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TRC Project Number: 140143

April 3, 2018

Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, Massachusetts 01887

RE: DRAFT Permanent Solution with Conditions Statement Report
Weymouth Compressor Station
6 & 50 Bridge Street
Weymouth, Massachusetts 02191
Release Tracking Number 4-26230

To Whom It May Concern:

Consistent with the requirements of the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000), specifically 310 CMR 40.0483, attached please find a Permanent Solution with Conditions Statement Report for the above-referenced release in Weymouth, Massachusetts. Applicable Massachusetts Department of Environmental Protection (MassDEP) transmittal forms were submitted concurrently with this submittal through eDEP.

If you have any questions concerning this report or transmittal forms, please do not hesitate to contact Kelley Race at (207) 274-2630.

Sincerely,
TRC Environmental Corporation

DRAFT	**DRAFT**
Ryan Niles Project Manager	Kelley Race, P.G., LSP Program Manager

Attachments

cc: Gus McLachlun, Gary Davis – Enbridge
Richard Paquette, Michael Tyrrell – TRC
PIP Repository, Weymouth

DRAFT
PERMANENT SOLUTION WITH CONDITIONS STATEMENT REPORT

Weymouth Compressor Station
6 & 50 Bridge Street
Weymouth, Massachusetts 02191
Release Tracking Number 4-26230

Prepared for:

ENBRIDGE®

Algonquin Gas Transmission, LLC
890 Winter Street, Suite 300
Waltham, Massachusetts 02451

Prepared by:

TRC

TRC Environmental Corporation
650 Suffolk Street
Lowell, Massachusetts 01854

April 2018

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APPENDICES

1.0 GENERAL DISPOSAL SITE INFORMATION [310 CMR 40.1056(1)]

TRC Environmental Corporation (TRC) on behalf of Enbridge and its subsidiary, Algonquin Gas Transmission, LLC (Algonquin), has prepared this Massachusetts Contingency Plan (MCP; 310 CMR 40.0000) Permanent Solution with Conditions Statement (PSCS) Report in response to a 120-day release notification condition and a 72-hour release notification condition at the proposed Atlantic Bridge Project Weymouth Compressor Station (ABPWCS), located at 6 & 50 Bridge Street in Weymouth, Massachusetts (the Property, as shown on **Figure 1**).

On July 29, 2016, Release Tracking Number (RTN) 4-26230 was issued in response to a 120-day release notification for Reportable Concentrations (RCs) of petroleum-related compounds detected in soil above applicable RCs for category S-1 soil (RCS-1), and RTN 4-26243 was issued in response to a 72-hour reporting condition pursuant to 310 CMR 40.0314 that was triggered when greater than 0.5 inch of light non-aqueous phase liquid (LNAPL) was observed in monitoring well MW-201 on the Property. RTN 4-26243 was linked to RTN 4-26230 in the Phase I Initial Site Investigation/Tier Classification (Phase I ISI/TC) (TRC, 2017a).

The Disposal Site is identified as an approximate one-acre portion of the four-acre North Parcel, which is within the approximately 12.3-acre ABPWCS Property, a triangular peninsula lying northeast of Route 3A (Bridge Street). The Disposal Site is located within a fenced vacant area in the North Parcel of the Property (see **Figure 2**). The Property is currently owned by Algonquin and is developed with asphalt paved and unpaved access roads, storage areas, and an existing Algonquin metering and regulating station on the southwest portion.

A Massachusetts Water Resources Authority (MWRA) pumping station abuts the Property to the northeast. There is an existing public walkway located directly east of the ABPWCS Property along King's Cove. Historically, an approximately 11,256,000-gallon No. 2 Fuel Oil aboveground storage tank (AST) and a 6,000-gallon Fuel Additive AST were located on the North Parcel of the Property.

The Disposal Site is located within a fenced vacant area in the North Parcel of the Property. Currently there are no workers on the Disposal Site. Based on 2010 Census data, the estimated population within ½ mile of the Disposal Site is more than 1,000 people. Residential properties lie east and south of King's Cove along streets that connect to Route 3A.

The Weymouth Fore River is located to the north and west of the Property. There is an existing public walkway located directly east of the Property, specifically, the North Parcel, along King's Cove. As indicated in the Phase I Initial Site Investigation (ISI) report (TRC, 2017a), there are no institutions within 500 feet (ft) of the Property or Disposal Site. Natural resources identified in 310 CMR 40.0483(1)(a)(8)(c) were identified within 500 ft of the North Parcel, specifically King's Cove/tidal flats and Weymouth Fore River/rocky intertidal shore, located within 500 ft of the east and west sides of the North Parcel. There are no drinking water supplies (310 CMR 40.0483(1)(a)(8)(b)), and no Areas of Critical Environmental Concern (ACEC; 310 CMR 40.0483(1)(a)(8)(c)) identified within 500 ft of the North Parcel or Disposal Site.

1.1 Disposal Site Boundary

Pursuant to 310 CMR 40.1056(2)(a), the Disposal Site Boundary is roughly coincident with the footprint of an approximately 11,256,000-gallon No. 2 Fuel Oil AST historically located on the Property. A Disposal Site Map including well locations is provided as **Figure 2.**

Buildings, floor drains, storm drains, subsurface utilities, oil and/or hazardous material storage and disposal structures and/or areas are not observed or known to be located at the Disposal Site, except for utilities present within the access road, a portion of which runs through the south southwestern corner of the Disposal Site. Based on a review of historical information, there are no documented releases associated with the former No. 2 Fuel Oil AST or the Fuel Additive AST which are located within the Property.

Additional information concerning the Disposal Site history, owner/operator history, previous investigations, Disposal Site conditions, and Disposal Site hydrogeological characteristics are provided in the Phase I ISI/TC report (TRC, 2017a).

Section 2 summarizes field investigation work completed; Section 3 presents a Conceptual Site Model (CSM) for the Disposal Site; Section 4 presents a MCP Method 3 risk characterization/Stage I environmental risk characterization; Section 5 presents feasibility evaluations; Section 6 addresses each of the Permanent Solution with Conditions requirements; Section 7 summarizes public involvement activities; Section 8 contains report limitations; and Section 9 lists references.

2.0 DESCRIPTION OF WORK COMPLETED

2.1 Subsurface Investigations Conducted to Date

In support of the proposed CS project, GZAEnvironmental (GZA) initiated geotechnical investigations on the Property in June 2015. TRC provided environmental oversight of the geotechnical borings conducted by GZA which continued into 2016. Based on the detection of petroleum constituents in soil above applicable standards and the presence of subsurface LNAPL that was found in 2016, TRC conducted subsequent environmental investigations in 2016 and 2017 to meet the MCP requirements for assessment of an LNAPL release. Subsurface data collected during the environmental assessments including boring/monitoring well logs, and well development details are provided in **Appendix A**. A summary of monitoring well screen depths, boring depths, major soil stratigraphic depths, and petroleum-containing soil thicknesses are summarized in **Table 1**. A chronological summary of subsurface investigations to date are summarized below.

Subsurface investigations were conducted prior to the geotechnical investigations described herein and were detailed in the Phase I Initial Site Investigation (TRC, July 2017a) and are further summarized in Section 3.0. Based on the investigations conducted in the 1990's (and in the recent GZA and TRC's investigations) Historic Fill was identified throughout the four-acre North Parcel of the Property. The pre-existing Historic Fill exhibiting concentrations of PAHs and metals consistent with Anthropogenic Background was identified during test pit and boring installations. Initially, TRC's environmental oversight was conducted to evaluate the nature and extent of the previously documented Historic Fill.

2.1.1 GZA Subsurface Investigations in 2015 and 2016

Subsurface explorations were conducted to evaluate geotechnical conditions beneath the Property and the suitability of soils in support of infrastructure associated with the ABPWCS project. Borings were installed across the Property, specifically within the North Parcel, in areas where proposed building foundations are being considered as well as in areas where subsurface utilities may be located in support of the ABPWCS project. Subsurface explorations completed by GZA included:

- Geotechnical borings B-1 through B-10 in June 2015;
- Test pits TP-1, TP-2 and TP-3 in December 2015; and,
- Geotechnical borings B-101 through B-108 in April 2016.

TRC observed these subsurface explorations for visual and/or olfactory impacts and collected soil samples for laboratory analysis to evaluate environmental conditions. TRC collected soil samples from the Historic Fill for analysis of metals and herbicides as summarized in **Table 2**. Metals, including arsenic were detected at similar concentrations as previous investigations and as summarized in **Table 3**. Soil samples were collected for herbicides analysis to evaluate the presence of arsenic and its potential to be associated with herbicide application (if any) in the area of the former 11M gallon fuel oil AST. Herbicides were not detected above applicable MCP standards or above laboratory method detection limits. The metals (e.g. arsenic) concentrations detected in the geotechnical borings were found to be consistent with previous investigations and the presence of Historic Fill. Composite samples from the Historic Fill and native soils were also collected and analyzed for Extractable Petroleum Hydrocarbons (EPH) and metals. PAHs and metals consistent with Historic Fill and previous investigations were identified as summarized in **Table 3**.

Petroleum contamination observed in soil and confirmed with laboratory analysis at B-105 was detected above MCP RCs. At boring B-105, from approximately 14 to 19 ft below ground surface (bgs), TRC observed petroleum staining and odors. None of the other soil samples collected from the geotechnical borings or test pits exhibited visual or olfactory evidence of contamination. TRC collected a soil sample from B-105 at a depth of 14 to 17 ft bgs for laboratory analysis of extractable petroleum hydrocarbons (EPH) with target polyaromatic hydrocarbons (PAHs) and volatile petroleum hydrocarbons (VPH) with target volatile organic compounds (VOCs). The sample was submitted to Alpha Analytical Laboratories (Alpha) in Westborough, Massachusetts with a completed chain-of-custody. Based on observations made during advancement of boring B-105, the 14 to 17 ft bgs interval represented the greatest observed petroleum impact to soils. Environmental samples are summarized in **Table 2**. Soil analytical data are summarized in **Table 3**. Analytical laboratory reports are provided in **Appendix B.**

2.1.2 TRC Subsurface Investigations in May 2016

On May 10-11, 2016, TRC oversaw the installation of soil borings B/MW-201 through B/MW-205 by New England Boring Contractors (NEB) using a 24-inch split-spoon sampler and conventional hollow-stem auger drilling. TRC performed photoionization detector (PID) jar-headspace testing and collected soil samples from each boring. Soil samples were submitted to Alpha for EPH and metals analysis with a completed chain-of-custody as part of initial environmental assessment activities.

Petroleum staining and odors were observed at B/MW-201 in the interval above and below the observed water table, from approximately 12 to 18 ft bgs. No visual or olfactory indicators of petroleum contamination were observed at borings B/MW-202 through B/MW-205. The EPH hydrocarbon range C11-C22 aromatics exceeded the applicable MCP Method 1 S-2/GW-3 standard in the duplicate sample collected at B/MW-201 from 10-12 ft bgs. Sample B/MW-201 (10-12) was collected from the interval above the observed petroleum-containing soil at this location to evaluate the vertical extent of petroleum impacts to complement the 14-17 ft bgs sample collected from the adjacent B-105 location. As previously noted, the petroleum contamination identified above applicable RCs required a 120-day MCP release notification to MassDEP.

Each soil boring was completed with a 2-inch inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) monitoring well equipped with 15 ft of 10-slot (0.010-inch diameter machine slotted) screen installed across the observed water table. The monitoring wells (MW-201 through MW-205) were developed on July 29, 2016.

The IRA Plan (TRC, 2016a) submitted to MassDEP in response to the 72-hour release notification addressed the immediate area around B-105 and MW-201, which are located within three feet of each other. Borings B-1 through B-10, B-101 through B-104, B/MW-202, B/MW-203, B/MW-204, and B/MW-205, and test pits TP-1 thru TP-3 are located outside of the area targeted by the IRA Plan, as they did not indicate petroleum contamination above applicable standards. As discussed in the IRA Plan, the above-mentioned locations did not indicate visual or laboratory petroleum impacts consistent with the presence of LNAPL.

2.1.3 LNAPL and Groundwater Sampling – August 2016

On August 29 and 30, 2016, TRC completed a round of groundwater sampling from monitoring wells MW-201 through MW-205. Observed LNAPL was removed from monitoring well MW-201 for fingerprint analysis before the groundwater sample was collected at this location. Groundwater sampling was conducted after stabilization measurements using low-flow sampling techniques with pump intakes set at the approximate center of the water column in each well. TRC recorded water quality measurements during well purging using In-Situ SmarTROLL™ units fitted with flow-through cells. Groundwater log sheets are included in **Appendix A**. Once water quality parameters stabilized, TRC collected the LNAPL and groundwater samples, placed them on ice, and sent the samples with a completed chain-of-custody to Alpha for VPH and EPH analysis. Groundwater analytical results are summarized in **Table 4.** LNAPL and groundwater analytical reports are provided in **Appendix B.**

2.1.4 Soil and Groundwater Investigations in October – November 2016

On October 12 and 13, 2016, TRC oversaw the installation of 19 small diameter (2.25-inch outside diameter) borings (B-300 through B-319; B-316 was vac-cleared but not installed) by New England

Geotech, Inc (NEG) via direct push methods. Borings were advanced in a radial manner to assess the lateral and vertical extent of the LNAPL around B-105 and MW-201. Borings were initially placed approximately 25 feet north, south, east, and west of MW-201, with additional borings completed in a step-back fashion to locate areas of no observed impact based on visual, olfactory, and field screening observations.

Soil samples were continuously collected using a five ft long Geoprobe® Macro-Core® fitted with dedicated acetate liner sleeves. TRC screened soil with a PID using the jar headspace method. Selected soil samples were submitted for EPH/VPH analysis, biased toward the potential presence of fuel oil contamination (e.g., headspace readings).

During the October 2016 soil sampling event, TRC collected six soil grab samples for VPH and EPH analysis to evaluate the extent of petroleum impacts and/or to support field observations of the extent of petroleum impact. Soil samples were placed on ice and shipped to Alpha with a chain-of-custody. Environmental samples are summarized in **Table 2;** soil analytical results are summarized in **Table 3**.

NEB installed monitoring well MW-206 in boring B-310, approximately 95 ft west of MW-201. The monitoring well was constructed of two-inch ID PVC casing equipped with 10-slot (0.010-inch machine slotted) well screen installed to approximately 19 ft bgs.

On October 20, 2016, TRC developed monitoring well MW-206 using a Waterra Hydrolift pump and a surge block to remove suspended fine-grained particulate from the well. No measureable LNAPL was present in monitoring well MW-206 and no visual or olfactory evidence of petroleum impact was observed at the time of development.

On November 1 and 3, 2016, TRC completed a round of groundwater samples from monitoring wells MW-201 through MW-206. Observed LNAPL with micro-scale mobility was removed from the surface of monitoring well MW-201 before the groundwater sample was collected at this location. Groundwater sampling was conducted using low-flow sampling techniques with pump intakes set at the approximate center of the water column in each well. TRC recorded water quality measurements during well purging using In-Situ SmarTROLL™ units fitted with flow-through cells. Groundwater log sheets are included in **Appendix A**. Once water quality parameters stabilized, TRC collected groundwater samples, placed them on ice and sent the samples with a completed chain-of-custody to Alpha for VPH and EPH analysis. Groundwater analytical results are summarized in **Table 4.** Groundwater analytical reports are provided in **Appendix B.**

2.1.5 Soil Boring and Monitoring Well Installation in December 2016

On December 12 to December 23, 2016, TRC oversaw the installation of 18 borings (B-400 through B-417), and completion of monitoring wells in each of the borings. The borings and 2-inch ID monitoring wells were completed by NEG using a Geoprobe®. Borings and wells were located to delineate the extent of observed petroleum. The location of the borings and monitoring wells are shown on **Figure 2.**

Seven borings/well locations (B/MW-403, B/MW-404, B/MW-405, B/MW-406, B/MW-407, B/MW-416, and B/MW-417) were pre-cleared for potential utilities to a depth of 5 to 6 ft bgs using a vacuum extraction truck operated by Strategic Environmental Services, Inc.

Soil cores were collected continuously during boring advancement using a 5-ft long Geoprobe® Macro-Core® lined with new acetate sleeves. TRC observed soil for visual and/or olfactory evidence of contamination and screened soils for the presence of organic vapors, according to the jar headspace method, using a PID.

TRC collected two or three soil grab samples from each of the 18 borings for EPH analysis to evaluate the extent of petroleum impacts, including LNAPL within the smear zone (noted on the boring logs as containing "viscous oil" or "oil globules", or as "oil saturated") at locations B-404 (12 ft), B-406 (11.8 ft and 12.5 ft), B-407 (11.8 ft), B-411 (14 ft), B-412 (11.5 ft and 13 ft), B-413 (14-15 ft), and B-414 (14 ft). In addition, PID readings exceeded 100 parts per million per volume (ppmv) at one location (B-406, 12.5 ft bgs) where LNAPL was noted, triggering the collection of one sample for VPH analysis. Samples were placed on ice and shipped to Alpha with a completed chain-of-custody. A summary of environmental samples (including soil) collected are summarized on **Table 2**. Sample results for borings containing LNAPL with micro-scale mobility are included on **Table 5**.

On December 15, 2016, TRC oversaw advancement of 2-ft long Geoprobe® Macro-Cores® from four borings located beside B-404, B-406, in the vicinity of the former AST perimeter, and at B-412 and B-413, located in the vicinity of the highest observed petroleum impact. Twenty discrete core sections (subcores) were sealed, placed on dry ice, and shipped overnight with a chain-of-custody via Federal Express to PTS Laboratories, Inc. (PTS) of Santa Fe Springs, California. The soil cores were scanned using ultraviolet fluorescence to select 12 subcores for physical properties analysis, which included free product mobility, pore fluid saturation, and oil/water imbibition. Also, four subcores were selected for grain size analysis, LNAPL permeability, and hydraulic conductivity testing.

Four-inch ID monitoring wells were completed at MW-404, MW-412, MW-413 and MW-414 by NEB using conventional hollow-stem auger rig at borings based on the relative presence of petroleum impacts observed during advancement of direct push borings. Two-inch ID monitoring wells were installed in the remaining 14 soil borings completed by NEB.

All 2-inch and 4-inch ID monitoring wells were constructed with Schedule 40 PVC equipped with 15 feet of 10-slot (0.010-inch machine slotted) screen installed in single borings to depths ranging from 20 to 23 ft bgs. A sand filter pack was placed around each well screen and approximately 1 to 2 feet above the top of screen, followed by a 1 to 2 ft (minimum) thick bentonite seal. Each well was protected with a 4-inch diameter locking steel casing equipped with keyed-alike locks set in Quikrete. Wells completed inside the fence included "stickup" well casings, while two wells located outside the fence (MW-416, MW-417) included traffic-rated well covers, flush with ground surface.

On December 28-30, 2016, TRC developed all newly installed monitoring wells using a Waterra Hydrolift and Proactive Water Spout pumps and a surge block to remove suspended fine-grained particulates from each well. Well development records are summarized in **Appendix A**.

2.1.6 Groundwater Sampling in January 2017, March 2017, and June 2017

On January 3 through 6, 2017, March 20 through 23, 2017, and June 5 through 7, 2017, TRC completed groundwater sampling rounds from monitoring wells at the Property (MW-201 through MW-206; and MW-400 through MW-417). During the January 2017 round, LNAPL with microscale mobility was removed, to the extent possible, prior to groundwater purging; in contrast, LNAPL with micro-scale mobility was not removed during the March 2017 round to evaluate groundwater quality with and without LNAPL with micro-scale mobility removal. Groundwater sampling was conducted using low-flow sampling techniques with pump intakes set at the approximate center of the water column in each well. TRC recorded water quality measurements during well purging with flow-through cells (YSI 600 XL). Once water quality parameters stabilized, TRC collected groundwater samples, placed them on ice and sent the samples under a chain-of-custody to Alpha for analysis of VPH and EPH. A summary of groundwater analytical results is presented on **Table 4**.

2.1.7 In-Situ Hydraulic Conductivity Testing

Hydraulic conductivity was calculated from low-flow data collected in January 2017 at wells where the flow rate and drawdown are stable using the method of Robbins et al, 2008. In-situ hydraulic conductivity testing was performed in 19 of 24 wells on the Property. The remaining five wells could not be tested because the depth to water (DTW) measurement was not available, due to the presence of LNAPL (MW-201 and MW-410), or there was zero drawdown (MW-407, MW-414, and MW-417). The in-situ hydraulic conductivity results are summarized in **Table 6.** The January 2017 low-flow sampling sheets and the hydraulic conductivity summary sheets are provided in **Appendix D**.

2.2 Tidal Study

Pressure-sensitive transducers were suspended in existing monitoring wells MW-202, MW-205, MW-206, and MW-417 during a one-week period from December 22 - 29, 2016 to evaluate tidal influence across the Property. The transducers were set to measure and record water levels at 10-minute intervals. On December 29, 2016, TRC retrieved the transducers and downloaded the collected data onto a laptop. The downloaded water level data were compared to tidal cycle data from the Fore River Bridge (Station 8444788) to evaluate the influence of tidal fluctuations on groundwater levels across the Property. Tidal data available from the National Oceanic and Atmospheric Administration (NOAA) was utilized in the evaluation. A Figure presenting groundwater elevation on October 6, 2017 is presented in **Figure 5.** Tidal study data are provided in **Appendix A.**

2.3 Groundwater Gauging and LNAPL Recovery

Since July 2016, TRC has conducted monitoring and maintenance of on-Property monitoring wells. Monitoring has included gauging DTW and depth to product (DTP) in monitoring wells using an oil/water interface probe. New absorbent socks were deployed in each well with observed LNAPL to attempt to recover LNAPL with micro-scale mobility. Upon sock retrieval, TRC personnel noted the relative saturation of the sock and placed the soiled sock into a drum located within the fenced North Parcel of the Property. Additional observed LNAPL with micro-scale mobility was then removed, to the extent feasible, with a bailer and a new sock placed in the well. Petroleum product and associated purge water from monitoring well MW-201 was then placed into a drum for off-site disposal.

After October 27, 2016, LNAPL recovery using the passive sock recovery method was discontinued to monitor LNAPL with micro-scale mobility thickness in preparation of conducting skimming tests and in an effort to collect a sufficient volume of LNAPL for additional laboratory analysis. TRC collected LNAPL from the Disposal Site monitoring wells for laboratory viscosity and density analysis (detailed below) on January 3, 5 and 17, 2017 and on February 13, 2017. These samples were collected to support the LNAPL permeability tests and provide additional LNAPL property characteristics as requested by the LNAPL specialty laboratory, PTS.

Manual skimming tests were initiated on April 17, 2017 at monitoring well MW-414 and attempted then discontinued at monitoring wells MW-201 and MW-410 due to insufficient recovery and lack of a sufficient thickness of LNAPL with micro-scale mobility, respectively. Product recovery using 2-foot long LNAPL absorbent socks was continued at monitoring well MW-201, and started at monitoring wells MW-410, MW-406 and MW-407. The skimming test was continued at monitoring well MW-414 through May 1, 2017.

On January 5, and 17, 2017, LNAPL was collected from monitoring wells MW-201, MW-410, and MW-414 for Three-Point Viscosity and Density analysis by PTS. A sufficient volume as required by PST for analysis of LNAPL with micro-scale mobility was collected from monitoring well MW-201 on January 5 and 17, 2017, and submitted under a chain-of-custody to PTS on January 18, 2017. Because insufficient sample volume was recovered from monitoring wells MW-410 and MW-414, samples could not be submitted to PTS for LNAPL property characteristics from these wells.

On February 13, 2017, PTS communicated to TRC that only 10 milliliters (ml) remained after testing of the MW-201 LNAPL properties, and requested TRC to collect an additional 0.5-1 liter of LNAPL. On February 14, 2017, after completing a gauging event, 300 ml was recovered from monitoring well MW-201, and this was combined with approximately 420 ml from monitoring well MW-410, and 230 ml from monitoring well MW-414, and shipped under chain-of-custody to PTS, which was received intact on February 15, 2017. In PTS's response for the additional LNAPL request, PTS stated:

> "The problem we are having is due to the high viscosity and sticky nature of the NAPL; every time we transfer it to another piece of glassware or equipment, we lose a significant portion that we are unable to recapture due to holdup in the instrument chamber/or vessel. The original volume would have been more than sufficient for the tests scheduled if it was a product of lower viscosity." (PTS communication 2/13/17).

PTS had requested the additional volume to support completing the remainder of the Oil/Water Capillary Pressure tests to further evaluate the LNAPL properties.

The gauging data and the volume and dates of LNAPL recovery are included in **Table 7**.

2.4 LNAPL Recoverability

On April 19, 2017, LNAPL recoverability skimming tests were attempted at three monitoring wells (MW-201, MW-410, MW-414) at the Disposal Site to estimate LNAPL transmissivity (Tn) in-situ. The performance of manual skimming tests is believed to be closely comparable to those of a recovery skimming pump. These wells were selected based on review of the gauging table, which indicated a slight elevated product thickness. A manual skimming test at monitoring well MW-414, which had the most LNAPL with micro-scale mobility, was initiated first, followed by monitoring wells MW-201 and MW-410. Product recovery was slow in monitoring well MW-414, therefore, manual skimming tests were started at monitoring wells MW-201 and MW-414, while the product thickness equilibrated in monitoring well MW-414. LNAPL recovery at all three locations was performed using a Solinst peristaltic pump equipped with ½-inch by 5/8-inch tubing, and pumping was set at its maximum rate. LNAPL recoverability was determined to not be feasible at monitoring wells MW-201 and MW-410 because of the limited LNAPL thickness and the high viscosity of the LNAPL. Sufficient LNAPL thickness was present at monitoring well MW-414, therefore, a manual skimming test was performed in this well following ASTM E2856-13 Standard Guide for Estimation of LNAPL Transmissivity (ASTM, 2013). Assumptions within ASTM E2856-13 include equilibrium hydraulic conditions and steady-state LNAPL flow during testing, however these assumptions could not be directly achieved at the Disposal Site conditions due to tidal influence; therefore, the measured LNAPL Tn values are considered to be approximate. The LNAPL Tn field data sheets are provided in **Appendix A**, and Tn calculations are provided in **Appendix D**.

3.0 CONCEPTUAL SITE MODEL [310 CMR 40.1056(2)(b)]

Pursuant to 310 CMR 40.1056(2)(b), this section provides a summary of the Conceptual Site Model (CSM). This CSM summarizes the results of the Phase I ISI/TC report (TRC, 2017a), and IRA Completion Report (TRC, 2018), while providing a lines-of-evidence evaluation of the Disposal Site boundary addressed by this PSCS including the presence of both Disposal Site-related impacts and Historic Fill at the Property (i.e., 6 & 50 Bridge Street as depicted on Weymouth Assessor's Map 6, Block 63, Lot 1) as defined by the MCP (310 CMR 40.0006) and consistent with the previously filed Class B-1 RAO (ABB, 1997). Lines-of-evidence considered include the Property history, physical surface and subsurface conditions, chemical signatures of primary contaminants of concern in applicable environmental media, contaminant distribution, and historical photographs and maps. Pursuant to 310 CMR 40.1056(2)(b), a succinct summary of the CSM in provided in **Section 3.15**.

As described above, LNAPL with micro-scale mobility was observed greater than ½-inch thick in monitoring well MW-201 in July 2016, triggering a 72-hour notification to MassDEP. Monitoring well MW-201 is located beneath the west northwest-central portion of a former 11,256,000-gallon No. 2 Fuel Oil AST. Historical aerial photographs (www.historicaerials.com) support the AST as the source of contamination at the Disposal Site which was removed between December 2004 and April 2005. No records of the 11,256,000-gallon No. 2 Fuel Oil AST removal or any petroleum releases were found. TRC reviewed Weymouth Fire Department records as well as contacted the Massachusetts State Fire Marshall's Office regarding removal records for the No. 2 Fuel Oil AST and other tanks at the Property. No records pertaining to the removal of the No. 2 Fuel Oil AST were available. The Weymouth Fire Department did have an application and permit on file to move the 6,000-gallon Fuel Additive AST from the Property to the Sprague Energy facility (issued October 9, 1997). The permit states that the 6,000-gallon AST was used to store a multi-component diesel fuel additive, and hand-written notations on an historical figure (available from the Weymouth Health Department) suggested the additive may have included acetone, a common diesel fuel additive.

As noted above, the historic photographic record indicates that the No. 2 Fuel Oil AST was removed sometime between December 2004 and April 2005. The release volume is unknown. The location of the AST and the LNAPL with micro-scale mobility extent indicate that the No. 2 Fuel Oil AST was the source of the petroleum release.

Additionally, observations of subsurface conditions during the various Property investigations and development activities are consistent with the Property's history and historical record, indicating a localized presence of Disposal Site-related LNAPL impacts within a footprint of widespread Historic Fill, as defined by the MCP that pre-dates Disposal Site-related release(s). The Disposal Site is collocated with, and overlies, pre-existing Historic Fill exhibiting concentrations of PAHs and metals consistent with Anthropogenic Background.

3.1 Property History

A detailed discussion of the Property history, including past operations, is provided in the Phase I ISI/TC report (TRC, 2017a). Supplemental information including additional records requests/file reviews from the Weymouth Fire Department and the State Fire Marshall are discussed above. The findings of the Phase I were confirmed and supplemented with additional historic documentation for the purposes of this PSCS, specifically in support of the lines-of-evidence evaluation germane to the CSM. Readily available public information regarding the Property and vicinity historical uses include the following sources:

- Aerial photographs (scale: 1" = 500') dated 1938, 1955, 1957, 1969, 1970, 1971, 1978, 1986, 1995, 1996, 2001, 2003, 2004, 2005, 2008, 2010, 2012, and 2013;
- Google Earth® images dated 1995, 1996, 2000, 2001, 2002, 2003, 2004, 2005, 2007, 2008, 2009, 2010, 2013, 2014, 2015, 2016, and 2017;
- Topographic maps dated 1888, 1893, 1898, 1902, 1905, 1910, 1913, 1919, 1920, 1926, 1932, 1936, 1941, 1947, 1948, 1956, 1958, 1961, 1971, 1966, 1973, 1977, 1980, 1984, 1988, and 2012;
- Historical Sanborn® Fire Insurance Maps (Sanborn Maps) dated 1910, 1917, 1927, 1928, 1950, and 1962;
- Historic town, county and/or State (e.g., Massachusetts Atlas plates) maps dated 1844, 1853, 1858, 1861, 1876, 1888, 1891, 1897, 1900, 1904, 1908, 1909, and 1952;
- Local municipal records (including but not limited to the Weymouth Health Department and Weymouth Fire Department files);
- State of Massachusetts Fire Marshall records;
- An environmental database report; and
- Interviews with local town officials, as applicable.

Review of available historical maps dating back to at least 1844 indicate that the Property within which the Disposal Site is situated historically consisted of significantly less upland area and was undeveloped. With the exception of the Ferry Point peninsula, located immediately north of Bridge Street, the footprint of the Property, as currently mapped, is largely occupied by water throughout the 1800s. The Ferry Point peninsula, extending east-northeast between the Weymouth Fore River and King's Cove and which provided access between North Weymouth and Quincy via the Quincy Point Bridge beginning in 1812, represents the only historically mapped upland prior to subsequent tideland filling. The first structures evident on/in the vicinity of the Property include the wharf on Ferry Point, which provided a landing for a steamboat, and the "Pine Point House" which were both erected in 1871 (Parker, 1920). The Pine Point House is depicted immediately north of Bridge Street in maps from 1876, 1888, 1898, and 1902; however, the structure was destroyed by fire in 1903 (Parker, 1920).

The historic record indicates that the Property remains largely undeveloped, with limited uplands denoted primarily by Ferry Point, into the early 1900s. In the 1910 Sanborn® Fire Insurance Map, a small structure identified as the "Pine Point Auto Repair Shop" is evident along Bridge Street within the southern portion of the Property. By 1917 the auto repair shop has been replaced by a series of structures associated with the Brooks-Skinner Company Incorporated for the manufacturing of steel. A pier is also evident immediately north of the Brooks-Skinner facility, indicating that significant filling to develop the Property into its current footprint has yet to occur.

As described in the Class B-1 partial RAO statement, emplacement of significant quantities of fill material occurred prior to 1922 in association with the Edgar Station located south of Bridge Street (ABB, 1997). In 1925, coal-fired generating units were commissioned, initiating the start of electrical power generation at the Edgar Station (ABB, 1997). Consistent with the timeframe for development of the Edgar Station, the Sanborn® Fire Insurance Map from 1927 indicates significant filling has occurred between the Weymouth Fore River and King's Cove and the Illuminating Company of Boston is depicted as occupying and staging coal at the Property. Following tideland filling activities in approximately the late 1910s/early 1920s, the aerial footprint of the Property as depicted in the historic record remains largely unchanged through the submittal of this PSCS.

Although the eastern portion of the Property remains undeveloped, the Illuminating Company of Boston remains present through at least 1962 and coal storage occurs until at least 1969 within the western portion of the Property. The approximately 11,256,000-gallon No. 2 Fuel Oil AST that is roughly laterally coincident with the Disposal Site subject to this PSCS is present at the Property by 1978 and the 6,000-gallon Fuel Additive tank is present by 1990. In addition, vehicle parking, access roads and storage areas are evident. The property usage appears to remain relatively unchanged through approximately 1996.

In addition to the presence of the Fuel Oil AST, by 2001 the Property appears to be used primarily for material storage and/or vehicle parking, particularly within the western portion of the Property and vicinity of the Fuel Oil AST. Development of the MWRA Pump Station has also potentially been initiated along the northern Property boundary by 2001. Between 2001 and 2004, material storage and vehicle parking appears to be gradually reduced and the MWRA Pump Station becomes clearly evident. The Fuel Oil AST remains present until at least until December 2004; however, the

Fuel Oil AST has been removed by April 2005 and active surface grading in the vicinity of the former Fuel Oil AST appears evident in the aerial photograph record.

With the exception of some staging/storage of materials, vehicle parking and construction-related activities associated with the replacement of the Weymouth Fore River Bridge along the western portion of the Property, the Property remains largely unchanged between 2005 and 2017. Activity within the eastern portion of the Property appears particularly limited following the reestablishment of vegetation in the vicinity of the former Fuel Oil AST.

The 6,000-gallon Fuel Additive AST could not be seen in the historical photographs. Its approximate location relative to the No. 2 Fuel Oil AST is shown in **Figure 2**. The 6,000-gallon AST was installed at the Property in 1990 (ABB, 1997). An application and permit to move the 6,000-gallon Fuel Additive AST from the Property to the Sprague Energy facility at 728 Southern Artery, Quincy, Massachusetts was issued on October 9, 1997. The permit states that the tank was used to store a multi-component diesel fuel additive, and hand-written notations on an historical figure suggest the additive may have included acetone, a common diesel fuel additive. As described in the Class B-1 RAO (ABB, 1997), between May 1991 and January 1992, soil and groundwater samples were collected in the general vicinity (within the AST berm tank area) of the Fuel Additive tank and No. 2 Fuel Oil AST and analyzed for VOCs, semi-volatile organic compounds (SVOCs), and total petroleum hydrocarbons (TPH). One VOC (toluene), several polyaromatics hydrocarbons (PAHs), and TPH were detected in soil, but at concentrations below MCP reporting threshold. Acetone was not detected in the soil samples. For groundwater, no volatile (including acetone), semi-volatile or petroleum-related compounds were detected. These data indicate that it is unlikely that there was a release from the 6,000-gallon Fuel Additive AST prior to its removal from the Property in 1997.

3.2 Potential Receptors

Under current conditions, the depth of the petroleum-containing soil and LNAPL with micro-scale mobility is approximately 10 to 18 ft bgs, therefore, it is not accessible to current potential receptors (adult workers). The LNAPL product is contained in soil beneath the Disposal Site, and has not migrated to nearby surface water bodies or underground utilities (e.g., within the access road). There are no buildings at the Disposal Site. No underground utilities are known to exist beneath the Disposal Site, except for utilities present within the access road, a portion of which runs through the south southwestern corner of the Disposal Site. Current emergency utility worker exposures are considered incomplete because the petroleum contamination (greater than 10 ft bgs) is located below the known depth of the existing utilities (5 to 6 ft bgs).

