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Benzo [b] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Benzo [g,h,i] Perylene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Benzo [k] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Chrysene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Dibenzo [a,h] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002	<	0.002	0.0003	0.0002	<0.0002
Fluorene	NE	NE		0.00139	<	0.002	0.011	0.002	<	0.002	0.002	0.0015	0.002
Indeno [1,2,3-cd] Pyrene	NE	NE		<0.0003	<	0.002	<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Naphthalene	NE	2.67		0.00094	<	0.002	0.0076	0.002	<	0.002	0.002	0.0013	0.0047
Phenanthrene	NE	NE		0.00074	<	0.002	0.01	0.002	<	0.002	0.002	0.002	0.0012
Pyrene	NE	NE		0.00027	<	0.002	<	0.002	<	0.002	0.0005	0.0003	0.0002
INORGANICS (ppm)													
Total Cyanide	NE	NE		0.17	0.010	0.010	0.050	0.010		0.030	0.010	0.0299	0.0302
Dissolved Free Cyanide	NE	NE		<0.06	<	0.010	<	0.010	<	0.010	<0.005	0.0237	0.09
Physiologically Available Cyanide	NE	NE		0.073									
Arsenic	NE	NE		0.0155									
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

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	GZA October 2014		
			Note (4)	Note (4)	Note (4)	Note (3)	Note (6)	Note (3)	Note (3)	Note (3)	Note (3)		
VOCs (ppm)						Result	DL		Result	DL	Result	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
1,1-Dichloroethene	23	0.007				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
1,2,4-Trimethylbenzene	NE	NE				0.18	0.025		0.26	0.05	0.186	0.104 D	0.114
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.050		<	0.10	<0.1	<0.5 D	<0.005
1,3,5-Trimethylbenzene	NE	NE				0.05	0.025		0.063	0.05	<0.05	0.024 J D	0.0131
4-Isopropyltoluene	NE	NE									<0.05	<0.1 D	0.0026
Acetone	NE	NE				<	0.250		<	0.50	<0.5	<1 D	0.0347
Benzene	18	0.14				0.052	0.025		0.13	0.05	0.0685	<0.1 D	0.0437
Carbon Disulfide	NE	NE							<	0.05	<0.05	<0.1 D	0.0097
Carbon Tetrachloride	NE	0.07				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
Chloroform	NE	NE				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
cis-1,2-Dichloroethene	69	2.4				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
Ethylbenzene	16	1.6				0.84	0.025		1.1	0.05	0.856	0.546 D	0.588
Isopropylbenzene	NE	NE				0.04	0.025		0.053	0.05	<0.05	0.022 J D	0.0235
Methyl tert-Butyl Ether	NE	5				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
Naphthalene	NE	2.67				2.8	0.050		4.3	0.10	2.85	2.03 D	2.03
n-Butylbenzene	NE	NE				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
n-Propylbenzene	NE	NE				<	0.025		<	0.05	<0.05	<0.1 D	0.0102
sec-Butylbenzene	NE	NE				<	0.025		<	0.05	<0.05	<0.1 D	0.0013
Styrene	50	2.2				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
Tertiary-amyl methyl ether	NE	NE									<0.1	<0.1 D	<0.001
Tetrachloroethene	NE	0.15				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
Toluene	21	1.7				<	0.025		<	0.05	<0.05	<0.1 D	0.0069
Trichloroethene	87	0.54				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
Vinyl Chloride	NE	0.002				<	0.025		<	0.05	<0.05	<0.1 D	<0.001
Xylene O	NE	NE				0.22	0.025		0.24	0.05	0.119	0.088 J D	0.0935
Xylene P,M	NE	NE				<	0.050		<	0.10	<0.1	0.027 J D	0.0263
Xylenes (Total)	NE	NE				0.22	0.750		0.24	0.150	0.119	0.115 J D	0.12
Total VOCs	NE	NE				4.18	3.05		6.15	6.100	4.0795	2.841	2.9975
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE				5.2	1		48	0.2	8.61	8.84	6.22
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE				0.11	0.002		3.1 D	0.2	0.068	0.101 D	0.0309
Acenaphthene	NE	NE				0.094	0.002		3.9 D	0.2	0.214	0.221 D	0.134
Acenaphthylene	NE	NE				0.028	0.002		0.4 D	0.2	0.026	0.0336 D	0.0087
Anthracene	NE	NE				0.025	0.002		1.7 D	0.2	0.032	0.0377 D	0.0207
Benzo [a] Anthracene	NE	NE				0.0091	0.002		0.8 D	0.2	<0.02	0.0145 D	0.0056
Benzo [a] Pyrene	NE	NE				0.0073	0.002		0.45 D	0.2	<0.02	0.0123 D	0.0044
Benzo [b] Fluoranthene	NE	NE				0.006	0.002		0.41 D	0.2	<0.02	0.009 D	0.0032
Benzo [g,h,i] Perylene	NE	NE				0.0027	0.002		<	0.2	<0.02	0.0043 D	0.002
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.2	<0.02	0.0033 D	0.0011
Chrysene	NE	NE				0.009	0.002		0.64 D	0.2	<0.02	0.0137 D	0.0051
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.2	<0.02	0.0012 D	0.0005
Fluoranthene	NE	NE				0.026	0.002		1.8 D	0.2	0.022	0.0327 D	0.0128
Fluorene	NE	NE				0.047	0.002		2 D	0.2	0.078	0.0811 D	0.0443
Indeno [1,2,3-cd] Pyrene	NE	NE				0.0025	0.002		<	0.2	<0.02	0.0045 D	0.002
Naphthalene	NE	2.67				1 D	0.02		10 D	0.2	2.58	1.78 D	0.742
Phenanthrene	NE	NE				0.088	0.002		5.6 D	0.2	0.115	0.114 D	0.0817
Pyrene	NE	NE				0.035	0.002		2.5 D	0.2	0.031	0.0439 D	0.0186
INORGANICS (ppm)													
Total Cyanide	NE	NE				0.51	0.010		0.33	0.010	0.319	0.307 D	0.638
Dissolved Free Cyanide	NE	NE				<	0.010		0.040	0.010	<0.005	0.3 D	0.5
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 5H
GROUNDWATER MONITORING DATA

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	GZA October 2014			
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result	Result	
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
1,1-Dichloroethene	23	0.007					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
1,2,4-Trimethylbenzene	NE	NE					0.31	0.025		0.42	0.05	0.432	<0.1 D	0.378
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.050		<	0.10	<0.5	<0.5 D	<0.005
1,3,5-Trimethylbenzene	NE	NE					0.055	0.025		<	0.05	<0.1	0.026 J D	0.0182
4-Isopropyltoluene	NE	NE										<0.1	<0.1 D	0.0063
Acetone	NE	NE					<	0.250		<	0.50	<1	<1 D	<0.01
Benzene	18	0.14					2.5	0.025		2.8	0.05	2.29	3.56 D	5.98
Carbon Disulfide	NE	NE					<			<	0.05	<0.1	<0.1 D	<0.001
Carbon Tetrachloride	NE	0.07					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
Chloroform	NE	NE					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
cis-1,2-Dichloroethene	69	2.4					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
Ethylbenzene	16	1.6					1.2	0.025		1.5	0.05	1.63	1.26 D	1.93
Isopropylbenzene	NE	NE					0.062	0.025		0.085	0.05	<0.1	0.054 J D	0.056
Methyl tert-Butyl Ether	NE	5					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
Naphthalene	NE	2.67					3.4	0.050		5.3	0.10	6.75	4.3 D	8.17
n-Butylbenzene	NE	NE					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
n-Propylbenzene	NE	NE					<	0.025		<	0.05	<0.1	0.022 J D	0.0219
sec-Butylbenzene	NE	NE					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
Styrene	50	2.2					<	0.025		<	0.05	<0.1	<0.1 D	0.0015
Tertiary-amyl methyl ether	NE	NE										<0.1	<0.1 D	<0.001
Tetrachloroethene	NE	0.15					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
Toluene	21	1.7					<	0.025		<	0.05	<0.1	<0.1 D	0.0088
Trichloroethene	87	0.54					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
Vinyl Chloride	NE	0.002					<	0.025		<	0.05	<0.1	<0.1 D	<0.001
Xylene O	NE	NE					0.3	0.025		0.41	0.05	0.422	0.309 D	0.515
Xylene P,M	NE	NE					<	0.050		<	0.10	<0.2	0.03 J D	0.0448
Xylenes (Total)	NE	NE					0.3	0.750		0.41	0.150	0.422	0.339 D	0.56
Total VOCs	NE	NE					7.8	3.05		10.52	6.100	11.524	9.561	17.1305
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE					4.6	2.0		6.5	0.2	10.7	9.42	8.39
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE					0.14	0.002		0.091	0.002	0.172	0.189 D	0.13
Acenaphthene	NE	NE					0.07	0.002		0.051	0.002	0.108	0.0771 D	0.0905
Acenaphthylene	NE	NE					0.0075	0.002		<	0.002	<0.02	0.0033 D	<0.0095
Anthracene	NE	NE					0.0064	0.002		0.0035	0.002	<0.02	0.005 D	0.0219
Benzo [a] Anthracene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0024
Benzo [a] Pyrene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0024
Benzo [b] Fluoranthene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0024
Benzo [g,h,i] Perylene	NE	NE					<	0.002		<	0.002	<0.02	<0.0019 D	<0.0095
Benzo [k] Fluoranthene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0024
Chrysene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0024
Dibenzo [a,h] Anthracene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0024
Fluoranthene	NE	NE					0.003	0.002		0.0024	0.002	<0.02	0.0023 D	<0.0095
Fluorene	NE	NE					0.025	0.002		0.019	0.002	0.031	0.0255 D	0.0233
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002		<	0.002	<0.02	<0.0005 D	<0.0024
Naphthalene	NE	2.67					2 D	0.05		0.9	0.02	2.98	2.98 D	3.02
Phenanthrene	NE	NE					0.032	0.002		0.018	0.002	0.033	0.0246 D	0.0218
Pyrene	NE	NE					0.0036	0.002		0.003	0.002	<0.02	0.0028 D	<0.0095
INORGANICS (ppm)														
Total Cyanide	NE	NE					0.62	0.010		0.74	0.010	0.48	0.531 D	0.875
Dissolved Free Cyanide	NE	NE					<	0.010		0.020	0.010	<0.005	0.523 D	0.8
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	GZA October 2014		
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Note (3)	Result	Result	Result	Result
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE				<	0.005		<	0.005	<0.001	<0.001	<0.0010
1,1-Dichloroethene	23	0.007				<	0.005		<	0.005	<0.001	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE				0.073	0.005		0.140	0.005	0.0674	0.0478	0.0183
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.010		<	0.010	<0.005	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE				0.012	0.005		0.022	0.005	0.0098	0.0112	0.0082
4-Isopropyltoluene	NE	NE									0.0019	<0.001	<0.0010
Acetone	NE	NE				<	0.050		<	0.050	<0.01	<0.01	<0.0100
Benzene	18	0.14				0.36	0.005		0.47	0.005	0.368	0.444 D	0.352
Carbon Disulfide	NE	NE				<			<	0.005	<0.001	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07				<	0.005		<	0.005	<0.001	<0.001	<0.0010
Chloroform	NE	NE				<	0.005		<	0.005	<0.001	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4				<	0.005		<	0.005	<0.001	<0.001	<0.0010
Ethylbenzene	16	1.6				0.2	0.005		0.3	0.005	0.186	0.154 D	0.0574
Isopropylbenzene	NE	NE				0.026	0.005		0.051	0.005	0.0419	0.037	0.0287
Methyl tert-Butyl Ether	NE	5				<	0.005		<	0.005	<0.001	<0.001	<0.0010
Naphthalene	NE	2.67				0.27	0.010		0.13	0.010	0.0474	0.0516	0.0239
n-Butylbenzene	NE	NE				<	0.005		<	0.005	<0.001	<0.001	<0.0010
n-Propylbenzene	NE	NE				0.007	0.005		0.018	0.005	0.0152	0.0128	0.0098
sec-Butylbenzene	NE	NE				<	0.005		<	0.005	0.0015	<0.001	<0.0010
Styrene	50	2.2				<	0.005		<	0.005	<0.001	0.0018	<0.0010
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001	<0.0010
Tetrachloroethene	NE	0.15				<	0.005		<	0.005	<0.001	<0.001	<0.0010
Toluene	21	1.7				<	0.005		0.006	0.005	0.0022	0.0025	0.0011
Trichloroethene	87	0.54				<	0.005		<	0.005	<0.001	<0.001	<0.0010
Vinyl Chloride	NE	0.002				<	0.005		<	0.005	<0.001	<0.001	<0.0010
Xylene O	NE	NE				0.13	0.005		0.16	0.005	0.0735	0.0509	0.0126
Xylene P,M	NE	NE				0.015	0.010		0.021	0.010	0.012	0.0132	0.0059
Xylenes (Total)	NE	NE				0.145	0.015		0.181	0.015	0.0855	0.0641	0.0186
Total VOCs	NE	NE				1.093	0.62		1.318	0.62	0.8268	0.8268	0.5179
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE				2.7	0.2		2.3	0.2	6.43	11.1	5.85
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE				0.023	0.002		0.017	0.002	0.024	0.0407 D	0.0205
Acenaphthene	NE	NE				0.029	0.002		0.025	0.002	0.038	0.0545 D	0.0447
Acenaphthylene	NE	NE				<	0.002		<	0.002	0.0008	0.0006	0.0003
Anthracene	NE	NE				<	0.002		<	0.002	0.001	0.0018	0.0009
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	0.0003	0.0014	0.0006
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	0.0003	0.0012	0.0008
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	0.0003	0.0009	0.0006
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.0002	0.0006	0.0005
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	0.0009	0.0002
Chrysene	NE	NE				<	0.002		<	0.002	0.0003	0.0013	0.0007
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	0.0002	0.0001
Fluoranthene	NE	NE				<	0.002		<	0.002	0.001	0.0027	0.0013
Fluorene	NE	NE				0.0054	0.002		0.0043	0.002	0.006	0.0058	0.004
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	0.0006	0.0004
Naphthalene	NE	2.67				0.099	0.002		0.026	0.002	0.008	0.0068 B	0.0042
Phenanthrene	NE	NE				0.0037	0.002		<	0.002	0.002	0.0031	0.0021
Pyrene	NE	NE				<	0.002		<	0.002	0.002	0.0037	0.0025
INORGANICS (ppm)													
Total Cyanide	NE	NE				0.69	0.010		0.49	0.010	0.297	0.339 D	0.338
Dissolved Free Cyanide	NE	NE				0.010	0.010		<	0.010	<0.005	0.337 D	0.3
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 5J
GROUNDWATER MONITORING DATA
Former Gas Plant Area
Former Tidewater Facility
Pawtucket, Rhode Island

6/1/2015
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		GZA October 2014		
			Note (4)	Note (4)	Note (4)		Result	DL	Result	DL	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					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
1,1-Dichloroethene	23	0.007					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
1,2,4-Trimethylbenzene	NE	NE					0.022	0.0025			0.0027	0.001	0.0023	0.0086	0.0086	0.0086	0.0086	<0.0010	
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.0050			<	0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	
1,3,5-Trimethylbenzene	NE	NE					0.0073	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
4-Isopropyltoluene	NE	NE											<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Acetone	NE	NE					<	0.0250			<	0.010	<0.01	<0.01	<0.01	<0.01	<0.010	<0.0100	
Benzene	18	0.14					0.26	0.0025			0.057	0.001	0.0588	0.0809	0.0809	0.0809	0.0809	0.0049	
Carbon Disulfide	NE	NE					<				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Carbon Tetrachloride	NE	0.07					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Chloroform	NE	NE					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
cis-1,2-Dichloroethene	69	2.4					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Ethylbenzene	16	1.6					0.13	0.0025			0.017	0.001	0.0201	0.0401	0.0401	0.0401	0.0401	0.0012	
Isopropylbenzene	NE	NE					0.016	0.0025			0.0038	0.001	0.0022	0.0026	0.0026	0.0026	0.0026	<0.0010	
Methyl tert-Butyl Ether	NE	5					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Naphthalene	NE	2.67					0.32	0.0050			0.052	0.002	0.0448	0.123 D	0.123 D	0.123 D	0.123 D	0.0026	
n-Butylbenzene	NE	NE					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
n-Propylbenzene	NE	NE					0.0051	0.0025			0.0014	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
sec-Butylbenzene	NE	NE					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Styrene	50	2.2					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Tetrachloroethene	NE	0.15					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Toluene	21	1.7					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Trichloroethene	87	0.54					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Vinyl Chloride	NE	0.002					<	0.0025			<	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Xylene O	NE	NE					0.034	0.0025			0.0029	0.001	0.0038	0.01	0.01	0.01	0.01	<0.0010	
Xylene P,M	NE	NE					0.0068	0.0050			<	0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0020	
Xylenes (Total)	NE	NE					0.0408	0.0075			0.0029	0.003	0.0038	0.01	0.01	0.01	0.01	<0.0030	
Total VOCs	NE	NE					0.8012	0.305			0.1368	0.122	0.132	0.2652	0.2652	0.2652	0.2652	0.0087	
TOTAL PETROLEUM HYDROCARBON (ppm)																			
Hydrocarbon Content	NE	NE					1.2	0.2			0.27	0.2	0.45	0.66	0.66	0.66	0.66	<0.19	
PAHS BY GCMS (ppm)																			
2-Methylnaphthalene	NE	NE					0.0038	0.002			<	0.002	<0.0002	0.0009	0.0009	0.0009	0.0009	<0.0002	
Acenaphthene	NE	NE					0.0063	0.002			0.0022	0.002	0.001	0.0016	0.0016	0.0016	0.0016	<0.0002	
Acenaphthylene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Benzo [a] Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	
Benzo [a] Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Benzo [b] Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Benzo [g,h,i] Perylene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Benzo [k] Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Chrysene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Dibenzo [a,h] Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Fluorene	NE	NE					<	0.002			<	0.002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Naphthalene	NE	2.67					0.042	0.002			0.02	0.002	0.012	0.0644 B D	0.0644 B D	0.0644 B D	0.0644 B D	0.0003	
Phenanthrene	NE	NE					0.0026	0.002			<	0.002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
INORGANICS (ppm)																			
Total Cyanide	NE	NE					0.54	0.010			0.67	0.010	0.665	0.808 D	0.808 D	0.808 D	0.808 D	0.709	
Dissolved Free Cyanide	NE	NE					0.080	0.010			0.010	0.010	<0.005	0.766 D	0.766 D	0.766 D	0.766 D	0.71	
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

TABLE 5K
GROUNDWATER MONITORING DATA

Former Gas Plant Area
Former Tidewater Facility
Pawtucket, Rhode Island

ANALYTICAL	Sample ID: Collected By: Sample Date:		MW-333S											
	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	GZA October 2014	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	Result	
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,1-Dichloroethene	23	0.007						<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE						<	0.001	0.0097	0.001	0.0136	<0.001	<0.0010
1,2-Dibromo-3-Chloropropane	NE	0.002						<	0.002	<	0.002	<0.005	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
4-Isopropyltoluene	NE	NE										<0.001	<0.001	<0.0010
Acetone	NE	NE						<	0.010	<	0.010	<0.01	<0.01	<0.0100
Benzene	18	0.14						<	0.001	0.039	0.001	0.0287	<0.001	<0.0010
Carbon Disulfide	NE	NE								<	0.001	<0.001	<0.001	0.0071
Carbon Tetrachloride	NE	0.07						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Chloroform	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Ethylbenzene	16	1.6						<	0.001	0.13	0.001	0.212	<0.001	<0.0010
Isopropylbenzene	NE	NE						<	0.001	0.005	0.001	0.0068	<0.001	<0.0010
Methyl tert-Butyl Ether	NE	5						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Naphthalene	NE	2.67						<	0.002	0.042	0.002	0.0122	<0.001	<0.0010
n-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
n-Propylbenzene	NE	NE						<	0.001	0.0015	0.001	0.0024	<0.001	<0.0010
sec-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Styrene	50	2.2						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE										<0.001	<0.001	<0.0010
Tetrachloroethene	NE	0.15						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Toluene	21	1.7						<	0.001	0.0026	0.001	0.0014	<0.001	<0.0010
Trichloroethene	87	0.54						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Vinyl Chloride	NE	0.002						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Xylene O	NE	NE						<	0.001	0.024	0.001	0.0144	<0.001	<0.0010
Xylene P,M	NE	NE						<	0.002	0.0048	0.002	0.0023	<0.002	<0.0020
Xylenes (Total)	NE	NE						<	0.003	0.029	0.003	0.0167	<0.003	<0.0030
Total VOCs	NE	NE						<	0.122	0.2586	0.122	0.2938	<0.6451	0.0071
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE						0.31	0.2	0.32	0.2	1.07	<0.19	<0.19
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002	<0.0002
Acenaphthene	NE	NE						<	0.002	<	0.002	0.002	<0.0002	0.0005
Acenaphthylene	NE	NE						<	0.002	<	0.002	0.001	<0.0002	0.0003
Anthracene	NE	NE						<	0.002	<	0.002	0.0002	<0.0002	<0.0002
Benzo [a] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Benzo [a] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Benzo [b] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Benzo [g,h,i] Perylene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Chrysene	NE	NE						<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Dibenzo [a,h] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Fluoranthene	NE	NE						<	0.002	<	0.002	0.0002	<0.0002	<0.0002
Fluorene	NE	NE						<	0.002	<	0.002	0.0006	<0.0002	<0.0002
Indeno [1,2,3-cd] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.00005	<0.00005
Naphthalene	NE	2.67						<	0.002	0.013	0.002	0.005	0.0012 B	0.0002
Phenanthrene	NE	NE						<	0.002	<	0.002	0.0005	<0.0002	<0.0002
Pyrene	NE	NE						<	0.002	<	0.002	0.0003	<0.0002	<0.0002
INORGANICS (ppm)														
Total Cyanide	NE	NE						0.050	0.01	0.150	0.01	0.0815	0.014	0.028
Dissolved Free Cyanide	NE	NE						<	0.01	0.010	0.01	<0.005	0.0137	0.02
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 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	GZA October 2014
			Note (4)	Note (4)	Note (4)	Note (4)							
VOCs (ppm)							Result	DL	Result	DL	Result	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE					<	0.025	<	0.025	<0.1	<0.001	<0.0010
1,1-Dichloroethene	23	0.007					<	0.025	<	0.025	<0.1	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE					0.19	0.025	0.43	0.025	0.344	0.353 D	0.155
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.050	<	0.050	<0.5	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE					<	0.025	<	0.025	<0.1	<0.001	0.0024
4-Isopropyltoluene	NE	NE									<0.1	<0.001	0.0022
Acetone	NE	NE					<	0.250	<	0.250	<1	<0.01	<0.0100
Benzene	18	0.14					1.2	0.025	1.6	0.025	1.77	2.67 D	1.76
Carbon Disulfide	NE	NE					<	0.025	<	0.025	<0.1	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07					<	0.025	<	0.025	<0.1	<0.001	<0.0010
Chloroform	NE	NE					<	0.025	<	0.025	<0.1	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4					<	0.025	<	0.025	<0.1	<0.001	<0.0010
Ethylbenzene	16	1.6					0.91	0.025	0.98	0.025	0.981	1.14 D	0.58
Isopropylbenzene	NE	NE					0.041	0.025	0.080	0.025	<0.1	0.09	0.0647
Methyl tert-Butyl Ether	NE	5					<	0.025	<	0.025	<0.1	<0.001	<0.0010
Naphthalene	NE	2.67					1.8	0.050	3	0.050	3.55	3.96 D	2.3
n-Butylbenzene	NE	NE					<	0.025	<	0.025	<0.1	<0.001	<0.0010
n-Propylbenzene	NE	NE					<	0.025	0.035	0.025	<0.1	0.0346	0.0226
sec-Butylbenzene	NE	NE					<	0.025	<	0.025	<0.1	<0.001	0.001
Styrene	50	2.2					<	0.025	<	0.025	<0.1	0.0039	0.0014
Tertiary-amyl methyl ether	NE	NE									<0.1	<0.001	<0.0010
Tetrachloroethene	NE	0.15					<	0.025	<	0.025	<0.1	<0.001	<0.0010
Toluene	21	1.7					0.065	0.025	<	0.025	<0.1	0.0152	0.0055
Trichloroethene	87	0.54					<	0.025	<	0.025	<0.1	<0.001	<0.0010
Vinyl Chloride	NE	0.002					<	0.025	<	0.025	<0.1	<0.001	<0.0010
Xylene O	NE	NE					0.36	0.025	0.34	0.025	0.205	0.163 D	0.089
Xylene P,M	NE	NE					0.27	0.050	0.093	0.050	<0.2	0.0393	0.0143
Xylenes (Total)	NE	NE					0.63	0.075	0.433	0.075	0.205	0.202 D	0.103
Total VOCs	NE	NE					4.84	3.05	6.558	3.05	6.85	8.469	4.9981
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE					3.5	0.2	2	0.2	7.82	6.6	3.54
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE					0.13	0.04	0.046	0.002	0.066	0.0755 D	0.0145
Acenaphthene	NE	NE					0.059	0.04	0.039	0.002	0.073	0.0584 D	0.038
Acenaphthylene	NE	NE					<	0.04	<	0.002	<0.02	0.0024 D	0.001
Anthracene	NE	NE					<	0.04	0.0027	0.002	<0.02	0.0037 D	0.0013
Benzo [a] Anthracene	NE	NE					<	0.04	<	0.002	<0.02	<0.0005 D	0.0003
Benzo [a] Pyrene	NE	NE					<	0.04	<	0.002	<0.02	<0.0005 D	0.0002
Benzo [b] Fluoranthene	NE	NE					<	0.04	<	0.002	<0.02	<0.0005 D	0.0002
Benzo [g,h,i] Perylene	NE	NE					<	0.04	<	0.002	<0.02	<0.0021 D	<0.0002
Benzo [k] Fluoranthene	NE	NE					<	0.04	<	0.002	<0.02	<0.0005 D	0.00006
Chrysene	NE	NE					<	0.04	<	0.002	<0.02	<0.0005 D	0.0003
Dibenzo [a,h] Anthracene	NE	NE					<	0.04	<	0.002	<0.02	<0.0005 D	<0.00005
Fluoranthene	NE	NE					<	0.04	<	0.002	<0.02	<0.0021 D	0.001
Fluorene	NE	NE					<	0.04	0.014	0.002	<0.02	0.0153 D	0.0061
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.04	<	0.002	<0.02	<0.0005 D	0.0001
Naphthalene	NE	2.67					0.96	0.04	0.98	0.02	2.07	1.98 B D	0.433
Phenanthrene	NE	NE					<	0.04	0.013	0.002	0.022	0.0169 D	0.0067
Pyrene	NE	NE					<	0.04	<	0.002	<0.02	<0.0021 D	0.0011
INORGANICS (ppm)													
Total Cyanide	NE	NE					0.72	0.010	1.1	0.010	0.742	4.05 D	0.725
Dissolved Free Cyanide	NE	NE					<	0.010	0.020	0.010	<0.005	3.95 D	0.732
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" qualifier indicates analytes reported from a diluted run of the original analysis.
- "J" qualifier indicates analyte concentration is estimated
- "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 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	GZA October 2014	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	Result	
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE					<	0.1	<	0.005	<0.005	<0.001	<0.001	
1,1-Dichloroethene	23	0.007					<	0.1	<	0.005	<0.005	<0.001	<0.001	
1,2,4-Trimethylbenzene	NE	NE					0.41	0.1	0.02	0.005	0.0092	0.0092	0.0082	
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.2	<	0.010	<0.01	<0.005	<0.005	
1,3,5-Trimethylbenzene	NE	NE					0.13	0.1	0.0068	0.005	<0.005	0.0032	0.0026	
4-Isopropyltoluene	NE	NE									<0.005	<0.001	<0.001	
Acetone	NE	NE					<	1.0	<	0.050	<0.05	<0.01	0.0546	
Benzene	18	0.14					<	0.1	<	0.005	<0.005	0.0011	<0.001	
Carbon Disulfide	NE	NE									<0.005	<0.001	<0.001	
Carbon Tetrachloride	NE	0.07					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Chloroform	NE	NE					<	0.1	<	0.005	<0.005	<0.001	<0.001	
cis-1,2-Dichloroethene	69	2.4					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Ethylbenzene	16	1.6					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Isopropylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Methyl tert-Butyl Ether	NE	5					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Naphthalene	NE	2.67					10	0.2	0.76	0.010	0.35	0.286 D	0.3	
n-Butylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001	<0.001	
n-Propylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001	<0.001	
sec-Butylbenzene	NE	NE					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Styrene	50	2.2					<	0.1	<	0.005	<0.005	0.0016	<0.001	
Tertiary-amyl methyl ether	NE	NE									<0.01	<0.001	<0.001	
Tetrachloroethene	NE	0.15					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Toluene	21	1.7					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Trichloroethene	87	0.54					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Vinyl Chloride	NE	0.002					<	0.1	<	0.005	<0.005	<0.001	<0.001	
Xylene O	NE	NE					<	0.1	<	0.005	<0.005	0.0013	0.001	
Xylene P,M	NE	NE					<	0.2	<	0.010	<0.01	0.0021	<0.002	
Xylenes (Total)	NE	NE					<	0.3	<	0.015	<0.015	0.0034	0.001	
Total VOCs	NE	NE					10.54	12.5	0.7868	0.61	0.3592	0.3045	0.3664	
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE					15	10	1.1	0.2	0.83	0.61	1.03	
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE					0.3	0.04	0.075	0.002	0.066	0.0323 D	0.0276	
Acenaphthene	NE	NE					<	0.04	<	0.002	<0.002	0.0004	0.0005	
Acenaphthylene	NE	NE					<	0.04	<	0.002	<0.002	<0.0002	0.0006	
Anthracene	NE	NE					<	0.04	<	0.002	<0.002	0.0003	0.0005	
Benzo [a] Anthracene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005	0.0001	
Benzo [a] Pyrene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005	<0.00005	
Benzo [b] Fluoranthene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005	0.00007	
Benzo [g,h,i] Perylene	NE	NE					<	0.04	<	0.002	<0.002	<0.0002	<0.0002	
Benzo [k] Fluoranthene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005	<0.00005	
Chrysene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005	0.0001	
Dibenzo [a,h] Anthracene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005	<0.00005	
Fluoranthene	NE	NE					<	0.04	<	0.002	<0.002	0.0002	0.0004	
Fluorene	NE	NE					<	0.04	0.0029	0.002	0.002	0.0009	0.0011	
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.04	<	0.002	<0.002	<0.00005	<0.00005	
Naphthalene	NE	2.67					5.5 D	0.2	0.35	0.010	0.287	0.129 B D	0.101	
Phenanthrene	NE	NE					<	0.04	0.005	0.002	0.003	0.0014	0.0014	
Pyrene	NE	NE					<	0.04	<	0.002	<0.002	0.0002	0.0005	
INORGANICS (ppm)														
Total Cyanide	NE	NE					0.84	0.010	0.44	0.010	0.52	0.364 D	0.218	
Dissolved Free Cyanide	NE	NE					<	0.010	0.080	0.010	<0.005	0.335 D	0.2	
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

6/1/2015
GZA File No. 05.00043654.00

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	GZA October 2014	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Note (3)	Note (3)	Note (3)	
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE						<	0.05	<	0.025	<0.05	<0.001	<0.001
1,1-Dichloroethene	23	0.007						<	0.05	<	0.025	<0.05	<0.001	<0.001
1,2,4-Trimethylbenzene	NE	NE						0.38	0.05	0.41	0.025	0.449	0.437 D	0.4
1,2-Dibromo-3-Chloropropane	NE	0.002						<	0.10	<	0.050	<0.1	<0.005	<0.005
1,3,5-Trimethylbenzene	NE	NE						0.11	0.05	0.11	0.025	0.122	0.1 D	0.0855
4-Isopropyltoluene	NE	NE										<0.05	0.0087	0.0073
Acetone	NE	NE						<	0.50	<	0.250	<0.5	<0.01	<0.01
Benzene	18	0.14						<	0.05	0.036	0.025	0.066	0.0232	0.0265
Carbon Disulfide	NE	NE								<	0.025	<0.05	<0.001	<0.001
Carbon Tetrachloride	NE	0.07						<	0.05	<	0.025	<0.05	<0.001	<0.001
Chloroform	NE	NE						<	0.05	<	0.025	<0.05	<0.001	<0.001
cis-1,2-Dichloroethene	69	2.4						<	0.05	<	0.025	<0.05	<0.001	<0.001
Ethylbenzene	16	1.6						0.20	0.05	0.24	0.025	0.26	0.19 D	0.183
Isopropylbenzene	NE	NE						<	0.05	0.046	0.025	<0.05	0.0472	0.0437
Methyl tert-Butyl Ether	NE	5						<	0.05	<	0.025	<0.05	<0.001	<0.001
Naphthalene	NE	2.67						3.3	0.10	2.7	0.050	3.13	3.91 D	4.29
n-Butylbenzene	NE	NE						<	0.05	<	0.025	<0.05	<0.001	<0.001
n-Propylbenzene	NE	NE						<	0.05	0.034	0.025	<0.05	0.034	0.026
sec-Butylbenzene	NE	NE						<	0.05	<	0.025	<0.05	<0.001	0.0013
Styrene	50	2.2						<	0.05	0.044	0.025	<0.05	0.0342	0.0158
Tertiary-amyl methyl ether	NE	NE										<0.1	<0.001	<0.001
Tetrachloroethene	NE	0.15						<	0.05	<	0.025	<0.05	<0.001	<0.001
Toluene	21	1.7						0.058	0.05	0.041	0.025	0.05	0.0471	0.0398
Trichloroethene	87	0.54						<	0.05	<	0.025	<0.05	<0.001	<0.001
Vinyl Chloride	NE	0.002						<	0.05	<	0.025	<0.05	<0.001	<0.001
Xylene O	NE	NE						0.41	0.05	0.038	0.025	0.418	0.344 D	0.344
Xylene P,M	NE	NE						0.46	0.10	0.047	0.050	0.446	0.33 D	0.317
Xylenes (Total)	NE	NE						0.87	0.15	0.085	0.075	0.864	0.674 D	0.661
Total VOCs	NE	NE						4.92	6.1	3.746	3.05	4.941	5.5054	5.7799
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE						10	2.0	5.4	0.2	8.4	9.78	7.04
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE						0.41	0.04	0.23	0.01	0.275	0.303 D	0.19
Acenaphthene	NE	NE						0.042	0.04	0.052	0.002	0.09	0.0591 D	0.0564
Acenaphthylene	NE	NE						0.079	0.04	0.069	0.002	0.105	0.0789 D	0.0696
Anthracene	NE	NE						<	0.04	0.0029	0.002	<0.02	0.0041 D	0.0037
Benzo [a] Anthracene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D	<0.0002
Benzo [a] Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D	<0.0002
Benzo [b] Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D	<0.0002
Benzo [g,h,i] Perylene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D	<0.0009
Benzo [k] Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D	<0.0002
Chrysene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D	<0.0002
Dibenzo [a,h] Anthracene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D	<0.0002
Fluoranthene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D	0.001
Fluorene	NE	NE						<	0.04	0.024	0.002	0.04	0.0314 D	0.0287
Indeno [1,2,3-cd] Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0005 D	<0.0002
Naphthalene	NE	2.67						1.7	0.04	1.1	0.04	2.13	1.63 B D	1.42
Phenanthrene	NE	NE						<	0.04	0.023	0.002	0.041	0.0271 D	0.0259
Pyrene	NE	NE						<	0.04	<	0.002	<0.02	<0.0021 D	0.0012
INORGANICS (ppm)														
Total Cyanide	NE	NE						0.29	0.010	0.13	0.010	0.0925	0.0777	0.09
Dissolved Free Cyanide	NE	NE						0.020	0.010	0.010	0.010	<0.005	0.0761	0.144
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 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	GZA October 2014
			Note (5)		Result	DL	Result	DL	Note (6)		Result	DL	Result	Result	Result
VOCs (ppm)				Result	Result	DL	Result	DL	Note (6)		Result	DL	Result	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
1,2-Dibromo-3-Chloropropane	NE	0.002			<	0.002	<	0.002			<	0.002	<	<0.002	<0.005
1,3,5-Trimethylbenzene	NE	NE			<	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
Carbon Disulfide	NE	NE									<	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	<	0.001			<	0.001	<	<0.001	<0.001
Naphthalene	NE	2.67			<	0.002	<	0.002			<	0.002	<	<0.001	0.0112
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											<	<0.002	<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
Xylene P,M	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.002	<0.002
Xylenes (Total)	NE	NE			<	0.003	<	0.003			<	0.003	<	<0.003	<0.003
Total VOCs	NE	NE			<	0.122	<	0.122			<	0.122	<	<0.039	<0.6451
0.0112															
TOTAL PETROLEUM HYDROCARBON (ppm)															
Hydrocarbon Content	NE	NE			<	0.2	<	0.2			<	0.2	0.27	<0.19	<0.19
PAHS BY GCMS (ppm)															
2-Methylnaphthalene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Acenaphthene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Acenaphthylene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Anthracene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Benzo [a] Anthracene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0005	<0.0005
Benzo [a] Pyrene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0005	<0.0005
Benzo [b] Fluoranthene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0005	<0.0005
Benzo [g,h,i] Perylene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0005	<0.0005
Chrysene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0005	<0.0005
Dibenzo [a,h] Anthracene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0005	<0.0005
Fluoranthene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Fluorene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Indeno [1,2,3-cd] Pyrene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0005	<0.0005
Naphthalene	NE	2.67			<	0.002	<	0.002			<	0.002	0.001	<0.0002	0.0003
Phenanthrene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
Pyrene	NE	NE			<	0.002	<	0.002			<	0.002	<	<0.0002	<0.0002
INORGANICS (ppm)															
Total Cyanide	NE	NE			0.07	0.050	0.010	0.12	0.010		0.010	0.010	0.48	0.045	0.0734
Dissolved Free Cyanide	NE	NE			<	0.05	<	0.010	<	0.010	<	0.010	<	<0.005	0.0395
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" qualifier indicates analytes reported from a diluted run of the original analysis.
- "J" qualifier indicates analyte concentration is estimated
- "B" qualifier indicates that the analyte was present in the method blank
- 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		GZA October 2014
			Result	Result	Result	DL	Result	DL	Note (6)		Result	DL	Result	Result	Result	Result	
VOCs (ppm)																	
1,1,1,2-Tetrachloroethane	NE	NE			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.001	<0.0010	
1,1-Dichloroethene	23	0.007			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.001	<0.0010	
1,2,4-Trimethylbenzene	NE	NE	0.01 J	0.0054	0.0074	0.001	0.0031	0.001			0.0032	0.001	<0.001	0.0012	<0.0010	<0.0010	
1,2-Dibromo-3-Chloropropane	NE	0.002			<	0.005	<	0.002			<	0.002	<0.005	<0.005	<0.0050	<0.0050	
1,3,5-Trimethylbenzene	NE	NE		0.01	0.0046	0.001	0.0003	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
4-Isopropyltoluene	NE	NE											<0.001	<0.001	<0.0010	<0.0010	
Acetone	NE	NE			<	0.025	<	0.010			0.003	0.010	<0.01	<0.01	<0.0100	<0.0100	
Benzene	18	0.14	0.02	0.0495	0.0035	0.001	0.0031	0.001			0.0034	0.001	0.0213	0.0263	0.0115	0.0115	
Carbon Disulfide	NE	NE									<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Carbon Tetrachloride	NE	0.07			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Chloroform	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
cis-1,2-Dichloroethene	69	2.4			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Ethylbenzene	16	1.6	0.03	0.0849	0.0016	0.001	0.068	0.001			0.0360	0.001	0.0243	0.0193	0.0079	0.0079	
Isopropylbenzene	NE	NE		0.0074	<	0.001	0.008	0.001			0.0049	0.001	0.0033	0.0037	0.002	0.002	
Methyl tert-Butyl Ether	NE	5		<0.001	0.005	0.001	<	0.002			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Naphthalene	NE	2.67		0.0328	0.00267	0.002	0.14	0.001			0.011	0.002	0.0035	0.0045	0.0024	0.0024	
n-Butylbenzene	NE	NE		0.0027	<	0.001	<	0.001			0.0012	0.001	<0.001	<0.001	<0.0010	<0.0010	
n-Propylbenzene	NE	NE		0.0079	<	0.001	0.008	0.001			0.0043	0.001	0.0027	0.0027	0.001	0.001	
sec-Butylbenzene	NE	NE		<0.001	<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Styrene	50	2.2	<0.02		0.0022	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001	<0.0010	<0.0010	
Tetrachloroethene	NE	0.15			0.00015	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Toluene	21	1.7	<0.02	0.0057	0.0017	0.001	0.004	0.001			0.0025	0.001	0.0011	0.0012	<0.0010	<0.0010	
Trichloroethene	87	0.54			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Vinyl Chloride	NE	0.002			<	0.001	<	0.001			<	0.001	<0.001	<0.001	<0.0010	<0.0010	
Xylene O	NE	NE	0.02	0.082	<	0.001	0.079	0.001			0.042	0.001	0.0212	0.0186	0.0073	0.0073	
Xylene P,M	NE	NE	<0.02	0.0079	<	0.002	0.026	0.001			0.0055	0.002	0.0028	0.0028	<0.0020	<0.0020	
Xylenes (Total)	NE	NE	0.02	0.0899	<	0.003	0.105	0.002			0.048	0.003	0.024	0.0213	0.0073	0.0073	
Total VOCs	NE	NE	0.08	0.2962	0.02882	0.188	0.340	0.093			0.117	0.122	0.0802	0.0803	0.0321	0.0321	
TOTAL PETROLEUM HYDROCARBON (ppm)																	
Hydrocarbon Content	NE	NE			2.6	0.2	3.7	0.2			1.8	0.2	3.65	2.98	1.47	1.47	
PAHS BY GCMS (ppm)																	
2-Methylnaphthalene	NE	NE	0.04	<0.0002	<	0.002	0.034	0.002			<	0.002	<0.0002	<0.0002	<0.0002	<0.0002	
Acenaphthene	NE	NE	0.004	0.0315	0.017	0.002	0.013	0.002			0.0082	0.002	0.01	0.0067	0.0052	0.0052	
Acenaphthylene	NE	NE	0.013	0.1435	0.071	0.002	0.057	0.002			0.038	0.002	0.057	0.0414 D	0.0317	0.0317	
Anthracene	NE	NE	<0.02	0.00134	<	0.002	0.012	0.002			<	0.002	0.0006	0.0005	0.0003	0.0003	
Benzo [a] Anthracene	NE	NE	0.06	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	0.00006	0.00006	
Benzo [a] Pyrene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	<0.00005	<0.00005	
Benzo [b] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	<0.00005	<0.00005	
Benzo [g,h,i] Perylene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	<0.00005	<0.00005	
Benzo [k] Fluoranthene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	<0.00005	<0.00005	
Chrysene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	<0.00005	<0.00005	
Dibenzo [a,h] Anthracene	NE	NE	<0.02	<0.0002	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	<0.00005	<0.00005	
Fluoranthene	NE	NE	<0.02	0.00203	<	0.002	<	0.002			<	0.002	0.0007	0.0004	0.0003	0.0003	
Fluorene	NE	NE	0.003	0.0364	0.019	0.002	0.013	0.002			0.0081	0.002	0.01	0.0063	0.0058	0.0058	
Indeno [1,2,3-cd] Pyrene	NE	NE	<0.02	<0.0003	<	0.002	<	0.002			<	0.002	<0.0002	<0.00005	<0.00005	<0.00005	
Naphthalene	NE	2.67	<0.02	0.0269	0.0077	0.002	0.042	0.002			0.0038	0.002	0.002	0.0018 B	0.0003	0.0003	
Phenanthrene	NE	NE	0.004	0.0306	0.014	0.002	0.012	0.002			0.0031	0.002	0.007	0.0037	0.0029	0.0029	
Pyrene	NE	NE	0.01 J	0.00104	<	0.002	<	0.002			<	0.002	0.0004	0.0003	0.0002	0.0002	
INORGANICS (ppm)																	
Total Cyanide	NE	NE	0.18	0.2	0.21	0.010	0.13	0.010			0.21	0.010	0.174	0.271 D	0.178	0.178	
Dissolved Free Cyanide	NE	NE		<0.05	0.01	0.010	<	0.010			0.040	0.010	0.0063	0.263 D	0.153	0.153	
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	0.023	<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 5Q
GROUNDWATER MONITORING DATA**