There are no institutions within 500 ft of the Property or Disposal Site. Natural resources identified in 310 CMR 40.0483(1)(a)(8)(a) were identified within 500 ft of the Disposal Site (along the perimeter of), specifically King's Cove/tidal flats and Weymouth Fore River/rocky intertidal shore, located within 500 ft of the east and west sides of the Property/North Parcel and general Disposal Site area. There are no drinking water supplies (310 CMR 40.0483(1)(a)(8)(b)), and no Areas of Critical Environmental Concern (310 CMR 40.0483(1)(a)(8)(c)) identified within 500 ft of the Property or Disposal Site.

3.3 Topography and Surface Characteristics

The Property's topographic surface is generally level, ranging in elevation from 11.59 ft above mean sea level (amsl) relative to the North American Vertical Datum of 1988 (NAVD88) at B-300, to 14.62 ft amsl at monitoring well MW-402. The variation in surface elevation is due to the deposition of Historic Fill on the Property. Vegetation on the property consists of grasses, and a few isolated small trees and shrubs. Access to the Property via the North Parcel in which the Disposal Site is predominantly located is through a locked gate from a separate access road on the west side of the fence. Overhead electric lights are present along the access road. No underground utilities are known to exist beneath the Disposal Site, except for utilities present within the access road, a portion of which runs through the south southwestern corner of the Disposal Site.

3.4 Subsurface Materials and Product Thickness in Soil

Observations of subsurface conditions during the various investigation activities appear to be consistent with the Property history and historical record, indicating a localized petroleum release within a footprint of widespread Historic Fill, as defined by the MCP that pre-dates Disposal Site-related release(s). Soil boring/monitoring well locations, the lateral extent of product, and cross section lines are presented on **Figures 2 and 3**. The vertical extent of LNAPL within the various subsurface soils, including Historic Fill, are presented as **Figures 4A, 4B, and 4C**.

- Subsurface materials generally consist of topsoil, fine-medium sand, fine to coarse sand with fine gravel and silt, fine to coarse sand with trace fine gravel and trace silt containing, but not primarily composed of, Historic Fill, underlain by interbedded fine-medium sand, silt, and clay (former intertidal marine deposits).
- Historic Fill material, present within the soil matrix without distinct or significant stratigraphic layering, was observed at depths ranging from approximately the ground surface to 32.5 ft bgs. As significant filling to bring the former tidelands to the prescribed grade appears to have occurred continuously within a limited timeframe in the early 1900s, the thickness of the Historic Fill does not vary significantly throughout the Property/North Parcel, where the Disposal Site is located and native soil material was generally encountered at approximately 20 to 25 ft bgs.
- The fill material generally included "coal slag," "slag" or clinkers, coal, brick, concrete and/or coal ash-like material.[1]
- The characterization of the soil/fill present throughout the Property, including the presence of coal, clinkers, coal ash-like material, etc., is consistent with significant filling of the former tidal area north of Bridge Street in the late 1910s/early 1920s in advance of and/or coincident with the development of Edgar Station on the adjacent parcel(s) south of Bridge Street. As noted in MassDEP's recent draft Chapter 91 determination, approximately 80-percent of the

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[1] Slag is the byproduct of the process of smelting ore, a process which is inconsistent with the post-tideland filling Site history, therefore boring log descriptions noting "coal slag" or "slag" are generally interpreted to be coal or clinkers (i.e., the incombustible residue of coal combustion). TRC's own investigations at the Site support this interpretation of prior logging information.

6 & 50 Bridge Street property consists of previously authorized filled tidelands (MassDEP, 2017).

- The source(s) of the material used to fill the Property in advance of the Illuminating Company of Boston occupying the area by 1927 is unknown; however, an off-site (i.e., originating outside the Disposal Site area of concern) and off-Property source(s) of material would have been required given that much of the current footprint of the Property was tidal until at least 1917. Given the estimated timing of filling activities in the late 1910s/early 1920s, it would not have been uncommon for the source(s) of such fill to contain debris such as coal, clinkers, coal ash, etc. which were in pervasive use, as defined in the Technical Update (MassDEP, 2016), at and prior to the time of emplacement. In addition, the presence of trace shells observed within a soil matrix overlying material containing brick and clinkers (e.g., B-5 location) indicates potential sediments/dredge material may also have been placed or deposited on the Property.
- The Class B-1 RAO notes that the Property also received some coal ash from Edgar Station that was reused as fill; however, such filling would have been ancillary to the previous filling of the tidelands to support Illuminating Company of Boston operations and once again received from an off-property source as no power generating operations or activities associated with the Edgar Station occurred at the Property (i.e., location of emplacement).
- The Historic Fill does not contain a generated hazardous waste, nor does it contain chemical production waste, manufacturing waste, or waste from the processing of metal or mineral ores, residuals, slag or tailings. As noted above, no power generating operations associated with Edgar Station occurred at the Property and the timeframe of the Brooks-Skinner Company Incorporated (steel manufacturing) occupation of the Property was limited and pre-dates significant tideland filling activities.
- Based on the Property history and observed surface and subsurface conditions, there is no evidence that the Disposal Site or surrounding Property functioned as a permitted landfill, historic municipal landfill/dump, burn dump or illegal landfill. No inactive/closed landfills or dumping grounds are noted for the Property in MassDEP's master list of *Inactive & Closed Landfills & Dumping Grounds* (January 2017) and no evidence of such wastes have been observed during subsurface investigation activities.
- A general absence or trace detections of VOCs (via jar headspace screening) or VPH compounds in laboratory analytical results for samples located beyond the limits of the Disposal Site is consistent with the widespread presence of Historic Fill.

The localized Disposal Site-related release that occurred to/within the footprint of widespread Historic Fill, which pre-dates the release of petroleum, is characterized by the presence of petroleum impacts and LNAPL. Petroleum-containing soil and LNAPL with micro-scale mobility was observed between approximately 10 and 18 ft bgs beneath the former AST, just outside its approximate southwest perimeter, and primarily in Historic Fill that pre-dates the Disposal Site; however, micro-scale mobility also occurs in fine-medium sand underlying Historic Fill at B-313 (**Figure 4A**), as globules in fine sand at B-309 (**Figure 4B**), and in fine to medium sand at B-406 and B-414 (**Figure 4C**).

The thickness of petroleum-containing soil ranged from 0.2 to 6 ft, and averaged 3.3 ft (**Table 2**). Petroleum-containing soil thicknesses ranged from 5 to 6 ft beneath the central portion of the former AST at borings B-105, MW-201, B-305, B-309, B-311, B-312, MW-412, and MW-413, and decreased to less than 4 ft near the former AST perimeter. Within the layer of petroleum-containing soil, LNAPL with micro-scale mobility is present within the smear zone. The extent of LNAPL is bounded by visual observations, TPH in soil borings, and gauging at monitoring wells**.** LNAPL with micro-scale mobility thickness decreased abruptly in all directions supporting that capillary forces have stabilized the LNAPL. LNAPL with micro-scale mobility occurs in permeable sand-gravel fill; however, it is not observed in the outer perimeter monitoring wells. Gauging data supports LNAPL does not exhibit macro-scale mobility.

3.5 Soil Analytical Results Summary

The following provides a brief summary of Disposal Site-related chemicals of concern, as well as consideration of detected soil concentrations throughout the Property, beyond the horizontal and vertical limits of the Disposal Site, relative to MassDEP's draft *Historic Fill/Anthropogenic Background Technical Update* (MassDEP, 2016) and the definition of Anthropogenic Background as provided in 310 CMR 40.0006(12).

3.5.1 Analytical Results Summary

The soil analytical results indicated:

- EPH concentrations exceed MCP Method 1 Category S-2/GW-3 standards at sampling locations B-105, B/MW-210, B-317, B-407, B-410, B-413, and B-415;

- EPH and VPH results did not exceed the MCP Method 1 S-2/GW-3 criteria in the remaining soil samples; and

- LNAPL with micro-scale mobility within the smear zone (noted on the boring logs as "viscous oil" or "oil globules", or as "oil saturated") was noted at B-404 (12 ft), B-406 (11.8 ft and 12.5 ft), B-407 (11.8 ft), B-411 (14 ft), B-412 (11.5 ft and 13 ft), B-413 (14-15 ft), and at B-414 (14 ft);

- Arsenic exceeded its MCP RCS-1 in soil samples of Historic Fill materials collected at B-1 through B-10, B.MW-201, B/MW-203, B/MW-204, B/MW-205, TP-2 and TP-3. However, as discussed below, based on historical records reviewed for the Property and the general area, concentrations of arsenic above its RCS-1 have been previously detected and historically attributed to background and Historic Fill conditions (e.g., coal, coal ash).

The soil analytical results are summarized in **Table 3**.

3.5.2 Historic Fill Chemical Evaluation

As noted above, petroleum hydrocarbons (i.e., VPH and EPH fractions) proximate to the former Fuel

Oil AST footprint are the primary contaminants of concern at the Disposal Site; however, VPH and EPH fractions have not been detected at elevated concentrations in association with soil/Historic Fill material beyond the limits of the Disposal Site.[2] Soil borings were screened throughout the investigation activities at the Property and Disposal Site using a PID. Field screening results from soils within the horizontal and vertical limits of the Disposal Site ranged from background to 155 ppmv (boring B-406) due primarily to the presence of staining, globules and/or free product. Beyond the limits of the Disposal Site, field screening indicated PID detections ranging from background to 36.7 ppmv (boring B-203), with screening results generally approaching background at concentrations less than approximately 10 ppmv. Field screening results are included on the boring logs presented in previous MCP-related submittals and **Appendix A** of this PSCS.

In addition to VPH and EPH fractions, elevated concentrations of metals (e.g., arsenic) and select PAHs (e.g., dibenzo(a,h)anthracene) have been detected in soil within and beyond the limits of the Disposal Site. The presence of free product appears to be the primary source of petrogenic PAHs within the Disposal Site (e.g., elevated concentrations of naphthalene, 2-methylnaphthalene and phenanthrene in soil boring B-406); however, the footprint of the Disposal Site appears to be coincident with Historic Fill pre-dating the release of petroleum. Limited PAH detections, beyond the limits of the Disposal Site, appear to be associated with the presence of Historic Fill. Similarly, Historic Fill appears to be the source of elevated concentrations of metals throughout the Property, including those portions coincident with the Disposal Site. Other constituents (e.g., herbicides) have not been detected, nor has visible asbestos debris been observed, in soil/Historic Fill material at the Property.

A comparison of Property data for soil located beyond the limits of the Disposal Site as utilized by MassDEP as representative of both "natural" soil background and background concentrations in soil containing coal ash or wood ash (hereinafter "Ash Background") in the *Technical Update – Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil* dated May 2002 (Technical Update; MassDEP, 2002) and draft *Historic Fill/Anthropogenic Background Technical Update* (MassDEP, 2016) was conducted. The evaluation, which included review of the maximum, mean, and 90th percentile values for soil located beyond the limits of the Disposal Site, is presented in **Table 8.** Significant observations related to the statistical evaluation include the following:

> **Concentrations of PAHs** - Although the maximum concentration of select PAHs (i.e., 2-methylnaphthalene, acenaphthene, and dibenzo(a,h)anthracene) detected beyond the limits of the Disposal Site are above the natural background concentrations published in the Technical Update (MassDEP, 2002), no PAHs (petrogenic or pyrogenic) were detected in excess of MassDEP's published Ash Background concentrations. Similarly, the calculated mean concentrations for individual PAHs are below both the natural background and Ash Background concentrations published in the Technical Update. A comparison of the 90th percentile value of soil concentrations beyond the limits of the Disposal Site to Ash Background concentrations (which were based on the 90th percentile value of ash containing soil concentrations in the database utilized by MassDEP for the preparation of the Technical Update) indicates that PAHs were detected at concentrations less than the Ash Background

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[2] Limited detections of toluene (i.e., detections in two soil samples) at low concentrations (i.e., maximum detected concentration of 0.02 mg/kg) are not indicative of a release of OHM or considered to be Disposal Site-related.

values. As a result, the detected concentrations of PAHs in soil beyond the limits of the Disposal Site are consistent with Historic Fill as defined in the MCP (310 CMR 40.0006).

Concentrations of Metals – The maximum detected concentrations of several metals, including antimony, arsenic, barium, beryllium, nickel, selenium, and vanadium, exceed the Ash Background concentrations published in the Technical Update; however, the calculated mean and 90th percentile values for antimony and nickel are less than natural and/or Ash Background concentrations.[3] In the case of barium, beryllium and selenium, although the mean and 90th percentile values exceed the Ash Background concentrations in Table 1 of the Technical Update, the maximum detected concentrations are significantly less than the maximum concentrations utilized for the Ash Background determination by MassDEP (see Appendix A of the Technical Update dated May 2002).[4]

The maximum detected concentrations of arsenic and vanadium exceed the maximum concentrations published in Appendix A of the Technical Update (MassDEP, 2002); however, based on Property specific lines-of-evidence and consistent with previous Class B-1 RAO closure documentation, these (and other) metals appear ubiquitous throughout the Property as a result of historic filling/grading activities. Arsenic and vanadium were detected in 100-percent of samples collected beyond the limits of the Disposal Site. Detected concentrations of arsenic and vanadium in these samples ranged from 2.5 mg/kg to 228 mg/kg (SS-4D) and 8 mg/kg to 120 mg/kg (B-4), respectively. These detections include a wide aerial distribution of elevated concentrations through the Property. For example, arsenic was detected in the soil sample collect at a depth of 10 to 12 ft bgs from MW-101, which is located approximately 500-feet north-northwest of the former AST (i.e., proximate to the MWRA Pump Station). Such detections do not appear localized or grouped within the Property.

The draft Technical Updated (MassDEP, 2016) notes that arsenic and vanadium are commonly associated with coal ash, which has been observed throughout the Property, at concentrations significantly in excess of background values and/or MCP Reportable Concentrations (RCs). Furthermore, MassDEP notes that lead is typically less than 200 mg/kg in coal ash. As depicted in **Table 8,** the maximum lead concentration in soil/fill material beyond the limits of the Disposal Site is 43.2 mg/kg, with a calculated mean concentration of 19.5 mg/kg. Given the previously discussed Property history (e.g., significant pre-Disposal Site release filling in approximately the late 1910s/early 1920s), prevalence of coal, clinkers, and coal ash throughout the soil column, and ubiquitous nature of elevated metals detections throughout the Property, the detected concentrations of metals, including elevated concentrations of arsenic and vanadium beyond the limits of the Disposal Site are consistent with Historic Fill as defined in the MCP (310 CMR 40.0006).

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[3] Per the Technical Update (MassDEP, 2002), in the absence of fill-specific data, the natural soil value for vanadium was adopted.

[4] Generally, maximum values for metals detected at the Site are available in the CDM 1996 dataset referenced in the Technical Update as the primary source for deriving Ash Background concentrations; however, in the absence of data within the CDM 1996 dataset (e.g., barium and vanadium), the maximum concentrations for metals detected within Historic Fill were also less than the available published values (i.e., MassDEP 1995 and H&A 2001 datasets).

The results of the comparison, which are presented in **Table 8**, support a conclusion that the soil beyond the limits of the Disposal Site are comparable to background and representative of Historic Fill containing PAHs and metals at the time of deposition.

3.6 LNAPL Saturation from Soil TPH Data

As part of LNAPL evaluation, groundwater gauging was conducted over 39 weekly events. The gauging included measurement of LNAPL thickness, depth to product and depth to groundwater. Weekly DTP and DTW gauging data are summarized in **Table 7.** Based on the collected field data, LNAPL characteristics including saturation were evaluated and are discussed below.

The LNAPL saturation values ranged from 0 to 0.20 percent of total pore volume. These values were less than total porosity [sand (0.42) and fill (0.50)], which indicates LNAPL is less than residual saturation. The LNAPL density is based on LNAPL samples collected from monitoring wells located at the Disposal Site (see **Section 2**); total porosity and dry bulk density values for fill are based on 30 subcore samples of fill, and 6 subcore samples of sand collected from the Disposal Site. These data are summarized in **Table 5**. Soil TPH concentrations are equal to the sum of the detectable EPH and VPH fractions and target analyte concentrations as per MassDEP LNAPL Policy #WSC-16-450 (MassDEP, 2016). Average values for Disposal Site LNAPL density, total porosity, and dry bulk density of fill and sand strata were used to calculate LNAPL saturation (see **Table 9**).

3.7 Groundwater Occurrence and Flow Summary

DTP and depth to water DTWR were measured weekly or biweekly between August 29, 2016 and June 19, 2017, and approximately four months later on October 6, 2017 to evaluate seasonal changes. Over this 14-month period (39 gauging events), the depth to groundwater ranged from approximately 9.7 (minimum) to 15.9 ft (maximum). The tidal influence ranged from less than 0.1 ft to approximately 0.3 ft at monitoring wells surrounding the Disposal Site (TRC, 2018).

The difference in groundwater elevations between the March 2017, May 2017, and June 2017 are similar to the range observed in the tidal study, which suggests that tidal fluctuation influences groundwater elevations at the Property. Recharge from precipitation also has a significant influence as demonstrated by the May 1, 2017 data which were 0.5 to 1 foot higher relative to the April 25, 2017 event as approximately 1.51 inches of rain fell on April 26-27, 2017 between these two gauging events. Weekly DTP and DTW gauging data are summarized in **Table 7**.

In-situ horizontal hydraulic conductivity estimates using low-flow data ranges from approximately 8.5 ft /day (3.0 x 10^{-3} centimeters per second [cm/s]) to 105 ft /day (3.7 x 10^{-2} cm/s), and averaged (geometric mean or geomean) approximately 28 ft /day (1 x 10^{-2} cm/s), which is representative of sand and gravel fill materials observed at the Property (TRC, 2017a). The water table is generally flat, with the difference in head across the Property approaching the magnitude of tidal influence. Groundwater contour maps suggest groundwater has the potential to flow west toward the Weymouth Fore River. A representative groundwater contour map (October 6, 2017) is provided in **Figure 5.**

3.8 Groundwater Analytical Results

3.8.1 Analytical Results Summary

Five rounds of seasonal groundwater sampling were performed at the Property (August 2016, November 2016, January 2017, March 2017, and June 2017). Six groundwater monitoring wells (MW-201 through MW-206) were sampled during each of the five rounds, while 18 newly installed groundwater monitoring wells (MW-400 through MW-417) were also sampled during the January 2017, March 2017, and June 2017 seasonal rounds. With the exception of the March 2017 round, which was conducted to evaluate the potential influence on groundwater quality during sampling, floating product (LNAPL) was removed using absorbent socks or bailers prior to commencing groundwater sampling activities. All groundwater samples were collected using low-flow procedures for MassDEP VPH, EPH and/or metals (total and dissolved) analysis. A summary of the seasonal groundwater quality data follows:

- The August 2016 sampling round of analytical results indicated VPH and EPH hydrocarbon fractions and target analytes were not detected in samples collected from monitoring wells MW-201 through MW-205. These results (less than the laboratory reporting limits) are well below applicable MCP Method 1 GW-2 and GW-3 criteria. Select metals (total and dissolved) including arsenic, barium, mercury and zinc were detected at low concentrations but well below the applicable MCP Method 1 GW-3 criteria.

- The November 2016 sampling round of analytical results indicated VPH and EPH hydrocarbon fractions and target analytes were not detected in samples collected from monitoring wells MW-201 through MW-206. These results (less than the laboratory reporting limits) are well below applicable MCP Method 1 GW-2 and GW-3 criteria.

- The January 2017 sampling round of analytical results indicated C11-C22 Aromatics were detected at 188 micrograms per liter (ug/L) in monitoring well MW-414 and 102 ug/L in monitoring well MW-412 (duplicate sample indicated not detected at the 100 ug/L laboratory reporting limit). These results (most which were below the laboratory reporting limits) are well below applicable MCP Method 1 GW-2 and GW-3 criteria.

- The March 2017 sampling round of analytical results indicated the detection of low concentrations of ethyl benzene (3.22 ug/L [3.11 ug/L – duplicate]), naphthalene (6.66 ug/L [6.72 ug/L – duplicate]), and C11-C22 Aromatics (102 ug/L (indicated not detected at the 100 ug/L laboratory reporting limit) in monitoring well MW-406. Low levels of C19-C36 Aliphatics were detected at 223 ug/L in monitoring well MW-404. Low levels of C11-C22 Aromatics were also detected in monitoring wells MW-410 (125 ug/L) and MW-414 (105 ug/L). These results (most which were below the laboratory reporting limits) are well below applicable MCP Method 1 GW-2 and GW-3 criteria.

- The June 2017 sampling round of analytical results indicated the detection of low concentrations of C9-C10 Aromatics (68.3 ug/L), naphthalene (7.57 ug/L), C11-12

Aromatics (178 ug/L) in monitoring well MW-407, and C9-12 Aliphatics (58.3 ug/L) and C11-22 Aromatics (131 ug/L) in monitoring well MW-414. These results (most which were below the laboratory reporting limits) are well below applicable MCP Method GW-2 and GW-3 criteria.

In summary, the VPH, EPH and metals analytical results indicated infrequent detections of low concentrations of petroleum chemical constituents and Historic Fill constituents below applicable MCP Method 1 GW-2 and GW-3 standards. The presence of infrequent detections of low concentrations of EPH and VPH analytes supports the lack of a significant dissolved phase plume and the lack of Historic Fill impacts on groundwater quality. These seasonal groundwater results do not exceed MCP Method 1 GW-2 and GW-3 criteria applicable to the Disposal Site, and are generally several orders of magnitude below GW-2 or GW-3 criteria for organics. The groundwater analytical results are summarized in **Table 4**.

3.8.2 Historic Fill Considerations

MassDEP's Technical Update (MassDEP, 2016) indicates that most locations with Historic Fill would not be expected to exhibit concentrations of Oil or Hazardous Materials (OHM) in groundwater at levels of concern. As summarized above, groundwater at/in the vicinity of the Disposal Site is typified by infrequent detections of petroleum fractions at relatively low concentrations. PAHs have not been detected in groundwater at the Property and detected metals (i.e., arsenic, barium, mercury and zinc) have exhibited low (i.e., less than MCP Method 1 GW-3 criteria) total and dissolved concentrations. As such, groundwater is not impacted by the presence of Historic Fill, as defined by the MCP, located above the water table and subject to leaching, or below the water table.

3.9 LNAPL with Micro-Scale Mobility Observations in Monitoring Wells

The thickness of LNAPL with micro-scale mobility fluctuated at each monitoring well, except at MW-414 and MW-201 where the maximum LNAPL with micro-scale mobility accumulation observed was approximately 1.39 ft and 1.24 ft, respectively, both on April 17, 2017, prior to conducting manual skimming tests. LNAPL with micro-scale mobility thickness decreased at monitoring well MW-414 during performance of the manual skimming test from April 17, 2017 through May 1, 2017, and attempted manual skimming test at monitoring well MW-201 on April 17, 2017. After completion of the skimming test on May 1, 2017, new absorbent socks were placed in monitoring wells (MW-201, MW-406, MW-407, MW-410, and MW-415) on April 18, 2017, and in monitoring well MW-414. Gauging was performed after each absorbent sock was removed to facilitate measurement using an oil-water interface probe.

After the groundwater sampling event on June 5-7, 2017, monitoring wells were gauged (DTP and DTW) on June 13, June 19, and October 6, 2017 to evaluate seasonal changes. Although precipitation may influence short-term variations in water table elevations at the Property, water levels at the Property have been shown to be governed by tidal influences and not by seasonal precipitation patterns. It is not expected that there would be a seasonal component to water level elevations at the Property. A comparison of LNAPL with micro-scale mobility thickness versus groundwater table elevation in the five monitoring wells after sock deployment was discontinued on June 6, 2017 is shown in **Figure 6**. It illustrates a negative relationship between LNAPL thickness and groundwater elevation (i.e. decreases in groundwater elevation increase LNAPL thickness) which is a well-established relationship. Thus, because ocean elevation governs groundwater elevations at the Property and ocean elevation does not vary seasonally, it would not be expected that there is a seasonal component to LNAPL thickness at the Property.

On June 13, 2017, the thickness of LNAPL with micro-scale mobility ranged from 0.01 to 0.04 ft in the five monitoring wells (MW-201, MW-406, MW-407, MW-410, and MW-414). On June 19, 2017, the thickness of LNAPL with micro-scale mobility was observed as 0.01 ft in four monitoring wells and 0.06 ft in monitoring well MW-414. On October 6, 2017, approximately three months later, the thickness of LNAPL with micro-scale mobility was 0.51 ft in monitoring well MW-201, 0.31 ft in monitoring well MW-406, 0.24 ft in monitoring well MW-407, 0.48 ft in monitoring well MW-410, and 1.04 ft in monitoring well MW-414. The thickness of LNAPL with micro-scale mobility thickness in monitoring wells may increase over time as they are screened opposite soils containing weathered No. 2 Fuel Oil, and under some conditions may preferentially accumulate LNAPL. LNAPL with micro-scale mobility observed in the five monitoring wells generally exhibited greater thickness of LNAPL with micro-scale mobility at lower groundwater elevations, and lower thickness of LNAPL with micro-scale mobility at higher groundwater elevations. Weekly DTP and DTW gauging data are summarized in **Table 7**.

3.10 LNAPL Liquid Properties

Chemical analysis of LNAPL samples collected from the groundwater surface and within the smear zone indicates the LNAPL consists primarily of EPH long chain C11-C22 aromatic and C9-C36 aliphatic compounds. The LNAPL is a viscous, weathered, high molecular weight oil. The LNAPL dynamic viscosity value between 43,600 cP at 50ºF and 10,400 centipoise (cP) at 70ºF (temperature range observed during seasonal groundwater sampling) is three to four orders of magnitude higher viscosity than the cutoff point for significant migration of 2-3 centistokes (cSt) (Cole, 1994).

The LNAPL kinematic velocity is a measure of the product's resistance to gravity flow; that is a measure of the relative ease with which hydrocarbons flow through soils. The LNAPL kinematic viscosity of 10,700 cSt at 70ºF is two orders of magnitude greater than the viscosity of light fuel oil (No. 1, and No. 2) reported as 1.4 to 3.6 cSt at 70ºF. (Riddick et al., 1986), indicating the LNAPL at the Disposal Site (No.2 Fuel Oil) has undergone significant weathering. For comparison, the reported viscosity of lubricating oil of 400 to 600 cSt at 70ºF (Riddick et al., 1986). A detailed description of the LNAPL liquid characteristics is presented in **Appendix C** and **Appendix D**.

3.11 LNAPL Mobility Assessment

This LNAPL mobility evaluation was based upon physical analysis of soil cores collected beside two borings (B-412, B-413), where the thickness of LNAPL contained in soil was observed in soil borings ranged from 5 ft (B-412) to 5.5 ft (B-413), and at two borings (B-404, B-406) located near the perimeter of the former AST where the thickness of LNAPL contained in soil ranged from 0.5 ft (B-404) to 3.5 ft (B-406) (see **Table 1)**. Refer to **Figure 2** for the boring locations.

A detailed presentation of the LNAPL smear zone physical properties is provided in **Appendix C**.

3.11.1 Total Porosity, Air-Filled Porosity and NAPL, Water, and Air Saturations

Total porosity, air-filled porosity, and NAPL, water and air saturations provide fundamental properties for the evaluation of the mobility of LNAPL in soil. These results are summarized in **Table 10**. A summary of these properties follows:

- **Total Porosity** ranges from 37.8% at B406A (12.1 ft bgs) to 59.9% B406A (11.2 f bgs).
- **Air-Filled Porosity** ranges from 6.5% at B412A (12.1 ft bgs) to 31% of pore volume at B406A (11.0 ft bgs).
- **Water Saturation** ranges from 28.4% at B406A (12.1 ft bgs) to 65.7% of pore volume at B404A (12.1 ft bgs).
- **LNAPL Saturation** ranges from 2.0% at B404A (14.1 ft bgs) to 40.1% of pore volume at B413A (14.1 ft bgs).

In summary, these results indicate the LNAPL saturation occupies a smaller percentage of the total pore space than water and/or water plus air combined, which supports LNAPL is below residual saturation.

3.11.2 Free-Product Mobility: Initial and Residual Saturation

Centrifuging at 30 times gravity (30xG) for simulating 30 days of gravity drainage decreased LNAPL less than approximately 3% in 83% (10 of 12 samples), and in the remaining two subcore samples, LNAPL decreased 12.7% at B406A (14.3 ft bgs) and 27.8% at B406A (12.3 ft bgs).

Dark brown LNAPL was produced in one sample from each boring, and trace LNAPL was observed in one sample from three of the subcore samples. These results support LNAPL has limited mobility under laboratory simulated conditions of 30 days, at higher temperature, where the LNAPL is less viscous and more mobile. Therefore, these results are very conservative and biased toward mobility.

3.11.3 Oil/Water Capillary Pressure - Source Vicinity Borings

In the source vicinity borings (B412A and B413A), initial oil saturations ranged from 8.6 to 16.4% at B412A and 26.9% to 42.7% at B413A. At the terminus of the imbibition curve:

- B412A – LNAPL residual saturation was 25% (vs. 16.4% initial LNAPL saturation) at 12.5 ft bgs, 26% (vs 8.6 % initial) at 14.5 ft bgs, and 29.5% (vs. 11.1% initial) at 16.45 ft bgs.
- B413A - LNAPL residual saturation was 29% (vs. 27.8% initial) at 12.5 ft bgs, 29.8% (vs. 26.9% initial) at 14.5 ft bgs, and 22.3% (vs. 42.7% initial) at 16.5 ft bgs.

Where the initial LNAPL saturation exceeds the residual saturation, free phase LNAPL can occur. The results indicated only one of six samples in the source vicinity, specifically at B413A at 16.5 ft bgs showed the potential to generate free phase LNAPL.

3.11.4 Oil/Water Capillary Pressure - LNAPL Margin Borings

In the LNAPL Margin Borings (B404A and B-406A), initial oil saturations ranged from 35.2% to 3.5% at B404A, and ranged from 11.8% to 31.6% at B406A. The results indicated:

- B404A – LNAPL residual saturation was 49.5% (vs. 35.2% initial) at 10.7 ft, 32.5 % (vs. 21.1% initial) at 12.5 ft bgs, and 16.5% (vs. 3.5% initial) at 14.5 ft bgs.
- B406A - LNAPL residual saturation was 22.9% (vs. 11.8% initial) at 11.4 ft bgs, 43% (vs. 27.0% initial) at 12.5 ft bgs, and 31% (vs. 31.6% initial) at 14.5 ft bgs.

For the subcores located in the vicinity of the LNAPL margin, the results indicated only one of six samples, specifically at B406A at 14.5 ft bgs, showed the potential to generate LNAPL with micro-scale mobility, the other five exhibited residual saturation.

In summary, the oil/water capillary pressure tests indicated the initial saturation in most (10 of 12) samples was below residual saturation, and the remaining two samples were slightly above residual saturation. These results are consistent with LNAPL demonstrating micro-scale mobility.

3.12 Soil Jar Headspace Observations

The potential for generation of soil vapor in the vadose zone from LNAPL-impacted soil was evaluated based on soil jar headspace measurements using a PID during borehole advancement. The range of available jar headspace values were compiled from the borehole logs for subsurface soil between 0 and 10 ft bgs along with the depth range of LNAPL-impacted soil. Overall, PID measurements indicated soil vapor was less than 0.6 parts ppmv with the exception of B-414 where 1.8 ppmv and B-202 where 2.7 ppmv were observed in separate jar headspace samples. Both of these locations are outside of the footprint of the former Fuel Oil AST and soil analytical results indicate very low (several orders of magnitude below applicable standards) petroleum-related impacts. Overall, a significant soil vapor plume does not appear to be present at the Disposal Site. A limited potential may exist for volatile components of the LNAPL to partition into soil and soil vapor and impact air in future buildings and underground utilities. Soil jar headspace values are summarized along with the depths of product saturated soils observed during borehole advancement on **Table 11.**

3.13 LNAPL Recoverability

A manual skimming test was performed at monitoring well MW-414 following the ASTM E2856-13 Standard Guide for Estimation of LNAPL Transmissivity. Assumptions as identified in the ASTM Standard include equilibrium well conditions and steady-state flow during testing, which were not achieved at the Disposal Site due to tidal influence; therefore, the calculated LNAPL Tn values are considered to be approximate. Results indicated the following: At monitoring well MW-201, LNAPL with micro-scale mobility thickness was measured as 1.24 ft, however, significant manual (e.g., staff forcibly pushed the tubing into the monitoring well) force was required to penetrate the LNAPL with the ½ x 5/8 inch rigid polyethylene tubing. After pumping started, LNAPL globules were recovered. Because LNAPL recovery was limited to approximately 4 ounces of LNAPL with 14 quarts of groundwater, LNAPL recovery was deemed infeasible. At monitoring well MW-410, LNAPL with micro-scale mobility was only approximately 0.10 ft thick, and the product appeared to be highly viscous similar to that observed at MW-201; therefore, LNAPL recovery was deemed infeasible. Both monitoring wells MW-201 and MW-410 are located beneath the central portion of the former AST.

At monitoring well MW-414, LNAPL was measured as approximately 1.39 ft thick, and appeared to be recoverable, therefore, a skimming test was conducted at this monitoring well. The results of the LNAPL Skimming test at monitoring well MW-414 indicated Tn is estimated to be 0.0027 ft^2/day, which is well below the ASTM 2856 Standard criterion of 0.8 ft^2/day, which supports **it is infeasible recover LNAPL using hydraulic or vacuum methods**, as indicated in the MassDEP LNAPL Policy #WSC-16-450 (MassDEP, 2016). These results, while approximate, clearly indicate, along with sock retrieval observations and attempts to pump LNAPL, support that hydraulic or vacuum LNAPL recovery at the Disposal Site is not feasible.

A detailed description of attempts to recover LNAPL with micro-scale mobility at the Disposal Site monitoring wells and a photo log that shows the skimming test setup, liquids recovered, product gauging, and LNAPL sock retrieval is presented in **Appendix D**.

3.14 Data Usability and Representative Evaluation

A Data Usability Assessment documents that the soil and groundwater EPH and VPH data are scientifically valid and defensible, and of a sufficient level of precision, accuracy, and completeness to support the PSCS. The Data Usability Assessment which also includes soil samples collected by TRC outside of the Disposal Site is presented as **Appendix E.**

For a representativeness evaluation, the magnitude of soil boring data and observations collected at the Disposal Site are representative of the lateral and vertical extent of LNAPL with micro-scale mobility impacted soil. This report includes a summary of LNAPL analytical results and soil physical properties from subcore samples collected from the smear zone from borings located in the area of greatest LNAPL thickness and near the margin of the LNAPL impacted soil that characterize LNAPL physical properties. LNAPL recoverability testing characterizes the in-situ LNAPL with micro-scale mobility.

Groundwater monitoring wells are located in and around the LNAPL with micro-scale mobility saturated soil, screened across the smear zone, and have been gauged for product thickness over a sufficient time frame (14 months) to characterize the variability of LNAPL with micro-scale mobility thickness in monitoring wells. A tidal study characterized the influence of tidal fluctuations on groundwater levels across the Property. Five seasonal rounds of groundwater sampling are sufficient to characterize temporal variability of groundwater VPH and EPH concentrations.

3.15 CSM Summary

Review of available historical maps indicate that the Property within which the Disposal Site is situated historically consisted of significantly less upland area and was undeveloped. Following tideland filling activities in approximately the late 1910s/early 1920s, the areal footprint of the Property as depicted in the historic record remains largely unchanged through the submittal of this PSCS.

Observations of subsurface conditions during the various investigation activities at the Property appear to be consistent with the Property history and historical record, indicating a localized release of petroleum within a footprint of widespread Historic Fill, as defined by the MCP that pre-dates Disposal Site-related release(s). Historic Fill material, present within the soil matrix without distinct or significant stratigraphic layering, was observed at depths ranging from approximately the ground surface to 32.5 ft bgs. The fill material generally included "coal slag," "slag" or clinkers, coal, brick, concrete and/or coal ash-like material. The source(s) of the material used to fill the Property is unknown; however, an off-site and off-property source(s) of material would have been required given that much of the current footprint of the Property was tidal until at least 1917. Ancillary filling during operation of Edgar Station south of the Property would also have originated off-property.

The Historic Fill does not contain a generated hazardous waste, nor does it contain chemical production waste, manufacturing waste, or waste from the processing of metal or mineral ores, residuals, slag or tailings. In addition, based on the Property history and observed surface and subsurface conditions, there is no evidence that the Disposal Site or surrounding Property functioned as a permitted landfill, historic municipal landfill/dump, burn dump or illegal landfill.

The results of the evaluation of the soil chemistry support a conclusion that the soil beyond the limits of the Disposal Site are comparable to background and representative of Historic Fill containing PAHs and metals at the time of deposition. Groundwater is not impacted by the presence of Historic Fill, as defined by the MCP, located above or below the water table. The localized Disposal Site-related release that occurred to/within the footprint of widespread Historic Fill, which pre-dates the release of petroleum, is characterized by the presence of petroleum impacts and LNAPL with micro-scale mobility.

PAHs have not been detected in groundwater at the Property and detected metals (i.e., arsenic, barium, mercury and zinc) have exhibited low (i.e., less than MCP Method 1 GW-3 criteria) total and dissolved concentrations. As such, groundwater is not impacted by the presence of Historic Fill, as defined by the MCP, located above the water table, and subject to leaching, or below the water table.

The LNAPL with micro-scale mobility at the Disposal Site appears to have been released from a former 11,256,000-gallon No. 2 Fuel Oil AST removed from the Property between 2004 and 2005, at least 13 years ago. The LNAPL likely migrated downward through the vadose zone under the influence of gravity. In the vadose zone, three phases (oil, water, and air) are present in the soil pore spaces impacted by the release. In the groundwater saturated zone, product is the non-wetting phase and groundwater is coating soil particles at residual saturation, and groundwater is present filling the remaining void spaces. The LNAPL product is retained by capillary forces and trapped within the pore spaces and in a state of macro-scale stability. Movement of LNAPL in the saturated zone is constrained by capillary pressures needed to displace water from the soil pores, resulting in immobile LNAPL.

LNAPL product (LNAPL with micro-scale mobility) is observed mostly in Historic Fill at depths ranging between approximately 10 and 18 ft bgs (below existing grade). Petroleum-containing soil ranges from 0.2 to 6 ft, averaging 3.3 ft. Because the LNAPL release occurred at least 11 years prior to the existing investigation, and the LNAPL is highly viscous due to weathering, it is likely the LNAPL release has stabilized. Further, LNAPL is not observed in the outer perimeter monitoring wells, which is consistent with LNAPL that does not exhibit macro-scale mobility. “Most LNAPL releases generally stabilize (i.e., the LNAPL footprint stops expanding) within 1 to 2 years from when the active release was terminated, absent preferred flow paths” (MassDEP, 2016). A CSM diagram is presented in **Figure 7**.

LNAPL within the smear zone was noted at B-404 (12 ft), B-406 (11.8 ft and 12.5 ft), B-407 (11.8 ft), B-411 (14 ft), B-412 (11.5 ft and 13 ft), B-413 (14-15 ft), and B-414 (14 ft). Chemical analysis of the LNAPL indicates it consists primarily of EPH long chain C11-C22 aromatic and C9-C36 aliphatic compounds. The LNAPL dynamic viscosity value between 43,600 cP at 50^{o}F and 10,400 cP at 70^{o}F (temperature range observed during seasonal groundwater sampling) is three to 4 orders of magnitude of a cutoff point for significant migration of 2-3 cSt (Cole, 1994).

The LNAPL viscosity is above the “red line” in MassDEP’s LNAPL Guidance (MassDEP, 2016, Figure 8), for site data of 10^{-2} cm/s hydraulic conductivity (representative of Historic Fill at the Property), and observed LNAPL thickness indicating “hydraulic/vacuum recovery technologies deemed to be infeasible” (MassDEP, 2016).

LNAPL with micro-scale mobility was observed at five monitoring wells between August 29, 2016 and October 6, 2017. LNAPL with micro-scale mobility has been observed consistently at five monitoring wells (MW-201, MW-406, MW-407, MW-410, and MW-414). The thickness of LNAPL with micro-scale mobility thickness has been observed to fluctuate within the range of LNAPL with micro-scale mobility thickness values historically observed in monitoring wells at this Disposal Site.

The LNAPL was observed to be a dark brown to black, viscous, sticky liquid that tends to make LNAPL thickness measurements difficult and biased high. The LNAPL Tn is estimated to be 0.0027 ft2/day, which is well below the ASTM 2856 criterion of 0.8 ft2/day, which supports it is infeasible to initiate LNAPL removal operations, per MassDEP LNAPL Guidance #WSC-16-450 (MassDEP, 2016).

The LNAPL saturation values ranged from 0 to 0.20 percent of total pore volume based on Disposal Site soil TPH, LNAPL density, and soil bulk density. These values were less than total porosity [sand (0.42) and fill (0.50)], which indicates LNAPL is less than residual saturation.

The depth to groundwater ranges from 9.7 to 15.9 ft bgs based on the minimum and maximum values in **Table 2**. The tidal influence is observed to be less than 0.3 ft. The water table is generally flat, with the difference in head across the Property approaching the magnitude of tidal influence. Five seasonal rounds of groundwater analytical data indicated the presence of infrequent detections of low concentrations of EPH and VPH analytes, orders of magnitude below applicable MCP Method 1 GW-2 and GW-3 criteria and in almost all samples below the laboratory reporting limits, which supports the lack of a significant dissolved phase plume. The lack of elevated soil jar headspace readings supports the lack of a significant soil vapor plume in the vadose zone. Preferential migration pathways have not been observed or known to exist at the Disposal Site.

4.0 RISK CHARACTERIZATION [310 CMR 40.0900]

This section was prepared per 310 CMR 40.0900 of the MCP and Appendix F of the MassDEP *Guidance for Disposal Site Risk Characterization* (MassDEP, 1995) and provides a risk characterization for the Disposal Site. The risk characterization addresses human and environmental receptors reasonably expected to be at and near the Disposal Site. As discussed herein, a Method 3 approach was selected to characterize human health risk at the Disposal Site and a Stage I Environmental Screening was performed to characterize ecological risk.

An Activity and Use Limitation (AUL) has been filed for the Disposal Site. The AUL voluntarily restricts use of the Disposal Site for activities and uses where children may be present with high intensity and frequency, including but not limited to residences, recreational parks/playgrounds, schools, and daycares. Therefore, the risk characterization has only quantitatively evaluated future commercial/industrial uses of the Disposal Site.

Although only the portion of the Property where Disposal Site-related impacts have been identified is included in the risk characterization to evaluate future commercial/industrial land use, the portion of the property beyond the Disposal Site boundary where Historic Fill is present has been identified on **Figures 3, 4A, 4B and 4C** and appropriate Conditions have been identified for soil management and exposure controls (e.g., clean soil cover, pavement, asphalt, buildings) to protect future receptors from Historic Fill-related constituents in soil, specifically arsenic. Historic Fill constituents have been excluded from the risk characterization because it has been demonstrated in Section 3 that the Historic Fill present at the Property meets the definition of Anthropogenic Background. Therefore, soil and groundwater metals data have been excluded from the risk characterization data sets and from the quantitative evaluation. PAHs, although potentially associated with Historic Fill, have been included in the risk characterization because PAHs are also associated with petroleum products (e.g., No. 2 Fuel Oil). Conditions associated with Historic Fill management to control exposures and potential disposal are discussed in **Section 6**. Section 4.7.2 contains additional discussion related to current and potential future exposures to Historic Fill-related constituents.

There are currently no buildings present within the Disposal Site boundary. Therefore, the vapor intrusion pathway is considered incomplete under current conditions. For future land use that may involve the construction of an occupied building, the vapor intrusion pathway associated with LNAPL with micro-scale mobility and VOCs in vadose zone soil is considered to be potentially complete. As described in **Section 3** (Conceptual Site Model), some constituents of concern identified in vadose zone soil (e.g., naphthalene) and LNAPL constituents (petroleum hydrocarbons) at the Disposal Site may have the potential to migrate to indoor air. Therefore, the AUL also controls the future vapor intrusion pathway should a building be constructed in the Disposal Site area (e.g., further assessment of the vapor intrusion pathway or installation of a vapor mitigation system as part of new building construction). Groundwater is not considered a potential source of vapors to the indoor air of a future building because VOC concentrations are below MCP GW-2 standards.

Supporting information applicable to the risk characterization is contained in **Appendix F** of this report as follows: **Appendix F-1** (Soil and Groundwater Sampling Data), **Appendix F-2** (ProUCL Documentation for 95% Upper Confidence Limits), **Appendix F-3** (Trench Air Modeling), **Appendix F-4** (Risk and Hazard Calculations for Soil), **Appendix F-5** (Risk and Hazard Calculations for Groundwater) and **Appendix F-6** (Risk and Hazard Calculations for Trench Air).

4.1 Hazard Identification

4.1.1 Impacted Media

At the Disposal Site, environmental media known to be potentially impacted include soil and groundwater. As described in **Section 2**, soil environmental investigations were conducted at the Property between June 2015 and December 2016. Groundwater monitoring was conducted in August 2016, November 2016, January 2017, March 2017, and June 2017.

- *Soil*

The Disposal Site is associated with a release of No. 2 Fuel Oil from an historic AST that resulted in a layer of oil-impacted soil and free-phase material at depths approximately between 10 and 18 ft bgs. Samples collected as part of the soil characterization program, but representative of the free-phase material, LNAPL with micro-scale mobility (see **Table 5**), were excluded from the risk characterization. Soil samples collected as part of extent characterization from sampling locations outside the Disposal Site or from below the contamination and representative of native soil (i.e., displaying non-detect or background levels of constituents) were not include in the risk characterization data sets. In addition, metals data from within the Disposal Site boundary were excluded from the risk characterization data set because the metals are representative of the Historic Fill and not associated with the No. 2 Fuel Oil release. These samples and/or analyses excluded from the risk characterization data set are highlighted yellow on **Table 1** in **Appendix F-1**. Therefore, soil samples included in the risk characterization data set include those samples collected from within the Disposal Site boundary at depths immediately above or below the LNAPL layer where oil-impacted soil is located.

For the Disposal Site, only one data set has been created (i.e., a greater than 3-foot data set) because petroleum-impacted soils are located at depths greater than 3 feet bgs (i.e., between 10 and 18 feet bgs). The greater than 3-foot data set is used to evaluate future exposures, assuming the soil is disturbed and moved to an accessible location. The selection of a greater than 3-foot data set is based on MassDEP requirements for evaluation of soil below 3 feet as applicable to future exposures.

The results of chemical analysis for soil samples available for use in the risk characterization are provided in **Appendix F-1, Table 1**. The data set for the greater than 3-foot depth interval evaluated in the risk characterization for the Disposal Site is presented in **Appendix F-1, Table 2**. Soil summary statistics for the greater than 3-foot data set are presented on **Table 12**.

Constituents of concern detected in soils at the Disposal Site above MCP Method 1 S-1 soil standards include petroleum hydrocarbon fractions and petroleum-related target compounds, as described in Section 3.5.

- *Groundwater*

Quarterly groundwater sampling results collected between August 2016 and June 2017 were considered for evaluation in the risk characterization as most representative of current Disposal Site conditions. Data from monitoring wells MW-404, MW-406, MW-407, MW-410, MW-412, and MW-414 collected between January 2017 and June 2017 were included in the quantitative evaluation. These monitoring wells are located within the Disposal Site boundary and display detectable concentrations of petroleum-related compounds. This is a conservative approach since all other monitoring wells from both within and beyond the Disposal Site boundary displayed non-detect concentrations of petroleum-related compounds. As done for soil, metals data were excluded from the risk characterization data set because the metals are representative of the Historic Fill and not associated with the No. 2 Fuel Oil release. The results of chemical analysis for groundwater samples quantitatively evaluated in the risk characterization are provided in **Appendix F-1, Table 3**. Groundwater summary statistics are presented on **Table 13**. Groundwater data were used to evaluate construction worker dermal contact exposures as well as exposures to VOCs in trench air after release from groundwater and soil.

4.1.2 Hot Spot Analysis

Soil and groundwater data applicable to the Disposal Site were evaluated for the presence of hot spots. A hot spot is defined in the MCP as a discrete area where the chemical concentrations are substantially higher than those present in the surrounding area. A discrete area where the average concentration within the area is greater than ten but less than one hundred times the average concentration in the immediate surrounding area is a hot spot unless there is no evidence that the discrete area would be associated with greater exposure potential than the surrounding area. In all cases, a discrete area where the chemical concentration is greater than one hundred times the concentration in the surrounding area is to be considered a hot spot. The identification of hot spots is performed to minimize the likelihood that a location with significantly elevated contaminant concentrations will be diluted by combining it with locations of lesser contaminant concentrations in the evaluation.

As further stated in the MCP, in no case should chemical concentrations equal to or less than an applicable MCP Method 1 standard be considered indicative of a hot spot. This approach was used for soil, using Method 1 S-1/GW-2 and S-1/GW-3 standards as comparison criteria, and for groundwater, using Method 1 GW-2/GW-3 standards as comparison criteria. In addition, a chemical was not considered representative of a hot spot if the maximum detected concentration was used as the EPC. For soil, two chemicals in the greater than 3 foot data set were included in the hot spot analysis as other detected chemicals were present at levels less than applicable MCP Method 1 S-1 soil standards or the maximum detected concentration was used as the EPC (see **Table 12** for the soil summary statistics). No chemicals were included in the hot spot analysis for groundwater (see **Table 13**) as no concentrations exceeded their applicable MCP Method 1 groundwater standards and maximum detected concentrations were used as EPCs.

The following table shows the maximum detected concentrations of the compounds exceeding Method 1 S-1 standards, the average concentration for each compound excluding the maximum detection, and the variance between the maximum concentration and the average concentration.

Chemical	**Maximum Concentration (mg/kg)**	**Average Concentration Excluding Maximum (mg/kg)**	**Variance (Maximum versus Average Excluding Maximum)**
Soil (greater than 3 foot interval)			
C9-C18 Aliphatics	4,570	2,758	3.3-fold
C19-C36 Aliphatics	9,110	3,469	2.6-fold

Notes:
mg/kg – milligrams per kilogram

As shown above, the maximum concentrations of the compounds included in the soil hot spot evaluation vary from the average concentrations by less than 100-fold. The 100-fold criterion is the appropriate comparison value because soils within the identified depth intervals are equally accessible. Therefore, no hot spots, as defined by the MCP, were identified at the Disposal Site.

4.1.3 Extent of Impacts

The nature and extent of impacts has been analyzed and is discussed in Section 3. The nature and extent has been sufficiently delineated to support conclusions and opinions regarding the source, nature, extent, and potential impacts of the release at the Disposal Site.

Horizontal and Vertical Extent

The horizontal and vertical extents in soil are described in Section 3. In general, the horizontal and vertical extent of petroleum-related impacts in soil at the Disposal Site are consistent with the historical release of No. 2 Fuel Oil from the former AST. The horizontal and vertical extent of soil constituents detected above applicable MCP Method 1 soil standards has been characterized via laboratory analysis and field screening (visual, olfactory, jar headspace, and professional judgment).

Background Concentrations

Site-specific background concentrations were not characterized in soil and groundwater.

For the purposes of this risk characterization, soil background concentrations for petroleum hydrocarbon fractions are considered to be non-detect. Soil background concentrations of PAHs selected for use are MassDEP "Natural Soil" background concentrations as presented in the *Technical Update Background Levels of Polycyclic Aromatic Hydrocarbons and Metals in Soil* (MassDEP, 2002).

4.1.4 Representativeness

Soil impacts are discussed in **Section 3**, and are characterized sufficiently and conservatively to evaluate risk and to be protective of human health and the environment. TRC conducted a data usability assessment, which is summarized in Section 3.14 and detailed in **Appendix E**. In general, TRC concluded that the data are usable for MCP decisions based on the *Compendium of Analytical Methods* (CAM) requirements for acceptable accuracy, precision, and sensitivity, with the noted exceptions. Although there were select quality control (QC) non-conformances, the data are valid as reported and may be used for decision making purposes.

4.1.5 Compounds of Potential Concern

Compounds of Potential Concern (COPCs) for the risk characterization were identified by: a) screening concentrations against available or applicable background values, b) eliminating results with low detection frequencies, and c) eliminating those results that are considered laboratory contaminants and not related to potential Site impacts. In addition, contaminants that were not reported above laboratory reporting limits were also removed from further consideration as COPCs. Compounds eliminated from the list of soil COPCs based on the comparison of detected concentrations to the MassDEP natural soil background concentrations are provided in **Table 12**. Compounds detected in groundwater monitoring wells within the Disposal Site boundary and considered COPCs are summarized in **Table 13**.

The following table summarizes the COPCs for soil and groundwater.

Compounds of Potential Concern

Compounds	Affected Media
Ethylbenzene	Groundwater
Naphthalene	Soil and Groundwater
C9-C10 Aromatics	Soil and Groundwater
C9-C12 Aliphatics	Soil and Groundwater
C9-C18 Aliphatics	Soil
C19-C36 Aliphatics	Soil and Groundwater

Compounds of Potential Concern	
Compounds	**Affected Media**
C11-C22 Aromatics	Soil and Groundwater
2-Methylnaphthalene	Soil
Phenanthrene	Soil

4.2 Current and Foreseeable Future Site Activities and Uses

The Disposal Site is identified as an approximate one-acre portion of the approximately 12.3-acre Property that occupies a triangular peninsula (the Disposal Site is located within the four–acre North Parcel) lying northeast of Route 3A (Bridge Street). The Property is currently developed with asphalt paved and unpaved access roads, storage areas, an existing metering and regulating station southwest of the Disposal Site, and pumping station located northeast of the North Parcel. There is an existing public walkway located directly to the east, along King's Cove. The Weymouth Fore River is located to the north and west of the Property.

The Disposal Site is located within a fenced vacant area that is proposed for development as a natural gas compressor station. Currently there are no workers at the Disposal Site. The fence surrounding the North Parcel is locked, and expected to be maintained during construction, and after construction is completed to prevent unauthorized access.

There are no institutions within 500 ft of the Property or Disposal Site. King's Cove/tidal flats and Weymouth Fore River/rocky intertidal shore are natural resources located within 500 ft of the east and west sides of the Property. A shrub swamp is located within 500 ft of the Property to the south of King's Cove and Route 3A. There are no ACEC or Certified Vernal Pools identified within 500 ft of the Property or Disposal Site.

The Disposal Site is not located within a Zone II or Zone A of a drinking water supply area, an Interim Wellhead Protection Area, or a potentially productive aquifer. The surrounding area is serviced by the Town of Weymouth municipal water supply. In addition, there are no drinking water supplies or private drinking water wells within 500 ft of the Disposal Site. Therefore, the current and future drinking water pathway is considered incomplete.

Because Disposal Site-related contamination is located approximately 10 to 18 ft bgs, there are no current receptors who may come into contact with the contamination. Emergency utility workers would not be exposed to the impacted soil or LNAPL with micro-scale mobility due to its depth (i.e., greater than 6 ft) bgs, and beneath the depth of known utilities within the Disposal Site.

The property owner intends to use the parcel for commercial/industrial purposes in the future. Therefore, future receptors evaluated in the risk characterization are commercial workers and construction workers. Future construction workers, evaluated using maximum detected concentrations, are used to conservatively evaluate emergency utility workers, should utilities be present within the petroleum-impacted soil in the future. Future commercial workers and construction workers would be exposed to soil contaminants to a maximum depth of 15 ft bgs.

Construction workers could additionally be exposed to contaminants in shallow groundwater and inhale VOCs released from soil and shallow groundwater into an excavation trench.

4.3 Imminent Hazards

An Imminent Hazard (IH) is not presented by the impacts that have come to be located at this Disposal Site. This determination is based on a review of criteria for conditions "deemed to pose" an IH under 310 CMR 40.0321(1) and the criteria for conditions that "could pose" an IH under 310 CMR 40.0321(2). The results of TRC's review of conditions "deemed to pose" or that "could pose" an IH are set forth below.

4.3.1 Criteria for Releases Deemed to Pose an Imminent Hazard – 310 CMR 40.0321(1)

Disposal Site conditions are not known to have resulted in the presence of impacts within buildings, structures, or underground utility conduits at a concentration equal to or greater than 10-percent of the Lower Explosive Limit (LEL), as set forth in 310 CMR 40.0321(1)(a). Neither the property owner nor TRC have received reports or complaints of persistent odors in ambient or indoor air potentially attributable to potential Disposal Site impacts.

The chemicals detected at the Disposal Site either do not possess reactive or explosive characteristics consistent with 310 CMR 40.0321(1)(b), or the chemicals are not present at concentrations or in situations expected to threaten safety.

The potential impacts detected at the Disposal Site do not appear to be related to impacts to a roadway that could endanger public safety as set forth in 310 CMR 40.0321(1)(c).

The release would not pose a significant risk to human health if present for even a short period of time consistent with 310 CMR 40.0321(1)(d) and 310 CMR 40.0950. The majority of the Disposal Site is fenced (access road is not fenced) and Disposal Site-related contamination is not present within 3 ft of existing ground surface. In addition, drinking water exposures are not a complete exposure pathway associated with this Disposal Site.

Potential impacts did not result in immediate and acute adverse impacts to freshwater or saltwater fish populations consistent with 310 CMR 40.0321(e). The closest surface water bodies are King's Cove/tidal flats, the Weymouth Fore River/rocky intertidal shore, and a shrub swap, all located within 500 ft of the Disposal Site. Detected concentrations in groundwater do not exceed MCP GW-3 standards.

The release did not result in any apparent effects to human health such as respiratory distress or dermal irritations as set forth in 310 CMR 40.0321(1)(f). No such effects have been reported to public health agencies, the property owner, or TRC.

4.3.2 *Criteria for Release that Could Pose an Imminent Hazard – 310 CMR 40.0321(2)*

There are no reports of the potential impacts detected at the Disposal Site resulting in detections in a private drinking water supply well at a concentration equal to or greater than ten-times the GW-1 RC per 310 CMR 40.0321(2)(a); the GW-1 reporting category does not apply to this Disposal Site. In addition, no private drinking water supply wells are known to be present within 500 ft of the Disposal Site. The area in the vicinity of the Disposal Site is supplied potable water by the municipality.

The release did not trigger the IH concentration thresholds established under 310 CMR 40.0321(2)(b) in exposed surface soil. Disposal Site-related contamination is not present within 3 ft of ground surface.

Per 310 CMR 40.0321(2)(c), risk levels associated with current receptors are less than ten times the Cumulative Receptor Risk Limits in 310 CMR 40.0993(6). Because the Disposal Site is fenced and Disposal Site-related impacts are located at a depth of 10 ft or greater, no current receptors (including emergency utility workers) are exposed to the contamination, and therefore, an IH condition does not exist at the Disposal Site.

4.4 Groundwater and Soil Categorization

The following sets forth the applicable groundwater and soil categories at the Disposal Site. This categorization was prepared consistent with 310 CMR 40.0932, 310 CMR 40.0933, and Table 40.0933(9) of the MCP.

4.4.1 *Groundwater Categories*

The groundwater categories for this Disposal Site were determined pursuant to 310 CMR 40.0932, research of available documentation, and through the use of MassDEP Priority Resources Map in the Phase I ISI report (**TRC, 2017a**). Based on the available information, groundwater categories GW-2 and GW-3 apply to groundwater beneath this property for the following reasons:

GW-2. Although there are currently no buildings within the Disposal Site, groundwater beneath the Property is located less than 15 ft bgs. Consistent with 310 CMR 40.0932(b) of the MCP, potential future development of the property by the construction of occupied buildings was considered to meet the GW-2 criteria under future use conditions.

GW-3. All groundwater is thought to eventually discharge to surface water bodies per the MCP (310 CMR 40.0932 (2)); therefore, groundwater category 3 (GW-3) is also relevant to the Disposal Site.

4.4.2 *Soil Categories*

Consistent with 310 CMR 40.0933(4), the applicability of the MCP soil categories was determined based on consideration of the frequency of Disposal Site use, intensity of activities and the accessibility of the soil, as well as human receptor characteristics.

Current adult and child frequency and intensity of use at the Disposal Site is determined to be "Low" since the property is not in use, completely fenced (with the exception of the access road), and Disposal Site-related contamination is not located within 3 ft of ground surface.

Potentially impacted soil at the Disposal Site is present within the greater than 3 foot depth interval (based on field observations and sampling). Potential soil impacts at depths greater than 3 ft bgs are considered *potentially accessible*.

Based on the above-summarized information, and Table 40.0933(9) of the MCP, soil category S-3 currently applies to Disposal Site soil. Category S-2 applies to soil under future commercial activities and uses where children will not be present with high frequency or engage in activities associated with high intensity exposure.

4.5 Exposure Assessment

Consistent with the requirements of 310 CMR 40.0923, the Exposure Assessment requires the identification of all current and reasonable foreseeable activities and uses associated with a site and a description of how these uses and activities could result in the exposure of human receptors to the COPCs present. Receptors and exposure pathways applicable to this risk characterization are discussed in this section as well as the exposure assumptions used for each receptor, developed to estimate the frequency and intensity of the exposure.

Section 4.2 identifies receptor populations that may be present now and in the future at the Disposal Site. The identified receptors include:

- Future commercial workers; and
- Future construction workers.

Future construction workers are used to conservatively evaluate emergency utility workers who would be exposed only briefly (i.e., 1 day). Each of these receptor populations may be exposed to potentially impacted soil during outdoor activities. In addition, construction workers may be exposed to shallow groundwater impacts and inhale trench air during excavation activities. Future commercial workers and construction workers were evaluated for exposures to the greater than 3 foot soil interval.

4.5.1 Exposure Assumptions

For the purposes of this Method 3 risk characterization, adult commercial workers and adult construction workers were selected for quantitative evaluation via incidental ingestion of soil and dermal contact with soil. Commercial and construction workers were additionally evaluated for inhalation of fugitive dusts associated with soil disturbance. Construction workers were also evaluated for exposure to shallow groundwater via dermal contact and the inhalation of VOCs released from soil and groundwater into an excavation trench. Exposure assumptions applicable to the receptors are provided on the risk calculation spreadsheets presented in **Appendices F-4 through**

F-6. The following provides a description of the exposure assumptions used for the identified receptors.

Adult Commercial Worker. For the adult worker, exposures are assumed to occur over a total of 30 weeks, during the spring, summer and fall, when the ground is not frozen or covered by snow. During this 30-week period, outdoor exposures are assumed to occur 5 days per week. The exposure duration for non-cancer endpoints of toxicity was averaged over 27 years. The average weight of the adult was set at 61.1 kg. Incidental ingestion of soil was set at 50 mg/day. Dermal contact with COPCs in soil was evaluated using a soil adherence factor of 0.03 mg/cm^2 and a body surface area of 3,473 cm^2. Methods and assumptions consistent with the MassDEP Technical Update "Characterization of Risks Due to Inhalation of Particulates by Construction Workers" were used for the fugitive dust pathway including an inhalation rate of 60 liters/minute. An exposure time of 4 hours per day was also used in the evaluation of the fugitive dust pathway (professional judgment).

Adult Construction Worker. Exposure could occur during excavations that expose contaminated soil and groundwater. Potential exposures to soil and trench air COPCs are assumed to occur 8 hours/day for 130 days/year. The exposure duration for non-cancer endpoints was averaged over 0.5 years (182 days). Workers are identified as adults (58 kg average body weight) involved in physical activities equivalent to an average inhalation rate of 20 m^3/day. Inhalation of fugitive dusts outdoors by adult workers was evaluated using a PM_{10} of 60 µg/m^3. The incidental ingestion rate of soil was set at 100 mg/day. Dermal contact with soil COPCs was assumed via the face, hands, forearms, and feet (approximate surface area of 3,477 cm^2) using a soil adherence factor of 0.29 mg/cm^2. MassDEP's Construction Worker Shortform was used to evaluate the construction worker. Excavations were assumed to proceed down to the water table. Contact with shallow groundwater was conservatively assumed to occur 8 hours/day for 65 days/year. Dermal contact with groundwater COPCs was also assumed to occur via the face, hands, forearms, and feet, consistent with soil exposures. Worker exposures to trench air COPCs released from groundwater are assumed to occur 8 hours/day, 130 days/year for 0.5 years, consistent with the soil exposure evaluation. Assumptions used in the modeling of COPCs from groundwater and soil to trench air are included in **Appendix F-3**.

4.5.2 Estimation of Chemical Intake

To evaluate the risk of harm to human health, the intake of each COPC must be estimated, a process which involves assessing the amount of material in contact with the receptor and the amount actually available for absorption by the body. This assessment is achieved through the calculation of an average daily dose (ADD) for each COPC and for each route of exposure. Compound-specific and exposure route-specific Relative Absorption Factors (RAFs) are used in the ADD equations to convert an exposure (amount) to a dose (amount per unit body weight).

The general ADD equation used to calculate intake is as follows and is consistent with that provided in MassDEP's *Guidance for Disposal Site Risk Characterization (July, 1995)*:

$$\text{ADD} = \frac{\text{Total Amount of Chemical Taken In}}{(\text{Body Weight}) * (\text{Averaging Period})}$$

The specific ADD equations for the various exposure pathways evaluated are provided below:

Incidental Ingestion of Soil

$$\text{ADD} = \frac{\text{(EPC)*(Ingestion Rate)*(Exposure Frequency)*(Exposure Period)*RAF}}{\text{(Body Weight)*(Averaging Period)}}$$

Dermal Contact with Soil

$$\text{ADD} = \frac{\text{(EPC)*(Surface Area)*(Exposure Frequency)*(Exposure Period)*(AdherenceFactor)*RAF}}{\text{(Body Weight)*(Averaging Period)}}$$

Dermal Contact with Groundwater

$$\text{ADD} = \frac{\text{(EPC)*(Surface Area)*(Exposure Frequency)*(Exposure Duration)*(Exposure Period)*RAF*}K_p}{\text{(Body Weight)*(Averaging Period)}}$$

Inhalation of Trench Air

$$\text{ADD} = \frac{\text{(EPC)*(Exposure Time)*(Exposure Frequency)*(Exposure Duration)}}{\text{(Averaging Period)}}$$

For the fugitive dust pathway, equations presented in *Characterization of risks due to inhalation of particulates by construction workers (Revised Technical Update; 2008)* were used. The equations used are as follows:

Inhalation of Fugitive Dust – GI System

$$\text{ADD/LADD} = \frac{\text{(EPC)*1.5*(InhalationRate)*RAF*(ExposureDuration)*(ExposureFrequency)*(ExposurePeriod)*}PM_{10}}{\text{(Body Weight)*(Averaging Period)}}$$

Inhalation of Fugitive Dust – Respiratory System

$$\text{ADD/LADD} = \frac{\text{(EPC)*0.5*(InhalationRate)*RAF*(ExposureDuration)*(ExposureFrequency)*(ExposurePeriod)*}PM_{10}}{\text{(Body Weight)*(Averaging Period)}}$$

Exposure assumptions and the specific equations used to calculate ADDs are provided on the calculation spreadsheets presented in **Appendices F-4 through F-6**.

4.5.3 Exposure Point Concentrations

Exposure point concentrations (EPCs) for soil and groundwater were determined for the Disposal Site consistent with 310 CMR 40.0926 and supporting MassDEP guidance.

An EPC is the measured or estimated amount of a constituent in the environmental medium of concern at the point of human contact. Based on MassDEP (1995) guidance, the EPCs for the environmental media typically correspond to the arithmetic mean of the reported results for each data set for areas of contiguous impacts that do not show evidence for the presence of hot spots. However, when soil or groundwater sample locations are not evenly distributed over the property, or concentrations are highly variable over the property, or where exposure frequencies are higher in some areas than others, the arithmetic mean may not represent the average exposure concentration. According to 310 CMR 40.0926(3), consideration of the observed distribution of the data, sampling strategy, graphical representation of analytical results, and/or statistical analyses with sufficient power and confidence may be used to demonstrate that the arithmetic mean concentration is unlikely to underestimate the average concentration at the exposure point.

For this Disposal Site, arithmetic average concentrations have been primarily used as soil EPCs for the commercial evaluation; however, in those instances where individual chemicals were present at concentrations greater than ten times applicable MCP Method 1 S-1 standards or where greater than 25 percent of the analytical results for an individual contaminant exceeded an applicable standard, EPCs that represent the 95-percent upper confidence limit on the arithmetic mean were calculated using USEPA's ProUCL software version 5.1 (USEPA, 2016). The 95-percent upper confidence limit recommended by the ProUCL software was selected as the EPC in these cases. For small data sets, the maximum detected concentration was used as the EPC. Maximum detected concentrations were also used as groundwater EPCs and to evaluate construction worker exposures to soil COPCs. Tables provided in **Appendix F-1** present the individual samples used to generate the EPCs for the soil and groundwater data sets.

The maximum detected soil concentrations for volatile compounds presented in **Table 12** and the maximum detected groundwater concentrations presented in **Table 13** were used to model trench air concentrations for the construction worker scenarios. The combined impacts from soil and groundwater on trench air were calculated by summing the risks and hazards estimated for each medium.

For the soil to trench air scenario, the Johnson & Ettinger model was used to estimate a soil gas concentration, which was then diluted into a trench using conservative algorithms and assumptions. The modeling algorithms and assumptions are documented in **Appendix F-3, Table 1**. For the groundwater to trench air scenario, modeling algorithms and assumptions are provided in **Appendix F-3, Table 2**. For this pathway, a model developed by the Virginia Department of Environmental Quality (VDEQ) for groundwater encountered at depths less than 15 ft bgs has been used. Detailed information concerning the model can be found at http://www.deq.virginia.gov/Portals/0/DEQ/Land/RemediationPrograms/VRPRisk/VURAMUsersGuide.pdf.

Table 12 presents the soil EPCs (i.e., maximum, arithmetic mean or 95-percent upper confidence limit on the arithmetic mean) for the future scenarios. Groundwater EPCs, applicable to the construction worker scenario, are summarized in **Table 13**.

4.6 Dose-Response Assessment

The Dose-Response Assessment is designed to evaluate the potential non-carcinogenic (threshold) and carcinogenic (non-threshold) effects of COPCs and describes the effects observed in humans and/or laboratory animals following the intake of a specific dose of the compound. The information from the Dose-Response Assessment is used in conjunction with information from the Exposure Assessment to estimate the risk and hazard generated by each COPC from an exposure.

The toxicity values used in this Dose-Response Assessment of COPCs producing non-carcinogenic effects are the Reference Doses (RfDs) for oral and dermal exposures and Reference Concentrations (RfCs) for inhalation exposures. The chronic RfD and RfC values are based upon a 70-year lifetime exposure, and used to evaluate commercial exposures. Subchronic RfD and RfC values are based on defined, less than lifetime exposures and are appropriate for use in evaluating construction worker-related risks.

The U.S. Environmental Protection Agency (EPA) has developed a system for classifying chemicals according to the likelihood that the compound is a human carcinogen. This system groups chemicals into five classes based upon the weight-of-evidence (of carcinogenicity) of the available data. Consistent with MassDEP risk characterization guidelines, class A, B, and C carcinogens are evaluated in a Method 3 risk characterization. Slope factors (SFs), for the oral and dermal exposure routes, and unit risks (URs), for the inhalation route, are used in this risk characterization to calculate cancer risks.

RAFs are used to account for differences between the method of administration in the study on which the RfD or SF is based and the site-specific routes of exposure. These values vary with the medium and route of exposure.