6/1/2015
GZA File No. 05.00043654.00

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	GZA October 2014
			Note (4)											
VOCs (ppm)				Result	Result	DL	Result	DL	Note (6)	Result	DL	Result	Result	Result
1,1,1,2-Tetrachloroethane	NE	NE		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
1,1-Dichloroethene	23	0.007		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE		0.454	0.27	0.0025	0.26	0.010		0.21	0.0025	0.295	0.126 D	0.14
1,2-Dibromo-3-Chloropropane	NE	0.002		<	0.0130	<	0.002			<	0.0050	<0.05	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE		0.047	0.017	0.0025	0.02	0.001		0.0097	0.0025	0.0172	0.0057	0.005
4-Isopropyltoluene	NE	NE										0.0104	0.0046	0.0037
Acetone	NE	NE		<	0.0630	<	0.010			<	0.0250	<0.1	<0.01	<0.0100
Benzene	18	0.14		0.0352	0.039	0.0025	0.024	0.001		0.03	0.0025	0.0402	0.115 D	0.135
Carbon Disulfide	NE	NE								<	0.0025	<0.01	<0.001	0.0015
Carbon Tetrachloride	NE	0.07		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
Chloroform	NE	NE		<0.001	<	0.0025	<	0.001		<	0.0025	<0.01	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
Ethylbenzene	16	1.6		0.177	0.086	0.0025	<	0.001		0.057	0.0025	0.0928	0.0404	0.0349
Isopropylbenzene	NE	NE		0.0418	0.038	0.0025	0.028	0.001		0.026	0.0025	0.0337	0.0194	0.022
Methyl tert-Butyl Ether	NE	5		<0.001	<	0.0025	<	0.002		<	0.0025	<0.01	<0.001	<0.0010
Naphthalene	NE	2.67		0.724	0.41	0.0050	0.3	0.001		0.3	0.0050	0.559	0.163 D	0.248
n-Butylbenzene	NE	NE		<0.001	0.009	0.0025	<	0.001		0.0075	0.0025	<0.01	<0.001	<0.0010
n-Propylbenzene	NE	NE		0.0217	0.017	0.0025	0.015	0.001		0.014	0.0025	0.0189	0.0101	0.0117
sec-Butylbenzene	NE	NE		0.0056	0.0025	0.0025	<	0.001		0.0025	0.0025	<0.01	<0.001	0.0025
Styrene	50	2.2		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE										<0.01	<0.001	<0.0010
Tetrachloroethene	NE	0.15		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
Toluene	21	1.7		0.0058	0.0028	0.0025	0.003	0.001		0.0025	0.0025	<0.01	0.003	0.003
Trichloroethene	87	0.54		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
Vinyl Chloride	NE	0.002		<	0.0025	<	0.001			<	0.0025	<0.01	<0.001	<0.0010
Xylene O	NE	NE		0.0875	0.031	0.0025	0.033	0.001		0.026	0.0025	0.0457	0.0183	0.0185
Xylene P,M	NE	NE		0.0875	0.026	0.0050	0.034	0.001		0.019	0.0050	0.0415	0.0128	0.0082
Xylenes (Total)	NE	NE		0.175	0.057	0.0075	0.067	0.002		0.045	0.0075	0.0872	0.0311	0.0266
Total VOCs	NE	NE		1.6871	0.9483	0.136	0.717	0.044		0.7042	0.0925	1.1544	0.5494	0.634
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE			1.1	0.2	1.5	0.2		0.66	0.2	3.62	2.79	1.81
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE		0.073	0.026	0.002	0.04	0.002		0.021	0.002	0.026	0.0309 D	0.0105
Acenaphthene	NE	NE		0.00583	0.0027	0.002	0.0028	0.002		0.0023	0.002	0.004	0.0033	0.0024
Acenaphthylene	NE	NE		0.00124	<	0.002	<	0.002		<	0.002	<0.002	0.0004	0.0003
Anthracene	NE	NE		0.00065	<	0.002	<	0.002		<	0.002	<0.002	0.0004	0.0003
Benzo [a] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.002	<0.00005	<0.00005
Benzo [a] Pyrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.002	<0.00005	<0.00005
Benzo [b] Fluoranthene	NE	NE		<0.0002	<	0.002	<	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	<0.002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE		<0.0003	<	0.002	<	0.002		<	0.002	<0.002	<0.00005	<0.00005
Chrysene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.002	<0.00005	<0.00005
Dibenzo [a,h] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.002	<0.00005	<0.00005
Fluoranthene	NE	NE		0.00033	<	0.002	<	0.002		<	0.002	<0.002	<0.0002	<0.0002
Fluorene	NE	NE		0.00336	<	0.002	<	0.002		<	0.002	0.002	0.0019	0.0015
Indeno [1,2,3-cd] Pyrene	NE	NE		<0.0003	<	0.002	<	0.002		<	0.002	<0.002	<0.00005	<0.00005
Naphthalene	NE	2.67		0.602	0.1	0.002	0.12	0.002		0.096	0.002	0.204	0.0965 D	0.0727
Phenanthrene	NE	NE		0.00317	<	0.002	<	0.002		<	0.002	0.002	0.0019	0.0015
Pyrene	NE	NE		0.00031	<	0.002	<	0.002		<	0.002	<0.002	0.0002	0.0002
INORGANICS (ppm)														
Total Cyanide	NE	NE		0.222	0.28	0.010	0.17	0.010		0.180	0.010	0.235	0.143	0.212
Dissolved Free Cyanide	NE	NE		0.06	<	0.010	<	0.010		<	0.010	<0.005	0.132	0.213
Physiologically Available Cyanide	NE	NE		<0.05										
Arsenic	NE	NE		0.0103										
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		0.0085										
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		0.051										

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	GZA October 2014		
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result	Result
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
1,1-Dichloroethene	23	0.007				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE				0.0017	0.001		<	0.001	0.0053	<0.001	<0.0010
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.002		<	0.002	<0.005	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
4-Isopropyltoluene	NE	NE									<0.0025	<0.001	<0.0010
Acetone	NE	NE				<	0.010		<	0.010	<0.025	<0.01	<0.0100
Benzene	18	0.14				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Carbon Disulfide	NE	NE							<	0.001	<0.0025	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Chloroform	NE	NE				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Ethylbenzene	16	1.6				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Isopropylbenzene	NE	NE				0.0016	0.001		0.0016	0.001	0.0028	0.0007 J	<0.0010
Methyl tert-Butyl Ether	NE	5				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Naphthalene	NE	2.67				0.0041	0.002		<	0.002	0.0083	<0.001	0.0014
n-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
n-Propylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
sec-Butylbenzene	NE	NE				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Styrene	50	2.2				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE									<0.005	<0.001	<0.0010
Tetrachloroethene	NE	0.15				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Toluene	21	1.7				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Trichloroethene	87	0.54				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Vinyl Chloride	NE	0.002				<	0.001		<	0.001	<0.0025	<0.001	<0.0010
Xylene O	NE	NE				0.0041	0.001		<	0.001	0.0052	<0.001	<0.0010
Xylene P,M	NE	NE				<	0.002		<	0.002	<0.005	<0.002	<0.0020
Xylenes (Total)	NE	NE				0.0041	0.003		<	0.003	0.0052	<0.003	<0.0030
Total VOCs	NE	NE				0.0115	0.122		0.0016	0.122	0.0216	0.0007	0.0014
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE				1.2	0.2		1.4	0.2	4.65	2.08	0.57
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE				<	0.002		<	0.002	0.0003	<0.0002	<0.0002
Acenaphthene	NE	NE				0.0029	0.002		<	0.002	0.003	0.0025	0.0013
Acenaphthylene	NE	NE				<	0.002		<	0.002	0.0006	0.0004	<0.0002
Anthracene	NE	NE				<	0.002		<	0.002	0.0005	0.0004	<0.0002
Benzo [a] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Benzo [a] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Benzo [b] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Benzo [g,h,i] Perylene	NE	NE				<	0.002		<	0.002	<0.0002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Chrysene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Dibenzo [a,h] Anthracene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Fluoranthene	NE	NE				<	0.002		<	0.002	0.0002	0.0003	<0.0002
Fluorene	NE	NE				<	0.002		<	0.002	0.001	0.0008	0.0003
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Naphthalene	NE	2.67				<	0.002		<	0.002	0.004	0.0003	<0.0002
Phenanthrene	NE	NE				<	0.002		<	0.002	0.0005	<0.0002	<0.0002
Pyrene	NE	NE				<	0.002		<	0.002	0.0003	0.0004	0.0003
INORGANICS (ppm)													
Total Cyanide	NE	NE				0.20	0.010		0.10	0.010	0.0637	0.0902	0.176
Dissolved Free Cyanide	NE	NE				<	0.010		0.010	0.010	<0.005	0.0894	0.128
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" qualifier indicates analytes reported from a diluted run of the original analysis.
- "J" qualifier indicates analyte concentration is estimated
- "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 5S
GROUNDWATER MONITORING DATA

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	GZA October 2014			
			Note (4)	Note (4)	Note (4)	Result	DL	Note (6)	Result	DL	Result	Result	Result	
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
1,1-Dichloroethene	23	0.007					<	0.001		<	0.001	<0.001	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002		<	0.002	<0.002	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
4-Isopropyltoluene	NE	NE										<0.001	<0.001	<0.0010
Acetone	NE	NE					<	0.010		<	0.010	<0.01	<0.01	<0.0100
Benzene	18	0.14					0.0016	0.001		0.001	0.001	<0.001	<0.001	<0.0010
Carbon Disulfide	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Chloroform	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Ethylbenzene	16	1.6					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Isopropylbenzene	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Methyl tert-Butyl Ether	NE	5					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Naphthalene	NE	2.67					0.0023	0.002		<	0.002	<0.001	<0.001	<0.0010
n-Butylbenzene	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
n-Propylbenzene	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
sec-Butylbenzene	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Styrene	50	2.2					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE										<0.002	0.0004 J	<0.0010
Tetrachloroethene	NE	0.15					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Toluene	21	1.7					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Trichloroethene	87	0.54					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Vinyl Chloride	NE	0.002					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Xylene O	NE	NE					<	0.001		<	0.001	<0.001	<0.001	<0.0010
Xylene P,M	NE	NE					<	0.002		<	0.002	<0.002	<0.002	<0.0020
Xylenes (Total)	NE	NE					<	0.003		<	0.003	<0.003	<0.003	<0.0030
Total VOCs	NE	NE					0.0039	0.122		0.001	0.122	<0.039	0.0004	<0.6445
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE					<	0.2		0.33	0.2	1.69	0.53	0.37
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE					<	0.002		<	0.002	<0.0002	<0.0002	<0.0002
Acenaphthene	NE	NE					0.0037	0.002		0.0027	0.002	0.003	0.0031	0.0013
Acenaphthylene	NE	NE					<	0.002		<	0.002	0.0003	0.0002	<0.0002
Anthracene	NE	NE					<	0.002		<	0.002	<0.0002	<0.0002	<0.0002
Benzo [a] Anthracene	NE	NE					<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Benzo [a] Pyrene	NE	NE					<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Benzo [b] Fluoranthene	NE	NE					<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Benzo [g,h,i] Perylene	NE	NE					<	0.002		<	0.002	<0.0002	<0.0002	<0.0002
Benzo [k] Fluoranthene	NE	NE					<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Chrysene	NE	NE					<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Dibenzo [a,h] Anthracene	NE	NE					<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Fluoranthene	NE	NE					<	0.002		<	0.002	0.0002	<0.0002	<0.0002
Fluorene	NE	NE					<	0.002		<	0.002	0.0004	<0.0002	<0.0002
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002		<	0.002	<0.0002	<0.00005	<0.00005
Naphthalene	NE	2.67					<	0.002		<	0.002	0.004	0.0004	<0.0002
Phenanthrene	NE	NE					0.002	0.002		<	0.002	0.0002	<0.0002	<0.0002
Pyrene	NE	NE					<	0.002		<	0.002	0.0003	0.0002	<0.0002
INORGANICS (ppm)														
Total Cyanide	NE	NE					0.46	0.010		0.32	0.010	0.144	0.317 D	0.16
Dissolved Free Cyanide	NE	NE					<	0.010		0.050	0.010	<0.005	0.154	0.162
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" qualifier indicates analytes reported from a diluted run of the original analysis.
- "J" qualifier indicates analyte concentration is estimated
- "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 5T
GROUNDWATER MONITORING DATA
Former Power Plant Area
 Former Tidewater Facility
 Pawtucket, Rhode Island

6/1/2015
 GZA File No. 05.00043654.00

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	GZA October 2014			
			Note (4)	Note (4)	Note (4)		Note (6)					Note (2)		
VOCs (ppm)							Result	DL		Result	DL	Result	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	<0.005	<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	<0.001	
Acetone	NE	NE							0.012	0.010	<0.01	<0.01	<0.01	
Benzene	18	0.14							<	0.001	<0.001	<0.001	<0.001	
Carbon Disulfide	NE	NE							<	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	<0.001	<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	<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							0.012	0.122	<0.041	<0.6451	<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					0.11	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

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		GZA October 2014	
			Note (4)	Note (4)	Note (4)				Note (6)									
VOCs (ppm)						Result	DL				Result	DL	Result	Result	Result	Result	Result	
1,1,1,2-Tetrachloroethane	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
1,1-Dichloroethene	23	0.007				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
1,2,4-Trimethylbenzene	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.002				<	0.002	<0.005	<0.005	<0.005	<0.005	<0.0050	
1,3,5-Trimethylbenzene	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
4-Isopropyltoluene	NE	NE											<0.001	<0.001	<0.001	<0.001	<0.0010	
Acetone	NE	NE				<	0.010				<	0.010	<0.01	<0.01	<0.01	<0.01	<0.0100	
Benzene	18	0.14				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Carbon Disulfide	NE	NE									<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Carbon Tetrachloride	NE	0.07				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Chloroform	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
cis-1,2-Dichloroethene	69	2.4				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Ethylbenzene	16	1.6				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Isopropylbenzene	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Methyl tert-Butyl Ether	NE	5				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Naphthalene	NE	2.67				<	0.002				<	0.002	<0.001	<0.001	<0.001	<0.001	<0.0010	
n-Butylbenzene	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
n-Propylbenzene	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
sec-Butylbenzene	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Styrene	50	2.2				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001	<0.001	<0.001	<0.0010	
Tetrachloroethene	NE	0.15				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Toluene	21	1.7				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Trichloroethene	87	0.54				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Vinyl Chloride	NE	0.002				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Xylene O	NE	NE				<	0.001				<	0.001	<0.001	<0.001	<0.001	<0.001	<0.0010	
Xylene P,M	NE	NE				<	0.002				<	0.002	<0.002	<0.002	<0.002	<0.002	<0.0020	
Xylenes (Total)	NE	NE				<	0.003				<	0.003	<0.003	<0.003	<0.003	<0.003	<0.0030	
Total VOCs	NE	NE				<	0.122				<	0.122	<0.122	<0.6451	<0.6451	<0.6445	<0.6445	
TOTAL PETROLEUM HYDROCARBON (ppm)																		
Hydrocarbon Content	NE	NE				<	0.2				<	0.2	<0.2	<0.19	<0.19	<0.19	<0.19	
PAHS BY GCMS (ppm)																		
2-Methylnaphthalene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Acenaphthene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Acenaphthylene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Anthracene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Benzo [a] Anthracene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0002 D	<0.0005	<0.0005	<0.0005	
Benzo [a] Pyrene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0002 D	<0.0005	<0.0005	<0.0005	
Benzo [b] Fluoranthene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0002 D	<0.0005	<0.0005	<0.0005	
Benzo [g,h,i] Perylene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Benzo [k] Fluoranthene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0002 D	<0.0005	<0.0005	<0.0005	
Chrysene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0002 D	<0.0005	<0.0005	<0.0005	
Dibenzo [a,h] Anthracene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0002 D	<0.0005	<0.0005	<0.0005	
Fluoranthene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Fluorene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0002 D	<0.0005	<0.0005	<0.0005	
Naphthalene	NE	2.67				<	0.002				<	0.002	0.0004	<0.0009 D	<0.0002	<0.0002	<0.0002	
Phenanthrene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
Pyrene	NE	NE				<	0.002				<	0.002	<0.0002	<0.0009 D	<0.0002	<0.0002	<0.0002	
INORGANICS (ppm)																		
Total Cyanide	NE	NE				0.020	0.010				0.010	0.010	0.0083	0.0129	0.011	0.011	0.011	
Dissolved Free Cyanide	NE	NE				<	0.010				<	0.010	<0.005	0.0129	<0.005	<0.005	<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 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	GZA October 2014	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	Result	
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,1-Dichloroethene	23	0.007						<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,2-Dibromo-3-Chloropropane	NE	0.002						<	0.002	<	0.002	<0.005	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
4-Isopropyltoluene	NE	NE										<0.001	<0.001	<0.0010
Acetone	NE	NE						<	0.010	<	0.010	<0.01	<0.01	<0.0100
Benzene	18	0.14						<	0.001	<	0.001	<0.001	<0.001	0.0036
Carbon Disulfide	NE	NE										<0.001	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Chloroform	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Ethylbenzene	16	1.6						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Isopropylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Methyl tert-Butyl Ether	NE	5						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Naphthalene	NE	2.67						<	0.002	<	0.002	<0.001	<0.001	<0.0010
n-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
n-Propylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
sec-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Styrene	50	2.2						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE										<0.001	<0.001	<0.0010
Tetrachloroethene	NE	0.15						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Toluene	21	1.7						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Trichloroethene	87	0.54						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Vinyl Chloride	NE	0.002						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Xylene O	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Xylene P,M	NE	NE						<	0.002	<	0.002	<0.002	<0.002	<0.0020
Xylenes (Total)	NE	NE						<	0.003	<	0.003	<0.003	<0.003	<0.0030
Total VOCs	NE	NE						<	0.122	<	0.122	<0.041	<0.0451	0.0036
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE						0.69	0.2	0.46	0.2	0.91	1.36	1.32
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0009 D	<0.0002
Acenaphthene	NE	NE						<	0.002	<	0.002	0.0004	<0.0009 D	0.0015
Acenaphthylene	NE	NE						<	0.002	<	0.002	0.0004	<0.001 D	0.0021
Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0009 D	<0.0002
Benzo [a] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	0.0007
Benzo [a] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Benzo [b] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Benzo [g,h,i] Perylene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0009 D	<0.0002
Benzo [k] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Chrysene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	0.0006
Dibenzo [a,h] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Fluoranthene	NE	NE						<	0.002	<	0.002	0.001	0.0012 D	0.0011
Fluorene	NE	NE						<	0.002	<	0.002	0.0009	0.0016 D	0.0021
Indeno [1,2,3-cd] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Naphthalene	NE	2.67						<	0.002	<	0.002	0.0002	0.0014 B D	0.0003
Phenanthrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0009 D	<0.0002
Pyrene	NE	NE						<	0.002	<	0.002	0.001	0.0012 D	0.0012
INORGANICS (ppm)														
Total Cyanide	NE	NE						0.20	0.010	0.19	0.010	0.127	0.282 D	0.328
Dissolved Free Cyanide	NE	NE						<	0.010	<	0.010	0.0099	0.267 D	0.237
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

South Fill Area
Former Tidewater Facility
Pawtucket, Rhode Island

ANALYTICAL	Sample ID:		MW-107										
	Collected By:		AES	VHB	GZA		GZA		GZA	GZA	GZA	GZA	GZA
	RIDEM GB	RIDEM GB GW	1996	2006	January 2010	July 2010	December 2010	July 2011	July 2012	August 2013	October 2014		
	GW UCL	Objectives	Note (4)					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			<	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		<0.001	<	0.001	<	0.001		<	0.001	<0.001	<0.001
Carbon Disulfide	NE	NE								<	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	<	0.002		<	0.001	<0.001	<0.001
Naphthalene	NE	2.67		<0.001	<	0.002	<	0.001		<	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										<0.001	<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	<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	<	0.001		<	0.002	<0.002	<0.002
Xylenes (Total)	NE	NE		<0.003	<	0.003	<	0.002		<	0.003	<0.003	<0.003
Total VOCs	NE	NE		<0.02	<	0.188	<	0.093		<	0.122	<0.041	<0.0451
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		<	0.002	<0.0002	<0.0009 D
Acenaphthene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Acenaphthylene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Benzo [a] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Benzo [a] Pyrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Benzo [b] Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Benzo [g,h,i] Perylene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Benzo [k] Fluoranthene	NE	NE		<0.0003	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Chrysene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Dibenzo [a,h] Anthracene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Fluoranthene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Fluorene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Indeno [1,2,3-cd] Pyrene	NE	NE		<0.0003	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Naphthalene	NE	2.67		<0.0002	<	0.002	<	0.002		<	0.002	0.002	<0.0009 D
Phenanthrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
Pyrene	NE	NE		<0.0002	<	0.002	<	0.002		<	0.002	<0.0002	<0.0009 D
INORGANICS (ppm)													
Total Cyanide	NE	NE		0.07	0.020	0.010	0.052	0.010		0.040	0.010	0.0306	0.0472
Dissolved Free Cyanide	NE	NE		<0.05	<	0.010	<	0.010		<	0.010	<0.005	0.0445
Physiologically Available Cyanide	NE	NE		<0.05									
Arsenic	NE	NE		<0.0050									
Beryllium	NE	NE		0.003									
Chromium	NE	NE		0.038									
Copper	NE	NE		0.12									
Lead	NE	NE		0.0075									
Nickel	NE	NE		0.092									
Zinc	NE	NE		0.255									
Dissolved Arsenic	NE	NE		<0.0050									
Dissolved Beryllium	NE	NE		0.003									
Dissolved Chromium	NE	NE		0.037									
Dissolved Copper	NE	NE		0.119									
Dissolved Lead	NE	NE		0.0075									
Dissolved Nickel	NE	NE		0.093									
Dissolved Zinc	NE	NE		0.259									

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

6/1/2015
GZA File No. 05.00043654.00

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	October 2014			
GW UCL	Objectives	Note (4)	Note (4)	Note (4)		Note (6)								
					Result	DL		Result	DL	Result	Result	Result		
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
1,1-Dichloroethene	23	0.007				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
1,2,4-Trimethylbenzene	NE	NE				0.052	0.01	0.04	0.01	<0.05	0.043	0.0303		
1,2-Dibromo-3-Chloropropane	NE	0.002				<	0.02	<	0.02	<0.25	<0.005	<0.0050		
1,3,5-Trimethylbenzene	NE	NE				0.023	0.01	0.017	0.01	<0.05	0.0177	0.0124		
4-Isopropyltoluene	NE	NE								<0.05	0.0012	<0.0010		
Acetone	NE	NE				<	0.10	<	0.10	<0.5	<0.01	<0.0100		
Benzene	18	0.14				0.088	0.01	0.089	0.01	0.063	0.0733	0.0516		
Carbon Disulfide	NE	NE						<	0.01	<0.05	<0.001	<0.0010		
Carbon Tetrachloride	NE	0.07				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Chloroform	NE	NE				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
cis-1,2-Dichloroethene	69	2.4				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Ethylbenzene	16	1.6				0.012	0.01	0.01	0.01	<0.05	0.0099	0.0062		
Isopropylbenzene	NE	NE				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Methyl tert-Butyl Ether	NE	5				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Naphthalene	NE	2.67				1.2	0.02	1.1	0.02	1.22	0.988 D	0.883		
n-Butylbenzene	NE	NE				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
n-Propylbenzene	NE	NE				<	0.01	<	0.01	<0.05	0.002	0.0012		
sec-Butylbenzene	NE	NE				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Styrene	50	2.2				<	0.01	<	0.01	<0.05	0.0051	0.0024		
Tertiary-amyl methyl ether	NE	NE								<0.05	<0.001	<0.0010		
Tetrachloroethene	NE	0.15				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Toluene	21	1.7				0.076	0.01	0.072	0.01	0.0575	0.0659	0.0441		
Trichloroethene	87	0.54				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Vinyl Chloride	NE	0.002				<	0.01	<	0.01	<0.05	<0.001	<0.0010		
Xylene O	NE	NE				0.046	0.01	0.039	0.01	<0.05	0.0374	0.0253		
Xylene P,M	NE	NE				0.11	0.02	0.082	0.02	<0.1	0.083	0.0556		
Xylenes (Total)	NE	NE				0.156	0.03	0.121	0.03	<0.15	0.12	0.0809		
Total VOCs	NE	NE				1.61	1.22	1.449	1.22	1.3405	1.3265	1.1121		
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE				1	1.0	2.9	0.2	4.13	3.42	1.51		
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE				0.048	0.002	0.044	0.01	0.06	0.0397 D	0.0544		
Acenaphthene	NE	NE				0.006	0.002	<	0.01	0.009	0.0046 D	0.0057		
Acenaphthylene	NE	NE				0.021	0.002	0.014	0.01	0.024	0.0129 D	0.022		
Anthracene	NE	NE				0.019	0.002	<	0.01	0.007	0.0036 D	0.005		
Benzo [a] Anthracene	NE	NE				<	0.002	<	0.01	<0.002	<0.0002 D	0.0006		
Benzo [a] Pyrene	NE	NE				<	0.002	<	0.01	<0.002	<0.0002 D	0.0006		
Benzo [b] Fluoranthene	NE	NE				<	0.002	<	0.01	<0.002	<0.0002 D	0.0007		
Benzo [g,h,i] Perylene	NE	NE				<	0.002	<	0.01	<0.002	<0.0009 D	0.0004		
Benzo [k] Fluoranthene	NE	NE				<	0.002	<	0.01	<0.002	<0.0002 D	0.0003		
Chrysene	NE	NE				<	0.002	<	0.01	<0.002	<0.0002 D	0.0005		
Dibenzo [a,h] Anthracene	NE	NE				<	0.002	<	0.01	<0.002	<0.0002 D	0.00009		
Fluoranthene	NE	NE				0.004	0.002	<	0.01	<0.002	0.001 D	0.0027		
Fluorene	NE	NE				0.014	0.002	0.012	0.01	0.02	0.0111 D	0.0228		
Indeno [1,2,3-cd] Pyrene	NE	NE				<	0.002	<	0.01	<0.002	<0.0002 D	0.0005		
Naphthalene	NE	2.67				0.21	0.002	0.38	0.01	0.753	0.351 B D	0.43		
Phenanthrene	NE	NE				0.018	0.002	<	0.01	0.019	0.0106 D	0.0235		
Pyrene	NE	NE				0.003	0.002	<	0.01	<0.002	<0.0009 D	0.0017		
INORGANICS (ppm)														
Total Cyanide	NE	NE				0.50	0.010	0.01	0.010	0.0359	0.0125	0.027		
Dissolved Free Cyanide	NE	NE				0.020	0.010	0.01	0.010	<0.005	0.0119	0.01		
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**

6/1/2015
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		GZA August 2013	
			Note (4)	Note (4)	Note (4)		Result		DL		Result		DL		Result		Result	
VOCs (ppm)							Result	DL			Result	DL	Result	Result	Result			
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
1,1-Dichloroethene	23	0.007					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
1,2,4-Trimethylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002			<	0.002	<0.005	<0.005	<0.0050			
1,3,5-Trimethylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
4-Isopropyltoluene	NE	NE											<0.001	<0.001	<0.0010			
Acetone	NE	NE					<	0.010			<	0.010	<0.01	<0.01	<0.0100			
Benzene	18	0.14					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Carbon Disulfide	NE	NE											<0.001	<0.001	<0.0010			
Carbon Tetrachloride	NE	0.07					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Chloroform	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
cis-1,2-Dichloroethene	69	2.4					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Ethylbenzene	16	1.6					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Isopropylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Methyl tert-Butyl Ether	NE	5					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Naphthalene	NE	2.67					0.0043	0.002			<	0.002	<0.001	<0.001	0.0013			
n-Butylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
n-Propylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
sec-Butylbenzene	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Styrene	50	2.2					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Tertiary-amyl methyl ether	NE	NE											<0.001	<0.001	<0.0010			
Tetrachloroethene	NE	0.15					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Toluene	21	1.7					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Trichloroethene	87	0.54					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Vinyl Chloride	NE	0.002					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Xylene O	NE	NE					<	0.001			<	0.001	<0.001	<0.001	<0.0010			
Xylene P,M	NE	NE					<	0.002			<	0.002	<0.002	<0.002	<0.0020			
Xylenes (Total)	NE	NE					<	0.003			<	0.003	<0.003	<0.003	<0.0030			
Total VOCs	NE	NE					<	0.122			<	0.122	<0.041	<0.6451	0.0013			
TOTAL PETROLEUM HYDROCARBON (ppm)																		
Hydrocarbon Content	NE	NE					<	0.2			<	0.2	<0.21	<0.19	<0.19			
PAHS BY GCMS (ppm)																		
2-Methylnaphthalene	NE	NE					<	0.002			<	0.002	0.0008	<0.0009 D	<0.0002			
Acenaphthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
Acenaphthylene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
Benzo [a] Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002 D	<0.00005			
Benzo [a] Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002 D	<0.00005			
Benzo [b] Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002 D	<0.00005			
Benzo [g,h,i] Perylene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
Benzo [k] Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002 D	<0.00005			
Chrysene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002 D	<0.00005			
Dibenzo [a,h] Anthracene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002 D	<0.00005			
Fluoranthene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
Fluorene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0002 D	<0.00005			
Naphthalene	NE	2.67					<	0.002			<	0.002	0.01	<0.0009 D	<0.0002			
Phenanthrene	NE	NE					0.002	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
Pyrene	NE	NE					<	0.002			<	0.002	<0.0002	<0.0009 D	<0.0002			
INORGANICS (ppm)																		
Total Cyanide	NE	NE					<	0.010			<	0.010	<0.005	0.0163	0.0234			
Dissolved Free Cyanide	NE	NE					<	0.010			<	0.010	<0.005	0.0138	0.015			
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

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	GZA October 2014	
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	Result	
VOCs (ppm)														
1,1,1,2-Tetrachloroethane	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,1-Dichloroethene	23	0.007						<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE						0.0034	0.001	<	0.001	0.0016	0.0011	0.0015
1,2-Dibromo-3-Chloropropane	NE	0.002						<	0.002	<	0.002	<0.005	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE						0.0013	0.001	<	0.001	<0.001	<0.001	<0.0010
4-Isopropyltoluene	NE	NE										<0.001	<0.001	<0.0010
Acetone	NE	NE						<	0.010	<	0.010	<0.01	<0.01	<0.0100
Benzene	18	0.14						0.0032	0.001	0.001	0.001	0.0021	0.002	0.0032
Carbon Disulfide	NE	NE						<		<	0.001	<0.001	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Chloroform	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Ethylbenzene	16	1.6						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Isopropylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Methyl tert-Butyl Ether	NE	5						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Naphthalene	NE	2.67						0.071	0.002	0.014	0.002	0.0429	0.0334	0.0692
n-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
n-Propylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
sec-Butylbenzene	NE	NE						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Styrene	50	2.2						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE										<0.001	<0.001	<0.0010
Tetrachloroethene	NE	0.15						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Toluene	21	1.7						0.0018	0.001	0.0011	0.001	0.0012	0.001	0.0016
Trichloroethene	87	0.54						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Vinyl Chloride	NE	0.002						<	0.001	<	0.001	<0.001	<0.001	<0.0010
Xylene O	NE	NE						0.0025	0.001	<	0.001	0.0013	<0.001	0.0013
Xylene P,M	NE	NE						0.0042	0.002	<	0.002	<0.002	<0.002	0.0022
Xylenes (Total)	NE	NE						0.0067	0.003	<	0.003	0.0013	<0.003	0.0035
Total VOCs	NE	NE						0.0874	0.122	0.0161	0.122	0.0491	0.0375	0.079
TOTAL PETROLEUM HYDROCARBON (ppm)														
Hydrocarbon Content	NE	NE						0.5	0.2	0.22	0.2	0.55	0.52	<0.19
PAHS BY GCMS (ppm)														
2-Methylnaphthalene	NE	NE						0.0028	0.002	<	0.002	0.003	0.0019 D	0.0007
Acenaphthene	NE	NE						<	0.002	<	0.002	0.001	<0.001 D	0.0004
Acenaphthylene	NE	NE						<	0.002	<	0.002	0.0002	<0.001 D	<0.0002
Anthracene	NE	NE						<	0.002	<	0.002	0.0005	<0.001 D	0.0004
Benzo [a] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	0.00006
Benzo [a] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Benzo [b] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Benzo [g,h,i] Perylene	NE	NE						<	0.002	<	0.002	<0.0002	<0.001 D	<0.0002
Benzo [k] Fluoranthene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Chrysene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Dibenzo [a,h] Anthracene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Fluoranthene	NE	NE						<	0.002	<	0.002	0.0006	<0.001 D	0.0005
Fluorene	NE	NE						<	0.002	<	0.002	0.001	<0.001 D	0.0006
Indeno [1,2,3-cd] Pyrene	NE	NE						<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Naphthalene	NE	2.67						0.018	0.002	0.0075	0.002	0.023	0.0142 B D	0.0044
Phenanthrene	NE	NE						0.0021	0.002	<	0.002	0.003	0.0027 D	0.0027
Pyrene	NE	NE						<	0.002	<	0.002	0.0004	<0.001 D	0.0004
INORGANICS (ppm)														
Total Cyanide	NE	NE						0.040	0.010	0.02	0.010	0.0564	0.0352	0.0127
Dissolved Free Cyanide	NE	NE						<	0.010	<	0.010	<0.005	0.0286	0.011
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

6/1/2015
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	GZA October 2014
			Note (4)	Note (4)	Note (4)	Note (4)	Result	DL	Result	DL	Result	Result	Result
VOCs (ppm)													
1,1,1,2-Tetrachloroethane	NE	NE					<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,1-Dichloroethene	23	0.007					<	0.001	<	0.001	<0.001	<0.001	<0.0010
1,2,4-Trimethylbenzene	NE	NE					0.0042	0.001	<	0.001	<0.001	<0.001	<0.0010
1,2-Dibromo-3-Chloropropane	NE	0.002					<	0.002	<	0.002	<0.005	<0.005	<0.0050
1,3,5-Trimethylbenzene	NE	NE					0.0014	0.001	<	0.001	<0.001	<0.001	<0.0010
4-Isopropyltoluene	NE	NE									<0.001	<0.001	<0.0010
Acetone	NE	NE					<	0.010	<	0.010	<0.01	<0.01	<0.0100
Benzene	18	0.14					0.0030	0.001	0.0013	0.001	0.0013	0.0015	0.0084
Carbon Disulfide	NE	NE							<	0.001	<0.001	<0.001	<0.0010
Carbon Tetrachloride	NE	0.07					<	0.001	<	0.001	<0.001	<0.001	<0.0010
Chloroform	NE	NE					<	0.001	<	0.001	<0.001	<0.001	<0.0010
cis-1,2-Dichloroethene	69	2.4					0.0024	0.001	0.0011	0.001	0.0012	0.0012	0.0013
Ethylbenzene	16	1.6					0.0011	0.001	<	0.001	<0.001	<0.001	<0.0010
Isopropylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001	<0.0010
Methyl tert-Butyl Ether	NE	5					<	0.001	<	0.001	<0.001	<0.001	<0.0010
Naphthalene	NE	2.67					0.11	0.002	0.0097	0.002	0.0213	0.0132	0.0178
n-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001	<0.0010
n-Propylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001	<0.0010
sec-Butylbenzene	NE	NE					<	0.001	<	0.001	<0.001	<0.001	<0.0010
Styrene	50	2.2					<	0.001	<	0.001	<0.001	<0.001	<0.0010
Tertiary-amyl methyl ether	NE	NE									<0.001	<0.001	<0.0010
Tetrachloroethene	NE	0.15					<	0.001	<	0.001	<0.001	<0.001	<0.0010
Toluene	21	1.7					0.0018	0.001	<	0.001	<0.001	<0.001	0.0012
Trichloroethene	87	0.54					0.0045	0.001	0.0014	0.001	0.0023	0.0021	0.0024
Vinyl Chloride	NE	0.002					<	0.001	<	0.001	<0.001	<0.001	<0.0010
Xylene O	NE	NE					0.0036	0.001	<	0.001	<0.001	<0.001	<0.0010
Xylene P,M	NE	NE					0.0040	0.002	<	0.002	<0.002	<0.002	<0.0020
Xylenes (Total)	NE	NE					0.0076	0.003	<	0.003	<0.003	<0.003	<0.0030
Total VOCs	NE	NE					0.136	0.122	0.0135	0.122	0.0261	0.018	0.0311
TOTAL PETROLEUM HYDROCARBON (ppm)													
Hydrocarbon Content	NE	NE					0.47	0.2	<	0.2	0.45	0.33	0.2
PAHS BY GCMS (ppm)													
2-Methylnaphthalene	NE	NE					0.0099	0.002	<	0.002	0.002	0.0013 D	0.0007
Acenaphthene	NE	NE					<	0.002	<	0.002	0.0008	<0.0009 D	0.0004
Acenaphthylene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0009 D	<0.0002
Anthracene	NE	NE					<	0.002	<	0.002	0.0005	<0.0009 D	0.0004
Benzo [a] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D	0.00006
Benzo [a] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Benzo [b] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Benzo [g,h,i] Perylene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0009 D	<0.0002
Benzo [k] Fluoranthene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Chrysene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Dibenzo [a,h] Anthracene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Fluoranthene	NE	NE					<	0.002	<	0.002	0.0007	<0.0009 D	0.0005
Fluorene	NE	NE					<	0.002	<	0.002	0.001	<0.0009 D	0.0006
Indeno [1,2,3-cd] Pyrene	NE	NE					<	0.002	<	0.002	<0.0002	<0.0002 D	<0.00005
Naphthalene	NE	2.67					<	0.002	0.0036	0.002	0.008	0.0067 B D	0.0044
Phenanthrene	NE	NE					0.002	0.002	<	0.002	0.003	0.0029 D	0.0027
Pyrene	NE	NE					<	0.002	<	0.002	0.0005	<0.0009 D	0.0004
INORGANICS (ppm)													
Total Cyanide	NE	NE					0.35	0.010	0.02	0.010	0.0326	0.0256	0.0229
Dissolved Free Cyanide	NE	NE					0.060	0.010	<	0.010	<0.005	0.0245	0.013
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											

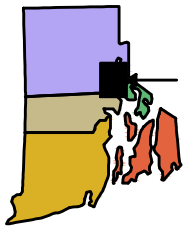
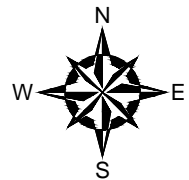
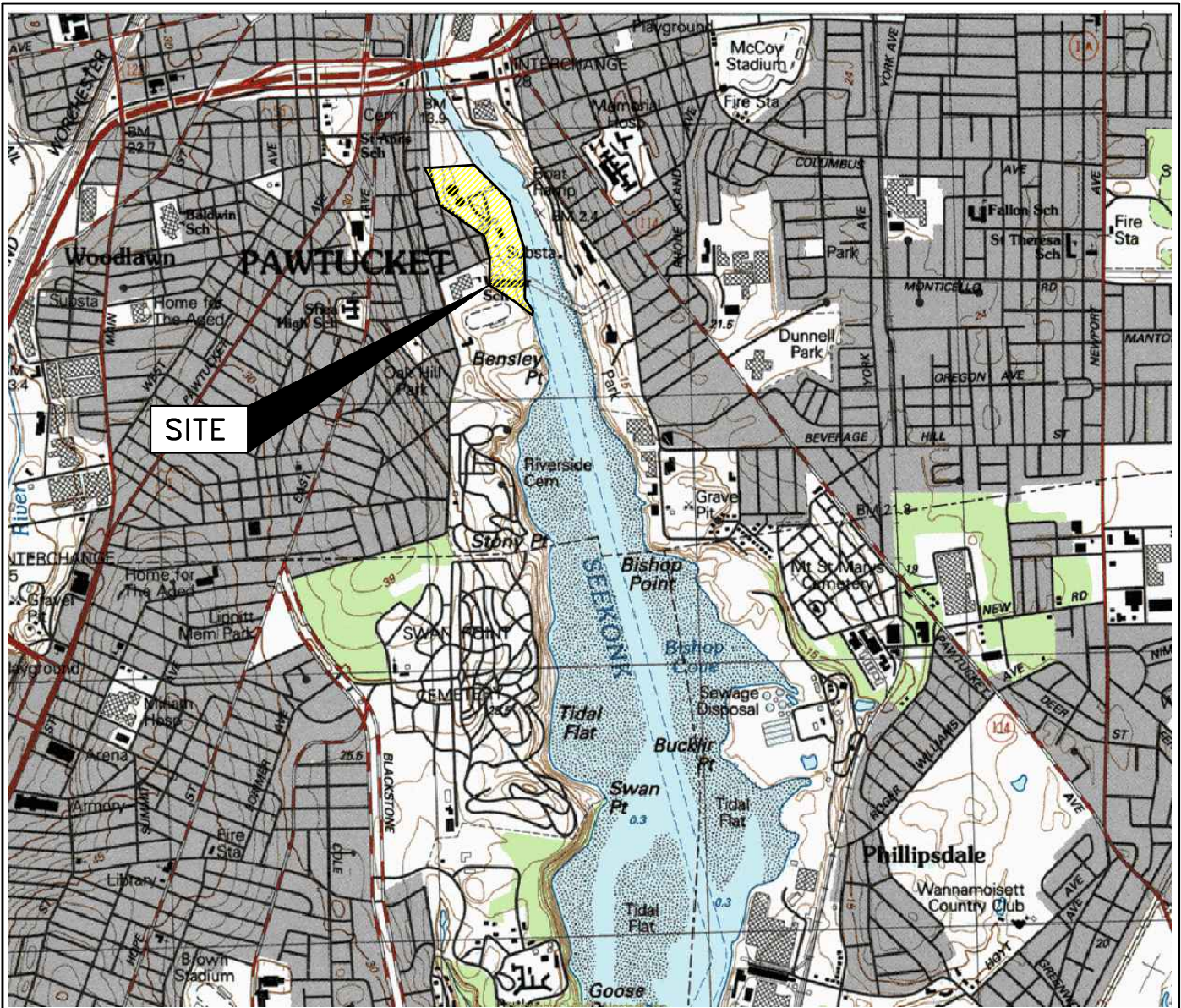
Notes:

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- J "J" qualifier indicates analyte concentration is estimated
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- (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.

FIGURES

© 2013 - GZA GeoEnvironmental, Inc. GZA-J:\ENV\43654.msk\CADD\GZA DWGS\43654 LOCUS PLAN.dwg [1] June 11, 2015 - 9:53am carl.bergden



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.

FORMER TIDEWATER FACILITY
PAWTUCKET, RHODE ISLAND

PREPARED BY:



PREPARED FOR:

NATIONAL GRID

LOCUS PLAN

PROJ MGR: MSK

DESIGNED BY: SDN

DATE: 2015

REVIEWED BY: MSK

DRAWN BY: CRD

PROJECT NO. 43654.00

CHECKED BY: JJC

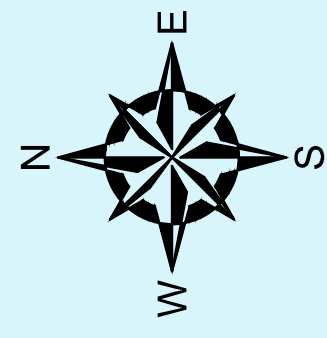
SCALE: AS NOTED

REVISION NO. 0

FIGURE

1

SHEET NO. 1 OF 6



Seekonk River

FORMER GAS PLANT AREA

FOR SOUTHERN SITE PLAN SEE SHEET No. 2B

A.P. 65B LOT 662

A.P. 54B LOT 826

FORMER NO. 7 GAS HOLDER 1,000,000 CU.FT.

FORMER NO. 8 GAS HOLDER 3,000,000 CU.FT.

RESIDENTIAL APARTMENTS

NORTH FILL AREA

LEGEND:

- SITE AREA BOUNDARIES
- EXISTING BUILDINGS ON-SITE
- EXISTING FOUNDATION/PAD ON-SITE
- FORMER BUILDING/STRUCTURE
- EXISTING BUILDINGS/STRUCTURES OFF-SITE
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- PROPERTY LINE
- APPROX. 200 FT. CRMC JURISDICTION LIMIT
- APPROX. WATERS EDGE
- EXISTING NBC INTERCEPTOR SANITARY SEWER
- EXISTING CITY OF PAWTUCKET STORM DRAIN
- EXISTING WATER LINE
- EXISTING STORM/COMBINED SAN. SEWER OVERFLOW
- EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
- EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
- EXISTING RETAINING WALLS
- EXISTING ACCESS ROAD
- 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 (2010-2011)
- MW-320 S/D GZA MONITORING WELL LOCATION (2010-2011)
- 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)
- SG-200 INTERIOR SOIL GAS SAMPLING LOCATION
- SG-100 PERIMETER SOIL GAS SAMPLING LOCATION
- TB-400 GZA BORING LOCATION (2014)
- MW-400 GZA MONITORING WELL LOCATION (2014)

INDICATES THAT MONITORING WELL WAS SAMPLED AS PART OF THE 2014 GROUNDWATER MONITORING PROGRAM

GENERAL NOTES:

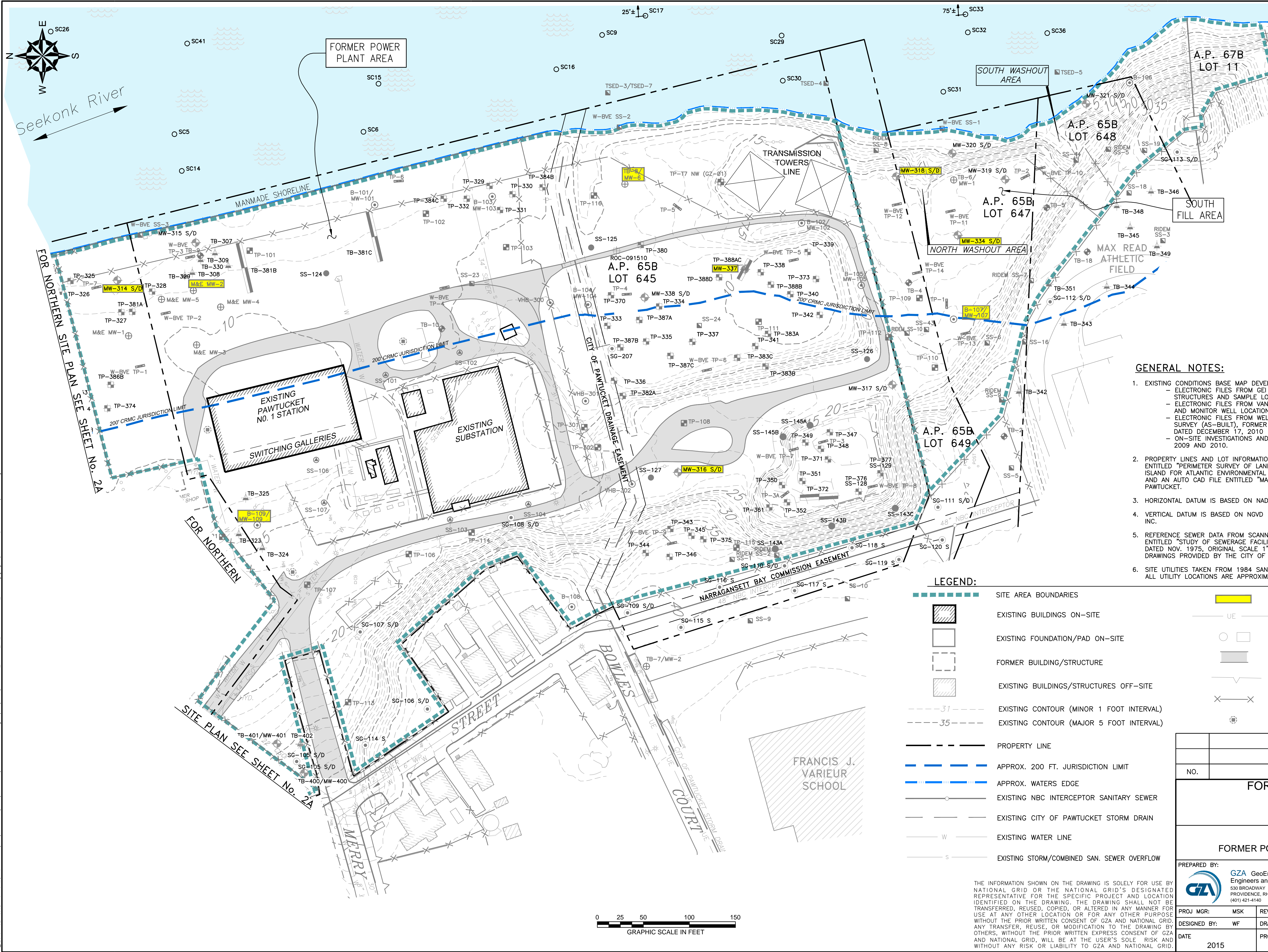
1. EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
 - ELECTRONIC FILES FROM GEI CONSULTANTS, INC. (FORMERLY AES) ENTITLED "HISTORIC STRUCTURES AND SAMPLE LOCATIONS", ORIGINAL SCALE 1"=80', DATED JULY 1999
 - ELECTRONIC FILES FROM VANASSE HANGEN BRUSTLIN, INC. ENTITLED "SOIL BORING, TEST PIT 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
FORMER TIDEWATER FACILITY			
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:	2015	CHECKED BY:	MSK
		SCALE:	1"=50'
		REVISION NO.:	0
		PROJECT NO.:	43654.00
		FIGURE	2A
		SHEET NO.	2 OF 6

2015 - GZA GeoEnvironmental, Inc. - GZA-J:\ENVA\33654.mxd\GZA_CADD\GZA_DWG\Groundwater_Monitoring_Report\2015\33654-00_F2A-1B_R0_SSHR-EOP-PLANS_2015.dwg [2] September 18, 2015 - 2:47pm carl.brigden



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 (2010-2011)
MW-320 S/D	GZA MONITORING WELL LOCATION (2010-2011)
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)
SG-200	INTERIOR SOIL GAS SAMPLING LOCATION
SG-100	PERIMETER SOIL GAS SAMPLING LOCATION
TB-400	GZA BORING LOCATION (2014)
MW-400	GZA MONITORING WELL LOCATION (2014)

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

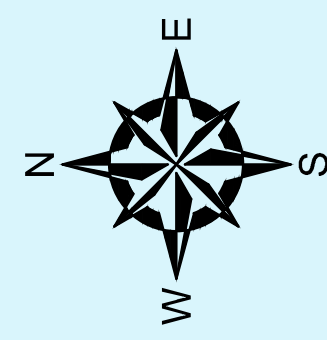
LEGEND:	
	SITE AREA BOUNDARIES
	EXISTING BUILDINGS ON-SITE
	EXISTING FOUNDATION/PAD ON-SITE
	FORMER BUILDING/STRUCTURE
	EXISTING BUILDINGS/STRUCTURES OFF-SITE
	EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
	EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
	PROPERTY LINE
	APPROX. 200 FT. JURISDICTION LIMIT
	APPROX. 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 2014 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

NO.	ISSUE/DESCRIPTION	BY	DATE
FORMER TIDEWATER FACILITY			
PAWTUCKET, RHODE ISLAND			
EXPLORATION LOCATION PLAN FORMER POWER PLANT AREA AND SOUTH FILL AREA			
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:	2015	CHECKED BY:	MSK
	PROJECT NO.	SCALE:	1"=50'
	43654.00	REVISION NO.	0
			FIGURE 2B
			SHEET NO. 3 OF 6

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



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FORMER POWER PLANT AREA

FORMER GAS PLANT AREA

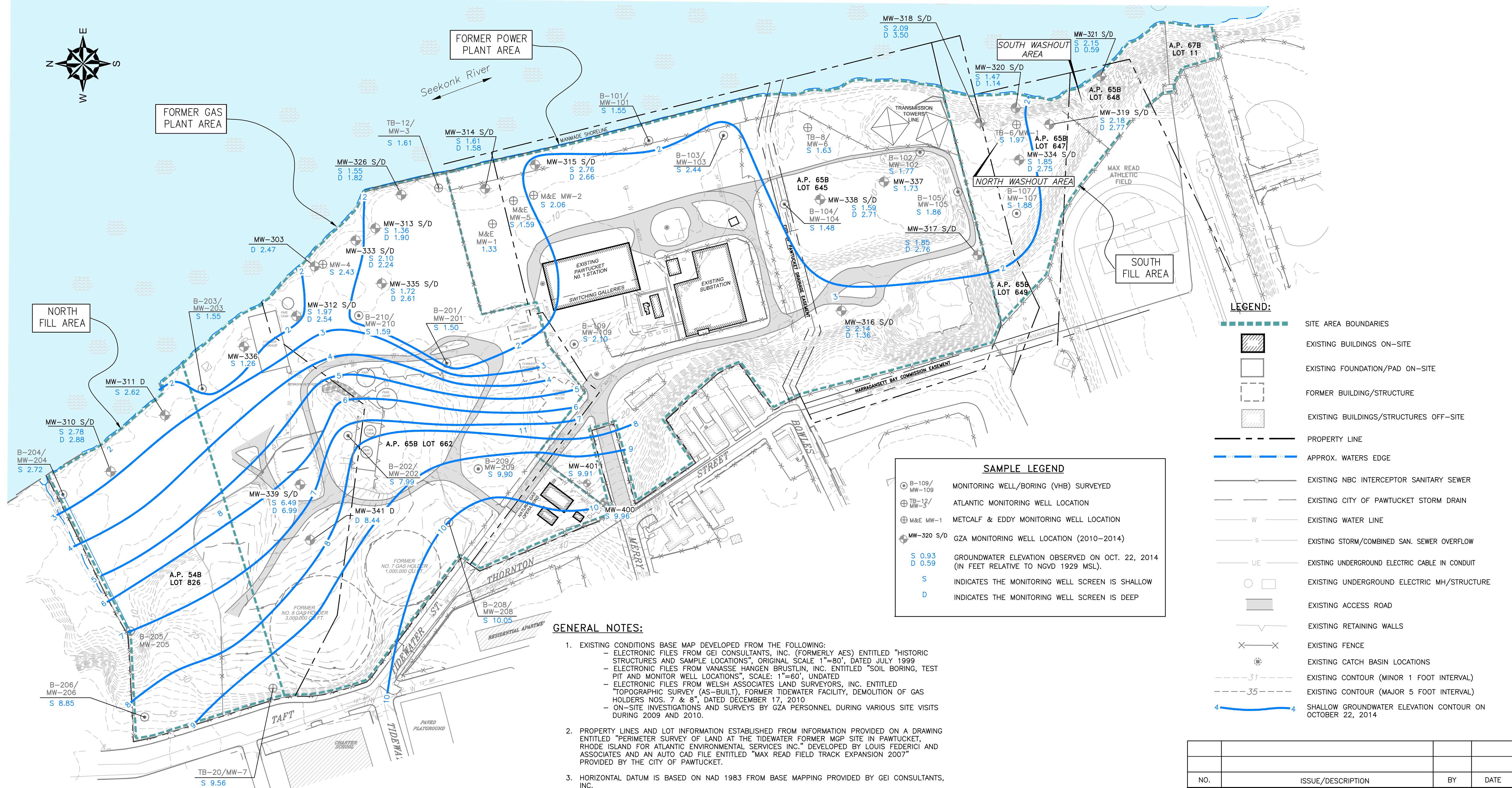
Seekonk River

NORTH FILL AREA

SOUTH WASHOUT AREA

NORTH WASHOUT AREA

SOUTH FILL AREA



LEGEND:

- SITE AREA BOUNDARIES
- EXISTING BUILDINGS ON-SITE
- EXISTING FOUNDATION/PAD ON-SITE
- FORMER BUILDING/STRUCTURE
- EXISTING BUILDINGS/STRUCTURES OFF-SITE
- PROPERTY LINE
- APPROX. WATERS EDGE
- EXISTING NBC INTERCEPTOR SANITARY SEWER
- EXISTING CITY OF PAWTUCKET STORM DRAIN
- EXISTING WATER LINE
- EXISTING STORM/COMBINED SAN. SEWER OVERFLOW
- EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
- EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
- EXISTING ACCESS ROAD
- EXISTING RETAINING WALLS
- EXISTING FENCE
- EXISTING CATCH BASIN LOCATIONS
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- SHALLOW GROUNDWATER ELEVATION CONTOUR ON OCTOBER 22, 2014

SAMPLE LEGEND

- MONITORING WELL/BORING (VHB) SURVEYED
- ATLANTIC MONITORING WELL LOCATION
- METCALF & EDDY MONITORING WELL LOCATION
- GZA MONITORING WELL LOCATION (2010-2014)
- GROUNDWATER ELEVATION OBSERVED ON OCT. 22, 2014 (IN FEET RELATIVE TO NGVD 1929 MSL).
- INDICATES THE MONITORING WELL SCREEN IS SHALLOW
- INDICATES THE MONITORING WELL SCREEN IS DEEP

GENERAL NOTES:

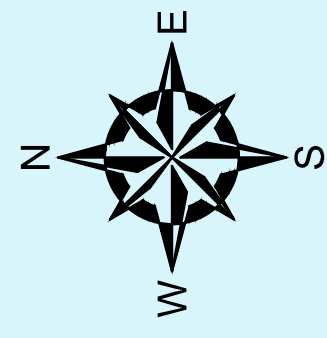
1. EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
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2. PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM INFORMATION PROVIDED ON A DRAWING ENTITLED "PERIMETER SURVEY OF LAND AT THE TIDEWATER FORMER MGP SITE IN PAWTUCKET, RHODE ISLAND FOR 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.
7. 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 OCTOBER 22, 2014.
8. 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.



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

NO.	ISSUE/DESCRIPTION	BY	DATE
FORMER TIDEWATER FACILITY			
PAWTUCKET, RHODE ISLAND			
SHALLOW GROUNDWATER CONTOUR PLAN			
OCTOBER 22, 2014			
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:	2015	CHECKED BY:	MSK
		SCALE:	1"=80'
		PROJECT NO.	43654.00
		REVISION NO.	0
			FIGURE 3
			SHEET NO. 4 OF 6

© 2010 - GZA GeoEnvironmental, Inc. GZA-ENV-43654-MSA-CADD\GZA-DWGS\Groundwater-Monitoring-Report\2015\43654-00_F2A-4B_R0_SSHR-EXP-PLANS_2015.dwg [D] September 18, 2015 - 2:48pm conibergdm



Seekonk River

FORMER GAS PLANT AREA

FOR SOUTHERN SITE PLAN SEE SHEET No. 4B

A.P. 65B LOT 662

A.P. 54B LOT 826

FORMER NO. 8 GAS HOLDER 3,000,000 CU.FT.

FORMER NO. 7 GAS HOLDER 1,000,000 CU.FT.

NORTH FILL AREA

LEGEND:

- SITE AREA BOUNDARIES
- EXISTING BUILDINGS ON-SITE
- EXISTING FOUNDATION/PAD ON-SITE
- FORMER BUILDING/STRUCTURE
- EXISTING BUILDINGS/STRUCTURES OFF-SITE
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
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- APPROX. 200 FT. CRMC JURISDICTION LIMIT
- APPROX. WATERS EDGE
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- 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

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

GENERAL NOTES:

1. EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
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7. CONCENTRATIONS SHOWN ARE THE MAXIMUM 2014 ANALYTICAL RESULTS.

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

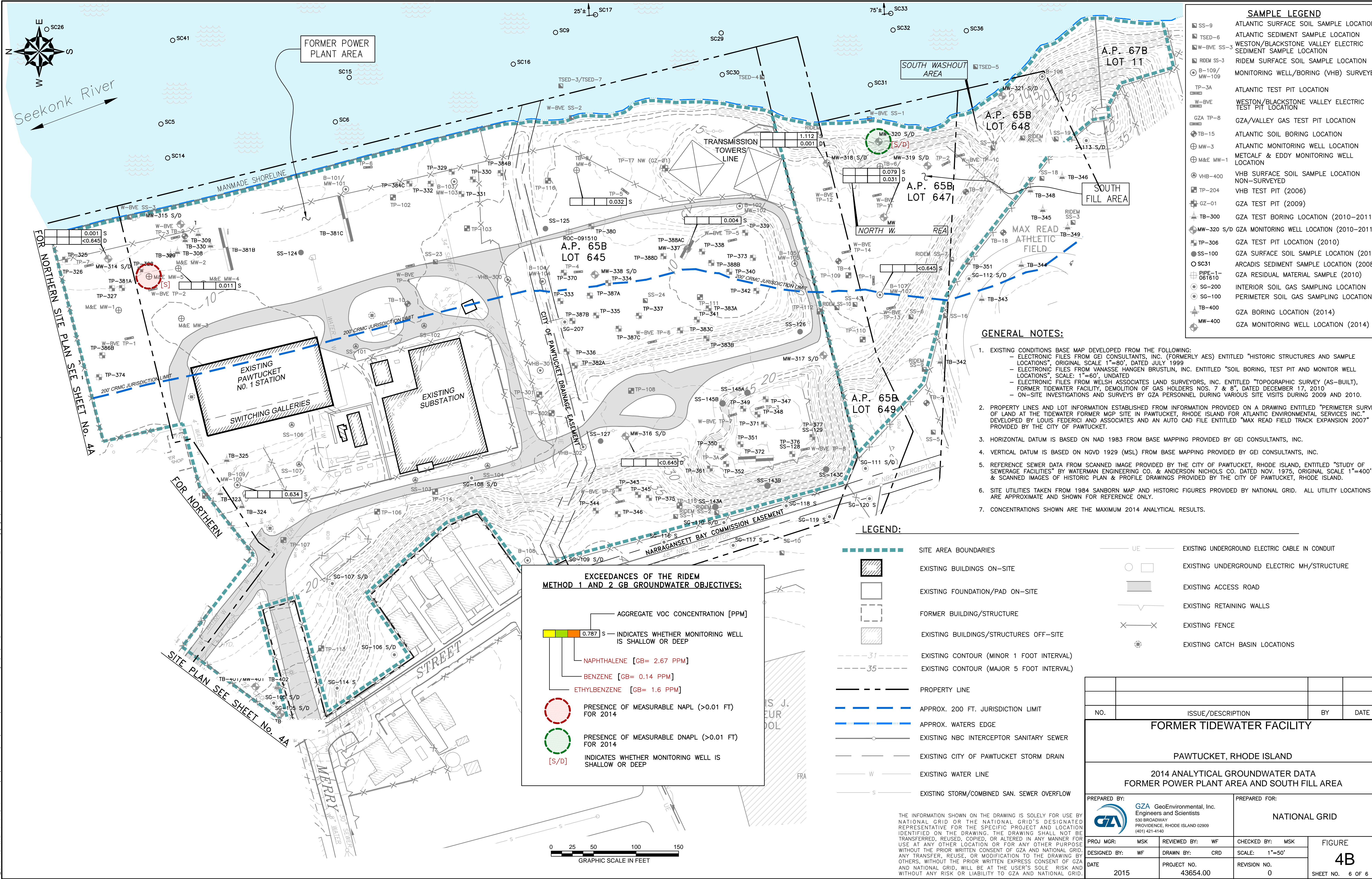
- AGGREGATE VOC CONCENTRATION [PPM]
- INDICATES WHETHER MONITORING WELL IS SHALLOW OR DEEP
- NAPHTHALENE [GB= 2.67 PPM]
- BENZENE [GB= 0.14 PPM]
- ETHYLBENZENE [GB= 1.6 PPM]
- PRESENCE OF MEASURABLE LNAPL (>0.01 FT) FOR 2014
- PRESENCE OF MEASURABLE DNAPL (>0.01 FT) FOR 2014
- INDICATES WHETHER MONITORING WELL IS SHALLOW OR DEEP



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NO.	ISSUE/DESCRIPTION	BY	DATE
FORMER TIDEWATER FACILITY			
PAWTUCKET, RHODE ISLAND			
2014 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:	2015	CHECKED BY:	MSK
		SCALE:	1"=50'
		REVISION NO.:	0
		PROJECT NO.:	43654.00
		FIGURE	4A
		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
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TP-204	VHB TEST PIT (2006)
GZ-01	GZA TEST PIT (2009)
TB-300	GZA TEST BORING LOCATION (2010-2011)
MW-320 S/D	GZA MONITORING WELL LOCATION (2010-2011)
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)
SG-200	INTERIOR SOIL GAS SAMPLING LOCATION
SG-100	PERIMETER SOIL GAS SAMPLING LOCATION
TB-400	GZA BORING LOCATION (2014)
MW-400	GZA MONITORING WELL LOCATION (2014)

GENERAL NOTES:

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- CONCENTRATIONS SHOWN ARE THE MAXIMUM 2014 ANALYTICAL RESULTS.

LEGEND:

	SITE AREA BOUNDARIES		EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
	EXISTING BUILDINGS ON-SITE		EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
	EXISTING FOUNDATION/PAD ON-SITE		EXISTING ACCESS ROAD
	FORMER BUILDING/STRUCTURE		EXISTING RETAINING WALLS
	EXISTING BUILDINGS/STRUCTURES OFF-SITE		EXISTING FENCE
	EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)		EXISTING CATCH BASIN LOCATIONS
	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		

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]

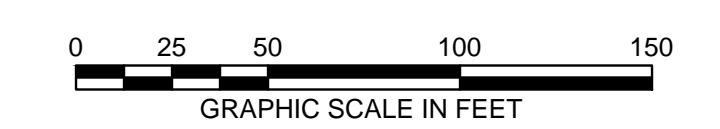
BENZENE [GB= 0.14 PPM]

ETHYLBENZENE [GB= 1.6 PPM]

PRESENCE OF MEASURABLE NAPL (>0.01 FT) FOR 2014

PRESENCE OF MEASURABLE DNAPL (>0.01 FT) FOR 2014

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



NO.	ISSUE/DESCRIPTION	BY	DATE
FORMER TIDEWATER FACILITY			
PAWTUCKET, RHODE ISLAND			
2014 ANALYTICAL GROUNDWATER DATA FORMER POWER PLANT AREA AND SOUTH FILL AREA			
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:	2015	CHECKED BY:	MSK
	PROJECT NO.	SCALE:	1"=50'
	43654.00	REVISION NO.	0
			FIGURE
			4B
			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.

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APPENDIX B

GROUNDWATER SAMPLING LOGS

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Rain 60s

Well ID: MW-326S
Sample Date: 10/22/2014
Sampler's Name: WTF

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 10/22/2014-12:30

Point of Measurement: PVC Riser [X] Steel Casing [] Ground []
Total Well Depth (feet): 26.6
Depth to LNAPL (feet): -
Depth to Water (feet): 11.06
Depth to DNAPL (feet): -
Well Screened Interval (feet BGS): 5 to 25

Standing Water in Well (feet): 15.54
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: Geotech Peristaltic No. 4
Meter Type: YSI/Lamotte No. 1

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 12:36

Stop time: 13:12

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 data for times 13:04, 13:08, and 13:12.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 13:12

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: Slight oil-like Clarity: Clear

Total Purge Volume: 2 gallons

Tubing Volume: 0.2 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:

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
 Project: Former Tidewater Facility
 Location: City: Pawtucket State: RI
 Weather: Rain 60s

Well ID: MW-326D
 Sample Date: 10/22/2014
 Sampler's Name: WTF

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 10/22/2014-13:00

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 47.3
 Depth to LNAPL (feet): -
 Depth to Water (feet): 11.09
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 23 to 43

Standing Water in Well (feet): 31.21
 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: Geotech Peristaltic No. 1
 Meter Type: YSI/Lamotte No. 1

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 12:43

Stop time: 13:34

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
13:26	18.72	-104	7.4	3680	0.87	13.6	4	250	
13:30	18.73	-103	7.36	3670	0.82	13.6	4	250	
13:34	18.73	-101	7.35	3670	0.8	13.6	2	250	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 13:34

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	1	Amber Glass	1000	None	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: None Odor: Slight oil-like Clarity: Clear

Total Purge Volume: 2 gallons Tubing Volume: 0.3 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:

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
 Project: Former Tidewater Facility
 Location: City: Pawtucket State: RI
 Weather: Cloudy 60s

Well ID: MW-333D
 Sample Date: 10/22/2014
 Sampler's Name: WTF

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 10/22/2014-14:30

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 45.2
 Depth to LNAPL (feet): -
 Depth to Water (feet): 10.06
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 30 to 40

Standing Water in Well (feet): 35.15
 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: Geotech Peristaltic No. 4
 Meter Type: YSI/Lamotte No. 1

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 14:20

Stop time: 14:59

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvolts) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (µS/cm) (±3%)	4 DO (mg/L) (±10% or 3 rdgs <0.5)	5 Temperature (°C) (±3%)	6 Turbidity (ntu) (±10% or <5ntu)	7 Flow (ml/min) (<500 ml/min)	8 Notes
14:51	14.13	-155	7.51	2300	1.16	13.8	2	300	
14:55	14.13	-156	7.51	2310	0.94	13.8	2	300	
14:59	14.13	-156	7.51	2310	0.91	13.8	3	300	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 14:59

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	1	Amber Glass	1000	None	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: None Odor: None Clarity: None

Total Purge Volume: 2 gallons Tubing Volume: 0.3 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:

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
 Project: Former Tidewater Facility
 Location: City: Pawtucket State: RI
 Weather: Cloudy 60s

Well ID: MW-339S
 Sample Date: 10/23/2014
 Sampler's Name: WTF

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 10/23/14-12:39

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 11.6
 Depth to LNAPL (feet): -
 Depth to Water (feet): 8.75
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 3 to 10

Standing Water in Well (feet): 2.85
 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: Geotech Peristaltic No. 4
 Meter Type: YSI/Lamotte No. 1

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 12:41

Stop time: 14:12

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvolts) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (µS/cm) (±3%)	4 DO (mg/L) (±10% or 3 rdgs <0.5)	5 Temperature (°C) (±3%)	6 Turbidity (ntu) (±10% or <5ntu)	7 Flow (ml/min) (<500 ml/min)	8 Notes
14:04	8.79	515	2.66	4450	0.71	15.8	3	300	
14:08	8.79	514	2.69	4460	0.68	15.8	3	300	
14:12	8.79	514	2.69	4480	0.63	15.8	4	300	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 14:12

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	1	Amber Glass	1000	None	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: Brown Odor: Slight oil/coal tar-like Clarity: Clear

Total Purge Volume: 2 gallons Tubing Volume: 0.1 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:

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
Project: Former Tidewater Facility
Location: City: Pawtucket State: RI
Weather: Cloudy 60s

Well ID: MW-339D
Sample Date: 10/23/2014
Sampler's Name: WTF

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 12/23/14-12:42

Point of Measurement: PVC Riser [X] Steel Casing [] Ground []
Total Well Depth (feet): 21.2
Depth to LNAPL (feet): -
Depth to Water (feet): 8.43
Depth to DNAPL (feet): 21.2
Well Screened Interval (feet BGS): 12 to 17

Standing Water in Well (feet): 12.77
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: Geotech Peristaltic No. 1
Meter Type: YSI/Lamotte No. 1

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 12:44

Stop time: 14:23

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 3 rows of data.