The RfD, RfC, SF, UR and RAF values used in this risk characterization are the same as those values used by MassDEP in the development of the MCP numerical standards (MassDEP, 2014). Chronic and subchronic RfDs and RfCs, SFs and URs, as well as medium-specific RAFs, are provided on the calculation spreadsheets presented in **Appendices F-4 through F-6.**

4.7 Risk Characterization

To characterize the risk of harm to human health from potential soil and groundwater exposures, carcinogenic risks and non-carcinogenic hazards were estimated using the EPC for each COPC for each receptor and exposure point, and the cumulative receptor risk values were compared to the MassDEP Risk Limits to assess whether a condition of No Significant Risk exists.

To estimate non-carcinogenic hazards, the Hazard Quotient for each COPC was calculated by dividing the Average Daily Dose (ADD) computed in the Exposure Assessment by the RfD or RfC identified in the Dose-Response Assessment. The cumulative Hazard Index (HI) for each receptor was subsequently calculated by summing the COPC hazard quotients for the exposure pathways applicable to each receptor. This HI is called a Screening HI and provides a conservative estimate of the true hazard because it assumes additivity even though COPCs may exert effects on different organ systems and/or through different mechanism of action. The Screening HI was first compared to the Cumulative Receptor Non-Carcinogenic Risk Limit (Cumulative Receptor Hazard Index) of 1 (310 CMR 40.0993(6)) to characterize the risk of harm to human health, and to establish whether a condition of No Significant Risk exists at the Site. If the Screening HI was less than 1, no further discussion was necessary to characterize noncancer hazard. However, if the Screening HI exceeded the Risk Limit of 1, the Screening HI was segregated by target organ, as described in MassDEP guidance (MassDEP, 1995). Each target organ HI was then compared to the Risk Limit of 1 to establish whether a condition of No Significant Risk exists at the Site.

To calculate the Excess Lifetime Cancer Risk (ELCR) for each COPC, the Lifetime Average Daily Dose (LADD) estimated in the Exposure Assessment is multiplied by the SF or UR identified in the Dose-Response Assessment. The ELCR for each COPC is then summed to calculate the Total ELCR for each exposure pathway. The Total Site Cancer Risk for each receptor is subsequently computed by summing the Total ELCR values for the exposure pathways applicable to each receptor. The Total Site Cancer Risk is then compared to the Total Site Cancer Risk Limit of 1 x 10^{-5} (CMR 40.0993(6)) to characterize the risk of harm to human health, and to establish whether a condition of No Significant Risk exists, as defined in 310 CMR 40.0993(7).

The risks and hazards estimated for each future receptor are summarized in **Table 14**. As shown on **Table 15**, a condition of No Significant Risk exists for the future commercial worker and construction worker exposed to COPC in the greater than 3 foot soil interval and/or groundwater.

However, based on the presence of LNAPL with micro-scale mobility within the subsurface, an AUL is required for the Disposal Site to prevent direct contact with free-phase material and to prevent exposure to vapors released from the LNAPL (i.e., emergency utility worker exposures). In addition, the AUL prevents the use of the Disposal Site for uses where children will be present with high frequency and high intensity (e.g., residential, recreational, schools, daycare, etc.) and requires that further investigation of the potential vapor intrusion pathway be performed or a subslab system installed to mitigate the vapor intrusion pathway should building construction occur within the Disposal Site boundary where vadose zone soil with VOCs and/or LNAPL with micro-scale mobility is present. If future use of the Disposal Site changes from existing/planned commercial use, the risk characterization can be amended to evaluate those uses and the AUL potentially modified.

Because Historic Fill is present within and beyond the Disposal Site boundary, Conditions are required such as best management practices to limit exposure to Historic Fill constituents and soil management activities to prevent the movement of the historic fill to unimpacted areas. These Conditions are detailed in **Section 6**.

4.7.1 Applicable or Suitably Analogous Public Health Standards

As part of the evaluation of the condition of No Significant Risk of harm to human health (as defined in 310 CMR 40.0993(7)), the MCP requires a comparison of EPCs to Applicable or Suitably Analogous Public Health Standards (310 CMR 40.0993(3)). Such standards include, but are not limited to, Massachusetts *Air Quality Standards* promulgated in 310 CMR 6.00, Massachusetts *Surface Water Quality Standards* promulgated in 314 CMR 4.00, and Massachusetts *Drinking Water Quality Standards* promulgated in 310 CMR 22.00.

As noted in **Section 4.2**, groundwater beneath the Disposal Site is not considered to be part of a potentially productive aquifer. Therefore, comparison of COPC groundwater concentrations to

MassDEP *Drinking Water Standards* is not required for the evaluation of significant risk of harm to human health. In addition, air and surface water quality standards are not considered applicable to the Disposal Site.

4.7.2 Historic Fill-Related Exposures

As previously described, Historic Fill is present throughout the Property. Although Historic Fill-related constituents (most notably arsenic) have not been included in the quantitative risk characterization, current exposures to Historic Fill are minimal due to the presence of a secure fence limiting access. The release of impacted dust from the Property is also minimal due to the presence of pavement and vegetation, coupled with the absence of activity currently occurring that could disturb the soil surface. In the future, there may be disturbance of soil associated with property development. Any such disturbance will be performed under a Health and Safety Plan and Groundwater and Soil Management Plan to protect the health of workers and others in the vicinity of the Property. In the future, the Property will be covered with clean soil and utility excavations will be backfilled with clean material, preventing exposure of workers and the general public to Historic Fill-related constituents.

4.8 Uncertainty Analysis

Risk characterizations are subject to a number of uncertainties. As a result, risk estimates derived from the equations and assumptions in this risk characterization should not be interpreted as absolute estimates of the risks of harm to human health posed by potential exposures to COPCs reported at the Disposal Site.

General sources of uncertainty include:

- adequacy of the characterization;
- adequacy of the sampling plan;
- quality and treatment of the analytical data;
- accuracy of the exposure assumptions; and
- development of toxicity values (RfDs, RfCs, SFs, and URs).

Disposal Site-specific uncertainties are discussed below. As discussed below, conservative assumptions are selected for use in the risk characterization process which generally leads to overestimation, rather than underestimation, of risks and hazards.

4.8.1 Hazard Identification

Sampling was conducted with bias, targeting areas and depths that were likely to have elevated concentrations of petroleum based on field screening and observations. This type of sampling strategy is commonly used for site characterization. However, the soil data set may over-represent the impacts present across the Disposal Site, resulting in an overestimation of the risks and hazards.

4.8.2 Dose-Response Assessment

In the Dose-Response Assessment, Uncertainty and Modifying Factors, applied to toxicity information to obtain RfD and RfC values, are used to account for the following uncertainties, which, in turn, can add to the overall uncertainty of the risk characterization findings:

- the use of dose-response information from effects observed at high doses to predict the adverse health effects that may occur following exposure to the low levels expected from human contact with the COPCs in the environment;
- the use of dose-response information from short-term exposure studies to predict the effects of long-term exposures, and vice-versa;
- the use of dose-response information from animal studies to predict adverse health effects in humans;
- the use of dose-response information from homogeneous animal populations or healthy human populations to predict the adverse health effects likely to be observed in the general population, consisting of individuals with a wide range of sensitivities; and
- the use of oral toxicity values as surrogate toxicity values for the dermal route of exposure.

4.8.3 Exposure Assessment

The Exposure Assessment focuses on the evaluation of non-carcinogenic and carcinogenic effects for an exposed individual. Conservative exposure assumptions, as recommended by MassDEP, were used such as values for intake rates, surface areas, and body weights. Exposure frequencies and exposure periods were default MassDEP values. The use of conservative exposure assumptions can potentially overestimate the risk of harm from exposure to the impacts and contribute to the uncertainty of the risk characterization.

For some compounds, maximum detected concentrations were used as EPCs which results in uncertainty in the evaluation and may over- or underestimates the true risks and hazards at the property, depending on the representativeness of the samples selected for site characterization. Because sampling was biased towards areas of suspected or observed contamination, the dataset likely overestimates overall impacts at the Disposal Site.

4.9 Risk of Harm to Safety, Public Welfare, and the Environment

The following sections present a characterization of risk to safety, public welfare, and an environmental risk characterization.

4.9.1 *Characterization of Risk to Safety*

The risk of harm to safety, as described in 310 CMR 40.0960, was evaluated for the Disposal Site. The Disposal Site does not contain the following items related to a release of petroleum:

- There are no rusted or corroded drums or containers, open pits or lagoons;
- There is no threat of fire or explosion, or the presence of explosive vapors from the release of petroleum; and
- There are no uncontainerized materials exhibiting the characteristics of corrosivity, reactivity, or flammability.

Based on the above information, it was determined that the Disposal Site does not pose a risk to safety.

4.9.2 *Risk to Public Welfare*

Per the MCP (310 CMR 40.0994), there are two purposes for characterizing the risk to public welfare: 1) to identify and evaluate nuisance conditions, which may be localized, and 2) to identify and evaluate significant community effects.

The characterization of risk to public welfare considers effects that are or may result from the presence of residual impacts. Further, the characterization of risk to public welfare is for current and reasonably foreseeable site activities and uses, requiring an understanding of the site, the receptors and exposure information. Per 310 CMR 40.0994, the characterization of risk to public welfare does not consider pecuniary effects or private resources.

The risk characterization has shown that the Disposal Site poses No Significant Risk to health under current conditions. Benefits to the public, and the good of the general population, are not affected by the Disposal Site (i.e., a public resource is not impacted, such as a community water supply, nor is the local atmosphere impacted by noxious odors).

Factors that the MCP takes into consideration to evaluate nuisance conditions and significant community effects include the following:

- **Nuisance conditions –** The breathing zone of ambient and/or indoor air at the Disposal Site is free of persistent, noxious odors (at present and for the reasonably foreseeable future). There are also no impacts from the Disposal Site on drinking water (noxious taste/odors), and there are no livestock impacts. Per the MCP, a nuisance condition is not present.
- **Loss of active or passive property uses –** Not applicable, future Disposal Site use will remain consistent with the current commercial use.

- **Non-pecuniary effects –** The Disposal Site is not a public resource (such as a park), and no public resources are known to be impacted by the Disposal Site. No public water supplies are impacted (odors, etc.), and the atmosphere is not impacted by noxious odors.

- **Upper Concentration Limits –** Soil EPCs (see **Table 12**) and detected groundwater concentrations (see **Table 13**) are less than their respective MCP UCLs.

Based on the above information, a condition of No Significant Risk to public welfare exists at the Disposal Site.

4.9.3 Environmental Risk Characterization

This environmental risk characterization briefly describes the terrestrial habitat present at the Disposal Site and evaluates the quality of the habitat associated with the Property. This risk assessment represents a Stage I Environmental Risk Characterization (ERC) under the MCP and was conducted in accordance with the *Guidance for Disposal Site Risk Characterization, Method 3 - Environmental Risk Characterization.* Massachusetts Department of Environmental Protection. Interim Final Policy WSC/ORS-95-141, April 1996. The objectives of this ERC are to determine whether significant environmental exposure exists at the Disposal Site and whether additional investigation to assess environmental risks is warranted.

The Disposal Site is identified as an approximate one-acre portion within the four-acre North Parcel of the approximately 12.3-acre Property that occupies a triangular peninsula lying northeast of Route 3A (Bridge Street). Disposal Site-related contamination is present at depths greater than 3 ft bgs. The Property is currently developed with asphalt paved and unpaved access roads, storage areas, an existing metering and regulating station southwest of the North Parcel, and MWRA pumping station northeast of the North Parcel.

The Disposal Site is proposed for development as a natural gas compressor station. Therefore, land use at the Disposal Site is not expected to change in the foreseeable future that would result in the establishment of more valuable habitat for terrestrial receptors. The Disposal Site is located within an urbanized setting that provides limited terrestrial habitat for ecological receptors. No aquatic or wetland habitats are present on or in the vicinity of the Disposal Site. Based on a review of priority habitats (Natural Heritage Atlas, 13th Edition, MassGIS, 2008), no state-listed threatened, endangered or species of special concern are present at or in the vicinity of the Disposal Site. In addition, Areas of Critical Environmental Concern (ACEC) are not located in the vicinity of the Disposal Site.

Groundwater monitoring conducted between January 2017 and June 2017 within the Disposal Site boundary demonstrates that Disposal Site-related constituents are either not detected or detected at concentrations below applicable Method 1 GW-3 groundwater standards, indicating a condition of no significant risk to the environment for groundwater exposure pathways.

Therefore, in accordance with the ERC guidance, no significant soil exposure pathways exist at the Disposal Site and groundwater data indicate a condition of no significant risk to environmental receptors. Therefore, further ecological investigation at the Disposal Site is not warranted.

4.10 Conclusions

No IH condition currently exists at the Disposal Site. In addition, target organ HIs are less than 1 and ELCRs are less than 1 x 10^{-5} for exposures associated with future commercial workers and construction workers. Therefore, a Condition of No Significant Risk exists for potential soil and groundwater impacts at the Disposal Site under unlimited future use scenarios. However, due to the presence of LNAPL with micro-scale mobility within the subsurface, an AUL is required for the Disposal Site to prevent direct contact with free-phase material and to prevent potential exposure to vapors released from the LNAPL (i.e., emergency utility worker exposures). In addition, the AUL restricts the use of the Disposal Site for uses where children will be present with high intensity and frequency and requires that further investigation of the potential vapor intrusion pathway be performed or a subslab system installed to mitigate the vapor intrusion pathway should building construction occur within the Disposal Site boundary where vadose zone soil with VOCs and/or LNAPL are present.

Due to the lack of safety hazards at the Disposal Site including rusted drums, open pits, explosive vapors, or uncontainerized hazardous materials, a Condition of No Significant Risk to safety exists at the Disposal Site.

With regard to public welfare, no nuisance conditions exist with respect to the Disposal Site, there has been no significant loss of active or passive uses of the Disposal Site, no public resource is known to be impacted by the Disposal Site, and soil and groundwater concentrations are less than their respective MCP UCLs. Therefore, a Condition of No Significant Risk to public welfare exists at the Disposal Site.

A Stage I Environmental Risk Characterization indicated no significant soil exposure pathways exist at the Disposal Site and groundwater data indicate a condition of no significant risk to environmental receptors. Therefore, further ecological investigation at the Disposal Site is not warranted.

Because Historic Fill is present within and beyond the Disposal Site boundary, Conditions are required such as best management practices to limit exposure to Historic Fill constituents and soil management activities to prevent the movement of the Historic Fill to un-impacted areas. These Conditions are detailed in **Section 6**.

5.0 FEASIBILITY EVALUATIONS

This section presents a feasibility evaluation that was conducted following the procedures and criteria of 310 CMR 40.0860. "The feasibility evaluation considers technical practicability (including the use of FFPM principles) and economics, integrated into a benefit/cost evaluation" (MassDEP, 2016). The criteria in 310 CMR 40.0860 apply to:

(a) evaluating the feasibility of implementing a Permanent Solution;

(b) evaluating the feasibility of reducing the concentrations of oil and hazardous material in the environment to levels that achieve or approach Background;
(c) evaluating the feasibility of reducing the concentrations of oil and hazardous material in soil at a disposal site to levels at or below applicable soil UCLs;
(d) evaluating the feasibility of eliminating, preventing or mitigating Critical Exposure Pathway(s); and,
(e) evaluating the feasibility of eliminating or controlling each Source of OHM Contamination, controlling migration of OHM, and removing NAPL at a disposal site in support of a Permanent or Temporary Solution pursuant to 310 CMR 40.1003(5) through (7), respectively.

5.1 Feasibility of Achieving a Permanent Solution [310 CMR 40.0860 (1)(a)]

The feasibility of achieving a Permanent Solution is addressed below.

5.1.1 Technological Feasibility [310 CMR 40.0860(6)]

A total of 12 alternatives were initially screened to identify options to address LNAPL with micro-scale mobility to evaluate the feasibility of reaching a Permanent Solution for the Disposal Site. The alternatives follow:

- No Action;
- LNAPL Skimming;
- Air Sparging with Vapor Extraction;
- Multi-phase Extraction;
- In-situ Chemical Oxidation;
- Surfactant-enhanced remediation;
- In Situ Thermal Treatment;
- In Situ Solidification;
- Ex-Situ Bioremediation;
- Monitored Natural Attenuation;
- Excavation/Off-Site Disposal; and,
- Activity and Use Limitation.

Evaluation of the attributes and limitations of the alternatives relative to remediating the Disposal Site is presented on **Table 15**.

The following alternatives were selected for further evaluation to achieve a Permanent Solution for the Disposal Site.

- Ex-situ bioremediation,

- Excavation/Off-Site Disposal, and
- AUL.

These three alternatives are more likely to result in achieving a Permanent Solution for the Disposal Site. These three alternatives were selected because they have the advantage of overcoming difficulties in implementation due to the high viscosity and sticky nature of the LNAPL with micro-scale mobility, and in-situ heterogeneities that limit delivery and recovery of remedial additives.

5.1.2 Benefit/Cost Evaluation

Costs were estimated for the excavation/off-site disposal option, the ex-situ bioremediation option, and the AUL option. The excavation/off-site disposal and ex-situ bioremediation options require sheeting the excavation before excavation, and dewatering during excavation. The primary difference between these two options is the treatment method, the former consists of trucking and disposal of LNAPL and LNAPL-impacted soil and groundwater at a MassDEP-approved off-site disposal facility, while the latter relies upon bioremediation as the treatment method.

The time-frame and ability to reach remediation goals with the ex-situ bioremediation alternative is uncertain because the LNAPL is weathered, highly viscous and sticky. It is likely that ex-situ bioremediation will be prolonged and ultimately some LNAPL will not be bioremediated within a practical time frame that does not impact Property development. For cost estimation purposes, it is assumed that 25 percent (1,000 cubic yards [CY]) is not possible to bioremediate and is disposed of at an off-site facility.

Cost estimates for each of the three alternatives follow:

1. Excavation/Off-Site Disposal - $4,243,385
2. Excavation/Ex-situ Bioremediation - $4,058,235
3. AUL - $30,000.

The incremental costs for conducting remedial options 1 and 2 are each considered to be substantial and disproportionate to the incremental benefit of risk reduction, environmental restoration, and monetary and non-pecuniary values, considering the Disposal Site location, the lack of current and foreseeable future receptors, and the future use of the Disposal Site for commercial purposes. In contrast, an AUL can be implemented at a significantly reduced cost that is required to support a Permanent Solution pursuant to 310 CMR 40.1012(2)(d), where the NAPL exhibits 'Micro-scale Mobility" (MassDEP, 2016, p. 24). Soil volumes and cost estimates are provided in **Appendix G**.

5.2 Feasibility of Approaching or Achieving Background [310 CMR 40.0860 (1)(b)]

The top of LNAPL with micro-scale mobility is observed at depths ranging from approximately 10.5 to 12.5 ft bgs with the exception of one boring (B-105) where is was first observed at 14 ft bgs. The lateral extent of LNAPL is estimated at approximately 32,000 square ft. The thickness of LNAPL product ranges from 0.2 to 6 ft, and averages approximately 3.4 ft. The estimated volume of LNAPL with micro-scale mobility is approximately 4,000 CY. Given the depth and volume of LNAPL, it is considered to not be feasible to Achieve or Approach Background based per MassDEP Policy #WSC-04-160 *Conducting Feasibility Evaluations Under the MCP* (MassDEP, 2004).

Five seasonal rounds of groundwater sampling for VPH and EPH analysis has been conducted at the Site. Based on the five rounds of analytical data, there are no exceedances of MCP Method 1 GW-2 and GW-3 criteria applicable to the Disposal Site. The source of petroleum constituents dissolved in groundwater is the LNAPL with micro-scale mobility. Because it is not feasible to remove the LNAPL, and there are no known critical exposure pathways, and receptors are not exposed to the Disposal Site groundwater, the benefits of remedial actions to achieve or approach background are consisted insufficient to justify the costs of such actions.

5.3 Feasibility of Reducing OHM Concentrations in Soil Below UCLs [310 CMR 40.0860 (1)(c)]

No exceedances of MCP Soil UCLs have been identified at the Disposal Site. Elevated concentrations of EPH constituents are associated with LNAPL with micro-scale mobility in the subsurface within the smear zone.

The feasibility of reducing LNAPL with micro-scale mobility was evaluated. LNAPL with micro-scale mobility is based on review of Disposal Site data (**Table 5**). In-situ technologies considered to reduce viscous LNAPL with micro-scale mobility such as soil vapor extraction, air sparging, chemical oxidation, and surfactant flushing are generally more successful at reducing volatile organic compounds (VOCs) concentrations, and involve air/groundwater extraction, and injection/application wells. While the hydraulic conductivity is favorable for these technologies, the viscosity of the LNAPL is not.

Therefore, in-situ technologies can be eliminated from further consideration. Electrical resistance heating would attempt to reduce LNAPL concentrations into vapor phase; however, there is a significant risk of mobilizing the LNAPL and contaminating non-contaminated soils; therefore, this in-situ option is not considered for further evaluation. Excavation would involve installing a sheetpile wall around the perimeter of the Disposal Site, installing dewatering wells. Considering the aerial extent and depths of LNAPL with micro-scale mobility the cost and disruption to the local community, is not commensurate with the benefit of eliminating the LNAPL with micro-scale mobility.

5.4 Feasibility of Eliminating, Preventing or Mitigating Critical Exposure Pathways [310 CMR 40.0860 (1)(d)]

A Critical Exposure Pathway (CEP) has not been identified at the Disposal Site under current site conditions, based on review of the boring logs, in-situ hydraulic conductivity results, soil and groundwater analytical data, gauging data, and the locations of potential receptors in relation to the location of the Disposal Site. Further, there are no known underground utilities at the Disposal Site that could act as a CEP (i.e., known utilities are located at depths above the petroleum contamination).

5.5 Feasibility of Eliminating or Controlling OHM and Removing NAPL [310 CMR 40.0860 (1)(e)]

Soil exceedances of MCP S-2/GW-2 and S-2/GW-3 standards are observed in soil impacted by LNAPL with micro-scale mobility. The feasibility of LNAPL removal is evaluated pursuant to 310 CMR 40.1003(5) through (7), respectively, in support of a Permanent Solution for this Disposal Site.

Because seasonal groundwater VPH and EPH data support that applicable MCP GW-2 and GW-3 standards are not exceeded (i.e., infrequent detections are observed), the feasibility of controlling OHM in groundwater does not apply.

5.5.1 Source Elimination or Control [310 CMR 40.1003(5)]

Pursuant to 310 CMR 40.1003(5)(a), while the former AST was removed approximately 13 years ago, LNAPL with micro-scale mobility is present. However, the LNAPL is not a source of groundwater contamination exceeding applicable MCP GW-2 and GW-3 criteria.

Pursuant to 310 CMR 40.1003(5)(b), LNAPL is eliminated to the extent feasible and controlled based on multiple lines of evidence that support it is not mobile, and is not a source of significant dissolved-phase groundwater and vapor-phase vadose zone contamination. Gauging data and groundwater sample results support it is not mobile or dissolving in groundwater. LNAPL and smear zone properties also support limited LNAPL mobility. The LNAPL is not acting as a source of dissolved-phase and vapor-phase contamination based on seasonal groundwater sampling results which indicate no exceedances of applicable MCP Method 1 GW-2 and GW-3 criteria. The LNAPL is located at and below the water table adhered to soil particles, and soil analytical data collected from the smear zone indicate soil containing residual LNAPL contains elevated concentrations is EPH fractions. The LNAPL impacted soil is predominantly located in Historic Fill at depths ranging between approximately 10 and 18 ft bgs (below existing grade). Observed LNAPL thicknesses in wells with micro-scale mobility ranges from 0.2 to 6 ft, averaging 3.3 ft.

5.5.2 Migration Control [310 CMR 40.1003(6)]

Low concentrations of VPH and/or EPH analytes were infrequently detected in a limited number of monitoring wells screened across the LNAPL layer. A distinct dissolved phase plume does not exist in groundwater. Because of the lack of a dissolved phase plume, and based on soil jar headspace observations during borehole advancement, a significant vapor-phase plume is unlikely to exist at the Disposal Site.

5.5.3 NAPL [310 CMR 40.1003(7)]

Pursuant to 310 CMR 40.1003(7), response actions were undertaken to adequately assess the nature, extent, and mobility of the LNAPL. Pursuant to 310 CMR 40.1003(7)(a):

1. Non-stable LNAPL is not present under current Disposal Site conditions and for the foreseeable future based on weekly or biweekly LNAPL observations, recoverability testing, and the physical characteristics of LNAPL; and
2. LNAPL with micro-scale mobility has been removed to the extent feasible based on consideration of CSM principles, which are addressed herein.

5.5.3.1 LNAPL Recoverability

As described in Section 3.13, LNAPL recoverability skimming tests were attempted at three monitoring wells (MW-201, MW-410, MW-414) at the Disposal Site to estimate LNAPL Tn in-situ. LNAPL recoverability was not feasible at monitoring wells MW-201 and MW-410 because of limited LNAPL thickness and the apparent high viscosity of the LNAPL. A manual skimming test performed at monitoring well MW-414 indicated Tn as 0.0027 ft^2/day, which is well below the ASTM 2856 criterion of 0.8 ft^2/day, and supports **it is infeasible to initiate LNAPL removal methods** (MassDEP, 2016).

Further, the LNAPL dynamic viscosity value of 43,600 cP at 50ºF (approximating groundwater temperature) is 4 orders of magnitude higher than a cutoff point of 2-3 cSt for significant migration (Cole, 1994). The LNAPL viscosity is above the "red line" in MassDEP's LCSM Policy (Figure 8), for site data of 10^{-2} cm/s hydraulic conductivity (representative of sand/gravel at the Disposal Site), and observed LNAPL thickness indicating "hydraulic/vacuum recovery technologies deemed to be infeasible" (MassDEP, 2016).

5.5.3.2 Micro-Scale and Macro-Scale Mobilities

There is a lack of evidence supporting macro-scale mobility. The LNAPL at the Disposal Site is weathered, viscous, sticky, and is not a source of groundwater contamination exceeding applicable MCP GW-2/GW-3 standards. LNAPL is not sufficiently thick in monitoring wells, given its high viscosity, and sticky nature to act as a driving force to support macro-scale mobilization. The primary source, a former AST, was removed approximately 13 years ago, therefore, the source of the release was eliminated at least 13 years ago. Sharp decreases in product occur near the margin of the LNAPL body.

LNAPL migration ceased in the past. LNAPL has not been observed in monitoring wells located beyond the LNAPL body, which further supports the LNAPL observed in monitoring wells is due to micro-scale mobility. Attempts to recover LNAPL and even gauge LNAPL are hampered by the LNAPL's high viscosity and sticky nature. The in-situ skimming test at monitoring well MW-414 estimated LNAPL Tn well below 0.8 ft^2/day indicating it is infeasible to commence LNAPL recovery operations. Manual skimming tests were attempted at monitoring well MW-201 and LNAPL was observed to be less recoverable than that at monitoring well MW-201. Gauging data in the remaining monitoring wells where LNAPL has been observed (monitoring wells MW-406, MW-407, MW-410, and MW-415) is less than 0.1 ft thick, and observed to be fluctuating, and not observed in perimeter monitoring wells. The LNAPL footprint is not expanding laterally or vertically.

6.0 PERMANENT SOLUTION STATEMENT 310 CMR 40.1056

MCP requirements for a Permanent Solution Statement with Conditions are listed below followed by a bulleted response. **Figure 2** identifies the Disposal Site Boundary and **Figure 8** includes the Disposal Site Boundary and Boundary for the Activity and Use Limitation (AUL). Based on the curved nature of the Disposal Site limits, the AUL boundary was drawn outside of the Disposal Site boundary as straight lines to provide for a boundary that could be surveyed in the field.

Pursuant to 310 CMR 40.1056(1)(a):

- Site Name: Weymouth Compressor Station
- Site Address: 6 & 50 Bridge Street, Weymouth, Massachusetts
- RTN: 4-26230

Pursuant to 310 CMR 40.1056(1)(b):

- Type of Permanent Solution: Permanent Solution with Conditions

Pursuant to 310 CMR 40.1056(1)(c):

- Method to Characterize Risk: Method 3 Risk Characterization/Stage I Environmental Screening

Pursuant to 310 CMR 40.1056(1)(d):

- Other Permanent Solution Statements or Temporary Solution Statements have not been filed for the Disposal Site.

Pursuant to 310 CMR 40.1056(1)(e):

- An AUL was filed to limit exposure to LNAPL (**Appendix H**).

Pursuant to 310 CMR 40.1056(1)(f):

- The AUL is based on the assumption that current use will not involve contact with LNAPL, but future use of the Site will involve excavation and possible exposure to the LNAPL if construction activities are below 10 feet (which are not anticipated).

Pursuant to 310 CMR 40.1056(1)(g):

- The permanent solution is not based on the effective operation of an Active Exposure Pathway Mitigation Measure pursuant to 310 CMR 40.1025.

Pursuant to 310 CMR 40.1056(1)(h):

- The LSP opines that the requirements of a Permanent Solution with Conditions have been met, as indicated on BWSC104 (to be provided to eDEP).

Pursuant to 310 CMR 40.1056(1)(i):

- The PSCS is certified by the LSP of Record as indicated on BWSC104.

Pursuant to 310 CMR 40.1056(1)(j):

- MCP UCLs are not exceeded in soil or groundwater at the Disposal Site.

Pursuant to 310 CMR 40.1056(1)(k):

- The analytical data used to support the PSCS was generated pursuant to MassDEP's Compendium of Analytical Methods.

Pursuant to 310 CMR 40.1056(2)(a):

- Section 1 presents a description of the Property and the Disposal Site boundaries to which the Permanent Solution with Conditions applies. The locations of areas characterized as Background are outside the Disposal Site boundaries within the study area defined by the soil borings and monitoring wells completed during the Phase I ISI/TC and IRA Activities (TRC, 2017a).

Pursuant to 310 CMR 40.1056(2)(b):

- A succinct summary of the Conceptual Site Model is presented in Section 3.

Pursuant to 310 CMR 40.1056(2)(c):

- The No. 2 Fuel Oil AST was removed approximately 13 years ago, therefore, the source of contamination has been eliminated meeting the requirement of 310 CMR 40.1003(5)(a) and (b).

Pursuant to 310 CMR 40.1056(2)(d):

- Response actions taken to date have adequately assessed the subsurface at the Disposal Site. The LNAPL that remains in the subsurface is not a source of groundwater and vapor phase contamination as demonstrated by five rounds of seasonal groundwater sampling results addressing the requirement of 310 CMR 40.1003 (6)(a).

Pursuant to 310 CMR 40.1056(2)(e):

- Response actions taken to date adequately address LNAPL mobility as required by 310 CMR 40.1003(7)(a). LNAPL with micro-scale mobility remaining in the subsurface is not migrating as demonstrated by gauging data, recoverability observations, LNAPL Tn results, and LNAPL liquid and smear zone properties.
- The LNAPL characteristics indicate it is weathered, highly viscous and sticky. The LNAPL liquid properties and smear zone properties control the mobility and limit recoverability of the LNAPL. LNAPL with microscale mobility was removed to the extent feasible based on gauging and attempted to be removed using new adsorbent socks, and using peristaltic pumps.
- Attempts to recover LNAPL and even gauge LNAPL are hampered by the LNAPL's high viscosity and sticky nature. Gauging results are biased high due to the viscous, sticky nature of the LNAPL (e.g. the LNAPL coated the probes and field equipment). The results of the LNAPL manual skimming test at monitoring well MW-414 indicated LNAPL Tn as 0.0027 ft^2/day, which is well below the ASTM 2856 Standard criterion of 0.8 ft^2/day, and supports it is infeasible to initiate LNAPL removal operations, as indicated in the MassDEP LNAPL Policy #WSC-16-450 (MassDEP, 2016).
- Skimming tests were attempted at monitoring well MW-201 and LNAPL was observed to be less recoverable than that at monitoring well MW-201. Gauging data in the remaining monitoring wells where LNAPL has been observed (monitoring wells MW-406, MW-407, MW-410, and MW-415) is less than 0.1 ft thick, and observed to be fluctuating, and not observed in perimeter monitoring wells. The LNAPL footprint is not expanding laterally or vertically.
- Non-stable LNAPL is not present under current Disposal Site conditions and not anticipated for the foreseeable future. The LNAPL with micro-scale mobility was observed in a limited number of monitoring wells, fluctuates in thickness, and has not been observed in nearby monitoring wells located beyond the limit of LNAPL product observed in borings, which provides a strong line of evidence that LNAPL exhibits micro-scale mobility but not macro-scale mobility.

Pursuant to 310 CMR 40.1056(2)(f):

- Soil and groundwater VPH and EPH results, evaluated as part of an MCP Method 3 Risk Characterization included in Section 4 herein concluded that a level of No Significant Risk exists at the Disposal Site. However, an AUL is required to control the LNAPL with micro-scale mobility that remains in the subsurface and prevent the use of the Disposal Site for uses where children will be present with high intensity and frequency.

Pursuant to 310 CMR 40.1056(2)(g):

- The results of a feasibility evaluation conducted pursuant to 310 CMR 40.0860(1)(e), in turn pursuant to 310 CMR 40.1003(5) through (7), demonstrated that achievement of Background is not feasible.

Pursuant to 310 CMR 40.1056(2)(h):

- A copy of an AUL that has been implemented pursuant to 310 CMR 40.1070 is presented in **Appendix H**.

Pursuant to 310 CMR 40.1056(2)(i):

- MCP UCLs are not exceeded in soil or groundwater at the Disposal Site.

Pursuant to 310 CMR 40.1056(2)(j):

- This requirement is not addressed because it assumes that an AUL is not required. The Permanent Solution with Conditions herein relies upon an AUL.

Pursuant to 310 CMR 40.1056(2)(k):

- A Data Usability Assessment and Representativeness Evaluation summarized in Section 3.14 and detailed in **Appendix E** documents that the soil and groundwater EPH and VPH data is scientifically valid and defensible, and of a sufficient level of precision, accuracy, and completeness and representativeness to support the Permanent Solution.

Pursuant to 310 CMR 40.1056(2)(l):

Any operations, maintenance, and/or monitoring required to maintain the Permanent Solution is addressed in the AUL (**Appendix H**).

Although a Condition of No Significant Risk has been achieved for soil at the Disposal Site, the presence of remaining Historic Fill soil impacts within and beyond the footprint of the Disposal Site requires that Conditions be established as part of the MCP closure upon property development. Pursuant to 310 CMR 40.1056(2)(j)(2) of the MCP, Conditions applicable to this PSCS due to the presence of Historic Fill as defined by the MCP include the following:

- The use of Best Management Practices if gardening occurs at the Property (e.g., see Appendix J);
- Covering of surficial Historic Fill at the Property with an exposure barrier (e.g., up to 12 inches of clean imported soil, landscape materials, asphalt pavement, etc.) to prevent direct contact exposures and the release of dusts containing Historic Fill constituents;
- Backfilling newly-installed utility and piping excavations with clean imported soil for the protection of emergency utility workers;
- Historic Fill that is excavated for transportation from the Property shall be managed in a manner that ensures the protection of health, safety, public welfare and the environment, and shall be handled, stored, transported, reused, etc. in compliance with all other applicable federal, state, and local laws, regulations, and bylaws;
- Historic Fill that is excavated for transportation from the Property must be managed as a Remediation Waste if RCs are exceeded;
- Historic Fill that is excavated for transportation from the Property shall be managed in accordance with the "anti-degradation" provisions contained in 310 CMR 40.0032(3) of the MCP; and

- Pursuant to 310 CMR 40.1067(4) of the MCP, remedial actions at Disposal Sites with Permanent Solutions with Conditions where an AUL is required, such as this PSCS, which exceed the limited excavation threshold (i.e., 100 cubic yards of Remediation Waste impacted solely by oil or waste, or 20 cubic yards of Remediation Waste contaminated by hazardous material or mixture of oil or waste oil and hazardous material) must be conducted under a Release Abatement Measure (RAM). Limited soil excavation must also not be prohibited by the AUL and all Remediation Waste must be managed in accordance with 310 CMR 40.0442. Unless it can be demonstrated that sufficient financial resources are available to complete the response action (310 CMR 40.0442(5)), removal actions that exceed the scope of a RAM shall be conducted as a Phase IV Comprehensive Remedial Action.
- A revised PSCS shall be submitted upon completion of remedial actions, if any, when the terms and condition of the AUL are changed pursuant to 310 CMR 40.1067(5)(d)

Per 310 CMR 40.1013(1)(b), those portions of the Property characterized by the presence of Historic Fill material, as defined by the MCP (310 CMR 40.0006), are not required to be addressed by an AUL.

7.0 PUBLIC INVOLVEMENT

On September 25, 2017 a petition was received by Algonquin and the MassDEP requesting the Site be designated as a Public Involvement Plan (PIP) Site. On November 13, 2017, TRC on behalf of Algonquin held the first PIP meeting to discuss the MCP process, and document public concerns. On November 13, 2017, a draft PIP was prepared and a meeting held to present the draft PIP and an overview of contamination detected at the Disposal Site. The draft PIP was made available on the date of the public meeting and a public comment period that was extended from a minimum of 20 days to 53 days (January 5, 2018) per petitioner request was granted. A public notice was published at least 14 days prior to the meeting, pursuant to 310 CMR 40.1403(2)(b), and a copy of the public notice mailed to each petitioner, and the Chief Municipal Officer and Board of Health of the Town of Weymouth.

The PIP was finalized within 30 days of the close of the comment period on January 30, 2018. A summary of comments received on the draft PIP was developed, and the response to comments and the final PIP was made available to the public in the information repository (Weymouth Health Department and the Tufts Library in Weymouth), and online at MassDEP.

As required by the PIP designation, the draft Immediate Response Action Completion (IRAC) Report, PSCS and AUL will be presented at a public meeting and a comment period established (a minimum of 20 days with a 20-day extension if requested). Once the comment period has closed on the draft MCP documents, a response to comments will be developed within 30 days and comments, as applicable, will be incorporated into the final MCP reports. Details of applicable reports and notification are further described in the Final PIP dated January 30, 2018.

As required by the MCP, a copy of the recorded AUL will be provided to the Chief Municipal Officer, the Board of Health, the Zoning Official, and the Building Code Enforcement Official in the Town of Weymouth. A public notice indicating the recording of the original AUL will be published in the Boston Globe, Patriot Ledger, and the Weymouth News providing notice within the Town of Weymouth. The notice will contain the following information: The name, address and RTN(s) of the Disposal Site associated with the AUL; the type of AUL; information about where the AUL and Disposal Site file can be reviewed; and, the name, address and telephone number of the person recording and/or registering the AUL from whom the public can obtain additional information.

A copy of the public notice (news clipping) will be submitted to the MassDEP within 7 days of its publication. The date of publication and name of the newspaper will be indicated with the notice. Public notification letters are provided in **Appendix I** (will be provided in the final MCP documents as applicable).

8.0 LIMITATIONS

This report was prepared exclusively for the Algonquin (Enbridge) for use in MCP submittals. The conclusions presented in this report are based solely on the information reported in this document. Additional information regarding the Site, which was not available to TRC, may result in a modification of the findings above. The report has been prepared in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area. No other warranty, expressed or implied, is made.

9.0 REFERENCES

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MassDEP, 2002a	*Calculation of an Enhanced Soil Ingestion Rate. Final Technical Update*. April 2002.
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MassDEP, 2008	*Characterization of Risks Due to Inhalation of Particulates by Construction Workers*. Final Technical Update. July 2008.
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TRC, 2016b	Immediate Response Action Status Report #1, Weymouth Compressor Station, 6 & 50 Bridge Street, Weymouth, Massachusetts, Release Tracking Number 4-26243, prepared by TRC for Spectra Energy Partners, Algonquin Gas Transmission, LLC, November 2016.
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TABLES

Table 1
Summary of Soil Boring Observations and Monitoring Well Construction
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Boring and Monitoring Well Identification	Ground Elevation (ft-NAVD88)	Boring Depth (ft-bgs)	Well Inside Diameter (in)	Well Screen Depth[1] (ft-bgs)	Vac Rig (Vac) or No Recovery (NR) (ft-bgs)	Topsoil (ft-bgs)	Fine - Coarse Sand, Trace Silt (ft-bgs)	Fill Sand and Silt and/or Gravel (ft-bgs)	Fill Sand/Gravel, Clinkers, Coal, Brick (ft-bgs)	Fill Silt and Sand (ft-bgs)	Fill and/or Natural Fine to Coarse Sand and Gravel or Sand with Trace Gravel and/or Silt (ft-bgs)	Fine Sand, Silt, and/or Clay (ft-bgs)	Observed Top PCS (ft-bgs)	Observed Bottom PCS (ft-bgs)	Approximate PCS Thickness (ft)
B-1	18.40	24	-	-	6 Vac	-	-	-	9 - 21	0-6	21-21.5	22.5-24	0	0	0
B-2	13.60	30	-	-	3 Vac	-	-	-	0-28	-	-	28-30	0	0	0
B-3	13.20	27	-	-	3.4 Vac	-	-	-	0-19	-	19-24.5	24.5-27	0	0	0
B-4	12.70	101	-	-	3.2 Vac	-	-	-	0-24.5	-	-	24.5-101	0	0	0
B-5	13.10	124.3	-	-	4.0 Vac	-	-	-	0-24	-	-	24-101	0	0	0
B-6	12.80	23	-	-	2.2 Vac	-	-	-	0-21.7	-	-	21.7-23	0	0	0
B-7	12.80	25	-	-	3.3 Vac	-	-	-	0-22	-	-	22-25	0	0	0
B-8	14.20	38	-	-	6 Vac, 13-15 NR	-	2-6	-	0-2, 8-13	-	15-35.5	35.5-38	0	0	0
B-9	14.30	36	-	-	6 Vac	-	-	-	0-6	9-19	19-25.8, 29-34	25.8-29, 34-36	0	0	0
B-10	13.90	26	-	-	2.7 Vac	-	-	-	0-13	13-18	-	18-26	0	0	0
B-101	18.70	124	-	-	2.7 Vac	0-0.5	2-2.5	-	9-21	2.5-6	21-21.5	21.5-124	0	0	0
B-102	12.70	104.1	-	-	-	0-0.5	-	-	9-17.5	17.5-27.5	99-104.1	27.5-99	0	0	0
B-103	12.80	80	-	-	-	0-0.5	-	-	8-10	-	0-8, 10-24	24-80	0	0	0
B-104	12.70	111	-	-	-	0-0.5	-	-	24-32.5	-	6-24, 92.5-111	32.5-92.5	0	0	0
B-105[2]	13.00	107.6	-	NA	0-2 Vac	0-0.5	-	10-21	2-10	-	94-107.6	21-94	14	19	6
B-106	13.90	81	-	-	-	0-0.5	-	2-20	-	-	20-47.5	47.5-81	0	0	0
B-107	14.40	109	-	-	-	0-0.5	2-6	13-33	0-2, 8-13	-	99-109	33-99	0	0	0
B-108	14.20	106	-	-	-	0-0.5	-	0-17	-	-	79-106	17-79	0	0	0
B-201/MW-201	13.20	20	2	5-20	0.5-6 Vac	0-0.5	-	-	6-18	-	18-18.6	18.6-19.1	12	18	6
B-202/MW-202	12.00	21	2	4-19	-	0-0.9	-	-	0.9-5.25	-	5.25-20	20-21	0	0	0
B-203/MW-203	12.20	21	2	4-19	-	0-0.3	-	-	0.3-13	-	13-19.7	19.7-21	0	0	0
B-204/MW-204	12.90	20	2	5-20	0-6 Vac	0-0.3	-	6-6.7	6.7-7.4, 14-18	7.4-14	18-20	-	0	0	0
B-205/MW-205	14.40	20	2	5-20	0-6 Vac	0-0.5	-	6-8	8-10	10-12.3	12.3-20	-	0	0	0
B-300	11.59	20	-	-	1.2-5 NR	0-1.2	5-17.5	-	-	-	-	17.5-20	0	0	0
B-301	13.70	15	-	-	0.3-5 NR	0-0.3	-	-	5.3-10.5	5-5.3	10.5-11.7	11.7-15	10.5	11.7	1.2
B-302	12.55	15	-	-	-	0-0.5	0.5-15	-	-	-	-	-	0	0	0
B-303	12.48	15	-	-	-	0-1.2	-	-	5.3-10.7	1.2-5.3	-	10.7-15	10.5	10.7	0.2
B-304	12.68	20	-	-	-	0-1.2	-	1.2-6.2	6.7-16.3	6.2-6.7	-	16.3-20	10.8	12.5	1.7
B-305	13.82	20	-	-	-	0-0.8	0.8-6.5	-	6.5-18	-	-	-	11.2	17	5.8
B-306	12.67	15	-	-	-	0-0.8	-	-	0.8-14.7	-	-	14.7-15	11.8	14.8	3
B-307	12.32	15	-	-	-	0-0.7	-	-	-	-	0.7-15	-	0	0	0
B-308	12.32	15	-	-	0.5-5 NR	0-0.5	10.9-15	-	5.5-6.8	-	6.8-10.9	-	0	0	0
B-309	14.26	20	-	-	-	0-0.5	0.5-7.5	-	7.5-15.5	-	-	15.3-17.5	11.5	16.7	5.2
B-310/MW-206	13.10	15	2	9-19	-	0-1.3	-	-	5-5.2	-	5.2-10.3	10.3-15	0	0	0

Table 1
Summary of Soil Boring Observations and Monitoring Well Construction
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Boring and Monitoring Well Identification	Ground Elevation (ft-NAVD88)	Boring Depth (ft-bgs)	Well Inside Diameter (in)	Well Screen Depth[1] (ft-bgs)	Vac Rig (Vac) or No Recovery (NR) (ft-bgs)	Topsoil (ft-bgs)	Fine - Coarse Sand, Trace Silt (ft-bgs)	Fill Sand and Silt and/or Gravel (ft-bgs)	Fill Sand/Gravel, Clinkers, Coal, Brick (ft-bgs)	Fill Silt and Sand (ft-bgs)	Fill and/or Natural Fine to Coarse Sand and Gravel or Sand with Trace Gravel and/or Silt (ft-bgs)	Fine Sand, Silt, and/or Clay (ft-bgs)	Observed Top PCS (ft-bgs)	Observed Bottom PCS (ft-bgs)	Approximate PCS Thickness (ft)
B-311	12.58	20	-	-	-	-	0-6	-	6-17.5	-	-	17.5-20	11.3	17.3	6
B-312	13.12	20	-	-	0.9-5 NR	0.0.9	5-7.2	-	7.2-20	-	-	-	11.2	16.7	5.5
B-313	13.91	20	-	-	15-20 NR	0-1.2	1.2-7, 10-13.9	-	7-10	-	-	13.9-14.8	11.3	14	2.7
B-314	13.97	15	-	-	-	0-0.5	0.5-5.7	-	5.7-6.5	6.5-10.7	10.7-12.7	12.7-15	0	0	0
B-315	12.36	15	-	-	-	0-1.3	1.3-5	-	5-10.5, 12.5-15	10.5-12.5	-	-	0	0	0
B-317[3]	13.66	15	-	-	-	0-0.7	0.7-7	-	7-14.7	-	-	14.7-15	11.7	13	1.3
B-318	12.98	15	-	-	-	0-0.7	11.8-13.2	-	0.7-11.8	-	-	13.2-15	10.7	11.2	0.5
B-319	13.34	17	2	-	0.5-5.5 NR	0-0.5	-	10.9-13.4	5.5-10.9	-	-	13.4-15	12.5	15	2.5
B-400/MW-400	12.26	23	2	8-23	-	0-0.3	-	-	0.3-15	-	-	15-23	0	0	0
B-401/MW-401	13.44	23	2	7.6-22.6	-	0-1.2	1.2-8.2	-	8.2-11.3	-	11.3-17.5	17.5-23	0	0	0
B-402/MW-402	14.62	20	2	8-23	-	0-0.5	0.5-8.3	-	8.3-10.8	-	10.8-15	15-20	0	0	0
B-403/MW-403	13.11	30	2	8-23	0-5 Vac	-	5-6.8	-	6.8-8,12.5-30	-	0-5,8.7-12.5	8-8.7	0	0	0
B-404/MW-404	13.06	23	4	5.4-20.4	0-5 Vac	-	2-7.2, 16.3-23	-	7.2-16.3	-	0-2	-	12	12.5	0.5
B-405/MW-405	13.87	21.5	2	6.5-21.5	0-5 Vac	-	2-5, 11.3-21.5	-	5-11.3	-	0-2	-	0	0	0
B-406/MW-406	13.34	23	2	8-23	0-5 Vac	-	10.8-23	-	1-10.8	-	0-1	-	11.5	15	3.5
B-407/MW-407	13.18	20	2	8-23	0-5 Vac	-	10.8-23	-	5-5.8	-	6.3-10.8	5.8-6.3	10.5	13	2.5
B-408/MW-408	13.04	20	2	8-23	-	-	-	-	0.7-11.5	-	0-0.7, 11.5-20	-	0	0	0
B-409/MW-409	12.84	20	2	8-23	-	0-0.5	-	-	0.5-13.1	-	13.1-20	-	0	0	0
B-410/MW-410	12.45	25	2	8-23	-	-	-	-	1.1-15	0.5-1.1	15-20	15-25	11.3	12.8	1.5
B-411/MW-411	12.53	25	2	8-23	-	-	-	-	1-15.8	-	0.5-1	15.8-25	11.1	15.8	4.7
B-412/MW-412	13.61	25	4	8-23	-	-	-	-	5-20.7	2.2-5, 16.5-21.7	0.5-2.2	21.7-25	11.3	16.3	5
B-413/MW-413	13.74	25	4	8-23	-	-	-	-	6.8-21.8	0-1.5	1.5-6.8	21.8-25	11.1	16.6	5.5
B-414/MW-414	14.18	20	4	8-23	-	-	11.4-15	-	2.7-11.4	-	0-2.7, 15-20	-	11.4	15	3.6
B-415/MW-415	14.43	23	2	8-23	-	0-0.5	1.8-8	-	0.5-1.8, 8-21.7	-	-	21.7-23	11.7	16	4.3
B-416/MW-416	13.34	20	2	8-23	0-6 Vac	-	-	-	5-5.5,10-11	11-15	0-5, 5.5-10, 15-20	-	0	0	0
B-417/MW-417	13.34	20	2	8-23	0-6 Vac	-	-	-	5-5.4, 10.6-11.2	11.2-15	0-5, 5.4-10.6, 15-20	-	0	0	0

Abbreviations:
bgs - below ground surface
ft - feet
in - inches
NAVD88 - North American Vertical Datum of 1988
PCS - petroleum-containing soil

Notes:
1. Well screen consists of Schedule 40 polyvinylchloride casing and screen (slot size 0.010 inches).
2. B-105 - LNAPL containing soil thickness estimated between 12 and 18 ft bgs (6 ft thickness) based on observations at MW-201.
3. B-316 does not exist.

Table 2
Summary of Environmental Samples
Permanent Solution with Conditions Statement
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Sample Date	Sample Name	Matrix	Composite/ Grab	Sample Depth (ft-bgs)	Additional Description	Parameters
6/10/2015	COMP-123	Soil	Composite	0-1	Composite of borings B-1, B-2, and B-3 from 0-1 ft	Herbicides, Metals
6/10/2015	COMP-467	Soil	Composite	0-1	Composite of borings B-4, B-6, and B-7 from 0-1 ft	Herbicides, Metals
6/10/2015	COMP-8910	Soil	Composite	0-1	Composite of borings B-8, B-9, and B-10 from 0-1 ft	Herbicides, Metals
6/25/2015	B-1	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-2	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-3	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-4	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-5	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-6	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-7	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-8	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-9	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/25/2015	B-10	Soil	Grab	0-1	Assessed past metals in shallow soil and possible use of herbicides in AST berm area	Herbicides, Metals
6/26/2015	COMP-123-Fill	Soil	Composite	N/A	Composite of Historic Fill soils from borings B-1, B-2, and B-3	EPH, Metals
6/26/2015	COMP-123-Native	Soil	Composite	N/A	Composite of native soils from borings B-1, B-2, and B-3	EPH, Metals
6/26/2015	COMP-467-Fill	Soil	Composite	N/A	Composite of Historic Fill soils from borings B-4, B-6, and B-7	EPH, Metals
6/26/2015	COMP-467-Native	Soil	Composite	N/A	Composite of native soils from borings B-4, B-6, and B-7	EPH, Metals
6/26/2015	COMP-8910-Native	Soil	Composite	N/A	Composite of native soil from borings B-8, B-9, and B-10	EPH, Metals
6/26/2015	COMP-910-Fill	Soil	Composite	N/A	Composite of Historic Fill soil from borings B-9 and B-10	EPH, Metals
8/29/2016	MW-201	GW	Grab	16	Groundwater sample collected -initial monitoring	EPH, VPH
8/29/2016	MW-205	GW	Grab	15	Groundwater sample collected -initial monitoring	EPH, VPH
8/29/2016	MW-202	GW	Grab	13	Groundwater sample collected -initial monitoring	EPH, VPH
8/30/2015	MW-203	GW	Grab	13	Groundwater sample collected -initial monitoring	EPH, VPH
8/30/2015	MW-204	GW	Grab	17	Groundwater sample collected -initial monitoring	EPH, VPH
12/22/2015	TP-1	Soil	Composite	5-7	Evaluate soil conditions immediately below proposed infiltration basin	EPH, Metals
12/22/2015	TP-1	Soil	Composite	7-9	Evaluate soil conditions immediately below proposed infiltration basin	EPH, Metals
12/21/2015	TP-2	Soil	Composite	5-7	Evaluate soil conditions immediately below proposed infiltration basin	EPH, Metals
12/21/2015	TP-2	Soil	Composite	7-9	Evaluate soil conditions immediately below proposed infiltration basin	EPH, Metals
12/21/2015	TP-3	Soil	Composite	5-7	Evaluate soil conditions immediately below proposed infiltration basin	EPH, Metals
12/21/2015	TP-3	Soil	Composite	7-9	Evaluate soil conditions immediately below proposed infiltration basin	EPH, Metals
4/12/2016	B105	Soil	Grab	14-17	Sample collected based on odors/stainining near water table	EPH, VPH
10/12/2016	B-310-12.5	Soil	Grab	12-12.5	Soil collected to define clean bound West of B-105 & MW-201 area	EPH, VPH
10/13/2016	B-314-12.5	Soil	Grab	12 -12.5	Soil collected to define clean bound East/southeast of B-105 & MW-201 area	EPH, VPH
10/13/2016	B-308-12.0	Soil	Grab	11.5 -12	Soil collected to define clean bound North of B-105 & MW-201 area	EPH, VPH
10/13/2016	B-315-12.5	Soil	Grab	12-12.5	Soil collected to define clean bound East/northeast of B-105 & MW-201 area	EPH, VPH
10/13/2016	B-317-11.5	Soil	Grab	11-11.5	Soil collected to demostrate conditions above the water table near Disposal Site perimeter to the southeast	EPH, VPH
10/14/2016	B-317-12.5	Soil	Grab	12-12,5	Soil collected to demostrate impacted conditions within top of the water table near Disposal Site perimeter to the southeast	EPH, VPH
11/1/2016	MW-202	GW	Grab	13	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
11/1/2016	MW-203	GW	Grab	13	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
11/1/2016	MW-204	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
11/1/2016	MW-205	GW	Grab	15	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
11/1/2016	MW-206	GW	Grab	14.2	Groundwater sample colected to evaluate groundwater quality - new well at west perimeter -routine monitoring	EPH, VPH
12/12/2016	B-409	Soil	Grab	10	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-409	Soil	Grab	11.5	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-410	Soil	Grab	11	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-410	Soil	Grab	12.5	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-410	Soil	Grab	14	Soil collected to evaluate extent of contamination	EPH

Table 2
Summary of Environmental Samples
Permanent Solution with Conditions Statement
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Sample Date	Sample Name	Matrix	Composite/ Grab	Sample Depth (ft-bgs)	Additional Description	Parameters
12/12/2016	B-411	Soil	Grab	11.5	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-411	LNAPL	Grab	14	Sample to characterize LNAPL	EPH
12/12/2016	B-411	Soil	Grab	16	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-412	LNAPL	Grab	11.5	Sample to characterize LNAPL	EPH
12/12/2016	B-412	LNAPL	Grab	13	Sample to characterize LNAPL	EPH
12/12/2016	B-412	Soil	Grab	19	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-413	Soil	Grab	11	Soil collected to evaluate extent of contamination	EPH
12/12/2016	B-413	LNAPL	Grab	14-15	Sample to characterize LNAPL	EPH
12/12/2016	B-413	Soil	Grab	23	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-408	Soil	Grab	11	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-408	Soil	Grab	15	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-414	Soil	Grab	11	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-414	LNAPL	Grab	14	Sample to characterize LNAPL	EPH
12/13/2016	B-414	Soil	Grab	15.5	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-416	Soil	Grab	11	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-416	Soil	Grab	15	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-417	Soil	Grab	11	Soil collected to evaluate extent of contamination	EPH
12/13/2016	B-417	Soil	Grab	15	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-451	Soil	Grab	13.4	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-400	Soil	Grab	11.4	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-400	Soil	Grab	12.4	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-401	Soil	Grab	11.5	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-401	Soil	Grab	12.2	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-402	Soil	Grab	11.6	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-402	Soil	Grab	12.2	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-402	Soil	Grab	12.8	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-403	Soil	Grab	10	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-403	Soil	Grab	12	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-404	Soil	Grab	11.4	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-404	LNAPL	Grab	12	Sample to characterize LNAPL	EPH
12/14/2016	B-404	Soil	Grab	16.5	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-405	Soil	Grab	11.5	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-405	Soil	Grab	12.5	Soil collected to evaluate extent of contamination	EPH
12/14/2016	B-406	LNAPL	Grab	11.8	Sample to characterize LNAPL	EPH
12/14/2016	B-406	LNAPL	Grab	12.5	Sample to characterize LNAPL	EPH
12/14/2016	B-406	Soil	Grab	21	Soil collected to evaluate extent of contamination	EPH
12/15/2016	B-407	LNAPL	Grab	11.8	Sample to characterize LNAPL	EPH
12/15/2016	B-407	Soil	Grab	12.8	Soil collected to evaluate extent of contamination	EPH
12/15/2016	B-407	Soil	Grab	17.5	Soil collected to evaluate extent of contamination	EPH
1/3/2017	MW-203	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/3/2017	MW-205	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/3/2017	MW-400	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/3/2017	MW-401	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/3/2017	MW-416	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/3/2017	MW-417	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/4/2017	MW-202	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/4/2017	MW-204	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH

Table 2
Summary of Environmental Samples
Permanent Solution with Conditions Statement
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Sample Date	Sample Name	Matrix	Composite/ Grab	Sample Depth (ft-bgs)	Additional Description	Parameters
1/4/2017	MW-206	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/4/2017	MW-403	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/4/2017	MW-405	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/4/2017	MW-409	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/4/2017	MW-411	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-402	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-404	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-406	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	DUP-2	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-407	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-408	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-412	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	DUP-1	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-413	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/5/2017	MW-415	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/6/2017	MW-201	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/6/2017	MW-410	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
1/6/2017	MW-414	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/20/2017	MW-401	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/20/2017	MW-205	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/20/2017	MW-203	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/20/2017	MW-204	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/20/2017	MW-402	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/20/2017	MW-400	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/20/2017	MW-202	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/21/2017	MW-406	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/21/2017	DUP-1	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/21/2017	MW-410	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/21/2017	MW-201	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/21/2017	MW-407	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/21/2017	MW-414	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/21/2017	MW-418	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/22/2017	MW-411	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/22/2017	MW-409	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/22/2017	MW-413	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/22/2017	MW-412	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/22/2017	MW-206	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/22/2017	MW-403	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/23/2017	MW-417	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/23/2017	DUP-2	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/23/2017	MW-404	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/23/2017	MW-405	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/23/2017	MW-416	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
3/23/2017	MW-415	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	MW-202	GW	Grab	15	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	MW-203	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	MW204	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH

Table 2
Summary of Environmental Samples
Permanent Solution with Conditions Statement
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Sample Date	Sample Name	Matrix	Composite/ Grab	Sample Depth (ft-bgs)	Additional Description	Parameters
6/5/2017	MW-205	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	DUP-1	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	MW-400	GW	Grab	15	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	MW-401	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	MW-402	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/5/2017	MW-403	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-206	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-404	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-405	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-408	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-409	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-412	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-413	GW	Grab	16	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/6/2017	MW-415	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-201	GW	Grab	19	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-406	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	DUP-2	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-407	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-410	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-411	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-414	GW	Grab	18	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-416	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH
6/7/2017	MW-417	GW	Grab	17	Groundwater sample collected to evaluate groundwater quality - routine monitoring	EPH, VPH

Abbreviations:
EPH - Extractable Petroleum Hydrocarbons
ft-bgs - feet below ground surface
GW - Groundwater
VPH - Volatile Petroleum Hydrocarbons

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B105	B/MW 201			B/MW 202		B/MW 203		B/MW 204		B/MW 205	
			Sample Depth (ft.):	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	14-17	6-8	10-12	10-12	5-7	9-11	5-7	9-11	6-8	8-10	6-8	10-12
			Sample Date:	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	4/12/2016	5/12/2016	5/12/2016	5/10/2016	5/11/2016	5/11/2016	5/11/2016	5/12/2016	5/10/2016	5/10/2016	5/12/2016	5/12/2016
		S-2/GW-3	UCLs														Field Dup								
VPH																									
(mg/kg)	C9-C10 Aromatics	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**45**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C5-C8 Aliphatics	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C9-C12 Aliphatics	3,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.5 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzene	200	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.502 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Toluene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.502 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Ethylbenzene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.502 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	p/m-xylene	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.502 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	o-xylene	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.502 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Xylenes (total)	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.502 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Methyl tert butyl ether (MTBE)	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.251 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																									
(mg/kg)	C9-C18 Aliphatics	3,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**4,570**	**11.4**	**677**	**818**	7.7 U	7.01 U	7.29 U	7.72 U	**7.97**	9.11 U	6.5 U	9.55 U
	C19-C36 Aliphatics	5,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9,110**	**73**	**3,260**	**4,310**	**13.3**	7.01 U	**50.1**	**12.3**	**51.7**	9.11 U	**8.44**	**10.1**
	C11-C22 Aromatics	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**9,070**	**32.8**	**2,330**	**3,420**	**25.4**	7.01 U	**27.8**	**18.2**	**33.5**	9.11 U	6.5 U	9.55 U
	Naphthalene	1000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	0.362 U	0.456 U	0.325 U	0.478 U
	2-Methylnaphthalene	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	0.362 U	0.456 U	0.325 U	0.478 U
	Acenaphthylene	10	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	0.362 U	0.456 U	0.325 U	0.478 U
	Acenaphthene	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	0.362 U	0.456 U	0.325 U	0.478 U
	Fluorene	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	0.362 U	0.456 U	0.325 U	0.478 U
	Phenanthrene	1000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	**0.385**	0.794 U	1.22 U	**0.542**	0.35 U	0.364 U	**0.662**	**2.03**	0.456 U	0.325 U	0.478 U
	Anthracene	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	**0.592**	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	0.362 U	0.456 U	0.325 U	0.478 U
	Fluoranthene	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	**1.58**	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	**2.57**	0.456 U	0.325 U	0.478 U
	Pyrene	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	**1.29**	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	**0.431**	**2.89**	0.456 U	0.325 U	0.478 U
	Benzo(a)anthracene	40	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	**0.46**	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	**1.34**	0.456 U	0.325 U	0.478 U
	Chrysene	400	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	**0.735**	0.794 U	1.22 U	**0.416**	0.35 U	0.364 U	**0.442**	**1.5**	0.456 U	0.325 U	0.478 U
	Benzo(b)fluoranthene	40	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	**0.358**	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	**0.986**	0.456 U	0.325 U	0.478 U
	Benzo(k)fluoranthene	400	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	**0.908**	0.456 U	0.325 U	0.478 U
	Benzo(a)pyrene	7	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	**1.02**	0.456 U	0.325 U	0.478 U
	Indeno(1,2,3-cd)pyrene	40	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	**0.694**	0.456 U	0.325 U	0.478 U
	Dibenz(a,h)anthracene	4.0	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	0.362 U	0.456 U	0.325 U	0.478 U
	Benzo(g,h,i)perylene	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.41 U	0.35 U	0.794 U	1.22 U	0.385 U	0.35 U	0.364 U	0.386 U	**0.71**	0.456 U	0.325 U	0.478 U
Herbicides																									
(mg/kg)	2,4-D	NS	NS	0.028 U	0.028 U	0.03 U	0.029 U	0.028 U	0.031 U	0.029 U	0.028 U	0.029 U	0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DB	NS	NS	0.028 U	0.028 U	0.03 U	0.029 U	0.028 U	0.031 U	0.029 U	0.028 U	0.029 U	0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TP (Silvex)	NS	NS	0.0028 U	0.0028 U	0.003 U	0.0029 U	0.0028 U	0.0031 U	0.0029 U	0.0028 U	0.003 U	0.0029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-T	NS	NS	0.0028 U	0.0028 U	0.003 U	0.0029 U	0.0028 U	0.0031 U	0.0029 U	0.0028 U	0.003 U	0.0029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dalapon	NS	NS	0.069 U	0.07 U	0.075 U	0.073 U	0.07 U	0.078 U	0.072 U	0.069 U	0.073 U	0.073 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dicamba	NS	NS	0.0028 U	0.0028 U	0.003 U	0.0029 U	0.0028 U	0.0031 U	0.0029 U	0.0028 U	0.003 U	0.0029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dichloroprop	NS	NS	0.028 U	0.028 U	0.03 U	0.029 U	0.028 U	0.031 U	0.029 U	0.028 U	0.029 U	0.029 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dinoseb	NS	NS	0.014 U	0.014 U	0.015 U	0.015 U	0.014 U	0.016 U	0.014 U	0.014 U	0.015 U	0.015 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPA	NS	NS	2.8 U	2.8 U	3.0 U	2.9 U	2.8 U	3.1 U	2.9 U	2.8 U	2.9 U	2.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPP	NS	NS	2.8 U	2.8 U	3.0 U	2.9 U	2.8 U	3.1 U	2.9 U	2.8 U	2.9 U	2.9 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																									
(mg/kg)	Antimony	30	300	**6.9**	**6.6**	**8.0**	**7.5**	**7.3**	**8.3**	**7.1**	**7.4**	**6.8**	**7.8**	NA	2.2 U	2.3 U	2.5 U	2.3 U	2.2 U	2.2 U	2.3 U	2.1 U	**3.8**	2 U	**4.2**
	Arsenic	20	500	**17**	**31**	**47**	**48**	**30**	**90**	**34**	**36**	**55**	**48**	NA	**24**	**16**	**20**	**4.4**	**2.5**	**46**	**19**	**30**	**90**	**3.4**	**130**
	Barium	3,000	10,000	**49**	**76**	**99**	**98**	**70**	**110**	**79**	**77**	**120**	**110**	NA	**34**	**11**	**29**	**20**	**6.5**	**39**	**20**	**51**	**94**	**4.5**	**81**
	Beryllium	200	2,000	**1.0**	**2.0**	**2.5**	**2.5**	**1.9**	**3.4**	**2.0**	**1.9**	**2.7**	**2.5**	NA	**0.74**	**0.55**	**0.78**	**0.27**	**0.23**	**0.6**	**1.3**	**0.66**	**2.6**	0.2 U	**4.2**
	Cadmium	100	1,000	**0.73**	**1.2**	**1.7**	**1.7**	**1.1**	**2.9**	**1.3**	**1.3**	**1.8**	**1.7**	NA	0.44 U	0.47 U	0.5 U	0.46 U	0.43 U	0.44 U	0.46 U	0.42 U	0.55 U	0.4 U	0.58 U
	Chromium	200	2,000	**12**	**14**	**17**	**17**	**15**	**20**	**14**	**16**	**17**	**17**	NA	**9.6**	**3.9**	**7.1**	**11**	**6.8**	**12**	**8**	**15**	**24**	**2.5**	**19**
	Lead	600	6,000	**31**	**35**	**37**	**32**	**23**	**29**	**29**	**28**	**27**	**29**	NA	**33**	**9.9**	**14**	**14**	**2.3**	**4.4**	**16**	**32**	**16**	**2.1**	**10**
	Mercury	30	300	**0.061**	**0.17**	**0.17**	**0.13**	**0.084**	**0.14**	**0.11**	**0.081**	**0.10**	**0.10**	NA	**0.191**	0.096 U	0.103 U	0.081 U	0.077 U	**0.252**	0.082 U	**0.218**	**0.142**	0.068 U	**0.285**
	Nickel	1000	10,000	**11**	**20**	**23**	**24**	**20**	**32**	**19**	**20**	**21**	**25**	NA	**11**	**13**	**11**	**9.8**	**8.3**	**16**	**17**	**19**	**15**	**1.4**	**17**
	Selenium	700	7,000	5.5 U	5.6 U	6.0 U	5.8 U	5.6 U	6.3 U	5.8 U	5.5 U	5.8 U	5.8 U	NA	2.2 U	2.3 U	2.5 U	2.3 U	2.2 U	2.2 U	2.3 U	2.1 U	2.7 U	2 U	2.9 U
	Silver	200	2,000	0.55 U	0.56 U	0.60 U	0.58 U	0.56 U	0.63 U	0.58 U	0.55 U	0.58 U	0.58 U	NA	0.44 U	0.47 U	0.5 U	0.46 U	0.43 U	0.44 U	0.46 U	0.42 U	0.55 U	0.4 U	0.58 U
	Thallium	60	800	2.8 U	2.8 U	3.0 U	2.9 U	2.8 U	3.1 U	2.9 U	2.8 U	2.9 U	2.9 U	NA	2.2 U	2.3 U	2.5 U	2.3 U	2.2 U	2.2 U	2.3 U	2.1 U	2.7 U	2 U	2.9 U
	Vanadium	700	7,000	**48**	**100**	**110**	**120**	**98**	**86**	**89**	**84**	**89**	**99**	NA	**24**	**12**	**16**	**20**	**12**	**24**	**21**	**82**	**71**	**8**	**75**
	Zinc	3,000	10,000	**34**	**43**	**54**	**50**	**45**	**35**	**45**	**49**	**47**	**51**	NA	**110**	**6.6**	**15**	**46**	**29**	**13**	**15**	**62**	**17**	**6.5**	**19**