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 14:23

Table with 8 columns: Analysis, Method, No. Bottles, Bottle Type, Volume, Preservation, Handling. Lists various chemical analyses like VOCs, TPH, PAHs, Cyanide.

Sample observations:

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

Total Purge Volume: 2 gallons Tubing Volume: 0.2 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:

Installed new tubing
Sheen on purge water

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
 Project: Former Tidewater Facility
 Location: City: Pawtucket State: RI
 Weather: Cloudy 60s

Well ID: MW-109
 Sample Date: 10/23/2014
 Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 10/22/14-10:00

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 19.3
 Depth to LNAPL (feet): -
 Depth to Water (feet): 11.99
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 10 to 20

Standing Water in Well (feet): 7.31
 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: Geotech Peristaltic No. 2
 Meter Type: YSI/Lamotte No. 3

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 15:00

Stop time: 15:45

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvolts) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (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
15:16	12.32	-43.3	6.62	0.492	0.29	15.8	4	400	
15:19	12.32	-47.2	6.62	0.491	0.25	15.8	4	400	
15:23	12.32	-50.9	6.62	0.49	0.25	15.8	4	400	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 15:45

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	1	Amber Glass	1000	None	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: None Odor: Slight oil-like Clarity: None

Total Purge Volume: 2 gallons Tubing Volume: 0.2 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:
 Slight sheen on purge water.

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
 Project: Former Tidewater Facility
 Location: City: Pawtucket State: RI
Weather: Rainy 60s

Well ID: MW-314S
 Sample Date: 10/22/2014
 Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 10/22/14-10:30

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 24.3
 Depth to LNAPL (feet): -
 Depth to Water (feet): 8.76
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 5 to 25

Standing Water in Well (feet): 15.54
 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: Geotech Peristaltic No. 2

Flow-Thru Cell Vol (mL): 250

Meter Type: YSI/Lamotte No. 2

INSTRUMENT MEASUREMENTS:

Start time: 12:45

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. (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
13:07	10.66	-56.6	6.48	16.23	1.12	14.7	4	200	
13:11	10.70	-58.1	6.48	16.43	1.06	14.8	4	200	
13:15	10.75	-59.4	6.48	16.56	1.02	14.8	4	200	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 13:45

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	1	Amber Glass	1000	None	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: None Odor: None Clarity: None

Total Purge Volume: 2 gallons Tubing Volume: 0.2 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:

GROUNDWATER SAMPLING DATA SHEET

File No. 43654.00 Task 39
 Project: Former Tidewater Facility
 Location: City: Pawtucket State: RI
 Weather: Cloudy 60s

Well ID: MW-337
 Sample Date: 10/23/2014
 Sampler's Name: SDN

WATER LEVEL OBSERVATIONS

Measurement Date/Time: 10/22/14-8:30

Point of Measurement: PVC Riser Steel Casing Ground
 Total Well Depth (feet): 19.9
 Depth to LNAPL (feet): -
 Depth to Water (feet): 11.3
 Depth to DNAPL (feet): -
 Well Screened Interval (feet BGS): 5 to 15

Standing Water in Well (feet): 8.6
 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: Geotech Peristaltic No. 2
 Meter Type: YSI/Lamotte No. 3

Flow-Thru Cell Vol (mL): 250

INSTRUMENT MEASUREMENTS:

Start time: 13:20

Stop time: 14:45

Time (start)	Depth to Water (ft) (drawdown <0.3 or stable)	1 ORP (mvolts) (± 10)	2 pH (s.u.) (± 0.1)	3 Spec. Cond. (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
14:16	12	13	6.39	1.34	0.4	15	5	400	
14:19	12	12	6.39	1.34	0.38	15	5	400	
14:22	12	12	6.39	1.33	0.4	15	5	400	

SAMPLE TESTING INFORMATION:

SAMPLE TIME: 14:45

Analysis	Method	No. Bottles	Bottle Type	Volume	Preservation	Handling
VOCs	8260B	3	VOA	40	HCl	None
TPH	8100M	1	Amber Glass	1000	None	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: None Odor: None Clarity: None

Total Purge Volume: 3 gallons Tubing Volume: 0.2 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:

LOW FLOW CALIBRATION SHEET

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

Page: 1 of 2
Date: 10/22/2014

LOW FLOW CALIBRATION:

Intial Calibration:

Specific Conductance:	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>999</u>
pH (s.u.):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.05/7.01</u>
DO (mg/L):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>10000%</u>	Reading: <u>98</u>
ORP (mvolts):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>231.1</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.5</u>

Bump Check:

Specific Conductance:	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>1010</u>
pH (s.u.):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.3/6.7</u>
DO (mg/L):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100%</u>	Reading: <u>108</u>
ORP (mvolts):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>231</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/2</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: 10/22/2014

LOW FLOW CALIBRATION:

Intial Calibration:

Specific Conductance:	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>1000</u>
pH (s.u.):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.05/7.01</u>
DO (mg/L):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>101</u>
ORP (mvolts):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>231</u>	Reading: <u>231</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #3</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.1</u>

Bump Check:

Specific Conductance:	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>981</u>
pH (s.u.):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.31/7.10</u>
DO (mg/L):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>88</u>
ORP (mvolts):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>231</u>	Reading: <u>230.2</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #3</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.9</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: 10/23/2014

LOW FLOW CALIBRATION:

Initial Calibration:

Specific Conductance:	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>1001</u>
pH (s.u.):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.03/7</u>
DO (mg/L):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>100</u>
ORP (mvolts):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>231</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.01</u>

Bump Check:

Specific Conductance:	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>1000</u>	Reading: <u>990</u>
pH (s.u.):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.15/6.80</u>
DO (mg/L):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>100</u>	Reading: <u>110</u>
ORP (mvolts):	Instrument and Number: <u>YSI #1</u>	Standard Solution: <u>231</u>	Reading: <u>231.5</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #1</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/0.9</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: 10/23/2014

LOW FLOW CALIBRATION:

Initial Calibration:

Specific Conductance:	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>999</u>
pH (s.u.):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>4.01/6.99</u>
DO (mg/L):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>100</u>
ORP (mvolts):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>231</u>	Reading: <u>231.1</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #3</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.1</u>

Bump Check:

Specific Conductance:	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>1000</u>	Reading: <u>971</u>
pH (s.u.):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>4/7</u>	Reading: <u>3.75/6.95</u>
DO (mg/L):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>100</u>	Reading: <u>110</u>
ORP (mvolts):	Instrument and Number: <u>YSI #3</u>	Standard Solution: <u>231</u>	Reading: <u>231</u>
Turbidity (NTU):	Instrument and Number: <u>Lamotte #3</u>	Standard Solution: <u>0/1</u>	Reading: <u>0/1.5</u>

APPENDIX C

INVESTIGATION DERIVED WASTE DISPOSAL MANIFESTS

TK# 5181

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

RI 1402848797-001

SC PPW 9/30/2014

Form Approved. OMB No. 2050-0039

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 006070564 FLE	
5. Generator's Name and Mailing Address Narragansett Electric company 40 Sylvan Road Waltham, MA 02451				Generator's Site Address (if different than mailing address) 200 Taft Street Pawtucket, RI 02862		
Generator's Phone: (781) 907-3647 ATTN: Susan Brochu				U.S. EPA ID Number MAD039322250		
6. Transporter 1 Company Name Clean Harbors Environmental Services Inc				U.S. EPA ID Number MAD039322250		
7. Transporter 2 Company Name <i>Safety-Kleen Systems Inc</i>				U.S. EPA ID Number <i>MAD039322250</i>		
8. Designated Facility Name and Site Address Clean Harbors Env Services Inc 2900 Rockefeller Avenue Cleveland, OH 44115				U.S. EPA ID Number OHD000724153		
Facility's Phone: (216) 428-2402						
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
				No.	Type	12. Unit Wt./Vol.
	1.	NON DOT REGULATED MATERIAL (PURGEWATER)		001	DM	55 G
	2.					
	3.					
13. Waste Codes R015						
14. Special Handling Instructions and Additional Information 1. T26781RIR 1X55						
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/Offlor's Printed/Typed Name Adriano Brito				Signature <i>Adriano Brito</i>		Month Day Year 11 04 14
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		Transporter 1 Printed/Typed Name Adriano Brito		Signature <i>Adriano Brito</i>		Month Day Year 11 04 14
		Transporter 2 Printed/Typed Name CURTIS KATA		Signature <i>Curtis Kata</i>		Month Day Year 11 02 14
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						
DESIGNATED FACILITY						
1. H070		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				Signature <i>Tracy Balk</i>		Month Day Year 11 12 14

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

APPENDIX D

LABORATORY DATA REPORTS



CERTIFICATE OF ANALYSIS

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

RE: Tidewater GH (03.0043654.T13)
ESS Laboratory Work Order Number: 1410603

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

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 1:37 pm, Oct 31, 2014

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

SAMPLE RECEIPT

The following samples were received on October 23, 2014 for the analyses specified on the enclosed Chain of Custody Record.

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

pH for Cyanide containers, for the following samples, were less than the method requirement of >12: "M and E MW-1" (1410603-03), "MW-333S" (1410603-06), and "BD 1" (1410603-08). Samples to be analyzed per client request.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1410603-01	MW-314S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-02	MW-314D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-03	M and E MW-1	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-04	MW-326S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-05	MW-326D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-06	MW-333S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-07	MW-333D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-08	BD 1	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-09	MW-107	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-10	MW-334S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-11	MW-334D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-12	MW-318S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-13	MW-318D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-14	MW-337	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-15	MW-6	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-16	MW-109	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-17	MW-316D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-18	MW-310S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-19	MW-310D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410603-20	Trip Blank	Aqueous	8260B



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

PROJECT NARRATIVE

8100M Total Petroleum Hydrocarbons

CJ42436-BSD1 Relative percent difference for duplicate is outside of criteria (D+).
Decane (C10) (26%), Nonane (C9) (26%)

8260B Volatile Organic Compounds

CJ42737-BS1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (140% @ 70-130%), Acetone (134% @ 70-130%)

CJ42737-BS1 Surrogate recovery(ies) below lower control limit (S-).
4-Bromofluorobenzene (69% @ 70-130%), Toluene-d8 (69% @ 70-130%)

CJ42737-BSD1 Blank Spike recovery is above upper control limit (B+).
Hexachloroethane (131% @ 70-130%)

CJ42810-BS1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (138% @ 70-130%), Hexachloroethane (133% @ 70-130%)

CJ42810-BSD1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (143% @ 70-130%), Acetone (168% @ 70-130%), Hexachloroethane (133% @ 70-130%)

CJ42842-BS1 Blank Spike recovery is below lower control limit (B-).
Bromomethane (65% @ 70-130%), Chloroethane (64% @ 70-130%)

CJ42842-BSD1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (135% @ 70-130%)

CXJ0385-CCV1 Continuing Calibration recovery is above upper control limit (C+).
2,2-Dichloropropane (131% @ 70-130%)

CXJ0403-CCV1 Continuing Calibration recovery is below lower control limit (C-).
Bromomethane (50% @ 70-130%), Chloroethane (67% @ 70-130%)

CXJ0431-CCV1 Continuing Calibration recovery is above upper control limit (C+).
2,2-Dichloropropane (132% @ 70-130%)

8270C(SIM) Polynuclear Aromatic Hydrocarbons

1410603-07 Internal Standard(s) outside of criteria due to matrix (UCM/coelution is present) (IM).
Naphthalene-d8 (45% @ 50-200%)

1410603-07 Surrogate recovery(ies) below lower control limit (S-).
1,2-Dichlorobenzene-d4 (23% @ 30-130%)

1410603-15 Surrogate recovery(ies) below lower control limit (S-).
1,2-Dichlorobenzene-d4 (26% @ 30-130%)

CJ42402-BLK1 Surrogate recovery(ies) below lower control limit (S-).
1,2-Dichlorobenzene-d4 (21% @ 30-130%)

CJ42402-BS1 Blank Spike recovery is below lower control limit (B-).
2-Methylnaphthalene (39% @ 40-140%)

CJ42402-BSD1 Relative percent difference for duplicate is outside of criteria (D+).
Dibenzo(a,h)Anthracene (48%)



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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](#)

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015D - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314S
Date Sampled: 10/22/14 13:45
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	0.57 (0.19)		8100M		1	10/24/14 13:14	CXJ0347	CJ42401

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	65 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314S
Date Sampled: 10/22/14 13:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314S
Date Sampled: 10/22/14 13:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Naphthalene	0.0014 (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-314S
 Date Sampled: 10/22/14 13:45
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
 ESS Laboratory Sample ID: 1410603-01
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 21:18	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 21:18		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 21:18		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>128 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>128 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314S
Date Sampled: 10/22/14 13:45
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 5:51	CXJ0353	CJ42402
Acenaphthene	0.0013 (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Fluorene	0.0003 (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Naphthalene	ND (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402
Pyrene	0.0003 (0.0002)		8270C SIM		1	10/25/14 5:51	CXJ0353	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	39 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	50 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	58 %		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-314S
Date Sampled: 10/22/14 13:45
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-01
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	0.128 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.176 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314D
Date Sampled: 10/22/14 15:10
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	0.37 (0.19)		8100M		1	10/24/14 13:53	CXJ0347	CJ42401
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		68 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314D
Date Sampled: 10/22/14 15:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314D
Date Sampled: 10/22/14 15:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Naphthalene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314D
Date Sampled: 10/22/14 15:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 20:27	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 20:27		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 20:27		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>128 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>124 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314D
Date Sampled: 10/22/14 15:10
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 6:40	CXJ0353	CJ42402
Acenaphthene	0.0013 (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Fluorene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Naphthalene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402
Pyrene	ND (0.0002)		8270C SIM		1	10/25/14 6:40	CXJ0353	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	33 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	44 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	51 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	52 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-314D
Date Sampled: 10/22/14 15:10
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-02
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	0.162 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.160 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: M and E MW-1
Date Sampled: 10/22/14 14:45
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	10/24/14 14:32	CXJ0347	CJ42401
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		59 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: M and E MW-1
Date Sampled: 10/22/14 14:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: M and E MW-1
Date Sampled: 10/22/14 14:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Naphthalene	0.0112 (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: M and E MW-1
Date Sampled: 10/22/14 14:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 16:41	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 16:41		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 16:41		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>124 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>123 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>104 %</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-1
Date Sampled: 10/22/14 14:45
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 7:30	CXJ0353	CJ42402
Acenaphthene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Fluorene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Naphthalene	0.0003 (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402
Pyrene	ND (0.0002)		8270C SIM		1	10/25/14 7:30	CXJ0353	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	35 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	39 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	49 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	59 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: M and E MW-1
Date Sampled: 10/22/14 14:45
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-03
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	0.058 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0734 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326S
Date Sampled: 10/22/14 13:12
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	5.85 (0.19)		8100M		1	10/24/14 15:10	CXJ0347	CJ42401

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	65 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326S
Date Sampled: 10/22/14 13:12
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	0.0183 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	0.0082 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Benzene	0.352 (0.0100)		8260B		10	10/27/14 16:14	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326S
Date Sampled: 10/22/14 13:12
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Ethylbenzene	0.0574 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Isopropylbenzene	0.0287 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Naphthalene	0.0239 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
n-Propylbenzene	0.0098 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326S
Date Sampled: 10/22/14 13:12
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Toluene	0.0011 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Xylene O	0.0126 (0.0010)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Xylene P,M	0.0059 (0.0020)		8260B		1	10/24/14 22:58	CXJ0362	CJ42737
Xylenes (Total)	0.0186 (0.0020)		8260B		1	10/24/14 22:58		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 22:58		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>114 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>115 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>107 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326S
Date Sampled: 10/22/14 13:12
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: IBM
Prepared: 10/24/14 14:08

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	0.0205 (0.0019)		8270C SIM		10	10/29/14 13:13	CXJ0353	CJ42402
Acenaphthene	0.0447 (0.0019)		8270C SIM		10	10/29/14 13:13	CXJ0353	CJ42402
Acenaphthylene	0.0003 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Anthracene	0.0009 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Benzo(a)anthracene	0.0006 (0.00005)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Benzo(a)pyrene	0.0008 (0.00005)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Benzo(b)fluoranthene	0.0006 (0.00005)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Benzo(g,h,i)perylene	0.0005 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Benzo(k)fluoranthene	0.0002 (0.00005)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Chrysene	0.0007 (0.00005)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Dibenzo(a,h)Anthracene	0.0001 (0.00005)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Fluoranthene	0.0013 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Fluorene	0.0040 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Indeno(1,2,3-cd)Pyrene	0.0004 (0.00005)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Naphthalene	0.0042 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Phenanthrene	0.0021 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402
Pyrene	0.0025 (0.0002)		8270C SIM		1	10/25/14 8:19	CXJ0353	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	37 %		30-130
Surrogate: 2-Fluorobiphenyl	43 %		30-130
Surrogate: Nitrobenzene-d5	74 %		30-130
Surrogate: p-Terphenyl-d14	63 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326S
Date Sampled: 10/22/14 13:12
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-04
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	0.300 (0.025)		9014		5	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.338 (0.0250)		9014		5	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326D
Date Sampled: 10/22/14 13:34
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	10/24/14 15:49	CXJ0347	CJ42401

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	64 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326D
Date Sampled: 10/22/14 13:34
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Benzene	0.0049 (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326D
Date Sampled: 10/22/14 13:34
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Ethylbenzene	0.0012 (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Naphthalene	0.0026 (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326D
Date Sampled: 10/22/14 13:34
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 17:06	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 17:06		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 17:06		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>125 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>123 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-326D
Date Sampled: 10/22/14 13:34
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 9:08	CXJ0353	CJ42402
Acenaphthene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Fluorene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Naphthalene	0.0003 (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402
Pyrene	ND (0.0002)		8270C SIM		1	10/25/14 9:08	CXJ0353	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	35 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	39 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	51 %		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: 10/22/14 13:34
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-05
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	0.710 (0.050)		9014		10	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.709 (0.0500)		9014		10	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333S
Date Sampled: 10/22/14 14:48
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	10/24/14 16:28	CXJ0347	CJ42401

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	64 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333S
Date Sampled: 10/22/14 14:48
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333S
Date Sampled: 10/22/14 14:48
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Carbon Disulfide	0.0071 (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Naphthalene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333S
Date Sampled: 10/22/14 14:48
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 20:52	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 20:52		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 20:52		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>127 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>129 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333S
Date Sampled: 10/22/14 14:48
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 11:30	CXJ0355	CJ42402
Acenaphthene	0.0005 (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Acenaphthylene	0.0003 (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Fluorene	ND (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Naphthalene	0.0002 (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402
Pyrene	ND (0.0002)		8270C SIM		1	10/25/14 11:30	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	30 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	37 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	47 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	53 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333S
Date Sampled: 10/22/14 14:48
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-06
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	0.020 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0280 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333D
Date Sampled: 10/22/14 14:59
Percent Solids: N/A
Initial Volume: 1020
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-07
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	3.54 (0.20)		8100M		1	10/24/14 17:07	CXJ0347	CJ42401
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		67 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333D
Date Sampled: 10/22/14 14:59
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-07
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>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	10/24/14 23:23	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	0.155 (0.100)		8260B		100	10/27/14 17:30	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	0.0024 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
4-Isopropyltoluene	0.0022 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Benzene	1.76 (0.100)		8260B		100	10/27/14 17:30	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333D
Date Sampled: 10/22/14 14:59
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-07
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Ethylbenzene	0.580 (0.100)		8260B		100	10/27/14 17:30	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Isopropylbenzene	0.0647 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Naphthalene	2.30 (0.100)		8260B		100	10/27/14 17:30	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
n-Propylbenzene	0.0226 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
sec-Butylbenzene	0.0010 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Styrene	0.0014 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333D
Date Sampled: 10/22/14 14:59
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-07
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Toluene	0.0055 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Xylene O	0.0890 (0.0010)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Xylene P,M	0.0143 (0.0020)		8260B		1	10/24/14 23:23	CXJ0362	CJ42737
Xylenes (Total)	0.103 (0.0020)		8260B		1	10/24/14 23:23		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 23:23		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>112 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>111 %</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: 10/22/14 14:59
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-07
Sample Matrix: Ground Water
Units: mg/L
Analyst: IBM
Prepared: 10/24/14 14:08

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	0.0145 (0.0019)		8270C SIM		10	10/29/14 14:03	CXJ0355	CJ42402
Acenaphthene	0.0380 (0.0019)		8270C SIM		10	10/29/14 14:03	CXJ0355	CJ42402
Acenaphthylene	0.0010 (0.0002)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Anthracene	0.0013 (0.0002)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Benzo(a)anthracene	0.0003 (0.00005)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Benzo(a)pyrene	0.0002 (0.00005)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Benzo(b)fluoranthene	0.0002 (0.00005)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Benzo(k)fluoranthene	0.00006 (0.00005)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Chrysene	0.0003 (0.00005)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Fluoranthene	0.0010 (0.0002)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Fluorene	0.0061 (0.0002)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	0.0001 (0.00005)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Naphthalene	0.433 (0.0187)		8270C SIM		100	10/29/14 14:53	CXJ0355	CJ42402
Phenanthrene	0.0067 (0.0002)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402
Pyrene	0.0011 (0.0002)		8270C SIM		1	10/25/14 12:20	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	23 %	S-	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	36 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	92 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	41 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-333D
Date Sampled: 10/22/14 14:59
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-07
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	0.732 (0.050)		9014		10	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.725 (0.0500)		9014		10	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 1
Date Sampled: 10/22/14 08:00
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	10/24/14 17:46	CXJ0347	CJ42401
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		62 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 1
Date Sampled: 10/22/14 08:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 1
Date Sampled: 10/22/14 08:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Naphthalene	0.0139 (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 1
Date Sampled: 10/22/14 08:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 17:31	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 17:31		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 17:31		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>128 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>125 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: BD 1
Date Sampled: 10/22/14 08:00
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 13:10	CXJ0355	CJ42402
Acenaphthene	ND (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Fluorene	ND (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Naphthalene	0.0009 (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Phenanthrene	0.0003 (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402
Pyrene	ND (0.0002)		8270C SIM		1	10/25/14 13:10	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	37 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	45 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	58 %		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: BD 1
Date Sampled: 10/22/14 08:00
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-08
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	0.055 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0653 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-107
Date Sampled: 10/23/14 09:40
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-09
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	10/24/14 18:25	CXJ0347	CJ42401
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		54 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-107
Date Sampled: 10/23/14 09:40
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-09
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>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	10/24/14 17:56	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-107
Date Sampled: 10/23/14 09:40
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-09
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Naphthalene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-107
Date Sampled: 10/23/14 09:40
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-09
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 17:56	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 17:56		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 17:56		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>129 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>126 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-107
Date Sampled: 10/23/14 09:40
Percent Solids: N/A
Initial Volume: 1010
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-09
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 14:00	CXJ0355	CJ42402
Acenaphthene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Fluorene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Naphthalene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402
Pyrene	ND (0.0002)		8270C SIM		1	10/25/14 14:00	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	37 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	43 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	53 %		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-107
Date Sampled: 10/23/14 09:40
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-09
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	0.031 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0458 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334S
Date Sampled: 10/23/14 09:00
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-10
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 11:30

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	10/24/14 19:04	CXJ0347	CJ42401
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		60 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334S
Date Sampled: 10/23/14 09:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-10
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>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	10/24/14 18:22	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	0.0015 (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Benzene	0.0032 (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334S
Date Sampled: 10/23/14 09:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-10
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Naphthalene	0.0692 (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-334S
 Date Sampled: 10/23/14 09:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
 ESS Laboratory Sample ID: 1410603-10
 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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Toluene	0.0016 (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Xylene O	0.0013 (0.0010)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Xylene P,M	0.0022 (0.0020)		8260B		1	10/24/14 18:22	CXJ0362	CJ42737
Xylenes (Total)	0.0035 (0.0020)		8260B		1	10/24/14 18:22		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 18:22		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	126 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	97 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	121 %		70-130
<i>Surrogate: Toluene-d8</i>	104 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334S
Date Sampled: 10/23/14 09:00
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-10
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	0.0007 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Acenaphthene	0.0004 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Anthracene	0.0004 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Benzo(a)anthracene	0.00006 (0.00005)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Fluoranthene	0.0005 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Fluorene	0.0006 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Naphthalene	0.0044 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Phenanthrene	0.0027 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402
Pyrene	0.0004 (0.0002)		8270C SIM		1	10/25/14 14:50	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	39 %		30-130
Surrogate: 2-Fluorobiphenyl	47 %		30-130
Surrogate: Nitrobenzene-d5	57 %		30-130
Surrogate: p-Terphenyl-d14	71 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334S
Date Sampled: 10/23/14 09:00
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-10
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	0.011 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0127 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334D
Date Sampled: 10/23/14 10:30
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-11
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	0.20 (0.19)		8100M		1	10/25/14 15:44	CXJ0357	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		71 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334D
Date Sampled: 10/23/14 10:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-11
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>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	10/24/14 18:47	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Benzene	0.0084 (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334D
Date Sampled: 10/23/14 10:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-11
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
cis-1,2-Dichloroethene	0.0013 (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Naphthalene	0.0178 (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334D
Date Sampled: 10/23/14 10:30
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-11
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Toluene	0.0012 (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Trichloroethene	0.0024 (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 18:47	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 18:47		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 18:47		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>127 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>124 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334D
Date Sampled: 10/23/14 10:30
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-11
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	0.0007 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Acenaphthene	0.0004 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Anthracene	0.0004 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Benzo(a)anthracene	0.00006 (0.00005)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Fluoranthene	0.0005 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Fluorene	0.0006 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Naphthalene	0.0044 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Phenanthrene	0.0027 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402
Pyrene	0.0004 (0.0002)		8270C SIM		1	10/25/14 15:40	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	38 %		30-130
Surrogate: 2-Fluorobiphenyl	47 %		30-130
Surrogate: Nitrobenzene-d5	57 %		30-130
Surrogate: p-Terphenyl-d14	67 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-334D
Date Sampled: 10/23/14 10:30
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-11
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	0.013 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0229 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-318S
Date Sampled: 10/23/14 11:45
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-12
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	1.51 (0.19)		8100M		1	10/25/14 16:23	CXJ0357	CJ42436

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	58 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-318S
 Date Sampled: 10/23/14 11:45
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
 ESS Laboratory Sample ID: 1410603-12
 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>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	10/24/14 21:43	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	0.0303 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	0.0124 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Benzene	0.0516 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-318S
 Date Sampled: 10/23/14 11:45
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
 ESS Laboratory Sample ID: 1410603-12
 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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Ethylbenzene	0.0062 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Naphthalene	0.883 (0.0500)		8260B		50	10/27/14 17:05	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
n-Propylbenzene	0.0012 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Styrene	0.0024 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-318S
Date Sampled: 10/23/14 11:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-12
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Toluene	0.0441 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Xylene O	0.0253 (0.0010)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Xylene P,M	0.0556 (0.0020)		8260B		1	10/24/14 21:43	CXJ0362	CJ42737
Xylenes (Total)	0.0809 (0.0020)		8260B		1	10/24/14 21:43		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 21:43		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>127 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>103 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>123 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-318S
Date Sampled: 10/23/14 11:45
Percent Solids: N/A
Initial Volume: 1060
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-12
Sample Matrix: Ground Water
Units: mg/L
Analyst: IBM
Prepared: 10/24/14 14:08

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	0.0544 (0.0019)		8270C SIM		10	10/29/14 15:44	CXJ0355	CJ42402
Acenaphthene	0.0057 (0.0002)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Acenaphthylene	0.0220 (0.0019)		8270C SIM		10	10/29/14 15:44	CXJ0355	CJ42402
Anthracene	0.0050 (0.0002)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Benzo(a)anthracene	0.0006 (0.00005)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Benzo(a)pyrene	0.0006 (0.00005)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Benzo(b)fluoranthene	0.0007 (0.00005)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Benzo(g,h,i)perylene	0.0004 (0.0002)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Benzo(k)fluoranthene	0.0003 (0.00005)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Chrysene	0.0005 (0.00005)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	0.00009 (0.00005)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Fluoranthene	0.0027 (0.0002)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Fluorene	0.0228 (0.0019)		8270C SIM		10	10/29/14 15:44	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	0.0005 (0.00005)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402
Naphthalene	0.430 (0.0189)		8270C SIM		100	10/29/14 16:34	CXJ0355	CJ42402
Phenanthrene	0.0235 (0.0019)		8270C SIM		10	10/29/14 15:44	CXJ0355	CJ42402
Pyrene	0.0017 (0.0002)		8270C SIM		1	10/25/14 16:30	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	41 %		30-130
Surrogate: 2-Fluorobiphenyl	53 %		30-130
Surrogate: Nitrobenzene-d5	108 %		30-130
Surrogate: p-Terphenyl-d14	81 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-318S
Date Sampled: 10/23/14 11:45
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-12
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	0.010 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0270 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-318D
Date Sampled: 10/23/14 11:20
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-13
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	10/25/14 17:01	CXJ0357	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		<i>74 %</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: 10/23/14 11:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-13
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>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	10/24/14 19:12	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-318D
Date Sampled: 10/23/14 11:20
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-13
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Naphthalene	0.0013 (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-318D
 Date Sampled: 10/23/14 11:20
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
 ESS Laboratory Sample ID: 1410603-13
 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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 19:12	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 19:12		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 19:12		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>124 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>122 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-318D
 Date Sampled: 10/23/14 11:20
 Percent Solids: N/A
 Initial Volume: 1070
 Final Volume: 0.25
 Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
 ESS Laboratory Sample ID: 1410603-13
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: VSC
 Prepared: 10/24/14 14:08

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	10/25/14 17:20	CXJ0355	CJ42402
Acenaphthene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Fluorene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Naphthalene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402
Pyrene	ND (0.0002)		8270C SIM		1	10/25/14 17:20	CXJ0355	CJ42402

	<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>	58 %		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-318D
Date Sampled: 10/23/14 11:20
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-13
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	0.015 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0234 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-337
Date Sampled: 10/23/14 14:45
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-14
Sample Matrix: Ground Water
Units: mg/L
Analyst: JXS
Prepared: 10/24/14 13:25

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	1.32 (0.19)		8100M		1	10/27/14 11:46	CXJ0363	CJ42436
		<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-337
Date Sampled: 10/23/14 14:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-14
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Benzene	0.0036 (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-337
Date Sampled: 10/23/14 14:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-14
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Naphthalene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-337
Date Sampled: 10/23/14 14:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-14
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 19:37	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 19:37		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 19:37		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>126 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>97 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>123 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-337
Date Sampled: 10/23/14 14:45
Percent Solids: N/A
Initial Volume: 1020
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-14
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 18:10	CXJ0355	CJ42402
Acenaphthene	0.0015 (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Acenaphthylene	0.0021 (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Anthracene	ND (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Benzo(a)anthracene	0.00007 (0.00005)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Chrysene	0.00006 (0.00005)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Fluoranthene	0.0011 (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Fluorene	0.0021 (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Naphthalene	0.0003 (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Phenanthrene	ND (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402
Pyrene	0.0012 (0.0002)		8270C SIM		1	10/25/14 18:10	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	31 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	46 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	43 %		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-337
Date Sampled: 10/23/14 14:45
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-14
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	0.237 (0.025)		9014		5	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.328 (0.0250)		9014		5	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-6
Date Sampled: 10/23/14 14:10
Percent Solids: N/A
Initial Volume: 1040
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-15
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	1.47 (0.19)		8100M		1	10/25/14 18:20	CXJ0357	CJ42436

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	77 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-6
Date Sampled: 10/23/14 14:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-15
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
1-Chlorohexane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
2-Butanone	ND (0.0100)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
2-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
2-Hexanone	ND (0.0100)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
4-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Acetone	ND (0.0100)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Benzene	0.0115 (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Bromobenzene	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-6
Date Sampled: 10/23/14 14:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-15
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Bromodichloromethane	ND (0.0006)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Bromoform	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Bromomethane	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Carbon Disulfide	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Chlorobenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Chloroethane	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Chloroform	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Chloromethane	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Dibromochloromethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Dibromomethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Diethyl Ether	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Di-isopropyl ether	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Ethylbenzene	0.0079 (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Hexachloroethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Isopropylbenzene	0.0020 (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Methylene Chloride	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Naphthalene	0.0024 (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
n-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
n-Propylbenzene	0.0010 (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
sec-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Styrene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
tert-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Tetrachloroethene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-6
Date Sampled: 10/23/14 14:10
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-15
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Toluene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Trichloroethene	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Vinyl Acetate	ND (0.0050)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Vinyl Chloride	ND (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Xylene O	0.0073 (0.0010)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Xylene P,M	ND (0.0020)		8260B		1	10/27/14 14:34	CXJ0385	CJ42810
Xylenes (Total)	0.0073 (0.0020)		8260B		1	10/27/14 14:34		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/27/14 14:34		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>124 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>121 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-6
Date Sampled: 10/23/14 14:10
Percent Solids: N/A
Initial Volume: 1060
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-15
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	10/25/14 19:00	CXJ0355	CJ42402
Acenaphthene	0.0052 (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Acenaphthylene	0.0317 (0.0019)		8270C SIM		10	10/29/14 17:24	CXJ0355	CJ42402
Anthracene	0.0003 (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Benzo(a)anthracene	0.00006 (0.00005)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Fluoranthene	0.0003 (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Fluorene	0.0058 (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Naphthalene	0.0003 (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Phenanthrene	0.0029 (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402
Pyrene	0.0002 (0.0002)		8270C SIM		1	10/25/14 19:00	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	26 %	S-	30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	38 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	49 %		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-6
Date Sampled: 10/23/14 14:10
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-15
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	0.153 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.178 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-109
Date Sampled: 10/23/14 15:45
Percent Solids: N/A
Initial Volume: 1060
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-16
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	1.81 (0.19)		8100M		1	10/25/14 18:59	CXJ0357	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		76 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-109
Date Sampled: 10/23/14 15:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-16
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	0.140 (0.0100)		8260B		10	10/27/14 16:40	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	0.0050 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
4-Isopropyltoluene	0.0037 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Benzene	0.135 (0.0100)		8260B		10	10/27/14 16:40	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-109
Date Sampled: 10/23/14 15:45
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-16
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Carbon Disulfide	0.0015 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Ethylbenzene	0.0349 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Isopropylbenzene	0.0220 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Naphthalene	0.248 (0.0100)		8260B		10	10/27/14 16:40	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
n-Propylbenzene	0.0117 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
sec-Butylbenzene	0.0025 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-109
 Date Sampled: 10/23/14 15:45
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
 ESS Laboratory Sample ID: 1410603-16
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Toluene	0.0030 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Xylene O	0.0185 (0.0010)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Xylene P,M	0.0082 (0.0020)		8260B		1	10/24/14 22:08	CXJ0362	CJ42737
Xylenes (Total)	0.0266 (0.0020)		8260B		1	10/24/14 22:08		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 22:08		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	121 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	101 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	120 %		70-130
<i>Surrogate: Toluene-d8</i>	104 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-109
Date Sampled: 10/23/14 15:45
Percent Solids: N/A
Initial Volume: 1060
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-16
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/24/14 14:08

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	0.0105 (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Acenaphthene	0.0024 (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Acenaphthylene	0.0003 (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Anthracene	0.0003 (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Chrysene	ND (0.00005)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Fluoranthene	ND (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Fluorene	0.0015 (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Naphthalene	0.0727 (0.0019)		8270C SIM		10	10/29/14 18:14	CXJ0355	CJ42402
Phenanthrene	0.0015 (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402
Pyrene	0.0002 (0.0002)		8270C SIM		1	10/25/14 19:49	CXJ0355	CJ42402

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	34 %		30-130
Surrogate: 2-Fluorobiphenyl	40 %		30-130
Surrogate: Nitrobenzene-d5	55 %		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-109
Date Sampled: 10/23/14 15:45
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-16
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	0.213 (0.010)		9014		2	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.212 (0.0100)		9014		2	JLK	10/28/14 0:00	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-316D
Date Sampled: 10/23/14 13:00
Percent Solids: N/A
Initial Volume: 1060
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-17
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	10/25/14 19:37	CXJ0357	CJ42436
		<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-316D
Date Sampled: 10/23/14 13:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-17
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-316D
Date Sampled: 10/23/14 13:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-17
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Naphthalene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-316D
Date Sampled: 10/23/14 13:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-17
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 20:02	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 20:02		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 20:02		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>125 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>98 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>122 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>104 %</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: 10/23/14 13:00
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-17
Sample Matrix: Ground Water
Units: mg/L
Analyst: IBM
Prepared: 10/27/14 14:36