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	B-308	B-310	B-314	B-315	B-317		COMP-123	COMP-467	COMP-8910	COMP-123-Fill	COMP-123-Native	COMP-467-Fill	COMP-467-Native	COMP-8910-Native	COMP-910-Fill	TP-1		
			Sample Depth (ft.):	12.0	12.5	12.5	12.5	11.5	13.0	0-1	0-1	0-1	N/A	N/A	N/A	N/A	N/A	N/A	5-7	5-7	7-9
			Sample Date:	10/12/2016	10/12/2016	10/12/2016	10/12/2016	10/12/2016	10/12/2016	6/10/2015	6/10/2015	6/10/2015	6/26/2015	6/26/2015	6/26/2015	6/26/2015	6/26/2015	6/26/2015	12/22/2015	12/22/2015	12/22/2015
		S-2/GW-3	UCLs																	Field Dup	
VPH																					
(mg/kg)	C9-C10 Aromatics	500	5,000	3.1 U	5.59 U	2.54 U	5.57 U	17 U	**140**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C5-C8 Aliphatics	500	5,000	3.1 U	5.59 U	2.54 U	5.57 U	17 U	12.4 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C9-C12 Aliphatics	3,000	20,000	3.1 U	5.59 U	2.54 U	5.57 U	17 U	**163**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzene	200	10,000	0.124 U	0.224 U	0.102 U	0.223 U	0.679 U	0.498 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Toluene	1,000	10,000	0.124 U	0.224 U	0.102 U	0.223 U	0.679 U	0.498 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Ethylbenzene	1,000	10,000	0.124 U	0.224 U	0.102 U	0.223 U	0.679 U	0.498 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	p/m-xylene	NS	NS	0.124 U	0.224 U	0.102 U	0.223 U	0.679 U	0.498 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	o-xylene	NS	NS	0.124 U	0.224 U	0.102 U	0.223 U	0.679 U	0.498 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Xylenes (total)	1,000	10,000	0.124 U	0.224 U	0.102 U	0.223 U	0.679 U	0.498 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Methyl tert butyl ether (MTBE)	500	5,000	0.062 U	0.112 U	0.051 U	0.111 U	0.339 U	0.249 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	1,000	10,000	0.248 U	0.447 U	0.204 U	0.446 U	1.36 U	0.995 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																					
(mg/kg)	C9-C18 Aliphatics	3,000	20,000	7.34 U	**11.2**	7.01 U	9.36 U	11 U	**3,740**	NA	NA	NA	**13**	NA	13 U	NA	NA	14 U	NA	NA	NA
	C19-C36 Aliphatics	5,000	20,000	7.34 U	**132**	7.01 U	9.36 U	11 U	**6,140**	NA	NA	NA	12 U	NA	13 U	NA	NA	14 U	NA	NA	NA
	C11-C22 Aromatics	3,000	10,000	7.34 U	**97**	7.01 U	9.36 U	11 U	**5,970**	NA	NA	NA	**26**	NA	**22**	NA	NA	14 U	NA	NA	NA
	Naphthalene	1000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	0.18 U	0.18 U
	2-Methylnaphthalene	500	5,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	**0.21**	NA	**0.16**	NA	NA	0.14 U	0.18 U	**0.22**	**0.23**
	Acenaphthylene	10	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	0.18 U	0.18 U
	Acenaphthene	3,000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	0.18 U	0.18 U
	Fluorene	3,000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	0.18 U	0.18 U
	Phenanthrene	1000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	**0.61**	NA	**0.34**	NA	NA	**0.18**	**0.47**	**1.2**	**0.91**
	Anthracene	3,000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	0.18 U	0.18 U
	Fluoranthene	3,000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	**0.33**	**0.90**	**0.56**
	Pyrene	3,000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	**0.29**	NA	0.13 U	NA	NA	0.14 U	**0.50**	**1.3**	**0.89**
	Benzo(a)anthracene	40	3,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	**0.13**	NA	0.13 U	NA	NA	0.14 U	**0.25**	**0.65**	**0.46**
	Chrysene	400	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	**0.28**	NA	0.13 U	NA	NA	0.14 U	**0.31**	**0.80**	**0.62**
	Benzo(b)fluoranthene	40	3,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	**0.13**	NA	0.13 U	NA	NA	0.14 U	**0.24**	**0.61**	**0.49**
	Benzo(k)fluoranthene	400	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	**0.20**	0.18 U
	Benzo(a)pyrene	7	300	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	**0.20**	**0.46**	**0.37**
	Indeno(1,2,3-cd)pyrene	40	3,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	**0.20**	0.18 U
	Dibenz(a,h)anthracene	4.0	300	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	0.18 U	0.18 U
	Benzo(g,h,i)perylene	3,000	10,000	0.367 U	0.497 U	0.35 U	0.468 U	0.551 U	3.86 U	NA	NA	NA	0.12 U	NA	0.13 U	NA	NA	0.14 U	0.18 U	0.18 U	**0.19**
Herbicides																					
(mg/kg)	2,4-D	NS	NS	NA	NA	NA	NA	NA	NA	0.026 U	0.027 U	0.027 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DB	NS	NS	NA	NA	NA	NA	NA	NA	0.026 U	0.027 U	0.027 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TP (Silvex)	NS	NS	NA	NA	NA	NA	NA	NA	0.0026 U	0.0027 U	0.0027 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-T	NS	NS	NA	NA	NA	NA	NA	NA	0.0026 U	0.0027 U	0.0027 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dalapon	NS	NS	NA	NA	NA	NA	NA	NA	0.065 U	0.068 U	0.066 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dicamba	NS	NS	NA	NA	NA	NA	NA	NA	0.0026 U	0.0027 U	0.0027 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dichloroprop	NS	NS	NA	NA	NA	NA	NA	NA	0.026 U	0.027 U	0.027 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dinoseb	NS	NS	NA	NA	NA	NA	NA	NA	0.013 U	0.014 U	0.013 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPA	NS	NS	NA	NA	NA	NA	NA	NA	2.6 U	2.7 U	2.7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPP	NS	NS	NA	NA	NA	NA	NA	NA	2.6 U	2.7 U	2.7 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																					
(mg/kg)	Antimony	30	300	NA	NA	NA	NA	NA	NA	2.6 U	2.7 U	2.6 U	**5.5**	**15**	**6.2**	**16**	**16**	**7.1**	2.7 U	2.7 U	2.7 U
	Arsenic	20	500	NA	NA	NA	NA	NA	NA	**29**	**44**	**39**	**23**	**13**	**43**	**12**	**13**	**80**	**7.7**	**7.0**	**9.8**
	Barium	3,000	10,000	NA	NA	NA	NA	NA	NA	**71**	**94**	**85**	**46**	**60**	**48**	**77**	**59**	**130**	**23**	**23**	**30**
	Beryllium	200	2,000	NA	NA	NA	NA	NA	NA	**1.4**	**1.9**	**1.8**	**1.2**	**1.1**	**2.8**	**1.2**	**1.3**	**4.9**	**0.84**	**0.73**	**0.93**
	Cadmium	100	1,000	NA	NA	NA	NA	NA	NA	**1.0**	**1.5**	**1.3**	**0.89**	**0.90**	**1.5**	**0.82**	**0.92**	**2.6**	**0.66**	**0.57**	**0.72**
	Chromium	200	2,000	NA	NA	NA	NA	NA	NA	**15**	**17**	**18**	**13**	**34**	**15**	**34**	**35**	**28**	**12**	**11**	**13**
	Lead	600	6,000	NA	NA	NA	NA	NA	NA	**23**	**30**	**27**	**13**	**34**	**12**	**11**	**17**	**23**	**10**	**9.6**	**15**
	Mercury	30	300	NA	NA	NA	NA	NA	NA	**0.11**	**0.11**	**0.16**	**0.052**	**0.16**	**0.047**	0.034 U	**0.047**	**0.095**	**0.031**	**0.033**	**0.033**
	Nickel	1000	10,000	NA	NA	NA	NA	NA	NA	**17**	**27**	**25**	**13**	**24**	**38**	**24**	**25**	**27**	**12**	**10**	**14**
	Selenium	700	7,000	NA	NA	NA	NA	NA	NA	**5.9**	5.3 U	**5.4**	5.9 U	6.4 U	6.5 U	6.8 U	6.7 U	6.9 U	5.3 U	5.4 U	5.4 U
	Silver	200	2,000	NA	NA	NA	NA	NA	NA	0.52 U	0.53 U	0.52 U	0.59 U	0.64 U	0.65 U	0.68 U	0.67 U	0.69 U	0.53 U	0.54 U	0.54 U
	Thallium	60	800	NA	NA	NA	NA	NA	NA	**3.6**	**3.6**	**3.3**	2.9 U	3.2 U	3.2 U	3.4 U	3.4 U	3.5 U	2.7 U	2.7 U	2.7 U
	Vanadium	700	7,000	NA	NA	NA	NA	NA	NA	**90**	**100**	**95**	**33**	**46**	**40**	**51**	**54**	**86**	**33**	**31**	**39**
	Zinc	3,000	10,000	NA	NA	NA	NA	NA	NA	**46**	**49**	**51**	**17**	**90**	**34**	**63**	**69**	**33**	**36**	**32**	**38**

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	TP-2		TP-3		B-400		B-401		B-402			B-403		B-404		B-405		B-406	B-407		B-408	
			Sample Depth (ft.):	5-7	7-9	5-7^	7-9	11.4	12.4	11.5	12.2	11.6	12.2	12.8	10	12	11.4	16.5	11.5	12.5	21	12.8	17.5	11	15
			Sample Date:	12/21/2015	12/21/2015	12/21/2015	12/21/2015	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/15/2016	12/15/2016	12/13/2016	12/13/2016
		S-2/GW-3	UCLs																						
VPH																									
(mg/kg)	C9-C10 Aromatics	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C5-C8 Aliphatics	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C9-C12 Aliphatics	3,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzene	200	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Toluene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Ethylbenzene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	p/m-xylene	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	o-xylene	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Xylenes (total)	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Methyl tert butyl ether (MTBE)	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																									
(mg/kg)	C9-C18 Aliphatics	3,000	20,000	NA	NA	NA	NA	8.1 U	9.26 U	11.1 U	7.76 U	7.18 U	**353**	8.49 U	6.92 U	7.29 U	**165**	7.55 U	12.7 U	7.65 U	7.14 U	**3,300**	7.36 U	8.16 U	6.81 U
	C19-C36 Aliphatics	5,000	20,000	NA	NA	NA	NA	8.1 U	9.26 U	11.1 U	7.76 U	7.18 U	**693**	8.49 U	6.92 U	7.29 U	**278**	7.55 U	12.7 U	7.65 U	7.14 U	**5,650**	7.36 U	**8.22**	6.81 U
	C11-C22 Aromatics	3,000	10,000	NA	NA	NA	NA	**11**	**15**	11.1 U	7.76 U	7.18 U	**776**	**9.61**	6.92 U	7.29 U	**704**	**9.87**	**49.7**	7.65 U	7.14 U	**6,670**	7.36 U	**30.1**	6.81 U
	Naphthalene	1000	10,000	0.19 U	**0.21**	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	**11.8**	0.368 U	0.408 U	0.341 U
	2-Methylnaphthalene	500	5,000	**0.37**	**0.50**	NA	**0.28**	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	**0.675**	0.383 U	0.357 U	**45.2**	0.368 U	0.408 U	0.341 U
	Acenaphthylene	10	10,000	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Acenaphthene	3,000	10,000	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	**0.692**	0.341 U
	Fluorene	3,000	10,000	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Phenanthrene	1000	10,000	**1.0**	**1.3**	NA	**0.69**	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	**1.61**	0.377 U	**1.99**	0.383 U	0.357 U	**8.97**	0.368 U	**0.438**	0.341 U
	Anthracene	3,000	10,000	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Fluoranthene	3,000	10,000	0.19 U	**0.24**	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	**1.13**	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Pyrene	3,000	10,000	**0.59**	**0.68**	NA	**0.24**	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	**1.08**	0.377 U	**1.67**	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Benzo(a)anthracene	40	3,000	**0.27**	**0.31**	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	**0.943**	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Chrysene	400	10,000	**0.54**	**0.71**	NA	**0.36**	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	**1.19**	0.377 U	**1.42**	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Benzo(b)fluoranthene	40	3,000	0.19 U	**0.25**	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	**0.655**	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Benzo(k)fluoranthene	400	10,000	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Benzo(a)pyrene	7	300	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	**0.799**	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Indeno(1,2,3-cd)pyrene	40	3,000	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
	Dibenz(a,h)anthracene	4.0	300	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	**0.742**	0.341 U
	Benzo(g,h,i)perylene	3,000	10,000	0.19 U	0.20 U	NA	0.21 U	0.405 U	0.463 U	0.557 U	0.388 U	0.359 U	0.708 U	0.424 U	0.346 U	0.364 U	0.404 U	0.377 U	0.636 U	0.383 U	0.357 U	3.63 U	0.368 U	0.408 U	0.341 U
Herbicides																									
(mg/kg)	2,4-D	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DB	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TP (Silvex)	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-T	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dalapon	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dicamba	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dichloroprop	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dinoseb	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPA	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPP	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																									
(mg/kg)	Antimony	30	300	2.8 U	3.0 U	2.5 U	3.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	500	**31**	**54**	**46**	**45**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	3,000	10,000	**41**	**75**	**39**	**31**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	200	2,000	**1.1**	**2.7**	**1.7**	**2.2**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	100	1,000	**1.3**	**1.9**	**1.6**	**1.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	200	2,000	**14**	**9.6**	**8.9**	**32**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	600	6,000	**15**	**34**	**13**	**20**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	30	300	0.027 U	**0.049**	**0.15**	**0.14**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	1000	10,000	**14**	**15**	**16**	**21**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	700	7,000	5.6 U	6.0 U	5.0 U	6.2 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	200	2,000	0.56 U	0.60 U	0.50 U	0.62 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	60	800	2.8 U	3.0 U	2.5 U	3.1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	700	7,000	**29**	**39**	**24**	**20**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	3,000	10,000	**30**	**16**	**14**	**20**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	B-409		B-410			B-411		B-412	B-413		B-414		B-415				B-416		B-417	
			Sample Depth (ft.):	10	11.5	11	12.5	14	11.5	16	19	11	23	11	15.5	11.8	12.2	13.4	13.4	11	15	11	15
			Sample Date:	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/13/2016	12/13/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/13/2016	12/13/2016	12/13/2016	12/13/2016
		S-2/GW-3	UCLs																Field Dup				
VPH																							
(mg/kg)	C9-C10 Aromatics	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C5-C8 Aliphatics	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	C9-C12 Aliphatics	3,000	20,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Benzene	200	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Toluene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Ethylbenzene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	p/m-xylene	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	o-xylene	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Xylenes (total)	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Methyl tert butyl ether (MTBE)	500	5,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Naphthalene	1,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH																							
(mg/kg)	C9-C18 Aliphatics	3,000	20,000	8.13 U	9.05 U	**697**	**3,690**	**21.5**	**12.6**	9.43 U	8.27 U	**1,780**	8.22 U	**52.7**	**108**	**3,250**	**2,680**	**1,060**	**510**	6.96 U	8.14 U	**6.94**	7.31 U
	C19-C36 Aliphatics	5,000	20,000	8.13 U	9.05 U	**2,740**	**5,810**	**32**	**98.4**	9.43 U	**21.4**	**4,590**	**13.6**	**256**	**175**	**6,670**	**5,500**	**1,740**	**712**	**95.4**	8.14 U	**53.8**	7.31 U
	C11-C22 Aromatics	3,000	10,000	**37.4**	**10.3**	**7,670**	**7,170**	**18.5**	**246**	9.43 U	**36.5**	**6,610**	**21**	**192**	**256**	**8,790**	**5,710**	**1,890**	**866**	**114**	8.14 U	**90.9**	7.31 U
	Naphthalene	1000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	2-Methylnaphthalene	500	5,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	**0.675**	0.348 U	0.407 U	0.344 U	0.365 U
	Acenaphthylene	10	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	Acenaphthene	3,000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	Fluorene	3,000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	Phenanthrene	1000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	**0.4**	0.407 U	**0.654**	0.365 U
	Anthracene	3,000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	Fluoranthene	3,000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	**0.454**	0.407 U	**0.674**	0.365 U
	Pyrene	3,000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	**0.486**	0.407 U	**0.763**	0.365 U
	Benzo(a)anthracene	40	3,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	**0.67**	0.348 U	0.407 U	**0.458**	0.365 U
	Chrysene	400	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	**0.781**	**0.409**	0.407 U	**0.627**	0.365 U
	Benzo(b)fluoranthene	40	3,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	**0.385**	0.365 U
	Benzo(k)fluoranthene	400	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	Benzo(a)pyrene	7	300	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	**0.39**	0.365 U
	Indeno(1,2,3-cd)pyrene	40	3,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	Dibenz(a,h)anthracene	4.0	300	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	0.344 U	0.365 U
	Benzo(g,h,i)perylene	3,000	10,000	0.406 U	0.452 U	3.99 U	8.16 U	0.413 U	0.35 U	0.472 U	0.414 U	12.2 U	0.411 U	0.367 U	0.379 U	8.08 U	13.1 U	2.3 U	0.434 U	0.348 U	0.407 U	**0.396**	0.365 U
Herbicides																							
(mg/kg)	2,4-D	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4-DB	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-TP (Silvex)	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	2,4,5-T	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dalapon	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dicamba	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dichloroprop	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Dinoseb	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPA	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	MCPP	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																							
(mg/kg)	Antimony	30	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	20	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	200	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	100	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	200	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	600	6,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	30	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	1000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	700	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	200	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	60	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	700	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	3,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B105	B/MW 201			B/MW 202		B/MW 203		B/MW 204		B/MW 205	
			Sample Depth (ft.):	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	0-1	14-17	6-8	10-12	10-12	5-7	9-11	5-7	9-11	6-8	8-10	6-8	10-12
			Sample Date:	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	6/25/2015	4/12/2016	5/12/2016	5/12/2016	5/10/2016	5/11/2016	5/11/2016	5/11/2016	5/12/2016	5/10/2016	5/10/2016	5/12/2016	5/12/2016
		S-2/GW-3	UCLs														Field Dup								
Metals, SPLP																									
(mg/L)	Antimony	N/A	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	NA	NA	NA	NA
	Arsenic	5*	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0050 U	**0.005**	0.0050 U	**0.009**	0.0050 U	NA	NA	NA	NA
	Barium	100	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 U	**0.014**	0.010 U	**0.013**	**0.013**	NA	NA	NA	NA
	Beryllium	N/A	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	NA	NA	NA
	Cadmium	1*	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	NA	NA	NA	NA
	Chromium	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA
	Lead	5*	6,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA
	Mercury	0.2*	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	NA	NA	NA	NA
	Nickel	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.025 U	0.025 U	0.025 U	0.025 U	0.025 U	NA	NA	NA	NA
	Selenium	1*	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA
	Silver	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.007 U	0.007 U	0.007 U	0.007 U	0.007 U	NA	NA	NA	NA
	Thallium	N/A	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	NA	NA	NA	NA
	Vanadium	N/A	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	NA	NA	NA	NA
	Zinc	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	NA	NA	NA	NA
General Chemistry																									
(umhos/cm)	Specific conductance	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(s.u.)	pH	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Calculated Total Petroleum Hydrocarbons	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**22,795**	**123**	**6,267**	**8,548**	**39.7**	ND	**77.9**	**32.0**	**108**	ND	**8.44**	**10.1**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm) unless otherwise noted.

mg/L - milligrams per liter.

s.u. - Standard unit.

umhos/cm - Micro-mhos per centimeter.

NA - Sample not analyzed for the listed analyte.

N/A - Not applicable.

NS - No MassDEP standards exist for this analyte.

U - Analyte was not detected at specified quantitation limit.

Values in **bold** indicate the analyte was detected.

Values shown in bold and shaded type exceed one or more of the listed MassDEP

EPH - Extractable Petroleum Hydrocarbons.

VPH - Volatile Petroleum Hydrocarbons

SPLP - Synthetic Precipitation Leaching Procedure.

UCLs - Upper concentration limits.

* - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

^ - Sample reported on a wet weight basis.

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	B-308	B-310	B-314	B-315	B-317		COMP-123	COMP-467	COMP-8910	COMP-123-Fill	COMP-123-Native	COMP-467-Fill	COMP-467-Native	COMP-8910-Native	COMP-910-Fill	TP-1		
			Sample Depth (ft.):	12.0	12.5	12.5	12.5	11.5	13.0	0-1	0-1	0-1	N/A	N/A	N/A	N/A	N/A	N/A	5-7	5-7	7-9
			Sample Date:	10/12/2016	10/12/2016	10/12/2016	10/12/2016	10/12/2016	10/12/2016	6/10/2015	6/10/2015	6/10/2015	6/26/2015	6/26/2015	6/26/2015	6/26/2015	6/26/2015	6/26/2015	12/22/2015	12/22/2015	12/22/2015
		S-2/GW-3	UCLs																	Field Dup	
Metals, SPLP																					
(mg/L)	Antimony	N/A	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	5*	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	100	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	N/A	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	1*	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	5*	6,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	0.2*	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	1*	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	N/A	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	N/A	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																					
(umhos/cm)	Specific conductance	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**160**	NA	**140**	**160**	NA	NA	NA	NA
(s.u.)	pH	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**7.9**	**8.0**	**7.5**
			Calculated Total Petroleum Hydrocarbons	ND	**240**	ND	ND	ND	**16,153**												

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm) unless otherwise noted.

mg/L - milligrams per liter.

s.u. - Standard unit.

umhos/cm - Micro-mhos per centimeter.

NA - Sample not analyzed for the listed analyte.

N/A - Not applicable.

NS - No MassDEP standards exist for this analyte.

U - Analyte was not detected at specified quantitation limit.

Values in **bold** indicate the analyte was detected.

Values shown in bold and shaded type exceed one or more of the listed MassDEP

EPH - Extractable Petroleum Hydrocarbons.

VPH - Volatile Petroleum Hydrocarbons

SPLP - Synthetic Precipitation Leaching Procedure.

UCLs - Upper concentration limits.

* - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristi

^ - Sample reported on a wet weight basis.

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	TP-2		TP-3		B-400		B-401		B-402			B-403		B-404		B-405		B-406	B-407		B-408	
			Sample Depth (ft.):	5-7	7-9	5-7^	7-9	11.4	12.4	11.5	12.2	11.6	12.2	12.8	10	12	11.4	16.5	11.5	12.5	21	12.8	17.5	11	15
			Sample Date:	12/21/2015	12/21/2015	12/21/2015	12/21/2015	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/15/2016	12/15/2016	12/13/2016	12/13/2016
		S-2/GW-3	UCLs																						
Metals, SPLP																									
(mg/L)	Antimony	N/A	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	5*	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	100	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	N/A	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	1*	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	5*	6,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	0.2*	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	1*	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	N/A	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	N/A	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																									
(umhos/cm)	Specific conductance	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(s.u.)	pH	N/A	N/A	**5.8**	**6.2**	**7.0**	**6.3**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calculated Total Petroleum Hydrocarbons								**11.0**	**15.0**	ND	ND	ND	**1,822**	**9.61**	ND	ND	**1,151**	ND	**59.0**	ND	ND	**15,686**	ND	**40.2**	ND

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm) unless otherwise noted.
mg/L - milligrams per liter.
s.u. - Standard unit.
umhos/cm - Micro-mhos per centimeter.
NA - Sample not analyzed for the listed analyte.
N/A - Not applicable.
NS - No MassDEP standards exist for this analyte.
U - Analyte was not detected at specified quantitation limit.
Values in **bold** indicate the analyte was detected.
Values shown in bold and shaded type exceed one or more of the listed MassDEP
EPH - Extractable Petroleum Hydrocarbons.
VPH - Volatile Petroleum Hydrocarbons
SPLP - Synthetic Precipitation Leaching Procedure.
UCLs - Upper concentration limits.
* - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristi
^ - Sample reported on a wet weight basis.

Table 3
Soil Analytical Results
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Analyte		Sample ID:	B-409		B-410			B-411		B-412	B-413		B-414		B-415				B-416		B-417	
			Sample Depth (ft.):	10	11.5	11	12.5	14	11.5	16	19	11	23	11	15.5	11.8	12.2	13.4	13.4	11	15	11	15
			Sample Date:	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/13/2016	12/13/2016	12/14/2016	12/14/2016	12/14/2016	12/14/2016	12/13/2016	12/13/2016	12/13/2016	12/13/2016
		S-2/GW-3	UCLs																Field Dup				
Metals, SPLP																							
(mg/L)	Antimony	N/A	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	5*	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	100	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	N/A	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	1*	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	5*	6,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	0.2*	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	1*	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	5*	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	N/A	800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	N/A	7,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	N/A	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
General Chemistry																							
(umhos/cm)	Specific conductance	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
(s.u.)	pH	N/A	N/A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calculated Total Petroleum Hydrocarbons				**37.4**	**10.3**	**11,107**	**16,670**	**72**	**357**	ND	**57.9**	**12,980**	**34.6**	**501**	**539**	**18,710**	**13,890**	**4,690**	**2,090**	**211**	ND	**156**	ND

Notes:

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mg/L - milligrams per liter.

s.u. - Standard unit.

umhos/cm - Micro-mhos per centimeter.

NA - Sample not analyzed for the listed analyte.

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NS - No MassDEP standards exist for this analyte.

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UCLs - Upper concentration limits.

* - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristi

^ - Sample reported on a wet weight basis.

Table 4
Summary of Analytical Results for Groundwater Samples -- 2016 and 2017
Permanent Solution Statement Report
Atlantic Bridge
Weymouth, Massachusetts

Analysis	Analyte		Sample Location:	MW-201							MW-202					MW-203					MW-204				
			Sample ID:	MW-201	DUP-1	MW-201	MW-221	MW-201	MW-201	MW-201	MW-202	MW-202	MW-202	MW-202	MW-202	MW-203	MW-203	MW-203	MW-203	MW-203	MW-204	MW-204	MW-204	MW-204	MW-204
			Sample Date:	8/30/2016	8/30/2016	11/3/2016	11/3/2016	1/6/2017	3/21/2017	6/7/2017	8/29/2016	11/1/2016	1/4/2017	3/20/2017	6/5/2017	8/29/2016	11/1/2016	1/3/2017	3/20/2017	6/5/2017	8/29/2016	11/1/2016	1/4/2017	3/20/2017	6/5/2017
		GW-2	GW-3		Field Dup		Field Dup																		
VPH																									
(ug/L)	C9-C10 Aromatics	4,000	50,000	250 U	250 U	250 U	250 U	250 U	50 U	50 U	250 U	250 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U
	C5-C8 Aliphatics	3,000	50,000	250 U	250 U	250 U	250 U	250 U	50 U	50 U	250 U	250 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U
	C9-C12 Aliphatics	5,000	50,000	250 U	250 U	250 U	250 U	250 U	50 U	50 U	250 U	250 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U
	Benzene	1,000	10,000	10 U	10 U	10 U	10 U	10 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U
	Toluene	50,000	40,000	10 U	10 U	10 U	10 U	10 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U
	Ethylbenzene	20,000	5,000	10 U	10 U	10 U	10 U	10 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U
	p/m-Xylene	NS	NS	10 U	10 U	10 U	10 U	10 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U
	o-Xylene	NS	NS	10 U	10 U	10 U	10 U	10 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U
	Xylenes (total)	3,000	5,000	10 U	10 U	10 U	10 U	10 U	2.0 U	2.0 U	10 U	10 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U
	Methyl tert butyl ether	50,000	50,000	15 U	15 U	15 U	15 U	15 U	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U
	Naphthalene	700	20,000	20 U	20 U	20 U	20 U	20 U	4.0 U	4.0 U	20 U	20 U	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U
EPH																									
(ug/L)	C9-C18 Aliphatics	5,000	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C19-C36 Aliphatics	NS	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C11-C22 Aromatics	50,000	5,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	Naphthalene	700	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-Methylnaphthalene	2,000	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthylene	10,000	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluorene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Phenanthrene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Anthracene	NS	30	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluoranthene	NS	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Pyrene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)anthracene	NS	1,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Chrysene	NS	70	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(b)fluoranthene	NS	400	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(k)fluoranthene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)pyrene	NS	500	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Indeno(1,2,3-cd)Pyrene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Dibenzo(a,h)anthracene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(ghi)perylene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Metals, dissolved																									
(ug/L)	Antimony	NS	8,000	50 U	50 U	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	50 U	NA	NA	NA	NA	50 U	NA	NA	NA	NA
	Arsenic	NS	900	5.0 U	5.0 U	NA	NA	NA	NA	NA	**7.0**	NA	NA	NA	NA	**7.0**	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
	Barium	NS	50,000	**71**	**71**	NA	NA	NA	NA	NA	**85**	NA	NA	NA	NA	**42**	NA	NA	NA	NA	**47**	NA	NA	NA	NA
	Beryllium	NS	200	5.0 U	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
	Cadmium	NS	4	4.0 U	4.0 U	NA	NA	NA	NA	NA	4.0 U	NA	NA	NA	NA	4.0 U	NA	NA	NA	NA	4.0 U	NA	NA	NA	NA
	Chromium	NS	300	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Lead	NS	10	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Mercury	NS	20	0.20 U	**0.20**	NA	NA	NA	NA	NA	0.20 U	NA	NA	NA	NA	0.20 U	NA	NA	NA	NA	0.20 U	NA	NA	NA	NA
	Nickel	NS	200	25 U	25 U	NA	NA	NA	NA	NA	25 U	NA	NA	NA	NA	25 U	NA	NA	NA	NA	25 U	NA	NA	NA	NA
	Selenium	NS	100	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Silver	NS	7	7.0 U	7.0 U	NA	NA	NA	NA	NA	7.0 U	NA	NA	NA	NA	7.0 U	NA	NA	NA	NA	7.0 U	NA	NA	NA	NA
	Thallium	NS	3,000	20 U	20 U	NA	NA	NA	NA	NA	20 U	NA	NA	NA	NA	20 U	NA	NA	NA	NA	20 U	NA	NA	NA	NA
	Vanadium	NS	4,000	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Zinc	NS	900	**71**	**383**	NA	NA	NA	NA	NA	**60**	NA	NA	NA	NA	**553**	NA	NA	NA	NA	**608**	NA	NA	NA	NA
Metals, total																									
(ug/L)	Antimony	NS	8,000	50 U	50 U	NA	NA	NA	NA	NA	50 U	NA	NA	NA	NA	50 U	NA	NA	NA	NA	50 U	NA	NA	NA	NA
	Arsenic	NS	900	**6.0**	5.0 U	NA	NA	NA	NA	NA	**6.0**	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	**5.0**	NA	NA	NA	NA
	Barium	NS	50,000	**74**	**73**	NA	NA	NA	NA	NA	**88**	NA	NA	NA	NA	**42**	NA	NA	NA	NA	**45**	NA	NA	NA	NA
	Beryllium	NS	200	5.0 U	5.0 U	NA	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA	5.0 U	NA	NA	NA	NA
	Cadmium	NS	4	4.0 U	4.0 U	NA	NA	NA	NA	NA	4.0 U	NA	NA	NA	NA	4.0 U	NA	NA	NA	NA	4.0 U	NA	NA	NA	NA
	Chromium	NS	300	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Lead	NS	10	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Mercury	NS	20	0.20 U	0.20 U	NA	NA	NA	NA	NA	0.20 U	NA	NA	NA	NA	0.20 U	NA	NA	NA	NA	0.20 U	NA	NA	NA	NA
	Nickel	NS	200	25 U	25 U	NA	NA	NA	NA	NA	25 U	NA	NA	NA	NA	25 U	NA	NA	NA	NA	25 U	NA	NA	NA	NA
	Selenium	NS	100	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Silver	NS	7	7.0 U	7.0 U	NA	NA	NA	NA	NA	7.0 U	NA	NA	NA	NA	7.0 U	NA	NA	NA	NA	7.0 U	NA	NA	NA	NA
	Thallium	NS	3,000	20 U	20 U	NA	NA	NA	NA	NA	20 U	NA	NA	NA	NA	20 U	NA	NA	NA	NA	20 U	NA	NA	NA	NA
	Vanadium	NS	4,000	10 U	10 U	NA	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA	10 U	NA	NA	NA	NA
	Zinc	NS	900	**333**	**591**	NA	NA	NA	NA	NA	**577**	NA	NA	NA	NA	**50**	NA	NA	NA	NA	**58**	NA	NA	NA	NA

Notes:
ug/L - micrograms per liter.
NA - Sample not analyzed for the listed analyte.
NS - No MassDEP standards exist for this analyte.
U - Analyte was not detected at specified quantitation limit.
Values in **bold** indicate the analyte was detected.
VPH - Volatile Petroleum Hydrocarbons.
EPH - Extractable Petroleum Hydrocarbons.

Table 4
Summary of Analytical Results for Groundwater Samples -- 2016 and 2017
Permanent Solution Statement Report
Atlantic Bridge
Weymouth, Massachusetts

Analysis	Analyte		Sample Location:	MW-205						MW-206				MW-400			MW-401			MW-402			MW-403		
			Sample ID:	MW-205	MW-205	MW-205	MW-205	MW-205	DUP-1	MW-206	MW-206	MW-206	MW-206	MW-400	MW-400	MW-400	MW-401	MW-401	MW-401	MW-402	MW-402	MW-402	MW-403	MW-403	MW-403
			Sample Date:	8/30/2016	11/1/2016	1/3/2017	3/20/2017	6/5/2017	6/5/2017	11/1/2016	1/4/2017	3/22/2017	6/6/2017	1/3/2017	3/20/2017	6/5/2017	1/3/2017	3/20/2017	6/5/2017	1/5/2017	3/20/2017	6/5/2017	1/4/2017	3/22/2017	6/5/2017
		GW-2	GW-3						Field Dup																
VPH																									
(ug/L)	C9-C10 Aromatics	4,000	50,000	250 U	50 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U	50 U
	C5-C8 Aliphatics	3,000	50,000	250 U	50 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U	50 U
	C9-C12 Aliphatics	5,000	50,000	250 U	50 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U	50 U	50 U	50 U	50 U	50 U
	Benzene	1,000	10,000	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Toluene	50,000	40,000	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Ethylbenzene	20,000	5,000	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	p/m-Xylene	NS	NS	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	o-Xylene	NS	NS	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Xylenes (total)	3,000	5,000	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Methyl tert butyl ether	50,000	50,000	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
	Naphthalene	700	20,000	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
EPH																									
(ug/L)	C9-C18 Aliphatics	5,000	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C19-C36 Aliphatics	NS	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C11-C22 Aromatics	50,000	5,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	Naphthalene	700	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-Methylnaphthalene	2,000	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthylene	10,000	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluorene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Phenanthrene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Anthracene	NS	30	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluoranthene	NS	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Pyrene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)anthracene	NS	1,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Chrysene	NS	70	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(b)fluoranthene	NS	400	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(k)fluoranthene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)pyrene	NS	500	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Indeno(1,2,3-cd)Pyrene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Dibenzo(a,h)anthracene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(ghi)perylene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Metals, dissolved																									
(ug/L)	Antimony	NS	8,000	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	**7.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	**106**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	4.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	7.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	**596**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																									
(ug/L)	Antimony	NS	8,000	50 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	**7.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	**104**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	5.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	4.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	25 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	7.0 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	**53**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

ug/L - micrograms per liter.
NA - Sample not analyzed for the listed analyte.
NS - No MassDEP standards exist for this analyte.
U - Analyte was not detected at specified quantitation limit.
Values in **bold** indicate the analyte was detected.
VPH - Volatile Petroleum Hydrocarbons.
EPH - Extractable Petroleum Hydrocarbons.

Table 4
Summary of Analytical Results for Groundwater Samples -- 2016 and 2017
Permanent Solution Statement Report
Atlantic Bridge
Weymouth, Massachusetts

Analysis	Analyte		Sample Location:	MW-404			MW-405			MW-406						MW-407			MW-408		
			Sample ID:	MW-404	MW-404	MW-404	MW-405	MW-405	MW-405	MW-406	DUP-2	MW-406	DUP-1	MW-406	DUP-2	MW-407	MW-407	MW-407	MW-408	MW-408	MW-408
			Sample Date:	1/5/2017	3/23/2017	6/6/2017	1/4/2017	3/23/2017	6/6/2017	1/5/2017	1/5/2017	3/21/2017	3/21/2017	6/7/2017	6/7/2017	1/5/2017	3/21/2017	6/7/2017	1/5/2017	3/21/2017	6/6/2017
		GW-2	GW-3								Field Dup		Field Dup		Field Dup						
VPH																					
(ug/L)	C9-C10 Aromatics	4,000	50,000	100 U	50 U	50 U	50 U	50 U	50 U	250 U	250 U	50 U	50 U	50 U	50 U	250 U	50 U	**68.3**	250 U	50 U	50 U
	C5-C8 Aliphatics	3,000	50,000	100 U	50 U	50 U	50 U	50 U	50 U	250 U	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	250 U	50 U	50 U
	C9-C12 Aliphatics	5,000	50,000	100 U	50 U	50 U	50 U	50 U	50 U	250 U	250 U	50 U	50 U	50 U	50 U	250 U	50 U	50 U	250 U	50 U	50 U
	Benzene	1,000	10,000	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Toluene	50,000	40,000	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Ethylbenzene	20,000	5,000	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	**3.22**	**3.11**	2.0 U	2.0 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	p/m-Xylene	NS	NS	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	o-Xylene	NS	NS	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Xylenes (total)	3,000	5,000	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Methyl tert butyl ether	50,000	50,000	6.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U
	Naphthalene	700	20,000	8.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	20 U	**6.66**	**6.72**	4.0 U	4.0 U	20 U	4.0 U	**7.57**	20 U	4.0 U	4.0 U
EPH																					
(ug/L)	C9-C18 Aliphatics	5,000	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C19-C36 Aliphatics	NS	50,000	100 U	**223**	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C11-C22 Aromatics	50,000	5,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	**102**	100 U	100 U	100 U	100 U	100 U	**178**	100 U	100 U	100 U
	Naphthalene	700	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-Methylnaphthalene	2,000	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthylene	10,000	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluorene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Phenanthrene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Anthracene	NS	30	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluoranthene	NS	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Pyrene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)anthracene	NS	1,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Chrysene	NS	70	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(b)fluoranthene	NS	400	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(k)fluoranthene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)pyrene	NS	500	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Indeno(1,2,3-cd)Pyrene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Dibenzo(a,h)anthracene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(ghi)perylene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Metals, dissolved																					
(ug/L)	Antimony	NS	8,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																					
(ug/L)	Antimony	NS	8,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

ug/L - micrograms per liter.