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	10/29/14 5:01	CXJ0405	CJ42711
Acenaphthene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Anthracene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Chrysene	ND (0.00005)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Fluoranthene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Fluorene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Naphthalene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Phenanthrene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711
Pyrene	ND (0.0002)		8270C SIM		1	10/29/14 5:01	CXJ0405	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	49 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	60 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	70 %		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-316D
Date Sampled: 10/23/14 13:00
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-17
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	ND (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0110 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310S
Date Sampled: 10/23/14 10:13
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-18
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	10/25/14 20:16	CXJ0357	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		75 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310S
Date Sampled: 10/23/14 10:13
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-18
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
1-Chlorohexane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
2-Butanone	ND (0.0100)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
2-Chlorotoluene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
2-Hexanone	ND (0.0100)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
4-Chlorotoluene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Acetone	ND (0.0100)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Benzene	0.0020 (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Bromobenzene	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310S
Date Sampled: 10/23/14 10:13
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-18
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Bromodichloromethane	ND (0.0006)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Bromoform	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Bromomethane	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Carbon Disulfide	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Chlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Chloroethane	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Chloroform	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Chloromethane	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Dibromochloromethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Dibromomethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Diethyl Ether	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Di-isopropyl ether	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Ethylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Hexachloroethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Isopropylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Methylene Chloride	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Naphthalene	0.0013 (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
n-Butylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
n-Propylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
sec-Butylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Styrene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
tert-Butylbenzene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Tetrachloroethene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310S
Date Sampled: 10/23/14 10:13
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-18
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Toluene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Trichloroethene	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Vinyl Acetate	ND (0.0050)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Vinyl Chloride	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Xylene O	ND (0.0010)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Xylene P,M	ND (0.0020)		8260B		1	10/28/14 15:54	CXJ0403	CJ42842
Xylenes (Total)	ND (0.0020)		8260B		1	10/28/14 15:54		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/28/14 15:54		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>116 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>100 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>114 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310S
Date Sampled: 10/23/14 10:13
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-18
Sample Matrix: Ground Water
Units: mg/L
Analyst: IBM
Prepared: 10/27/14 14:36

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	10/29/14 5:51	CXJ0405	CJ42711
Acenaphthene	0.0021 (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Acenaphthylene	0.0003 (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Anthracene	ND (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Chrysene	ND (0.00005)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Fluoranthene	ND (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Fluorene	0.0006 (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Naphthalene	0.0002 (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Phenanthrene	ND (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711
Pyrene	ND (0.0002)		8270C SIM		1	10/29/14 5:51	CXJ0405	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	38 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	50 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	58 %		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-310S
Date Sampled: 10/23/14 10:13
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-18
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	0.069 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.0685 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310D
Date Sampled: 10/23/14 10:24
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-19
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	11.6 (0.19)		8100M		1	10/25/14 20:55	CXJ0357	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		77 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310D
Date Sampled: 10/23/14 10:24
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-19
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,1,1-Trichloroethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,1,2,2-Tetrachloroethane	ND (0.0500)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,1,2-Trichloroethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,1-Dichloroethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,1-Dichloroethene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,1-Dichloropropene	ND (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2,3-Trichlorobenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2,3-Trichloropropane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2,4-Trichlorobenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2,4-Trimethylbenzene	0.652 (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2-Dibromo-3-Chloropropane	ND (0.500)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2-Dibromoethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2-Dichlorobenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2-Dichloroethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,2-Dichloropropane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,3,5-Trimethylbenzene	0.162 (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,3-Dichlorobenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,3-Dichloropropane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,4-Dichlorobenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1,4-Dioxane - Screen	ND (50.0)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
1-Chlorohexane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
2,2-Dichloropropane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
2-Butanone	ND (1.00)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
2-Chlorotoluene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
2-Hexanone	ND (1.00)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
4-Chlorotoluene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
4-Isopropyltoluene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
4-Methyl-2-Pentanone	ND (2.50)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Acetone	ND (1.00)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Benzene	0.652 (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Bromobenzene	ND (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310D
Date Sampled: 10/23/14 10:24
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-19
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Bromodichloromethane	ND (0.0600)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Bromoform	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Bromomethane	ND (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Carbon Disulfide	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Carbon Tetrachloride	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Chlorobenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Chloroethane	ND (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Chloroform	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Chloromethane	ND (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
cis-1,2-Dichloroethene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
cis-1,3-Dichloropropene	ND (0.0400)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Dibromochloromethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Dibromomethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Dichlorodifluoromethane	ND (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Diethyl Ether	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Di-isopropyl ether	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Ethyl tertiary-butyl ether	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Ethylbenzene	0.918 (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Hexachlorobutadiene	ND (0.0600)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Hexachloroethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Isopropylbenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Methyl tert-Butyl Ether	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Methylene Chloride	ND (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Naphthalene	8.96 (0.500)		8260B		500	10/29/14 18:29	CXJ0403	CJ42842
n-Butylbenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
n-Propylbenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
sec-Butylbenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Styrene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
tert-Butylbenzene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Tertiary-amyl methyl ether	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Tetrachloroethene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310D
Date Sampled: 10/23/14 10:24
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-19
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.500)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Toluene	0.173 (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
trans-1,2-Dichloroethene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
trans-1,3-Dichloropropene	ND (0.0400)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Trichloroethene	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Trichlorofluoromethane	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Vinyl Acetate	ND (0.500)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Vinyl Chloride	ND (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Xylene O	0.646 (0.100)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Xylene P,M	0.659 (0.200)		8260B		100	10/28/14 18:25	CXJ0403	CJ42842
Xylenes (Total)	1.30 (0.200)		8260B		100	10/28/14 18:25		[CALC]
Trihalomethanes (Total)	ND (0.100)		8260B			10/28/14 18:25		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>119 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>102 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>116 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>106 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310D
Date Sampled: 10/23/14 10:24
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-19
Sample Matrix: Ground Water
Units: mg/L
Analyst: IBM
Prepared: 10/27/14 14:36

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	0.319 (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Acenaphthene	0.115 (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Acenaphthylene	0.0436 (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Anthracene	ND (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Benzo(a)anthracene	ND (0.0023)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Benzo(a)pyrene	ND (0.0023)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Benzo(b)fluoranthene	ND (0.0023)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Benzo(g,h,i)perylene	ND (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Benzo(k)fluoranthene	ND (0.0023)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Chrysene	ND (0.0023)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Dibenzo(a,h)Anthracene	ND (0.0023)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Fluoranthene	ND (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Fluorene	0.0354 (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.0023)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Naphthalene	4.87 (0.0935)		8270C SIM		500	10/30/14 15:45	CXJ0427	CJ42711
Phenanthrene	0.0205 (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711
Pyrene	ND (0.0093)		8270C SIM		50	10/30/14 14:55	CXJ0427	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	59 %		30-130
Surrogate: 2-Fluorobiphenyl	80 %		30-130
Surrogate: Nitrobenzene-d5	66 %		30-130
Surrogate: p-Terphenyl-d14	73 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-310D
Date Sampled: 10/23/14 10:24
Percent Solids: N/A

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-19
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	0.136 (0.005)		9014		1	EEM	10/29/14 12:10	mg/L	CJ42911
Total Cyanide (LL)	0.135 (0.00500)		9014		1	JLK	10/28/14 10:20	mg/L	CJ42801



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank
Date Sampled: 10/22/14 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-20
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
1-Chlorohexane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
2-Butanone	ND (0.0100)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
2-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
2-Hexanone	ND (0.0100)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
4-Chlorotoluene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Acetone	ND (0.0100)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Benzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Bromobenzene	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank
Date Sampled: 10/22/14 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-20
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Bromodichloromethane	ND (0.0006)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Bromoform	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Bromomethane	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Carbon Disulfide	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Chlorobenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Chloroethane	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Chloroform	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Chloromethane	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Dibromochloromethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Dibromomethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Diethyl Ether	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Di-isopropyl ether	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Ethylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Hexachloroethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Isopropylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Methylene Chloride	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Naphthalene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
n-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
n-Propylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
sec-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Styrene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
tert-Butylbenzene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Tetrachloroethene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: Trip Blank
Date Sampled: 10/22/14 00:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410603
ESS Laboratory Sample ID: 1410603-20
Sample Matrix: Aqueous
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Toluene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Trichloroethene	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Vinyl Acetate	ND (0.0050)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Vinyl Chloride	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Xylene O	ND (0.0010)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Xylene P,M	ND (0.0020)		8260B		1	10/24/14 15:25	CXJ0362	CJ42737
Xylenes (Total)	ND (0.0020)		8260B		1	10/24/14 15:25		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/24/14 15:25		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>122 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>122 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42401 - 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>0.0789</i>		mg/L	<i>0.1000</i>		<i>79</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)	0.040	0.005	mg/L	0.05000		80	40-140			
Dodecane (C12)	0.036	0.005	mg/L	0.05000		73	40-140			
Eicosane (C20)	0.040	0.005	mg/L	0.05000		79	40-140			
Hexacosane (C26)	0.040	0.005	mg/L	0.05000		80	40-140			
Hexadecane (C16)	0.037	0.005	mg/L	0.05000		75	40-140			
Nonadecane (C19)	0.038	0.005	mg/L	0.05000		75	40-140			
Nonane (C9)	0.026	0.005	mg/L	0.05000		52	30-140			
Octacosane (C28)	0.039	0.005	mg/L	0.05000		78	40-140			
Octadecane (C18)	0.039	0.005	mg/L	0.05000		79	40-140			
Tetracosane (C24)	0.039	0.005	mg/L	0.05000		78	40-140			
Tetradecane (C14)	0.037	0.005	mg/L	0.05000		75	40-140			
Total Petroleum Hydrocarbons	0.492	0.20	mg/L	0.7000		70	40-140			
Triacotane (C30)	0.039	0.005	mg/L	0.05000		78	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.0664</i>		mg/L	<i>0.1000</i>		<i>66</i>	<i>40-140</i>			
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LCS

Decane (C10)	0.004	0.005	mg/L	0.01000		43	40-140			
Docosane (C22)	0.008	0.005	mg/L	0.01000		79	40-140			
Dodecane (C12)	0.004	0.005	mg/L	0.01000		44	40-140			
Eicosane (C20)	0.008	0.005	mg/L	0.01000		76	40-140			
Hexacosane (C26)	0.008	0.005	mg/L	0.01000		80	40-140			
Hexadecane (C16)	0.006	0.005	mg/L	0.01000		65	40-140			
Nonadecane (C19)	0.008	0.005	mg/L	0.01000		77	40-140			
Nonane (C9)	0.004	0.005	mg/L	0.01000		35	30-140			
Octacosane (C28)	0.008	0.005	mg/L	0.01000		78	40-140			
Octadecane (C18)	0.007	0.005	mg/L	0.01000		75	40-140			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42401 - 3510C

Tetracosane (C24)	0.008	0.005	mg/L	0.01000		78	40-140			
Tetradecane (C14)	0.005	0.005	mg/L	0.01000		55	40-140			
Total Petroleum Hydrocarbons	0.095	0.20	mg/L	0.1400		68	40-140			
Triacontane (C30)	0.008	0.005	mg/L	0.01000		79	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.0637</i>		mg/L	<i>0.1000</i>		<i>64</i>	<i>40-140</i>			
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LCS Dup

Decane (C10)	0.032	0.005	mg/L	0.05000		65	40-140	2	25	
Docosane (C22)	0.045	0.005	mg/L	0.05000		90	40-140	11	25	
Dodecane (C12)	0.039	0.005	mg/L	0.05000		77	40-140	6	25	
Eicosane (C20)	0.044	0.005	mg/L	0.05000		89	40-140	11	25	
Hexacosane (C26)	0.045	0.005	mg/L	0.05000		89	40-140	11	25	
Hexadecane (C16)	0.041	0.005	mg/L	0.05000		82	40-140	10	25	
Nonadecane (C19)	0.042	0.005	mg/L	0.05000		83	40-140	11	25	
Nonane (C9)	0.026	0.005	mg/L	0.05000		53	30-140	2	25	
Octacosane (C28)	0.043	0.005	mg/L	0.05000		87	40-140	11	25	
Octadecane (C18)	0.043	0.005	mg/L	0.05000		87	40-140	9	25	
Tetracosane (C24)	0.043	0.005	mg/L	0.05000		86	40-140	11	25	
Tetradecane (C14)	0.040	0.005	mg/L	0.05000		80	40-140	7	25	
Total Petroleum Hydrocarbons	0.539	0.20	mg/L	0.7000		77	40-140	9	25	
Triacontane (C30)	0.043	0.005	mg/L	0.05000		87	40-140	11	25	

<i>Surrogate: O-Terphenyl</i>	<i>0.0726</i>		mg/L	<i>0.1000</i>		<i>73</i>	<i>40-140</i>			
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Batch CJ42436 - 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>0.0757</i>		mg/L	<i>0.1000</i>		<i>76</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)	0.045	0.005	mg/L	0.05000		91	40-140			
Dodecane (C12)	0.039	0.005	mg/L	0.05000		78	40-140			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42436 - 3510C

Eicosane (C20)	0.044	0.005	mg/L	0.05000		88	40-140			
Hexacosane (C26)	0.046	0.005	mg/L	0.05000		91	40-140			
Hexadecane (C16)	0.041	0.005	mg/L	0.05000		82	40-140			
Nonadecane (C19)	0.041	0.005	mg/L	0.05000		82	40-140			
Nonane (C9)	0.029	0.005	mg/L	0.05000		59	30-140			
Octacosane (C28)	0.044	0.005	mg/L	0.05000		89	40-140			
Octadecane (C18)	0.043	0.005	mg/L	0.05000		86	40-140			
Tetracosane (C24)	0.046	0.005	mg/L	0.05000		92	40-140			
Tetradecane (C14)	0.041	0.005	mg/L	0.05000		81	40-140			
Total Petroleum Hydrocarbons	0.571	0.20	mg/L	0.7000		82	40-140			
Triacontane (C30)	0.044	0.005	mg/L	0.05000		89	40-140			

Surrogate: O-Terphenyl

0.0718 mg/L 0.1000 72 40-140

LCS Dup

Decane (C10)	0.027	0.005	mg/L	0.05000		54	40-140	26	25	D+
Docosane (C22)	0.038	0.005	mg/L	0.05000		75	40-140	18	25	
Dodecane (C12)	0.032	0.005	mg/L	0.05000		63	40-140	21	25	
Eicosane (C20)	0.037	0.005	mg/L	0.05000		74	40-140	16	25	
Hexacosane (C26)	0.037	0.005	mg/L	0.05000		75	40-140	20	25	
Hexadecane (C16)	0.034	0.005	mg/L	0.05000		68	40-140	19	25	
Nonadecane (C19)	0.034	0.005	mg/L	0.05000		68	40-140	19	25	
Nonane (C9)	0.023	0.005	mg/L	0.05000		45	30-140	26	25	D+
Octacosane (C28)	0.037	0.005	mg/L	0.05000		73	40-140	19	25	
Octadecane (C18)	0.035	0.005	mg/L	0.05000		71	40-140	19	25	
Tetracosane (C24)	0.036	0.005	mg/L	0.05000		73	40-140	23	25	
Tetradecane (C14)	0.032	0.005	mg/L	0.05000		63	40-140	25	25	
Total Petroleum Hydrocarbons	0.453	0.20	mg/L	0.7000		65	40-140	23	25	
Triacontane (C30)	0.037	0.005	mg/L	0.05000		74	40-140	19	25	

Surrogate: O-Terphenyl

0.0580 mg/L 0.1000 58 40-140

8260B Volatile Organic Compounds

Batch CJ42737 - 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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42737 - 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

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

ESS Laboratory Work Order: 1410603

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 CJ42737 - 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	0.0323		mg/L	0.02500		129	70-130			
Surrogate: 4-Bromofluorobenzene	0.0235		mg/L	0.02500		94	70-130			
Surrogate: Dibromofluoromethane	0.0306		mg/L	0.02500		122	70-130			
Surrogate: Toluene-d8	0.0251		mg/L	0.02500		100	70-130			

LCS

1,1,1,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130			
1,1,1-Trichloroethane	12.6		ug/L	10.00		126	70-130			
1,1,2,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130			
1,1,2-Trichloroethane	11.0		ug/L	10.00		110	70-130			
1,1-Dichloroethane	10.6		ug/L	10.00		106	70-130			
1,1-Dichloroethene	10.7		ug/L	10.00		107	70-130			
1,1-Dichloropropene	10.7		ug/L	10.00		107	70-130			
1,2,3-Trichlorobenzene	9.18		ug/L	10.00		92	70-130			
1,2,3-Trichloropropane	10.2		ug/L	10.00		102	70-130			
1,2,4-Trichlorobenzene	8.86		ug/L	10.00		89	70-130			
1,2,4-Trimethylbenzene	9.89		ug/L	10.00		99	70-130			
1,2-Dibromo-3-Chloropropane	10.8		ug/L	10.00		108	70-130			
1,2-Dibromoethane	9.72		ug/L	10.00		97	70-130			
1,2-Dichlorobenzene	9.74		ug/L	10.00		97	70-130			
1,2-Dichloroethane	11.3		ug/L	10.00		113	70-130			
1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,3,5-Trimethylbenzene	10.5		ug/L	10.00		105	70-130			
1,3-Dichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,3-Dichloropropane	10.8		ug/L	10.00		108	70-130			
1,4-Dichlorobenzene	9.80		ug/L	10.00		98	70-130			
1,4-Dioxane - Screen	231		ug/L	200.0		115	0-332			
1-Chlorohexane	9.22		ug/L	10.00		92	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42737 - 5030B

2,2-Dichloropropane	14.0		ug/L	10.00		140	70-130			B+
2-Butanone	56.1		ug/L	50.00		112	70-130			
2-Chlorotoluene	9.64		ug/L	10.00		96	70-130			
2-Hexanone	53.6		ug/L	50.00		107	70-130			
4-Chlorotoluene	9.81		ug/L	10.00		98	70-130			
4-Isopropyltoluene	9.80		ug/L	10.00		98	70-130			
4-Methyl-2-Pentanone	55.7		ug/L	50.00		111	70-130			
Acetone	67.0		ug/L	50.00		134	70-130			B+
Benzene	10.9		ug/L	10.00		109	70-130			
Bromobenzene	10.1		ug/L	10.00		101	70-130			
Bromochloromethane	11.4		ug/L	10.00		114	70-130			
Bromodichloromethane	10.6		ug/L	10.00		106	70-130			
Bromoform	10.5		ug/L	10.00		105	70-130			
Bromomethane	8.62		ug/L	10.00		86	70-130			
Carbon Disulfide	10.4		ug/L	10.00		104	70-130			
Carbon Tetrachloride	11.8		ug/L	10.00		118	70-130			
Chlorobenzene	10.0		ug/L	10.00		100	70-130			
Chloroethane	8.83		ug/L	10.00		88	70-130			
Chloroform	10.9		ug/L	10.00		109	70-130			
Chloromethane	10.7		ug/L	10.00		107	70-130			
cis-1,2-Dichloroethene	11.0		ug/L	10.00		110	70-130			
cis-1,3-Dichloropropene	9.86		ug/L	10.00		99	70-130			
Dibromochloromethane	9.98		ug/L	10.00		100	70-130			
Dibromomethane	10.8		ug/L	10.00		108	70-130			
Dichlorodifluoromethane	11.3		ug/L	10.00		113	70-130			
Diethyl Ether	10.7		ug/L	10.00		107	70-130			
Di-isopropyl ether	10.2		ug/L	10.00		102	70-130			
Ethyl tertiary-butyl ether	10.6		ug/L	10.00		106	70-130			
Ethylbenzene	10.3		ug/L	10.00		103	70-130			
Hexachlorobutadiene	10.4		ug/L	10.00		104	70-130			
Hexachloroethane	12.7		ug/L	10.00		127	70-130			
Isopropylbenzene	9.45		ug/L	10.00		94	70-130			
Methyl tert-Butyl Ether	11.2		ug/L	10.00		112	70-130			
Methylene Chloride	11.4		ug/L	10.00		114	70-130			
Naphthalene	9.06		ug/L	10.00		91	70-130			
n-Butylbenzene	9.16		ug/L	10.00		92	70-130			
n-Propylbenzene	9.45		ug/L	10.00		94	70-130			
sec-Butylbenzene	9.91		ug/L	10.00		99	70-130			
Styrene	8.64		ug/L	10.00		86	70-130			
tert-Butylbenzene	9.70		ug/L	10.00		97	70-130			
Tertiary-amyl methyl ether	10.6		ug/L	10.00		106	70-130			
Tetrachloroethene	9.64		ug/L	10.00		96	70-130			
Tetrahydrofuran	11.5		ug/L	10.00		115	70-130			
Toluene	11.4		ug/L	10.00		114	70-130			
trans-1,2-Dichloroethene	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: 1410603

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 CJ42737 - 5030B

trans-1,3-Dichloropropene	9.99		ug/L	10.00		100	70-130			
Trichloroethene	10.6		ug/L	10.00		106	70-130			
Trichlorofluoromethane	10.6		ug/L	10.00		106	70-130			
Vinyl Acetate	11.7		ug/L	10.00		117	70-130			
Vinyl Chloride	11.5		ug/L	10.00		115	70-130			
Xylene O	10.6		ug/L	10.00		106	70-130			
Xylene P,M	20.9		ug/L	20.00		104	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0205		mg/L	0.02500		82	70-130			
Surrogate: 4-Bromofluorobenzene	0.0172		mg/L	0.02500		69	70-130			S-
Surrogate: Dibromofluoromethane	0.0206		mg/L	0.02500		83	70-130			
Surrogate: Toluene-d8	0.0172		mg/L	0.02500		69	70-130			S-

LCS Dup

1,1,1,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130	0.6	25	
1,1,1-Trichloroethane	12.5		ug/L	10.00		125	70-130	0.3	25	
1,1,2,2-Tetrachloroethane	10.4		ug/L	10.00		104	70-130	2	25	
1,1,2-Trichloroethane	11.2		ug/L	10.00		112	70-130	2	25	
1,1-Dichloroethane	10.8		ug/L	10.00		108	70-130	2	25	
1,1-Dichloroethene	10.7		ug/L	10.00		107	70-130	0.4	25	
1,1-Dichloropropene	10.8		ug/L	10.00		108	70-130	1	25	
1,2,3-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	9	25	
1,2,3-Trichloropropane	10.4		ug/L	10.00		104	70-130	2	25	
1,2,4-Trichlorobenzene	9.67		ug/L	10.00		97	70-130	9	25	
1,2,4-Trimethylbenzene	10.5		ug/L	10.00		105	70-130	6	25	
1,2-Dibromo-3-Chloropropane	10.9		ug/L	10.00		109	70-130	1	25	
1,2-Dibromoethane	9.77		ug/L	10.00		98	70-130	0.5	25	
1,2-Dichlorobenzene	10.2		ug/L	10.00		102	70-130	4	25	
1,2-Dichloroethane	11.3		ug/L	10.00		113	70-130	0.3	25	
1,2-Dichloropropane	10.4		ug/L	10.00		104	70-130	1	25	
1,3,5-Trimethylbenzene	11.0		ug/L	10.00		110	70-130	4	25	
1,3-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	1	25	
1,3-Dichloropropane	10.9		ug/L	10.00		109	70-130	1	25	
1,4-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	6	25	
1,4-Dioxane - Screen	229		ug/L	200.0		114	0-332	0.8	200	
1-Chlorohexane	9.29		ug/L	10.00		93	70-130	0.8	25	
2,2-Dichloropropane	14.2		ug/L	10.00		142	70-130	2	25	
2-Butanone	53.9		ug/L	50.00		108	70-130	4	25	
2-Chlorotoluene	9.95		ug/L	10.00		100	70-130	3	25	
2-Hexanone	54.9		ug/L	50.00		110	70-130	2	25	
4-Chlorotoluene	10.3		ug/L	10.00		103	70-130	4	25	
4-Isopropyltoluene	10.6		ug/L	10.00		106	70-130	8	25	
4-Methyl-2-Pentanone	54.7		ug/L	50.00		109	70-130	2	25	
Acetone	57.5		ug/L	50.00		115	70-130	15	25	
Benzene	11.0		ug/L	10.00		110	70-130	1	25	
Bromobenzene	10.4		ug/L	10.00		104	70-130	3	25	
Bromochloromethane	11.6		ug/L	10.00		116	70-130	2	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42737 - 5030B

Bromodichloromethane	10.5		ug/L	10.00		105	70-130	0.5	25	
Bromoform	10.5		ug/L	10.00		105	70-130	0.6	25	
Bromomethane	8.87		ug/L	10.00		89	70-130	3	25	
Carbon Disulfide	10.6		ug/L	10.00		106	70-130	2	25	
Carbon Tetrachloride	12.0		ug/L	10.00		120	70-130	0.9	25	
Chlorobenzene	10.4		ug/L	10.00		104	70-130	3	25	
Chloroethane	7.80		ug/L	10.00		78	70-130	12	25	
Chloroform	10.9		ug/L	10.00		109	70-130	0.09	25	
Chloromethane	10.6		ug/L	10.00		106	70-130	0.4	25	
cis-1,2-Dichloroethene	11.1		ug/L	10.00		111	70-130	1	25	
cis-1,3-Dichloropropene	10.0		ug/L	10.00		100	70-130	1	25	
Dibromochloromethane	10.0		ug/L	10.00		100	70-130	0.6	25	
Dibromomethane	10.8		ug/L	10.00		108	70-130	0.5	25	
Dichlorodifluoromethane	11.1		ug/L	10.00		111	70-130	2	25	
Diethyl Ether	11.0		ug/L	10.00		110	70-130	2	25	
Di-isopropyl ether	10.4		ug/L	10.00		104	70-130	2	25	
Ethyl tertiary-butyl ether	10.6		ug/L	10.00		106	70-130	0.5	25	
Ethylbenzene	10.6		ug/L	10.00		106	70-130	2	25	
Hexachlorobutadiene	11.0		ug/L	10.00		110	70-130	5	25	
Hexachloroethane	13.1		ug/L	10.00		131	70-130	3	25	B+
Isopropylbenzene	9.82		ug/L	10.00		98	70-130	4	25	
Methyl tert-Butyl Ether	11.2		ug/L	10.00		112	70-130	0.09	25	
Methylene Chloride	11.4		ug/L	10.00		114	70-130	0.9	25	
Naphthalene	9.96		ug/L	10.00		100	70-130	9	25	
n-Butylbenzene	10.6		ug/L	10.00		106	70-130	14	25	
n-Propylbenzene	9.91		ug/L	10.00		99	70-130	5	25	
sec-Butylbenzene	10.4		ug/L	10.00		104	70-130	5	25	
Styrene	8.86		ug/L	10.00		89	70-130	3	25	
tert-Butylbenzene	10.0		ug/L	10.00		100	70-130	4	25	
Tertiary-amyl methyl ether	10.6		ug/L	10.00		106	70-130	0.7	25	
Tetrachloroethene	9.93		ug/L	10.00		99	70-130	3	25	
Tetrahydrofuran	11.8		ug/L	10.00		118	70-130	2	25	
Toluene	11.6		ug/L	10.00		116	70-130	1	25	
trans-1,2-Dichloroethene	10.7		ug/L	10.00		107	70-130	1	25	
trans-1,3-Dichloropropene	10.2		ug/L	10.00		102	70-130	2	25	
Trichloroethene	10.8		ug/L	10.00		108	70-130	2	25	
Trichlorofluoromethane	10.8		ug/L	10.00		108	70-130	1	25	
Vinyl Acetate	11.7		ug/L	10.00		117	70-130	0	25	
Vinyl Chloride	11.7		ug/L	10.00		117	70-130	1	25	
Xylene O	10.7		ug/L	10.00		107	70-130	2	25	
Xylene P,M	21.4		ug/L	20.00		107	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0253		mg/L	0.02500		101	70-130			
Surrogate: 4-Bromofluorobenzene	0.0209		mg/L	0.02500		84	70-130			
Surrogate: Dibromofluoromethane	0.0252		mg/L	0.02500		101	70-130			
Surrogate: Toluene-d8	0.0217		mg/L	0.02500		87	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42810 - 5030B

Blank

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



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42810 - 5030B

Dibromochloromethane	ND	0.0010	mg/L							
Dibromomethane	ND	0.0010	mg/L							
Dichlorodifluoromethane	ND	0.0020	mg/L							
Diethyl Ether	ND	0.0010	mg/L							
Di-isopropyl ether	ND	0.0010	mg/L							
Ethyl tertiary-butyl ether	ND	0.0010	mg/L							
Ethylbenzene	ND	0.0010	mg/L							
Hexachlorobutadiene	ND	0.0006	mg/L							
Hexachloroethane	ND	0.0010	mg/L							
Isopropylbenzene	ND	0.0010	mg/L							
Methyl tert-Butyl Ether	ND	0.0010	mg/L							
Methylene Chloride	ND	0.0020	mg/L							
Naphthalene	ND	0.0010	mg/L							
n-Butylbenzene	ND	0.0010	mg/L							
n-Propylbenzene	ND	0.0010	mg/L							
sec-Butylbenzene	ND	0.0010	mg/L							
Styrene	ND	0.0010	mg/L							
tert-Butylbenzene	ND	0.0010	mg/L							
Tertiary-amyl methyl ether	ND	0.0010	mg/L							
Tetrachloroethene	ND	0.0010	mg/L							
Tetrahydrofuran	ND	0.0050	mg/L							
Toluene	ND	0.0010	mg/L							
trans-1,2-Dichloroethene	ND	0.0010	mg/L							
trans-1,3-Dichloropropene	ND	0.0004	mg/L							
Trichloroethene	ND	0.0010	mg/L							
Trichlorofluoromethane	ND	0.0010	mg/L							
Vinyl Acetate	ND	0.0050	mg/L							
Vinyl Chloride	ND	0.0010	mg/L							
Xylene O	ND	0.0010	mg/L							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0303		mg/L	0.02500		121	70-130			
Surrogate: 4-Bromofluorobenzene	0.0237		mg/L	0.02500		95	70-130			
Surrogate: Dibromofluoromethane	0.0294		mg/L	0.02500		118	70-130			
Surrogate: Toluene-d8	0.0254		mg/L	0.02500		102	70-130			

LCS

1,1,1,2-Tetrachloroethane	10.7		ug/L	10.00		107	70-130			
1,1,1-Trichloroethane	12.2		ug/L	10.00		122	70-130			
1,1,2,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130			
1,1,2-Trichloroethane	10.8		ug/L	10.00		108	70-130			
1,1-Dichloroethane	10.6		ug/L	10.00		106	70-130			
1,1-Dichloroethene	10.5		ug/L	10.00		105	70-130			
1,1-Dichloropropene	10.7		ug/L	10.00		107	70-130			
1,2,3-Trichlorobenzene	10.1		ug/L	10.00		101	70-130			
1,2,3-Trichloropropane	10.2		ug/L	10.00		102	70-130			
1,2,4-Trichlorobenzene	9.73		ug/L	10.00		97	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42810 - 5030B

1,2,4-Trimethylbenzene	10.5		ug/L	10.00		105	70-130			
1,2-Dibromo-3-Chloropropane	11.1		ug/L	10.00		111	70-130			
1,2-Dibromoethane	9.97		ug/L	10.00		100	70-130			
1,2-Dichlorobenzene	10.3		ug/L	10.00		103	70-130			
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130			
1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,3,5-Trimethylbenzene	11.1		ug/L	10.00		111	70-130			
1,3-Dichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,3-Dichloropropane	11.0		ug/L	10.00		110	70-130			
1,4-Dichlorobenzene	10.6		ug/L	10.00		106	70-130			
1,4-Dioxane - Screen	223		ug/L	200.0		111	0-332			
1-Chlorohexane	9.50		ug/L	10.00		95	70-130			
2,2-Dichloropropane	13.8		ug/L	10.00		138	70-130			B+
2-Butanone	51.4		ug/L	50.00		103	70-130			
2-Chlorotoluene	9.95		ug/L	10.00		100	70-130			
2-Hexanone	53.1		ug/L	50.00		106	70-130			
4-Chlorotoluene	9.98		ug/L	10.00		100	70-130			
4-Isopropyltoluene	10.5		ug/L	10.00		105	70-130			
4-Methyl-2-Pentanone	52.3		ug/L	50.00		105	70-130			
Acetone	54.0		ug/L	50.00		108	70-130			
Benzene	10.9		ug/L	10.00		109	70-130			
Bromobenzene	10.7		ug/L	10.00		107	70-130			
Bromochloromethane	11.2		ug/L	10.00		112	70-130			
Bromodichloromethane	10.4		ug/L	10.00		104	70-130			
Bromoform	10.7		ug/L	10.00		107	70-130			
Bromomethane	10.1		ug/L	10.00		101	70-130			
Carbon Disulfide	10.1		ug/L	10.00		101	70-130			
Carbon Tetrachloride	11.6		ug/L	10.00		116	70-130			
Chlorobenzene	10.4		ug/L	10.00		104	70-130			
Chloroethane	7.75		ug/L	10.00		78	70-130			
Chloroform	10.6		ug/L	10.00		106	70-130			
Chloromethane	10.9		ug/L	10.00		109	70-130			
cis-1,2-Dichloroethene	11.0		ug/L	10.00		110	70-130			
cis-1,3-Dichloropropene	9.72		ug/L	10.00		97	70-130			
Dibromochloromethane	10.1		ug/L	10.00		101	70-130			
Dibromomethane	10.7		ug/L	10.00		107	70-130			
Dichlorodifluoromethane	10.5		ug/L	10.00		105	70-130			
Diethyl Ether	10.8		ug/L	10.00		108	70-130			
Di-isopropyl ether	10.2		ug/L	10.00		102	70-130			
Ethyl tertiary-butyl ether	10.6		ug/L	10.00		106	70-130			
Ethylbenzene	10.7		ug/L	10.00		107	70-130			
Hexachlorobutadiene	11.0		ug/L	10.00		110	70-130			
Hexachloroethane	13.3		ug/L	10.00		133	70-130			B+
Isopropylbenzene	10.0		ug/L	10.00		100	70-130			
Methyl tert-Butyl Ether	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: 1410603

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 CJ42810 - 5030B

Methylene Chloride	11.1		ug/L	10.00		111	70-130			
Naphthalene	10.4		ug/L	10.00		104	70-130			
n-Butylbenzene	9.95		ug/L	10.00		100	70-130			
n-Propylbenzene	9.92		ug/L	10.00		99	70-130			
sec-Butylbenzene	10.4		ug/L	10.00		104	70-130			
Styrene	9.64		ug/L	10.00		96	70-130			
tert-Butylbenzene	10.2		ug/L	10.00		102	70-130			
Tertiary-amyl methyl ether	10.5		ug/L	10.00		105	70-130			
Tetrachloroethene	10.1		ug/L	10.00		101	70-130			
Tetrahydrofuran	10.4		ug/L	10.00		104	70-130			
Toluene	11.4		ug/L	10.00		114	70-130			
trans-1,2-Dichloroethene	10.5		ug/L	10.00		105	70-130			
trans-1,3-Dichloropropene	9.97		ug/L	10.00		100	70-130			
Trichloroethene	10.8		ug/L	10.00		108	70-130			
Trichlorofluoromethane	10.4		ug/L	10.00		104	70-130			
Vinyl Acetate	11.7		ug/L	10.00		117	70-130			
Vinyl Chloride	11.5		ug/L	10.00		115	70-130			
Xylene O	11.0		ug/L	10.00		110	70-130			
Xylene P,M	21.9		ug/L	20.00		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0201		mg/L	0.02500		80	70-130			
Surrogate: 4-Bromofluorobenzene	0.0183		mg/L	0.02500		73	70-130			
Surrogate: Dibromofluoromethane	0.0205		mg/L	0.02500		82	70-130			
Surrogate: Toluene-d8	0.0190		mg/L	0.02500		76	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	10.6		ug/L	10.00		106	70-130	1	25	
1,1,1-Trichloroethane	12.4		ug/L	10.00		124	70-130	1	25	
1,1,2,2-Tetrachloroethane	10.3		ug/L	10.00		103	70-130	1	25	
1,1,2-Trichloroethane	10.8		ug/L	10.00		108	70-130	0.4	25	
1,1-Dichloroethane	10.6		ug/L	10.00		106	70-130	0.09	25	
1,1-Dichloroethene	10.8		ug/L	10.00		108	70-130	3	25	
1,1-Dichloropropene	10.8		ug/L	10.00		108	70-130	0.6	25	
1,2,3-Trichlorobenzene	10.0		ug/L	10.00		100	70-130	0.8	25	
1,2,3-Trichloropropane	10.6		ug/L	10.00		106	70-130	4	25	
1,2,4-Trichlorobenzene	9.78		ug/L	10.00		98	70-130	0.5	25	
1,2,4-Trimethylbenzene	10.5		ug/L	10.00		105	70-130	0.4	25	
1,2-Dibromo-3-Chloropropane	10.8		ug/L	10.00		108	70-130	3	25	
1,2-Dibromoethane	10.1		ug/L	10.00		101	70-130	1	25	
1,2-Dichlorobenzene	10.2		ug/L	10.00		102	70-130	1	25	
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130	0	25	
1,2-Dichloropropane	10.3		ug/L	10.00		103	70-130	1	25	
1,3,5-Trimethylbenzene	11.1		ug/L	10.00		111	70-130	0.2	25	
1,3-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	0.1	25	
1,3-Dichloropropane	10.8		ug/L	10.00		108	70-130	1	25	
1,4-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	2	25	
1,4-Dioxane - Screen	239		ug/L	200.0		120	0-332	7	200	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42810 - 5030B

1-Chlorohexane	9.39		ug/L	10.00		94	70-130	1	25	
2,2-Dichloropropane	14.3		ug/L	10.00		143	70-130	4	25	B+
2-Butanone	60.6		ug/L	50.00		121	70-130	16	25	
2-Chlorotoluene	9.91		ug/L	10.00		99	70-130	0.4	25	
2-Hexanone	60.4		ug/L	50.00		121	70-130	13	25	
4-Chlorotoluene	10.3		ug/L	10.00		103	70-130	3	25	
4-Isopropyltoluene	10.6		ug/L	10.00		106	70-130	0.3	25	
4-Methyl-2-Pentanone	55.8		ug/L	50.00		112	70-130	6	25	
Acetone	84.2		ug/L	50.00		168	70-130	44	25	B+
Benzene	10.8		ug/L	10.00		108	70-130	1	25	
Bromobenzene	10.6		ug/L	10.00		106	70-130	0.7	25	
Bromochloromethane	11.3		ug/L	10.00		113	70-130	0.4	25	
Bromodichloromethane	10.4		ug/L	10.00		104	70-130	0.5	25	
Bromoform	10.7		ug/L	10.00		107	70-130	0.7	25	
Bromomethane	9.92		ug/L	10.00		99	70-130	2	25	
Carbon Disulfide	10.1		ug/L	10.00		101	70-130	0.2	25	
Carbon Tetrachloride	11.8		ug/L	10.00		118	70-130	1	25	
Chlorobenzene	10.2		ug/L	10.00		102	70-130	3	25	
Chloroethane	7.27		ug/L	10.00		73	70-130	6	25	
Chloroform	10.7		ug/L	10.00		107	70-130	0.8	25	
Chloromethane	10.5		ug/L	10.00		105	70-130	4	25	
cis-1,2-Dichloroethene	10.9		ug/L	10.00		109	70-130	0.9	25	
cis-1,3-Dichloropropene	9.88		ug/L	10.00		99	70-130	2	25	
Dibromochloromethane	10.1		ug/L	10.00		101	70-130	0.3	25	
Dibromomethane	10.8		ug/L	10.00		108	70-130	0.6	25	
Dichlorodifluoromethane	10.6		ug/L	10.00		106	70-130	0.8	25	
Diethyl Ether	10.9		ug/L	10.00		109	70-130	0.8	25	
Di-isopropyl ether	10.3		ug/L	10.00		103	70-130	1	25	
Ethyl tertiary-butyl ether	11.0		ug/L	10.00		110	70-130	4	25	
Ethylbenzene	10.5		ug/L	10.00		105	70-130	2	25	
Hexachlorobutadiene	11.0		ug/L	10.00		110	70-130	0.2	25	
Hexachloroethane	13.3		ug/L	10.00		133	70-130	0.4	25	B+
Isopropylbenzene	9.88		ug/L	10.00		99	70-130	1	25	
Methyl tert-Butyl Ether	11.3		ug/L	10.00		113	70-130	2	25	
Methylene Chloride	11.0		ug/L	10.00		110	70-130	1	25	
Naphthalene	10.6		ug/L	10.00		106	70-130	1	25	
n-Butylbenzene	10.0		ug/L	10.00		100	70-130	0.8	25	
n-Propylbenzene	9.90		ug/L	10.00		99	70-130	0.2	25	
sec-Butylbenzene	10.4		ug/L	10.00		104	70-130	0	25	
Styrene	9.43		ug/L	10.00		94	70-130	2	25	
tert-Butylbenzene	10.0		ug/L	10.00		100	70-130	1	25	
Tertiary-amyl methyl ether	10.7		ug/L	10.00		107	70-130	2	25	
Tetrachloroethene	9.99		ug/L	10.00		100	70-130	1	25	
Tetrahydrofuran	11.1		ug/L	10.00		111	70-130	7	25	
Toluene	11.4		ug/L	10.00		114	70-130	0.6	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42810 - 5030B

trans-1,2-Dichloroethene	10.7		ug/L	10.00		107	70-130	1	25	
trans-1,3-Dichloropropene	10.1		ug/L	10.00		101	70-130	0.9	25	
Trichloroethene	10.7		ug/L	10.00		107	70-130	0.5	25	
Trichlorofluoromethane	10.4		ug/L	10.00		104	70-130	0.9	25	
Vinyl Acetate	12.0		ug/L	10.00		120	70-130	2	25	
Vinyl Chloride	11.5		ug/L	10.00		115	70-130	0.2	25	
Xylene O	10.8		ug/L	10.00		108	70-130	2	25	
Xylene P,M	21.5		ug/L	20.00		107	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0241		mg/L	0.02500		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0213		mg/L	0.02500		85	70-130			
Surrogate: Dibromofluoromethane	0.0246		mg/L	0.02500		98	70-130			
Surrogate: Toluene-d8	0.0221		mg/L	0.02500		88	70-130			

Batch CJ42842 - 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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42842 - 5030B

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							
Xylene P,M	ND	0.0020	mg/L							
Surrogate: 1,2-Dichloroethane-d4	0.0295		mg/L	0.02500		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0244		mg/L	0.02500		98	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42842 - 5030B

Surrogate: Dibromofluoromethane	0.0289		mg/L	0.02500		115	70-130			
Surrogate: Toluene-d8	0.0256		mg/L	0.02500		102	70-130			

LCS

1,1,1,2-Tetrachloroethane	9.81		ug/L	10.00		98	70-130			
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130			
1,1,2,2-Tetrachloroethane	9.00		ug/L	10.00		90	70-130			
1,1,2-Trichloroethane	9.70		ug/L	10.00		97	70-130			
1,1-Dichloroethane	9.50		ug/L	10.00		95	70-130			
1,1-Dichloroethene	9.79		ug/L	10.00		98	70-130			
1,1-Dichloropropene	9.79		ug/L	10.00		98	70-130			
1,2,3-Trichlorobenzene	9.18		ug/L	10.00		92	70-130			
1,2,3-Trichloropropane	9.12		ug/L	10.00		91	70-130			
1,2,4-Trichlorobenzene	8.86		ug/L	10.00		89	70-130			
1,2,4-Trimethylbenzene	9.64		ug/L	10.00		96	70-130			
1,2-Dibromo-3-Chloropropane	9.49		ug/L	10.00		95	70-130			
1,2-Dibromoethane	8.84		ug/L	10.00		88	70-130			
1,2-Dichlorobenzene	9.11		ug/L	10.00		91	70-130			
1,2-Dichloroethane	9.85		ug/L	10.00		98	70-130			
1,2-Dichloropropane	9.24		ug/L	10.00		92	70-130			
1,3,5-Trimethylbenzene	10.0		ug/L	10.00		100	70-130			
1,3-Dichlorobenzene	9.13		ug/L	10.00		91	70-130			
1,3-Dichloropropane	9.82		ug/L	10.00		98	70-130			
1,4-Dichlorobenzene	9.30		ug/L	10.00		93	70-130			
1,4-Dioxane - Screen	188		ug/L	200.0		94	0-332			
1-Chlorohexane	9.01		ug/L	10.00		90	70-130			
2,2-Dichloropropane	12.7		ug/L	10.00		127	70-130			
2-Butanone	48.8		ug/L	50.00		98	70-130			
2-Chlorotoluene	9.16		ug/L	10.00		92	70-130			
2-Hexanone	46.2		ug/L	50.00		92	70-130			
4-Chlorotoluene	9.17		ug/L	10.00		92	70-130			
4-Isopropyltoluene	9.63		ug/L	10.00		96	70-130			
4-Methyl-2-Pentanone	45.5		ug/L	50.00		91	70-130			
Acetone	57.2		ug/L	50.00		114	70-130			
Benzene	9.91		ug/L	10.00		99	70-130			
Bromobenzene	9.54		ug/L	10.00		95	70-130			
Bromochloromethane	10.2		ug/L	10.00		102	70-130			
Bromodichloromethane	9.21		ug/L	10.00		92	70-130			
Bromoform	9.30		ug/L	10.00		93	70-130			
Bromomethane	6.47		ug/L	10.00		65	70-130			B-
Carbon Disulfide	9.15		ug/L	10.00		92	70-130			
Carbon Tetrachloride	10.6		ug/L	10.00		106	70-130			
Chlorobenzene	9.26		ug/L	10.00		93	70-130			
Chloroethane	6.42		ug/L	10.00		64	70-130			B-
Chloroform	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: 1410603

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 CJ42842 - 5030B

Chloromethane	9.47		ug/L	10.00		95	70-130			
cis-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130			
cis-1,3-Dichloropropene	8.98		ug/L	10.00		90	70-130			
Dibromochloromethane	9.07		ug/L	10.00		91	70-130			
Dibromomethane	9.46		ug/L	10.00		95	70-130			
Dichlorodifluoromethane	9.73		ug/L	10.00		97	70-130			
Diethyl Ether	9.99		ug/L	10.00		100	70-130			
Di-isopropyl ether	9.45		ug/L	10.00		94	70-130			
Ethyl tertiary-butyl ether	10.8		ug/L	10.00		108	70-130			
Ethylbenzene	9.72		ug/L	10.00		97	70-130			
Hexachlorobutadiene	9.87		ug/L	10.00		99	70-130			
Hexachloroethane	12.1		ug/L	10.00		121	70-130			
Isopropylbenzene	9.15		ug/L	10.00		92	70-130			
Methyl tert-Butyl Ether	10.6		ug/L	10.00		106	70-130			
Methylene Chloride	9.82		ug/L	10.00		98	70-130			
Naphthalene	10.4		ug/L	10.00		104	70-130			
n-Butylbenzene	9.33		ug/L	10.00		93	70-130			
n-Propylbenzene	9.04		ug/L	10.00		90	70-130			
sec-Butylbenzene	9.48		ug/L	10.00		95	70-130			
Styrene	8.35		ug/L	10.00		84	70-130			
tert-Butylbenzene	9.36		ug/L	10.00		94	70-130			
Tertiary-amyl methyl ether	11.3		ug/L	10.00		113	70-130			
Tetrachloroethene	9.04		ug/L	10.00		90	70-130			
Tetrahydrofuran	9.78		ug/L	10.00		98	70-130			
Toluene	10.4		ug/L	10.00		104	70-130			
trans-1,2-Dichloroethene	9.60		ug/L	10.00		96	70-130			
trans-1,3-Dichloropropene	9.21		ug/L	10.00		92	70-130			
Trichloroethene	9.70		ug/L	10.00		97	70-130			
Trichlorofluoromethane	9.39		ug/L	10.00		94	70-130			
Vinyl Acetate	11.1		ug/L	10.00		111	70-130			
Vinyl Chloride	10.4		ug/L	10.00		104	70-130			
Xylene O	9.85		ug/L	10.00		98	70-130			
Xylene P,M	19.6		ug/L	20.00		98	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0211		mg/L	0.02500		84	70-130			
Surrogate: 4-Bromofluorobenzene	0.0190		mg/L	0.02500		76	70-130			
Surrogate: Dibromofluoromethane	0.0215		mg/L	0.02500		86	70-130			
Surrogate: Toluene-d8	0.0201		mg/L	0.02500		80	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130	4	25	
1,1,1-Trichloroethane	11.5		ug/L	10.00		115	70-130	5	25	
1,1,2,2-Tetrachloroethane	9.52		ug/L	10.00		95	70-130	6	25	
1,1,2-Trichloroethane	10.3		ug/L	10.00		103	70-130	6	25	
1,1-Dichloroethane	10.1		ug/L	10.00		101	70-130	6	25	
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130	5	25	
1,1-Dichloropropene	10.7		ug/L	10.00		107	70-130	9	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42842 - 5030B

1,2,3-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	9	25	
1,2,3-Trichloropropane	9.71		ug/L	10.00		97	70-130	6	25	
1,2,4-Trichlorobenzene	9.85		ug/L	10.00		98	70-130	11	25	
1,2,4-Trimethylbenzene	10.4		ug/L	10.00		104	70-130	7	25	
1,2-Dibromo-3-Chloropropane	10.3		ug/L	10.00		103	70-130	8	25	
1,2-Dibromoethane	9.46		ug/L	10.00		95	70-130	7	25	
1,2-Dichlorobenzene	9.71		ug/L	10.00		97	70-130	6	25	
1,2-Dichloroethane	10.6		ug/L	10.00		106	70-130	7	25	
1,2-Dichloropropane	9.54		ug/L	10.00		95	70-130	3	25	
1,3,5-Trimethylbenzene	10.7		ug/L	10.00		107	70-130	7	25	
1,3-Dichlorobenzene	9.81		ug/L	10.00		98	70-130	7	25	
1,3-Dichloropropane	10.4		ug/L	10.00		104	70-130	6	25	
1,4-Dichlorobenzene	10.0		ug/L	10.00		100	70-130	8	25	
1,4-Dioxane - Screen	224		ug/L	200.0		112	0-332	17	200	
1-Chlorohexane	9.47		ug/L	10.00		95	70-130	5	25	
2,2-Dichloropropane	13.5		ug/L	10.00		135	70-130	6	25	B+
2-Butanone	51.9		ug/L	50.00		104	70-130	6	25	
2-Chlorotoluene	9.54		ug/L	10.00		95	70-130	4	25	
2-Hexanone	50.4		ug/L	50.00		101	70-130	9	25	
4-Chlorotoluene	9.94		ug/L	10.00		99	70-130	8	25	
4-Isopropyltoluene	10.5		ug/L	10.00		105	70-130	9	25	
4-Methyl-2-Pentanone	50.5		ug/L	50.00		101	70-130	10	25	
Acetone	64.7		ug/L	50.00		129	70-130	12	25	
Benzene	10.4		ug/L	10.00		104	70-130	5	25	
Bromobenzene	10.2		ug/L	10.00		102	70-130	6	25	
Bromochloromethane	10.8		ug/L	10.00		108	70-130	6	25	
Bromodichloromethane	9.89		ug/L	10.00		99	70-130	7	25	
Bromoform	10.0		ug/L	10.00		100	70-130	8	25	
Bromomethane	7.18		ug/L	10.00		72	70-130	10	25	
Carbon Disulfide	9.74		ug/L	10.00		97	70-130	6	25	
Carbon Tetrachloride	11.2		ug/L	10.00		112	70-130	5	25	
Chlorobenzene	9.93		ug/L	10.00		99	70-130	7	25	
Chloroethane	7.10		ug/L	10.00		71	70-130	10	25	
Chloroform	10.0		ug/L	10.00		100	70-130	5	25	
Chloromethane	10.2		ug/L	10.00		102	70-130	7	25	
cis-1,2-Dichloroethene	10.8		ug/L	10.00		108	70-130	6	25	
cis-1,3-Dichloropropene	9.48		ug/L	10.00		95	70-130	5	25	
Dibromochloromethane	9.63		ug/L	10.00		96	70-130	6	25	
Dibromomethane	10.0		ug/L	10.00		100	70-130	6	25	
Dichlorodifluoromethane	10.3		ug/L	10.00		103	70-130	6	25	
Diethyl Ether	10.6		ug/L	10.00		106	70-130	6	25	
Di-isopropyl ether	10.0		ug/L	10.00		100	70-130	6	25	
Ethyl tertiary-butyl ether	11.4		ug/L	10.00		114	70-130	5	25	
Ethylbenzene	10.3		ug/L	10.00		103	70-130	6	25	
Hexachlorobutadiene	10.8		ug/L	10.00		108	70-130	9	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42842 - 5030B

Hexachloroethane	12.8		ug/L	10.00		128	70-130	6	25	
Isopropylbenzene	9.64		ug/L	10.00		96	70-130	5	25	
Methyl tert-Butyl Ether	11.3		ug/L	10.00		113	70-130	6	25	
Methylene Chloride	10.3		ug/L	10.00		103	70-130	5	25	
Naphthalene	11.5		ug/L	10.00		115	70-130	10	25	
n-Butylbenzene	10.5		ug/L	10.00		105	70-130	12	25	
n-Propylbenzene	9.66		ug/L	10.00		97	70-130	7	25	
sec-Butylbenzene	10.1		ug/L	10.00		101	70-130	6	25	
Styrene	9.29		ug/L	10.00		93	70-130	11	25	
tert-Butylbenzene	9.91		ug/L	10.00		99	70-130	6	25	
Tertiary-amyl methyl ether	11.8		ug/L	10.00		118	70-130	5	25	
Tetrachloroethene	9.55		ug/L	10.00		96	70-130	5	25	
Tetrahydrofuran	10.8		ug/L	10.00		108	70-130	10	25	
Toluene	10.9		ug/L	10.00		109	70-130	5	25	
trans-1,2-Dichloroethene	10.3		ug/L	10.00		103	70-130	7	25	
trans-1,3-Dichloropropene	9.62		ug/L	10.00		96	70-130	4	25	
Trichloroethene	10.2		ug/L	10.00		102	70-130	5	25	
Trichlorofluoromethane	9.90		ug/L	10.00		99	70-130	5	25	
Vinyl Acetate	11.6		ug/L	10.00		116	70-130	5	25	
Vinyl Chloride	11.0		ug/L	10.00		110	70-130	5	25	
Xylene O	10.4		ug/L	10.00		104	70-130	5	25	
Xylene P,M	20.8		ug/L	20.00		104	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	0.0249		mg/L	0.02500		99	70-130			
Surrogate: 4-Bromofluorobenzene	0.0225		mg/L	0.02500		90	70-130			
Surrogate: Dibromofluoromethane	0.0253		mg/L	0.02500		101	70-130			
Surrogate: Toluene-d8	0.0236		mg/L	0.02500		94	70-130			

8270C(SIM) Polynuclear Aromatic Hydrocarbons

Batch CJ42402 - 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							
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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42402 - 3510C

Phenanthrene	ND	0.0002	mg/L							
Pyrene	ND	0.0002	mg/L							
Surrogate: 1,2-Dichlorobenzene-d4	0.000533		mg/L	0.002500		21	30-130			S-
Surrogate: 2-Fluorobiphenyl	0.000761		mg/L	0.002500		30	30-130			
Surrogate: Nitrobenzene-d5	0.00103		mg/L	0.002500		41	30-130			
Surrogate: p-Terphenyl-d14	0.00172		mg/L	0.002500		69	30-130			

LCS

2-Methylnaphthalene	0.0015	0.0002	mg/L	0.004000		39	40-140			B-
Acenaphthene	0.0020	0.0002	mg/L	0.004000		49	40-140			
Acenaphthylene	0.0019	0.0002	mg/L	0.004000		48	40-140			
Anthracene	0.0022	0.0002	mg/L	0.004000		56	40-140			
Benzo(a)anthracene	0.0026	0.00005	mg/L	0.004000		64	40-140			
Benzo(a)pyrene	0.0026	0.00005	mg/L	0.004000		64	40-140			
Benzo(b)fluoranthene	0.0025	0.00005	mg/L	0.004000		61	40-140			
Benzo(g,h,i)perylene	0.0026	0.0002	mg/L	0.004000		64	40-140			
Benzo(k)fluoranthene	0.0025	0.00005	mg/L	0.004000		63	40-140			
Chrysene	0.0026	0.00005	mg/L	0.004000		64	40-140			
Dibenzo(a,h)Anthracene	0.0026	0.00005	mg/L	0.004000		64	40-140			
Fluoranthene	0.0025	0.0002	mg/L	0.004000		62	40-140			
Fluorene	0.0021	0.0002	mg/L	0.004000		53	40-140			
Indeno(1,2,3-cd)Pyrene	0.0026	0.00005	mg/L	0.004000		64	40-140			
Naphthalene	0.0016	0.0002	mg/L	0.004000		40	40-140			
Phenanthrene	0.0022	0.0002	mg/L	0.004000		55	40-140			
Pyrene	0.0024	0.0002	mg/L	0.004000		60	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.000882		mg/L	0.002500		35	30-130			
Surrogate: 2-Fluorobiphenyl	0.00118		mg/L	0.002500		47	30-130			
Surrogate: Nitrobenzene-d5	0.00156		mg/L	0.002500		62	30-130			
Surrogate: p-Terphenyl-d14	0.00186		mg/L	0.002500		74	30-130			

LCS Dup

2-Methylnaphthalene	0.0017	0.0002	mg/L	0.004000		43	40-140	12	20	
Acenaphthene	0.0022	0.0002	mg/L	0.004000		56	40-140	13	20	
Acenaphthylene	0.0022	0.0002	mg/L	0.004000		55	40-140	12	20	
Anthracene	0.0026	0.0002	mg/L	0.004000		64	40-140	14	20	
Benzo(a)anthracene	0.0025	0.00005	mg/L	0.004000		63	40-140	3	20	
Benzo(a)pyrene	0.0029	0.00005	mg/L	0.004000		72	40-140	11	20	
Benzo(b)fluoranthene	0.0027	0.00005	mg/L	0.004000		68	40-140	10	20	
Benzo(g,h,i)perylene	0.0029	0.0002	mg/L	0.004000		72	40-140	12	20	
Benzo(k)fluoranthene	0.0026	0.00005	mg/L	0.004000		65	40-140	4	20	
Chrysene	0.0028	0.00005	mg/L	0.004000		70	40-140	9	20	
Dibenzo(a,h)Anthracene	0.0042	0.00005	mg/L	0.004000		105	40-140	48	20	D+
Fluoranthene	0.0027	0.0002	mg/L	0.004000		69	40-140	10	20	
Fluorene	0.0024	0.0002	mg/L	0.004000		60	40-140	13	20	
Indeno(1,2,3-cd)Pyrene	0.0029	0.00005	mg/L	0.004000		73	40-140	13	20	
Naphthalene	0.0018	0.0002	mg/L	0.004000		44	40-140	12	20	
Phenanthrene	0.0026	0.0002	mg/L	0.004000		64	40-140	15	20	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42402 - 3510C

Pyrene	0.0027	0.0002	mg/L	0.004000		67	40-140	11	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.00116		mg/L	0.002500		46	30-130			
Surrogate: 2-Fluorobiphenyl	0.00148		mg/L	0.002500		59	30-130			
Surrogate: Nitrobenzene-d5	0.00174		mg/L	0.002500		70	30-130			
Surrogate: p-Terphenyl-d14	0.00204		mg/L	0.002500		82	30-130			

Batch CJ42711 - 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							
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	0.000904		mg/L	0.002500		36	30-130			
Surrogate: 2-Fluorobiphenyl	0.00108		mg/L	0.002500		43	30-130			
Surrogate: Nitrobenzene-d5	0.00112		mg/L	0.002500		45	30-130			
Surrogate: p-Terphenyl-d14	0.00180		mg/L	0.002500		72	30-130			

LCS

2-Methylnaphthalene	0.0017	0.0002	mg/L	0.004000		43	40-140			
Acenaphthene	0.0022	0.0002	mg/L	0.004000		56	40-140			
Acenaphthylene	0.0022	0.0002	mg/L	0.004000		54	40-140			
Anthracene	0.0024	0.0002	mg/L	0.004000		61	40-140			
Benzo(a)anthracene	0.0029	0.00005	mg/L	0.004000		73	40-140			
Benzo(a)pyrene	0.0031	0.00005	mg/L	0.004000		78	40-140			
Benzo(b)fluoranthene	0.0030	0.00005	mg/L	0.004000		75	40-140			
Benzo(g,h,i)perylene	0.0032	0.0002	mg/L	0.004000		79	40-140			
Benzo(k)fluoranthene	0.0031	0.00005	mg/L	0.004000		77	40-140			
Chrysene	0.0031	0.00005	mg/L	0.004000		77	40-140			
Dibenzo(a,h)Anthracene	0.0032	0.00005	mg/L	0.004000		80	40-140			
Fluoranthene	0.0028	0.0002	mg/L	0.004000		70	40-140			
Fluorene	0.0023	0.0002	mg/L	0.004000		57	40-140			
Indeno(1,2,3-cd)Pyrene	0.0032	0.00005	mg/L	0.004000		79	40-140			
Naphthalene	0.0018	0.0002	mg/L	0.004000		44	40-140			
Phenanthrene	0.0024	0.0002	mg/L	0.004000		59	40-140			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42711 - 3510C

Pyrene	0.0028	0.0002	mg/L	0.004000		70	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.00106		mg/L	0.002500		43	30-130			
Surrogate: 2-Fluorobiphenyl	0.00135		mg/L	0.002500		54	30-130			
Surrogate: Nitrobenzene-d5	0.00142		mg/L	0.002500		57	30-130			
Surrogate: p-Terphenyl-d14	0.00198		mg/L	0.002500		79	30-130			

LCS Dup

2-Methylnaphthalene	0.0019	0.0002	mg/L	0.004000		47	40-140	10	20	
Acenaphthene	0.0024	0.0002	mg/L	0.004000		60	40-140	8	20	
Acenaphthylene	0.0024	0.0002	mg/L	0.004000		60	40-140	9	20	
Anthracene	0.0026	0.0002	mg/L	0.004000		65	40-140	7	20	
Benzo(a)anthracene	0.0032	0.00005	mg/L	0.004000		80	40-140	9	20	
Benzo(a)pyrene	0.0034	0.00005	mg/L	0.004000		84	40-140	7	20	
Benzo(b)fluoranthene	0.0032	0.00005	mg/L	0.004000		81	40-140	7	20	
Benzo(g,h,i)perylene	0.0034	0.0002	mg/L	0.004000		84	40-140	7	20	
Benzo(k)fluoranthene	0.0033	0.00005	mg/L	0.004000		83	40-140	8	20	
Chrysene	0.0033	0.00005	mg/L	0.004000		84	40-140	8	20	
Dibenzo(a,h)Anthracene	0.0034	0.00005	mg/L	0.004000		86	40-140	6	20	
Fluoranthene	0.0030	0.0002	mg/L	0.004000		75	40-140	8	20	
Fluorene	0.0025	0.0002	mg/L	0.004000		62	40-140	8	20	
Indeno(1,2,3-cd)Pyrene	0.0034	0.00005	mg/L	0.004000		84	40-140	6	20	
Naphthalene	0.0021	0.0002	mg/L	0.004000		51	40-140	16	20	
Phenanthrene	0.0025	0.0002	mg/L	0.004000		64	40-140	7	20	
Pyrene	0.0031	0.0002	mg/L	0.004000		77	40-140	10	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.00118		mg/L	0.002500		47	30-130			
Surrogate: 2-Fluorobiphenyl	0.00146		mg/L	0.002500		58	30-130			
Surrogate: Nitrobenzene-d5	0.00162		mg/L	0.002500		65	30-130			
Surrogate: p-Terphenyl-d14	0.00211		mg/L	0.002500		85	30-130			

Classical Chemistry

Batch CJ42801 - TCN Prep

Blank

Total Cyanide (LL)	ND	0.00500	mg/L							
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LCS

Total Cyanide (LL)	0.0194	0.00500	mg/L	0.02006		97	90-110			
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LCS

Total Cyanide (LL)	0.153	0.00500	mg/L	0.1504		101	90-110			
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LCS Dup

Total Cyanide (LL)	0.154	0.00500	mg/L	0.1504		102	90-110	0.7	20	
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Batch CJ42911 - TCN Prep

Blank

Dissolved Cyanide	ND	0.005	mg/L							
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LCS

Dissolved Cyanide	0.020	0.005	mg/L	0.02006		99	90-110			
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CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

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 CJ42911 - TCN Prep

LCS

Dissolved Cyanide	0.150	0.005	mg/L	0.1504		100	90-110			
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LCS Dup

Dissolved Cyanide	0.152	0.005	mg/L	0.1504		101	90-110	0.7	20	
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CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

Notes and Definitions

- U Analyte included in the analysis, but not detected
- S- Surrogate recovery(ies) below lower control limit (S-).
- IM Internal Standard(s) outside of criteria due to matrix (UCM/coelution is present) (IM).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- 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 above upper control limit (B+).
- B- Blank Spike recovery is below lower control limit (B-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410603

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

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

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

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002

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

Massachusetts Potable and Non Potable Water: M-RI002

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

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

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

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

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

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

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

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

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

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01

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

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

CPSC ID# 1141

Lead Paint, Lead in Children's Metals Jewelry

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

Sample and Cooler Receipt Checklist

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

ESS Project ID: 14100603
 Date Project Due: 10/30/2014
 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 checked="" type="checkbox"/> Yes |
| 2. Were Custody Seals Present? | <input type="checkbox"/> No | 12. Any air bubbles in the VOA vials? | <input checked="" 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 |
| Cooler Temp: <u>6.0</u> | | 16. Are ESS labels on correct containers? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| Iced With: <u>Ice</u> | | 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.

Sample #3 Bottle ID - M+E MW-2 chain - M+E MW-1
MICUPH712 unless otherwise noted UB10/23/14 @ 2100 hrs
10/23/14

Who was called?: _____ By whom? _____

Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	1 L Glass	3	NP
1	Yes	250 ml Plastic	2	NaOH
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	3	NP
2	Yes	250 ml Plastic	2	NaOH
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	3	NP
3	Yes	250 ml Plastic	2	NaOH
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	3	NP
4	Yes	250 ml Plastic	2	NaOH
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	3	NP
5	Yes	250 ml Plastic	2	NaOH
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	3	NP
6	Yes	250 ml Plastic	2	NaOH
6	Yes	40 ml - VOA	3	HCL
7	Yes	1 L Glass	3	NP
7	Yes	250 ml Plastic	2	NaOH
7	Yes	40 ml - VOA	3	HCL
8	Yes	1 L Glass	3	NP
8	Yes	250 ml Plastic	2	NaOH
8	Yes	40 ml - VOA	3	HCL
9	Yes	1 L Glass	3	NP

Handwritten notes:
 pH=10 for both UB10/23/14 @ 2044
 pH=10 for both UB10/23/14 @ 2051
 TCU=10 PH UB10/23/14 @ 2053
 DCU=12 PH UB10/23/14 @ 2053

Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.

ESS Project ID: 14100603

9	Yes	250 ml Plastic	2	NaOH
9	Yes	40 ml - VOA	3	HCL
10	Yes	1 L Glass	3	NP
10	Yes	250 ml Plastic	2	NaOH
10	Yes	40 ml - VOA	3	HCL
11	Yes	1 L Glass	3	NP
11	Yes	250 ml Plastic	2	NaOH
11	Yes	40 ml - VOA	3	HCL
12	Yes	1 L Glass	3	NP
12	Yes	250 ml Plastic	2	NaOH
12	Yes	40 ml - VOA	3	HCL
13	Yes	1 L Glass	3	NP
13	Yes	250 ml Plastic	2	NaOH
13	Yes	40 ml - VOA	3	HCL
14	Yes	1 L Glass	3	NP
14	Yes	250 ml Plastic	2	NaOH
14	Yes	40 ml - VOA	3	HCL
15	Yes	1 L Glass	3	NP
15	Yes	250 ml Plastic	2	NaOH
15	Yes	40 ml - VOA	3	HCL
16	Yes	1 L Glass	3	NP
16	Yes	250 ml Plastic	2	NaOH
16	Yes	40 ml - VOA	3	HCL
17	Yes	1 L Glass	3	NP
17	Yes	250 ml Plastic	2	NaOH
17	Yes	40 ml - VOA	3	HCL
18	Yes	1 L Glass	3	NP
18	Yes	250 ml Plastic	2	NaOH
18	Yes	40 ml - VOA	3	HCL
19	Yes	1 L Glass	3	NP
19	Yes	250 ml Plastic	2	NaOH
19	Yes	40 ml - VOA	3	HCL
20	Yes	40 ml - VOA	1	HCL

Completed By: *[Signature]*

Date/Time: 10/23/14 2:00

Reviewed By: *[Signature]*

Date/Time: 10/24/14 1:06

ESS Laboratory

CHAIN OF CUSTODY

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston, RI 02910-2211
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

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

Reporting Limits
 P102M GB
 Electronic Deliverable Yes No
 Format: Excel Access _____ PDF Other _____
 ESS LAB PROJECT ID 102604
 10/26/04

Write Required Analysis

Co. Name GRK Project # 43654 Project Name (20 Char or less) TIMPWATER

Contact Person Meg KLR ATRC Address 530 WINDHOLM

City PR 01109 WCE State RI Zip 02909 PO# _____

Telephone # 401-421-4440 Fax # _____ Email Address MW1patric.k@opta.com

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	Analysis			
10	10/23/14	9:00		X	GW	MW-3345	1.2.5	0	VOCS	PAHS	TPH	TOTAL CHLORIDE	DISSOLVED
11		10:30				MW-3345							
12		11:45				MW-3185							
13		11:20				MW-318D							
14		14:45				MW-333							
15		14:10				MW-6							
16		15:45				MW-109							
17		13:00				MW-316D							
18		10:13				MW-3105							
19		10:24				MW-310D							

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge W-W-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 [] Technicians _____

Cooler Temp: 4.9, 2.0, 5.0, 6.0

Relinquished by: (Signature) [Signature] Date/Time 10/21/14 17:05 Received by: (Signature) [Signature] Date/Time 10/23/14 17:05

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

Comments: DISOLVED SAMPLES FIELD FILTERED

Sampled by: SOH/A NADKIEWICZ BILL FOLTUNE

Comments: DISOLVED SAMPLES FIELD FILTERED

Relinquished by: (Signature) [Signature] Date/Time 10/23/14 17:05 Received by: (Signature) _____ Date/Time _____

*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A

Please fax all changes to Chain of Custody in writing.

1 (White) Lab Copy 2 (Yellow) Client Receipt

10/26/04 A



CERTIFICATE OF ANALYSIS

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

RE: Tidewater GH (03.0043654.T13)
ESS Laboratory Work Order Number: 1410604

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 5:32 pm, Oct 31, 2014

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with NELAC Standards, A2LA and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

SAMPLE RECEIPT

The following samples were received on October 23, 2014 for the analyses specified on the enclosed Chain of Custody Record.

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

pH for Cyanide container was less then the method requirement of >12: "MW-339S" (1410604-04). To be analyzed per client request.

Lab Number	Sample Name	Matrix	Analysis
1410604-01	MW-312S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410604-02	MW-312D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410604-03	MW-7	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410604-04	MW-339S	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410604-05	MW-339D	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410604-06	MW-201	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410604-07	MW-208	Ground Water	8100M, 8260B, 8270C SIM, 9014
1410604-08	MW-BD-102314	Ground Water	8100M, 8260B, 8270C SIM, 9014



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

PROJECT NARRATIVE

8100M Total Petroleum Hydrocarbons

CJ42436-BSD1 Relative percent difference for duplicate is outside of criteria (D+).
Decane (C10) (26%), Nonane (C9) (26%)

8260B Volatile Organic Compounds

CJ42810-BS1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (138% @ 70-130%), Hexachloroethane (133% @ 70-130%)

CJ42810-BSD1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (143% @ 70-130%), Acetone (168% @ 70-130%), Hexachloroethane (133% @ 70-130%)

CJ42842-BS1 Blank Spike recovery is below lower control limit (B-).
Bromomethane (65% @ 70-130%), Chloroethane (64% @ 70-130%)

CJ42842-BSD1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (135% @ 70-130%)

CJ43004-BS1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (140% @ 70-130%), Acetone (132% @ 70-130%)

CJ43004-BSD1 Blank Spike recovery is above upper control limit (B+).
2,2-Dichloropropane (143% @ 70-130%), Hexachloroethane (132% @ 70-130%)

CXJ0385-CCV1 Continuing Calibration recovery is above upper control limit (C+).
2,2-Dichloropropane (131% @ 70-130%)

CXJ0403-CCV1 Continuing Calibration recovery is below lower control limit (C-).
Bromomethane (50% @ 70-130%), Chloroethane (67% @ 70-130%)

CXJ0431-CCV1 Continuing Calibration recovery is above upper control limit (C+).
2,2-Dichloropropane (132% @ 70-130%)

8270C(SIM) Polynuclear Aromatic Hydrocarbons

1410604-05 Internal Standard(s) outside of criteria (I).
Naphthalene-d8 (38% @ 50-200%)

1410604-05 Surrogate recovery(ies) above upper control limit (S+).
Nitrobenzene-d5 (188% @ 30-130%)

No other observations noted.

End of Project Narrative.