NA - Sample not analyzed for the listed analyte.

NS - No MassDEP standards exist for this analyte.

U - Analyte was not detected at specified quantitation limit.

Values in **bold** indicate the analyte was detected.

VPH - Volatile Petroleum Hydrocarbons.

EPH - Extractable Petroleum Hydrocarbons.

Table 4
Summary of Analytical Results for Groundwater Samples -- 2016 and 2017
Permanent Solution Statement Report
Atlantic Bridge
Weymouth, Massachusetts

Analysis	Analyte		Sample Location:	MW-409			MW-410			MW-411			MW-412				MW-413		
			Sample ID:	MW-409	MW-409	MW-409	MW-410	MW-410	MW-410	MW-411	MW-411	MW-411	MW-412	DUP-1	MW-412	MW-412	MW-413	MW-413	MW-413
			Sample Date:	1/4/2017	3/22/2017	6/6/2017	1/6/2017	3/21/2017	6/7/2017	1/4/2017	3/22/2017	6/7/2017	1/5/2017	1/5/2017 Field Dup	3/22/2017	6/6/2017	1/5/2017	3/22/2017	6/6/2017
		GW-2	GW-3																
VPH																			
(ug/L)	C9-C10 Aromatics	4,000	50,000	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	250 U	250 U	50 U	50 U	250 U	50 U	50 U
	C5-C8 Aliphatics	3,000	50,000	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	250 U	250 U	50 U	50 U	250 U	50 U	50 U
	C9-C12 Aliphatics	5,000	50,000	50 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	250 U	250 U	50 U	50 U	250 U	50 U	50 U
	Benzene	1,000	10,000	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Toluene	50,000	40,000	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Ethylbenzene	20,000	5,000	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	p/m-Xylene	NS	NS	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	o-Xylene	NS	NS	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Xylenes (total)	3,000	5,000	2.0 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10 U	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U
	Methyl tert butyl ether	50,000	50,000	3.0 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	15 U	15 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U
	Naphthalene	700	20,000	4.0 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	20 U	20 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U
EPH																			
(ug/L)	C9-C18 Aliphatics	5,000	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C19-C36 Aliphatics	NS	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C11-C22 Aromatics	50,000	5,000	100 U	100 U	100 U	100 U	**125**	100 U	100 U	100 U	100 U	**102**	100 U	100 U	100 U	100 U	100 U	100 U
	Naphthalene	700	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	2-Methylnaphthalene	2,000	20,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthylene	10,000	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Acenaphthene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluorene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Phenanthrene	NS	10,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Anthracene	NS	30	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Fluoranthene	NS	200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Pyrene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)anthracene	NS	1,000	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Chrysene	NS	70	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(b)fluoranthene	NS	400	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(k)fluoranthene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(a)pyrene	NS	500	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Indeno(1,2,3-cd)Pyrene	NS	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Dibenzo(a,h)anthracene	NS	40	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
	Benzo(ghi)perylene	NS	20	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Metals, dissolved																			
(ug/L)	Antimony	NS	8,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																			
(ug/L)	Antimony	NS	8,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

ug/L - micrograms per liter.
NA - Sample not analyzed for the listed analyte.
NS - No MassDEP standards exist for this analyte.
U - Analyte was not detected at specified quantitation limit.
Values in **bold** indicate the analyte was detected.
VPH - Volatile Petroleum Hydrocarbons.
EPH - Extractable Petroleum Hydrocarbons.

Table 4
Summary of Analytical Results for Groundwater Samples -- 2016 and 2017
Permanent Solution Statement Report
Atlantic Bridge
Weymouth, Massachusetts

Analysis	Analyte		Sample Location:	MW-414			MW-415			MW-416			MW-417			
			Sample ID:	MW-414	MW-414	MW-414	MW-415	MW-415	MW-415	MW-416	MW-416	MW-416	MW-417	MW-417	DUP-2	MW-417
			Sample Date:	1/6/2017	3/21/2017	6/7/2017	1/5/2017	3/23/2017	6/6/2017	1/3/2017	3/23/2017	6/7/2017	1/3/2017	3/23/2017	3/23/2017	6/7/2017
		GW-2	GW-3												Field Dup	
VPH																
(ug/L)	C9-C10 Aromatics	4,000	50,000	250 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
	C5-C8 Aliphatics	3,000	50,000	250 U	50 U	50 U	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
	C9-C12 Aliphatics	5,000	50,000	250 U	50 U	**58.3**	250 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
	Benzene	1,000	10,000	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Toluene	50,000	40,000	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Ethylbenzene	20,000	5,000	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	p/m-Xylene	NS	NS	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	o-Xylene	NS	NS	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Xylenes (total)	3,000	5,000	10 U	2.0 U	2.0 U	10 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	Methyl tert butyl ether	50,000	50,000	15 U	3.0 U	3.0 U	15 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
	Naphthalene	700	20,000	20 U	4.0 U	4.0 U	20 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
EPH																
(ug/L)	C9-C18 Aliphatics	5,000	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C19-C36 Aliphatics	NS	50,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	C11-C22 Aromatics	50,000	5,000	**188**	**105**	**131**	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
	Naphthalene	700	20,000	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	2-Methylnaphthalene	2,000	20,000	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Acenaphthylene	10,000	40	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Acenaphthene	NS	10,000	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Fluorene	NS	40	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Phenanthrene	NS	10,000	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Anthracene	NS	30	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Fluoranthene	NS	200	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Pyrene	NS	20	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Benzo(a)anthracene	NS	1,000	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Chrysene	NS	70	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Benzo(b)fluoranthene	NS	400	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Benzo(k)fluoranthene	NS	100	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Benzo(a)pyrene	NS	500	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Indeno(1,2,3-cd)Pyrene	NS	100	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Dibenzo(a,h)anthracene	NS	40	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
	Benzo(ghi)perylene	NS	20	10 U	10.6 U	10.6 U	10 U	10 U	10 U	10 U	10 U	10 U	10.9 U	10 U	10 U	10 U
Metals, dissolved																
(ug/L)	Antimony	NS	8,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals, total																
(ug/L)	Antimony	NS	8,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Arsenic	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Barium	NS	50,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Beryllium	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Cadmium	NS	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Chromium	NS	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Lead	NS	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Mercury	NS	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Nickel	NS	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Selenium	NS	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Silver	NS	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Thallium	NS	3,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Vanadium	NS	4,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Zinc	NS	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

ug/L - micrograms per liter.

NA - Sample not analyzed for the listed analyte.

NS - No MassDEP standards exist for this analyte.

U - Analyte was not detected at specified quantitation limit.

Values in **bold** indicate the analyte was detected.

VPH - Volatile Petroleum Hydrocarbons.

EPH - Extractable Petroleum Hydrocarbons.

Table 5
Analytical Results for LNAPL with Micro-Scale Mobility
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Analysis	Sample ID:	B-404	B-406		B-407	B-411	B-412		B-413	B-414
	Sample Depth (ft.):	12	11.8	12.5	11.8	14	11.5	13	14-15	14
	Sample Date:	12/14/2016	12/14/2016	12/14/2016	12/15/2016	12/12/2016	12/12/2016	12/12/2016	12/12/2016	12/13/2016
	Analyte									
VPH										
(mg/kg)	C9-C10 Aromatics	NA	NA	**44.2**	NA	NA	NA	NA	NA	NA
	C5-C8 Aliphatics	NA	NA	**63**	NA	NA	NA	NA	NA	NA
	C9-C12 Aliphatics	NA	NA	**375**	NA	NA	NA	NA	NA	NA
	Benzene	NA	NA	0.43 U	NA	NA	NA	NA	NA	NA
	Toluene	NA	NA	0.43 U	NA	NA	NA	NA	NA	NA
	Ethylbenzene	NA	NA	**3.89**	NA	NA	NA	NA	NA	NA
	p/m-xylene	NA	NA	0.43 U	NA	NA	NA	NA	NA	NA
	o-xylene	NA	NA	0.43 U	NA	NA	NA	NA	NA	NA
	Xylenes (total)	NA	NA	0.43 U	NA	NA	NA	NA	NA	NA
	Methyl tert butyl ether (MTBE)	NA	NA	0.215 U	NA	NA	NA	NA	NA	NA
	Naphthalene	NA	NA	**17.3**	NA	NA	NA	NA	NA	NA
EPH										
(mg/kg)	C9-C18 Aliphatics	**12,700**	**5,360**	**11,200**	**12,300**	**13,600**	**2,490**	**11,000**	**11,200**	**8,220**
	C19-C36 Aliphatics	**22,000**	**12,000**	**16,800**	**21,200**	**17,700**	**12,300**	**26,000**	**26,300**	**13,200**
	C11-C22 Aromatics	**27,800**	**13,400**	**20,000**	**19,800**	**19,000**	**20,400**	**26,200**	**28,200**	**14,100**
	Naphthalene	24.8 U	10.2 U	**19.6**	**14.5**	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	2-Methylnaphthalene	24.8 U	10.2 U	**73.4**	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Acenaphthylene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Acenaphthene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Fluorene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Phenanthrene	24.8 U	10.2 U	**28.4**	**21.5**	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Anthracene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Fluoranthene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Pyrene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Benzo(a)anthracene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Chrysene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Benzo(b)fluoranthene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Benzo(k)fluoranthene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Benzo(a)pyrene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Indeno(1,2,3-cd)pyrene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Dibenz(a,h)anthracene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
	Benzo(g,h,i)perylene	24.8 U	10.2 U	14.5 U	10.5 U	26.8 U	11 U	32.8 U	30.3 U	21.8 U
Total Petroleum Hydrocarbons										
(mg/kg)	TPH (Calculated)	**62,500**	**30,760**	**48,625**	**53,336**	**50,300**	**35,190**	**63,200**	**65,700**	**35,520**

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Sample not analyzed for the listed analyte.

U - Analyte was not detected at specified quantitation limit.

Values in **bold** indicate the analyte was detected.

EPH - Extractable Petroleum Hydrocarbons.

VPH - Volatile Petroleum Hydrocarbons

Table 6
In-Situ Horizontal Hydraulic Conductivity Estimates
Permanent Solution with Conditions Statement
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Monitoring Well Construction Data						Low Flow Sampling Data - January 3-6, 2017				Calculations					
Monitoring Well Identification	Estimated Borehole Diameter (inch)	Well Inside Diameter (inch)	Well Inside Diameter (inch)	Depth Top of Well Screen (ft -bgs)	Depth Base of Well Screen (ft -bgs)	Pre-Pumping DTW (ft -bgs)	Steady-State Pumping DTW (ft -bgs)	Steady-State Drawdown (ft)	Steady-State Pumping Rate (mls/min)	Intake Screen Length, L (cm)	Hole Intake Diameter, D (cm)	Steady State Pumping Rate, Q (L/min)	Calculated Drawdown, H (cm)	Estimated Kh (cm/s)	Estimated Kh (ft/day)
MW-201	9	2	2	5	20	-	-	-	-	-	-	-	-	-	-
MW-202	9	2	2	4	19	12.23	12.26	0.03	360	206.35	22.86	0.36	0.91	1.47E-02	4.18E+01
MW-203	9	2	2	4	19	13.32	13.39	0.07	270	173.13	22.86	0.27	2.13	5.29E-03	1.50E+01
MW-204	9	2	2	5	20	13.28	13.32	0.04	290	204.83	22.86	0.29	1.22	8.89E-03	2.52E+01
MW-205	9	2	2	5	20	15	15.02	0.02	500	152.40	22.86	0.5	0.61	3.70E-02	1.05E+02
MW-206	9	2	2	9	19	14.18	14.2	0.02	350	146.91	22.86	0.35	0.61	2.65E-02	4.52E+01
MW-400	5	2	2	8	23	11.31	11.35	0.04	220	356.31	12.7	0.22	1.22	5.41E-03	1.53E+01
MW-401	5	2	2	7.6	22.6	14.38	14.42	0.04	150	250.55	12.7	0.15	1.22	4.79E-03	1.36E+01
MW-402	5	2	2	8	23	14.99	15.03	0.04	300	244.14	12.7	0.3	1.22	9.75E-03	2.76E+01
MW-403	5	2	2	8	23	13.65	13.67	0.02	270	284.99	12.7	0.27	0.61	1.57E-02	4.44E+01
MW-404	9	4	4	5.4	20.4	12.85	12.88	0.03	375	230.12	22.86	0.375	0.91	1.43E-02	4.05E+01
MW-405	5	2	2	6.5	21.5	14.33	14.35	0.02	375	218.54	12.7	0.375	0.61	2.64E-02	7.49E+01
MW-406	5	2	2	8	23	13.84	13.89	0.05	320	279.20	12.7	0.32	1.52	7.57E-03	2.15E+01
MW-407	5	2	2	8	23	14.57	14.57	-	-	-	-	-	-	-	-
MW-408	5	2	2	8	23	13.36	13.39	0.03	300	293.83	12.7	0.3	0.91	1.14E-02	3.24E+01
MW-409	5	2	2	8	23	13.08	13.18	0.10	270	302.36	12.7	0.27	3.05	3.00E-03	8.51E+00
MW-410	5	2	2	8	23	-	-	-	-	-	-	-	-	-	-
MW-411	5	2	2	8	23	12.86	12.88	0.02	400	309.07	12.7	0.4	0.61	2.19E-02	6.20E+01
MW-412	9	4	4	8	23	13.37	13.42	0.05	200	293.52	22.86	0.2	1.52	3.86E-03	1.09E+01
MW-413	9	4	4	8	23	13.71	13.75	0.04	330	283.16	22.86	0.33	1.22	8.14E-03	2.31E+01
MW-414	9	4	4	8	23	14.65	14.65	-	-	-	-	-	-	-	-
MW-415	5	2	2	8	23	15.35	15.39	0.04	330	233.17	12.7	0.33	1.22	1.11E-02	3.14E+01
MW-416	5	2	2	8	23	11.32	11.37	0.05	240	356.01	12.7	0.24	1.52	4.74E-03	1.34E+01
MW-417	5	2	2	8	23	11.07	11.07	-	-	-	-	-	-	-	-
													Min	3.00E-03	8.51E+00
													Max	3.70E-02	1.05E+02
													Geomean	9.97E-03	2.75E+01

Abbreviations:

amsl - above mean sea level (vertical datum is North American Vertical Datum of 1988)
cm - centimeters
DTW - Depth to Water
ft-bgs - feet below ground surface
Kh - hydraulic conductivity in the horizontal direction.
L - liters
mls - milliliters

Notes:

1) Kh calculated using the Hvorslev (1951) method.

Table 7
Well Gauging Data Through October 6, 2017
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street
Weymouth, Massachusetts

Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-201	8/29/2016	945	9.6	15.70	NM[2]	-	13.9	2.78	11.12	-	-	-	
	8/29/2016	1600	0.48	15.70	NM[2]	-	14.8	2.78	12.02	-	-	-	
	9/22/2016	755	4.0	15.70	NM[2]	-	13.8	2.78	11.02	-	-	-	
	9/27/2016	840	9.2	15.70	NM[2]	-	14.1	2.78	11.32	-	-	-	Sock removed, placed in drum, and replaced.
	10/6/2016	930	1.5	15.70	NM[2]	-	13.99	2.78	11.21	-	-	-	Sock removed, placed in drum, and replaced.
	10/13/2016	810	8.5	15.70	NM[2]	-	14.2	2.78	11.42	-	-	-	Sock removed, placed in drum, and replaced.
	10/20/2016	845	0	15.70	NM[2]	-	13.2	2.78	10.42	-	-	-	Sock removed, placed in drum, and replaced.
	10/20/2016	NM	NM	15.70	NM[2]	-	NM	2.78	NM	-	-	-	Sock removed, placed in drum, and replaced.
	10/27/2016	1045	9.5	15.70	NM[2]	-	13.8	2.78	11.02	-	-	-	Sock removed, placed in drum, and not replaced.
	11/1/2016	NM	NM	15.70	NM[2]	-	NM	2.78	NM	-	-	-	
	11/1/2016	NM	NM	15.70	NM[2]	-	NM	2.78	NM	-	-	-	Bailer hung in well to attempt to collect product.
	11/3/2016	924	2.4	15.70	NM[2]	-	13.97	2.78	11.19	-	-	-	DTP measured after bailer removed.
	11/3/2016	1517	9.3	15.70	13.54	-	13.51	2.78	10.73	0.03	+/- 0.01	-	DTP measured after sampling. Sock deployed
	11/10/2016	NM	NM	15.70	NM[2]	-	NM	2.78	NM	-	-	-	Sock removed, placed in drum.[5]
	11/17/2016	1305	10.94	15.70	12.83	-	12.5	2.78	9.72	0.33	+/- 0.01	-	Plunker/water seeking paste.[5]
	12/1/2016	915	6.04	15.70	13.9	-	13.75	2.78	10.97	0.15	+/- 0.01	-	Plunker/water seeking paste.[5]
	1/4/2017	1330	7.62	15.70	13.9	1.80	13.65	2.78	10.87	0.25	+ 0 ft /- 0.1	450	Interface probe/water seeking paste.[4,5]
	1/17/2017	1131	4.31	15.70	14.22	1.48	14.05	2.78	11.27	0.17	+/- 0.03	50	Interface probe/water seeking paste.[5]
	1/23/2017	1115	5.15	15.70	13.53	2.17	13.38	2.78	10.6	0.15	+/- 0.03	-	Interface probe/water seeking paste.[5]
	1/30/2017	1120	9.15	15.70	13.96	1.74	13.84	2.78	11.06	0.12	+/- 0.03	-	Interface probe/water seeking paste.[5]
	2/6/2017	1140	1.2	15.70	13.84	1.86	13.51	2.78	10.73	0.33	+/- 0.01	-	Interface probe/water seeking paste.[5]
	2/14/2017	850	1.35	15.70	13.14	2.56	12.92	2.78	10.14	0.22	+/- 0.01	300	Interface probe/water seeking paste.[5]
	2/20/2017	1100	2.58	15.70	13.71	1.99	13.54	2.78	10.76	0.17	+/- 0.01	-	Interface probe/water seeking paste.[5]
	2/27/2017	1015	9.23	15.70	13.96	1.74	13.91	2.78	11.13	0.05	+/- 0.01	-	Interface probe/water seeking paste.[5]
	3/8/2017	1013	7.02	15.70	13.23	2.47	13.18	2.78	10.4	0.05	+/- 0.01	-	Interface probe/water seeking paste.[5]
	3/13/2017	1115	6.88	15.70	14.09	1.61	14.51	2.78	11.73	0.42	+/- 0.03	-	Interface probe/water seeking paste.[5]
	3/20/2017	1035	2.13	15.70	14.26	1.44	13.84	2.78	11.06	0.42	+/- 0.01	-	Interface probe/water seeking paste.[5]
	4/3/2017	1105	-0.63	15.70	13.16	2.54	12.83	2.78	10.05	0.33	+/- 0.01	-	Interface probe/water seeking paste.[5]
	4/10/2017	940	7.21	15.70	14.12	1.58	13.46	2.78	10.68	0.66	+ 0 /- 0.1	-	Interface probe.[5]
	4/17/2017	1125	1.43	15.70	15.01	0.69	13.77	2.78	10.99	1.24	+ 0 /- 0.1	118	Interface probe.[5] Gauged prior to attempting skimming test.
	4/18/2017	1021	1.54	15.70	13.83	1.87	13.73	2.78	10.95	0.1	+ 0 /- 0.1	-	Interface probe.[5] New sock installed.
	4/25/2017	952	9.49	15.70	13.89	1.81	13.88	2.78	11.1	0.01	+/- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/1/2017	1105	-0.44	15.70	13.25	2.45	13.25	2.78	10.47	0	+/- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/15/2017	1025	1.58	15.70	13.33	2.37	13.33	2.78	10.55	0	+/- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/30/2017	1102	-0.02	15.70	13.1	2.6	12.98	2.78	10.2	0.12	+/- 0.03	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	6/6/2017	1230	7.12	15.70	13.05	2.65	12.97	2.78	10.19	0.08	+/- 0.03	-	Interface probe.[5] Sock removed, well gauged, and no sock installed.
	6/13/2017	1015	1.93	15.70	13.68	2.02	13.64	2.78	10.86	0.04	+/- 0.03	-	Interface probe.[5] Well gauged, and no sock installed.
	6/19/2017	1115	3.85	15.70	13.36	2.34	13.35	2.78	10.57	0.01	+/- 0.01	-	Interface probe/water seeking paste.[5] No sock installed.
	10/6/2017	1031	8.64	15.70	14.41	1.29	13.9	2.78	11.12	0.51	+/- 0.01	-	Interface probe/water seeking paste.[5] No sock installed.
MW-202	8/29/2016	700	4.2	14.50	12.69	1.81	-	2.41	-	-	-	-	
	8/29/2016	1600	0.48	14.50	12.65	1.85	-	2.41	-	-	-	-	
	9/22/2016	722	4.6	14.50	12.4	2.10	-	2.41	-	-	-	-	
	9/27/2016	810	8.8	14.50	12.72	1.78	-	2.41	-	-	-	-	
	10/6/2016	830	2	14.50	12.68	1.82	-	2.41	-	-	-	-	
	10/13/2016	735	8	14.50	12.78	1.72	-	2.41	-	-	-	-	
	10/20/2016	715	2	14.50	12.09	2.41	-	2.41	-	-	-	-	
	10/20/2016	1330	10	14.50	12.35	2.15	-	2.41	-	-	-	-	
	10/27/2016	930	9.3	14.50	12.79	1.71	-	2.41	-	-	-	-	
	11/1/2016	800	1.2	14.50	12.54	1.96	-	2.41	-	-	-	-	
	11/1/2016	1701	4	14.50	12.39	2.11	-	2.41	-	-	-	-	
	11/3/2016	839	1.3	14.50	12.63	1.87	-	2.41	-	-	-	-	
	11/3/2016	1521	9.15	14.50	12.58	1.92	-	2.41	-	-	-	-	
	11/10/2016	1210	1.46	14.50	12.58	1.92	-	2.41	-	-	-	-	
	11/17/2016	1245	11	14.50	12.23	2.27	-	2.41	-	-	-	-	
	12/1/2016	845	5.06	14.50	12.49	2.01	-	2.41	-	-	-	-	
	1/3/2017	1210	6.84	14.50	12.83	1.67	-	2.41	-	-	-	-	
	1/17/2017	812	0.49	14.50	12.72	1.78	-	2.41	-	-	-	-	
	1/23/2017	803	9.17	14.50	12.84	1.66	-	2.41	-	-	-	-	
	1/30/2017	745	1.13	14.50	12.47	2.03	-	2.41	-	-	-	-	
	2/6/2017	732	10.28	14.50	12.72	1.78	-	2.41	-	-	-	-	
	2/14/2017	745	0.05	14.50	11.91	2.59	-	2.41	-	-	-	-	
	2/20/2017	740	7.96	14.50	12.47	2.03	-	2.41	-	-	-	-	
	2/27/2017	725	0.86	14.50	12.51	1.99	-	2.41	-	-	-	-	
	3/8/2017	738	10.54	14.50	12.78	1.72	-	2.41	-	-	-	-	
	3/13/2017	838	1.15	14.50	12.81	1.69	-	2.41	-	-	-	-	
	3/20/2017	802	6.42	14.50	12.64	1.86	-	2.41	-	-	-	-	
	4/3/2017	745	6.82	14.50	11.71	2.79	-	2.41	-	-	-	-	
	4/10/2017	736	2.32	14.50	12.22	2.28	-	2.41	-	-	-	-	
	4/18/2017	816	4.86	14.50	12.60	1.9	-	2.41	-	-	-	-	
	4/25/2017	819	5.7	14.50	12.59	1.91	-	2.41	-	-	-	-	
	5/1/2017	844	0.63	14.50	12.08	2.42	-	2.41	-	-	-	-	
	5/15/2017	728	2.38	14.50	12.12	2.38	-	2.41	-	-	-	-	
	5/30/2017	723	3.57	14.50	11.83	2.67	-	2.41	-	-	-	-	
	6/5/2017	840	8.9	14.50	12.62	1.88	-	2.41	-	-	-	-	
	6/13/2017	727	1.53	14.50	12.44	2.06	-	2.41	-	-	-	-	
	6/19/2017	806	10.55	14.50	12.67	1.83	-	2.41	-	-	-	-	
	10/6/2017	729	1.18	14.50	12.61	1.89	-	2.41	-	-	-	-	

Table 7
Well Gauging Data Through October 6, 2017
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Enbridge
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Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-203	8/29/2016	945	9.6	14.88	13.26	1.62	-	2.86	-	-	-	-	
	8/29/2016	1600	0.48	14.88	13.05	1.83	-	2.86	-	-	-	-	
	9/22/2016	735	4.4	14.88	12.51	2.37	-	2.86	-	-	-	-	
	9/27/2016	820	8.9	14.88	13.32	1.56	-	2.86	-	-	-	-	
	10/6/2016	848	1.9	14.88	13.14	1.74	-	2.86	-	-	-	-	
	10/13/2016	740	8.1	14.88	13.40	1.48	-	2.86	-	-	-	-	
	10/20/2016	720	1.8	14.88	12.25	2.63	-	2.86	-	-	-	-	
	10/20/2016	1332	10	14.88	12.87	2.01	-	2.86	-	-	-	-	
	10/27/2016	932	9.3	14.88	13.39	1.49	-	2.86	-	-	-	-	
	11/1/2016	803	1.2	14.88	12.98	1.9	-	2.86	-	-	-	-	
	11/1/2016	1658	4	14.88	12.56	2.32	-	2.86	-	-	-	-	
	11/3/2016	841	1.4	14.88	13.08	1.8	-	2.86	-	-	-	-	
	11/3/2016	1522	9.15	14.88	12.87	2.01	-	2.86	-	-	-	-	
	11/10/2016	1212	1.42	14.88	12.86	2.02	-	2.86	-	-	-	-	
	11/17/2016	1246	11	14.88	12.51	2.37	-	2.86	-	-	-	-	
	12/1/2016	847	5.07	14.88	13.01	1.87	-	2.86	-	-	-	-	
	1/3/2017	1220	7.19	14.88	13.44	1.44	-	2.86	-	-	-	-	
	1/17/2017	816	0.45	14.88	13.14	1.74	-	2.86	-	-	-	-	
	1/23/2017	806	9.16	14.88	13.27	1.61	-	2.86	-	-	-	-	
	1/30/2017	747	1.19	14.88	12.91	1.97	-	2.86	-	-	-	-	
	2/6/2017	733	10.28	14.88	13.14	1.74	-	2.86	-	-	-	-	
	2/14/2017	750	0.12	14.88	12.11	2.77	-	2.86	-	-	-	-	
	2/20/2017	742	7.91	14.88	12.94	1.94	-	2.86	-	-	-	-	
	2/27/2017	726	0.9	14.88	13.01	1.87	-	2.86	-	-	-	-	
	3/8/2017	739	10.54	14.88	13.21	1.67	-	2.86	-	-	-	-	
	3/13/2017	840	1.2	14.88	13.24	1.64	-	2.86	-	-	-	-	
	3/20/2017	804	6.38	14.88	12.92	1.96	-	2.86	-	-	-	-	
	4/3/2017	747	6.74	14.88	11.84	3.04	-	2.86	-	-	-	-	
	4/10/2017	738	2.38	14.88	12.68	2.2	-	2.86	-	-	-	-	
	4/18/2017	818	4.81	14.88	12.83	2.05	-	2.86	-	-	-	-	
	4/25/2017	821	5.78	14.88	13.06	1.82	-	2.86	-	-	-	-	
	5/1/2017	852	0.31	14.88	12.23	2.65	-	2.86	-	-	-	-	
	5/15/2017	729	2.35	14.88	12.22	2.66	-	2.86	-	-	-	-	
	5/30/2017	724	3.52	14.88	11.84	3.04	-	2.86	-	-	-	-	
	6/5/2017	900	9.1	14.88	13.158	1.72	-	2.86	-	-	-	-	
	6/13/2017	729	1.48	14.88	12.68	2.2	-	2.86	-	-	-	-	
	6/19/2017	807	9.44	14.88	13.08	1.8	-	2.86	-	-	-	-	
	10/6/2017	731	1.24	14.88	12.97	1.91	-	2.86	-	-	-	-	
MW-204	8/29/2016	945	9.6	15.55	14.04	1.51	-	2.85	-	-	-	-	
	8/29/2016	1500	0.48	15.55	13.8	1.75	-	2.85	-	-	-	-	
	9/22/2016	740	4.2	15.55	13.32	2.23	-	2.85	-	-	-	-	
	9/27/2016	826	9	15.55	14.17	1.38	-	2.85	-	-	-	-	
	10/6/2016	905	1.8	15.55	14.01	1.54	-	2.85	-	-	-	-	
	10/13/2016	745	8.2	15.55	14.26	1.29	-	2.85	-	-	-	-	
	10/20/2016	728	1.9	15.55	13.08	2.47	-	2.85	-	-	-	-	
	10/20/2016	1337	10.1	15.55	13.82	1.73	-	2.85	-	-	-	-	
	10/27/2016	1938	9.4	15.55	14.18	1.37	-	2.85	-	-	-	-	
	11/1/2016	807	1.2	15.55	13.87	1.68	-	2.85	-	-	-	-	
	11/1/2016	1655	4	15.55	13.33	2.22	-	2.85	-	-	-	-	
	11/3/2016	843	1.4	15.55	13.96	1.59	-	2.85	-	-	-	-	
	11/3/2016	1526	9.18	15.55	13.58	1.97	-	2.85	-	-	-	-	
	11/10/2016	1214	1.39	15.55	13.66	1.89	-	2.85	-	-	-	-	
	11/17/2016	1248	11.01	15.55	13.32	2.23	-	2.85	-	-	-	-	
	12/1/2016	849	5.07	15.55	13.87	1.68	-	2.85	-	-	-	-	
	1/3/2017	1240	7.87	15.55	14.28	1.27	-	2.85	-	-	-	-	
	1/17/2017	819	0.41	15.55	14.04	1.51	-	2.85	-	-	-	-	
	1/23/2017	810	9.13	15.55	14.02	1.53	-	2.85	-	-	-	-	
	1/30/2017	750	1.25	15.55	13.81	1.74	-	2.85	-	-	-	-	
	2/6/2017	737	10.21	15.55	13.92	1.63	-	2.85	-	-	-	-	
	2/14/2017	755	0.16	15.55	12.98	2.57	-	2.85	-	-	-	-	
	2/20/2017	745	7.85	15.55	13.79	1.76	-	2.85	-	-	-	-	
	2/27/2017	728	0.99	15.55	13.96	1.59	-	2.85	-	-	-	-	
	3/8/2017	742	10.53	15.55	14.01	1.54	-	2.85	-	-	-	-	
	3/13/2017	747	0.15	15.55	14.15	1.4	-	2.85	-	-	-	-	
	3/20/2017	807	6.35	15.55	13.65	1.9	-	2.85	-	-	-	-	
	4/3/2017	749	6.65	15.55	12.61	2.94	-	2.85	-	-	-	-	
	4/10/2017	741	2.47	15.55	13.66	1.89	-	2.85	-	-	-	-	
	4/18/2017	821	4.72	15.55	13.67	1.88	-	2.85	-	-	-	-	
	4/25/2017	823	5.87	15.55	13.97	1.58	-	2.85	-	-	-	-	
	5/1/2017	854	0.24	15.55	13.06	2.49	-	2.85	-	-	-	-	
	5/15/2017	730	2.32	15.55	12.99	2.56	-	2.85	-	-	-	-	
	5/30/2017	727	3.37	15.55	12.62	2.93	-	2.85	-	-	-	-	
	6/5/2017	1015	8.89	15.55	13.82	1.73	-	2.85	-	-	-	-	
	6/13/2017	734	1.34	15.55	13.51	2.04	-	2.85	-	-	-	-	
	6/19/2017	809	9.41	15.55	13.85	1.7	-	2.85	-	-	-	-	
	10/6/2016	733	1.31	15.55	13.8	1.75	-	2.85	-	-	-	-	