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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](#)

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015D - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

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



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312S
Date Sampled: 10/23/14 08:51
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	6.22 (0.19)		8100M		1	10/25/14 21:34	CXJ0357	CJ42436

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	70 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312S
Date Sampled: 10/23/14 08:51
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2,4-Trimethylbenzene	0.114 (0.0500)		8260B		50	10/28/14 16:44	CXJ0385	CJ42810
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,3,5-Trimethylbenzene	0.0131 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
1-Chlorohexane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
2-Butanone	ND (0.0100)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
2-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
2-Hexanone	ND (0.0100)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
4-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
4-Isopropyltoluene	0.0026 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Acetone	0.0347 (0.0100)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Benzene	0.0437 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Bromobenzene	ND (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312S
Date Sampled: 10/23/14 08:51
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Bromodichloromethane	ND (0.0006)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Bromoform	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Bromomethane	ND (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Carbon Disulfide	0.0097 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Chlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Chloroethane	ND (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Chloroform	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Chloromethane	ND (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Dibromochloromethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Dibromomethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Diethyl Ether	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Di-isopropyl ether	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Ethylbenzene	0.588 (0.0500)		8260B		50	10/28/14 16:44	CXJ0385	CJ42810
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Hexachloroethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Isopropylbenzene	0.0235 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Methylene Chloride	ND (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Naphthalene	2.03 (0.0500)		8260B		50	10/28/14 16:44	CXJ0385	CJ42810
n-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
n-Propylbenzene	0.0102 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
sec-Butylbenzene	0.0013 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Styrene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
tert-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Tetrachloroethene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312S
Date Sampled: 10/23/14 08:51
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Toluene	0.0069 (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Trichloroethene	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Vinyl Acetate	ND (0.0050)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Vinyl Chloride	ND (0.0010)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Xylene O	0.0935 (0.0500)		8260B		50	10/28/14 16:44	CXJ0385	CJ42810
Xylene P,M	0.0263 (0.0020)		8260B		1	10/27/14 20:01	CXJ0385	CJ42810
Xylenes (Total)	0.120 (0.0500)		8260B		50	10/28/14 16:44		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/27/14 20:01		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>108 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>114 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>109 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312S
Date Sampled: 10/23/14 08:51
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-01
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/27/14 14:36

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 (0.0009)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Acenaphthene	0.134 (0.0093)		8270C SIM		50	10/30/14 13:14	CXJ0423	CJ42711
Acenaphthylene	0.0087 (0.0009)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Anthracene	0.0207 (0.0093)		8270C SIM		50	10/30/14 13:14	CXJ0423	CJ42711
Benzo(a)anthracene	0.0056 (0.0002)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Benzo(a)pyrene	0.0044 (0.0002)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Benzo(b)fluoranthene	0.0032 (0.0002)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Benzo(g,h,i)perylene	0.0020 (0.0009)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Benzo(k)fluoranthene	0.0011 (0.0002)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Chrysene	0.0051 (0.0002)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Dibenzo(a,h)Anthracene	0.0005 (0.0002)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Fluoranthene	0.0128 (0.0009)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Fluorene	0.0443 (0.0009)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Indeno(1,2,3-cd)Pyrene	0.0020 (0.0002)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711
Naphthalene	0.742 (0.0935)		8270C SIM		500	10/30/14 23:46	CXJ0423	CJ42711
Phenanthrene	0.0817 (0.0093)		8270C SIM		50	10/30/14 13:14	CXJ0423	CJ42711
Pyrene	0.0186 (0.0009)		8270C SIM		5	10/30/14 0:49	CXJ0423	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	36 %		30-130
Surrogate: 2-Fluorobiphenyl	44 %		30-130
Surrogate: Nitrobenzene-d5	66 %		30-130
Surrogate: p-Terphenyl-d14	55 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312S
Date Sampled: 10/23/14 08:51
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-01
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	0.5 (0.02)		9014		5	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	0.638 (0.0250)		9014		5	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312D
Date Sampled: 10/23/14 08:32
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: DPS
Prepared: 10/24/14 13:25

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	8.39 (0.19)		8100M		1	10/25/14 22:13	CXJ0357	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		68 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312D
Date Sampled: 10/23/14 08:32
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2,4-Trimethylbenzene	0.378 (0.100)		8260B		100	10/28/14 17:35	CXJ0385	CJ42810
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,3,5-Trimethylbenzene	0.0182 (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
1-Chlorohexane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
2-Butanone	ND (0.0100)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
2-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
2-Hexanone	ND (0.0100)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
4-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
4-Isopropyltoluene	0.0063 (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Acetone	ND (0.0100)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Benzene	5.98 (0.100)		8260B		100	10/28/14 17:35	CXJ0385	CJ42810
Bromobenzene	ND (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312D
Date Sampled: 10/23/14 08:32
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Bromodichloromethane	ND (0.0006)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Bromoform	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Bromomethane	ND (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Carbon Disulfide	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Chlorobenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Chloroethane	ND (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Chloroform	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Chloromethane	ND (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Dibromochloromethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Dibromomethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Diethyl Ether	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Di-isopropyl ether	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Ethylbenzene	1.93 (0.100)		8260B		100	10/28/14 17:35	CXJ0385	CJ42810
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Hexachloroethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Isopropylbenzene	0.0560 (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Methylene Chloride	ND (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Naphthalene	8.17 (0.100)		8260B		100	10/28/14 17:35	CXJ0385	CJ42810
n-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
n-Propylbenzene	0.0219 (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
sec-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Styrene	0.0015 (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
tert-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Tetrachloroethene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312D
Date Sampled: 10/23/14 08:32
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Toluene	0.0088 (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Trichloroethene	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Vinyl Acetate	ND (0.0050)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Vinyl Chloride	ND (0.0010)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Xylene O	0.515 (0.100)		8260B		100	10/28/14 17:35	CXJ0385	CJ42810
Xylene P,M	0.0448 (0.0020)		8260B		1	10/27/14 20:26	CXJ0385	CJ42810
Xylenes (Total)	0.560 (0.100)		8260B		100	10/28/14 17:35		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/27/14 20:26		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>106 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>110 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312D
Date Sampled: 10/23/14 08:32
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-02
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/27/14 14:36

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	0.130 (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Acenaphthene	0.0905 (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Acenaphthylene	ND (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Anthracene	0.0219 (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Benzo(a)anthracene	ND (0.0024)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Benzo(a)pyrene	ND (0.0024)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Benzo(b)fluoranthene	ND (0.0024)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Benzo(g,h,i)perylene	ND (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Benzo(k)fluoranthene	ND (0.0024)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Chrysene	ND (0.0024)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Dibenzo(a,h)Anthracene	ND (0.0024)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Fluoranthene	ND (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Fluorene	0.0233 (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.0024)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Naphthalene	3.02 (0.0952)		8270C SIM		500	10/31/14 11:35	CXJ0451	CJ42711
Phenanthrene	0.0218 (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711
Pyrene	ND (0.0095)		8270C SIM		50	10/31/14 1:26	CXJ0451	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	49 %		30-130
Surrogate: 2-Fluorobiphenyl	63 %		30-130
Surrogate: Nitrobenzene-d5	64 %		30-130
Surrogate: p-Terphenyl-d14	68 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-312D
Date Sampled: 10/23/14 08:32
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-02
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	0.8 (0.05)		9014		10	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	0.875 (0.0500)		9014		10	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-7
Date Sampled: 10/23/14 15:55
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: JXS
Prepared: 10/24/14 13:25

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	10/27/14 12:20	CXJ0363	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		75 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-7
Date Sampled: 10/23/14 15:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
1-Chlorohexane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
2-Butanone	ND (0.0100)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
2-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
2-Hexanone	ND (0.0100)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
4-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Acetone	ND (0.0100)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Benzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Bromobenzene	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-7
Date Sampled: 10/23/14 15:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Bromodichloromethane	ND (0.0006)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Bromoform	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Bromomethane	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Carbon Disulfide	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Chlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Chloroethane	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Chloroform	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Chloromethane	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Dibromochloromethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Dibromomethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Diethyl Ether	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Di-isopropyl ether	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Ethylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Hexachloroethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Isopropylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Methylene Chloride	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Naphthalene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
n-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
n-Propylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
sec-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Styrene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
tert-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Tetrachloroethene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-7
Date Sampled: 10/23/14 15:55
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Toluene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Trichloroethene	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Vinyl Acetate	ND (0.0050)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Vinyl Chloride	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Xylene O	ND (0.0010)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Xylene P,M	ND (0.0020)		8260B		1	10/27/14 18:20	CXJ0385	CJ42810
Xylenes (Total)	ND (0.0020)		8260B		1	10/27/14 18:20		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/27/14 18:20		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>126 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>96 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>120 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-7
Date Sampled: 10/23/14 15:55
Percent Solids: N/A
Initial Volume: 1050
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-03
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/27/14 14:36

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	10/30/14 3:20	CXJ0423	CJ42711
Acenaphthene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Acenaphthylene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Anthracene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Chrysene	ND (0.00005)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Fluoranthene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Fluorene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Naphthalene	0.0012 (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Phenanthrene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711
Pyrene	ND (0.0002)		8270C SIM		1	10/30/14 3:20	CXJ0423	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	45 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	57 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	67 %		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-7
Date Sampled: 10/23/14 15:55
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-03
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	0.02 (0.005)		9014		1	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	0.0454 (0.0050)		9014		1	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339S
Date Sampled: 10/23/14 14:12
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: JXS
Prepared: 10/24/14 13:25

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	1.03 (0.19)		8100M		1	10/27/14 12:58	CXJ0363	CJ42436
		<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				
<i>Surrogate: O-Terphenyl</i>		77 %		40-140				



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339S
Date Sampled: 10/23/14 14:12
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2,4-Trimethylbenzene	0.0082 (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,3,5-Trimethylbenzene	0.0026 (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
1-Chlorohexane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
2-Butanone	ND (0.0100)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
2-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
2-Hexanone	ND (0.0100)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
4-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Acetone	0.0546 (0.0100)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Benzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Bromobenzene	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339S
Date Sampled: 10/23/14 14:12
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Bromodichloromethane	ND (0.0006)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Bromoform	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Bromomethane	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Carbon Disulfide	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Chlorobenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Chloroethane	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Chloroform	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Chloromethane	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Dibromochloromethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Dibromomethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Diethyl Ether	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Di-isopropyl ether	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Ethylbenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Hexachloroethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Isopropylbenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Methylene Chloride	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Naphthalene	0.300 (0.0100)		8260B		10	10/28/14 16:19	CXJ0385	CJ42810
n-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
n-Propylbenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
sec-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Styrene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
tert-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Tetrachloroethene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339S
Date Sampled: 10/23/14 14:12
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Toluene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Trichloroethene	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Vinyl Acetate	ND (0.0050)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Vinyl Chloride	ND (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Xylene O	0.0010 (0.0010)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Xylene P,M	ND (0.0020)		8260B		1	10/27/14 18:45	CXJ0385	CJ42810
Xylenes (Total)	ND (0.0020)		8260B		1	10/27/14 18:45		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/27/14 18:45		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>125 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>101 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>119 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339S
Date Sampled: 10/23/14 14:12
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-04
Sample Matrix: Ground Water
Units: mg/L
Analyst: IBM
Prepared: 10/27/14 14:36

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	0.0276 (0.0019)		8270C SIM		10	10/30/14 14:05	CXJ0423	CJ42711
Acenaphthene	0.0005 (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Acenaphthylene	0.0006 (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Anthracene	0.0005 (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Benzo(a)anthracene	0.0001 (0.00005)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Benzo(b)fluoranthene	0.00007 (0.00005)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Chrysene	0.0001 (0.00005)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Fluoranthene	0.0004 (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Fluorene	0.0011 (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Naphthalene	0.101 (0.0019)		8270C SIM		10	10/30/14 14:05	CXJ0423	CJ42711
Phenanthrene	0.0014 (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711
Pyrene	0.0005 (0.0002)		8270C SIM		1	10/30/14 4:10	CXJ0423	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	39 %		30-130
Surrogate: 2-Fluorobiphenyl	47 %		30-130
Surrogate: Nitrobenzene-d5	58 %		30-130
Surrogate: p-Terphenyl-d14	55 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339S
Date Sampled: 10/23/14 14:12
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-04
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	0.2 (0.01)		9014		2	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	0.218 (0.0100)		9014		2	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339D
Date Sampled: 10/23/14 14:23
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: JXS
Prepared: 10/24/14 13:25

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	7.04 (0.19)		8100M		1	10/27/14 13:37	CXJ0363	CJ42436

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	84 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339D
Date Sampled: 10/23/14 14:23
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2,4-Trimethylbenzene	0.400 (0.0500)		8260B		50	10/28/14 17:10	CXJ0385	CJ42810
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,3,5-Trimethylbenzene	0.0855 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
1-Chlorohexane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
2-Butanone	ND (0.0100)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
2-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
2-Hexanone	ND (0.0100)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
4-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
4-Isopropyltoluene	0.0073 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Acetone	ND (0.0100)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Benzene	0.0265 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Bromobenzene	ND (0.0020)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339D
Date Sampled: 10/23/14 14:23
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Bromodichloromethane	ND (0.0006)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Bromoform	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Bromomethane	ND (0.0020)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Carbon Disulfide	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Chlorobenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Chloroethane	ND (0.0020)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Chloroform	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Chloromethane	ND (0.0020)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Dibromochloromethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Dibromomethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Diethyl Ether	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Di-isopropyl ether	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Ethylbenzene	0.183 (0.0500)		8260B		50	10/28/14 17:10	CXJ0385	CJ42810
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Hexachloroethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Isopropylbenzene	0.0437 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Methylene Chloride	ND (0.0020)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Naphthalene	4.29 (0.0500)		8260B		50	10/28/14 17:10	CXJ0385	CJ42810
n-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
n-Propylbenzene	0.0260 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
sec-Butylbenzene	0.0013 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Styrene	0.0158 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
tert-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Tetrachloroethene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-339D
 Date Sampled: 10/23/14 14:23
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
 ESS Laboratory Sample ID: 1410604-05
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Toluene	0.0398 (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Trichloroethene	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Vinyl Acetate	ND (0.0050)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Vinyl Chloride	ND (0.0010)		8260B		1	10/27/14 22:06	CXJ0385	CJ42810
Xylene O	0.344 (0.0500)		8260B		50	10/28/14 17:10	CXJ0385	CJ42810
Xylene P,M	0.317 (0.100)		8260B		50	10/28/14 17:10	CXJ0385	CJ42810
Xylenes (Total)	0.661 (0.100)		8260B		50	10/28/14 17:10		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/27/14 22:06		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>105 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>109 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-339D
Date Sampled: 10/23/14 14:23
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-05
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/27/14 14:36

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	0.190 (0.0187)		8270C SIM		100	10/30/14 22:56	CXJ0427	CJ42711
Acenaphthene	0.0564 (0.0009)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Acenaphthylene	0.0696 (0.0187)		8270C SIM		100	10/30/14 22:56	CXJ0427	CJ42711
Anthracene	0.0037 (0.0009)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Benzo(a)anthracene	ND (0.0002)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Benzo(a)pyrene	ND (0.0002)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Benzo(b)fluoranthene	ND (0.0002)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Benzo(g,h,i)perylene	ND (0.0009)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Benzo(k)fluoranthene	ND (0.0002)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Chrysene	ND (0.0002)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Dibenzo(a,h)Anthracene	ND (0.0002)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Fluoranthene	0.0010 (0.0009)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Fluorene	0.0287 (0.0009)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.0002)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Naphthalene	1.42 (0.0935)		8270C SIM		500	10/31/14 12:24	CXJ0427	CJ42711
Phenanthrene	0.0259 (0.0009)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711
Pyrene	0.0012 (0.0009)		8270C SIM		5	10/30/14 11:34	CXJ0427	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	43 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	56 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	188 %	S+	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-339D
Date Sampled: 10/23/14 14:23
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-05
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	0.09 (0.005)		9014		1	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	0.144 (0.0050)		9014		1	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-201
Date Sampled: 10/23/14 12:23
Percent Solids: N/A
Initial Volume: 990
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: JXS
Prepared: 10/24/14 13:25

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	1.65 (0.20)		8100M		1	10/27/14 14:16	CXJ0363	CJ42436
		<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: 10/23/14 12:23
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2,4-Trimethylbenzene	0.0066 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
1-Chlorohexane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
2-Butanone	ND (0.0100)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
2-Chlorotoluene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
2-Hexanone	ND (0.0100)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
4-Chlorotoluene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Acetone	ND (0.0100)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Benzene	0.133 (0.0100)		8260B		10	10/29/14 18:54	CXJ0403	CJ42842
Bromobenzene	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-201
Date Sampled: 10/23/14 12:23
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Bromodichloromethane	ND (0.0006)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Bromoform	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Bromomethane	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Carbon Disulfide	0.0094 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Chlorobenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Chloroethane	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Chloroform	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Chloromethane	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Dibromochloromethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Dibromomethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Diethyl Ether	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Di-isopropyl ether	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Ethylbenzene	0.0166 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Hexachloroethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Isopropylbenzene	0.0172 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Methylene Chloride	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Naphthalene	0.0115 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
n-Butylbenzene	0.0048 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
n-Propylbenzene	0.0142 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
sec-Butylbenzene	0.0016 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Styrene	0.0015 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
tert-Butylbenzene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Tetrachloroethene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-201
Date Sampled: 10/23/14 12:23
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Toluene	0.0012 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Trichloroethene	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Vinyl Acetate	ND (0.0050)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Vinyl Chloride	ND (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Xylene O	0.0056 (0.0010)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Xylene P,M	ND (0.0020)		8260B		1	10/28/14 15:04	CXJ0403	CJ42842
Xylenes (Total)	0.0056 (0.0020)		8260B		1	10/28/14 15:04		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/28/14 15:04		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>121 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>121 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>103 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-201
Date Sampled: 10/23/14 12:23
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-06
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/27/14 14:36

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	0.0002 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Acenaphthene	0.0052 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Acenaphthylene	0.0011 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Anthracene	0.0025 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Benzo(a)anthracene	0.0003 (0.00005)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Benzo(a)pyrene	0.0001 (0.00005)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Benzo(b)fluoranthene	0.0001 (0.00005)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Chrysene	0.0002 (0.00005)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Fluoranthene	0.0015 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Fluorene	0.0103 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Indeno(1,2,3-cd)Pyrene	0.00008 (0.00005)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Naphthalene	0.0065 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Phenanthrene	0.0075 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711
Pyrene	0.0019 (0.0002)		8270C SIM		1	10/30/14 5:50	CXJ0423	CJ42711

	<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	68 %		30-130
Surrogate: p-Terphenyl-d14	58 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-201
Date Sampled: 10/23/14 12:23
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-06
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	1 (0.05)		9014		10	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	1.16 (0.0500)		9014		10	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-208
Date Sampled: 10/23/14 11:48
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-07
Sample Matrix: Ground Water
Units: mg/L
Analyst: JXS
Prepared: 10/24/14 13:25

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	0.48 (0.19)		8100M		1	10/27/14 14:55	CXJ0363	CJ42436

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: O-Terphenyl</i>	84 %		40-140



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-208
Date Sampled: 10/23/14 11:48
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-07
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>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	10/29/14 14:41	CXJ0431	CJ43004
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2,4-Trimethylbenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,3,5-Trimethylbenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
1-Chlorohexane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
2-Butanone	ND (0.0100)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
2-Chlorotoluene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
2-Hexanone	ND (0.0100)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
4-Chlorotoluene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
4-Isopropyltoluene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Acetone	ND (0.0100)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Benzene	0.0016 (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Bromobenzene	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-208
Date Sampled: 10/23/14 11:48
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-07
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Bromodichloromethane	ND (0.0006)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Bromoform	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Bromomethane	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Carbon Disulfide	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Chlorobenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Chloroethane	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Chloroform	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Chloromethane	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Dibromochloromethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Dibromomethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Diethyl Ether	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Di-isopropyl ether	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Ethylbenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Hexachloroethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Isopropylbenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Methylene Chloride	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Naphthalene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
n-Butylbenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
n-Propylbenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
sec-Butylbenzene	0.0032 (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Styrene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
tert-Butylbenzene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Tetrachloroethene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-208
Date Sampled: 10/23/14 11:48
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-07
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>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Toluene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Trichloroethene	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Vinyl Acetate	ND (0.0050)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Vinyl Chloride	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Xylene O	ND (0.0010)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Xylene P,M	ND (0.0020)		8260B		1	10/29/14 14:41	CXJ0431	CJ43004
Xylenes (Total)	ND (0.0020)		8260B		1	10/29/14 14:41		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/29/14 14:41		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>123 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>110 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>118 %</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-208
Date Sampled: 10/23/14 11:48
Percent Solids: N/A
Initial Volume: 1030
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-07
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/27/14 14:36

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	0.0002 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Acenaphthene	0.0014 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Acenaphthylene	0.0005 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Anthracene	0.0002 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Benzo(a)anthracene	ND (0.00005)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Benzo(a)pyrene	ND (0.00005)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Benzo(b)fluoranthene	ND (0.00005)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Benzo(g,h,i)perylene	ND (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Benzo(k)fluoranthene	ND (0.00005)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Chrysene	ND (0.00005)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Dibenzo(a,h)Anthracene	ND (0.00005)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Fluoranthene	ND (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Fluorene	0.0020 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.00005)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Naphthalene	0.0047 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Phenanthrene	0.0012 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711
Pyrene	0.0002 (0.0002)		8270C SIM		1	10/30/14 6:40	CXJ0423	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichlorobenzene-d4	43 %		30-130
Surrogate: 2-Fluorobiphenyl	58 %		30-130
Surrogate: Nitrobenzene-d5	67 %		30-130
Surrogate: p-Terphenyl-d14	66 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-208
Date Sampled: 10/23/14 11:48
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-07
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	0.09 (0.005)		9014		1	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	0.108 (0.0050)		9014		1	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-BD-102314
Date Sampled: 10/23/14 08:00
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: JXS
Prepared: 10/24/14 13:25

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	10.1 (0.19)		8100M		1	10/27/14 15:34	CXJ0363	CJ42436

	<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-BD-102314
 Date Sampled: 10/23/14 08:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
 ESS Laboratory Sample ID: 1410604-08
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,1,1,2-Tetrachloroethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,1,1-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,1,2,2-Tetrachloroethane	ND (0.0005)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,1,2-Trichloroethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,1-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,1-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,1-Dichloropropene	ND (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2,3-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2,3-Trichloropropane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2,4-Trichlorobenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2,4-Trimethylbenzene	0.376 (0.100)		8260B		100	10/28/14 18:00	CXJ0385	CJ42810
1,2-Dibromo-3-Chloropropane	ND (0.0050)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2-Dibromoethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2-Dichloroethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,3,5-Trimethylbenzene	0.0274 (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,3-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,3-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,4-Dichlorobenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1,4-Dioxane - Screen	ND (0.500)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
1-Chlorohexane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
2,2-Dichloropropane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
2-Butanone	ND (0.0100)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
2-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
2-Hexanone	ND (0.0100)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
4-Chlorotoluene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
4-Isopropyltoluene	0.0096 (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
4-Methyl-2-Pentanone	ND (0.0250)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Acetone	ND (0.0100)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Benzene	5.94 (0.100)		8260B		100	10/28/14 18:00	CXJ0385	CJ42810
Bromobenzene	ND (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-BD-102314
Date Sampled: 10/23/14 08:00
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Bromochloromethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Bromodichloromethane	ND (0.0006)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Bromoform	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Bromomethane	ND (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Carbon Disulfide	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Carbon Tetrachloride	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Chlorobenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Chloroethane	ND (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Chloroform	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Chloromethane	ND (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
cis-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
cis-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Dibromochloromethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Dibromomethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Dichlorodifluoromethane	ND (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Diethyl Ether	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Di-isopropyl ether	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Ethyl tertiary-butyl ether	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Ethylbenzene	1.91 (0.100)		8260B		100	10/28/14 18:00	CXJ0385	CJ42810
Hexachlorobutadiene	ND (0.0006)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Hexachloroethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Isopropylbenzene	0.0862 (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Methyl tert-Butyl Ether	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Methylene Chloride	ND (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Naphthalene	8.13 (0.100)		8260B		100	10/28/14 18:00	CXJ0385	CJ42810
n-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
n-Propylbenzene	0.0337 (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
sec-Butylbenzene	0.0011 (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Styrene	0.0017 (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
tert-Butylbenzene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Tertiary-amyl methyl ether	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Tetrachloroethene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Tidewater GH
 Client Sample ID: MW-BD-102314
 Date Sampled: 10/23/14 08:00
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1410604
 ESS Laboratory Sample ID: 1410604-08
 Sample Matrix: Ground Water
 Units: mg/L
 Analyst: MD

All methods used are in accordance with 40 CFR 136.

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Tetrahydrofuran	ND (0.0050)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Toluene	0.0090 (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
trans-1,2-Dichloroethene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
trans-1,3-Dichloropropene	ND (0.0004)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Trichloroethene	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Trichlorofluoromethane	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Vinyl Acetate	ND (0.0050)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Vinyl Chloride	ND (0.0010)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Xylene O	0.512 (0.100)		8260B		100	10/28/14 18:00	CXJ0385	CJ42810
Xylene P,M	0.0468 (0.0020)		8260B		1	10/27/14 21:41	CXJ0385	CJ42810
Xylenes (Total)	0.559 (0.100)		8260B		100	10/28/14 18:00		[CALC]
Trihalomethanes (Total)	ND (0.0010)		8260B			10/27/14 21:41		[CALC]

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>104 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>107 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>111 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-BD-102314
Date Sampled: 10/23/14 08:00
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 0.25
Extraction Method: 3510C

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-08
Sample Matrix: Ground Water
Units: mg/L
Analyst: VSC
Prepared: 10/27/14 14:36

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	0.159 (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Acenaphthene	0.106 (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Acenaphthylene	ND (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Anthracene	ND (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Benzo(a)anthracene	ND (0.0023)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Benzo(a)pyrene	ND (0.0023)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Benzo(b)fluoranthene	ND (0.0023)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Benzo(g,h,i)perylene	ND (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Benzo(k)fluoranthene	ND (0.0023)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Chrysene	ND (0.0023)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Dibenzo(a,h)Anthracene	ND (0.0023)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Fluoranthene	ND (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Fluorene	0.0261 (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Indeno(1,2,3-cd)Pyrene	ND (0.0023)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Naphthalene	3.26 (0.0935)		8270C SIM		500	10/31/14 14:06	CXJ0452	CJ42711
Phenanthrene	0.0232 (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711
Pyrene	ND (0.0093)		8270C SIM		50	10/31/14 13:15	CXJ0452	CJ42711

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichlorobenzene-d4</i>	55 %		30-130
<i>Surrogate: 2-Fluorobiphenyl</i>	69 %		30-130
<i>Surrogate: Nitrobenzene-d5</i>	64 %		30-130
<i>Surrogate: p-Terphenyl-d14</i>	75 %		30-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Tidewater GH
Client Sample ID: MW-BD-102314
Date Sampled: 10/23/14 08:00
Percent Solids: N/A

ESS Laboratory Work Order: 1410604
ESS Laboratory Sample ID: 1410604-08
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	0.7 (0.05)		9014		10	EEM	10/27/14 12:40	mg/L	CJ42718
Total Cyanide (LL)	0.902 (0.0500)		9014		10	EEM	10/27/14 12:40	mg/L	CJ42718



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42436 - 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>0.0757</i>		mg/L	<i>0.1000</i>		<i>76</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)	0.045	0.005	mg/L	0.05000		91	40-140			
Dodecane (C12)	0.039	0.005	mg/L	0.05000		78	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		91	40-140			
Hexadecane (C16)	0.041	0.005	mg/L	0.05000		82	40-140			
Nonadecane (C19)	0.041	0.005	mg/L	0.05000		82	40-140			
Nonane (C9)	0.029	0.005	mg/L	0.05000		59	30-140			
Octacosane (C28)	0.044	0.005	mg/L	0.05000		89	40-140			
Octadecane (C18)	0.043	0.005	mg/L	0.05000		86	40-140			
Tetracosane (C24)	0.046	0.005	mg/L	0.05000		92	40-140			
Tetradecane (C14)	0.041	0.005	mg/L	0.05000		81	40-140			
Total Petroleum Hydrocarbons	0.571	0.20	mg/L	0.7000		82	40-140			
Triacotane (C30)	0.044	0.005	mg/L	0.05000		89	40-140			

<i>Surrogate: O-Terphenyl</i>	<i>0.0718</i>		mg/L	<i>0.1000</i>		<i>72</i>	<i>40-140</i>			
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LCS Dup

Decane (C10)	0.027	0.005	mg/L	0.05000	54	40-140	26	25	D+
Docosane (C22)	0.038	0.005	mg/L	0.05000	75	40-140	18	25	
Dodecane (C12)	0.032	0.005	mg/L	0.05000	63	40-140	21	25	
Eicosane (C20)	0.037	0.005	mg/L	0.05000	74	40-140	16	25	
Hexacosane (C26)	0.037	0.005	mg/L	0.05000	75	40-140	20	25	
Hexadecane (C16)	0.034	0.005	mg/L	0.05000	68	40-140	19	25	
Nonadecane (C19)	0.034	0.005	mg/L	0.05000	68	40-140	19	25	
Nonane (C9)	0.023	0.005	mg/L	0.05000	45	30-140	26	25	D+
Octacosane (C28)	0.037	0.005	mg/L	0.05000	73	40-140	19	25	
Octadecane (C18)	0.035	0.005	mg/L	0.05000	71	40-140	19	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42436 - 3510C

Tetracosane (C24)	0.036	0.005	mg/L	0.05000		73	40-140	23	25	
Tetradecane (C14)	0.032	0.005	mg/L	0.05000		63	40-140	25	25	
Total Petroleum Hydrocarbons	0.453	0.20	mg/L	0.7000		65	40-140	23	25	
Triacotane (C30)	0.037	0.005	mg/L	0.05000		74	40-140	19	25	

Surrogate: O-Terphenyl *0.0580* mg/L *0.1000* *58* *40-140*

8260B Volatile Organic Compounds

Batch CJ42810 - 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: 1410604

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 CJ42810 - 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	0.0303		mg/L	0.02500		121	70-130			
Surrogate: 4-Bromofluorobenzene	0.0237		mg/L	0.02500		95	70-130			
Surrogate: Dibromofluoromethane	0.0294		mg/L	0.02500		118	70-130			
Surrogate: Toluene-d8	0.0254		mg/L	0.02500		102	70-130			

LCS

1,1,1,2-Tetrachloroethane	10.7		ug/L	10.00		107	70-130			
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CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42810 - 5030B

1,1,1-Trichloroethane	12.2		ug/L	10.00		122	70-130			
1,1,2,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130			
1,1,2-Trichloroethane	10.8		ug/L	10.00		108	70-130			
1,1-Dichloroethane	10.6		ug/L	10.00		106	70-130			
1,1-Dichloroethene	10.5		ug/L	10.00		105	70-130			
1,1-Dichloropropene	10.7		ug/L	10.00		107	70-130			
1,2,3-Trichlorobenzene	10.1		ug/L	10.00		101	70-130			
1,2,3-Trichloropropane	10.2		ug/L	10.00		102	70-130			
1,2,4-Trichlorobenzene	9.73		ug/L	10.00		97	70-130			
1,2,4-Trimethylbenzene	10.5		ug/L	10.00		105	70-130			
1,2-Dibromo-3-Chloropropane	11.1		ug/L	10.00		111	70-130			
1,2-Dibromoethane	9.97		ug/L	10.00		100	70-130			
1,2-Dichlorobenzene	10.3		ug/L	10.00		103	70-130			
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130			
1,2-Dichloropropane	10.2		ug/L	10.00		102	70-130			
1,3,5-Trimethylbenzene	11.1		ug/L	10.00		111	70-130			
1,3-Dichlorobenzene	10.4		ug/L	10.00		104	70-130			
1,3-Dichloropropane	11.0		ug/L	10.00		110	70-130			
1,4-Dichlorobenzene	10.6		ug/L	10.00		106	70-130			
1,4-Dioxane - Screen	223		ug/L	200.0		111	0-332			
1-Chlorohexane	9.50		ug/L	10.00		95	70-130			
2,2-Dichloropropane	13.8		ug/L	10.00		138	70-130			B+
2-Butanone	51.4		ug/L	50.00		103	70-130			
2-Chlorotoluene	9.95		ug/L	10.00		100	70-130			
2-Hexanone	53.1		ug/L	50.00		106	70-130			
4-Chlorotoluene	9.98		ug/L	10.00		100	70-130			
4-Isopropyltoluene	10.5		ug/L	10.00		105	70-130			
4-Methyl-2-Pentanone	52.3		ug/L	50.00		105	70-130			
Acetone	54.0		ug/L	50.00		108	70-130			
Benzene	10.9		ug/L	10.00		109	70-130			
Bromobenzene	10.7		ug/L	10.00		107	70-130			
Bromochloromethane	11.2		ug/L	10.00		112	70-130			
Bromodichloromethane	10.4		ug/L	10.00		104	70-130			
Bromoform	10.7		ug/L	10.00		107	70-130			
Bromomethane	10.1		ug/L	10.00		101	70-130			
Carbon Disulfide	10.1		ug/L	10.00		101	70-130			
Carbon Tetrachloride	11.6		ug/L	10.00		116	70-130			
Chlorobenzene	10.4		ug/L	10.00		104	70-130			
Chloroethane	7.75		ug/L	10.00		78	70-130			
Chloroform	10.6		ug/L	10.00		106	70-130			
Chloromethane	10.9		ug/L	10.00		109	70-130			
cis-1,2-Dichloroethene	11.0		ug/L	10.00		110	70-130			
cis-1,3-Dichloropropene	9.72		ug/L	10.00		97	70-130			
Dibromochloromethane	10.1		ug/L	10.00		101	70-130			
Dibromomethane	10.7		ug/L	10.00		107	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42810 - 5030B

Dichlorodifluoromethane	10.5		ug/L	10.00		105	70-130			
Diethyl Ether	10.8		ug/L	10.00		108	70-130			
Di-isopropyl ether	10.2		ug/L	10.00		102	70-130			
Ethyl tertiary-butyl ether	10.6		ug/L	10.00		106	70-130			
Ethylbenzene	10.7		ug/L	10.00		107	70-130			
Hexachlorobutadiene	11.0		ug/L	10.00		110	70-130			
Hexachloroethane	13.3		ug/L	10.00		133	70-130			B+
Isopropylbenzene	10.0		ug/L	10.00		100	70-130			
Methyl tert-Butyl Ether	11.1		ug/L	10.00		111	70-130			
Methylene Chloride	11.1		ug/L	10.00		111	70-130			
Naphthalene	10.4		ug/L	10.00		104	70-130			
n-Butylbenzene	9.95		ug/L	10.00		100	70-130			
n-Propylbenzene	9.92		ug/L	10.00		99	70-130			
sec-Butylbenzene	10.4		ug/L	10.00		104	70-130			
Styrene	9.64		ug/L	10.00		96	70-130			
tert-Butylbenzene	10.2		ug/L	10.00		102	70-130			
Tertiary-amyl methyl ether	10.5		ug/L	10.00		105	70-130			
Tetrachloroethene	10.1		ug/L	10.00		101	70-130			
Tetrahydrofuran	10.4		ug/L	10.00		104	70-130			
Toluene	11.4		ug/L	10.00		114	70-130			
trans-1,2-Dichloroethene	10.5		ug/L	10.00		105	70-130			
trans-1,3-Dichloropropene	9.97		ug/L	10.00		100	70-130			
Trichloroethene	10.8		ug/L	10.00		108	70-130			
Trichlorofluoromethane	10.4		ug/L	10.00		104	70-130			
Vinyl Acetate	11.7		ug/L	10.00		117	70-130			
Vinyl Chloride	11.5		ug/L	10.00		115	70-130			
Xylene O	11.0		ug/L	10.00		110	70-130			
Xylene P,M	21.9		ug/L	20.00		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0201		mg/L	0.02500		80	70-130			
Surrogate: 4-Bromofluorobenzene	0.0183		mg/L	0.02500		73	70-130			
Surrogate: Dibromofluoromethane	0.0205		mg/L	0.02500		82	70-130			
Surrogate: Toluene-d8	0.0190		mg/L	0.02500		76	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	10.6		ug/L	10.00		106	70-130	1	25	
1,1,1-Trichloroethane	12.4		ug/L	10.00		124	70-130	1	25	
1,1,2,2-Tetrachloroethane	10.3		ug/L	10.00		103	70-130	1	25	
1,1,2-Trichloroethane	10.8		ug/L	10.00		108	70-130	0.4	25	
1,1-Dichloroethane	10.6		ug/L	10.00		106	70-130	0.09	25	
1,1-Dichloroethene	10.8		ug/L	10.00		108	70-130	3	25	
1,1-Dichloropropene	10.8		ug/L	10.00		108	70-130	0.6	25	
1,2,3-Trichlorobenzene	10.0		ug/L	10.00		100	70-130	0.8	25	
1,2,3-Trichloropropane	10.6		ug/L	10.00		106	70-130	4	25	
1,2,4-Trichlorobenzene	9.78		ug/L	10.00		98	70-130	0.5	25	
1,2,4-Trimethylbenzene	10.5		ug/L	10.00		105	70-130	0.4	25	
1,2-Dibromo-3-Chloropropane	10.8		ug/L	10.00		108	70-130	3	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42810 - 5030B

1,2-Dibromoethane	10.1		ug/L	10.00		101	70-130	1	25	
1,2-Dichlorobenzene	10.2		ug/L	10.00		102	70-130	1	25	
1,2-Dichloroethane	11.1		ug/L	10.00		111	70-130	0	25	
1,2-Dichloropropane	10.3		ug/L	10.00		103	70-130	1	25	
1,3,5-Trimethylbenzene	11.1		ug/L	10.00		111	70-130	0.2	25	
1,3-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	0.1	25	
1,3-Dichloropropane	10.8		ug/L	10.00		108	70-130	1	25	
1,4-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	2	25	
1,4-Dioxane - Screen	239		ug/L	200.0		120	0-332	7	200	
1-Chlorohexane	9.39		ug/L	10.00		94	70-130	1	25	
2,2-Dichloropropane	14.3		ug/L	10.00		143	70-130	4	25	B+
2-Butanone	60.6		ug/L	50.00		121	70-130	16	25	
2-Chlorotoluene	9.91		ug/L	10.00		99	70-130	0.4	25	
2-Hexanone	60.4		ug/L	50.00		121	70-130	13	25	
4-Chlorotoluene	10.3		ug/L	10.00		103	70-130	3	25	
4-Isopropyltoluene	10.6		ug/L	10.00		106	70-130	0.3	25	
4-Methyl-2-Pentanone	55.8		ug/L	50.00		112	70-130	6	25	
Acetone	84.2		ug/L	50.00		168	70-130	44	25	B+
Benzene	10.8		ug/L	10.00		108	70-130	1	25	
Bromobenzene	10.6		ug/L	10.00		106	70-130	0.7	25	
Bromochloromethane	11.3		ug/L	10.00		113	70-130	0.4	25	
Bromodichloromethane	10.4		ug/L	10.00		104	70-130	0.5	25	
Bromoform	10.7		ug/L	10.00		107	70-130	0.7	25	
Bromomethane	9.92		ug/L	10.00		99	70-130	2	25	
Carbon Disulfide	10.1		ug/L	10.00		101	70-130	0.2	25	
Carbon Tetrachloride	11.8		ug/L	10.00		118	70-130	1	25	
Chlorobenzene	10.2		ug/L	10.00		102	70-130	3	25	
Chloroethane	7.27		ug/L	10.00		73	70-130	6	25	
Chloroform	10.7		ug/L	10.00		107	70-130	0.8	25	
Chloromethane	10.5		ug/L	10.00		105	70-130	4	25	
cis-1,2-Dichloroethene	10.9		ug/L	10.00		109	70-130	0.9	25	
cis-1,3-Dichloropropene	9.88		ug/L	10.00		99	70-130	2	25	
Dibromochloromethane	10.1		ug/L	10.00		101	70-130	0.3	25	
Dibromomethane	10.8		ug/L	10.00		108	70-130	0.6	25	
Dichlorodifluoromethane	10.6		ug/L	10.00		106	70-130	0.8	25	
Diethyl Ether	10.9		ug/L	10.00		109	70-130	0.8	25	
Di-isopropyl ether	10.3		ug/L	10.00		103	70-130	1	25	
Ethyl tertiary-butyl ether	11.0		ug/L	10.00		110	70-130	4	25	
Ethylbenzene	10.5		ug/L	10.00		105	70-130	2	25	
Hexachlorobutadiene	11.0		ug/L	10.00		110	70-130	0.2	25	
Hexachloroethane	13.3		ug/L	10.00		133	70-130	0.4	25	B+
Isopropylbenzene	9.88		ug/L	10.00		99	70-130	1	25	
Methyl tert-Butyl Ether	11.3		ug/L	10.00		113	70-130	2	25	
Methylene Chloride	11.0		ug/L	10.00		110	70-130	1	25	
Naphthalene	10.6		ug/L	10.00		106	70-130	1	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42810 - 5030B

n-Butylbenzene	10.0		ug/L	10.00		100	70-130	0.8	25	
n-Propylbenzene	9.90		ug/L	10.00		99	70-130	0.2	25	
sec-Butylbenzene	10.4		ug/L	10.00		104	70-130	0	25	
Styrene	9.43		ug/L	10.00		94	70-130	2	25	
tert-Butylbenzene	10.0		ug/L	10.00		100	70-130	1	25	
Tertiary-amyl methyl ether	10.7		ug/L	10.00		107	70-130	2	25	
Tetrachloroethene	9.99		ug/L	10.00		100	70-130	1	25	
Tetrahydrofuran	11.1		ug/L	10.00		111	70-130	7	25	
Toluene	11.4		ug/L	10.00		114	70-130	0.6	25	
trans-1,2-Dichloroethene	10.7		ug/L	10.00		107	70-130	1	25	
trans-1,3-Dichloropropene	10.1		ug/L	10.00		101	70-130	0.9	25	
Trichloroethene	10.7		ug/L	10.00		107	70-130	0.5	25	
Trichlorofluoromethane	10.4		ug/L	10.00		104	70-130	0.9	25	
Vinyl Acetate	12.0		ug/L	10.00		120	70-130	2	25	
Vinyl Chloride	11.5		ug/L	10.00		115	70-130	0.2	25	
Xylene O	10.8		ug/L	10.00		108	70-130	2	25	
Xylene P,M	21.5		ug/L	20.00		107	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	0.0241		mg/L	0.02500		96	70-130			
Surrogate: 4-Bromofluorobenzene	0.0213		mg/L	0.02500		85	70-130			
Surrogate: Dibromofluoromethane	0.0246		mg/L	0.02500		98	70-130			
Surrogate: Toluene-d8	0.0221		mg/L	0.02500		88	70-130			

Batch CJ42842 - 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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42842 - 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: 1410604

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 CJ42842 - 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	0.0295		mg/L	0.02500		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0244		mg/L	0.02500		98	70-130			
Surrogate: Dibromofluoromethane	0.0289		mg/L	0.02500		115	70-130			
Surrogate: Toluene-d8	0.0256		mg/L	0.02500		102	70-130			

LCS

1,1,1,2-Tetrachloroethane	9.81		ug/L	10.00		98	70-130			
1,1,1-Trichloroethane	11.0		ug/L	10.00		110	70-130			
1,1,2,2-Tetrachloroethane	9.00		ug/L	10.00		90	70-130			
1,1,2-Trichloroethane	9.70		ug/L	10.00		97	70-130			
1,1-Dichloroethane	9.50		ug/L	10.00		95	70-130			
1,1-Dichloroethene	9.79		ug/L	10.00		98	70-130			
1,1-Dichloropropene	9.79		ug/L	10.00		98	70-130			
1,2,3-Trichlorobenzene	9.18		ug/L	10.00		92	70-130			
1,2,3-Trichloropropane	9.12		ug/L	10.00		91	70-130			
1,2,4-Trichlorobenzene	8.86		ug/L	10.00		89	70-130			
1,2,4-Trimethylbenzene	9.64		ug/L	10.00		96	70-130			
1,2-Dibromo-3-Chloropropane	9.49		ug/L	10.00		95	70-130			
1,2-Dibromoethane	8.84		ug/L	10.00		88	70-130			
1,2-Dichlorobenzene	9.11		ug/L	10.00		91	70-130			
1,2-Dichloroethane	9.85		ug/L	10.00		98	70-130			
1,2-Dichloropropane	9.24		ug/L	10.00		92	70-130			
1,3,5-Trimethylbenzene	10.0		ug/L	10.00		100	70-130			
1,3-Dichlorobenzene	9.13		ug/L	10.00		91	70-130			
1,3-Dichloropropane	9.82		ug/L	10.00		98	70-130			
1,4-Dichlorobenzene	9.30		ug/L	10.00		93	70-130			
1,4-Dioxane - Screen	188		ug/L	200.0		94	0-332			
1-Chlorohexane	9.01		ug/L	10.00		90	70-130			
2,2-Dichloropropane	12.7		ug/L	10.00		127	70-130			
2-Butanone	48.8		ug/L	50.00		98	70-130			
2-Chlorotoluene	9.16		ug/L	10.00		92	70-130			
2-Hexanone	46.2		ug/L	50.00		92	70-130			
4-Chlorotoluene	9.17		ug/L	10.00		92	70-130			
4-Isopropyltoluene	9.63		ug/L	10.00		96	70-130			
4-Methyl-2-Pentanone	45.5		ug/L	50.00		91	70-130			
Acetone	57.2		ug/L	50.00		114	70-130			
Benzene	9.91		ug/L	10.00		99	70-130			
Bromobenzene	9.54		ug/L	10.00		95	70-130			
Bromochloromethane	10.2		ug/L	10.00		102	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42842 - 5030B

Bromodichloromethane	9.21		ug/L	10.00		92	70-130			
Bromoform	9.30		ug/L	10.00		93	70-130			
Bromomethane	6.47		ug/L	10.00		65	70-130			B-
Carbon Disulfide	9.15		ug/L	10.00		92	70-130			
Carbon Tetrachloride	10.6		ug/L	10.00		106	70-130			
Chlorobenzene	9.26		ug/L	10.00		93	70-130			
Chloroethane	6.42		ug/L	10.00		64	70-130			B-
Chloroform	9.54		ug/L	10.00		95	70-130			
Chloromethane	9.47		ug/L	10.00		95	70-130			
cis-1,2-Dichloroethene	10.1		ug/L	10.00		101	70-130			
cis-1,3-Dichloropropene	8.98		ug/L	10.00		90	70-130			
Dibromochloromethane	9.07		ug/L	10.00		91	70-130			
Dibromomethane	9.46		ug/L	10.00		95	70-130			
Dichlorodifluoromethane	9.73		ug/L	10.00		97	70-130			
Diethyl Ether	9.99		ug/L	10.00		100	70-130			
Di-isopropyl ether	9.45		ug/L	10.00		94	70-130			
Ethyl tertiary-butyl ether	10.8		ug/L	10.00		108	70-130			
Ethylbenzene	9.72		ug/L	10.00		97	70-130			
Hexachlorobutadiene	9.87		ug/L	10.00		99	70-130			
Hexachloroethane	12.1		ug/L	10.00		121	70-130			
Isopropylbenzene	9.15		ug/L	10.00		92	70-130			
Methyl tert-Butyl Ether	10.6		ug/L	10.00		106	70-130			
Methylene Chloride	9.82		ug/L	10.00		98	70-130			
Naphthalene	10.4		ug/L	10.00		104	70-130			
n-Butylbenzene	9.33		ug/L	10.00		93	70-130			
n-Propylbenzene	9.04		ug/L	10.00		90	70-130			
sec-Butylbenzene	9.48		ug/L	10.00		95	70-130			
Styrene	8.35		ug/L	10.00		84	70-130			
tert-Butylbenzene	9.36		ug/L	10.00		94	70-130			
Tertiary-amyl methyl ether	11.3		ug/L	10.00		113	70-130			
Tetrachloroethene	9.04		ug/L	10.00		90	70-130			
Tetrahydrofuran	9.78		ug/L	10.00		98	70-130			
Toluene	10.4		ug/L	10.00		104	70-130			
trans-1,2-Dichloroethene	9.60		ug/L	10.00		96	70-130			
trans-1,3-Dichloropropene	9.21		ug/L	10.00		92	70-130			
Trichloroethene	9.70		ug/L	10.00		97	70-130			
Trichlorofluoromethane	9.39		ug/L	10.00		94	70-130			
Vinyl Acetate	11.1		ug/L	10.00		111	70-130			
Vinyl Chloride	10.4		ug/L	10.00		104	70-130			
Xylene O	9.85		ug/L	10.00		98	70-130			
Xylene P,M	19.6		ug/L	20.00		98	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0211		mg/L	0.02500		84	70-130			
Surrogate: 4-Bromofluorobenzene	0.0190		mg/L	0.02500		76	70-130			
Surrogate: Dibromofluoromethane	0.0215		mg/L	0.02500		86	70-130			
Surrogate: Toluene-d8	0.0201		mg/L	0.02500		80	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42842 - 5030B

LCS Dup										
1,1,1,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130	4	25	
1,1,1-Trichloroethane	11.5		ug/L	10.00		115	70-130	5	25	
1,1,2,2-Tetrachloroethane	9.52		ug/L	10.00		95	70-130	6	25	
1,1,2-Trichloroethane	10.3		ug/L	10.00		103	70-130	6	25	
1,1-Dichloroethane	10.1		ug/L	10.00		101	70-130	6	25	
1,1-Dichloroethene	10.3		ug/L	10.00		103	70-130	5	25	
1,1-Dichloropropene	10.7		ug/L	10.00		107	70-130	9	25	
1,2,3-Trichlorobenzene	10.1		ug/L	10.00		101	70-130	9	25	
1,2,3-Trichloropropane	9.71		ug/L	10.00		97	70-130	6	25	
1,2,4-Trichlorobenzene	9.85		ug/L	10.00		98	70-130	11	25	
1,2,4-Trimethylbenzene	10.4		ug/L	10.00		104	70-130	7	25	
1,2-Dibromo-3-Chloropropane	10.3		ug/L	10.00		103	70-130	8	25	
1,2-Dibromoethane	9.46		ug/L	10.00		95	70-130	7	25	
1,2-Dichlorobenzene	9.71		ug/L	10.00		97	70-130	6	25	
1,2-Dichloroethane	10.6		ug/L	10.00		106	70-130	7	25	
1,2-Dichloropropane	9.54		ug/L	10.00		95	70-130	3	25	
1,3,5-Trimethylbenzene	10.7		ug/L	10.00		107	70-130	7	25	
1,3-Dichlorobenzene	9.81		ug/L	10.00		98	70-130	7	25	
1,3-Dichloropropane	10.4		ug/L	10.00		104	70-130	6	25	
1,4-Dichlorobenzene	10.0		ug/L	10.00		100	70-130	8	25	
1,4-Dioxane - Screen	224		ug/L	200.0		112	0-332	17	200	
1-Chlorohexane	9.47		ug/L	10.00		95	70-130	5	25	
2,2-Dichloropropane	13.5		ug/L	10.00		135	70-130	6	25	B+
2-Butanone	51.9		ug/L	50.00		104	70-130	6	25	
2-Chlorotoluene	9.54		ug/L	10.00		95	70-130	4	25	
2-Hexanone	50.4		ug/L	50.00		101	70-130	9	25	
4-Chlorotoluene	9.94		ug/L	10.00		99	70-130	8	25	
4-Isopropyltoluene	10.5		ug/L	10.00		105	70-130	9	25	
4-Methyl-2-Pentanone	50.5		ug/L	50.00		101	70-130	10	25	
Acetone	64.7		ug/L	50.00		129	70-130	12	25	
Benzene	10.4		ug/L	10.00		104	70-130	5	25	
Bromobenzene	10.2		ug/L	10.00		102	70-130	6	25	
Bromochloromethane	10.8		ug/L	10.00		108	70-130	6	25	
Bromodichloromethane	9.89		ug/L	10.00		99	70-130	7	25	
Bromoform	10.0		ug/L	10.00		100	70-130	8	25	
Bromomethane	7.18		ug/L	10.00		72	70-130	10	25	
Carbon Disulfide	9.74		ug/L	10.00		97	70-130	6	25	
Carbon Tetrachloride	11.2		ug/L	10.00		112	70-130	5	25	
Chlorobenzene	9.93		ug/L	10.00		99	70-130	7	25	
Chloroethane	7.10		ug/L	10.00		71	70-130	10	25	
Chloroform	10.0		ug/L	10.00		100	70-130	5	25	
Chloromethane	10.2		ug/L	10.00		102	70-130	7	25	
cis-1,2-Dichloroethene	10.8		ug/L	10.00		108	70-130	6	25	
cis-1,3-Dichloropropene	9.48		ug/L	10.00		95	70-130	5	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42842 - 5030B

Dibromochloromethane	9.63		ug/L	10.00		96	70-130	6	25	
Dibromomethane	10.0		ug/L	10.00		100	70-130	6	25	
Dichlorodifluoromethane	10.3		ug/L	10.00		103	70-130	6	25	
Diethyl Ether	10.6		ug/L	10.00		106	70-130	6	25	
Di-isopropyl ether	10.0		ug/L	10.00		100	70-130	6	25	
Ethyl tertiary-butyl ether	11.4		ug/L	10.00		114	70-130	5	25	
Ethylbenzene	10.3		ug/L	10.00		103	70-130	6	25	
Hexachlorobutadiene	10.8		ug/L	10.00		108	70-130	9	25	
Hexachloroethane	12.8		ug/L	10.00		128	70-130	6	25	
Isopropylbenzene	9.64		ug/L	10.00		96	70-130	5	25	
Methyl tert-Butyl Ether	11.3		ug/L	10.00		113	70-130	6	25	
Methylene Chloride	10.3		ug/L	10.00		103	70-130	5	25	
Naphthalene	11.5		ug/L	10.00		115	70-130	10	25	
n-Butylbenzene	10.5		ug/L	10.00		105	70-130	12	25	
n-Propylbenzene	9.66		ug/L	10.00		97	70-130	7	25	
sec-Butylbenzene	10.1		ug/L	10.00		101	70-130	6	25	
Styrene	9.29		ug/L	10.00		93	70-130	11	25	
tert-Butylbenzene	9.91		ug/L	10.00		99	70-130	6	25	
Tertiary-amyl methyl ether	11.8		ug/L	10.00		118	70-130	5	25	
Tetrachloroethene	9.55		ug/L	10.00		96	70-130	5	25	
Tetrahydrofuran	10.8		ug/L	10.00		108	70-130	10	25	
Toluene	10.9		ug/L	10.00		109	70-130	5	25	
trans-1,2-Dichloroethene	10.3		ug/L	10.00		103	70-130	7	25	
trans-1,3-Dichloropropene	9.62		ug/L	10.00		96	70-130	4	25	
Trichloroethene	10.2		ug/L	10.00		102	70-130	5	25	
Trichlorofluoromethane	9.90		ug/L	10.00		99	70-130	5	25	
Vinyl Acetate	11.6		ug/L	10.00		116	70-130	5	25	
Vinyl Chloride	11.0		ug/L	10.00		110	70-130	5	25	
Xylene O	10.4		ug/L	10.00		104	70-130	5	25	
Xylene P,M	20.8		ug/L	20.00		104	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	0.0249		mg/L	0.02500		99	70-130			
Surrogate: 4-Bromofluorobenzene	0.0225		mg/L	0.02500		90	70-130			
Surrogate: Dibromofluoromethane	0.0253		mg/L	0.02500		101	70-130			
Surrogate: Toluene-d8	0.0236		mg/L	0.02500		94	70-130			

Batch CJ43004 - 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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ43004 - 5030B

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							
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							



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ43004 - 5030B

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	0.0310		mg/L	0.02500		124	70-130			
Surrogate: 4-Bromofluorobenzene	0.0244		mg/L	0.02500		98	70-130			
Surrogate: Dibromofluoromethane	0.0297		mg/L	0.02500		119	70-130			
Surrogate: Toluene-d8	0.0254		mg/L	0.02500		101	70-130			

LCS

1,1,1,2-Tetrachloroethane	10.2		ug/L	10.00		102	70-130			
1,1,1-Trichloroethane	12.4		ug/L	10.00		124	70-130			
1,1,2,2-Tetrachloroethane	9.22		ug/L	10.00		92	70-130			
1,1,2-Trichloroethane	10.4		ug/L	10.00		104	70-130			
1,1-Dichloroethane	10.1		ug/L	10.00		101	70-130			
1,1-Dichloroethene	10.1		ug/L	10.00		101	70-130			
1,1-Dichloropropene	10.4		ug/L	10.00		104	70-130			
1,2,3-Trichlorobenzene	9.27		ug/L	10.00		93	70-130			
1,2,3-Trichloropropane	9.48		ug/L	10.00		95	70-130			
1,2,4-Trichlorobenzene	8.79		ug/L	10.00		88	70-130			
1,2,4-Trimethylbenzene	9.58		ug/L	10.00		96	70-130			
1,2-Dibromo-3-Chloropropane	10.5		ug/L	10.00		105	70-130			
1,2-Dibromoethane	9.29		ug/L	10.00		93	70-130			
1,2-Dichlorobenzene	9.26		ug/L	10.00		93	70-130			
1,2-Dichloroethane	11.7		ug/L	10.00		117	70-130			
1,2-Dichloropropane	9.28		ug/L	10.00		93	70-130			
1,3,5-Trimethylbenzene	10.1		ug/L	10.00		101	70-130			
1,3-Dichlorobenzene	9.42		ug/L	10.00		94	70-130			
1,3-Dichloropropane	10.3		ug/L	10.00		103	70-130			
1,4-Dichlorobenzene	9.57		ug/L	10.00		96	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ43004 - 5030B

1,4-Dioxane - Screen	216		ug/L	200.0		108	0-332			
1-Chlorohexane	8.40		ug/L	10.00		84	70-130			
2,2-Dichloropropane	14.0		ug/L	10.00		140	70-130			B+
2-Butanone	50.4		ug/L	50.00		101	70-130			
2-Chlorotoluene	9.04		ug/L	10.00		90	70-130			
2-Hexanone	48.7		ug/L	50.00		97	70-130			
4-Chlorotoluene	9.06		ug/L	10.00		91	70-130			
4-Isopropyltoluene	9.64		ug/L	10.00		96	70-130			
4-Methyl-2-Pentanone	48.4		ug/L	50.00		97	70-130			
Acetone	66.1		ug/L	50.00		132	70-130			B+
Benzene	10.1		ug/L	10.00		101	70-130			
Bromobenzene	9.48		ug/L	10.00		95	70-130			
Bromochloromethane	10.9		ug/L	10.00		109	70-130			
Bromodichloromethane	10.1		ug/L	10.00		101	70-130			
Bromoform	10.0		ug/L	10.00		100	70-130			
Bromomethane	7.68		ug/L	10.00		77	70-130			
Carbon Disulfide	9.49		ug/L	10.00		95	70-130			
Carbon Tetrachloride	12.0		ug/L	10.00		120	70-130			
Chlorobenzene	9.70		ug/L	10.00		97	70-130			
Chloroethane	7.68		ug/L	10.00		77	70-130			
Chloroform	10.7		ug/L	10.00		107	70-130			
Chloromethane	10.1		ug/L	10.00		101	70-130			
cis-1,2-Dichloroethene	10.3		ug/L	10.00		103	70-130			
cis-1,3-Dichloropropene	9.21		ug/L	10.00		92	70-130			
Dibromochloromethane	9.70		ug/L	10.00		97	70-130			
Dibromomethane	10.2		ug/L	10.00		102	70-130			
Dichlorodifluoromethane	11.8		ug/L	10.00		118	70-130			
Diethyl Ether	9.77		ug/L	10.00		98	70-130			
Di-isopropyl ether	9.25		ug/L	10.00		92	70-130			
Ethyl tertiary-butyl ether	10.7		ug/L	10.00		107	70-130			
Ethylbenzene	9.92		ug/L	10.00		99	70-130			
Hexachlorobutadiene	10.3		ug/L	10.00		103	70-130			
Hexachloroethane	12.6		ug/L	10.00		126	70-130			
Isopropylbenzene	8.92		ug/L	10.00		89	70-130			
Methyl tert-Butyl Ether	10.8		ug/L	10.00		108	70-130			
Methylene Chloride	10.2		ug/L	10.00		102	70-130			
Naphthalene	9.04		ug/L	10.00		90	70-130			
n-Butylbenzene	9.23		ug/L	10.00		92	70-130			
n-Propylbenzene	8.90		ug/L	10.00		89	70-130			
sec-Butylbenzene	9.40		ug/L	10.00		94	70-130			
Styrene	8.34		ug/L	10.00		83	70-130			
tert-Butylbenzene	9.28		ug/L	10.00		93	70-130			
Tertiary-amyl methyl ether	10.8		ug/L	10.00		108	70-130			
Tetrachloroethene	9.49		ug/L	10.00		95	70-130			
Tetrahydrofuran	9.44		ug/L	10.00		94	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ43004 - 5030B

Toluene	10.7		ug/L	10.00		107	70-130			
trans-1,2-Dichloroethene	9.79		ug/L	10.00		98	70-130			
trans-1,3-Dichloropropene	9.67		ug/L	10.00		97	70-130			
Trichloroethene	10.4		ug/L	10.00		104	70-130			
Trichlorofluoromethane	10.9		ug/L	10.00		109	70-130			
Vinyl Acetate	11.2		ug/L	10.00		112	70-130			
Vinyl Chloride	11.6		ug/L	10.00		116	70-130			
Xylene O	10.0		ug/L	10.00		100	70-130			
Xylene P,M	19.9		ug/L	20.00		99	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0298		mg/L	0.02500		119	70-130			
Surrogate: 4-Bromofluorobenzene	0.0249		mg/L	0.02500		100	70-130			
Surrogate: Dibromofluoromethane	0.0285		mg/L	0.02500		114	70-130			
Surrogate: Toluene-d8	0.0245		mg/L	0.02500		98	70-130			

LCS Dup

1,1,1,2-Tetrachloroethane	10.8		ug/L	10.00		108	70-130	6	25	
1,1,1-Trichloroethane	12.9		ug/L	10.00		129	70-130	4	25	
1,1,1,2,2-Tetrachloroethane	9.77		ug/L	10.00		98	70-130	6	25	
1,1,2-Trichloroethane	10.6		ug/L	10.00		106	70-130	1	25	
1,1-Dichloroethane	10.6		ug/L	10.00		106	70-130	5	25	
1,1-Dichloroethene	10.4		ug/L	10.00		104	70-130	3	25	
1,1-Dichloropropene	10.8		ug/L	10.00		108	70-130	4	25	
1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130	10	25	
1,2,3-Trichloropropane	10.3		ug/L	10.00		103	70-130	8	25	
1,2,4-Trichlorobenzene	9.85		ug/L	10.00		98	70-130	11	25	
1,2,4-Trimethylbenzene	10.3		ug/L	10.00		103	70-130	8	25	
1,2-Dibromo-3-Chloropropane	10.8		ug/L	10.00		108	70-130	3	25	
1,2-Dibromoethane	9.95		ug/L	10.00		100	70-130	7	25	
1,2-Dichlorobenzene	9.82		ug/L	10.00		98	70-130	6	25	
1,2-Dichloroethane	12.0		ug/L	10.00		120	70-130	2	25	
1,2-Dichloropropane	9.72		ug/L	10.00		97	70-130	5	25	
1,3,5-Trimethylbenzene	10.7		ug/L	10.00		107	70-130	6	25	
1,3-Dichlorobenzene	9.95		ug/L	10.00		100	70-130	5	25	
1,3-Dichloropropane	10.8		ug/L	10.00		108	70-130	5	25	
1,4-Dichlorobenzene	10.3		ug/L	10.00		103	70-130	8	25	
1,4-Dioxane - Screen	229		ug/L	200.0		114	0-332	6	200	
1-Chlorohexane	8.96		ug/L	10.00		90	70-130	6	25	
2,2-Dichloropropane	14.3		ug/L	10.00		143	70-130	2	25	B+
2-Butanone	50.4		ug/L	50.00		101	70-130	0.04	25	
2-Chlorotoluene	9.87		ug/L	10.00		99	70-130	9	25	
2-Hexanone	51.8		ug/L	50.00		104	70-130	6	25	
4-Chlorotoluene	9.93		ug/L	10.00		99	70-130	9	25	
4-Isopropyltoluene	10.6		ug/L	10.00		106	70-130	9	25	
4-Methyl-2-Pentanone	50.4		ug/L	50.00		101	70-130	4	25	
Acetone	63.6		ug/L	50.00		127	70-130	4	25	
Benzene	10.5		ug/L	10.00		105	70-130	3	25	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ43004 - 5030B

Bromobenzene	10.2		ug/L	10.00		102	70-130	8	25	
Bromochloromethane	11.3		ug/L	10.00		113	70-130	4	25	
Bromodichloromethane	10.6		ug/L	10.00		106	70-130	5	25	
Bromoform	10.6		ug/L	10.00		106	70-130	6	25	
Bromomethane	8.60		ug/L	10.00		86	70-130	11	25	
Carbon Disulfide	9.98		ug/L	10.00		100	70-130	5	25	
Carbon Tetrachloride	12.4		ug/L	10.00		124	70-130	3	25	
Chlorobenzene	10.2		ug/L	10.00		102	70-130	5	25	
Chloroethane	7.71		ug/L	10.00		77	70-130	0.4	25	
Chloroform	11.1		ug/L	10.00		111	70-130	4	25	
Chloromethane	10.6		ug/L	10.00		106	70-130	5	25	
cis-1,2-Dichloroethene	10.7		ug/L	10.00		107	70-130	4	25	
cis-1,3-Dichloropropene	9.69		ug/L	10.00		97	70-130	5	25	
Dibromochloromethane	10.2		ug/L	10.00		102	70-130	5	25	
Dibromomethane	10.6		ug/L	10.00		106	70-130	4	25	
Dichlorodifluoromethane	12.3		ug/L	10.00		123	70-130	4	25	
Diethyl Ether	10.4		ug/L	10.00		104	70-130	7	25	
Di-isopropyl ether	9.55		ug/L	10.00		96	70-130	3	25	
Ethyl tertiary-butyl ether	10.9		ug/L	10.00		109	70-130	2	25	
Ethylbenzene	10.5		ug/L	10.00		105	70-130	6	25	
Hexachlorobutadiene	11.2		ug/L	10.00		112	70-130	9	25	
Hexachloroethane	13.2		ug/L	10.00		132	70-130	5	25	B+
Isopropylbenzene	9.64		ug/L	10.00		96	70-130	8	25	
Methyl tert-Butyl Ether	11.3		ug/L	10.00		113	70-130	5	25	
Methylene Chloride	10.6		ug/L	10.00		106	70-130	4	25	
Naphthalene	10.4		ug/L	10.00		104	70-130	14	25	
n-Butylbenzene	10.5		ug/L	10.00		105	70-130	12	25	
n-Propylbenzene	9.63		ug/L	10.00		96	70-130	8	25	
sec-Butylbenzene	10.2		ug/L	10.00		102	70-130	8	25	
Styrene	8.92		ug/L	10.00		89	70-130	7	25	
tert-Butylbenzene	10.0		ug/L	10.00		100	70-130	7	25	
Tertiary-amyl methyl ether	11.1		ug/L	10.00		111	70-130	2	25	
Tetrachloroethene	10.1		ug/L	10.00		101	70-130	6	25	
Tetrahydrofuran	10.0		ug/L	10.00		100	70-130	6	25	
Toluene	11.2		ug/L	10.00		112	70-130	4	25	
trans-1,2-Dichloroethene	10.4		ug/L	10.00		104	70-130	6	25	
trans-1,3-Dichloropropene	9.98		ug/L	10.00		100	70-130	3	25	
Trichloroethene	10.8		ug/L	10.00		108	70-130	4	25	
Trichlorofluoromethane	11.2		ug/L	10.00		112	70-130	2	25	
Vinyl Acetate	11.6		ug/L	10.00		116	70-130	4	25	
Vinyl Chloride	12.4		ug/L	10.00		124	70-130	7	25	
Xylene O	10.7		ug/L	10.00		107	70-130	7	25	
Xylene P,M	21.2		ug/L	20.00		106	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	0.0295		mg/L	0.02500		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0253		mg/L	0.02500		101	70-130			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ43004 - 5030B

Surrogate: Dibromofluoromethane	0.0289		mg/L	0.02500		116	70-130			
Surrogate: Toluene-d8	0.0252		mg/L	0.02500		101	70-130			

8270C(SIM) Polynuclear Aromatic Hydrocarbons

Batch CJ42711 - 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							
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	0.000904		mg/L	0.002500		36	30-130			
Surrogate: 2-Fluorobiphenyl	0.00108		mg/L	0.002500		43	30-130			
Surrogate: Nitrobenzene-d5	0.00112		mg/L	0.002500		45	30-130			
Surrogate: p-Terphenyl-d14	0.00180		mg/L	0.002500		72	30-130			

LCS

2-Methylnaphthalene	0.0017	0.0002	mg/L	0.004000		43	40-140			
Acenaphthene	0.0022	0.0002	mg/L	0.004000		56	40-140			
Acenaphthylene	0.0022	0.0002	mg/L	0.004000		54	40-140			
Anthracene	0.0024	0.0002	mg/L	0.004000		61	40-140			
Benzo(a)anthracene	0.0029	0.00005	mg/L	0.004000		73	40-140			
Benzo(a)pyrene	0.0031	0.00005	mg/L	0.004000		78	40-140			
Benzo(b)fluoranthene	0.0030	0.00005	mg/L	0.004000		75	40-140			
Benzo(g,h,i)perylene	0.0032	0.0002	mg/L	0.004000		79	40-140			
Benzo(k)fluoranthene	0.0031	0.00005	mg/L	0.004000		77	40-140			
Chrysene	0.0031	0.00005	mg/L	0.004000		77	40-140			
Dibenzo(a,h)Anthracene	0.0032	0.00005	mg/L	0.004000		80	40-140			
Fluoranthene	0.0028	0.0002	mg/L	0.004000		70	40-140			
Fluorene	0.0023	0.0002	mg/L	0.004000		57	40-140			
Indeno(1,2,3-cd)Pyrene	0.0032	0.00005	mg/L	0.004000		79	40-140			
Naphthalene	0.0018	0.0002	mg/L	0.004000		44	40-140			
Phenanthrene	0.0024	0.0002	mg/L	0.004000		59	40-140			



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

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 CJ42711 - 3510C

Pyrene	0.0028	0.0002	mg/L	0.004000		70	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	0.00106		mg/L	0.002500		43	30-130			
Surrogate: 2-Fluorobiphenyl	0.00135		mg/L	0.002500		54	30-130			
Surrogate: Nitrobenzene-d5	0.00142		mg/L	0.002500		57	30-130			
Surrogate: p-Terphenyl-d14	0.00198		mg/L	0.002500		79	30-130			

LCS Dup

2-Methylnaphthalene	0.0019	0.0002	mg/L	0.004000		47	40-140	10	20	
Acenaphthene	0.0024	0.0002	mg/L	0.004000		60	40-140	8	20	
Acenaphthylene	0.0024	0.0002	mg/L	0.004000		60	40-140	9	20	
Anthracene	0.0026	0.0002	mg/L	0.004000		65	40-140	7	20	
Benzo(a)anthracene	0.0032	0.00005	mg/L	0.004000		80	40-140	9	20	
Benzo(a)pyrene	0.0034	0.00005	mg/L	0.004000		84	40-140	7	20	
Benzo(b)fluoranthene	0.0032	0.00005	mg/L	0.004000		81	40-140	7	20	
Benzo(g,h,i)perylene	0.0034	0.0002	mg/L	0.004000		84	40-140	7	20	
Benzo(k)fluoranthene	0.0033	0.00005	mg/L	0.004000		83	40-140	8	20	
Chrysene	0.0033	0.00005	mg/L	0.004000		84	40-140	8	20	
Dibenzo(a,h)Anthracene	0.0034	0.00005	mg/L	0.004000		86	40-140	6	20	
Fluoranthene	0.0030	0.0002	mg/L	0.004000		75	40-140	8	20	
Fluorene	0.0025	0.0002	mg/L	0.004000		62	40-140	8	20	
Indeno(1,2,3-cd)Pyrene	0.0034	0.00005	mg/L	0.004000		84	40-140	6	20	
Naphthalene	0.0021	0.0002	mg/L	0.004000		51	40-140	16	20	
Phenanthrene	0.0025	0.0002	mg/L	0.004000		64	40-140	7	20	
Pyrene	0.0031	0.0002	mg/L	0.004000		77	40-140	10	20	
Surrogate: 1,2-Dichlorobenzene-d4	0.00118		mg/L	0.002500		47	30-130			
Surrogate: 2-Fluorobiphenyl	0.00146		mg/L	0.002500		58	30-130			
Surrogate: Nitrobenzene-d5	0.00162		mg/L	0.002500		65	30-130			
Surrogate: p-Terphenyl-d14	0.00211		mg/L	0.002500		85	30-130			

Classical Chemistry

Batch CJ42718 - TCN Prep

Blank

Dissolved Cyanide	ND	0.005	mg/L							
Total Cyanide (LL)	ND	0.0050	mg/L							

LCS

Dissolved Cyanide	0.02	0.005	mg/L	0.02006		98	90-110			
Total Cyanide (LL)	0.0196	0.0050	mg/L	0.02006		98	90-110			

LCS

Dissolved Cyanide	0.1	0.005	mg/L	0.1504		99	90-110			
Total Cyanide (LL)	0.150	0.0050	mg/L	0.1504		99	90-110			

LCS Dup

Dissolved Cyanide	0.1	0.005	mg/L	0.1504		99	90-110	0.2	20	
Total Cyanide (LL)	0.149	0.0050	mg/L	0.1504		99	90-110	0.2	20	



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

Notes and Definitions

- U Analyte included in the analysis, but not detected
- S+ Surrogate recovery(ies) above upper control limit (S+).
- I Internal Standard(s) outside of criteria (I).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- 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 above upper control limit (B+).
- B- Blank Spike recovery is below lower control limit (B-).
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report



CERTIFICATE OF ANALYSIS

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

ESS Laboratory Work Order: 1410604

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

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

A2LA Accredited: Testing Cert# 2864.01

<http://www.a2la.org/scopepdf/2864-01.pdf>

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI0002

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

Massachusetts Potable and Non Potable Water: M-RI002

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

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

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

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

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

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

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

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

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

CHEMISTRY

A2LA Accredited: Testing Cert # 2864.01

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

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

CPSC ID# 1141

Lead Paint, Lead in Children's Metals Jewelry

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

Sample and Cooler Receipt Checklist

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

ESS Project ID: 14100604
 Date Project Due: 10/30/2014
 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: 6.0
- 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 *WR 10/24/14*
- 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.

*PH for all CW > 12 unless otherwise noted w/10/23/14
 @ 15:44
 2044 LRS
 10/23/14*

Who was called?: _____ By whom? _____

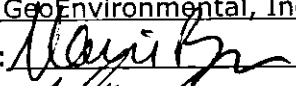
Sample Number	Properly Preserved	Container Type	# of Containers	Preservative
1	Yes	1 L Glass	3	NP
1	Yes	250 ml Plastic	2	NaOH
1	Yes	40 ml - VOA	3	HCL
2	Yes	1 L Glass	3	NP
2	Yes	250 ml Plastic	2	NaOH
2	Yes	40 ml - VOA	3	HCL
3	Yes	1 L Glass	3	NP
3	Yes	250 ml Plastic	2	NaOH
3	Yes	40 ml - VOA	3	HCL
4	Yes	1 L Glass	3	NP
4	Yes	250 ml Plastic	2	NaOH
4	Yes	40 ml - VOA	3	HCL
5	Yes	1 L Glass	3	NP
5	Yes	250 ml Plastic	2	NaOH
5	Yes	40 ml - VOA	3	HCL
6	Yes	1 L Glass	3	NP
6	Yes	250 ml Plastic	2	NaOH
6	Yes	40 ml - VOA	3	HCL
7	Yes	1 L Glass	3	NP
7	Yes	250 ml Plastic	2	NaOH
7	Yes	40 ml - VOA	3	HCL
8	Yes	1 L Glass	3	NP
8	Yes	250 ml Plastic	2	NaOH
8	Yes	40 ml - VOA	3	HCL

*PH=2 for both
 w/10/23/14
 2040*


Sample and Cooler Receipt Checklist

Client: GZA GeoEnvironmental, Inc.

ESS Project ID: 14100604

Completed By: 

Date/Time: 10/23/14 18442044 ^{10/23/14}

Reviewed By: 

Date/Time: 10/24/14 1052

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 3 of 3 WS
 ESS LAB PROJECT ID
1410604

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

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

Co. Name <u>ORL</u>	Project # <u>13654</u>	Project Name (20 Char. or less) <u>TIDEWATER</u>	Number of Containers	Type of Containers	Write Required Analysis									
Contact Person <u>MCG KLOBKOLCK</u>	Address <u>570 BROADWAY</u>	City <u>PROVIDENCE</u>	State <u>RI</u>	Zip <u>02909</u>	PO#									
Telephone # <u>401-421-4140</u>	Fax #	Email Address <u>MLKSPORT@ESSLAB.COM</u>												
ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Number of Containers	Type of Containers	VOCs 8260B	PAHs 8230C	TPH Bloom	THM CYANIDE 94Y	DISsolved CYANIDE 94Y
1	10/23/14	0:51	X	GN	MN-312S	1121	8	1/4	X	X	X	X	X	X
2		0:32			MN-312D									
3		15:55			MN-7									
4		14:12			MN-339S									
5		14:23			MN-339D									
6		12:23			MN-201									
7		11:48			MN-208									
8	10/23/14	0:00	X	GN	MN-BD-102314									

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: X [] Pickup [] Technicians _____
 Cooler Temp: 6.320, 4.1
 Relinquished by: (Signature) [Signature] Date/Time 10/23/14 17:05 Received by: (Signature) [Signature] Date/Time _____
 Relinquished by: (Signature) [Signature] Date/Time 10/23/14 17:05 Received by: (Signature) [Signature] Date/Time _____

Sampled by: SOPIA NAWIOWICZ BILL FORTUNE
 Comments: NOPIO PATES ANALY DISsOLVED SAMPLE IS FIELD FILTERED
EMAIL SNARCIWICZ@GFA.COM
 Preservation Code 1-NP, 2-HCl, 3-H₂SO₄, 4-HNO₃, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____
 *By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A
 Please fax all changes to Chain of Custody in writing.
 1 (White) Lab Copy 2 (Yellow) Client Receipt
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