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Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-205	8/29/2016	945	9.6	16.63	14.88	1.75	-	2.49	-	-	-	-	
	8/29/2016	1600	0.48	16.63	14.72	1.91	-	2.49	-	-	-	-	
	9/22/2016	745	4.1	16.63	14.3	2.33	-	2.49	-	-	-	-	
	9/27/2016	831	9.1	16.63	14.91	1.72	-	2.49	-	-	-	-	
	10/6/2016	915	1.75	16.63	14.83	1.80	-	2.49	-	-	-	-	
	10/13/2016	750	8.3	16.63	15.20	1.43	-	2.49	-	-	-	-	
	10/20/2016	735	1.5	16.63	13.94	2.69	-	2.49	-	-	-	-	
	10/20/2016	1340	10.2	16.63	14.40	2.23	-	2.49	-	-	-	-	
	10/27/2016	942	9.4	16.63	15.04	1.59	-	2.49	-	-	-	-	
	11/1/2016	812	1.2	16.63	14.62	2.01	-	2.49	-	-	-	-	
	11/1/2016	1652	4	16.63	14.37	2.26	-	2.49	-	-	-	-	
	11/3/2016	844	1.5	16.63	14.75	1.88	-	2.49	-	-	-	-	
	11/3/2016	1529	9.03	16.63	14.67	1.96	-	2.49	-	-	-	-	
	11/10/2016	1216	1.36	16.63	15.58	1.05	-	2.49	-	-	-	-	
	11/17/2016	1250	11	16.63	14.17	2.46	-	2.49	-	-	-	-	
	12/1/2016	851	5.2	16.63	14.65	1.98	-	2.49	-	-	-	-	
	1/3/2017	1300	8.52	16.63	15.03	1.60	-	2.49	-	-	-	-	
	1/17/2017	823	0.35	16.63	14.81	1.82	-	2.49	-	-	-	-	
	1/23/2017	814	9.11	16.63	14.97	1.66	-	2.49	-	-	-	-	
	1/30/2017	752	1.35	16.63	14.55	2.08	-	2.49	-	-	-	-	
	2/6/2017	740	10.13	16.63	14.88	1.75	-	2.49	-	-	-	-	
	2/14/2017	758	0.2	16.63	13.76	2.87	-	2.49	-	-	-	-	
	2/20/2017	748	7.79	16.63	14.74	1.89	-	2.49	-	-	-	-	
	2/27/2017	730	1.05	16.63	14.6	2.03	-	2.49	-	-	-	-	
	3/8/2017	744	10.52	16.63	14.89	1.74	-	2.49	-	-	-	-	
	3/13/2017	842	1.25	16.63	14.92	1.71	-	2.49	-	-	-	-	
	3/20/2017	809	6.23	16.63	14.72	1.91	-	2.49	-	-	-	-	
	4/3/2017	751	6.57	16.63	13.57	3.06	-	2.49	-	-	-	-	
	4/10/2017	744	2.57	16.63	14.27	2.36	-	2.49	-	-	-	-	
	4/18/2017	823	4.66	16.63	14.64	1.99	-	2.49	-	-	-	-	
	4/25/2017	826	6.01	16.63	14.65	1.98	-	2.49	-	-	-	-	
	5/1/2017	856	0.17	16.63	13.91	2.72	-	2.49	-	-	-	-	
	5/15/2017	734	2.2	16.63	14	2.63	-	2.49	-	-	-	-	
	5/30/2017	730	3.22	16.63	13.54	3.09	-	2.49	-	-	-	-	
	6/5/2017	1040	8.53	16.63	14.64	1.99	-	2.49	-	-	-	-	
	6/13/2017	736	1.29	16.63	14.45	2.18	-	2.49	-	-	-	-	
	6/19/2017	812	9.37	16.63	14.79	1.84	-	2.49	-	-	-	-	
	10/6/2017	738	1.48	16.63	14.6	2.03	-	2.49	-	-	-	-	
MW-206	10/20/2016[3]	747	1.3	16.22	13.79	2.43	-	3.24	-	-	-	-	
	10/20/2016	1325	9.9	16.22	13.93	2.29	-	3.24	-	-	-	-	
	10/27/2016	1946	9.5	16.22	14.43	1.79	-	3.24	-	-	-	-	
	11/1/2016	818	1.2	16.22	14.22	2.0	-	3.24	-	-	-	-	
	11/1/2016	1644	4	16.22	14.18	2.04	-	3.24	-	-	-	-	
	11/3/2016	847	1.58	16.22	14.32	1.9	-	3.24	-	-	-	-	
	11/3/2016	1518	9.3	16.22	14.3	1.92	-	3.24	-	-	-	-	
	11/10/2016	1219	1.33	16.22	14.39	1.83	-	3.24	-	-	-	-	
	11/17/2016	1253	11	16.22	13.91	2.31	-	3.24	-	-	-	-	
	12/1/2016	854	5.26	16.22	14.34	1.88	-	3.24	-	-	-	-	
	1/3/2017	1340	9.57	16.22	14.54	1.68	-	3.24	-	-	-	-	
	1/17/2017	757	0.76	16.22	14.45	1.77	-	3.24	-	-	-	-	
	1/23/2017	755	9.2	16.22	14.57	1.65	-	3.24	-	-	-	-	
	1/30/2017	806	1.79	16.22	14.14	2.08	-	3.24	-	-	-	-	
	2/6/2017	751	9.92	16.22	14.41	1.81	-	3.24	-	-	-	-	
	2/14/2017	936	2.76	16.22	14.67	1.55	-	3.24	-	-	-	-	
	2/20/2017	759	7.55	16.22	14.14	2.08	-	3.24	-	-	-	-	
	2/27/2017	738	1.32	16.22	14.15	2.07	-	3.24	-	-	-	-	
	3/8/2017	753	10.48	16.22	14.49	1.73	-	3.24	-	-	-	-	
	3/13/2017	815	0.62	16.22	14.57	1.65	-	3.24	-	-	-	-	
	3/20/2017	824	5.81	16.22	14.47	1.75	-	3.24	-	-	-	-	
	4/3/2017	758	6.27	16.22	13.28	2.94	-	3.24	-	-	-	-	
	4/10/2017	757	2.99	16.22	13.88	2.34	-	3.24	-	-	-	-	
	4/18/2017	833	4.37	16.22	14.29	1.93	-	3.24	-	-	-	-	
	4/25/2017	835	6.41	16.22	14.34	1.88	-	3.24	-	-	-	-	
	5/1/2017	906	-0.18	16.22	13.75	2.47	-	3.24	-	-	-	-	
	5/15/2017	742	1.96	16.22	13.99	2.23	-	3.24	-	-	-	-	
	5/30/2017	744	2.53	16.22	13.48	2.74	-	3.24	-	-	-	-	
	6/6/2017	900	0.35	16.22	14.17	2.05	-	3.24	-	-	-	-	
	6/13/2017	750	0.94	16.22	14.15	2.07	-	3.24	-	-	-	-	
	6/19/2017	821	9.22	16.22	14.30	1.92	-	3.24	-	-	-	-	
	10/6/2017	748	1.84	16.22	14.46	1.76	-	3.24	-	-	-	-	
MW-400	1/3/2017	1230	7.53	14.63	13.30	1.33	-	2.37	-	-	-	-	
	1/17/2017	814	0.47	14.63	13.02	1.61	-	2.37	-	-	-	-	
	1/23/2017	804	9.17	14.63	13.15	1.48	-	2.37	-	-	-	-	
	1/30/2017	815	2.11	14.63	12.78	1.85	-	2.37	-	-	-	-	
	2/6/2017	736	10.21	14.63	12.96	1.67	-	2.37	-	-	-	-	
	2/14/2017	752	0.11	14.63	11.96	2.67	-	2.37	-	-	-	-	
	2/20/2017	807	7.37	14.63	12.77	1.86	-	2.37	-	-	-	-	
	2/27/2017	747	1.68	14.63	12.91	1.72	-	2.37	-	-	-	-	
	3/8/2017	800	10.42	14.63	13.00	1.63	-	2.37	-	-	-	-	
	3/13/2017	745	0.12	14.63	13.13	1.5	-	2.37	-	-	-	-	
	3/20/2017	805	6.35	14.63	12.77	1.86	-	2.37	-	-	-	-	
	4/3/2017	802	6.1	14.63	11.76	2.87	-	2.37	-	-	-	-	
	4/10/2017	809	3.41	14.63	12.58	2.05	-	2.37	-	-	-	-	
	4/18/2017	840	4.17	14.63	12.72	1.91	-	2.37	-	-	-	-	
	4/25/2017	843	6.76	14.63	12.95	1.68	-	2.37	-	-	-	-	
	5/1/2017	914	-0.43	14.63	12.16	2.47	-	2.37	-	-	-	-	
	5/15/2017	750	1.73	14.63	12.12	2.51	-	2.37	-	-	-	-	
	5/30/2017	759	1.8	14.63	12.81	1.82	-	2.37	-	-	-	-	
	6/5/2017	945	9.15	14.63	12.97	1.66	-	2.37	-	-	-	-	
	6/13/2017	758	0.78	14.63	12.62	2.01	-	2.37	-	-	-	-	
	6/19/2017	831	9.02	14.63	12.86	1.77	-	2.37	-	-	-	-	
	10/6/2017	800	2.29	14.63	12.87	1.76	-	2.37	-	-	-	-	

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Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-401	1/3/2017	1250	8.2	15.81	14.38	1.43	-	2.37	-	-	-	-	
	1/17/2017	827	0.34	15.81	14.18	1.63	-	2.37	-	-	-	-	
	1/23/2017	812	9.1	15.81	14.32	1.49	-	2.37	-	-	-	-	
	1/30/2017	743	1.07	15.81	13.87	1.94	-	2.37	-	-	-	-	
	2/6/2017	802	9.66	15.81	14.12	1.69	-	2.37	-	-	-	-	
	2/14/2017	815	0.49	15.81	13.11	2.70	-	2.37	-	-	-	-	
	2/20/2017	808	7.35	15.81	14.06	1.75	-	2.37	-	-	-		
	2/27/2017	748	1.71	15.81	13.96	1.85	-	2.37	-	-	-	-	
	3/8/2017	801	10.41	15.81	14.22	1.59	-	2.37	-	-	-	-	
	3/13/2017	822	0.75	15.81	14.2	1.61	-	2.37	-	-	-	-	
	3/20/2017	831	5.63	15.81	14.07	1.74	-	2.37	-	-	-	-	
	4/3/2017	806	5.92	15.81	13.1	2.71	-	2.37	-	-	-	-	
	4/10/2017	810	3.45	15.81	13.62	2.19	-	2.37	-	-	-	-	
	4/18/2017	841	4.14	15.81	14.02	1.79	-	2.37	-	-	-	-	
	4/25/2017	844	6.81	15.81	14.00	1.81	-	2.37	-	-	-	-	
	5/1/2017	917	-0.52	15.81	13.33	2.48	-	2.37	-	-	-	-	
	5/15/2017	751	1.71	15.81	13.38	2.43	-	2.37	-	-	-	-	
	5/30/2017	801	1.71	15.81	13.02	2.79	-	2.37	-	-	-	-	
	6/5/2017	1155	6.77	15.81	13.87	1.94	-	2.37	-	-	-	-	
	6/13/2017	800	0.74	15.81	13.85	1.96	-	2.37	-	-	-	-	
	6/19/2017	832	9	15.81	14.10	1.71	-	2.37	-	-	-	-	
	10/6/2017	803	2.41	15.81	13.97	1.84	-	2.37	-	-	-	-	
MW-402	1/3/2017	1310	8.81	16.92	15.51	1.41	-	2.3	-	-	-	-	
	1/17/2017	831	0.32	16.92	15.30	1.62	-	2.3	-	-	-	-	
	1/23/2017	816	9.09	16.92	15.26	1.66	-	2.3	-	-	-	-	
	1/30/2017	759	1.57	16.92	15.01	1.91	-	2.3	-	-	-	-	
	2/6/2017	744	10.07	16.92	15.88	1.04	-	2.3	-	-	-	-	
	2/14/2017	803	0.29	16.92	14.3	2.62	-	2.3	-	-	-	-	
	2/20/2017	810	7.3	16.92	14.91	2.01	-	2.3	-	-	-	-	
	2/27/2017	734	1.2	16.92	15.16	1.76	-	2.3	-	-	-	-	
	3/8/2017	747	10.51	16.92	15.2	1.72	-	2.3	-	-	-	-	
	3/13/2017	807	0.47	16.92	15.37	1.55	-	2.3	-	-	-	-	
	3/20/2017	812	6.15	16.92	14.91	2.01	-	2.3	-	-	-	-	
	4/3/2017	753	6.49	16.92	13.79	3.13	-	2.3	-	-	-	-	
	4/10/2017	749	2.71	16.92	14.83	2.09	-	2.3	-	-	-	-	
	4/18/2017	828	4.51	16.92	14.94	1.98	-	2.3	-	-	-	-	
	4/25/2017	829	6.14	16.92	15.2	1.72	-	2.3	-	-	-	-	
	5/1/2017	900	0.02	16.92	14.32	2.60	-	2.3	-	-	-	-	
	5/15/2017	738	2.08	16.92	14.3	2.62	-	2.3	-	-	-	-	
	5/30/2017	735	2.97	16.92	13.85	3.07	-	2.3	-	-	-	-	
	6/5/2017	1335	3.13	16.92	14.75	2.17	-	2.3	-	-	-	-	
	6/13/2017	740	1.18	16.92	14.83	2.09	-	2.3	-	-	-	-	
	6/19/2017	815	9.32	16.92	15.06	1.86	-	2.3	-	-	-	-	
	10/6/2017	740	1.55	16.92	15.14	1.78	-	2.3	-	-	-	-	
MW-403	1/3/2017	1320	9.12	15.33	14.03	1.3	-	2.22	-	-	-	-	
	1/17/2017	833	0.33	15.33	13.76	1.57	-	2.22	-	-	-	-	
	1/23/2017	818	9.08	15.33	13.68	1.65	-	2.22	-	-	-	-	
	1/30/2017	754	1.4	15.33	13.46	1.87	-	2.22	-	-	-	-	
	2/6/2017	743	10.06	15.33	13.47	1.86	-	2.22	-	-	-	-	
	2/14/2017	800	0.24	15.33	12.75	2.58	-	2.22	-	-	-	-	
	2/20/2017	753	7.68	15.33	13.33	2.00	-	2.22	-	-	-	-	
	2/27/2017	732	1.1	15.33	13.63	1.70	-	2.22	-	-	-	-	
	3/8/2017	745	10.52	15.33	13.62	1.71	-	2.22	-	-	-	-	
	3/13/2017	805	0.41	15.33	13.85	1.48	-	2.22	-	-	-	-	
	3/20/2017	811	6.18	15.33	13.28	2.05	-	2.22	-	-	-	-	
	4/3/2017	752	6.53	15.33	12.1	3.23	-	2.22	-	-	-	-	
	4/10/2017	747	2.65	15.33	13.33	2.00	-	2.22	-	-	-	-	
	4/18/2017	825	4.6	15.33	13.32	2.01	-	2.22	-	-	-	-	
	4/25/2017	828	6.09	15.33	13.68	1.65	-	2.22	-	-	-	-	
	5/1/2017	858	0.09	15.33	12.73	2.60	-	2.22	-	-	-	-	
	5/15/2017	736	2.14	15.33	12.69	2.64	-	2.22	-	-	-	-	
	5/30/2017	733	3.07	15.33	12.19	3.14	-	2.22	-	-	-	-	
	6/5/2017	1150	6.92	15.33	13.01	2.32	-	2.22	-	-	-	-	
	6/13/2017	738	1.23	15.33	13.26	2.07	-	2.22	-	-	-	-	
	6/19/2017	813	9.35	15.33	13.46	1.87	-	2.22	-	-	-	-	
	10/6/2017	809	2.65	15.33	13.66	1.67	-	2.22	-	-	-	-	
MW-404	1/4/2017	900	0.69	14.2	12.39	1.81	12.38	1.14	11.24	0.01	+/- 0.0	-	Interface probe.[5]
	1/17/2017	838	0.3	14.2	12.81	1.39	-	1.14	-	-	-	-	
	1/23/2017	828	8.98	14.2	13.62	0.58	-	1.14	-	-	-	-	
	1/30/2017	757	1.49	14.2	12.56	1.64	-	1.14	-	-	-	-	
	2/6/2017	905	7.62	14.2	12.20	2.00	-	1.14	-	-	-	-	
	2/14/2017	1027	4.6	14.2	12.08	2.12	-	1.14	-	-	-	-	
	2/20/2017	849	6.35	14.2	12.15	2.05	-	1.14	-	-	-	-	
	2/27/2017	822	3.06	14.2	12.73	1.47	-	1.14	-	-	-	-	
	3/8/2017	826	10.07	14.2	12.28	1.92	-	1.14	-	-	-	-	
	3/13/2017	709	-0.03	14.2	12.88	1.32	-	1.14	-	-	-	-	
	3/20/2017	853	5.01	14.2	12.2	2.00	-	1.14	-	-	-	-	
	4/3/2017	836	4.62	14.2	11.2	3.00	-	1.14	-	-	-	-	
	4/10/2017	832	4.32	14.2	12.35	1.85	-	1.14	-	-	-	-	
	4/18/2017	924	2.95	14.2	12.38	1.82	-	1.14	-	-	-	-	
	4/25/2017	911	7.98	14.2	12.76	1.44	-	1.14	-	-	-	-	
	5/1/2017	945	-1.09	14.2	11.88	2.32	-	1.14	-	-	-	-	
	5/15/2017	821	0.97	14.2	11.91	2.29	-	1.14	-	-	-	-	
	5/30/2017	835	0.24	14.2	11.5	2.70	-	1.14	-	-	-	-	
	6/6/2017	840	7.79	14.2	12.7	1.50	-	1.14	-	-	-	-	
	6/13/2017	830	0.34	14.2	12.35	1.85	-	1.14	-	-	-	-	
	6/19/2017	932	7.34	14.2	12.15	2.05	-	1.14	-	-	-	-	
	10/6/2017	1128	10.45	14.2	12.7	1.50	-	1.14	-	-	-	-	

Table 7
Well Gauging Data Through October 6, 2017
Permanent Solution Statement Report
Enbridge
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Weymouth Compressor Station
6 Bridge Street
Weymouth, Massachusetts

Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-405	1/3/2017	1330	9.36	16.19	14.7	1.49	-	2.32	-	-	-	-	
	1/17/2017	835	0.31	16.19	14.50	1.69	-	2.32	-	-	-	-	
	1/23/2017	843	8.8	16.19	14.59	1.6	-	2.32	-	-	-	-	
	1/30/2017	801	1.62	16.19	14.2	1.99	-	2.32	-	-	-	-	
	2/6/2017	747	10.06	16.19	14.44	1.75	-	2.32	-	-	-	-	
	2/14/2017	804	0.3	16.19	13.63	2.56	-	2.32	-	-	-	-	
	2/20/2017	755	7.63	16.19	14.26	1.93	-	2.32	-	-	-	-	
	2/27/2017	736	1.26	16.19	14.29	1.90	-	2.32	-	-	-	-	
	3/8/2017	749	10.5	16.19	14.57	1.62	-	2.32	-	-	-	-	
	3/13/2017	810	0.52	16.19	14.66	1.53	-	2.32	-	-	-	-	
	3/20/2017	814	6.09	16.19	14.42	1.77	-	2.32	-	-	-	-	
	4/3/2017	755	6.39	16.19	13.26	2.93	-	2.32	-	-	-	-	
	4/10/2017	751	2.77	16.19	13.84	2.35	-	2.32	-	-	-	-	
	4/18/2017	829	2.8	16.19	14.31	1.88	-	2.32	-	-	-	-	
	4/25/2017	831	6.23	16.19	14.43	1.76	-	2.32	-	-	-	-	
	5/1/2017	901	-0.01	16.19	13.71	2.48	-	2.32	-	-	-	-	
	5/15/2017	739	2.05	16.19	13.81	2.38	-	2.32	-	-	-	-	
	5/30/2017	739	2.77	16.19	13.37	2.82	-	2.32	-	-	-	-	
	6/6/2017	1025	9.07	16.19	14.15	2.04	-	2.32	-	-	-	-	
	6/13/2017	743	0.29	16.19	14.16	2.03	-	2.32	-	-	-	-	
	6/19/2017	817	9.29	16.19	14.36	1.83	-	2.32	-	-	-	-	
	10/6/2017	744	1.7	16.19	12.7	3.49	-	2.32	-	-	-	-	
MW-406	1/4/2017	920	0.5	15.58	13.67	1.91	13.64	2.24	11.4	0.03	+/- 0.0	-	Interface probe.[5]
	1/17/2017	901	0.39	15.58	14.1	1.48	13.94	2.24	11.7	0.16	+ 0 /- 0.1	-	Interface probe.[5]
	1/23/2017	910	8.38	15.58	14.04	1.54	13.99	2.24	11.75	0.05	+/- 0.0	-	Interface probe.[5]
	1/30/2017	900	3.82	15.58	13.73	1.85	13.68	2.24	11.44	0.05	+/- 0.0	-	Interface probe.[5]
	2/6/2017	940	10.12	15.58	13.89	1.69	13.84	2.24	11.6	0.05	+/- 0.0	-	Interface probe.[5]
	2/14/2017	955	3.42	15.58	13.25	2.33	13.19	2.24	10.95	0.04	+ 0 / 0.1	-	Interface probe.[5]
	2/20/2017	856	6.19	15.58	13.66	1.92	13.59	2.24	11.35	0.07	+/- 0.0	-	Interface probe.[5]
	2/27/2017	839	3.74	15.58	13.72	1.86	13.71	2.24	11.47	0.01	+/- 0.0	-	Interface probe.[5]
	3/8/2017	847	9.66	15.58	13.91	1.67	13.88	2.24	11.64	0.03	+/- 0.0	-	Interface probe.[5]
	3/13/2017	945	3.19	15.58	14.11	1.47	14.03	2.24	11.79	0.08	+ 0 /- 0.1	-	Interface probe.[5]
	3/20/2017	921	4.22	15.58	13.86	1.72	13.83	2.24	11.59	0.03	+ 0 /- 0.1	-	Interface probe.[5]
	4/3/2017	911	3.1	15.58	12.85	2.73	12.8	2.24	10.56	0.05	+ 0 /- 0.1	-	Interface probe.[5]
	4/10/2017	855	5.3	15.58	13.21	2.37	13.19	2.24	10.95	0.02	+ 0 /- 0.03	-	Interface probe.[5]
	4/18/2017	930	2.79	15.58	13.9	1.68	13.8	2.24	11.56	0.1	+ 0 /- 0.03	-	Interface probe.[5] New sock installed.
	4/25/2017	923	8.46	15.58	13.9	1.68	-	2.24	-	-	-	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/1/2017	1002	-1.23	15.58	13.22	2.36	13.22	2.24	10.98	0	+ 0 /- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/15/2017	910	0.44	15.58	13.35	2.23	13.35	2.24	11.11	0	+ 0 /- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/30/2017	932	-1.15	15.58	14.01	1.57	14	2.24	11.76	0.01	+ 0 /- 0.03	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	6/6/2017	1107	8.75	15.58	13.51	2.07	13.5	2.24	11.26	0.01	+ 0 /- 0.01	-	Interface probe.[5] Sock removed, well gauged, and no sock installed.
	6/13/2017	905	0.4	15.58	13.63	1.95	13.62	2.24	11.38	0.01	+ 0 /- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	6/19/2017	1000	6.41	15.58	13.76	1.82	13.75	2.24	11.51	0.01	+ 0 /- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	10/6/2017	840	3.9	15.58	14.2	1.38	13.89	2.24	11.65	0.31	+ 0 /- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
MW-407	1/4/2017	1000	0.67	15.32	13.48	1.84	13.45	2.14	11.31	0.03	+/- 0.0	-	Interface probe.[5]
	1/17/2017	910	0.49	15.32	13.77	1.55	13.72	2.14	11.58	0.05	+/- 0.0	-	Interface probe.[5]
	1/23/2017	846	8.76	15.32	13.81	1.51	13.79	2.14	11.65	0.02	+/- 0.0	-	Interface probe.[5]
	1/30/2017	918	4.53	15.32	13.42	1.90	13.35	2.14	11.21	0.07	+/- 0.0	-	Interface probe/water seeking paste.[5]
	2/6/2017	952	5.8	15.32	13.53	1.79	13.47	2.14	11.33	0.06	+/- 0.0	-	Interface probe.[5]
	2/14/2017	939	2.83	15.32	12.96	2.36	12.93	2.14	10.79	0.03	+/- 0.0	-	Interface probe.[5]
	2/20/2027	906	5.91	15.32	13.37	1.95	13.36	2.14	11.22	0.01	+/- 0.0	-	Interface probe.[5]
	2/27/2017	905	4.82	15.32	13.51	1.81	13.48	2.14	11.34	0.03	+ 0 / 0.1	-	Interface probe.[5]
	3/8/2017	900	9.35	15.32	13.66	1.66	13.64	2.14	11.5	0.02	+ 0 / 0.1	-	Interface probe.[5]
	3/13/2017	1005	3.92	15.32	13.83	1.49	13.81	2.14	11.67	0.02	+ 0 / 0.1	-	Interface probe.[5]
	3/20/2017	932	3.9	15.32	13.77	1.55	13.59	2.14	11.45	0.18	+ 0 / 0.1	-	Interface probe.[5]
	4/3/2017	927	2.39	15.32	12.52	2.80	12.48	2.14	10.34	0.04	+ 0 / 0.1	-	Interface probe.[5]
	4/10/2017	915	6.17	15.32	12.96	2.36	12.93	2.14	10.79	0.03	+ 0 /- 0.03	-	Interface probe.[5]
	4/18/2017	945	2.38	15.32	13.59	1.73	13.57	2.14	11.43	0.02	+ 0 /- 0.03	-	Interface probe.[5] New sock installed.
	4/25/2017	937	8.99	15.32	13.65	1.67	-	2.14	-	-	-	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/1/2017	1029	-1.12	15.32	12.92	2.40	12.92	2.14	10.78	0	+ 0 /- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/15/2017	922	0.47	15.32	13.15	2.17	-	2.14	-	-	-	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/30/2017	1003	-1.17	15.32	12.75	2.57	-	2.14	-	-	-	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	6/6/2017	1128	8.45	15.32	13.26	2.06	-	2.14	-	-	-	-	Interface probe.[5] Well gauged, and no sock installed.
	6/13/2017	915	0.52	15.32	13.4	1.92	13.39	2.14	11.25	0.01	+ 0 /- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	6/19/2017	1021	5.69	15.32	13.5	1.82	13.49	2.14	11.35	0.01	+ 0 /- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	10/6/2017	855	4.52	15.32	13.95	1.37	13.71	2.14	11.57	0.24	+ 0 /- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.

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Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-408	1/4/2017	1020	1.03	15.34	13.38	1.96	-	2.3	-	-	-	-	
	1/17/2017	759	0.72	15.34	13.61	1.73	-	2.3	-	-	-	-	
	1/23/2017	754	9.2	15.34	13.74	1.6	-	2.3	-	-	-	-	
	1/30/2017	805	1.77	15.34	13.26	2.08	-	2.3	-	-	-	-	
	2/6/2017	749	9.97	15.34	13.52	1.82	-	2.3	-	-	-	-	
	2/14/2017	807	0.34	15.34	12.81	2.53	-	2.3	-	-	-	-	
	2/20/2017	757	7.7	15.34	13.32	2.02	-	2.3	-	-	-	-	
	2/27/2017	727	0.95	15.34	13.34	2.00	-	2.3	-	-	-	-	
	3/8/2017	751	10.49	15.34	13.69	1.65	-	2.3	-	-	-	-	
	3/13/2017	812	0.56	15.34	13.75	1.59	-	2.3	-	-	-	-	
	3/20/2017	822	5.88	15.34	13.57	1.77	-	2.3	-	-	-	-	
	4/3/2017	756	6.35	15.34	12.46	2.88	-	2.3	-	-	-	-	
	4/10/2017	754	2.89	15.34	12.87	2.47	-	2.3	-	-	-	-	
	4/18/2017	831	4.43	15.34	13.46	1.88	-	2.3	-	-	-	-	
	4/25/2017	833	6.32	15.34	13.52	1.82	-	2.3	-	-	-	-	
	5/1/2017	903	-0.08	15.34	12.92	2.42	-	2.3	-	-	-	-	
	5/15/2017	740	2.02	15.34	12.98	2.36	-	2.3	-	-	-	-	
	5/30/2017	742	2.63	15.34	12.64	2.70	-	2.3	-	-	-	-	
	6/6/2017	1205	7.74	15.34	13.15	2.19	-	2.3	-	-	-	-	
	6/13/2017	746	1.04	15.34	13.33	2.01	-	2.3	-	-	-	-	
	6/19/2017	819	9.25	15.34	13.48	1.86	-	2.3	-	-	-	-	
	10/6/2017	746	1.77	15.34	13.61	1.73	-	2.3	-	-	-	-	
MW-409	1/3/2017	1350	9.8	15.13	13.44	1.69	-	2.29	-	-	-	-	
	1/17/2017	755	0.82	15.13	13.33	1.8	-	2.29	-	-	-	-	
	1/23/2017	757	9.19	15.13	13.46	1.67	-	2.29	-	-	-	-	
	1/30/2017	808	1.85	15.13	13.02	2.11	-	2.29	-	-	-	-	
	2/6/2017	806	9.53	15.13	13.3	1.83	-	2.29	-	-	-	-	
	2/14/2017	810	0.38	15.13	12.55	2.58	-	2.29	-	-	-	-	
	2/20/2017	801	7.5	15.13	13.05	2.08	-	2.29	-	-	-	-	
	2/27/2017	741	1.45	15.13	13.07	2.06	-	2.29	-	-	-	-	
	3/8/2017	753	10.47	15.13	13.4	1.73	-	2.29	-	-	-	-	
	3/13/2017	816	0.64	15.13	13.47	1.66	-	2.29	-	-	-	-	
	3/20/2017	825	5.79	15.13	13.31	1.82	-	2.29	-	-	-	-	
	4/3/2017	800	6.18	15.13	12.27	2.86	-	2.29	-	-	-	-	
	4/10/2017	800	3.1	15.13	12.67	2.46	-	2.29	-	-	-	-	
	4/18/2017	834	4.34	15.13	13.2	1.93	-	2.29	-	-	-	-	
	4/25/2017	835	6.41	15.13	13.23	1.90	-	2.29	-	-	-	-	
	5/1/2017	908	-0.25	15.13	12.66	2.47	-	2.29	-	-	-	-	
	5/15/2017	744	1.91	15.13	12.78	2.35	-	2.29	-	-	-	-	
	5/30/2017	746	2.43	15.13	12.37	2.76	-	2.29	-	-	-	-	
	6/6/2017	1030	9.05	15.13	12.15	2.99	-	2.29	-	-	-	-	
	6/13/2017	753	0.88	15.13	13.06	2.07	-	2.29	-	-	-	-	
	6/19/2017	823	9.18	15.13	13.23	1.90	-	2.29	-	-	-	-	
	10/6/2017	751	1.96	15.13	13.34	1.79	-	2.29	-	-	-	-	
MW-410	1/4/2017	1500	9.9	14.74	13.1	1.64	12.85	2.29	10.56	0.25	+ 0 ft /- 0.15	30	Interface probe/water seeking paste.[5]
	1/17/2017	1255	7.59	14.74	13.44	1.3	13.29	2.29	11.00	0.15	+/- 0.05	220	Interface probe/water seeking paste.[5]
	1/23/2017	1030	6.52	14.74	13.18	1.56	13.1	2.29	10.81	0.08	- 0 ft /- 0.1	170	Interface probe after removing 170 ml product.[5]
	1/30/2017	1114	8.98	14.74	13.04	1.70	12.99	2.29	10.7	0.08	+/- 0.0	-	Interface probe/water seeking paste.[5]
	2/6/2017	1040	3.78	14.74	13.52	1.22	12.93	2.29	10.64	0.59	+/- 0.01	-	Interface probe.[5]
	2/14/2017	1055	5.8	14.74	12.26	2.48	12.24	2.29	9.95	0.02	+/- 0.05	-	Interface probe.[5]
	2/20/2017	1017	3.87	14.74	13.36	1.38	12.8	2.29	10.51	0.56	+/- 0.05	-	Interface probe.[5]
	2/27/2017	950	6.74	14.74	12.97	1.77	12.95	2.29	10.66	0.02	+/- 0.0	-	Interface probe.[5]
	3/8/2017	945	8.02	14.74	12.95	1.79	12.94	2.29	10.65	0.01	+/- 0.0	-	Interface probe.[5]
	3/13/2017	1035	5.17	14.74	13.3	1.44	13.12	2.29	10.83	0.18	+/- 0.05	-	Interface probe.[5]
	3/20/2017	1012	2.79	14.74	13.29	1.45	13.04	2.29	10.75	0.25	+/- 0.01	-	Interface probe.[5]
	4/3/2017	1040	-0.19	14.74	12.29	2.45	12.04	2.29	9.75	0.25	+/- 0.01	-	Interface probe/water seeking paste.[5]
	4/10/2017	930	6.8	14.74	12.55	2.19	12.51	2.29	10.22	0.04	+/- 0.0	-	Interface probe.[5]
	4/18/2017	1000	2.01	14.74	13.01	1.73	13.00	2.29	10.71	0.01	+/- 0.01	-	Interface probe.[5] New sock installed.
	4/25/2017	943	9.2	14.74	13.05	1.69	-	2.29	-	-	-	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/1/2017	1050	-0.78	14.74	12.34	2.40	-	2.29	-	-	-	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/15/2017	1000	0.98	14.74	12.52	2.22	-	2.29	-	-	-	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/30/2017	1033	-0.74	14.74	12.1	2.64	12.09	2.29	9.8	0.01	+/- 0.05	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	6/6/2017	1145	8.15	14.74	12.65	2.09	-	2.29	-	0	+/- 0.02	-	Interface probe.[5] Well gauged, and no sock installed.
	6/13/2017	930	0.77	14.74	12.86	1.88	12.83	2.29	10.54	0.03	+/- 0.02	-	Interface probe.[5] Well gauged, and no sock installed.
	6/19/2017	1033	5.57	14.74	13.06	1.68	13.05	2.29	10.76	0.01	+/- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	10/6/2017	947	6.77	14.74	13.58	1.16	13.10	2.29	10.81	0.48	+/- 0.01	-	Interface probe/water seeking paste.[5] No sock installed.

Table 7
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Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-411	1/3/2017	1200	6.49	14.94	13.37	1.57	-	2.41	-	-	-	-	
	1/17/2017	802	0.68	14.94	13.26	1.68	-	2.41	-	-	-	-	
	1/23/2017	800	9.19	14.94	13.38	1.56	-	2.41	-	-	-	-	
	1/30/2017	816	2.15	14.94	13.09	1.85	-	2.41	-	-	-	-	
	2/6/2017	800	9.68	14.94	13.08	1.86	-	2.41	-	-	-	-	
	2/14/2017	814	0.49	14.94	12.25	2.69	-	2.41	-	-	-	-	
	2/20/2017	805	7.42	14.94	12.99	1.95	-	2.41	-	-	-	-	
	2/27/2017	745	1.59	14.94	13.19	1.75	-	2.41	-	-	-	-	
	3/8/2017	757	10.44	14.94	13.23	1.71	-	2.41	-	-	-	-	
	3/13/2017	821	0.75	14.94	13.42	1.52	-	2.41	-	-	-	-	
	3/20/2017	830	5.65	14.94	12.94	2.00	-	2.41	-	-	-	-	
	4/3/2017	801	6.14	14.94	12.05	2.89	-	2.41	-	-	-	-	
	4/10/2017	807	3.34	14.94	12.82	2.12	-	2.41	-	-	-	-	
	4/18/2017	839	4.2	14.94	12.96	1.98	-	2.41	-	-	-	-	
	4/25/2017	841	6.67	14.94	13.21	1.73	-	2.41	-	-	-	-	
	5/1/2017	913	-0.4	14.94	12.41	2.53	-	2.41	-	-	-	-	
	5/15/2017	748	1.79	14.94	12.37	2.57	-	2.41	-	-	-	-	
	5/30/2017	1018	-1	14.94	12.75	2.19	-	2.41	-	-	-	-	
	6/7/2017	1120	8.95	14.94	12.83	2.11	-	2.41	-	-	-	-	
	6/13/2017	755	0.84	14.94	12.87	2.07	-	2.41	-	-	-	-	
	6/19/2017	829	9.06	14.94	13.07	1.87	-	2.41	-	-	-	-	
	10/6/2017	759	2.26	14.94	13.14	1.80	-	2.41	-	-	-	-	
MW-412	1/4/2017	1100	2.2	15.25	13.15	2.1	-	1.64	-	-	-	-	
	1/17/2017	745	1.05	15.25	13.55	1.7	-	1.64	-	-	-	-	
	1/23/2017	822	9.05	15.25	13.61	1.64	-	1.64	-	-	-	-	
	1/30/2017	811	1.97	15.25	13.32	1.93	-	1.64	-	-	-	-	
	2/6/2017	756	9.7	15.25	13.38	1.87	-	1.64	-	-	-	-	
	2/14/2017	812	0.44	15.25	12.54	2.71	-	1.64	-	-	-	-	
	2/20/2017	803	7.46	15.25	13.3	1.95	-	1.64	-	-	-	-	
	2/27/2017	742	1.48	15.25	13.4	1.85	-	1.64	-	-	-	-	
	3/8/2017	754	10.47	15.24	13.53	1.71	-	1.64	-	-	-	-	
	3/13/2017	818	0.68	15.24	13.7	1.54	-	1.64	-	-	-	-	
	3/20/2017	826	5.76	15.24	13.34	1.90	-	1.64	-	-	-	-	
	4/3/2017	803	6.06	15.24	12.32	2.92	-	1.64	-	-	-	-	
	4/10/2017	802	3.17	15.24	13.00	2.24	-	1.64	-	-	-	-	
	4/18/2017	836	4.29	15.24	13.32	1.92	-	1.64	-	-	-	-	
	4/25/2017	837	6.5	15.24	13.47	1.77	-	1.64	-	-	-	-	
	5/1/2017	909	-0.28	15.24	12.75	2.49	-	1.64	-	-	-	-	
	5/15/2017	745	1.88	15.24	12.75	2.49	-	1.64	-	-	-	-	
	5/30/2017	749	2.28	15.24	12.4	2.84	-	1.64	-	-	-	-	
	6/6/2017	1320	5.57	15.24	13.16	2.08	-	1.64	-	-	-	-	
	6/13/2017	1036	2.57	15.24	13.44	1.80	-	1.64	-	-	-	-	
	6/19/2017	825	9.14	15.24	13.07	2.17	-	1.64	-	-	-	-	
	10/6/2017	754	2.07	15.24	13.45	1.79	-	1.64	-	-	-	-	
MW-413	1/4/2017	1040	1.5	15.45	13.32	2.13	-	1.71	-	-	-	-	
	1/17/2017	750	0.94	15.45	13.80	1.65	-	1.71	-	-	-	-	
	1/23/2017	824	9.03	15.45	13.85	1.6	-	1.71	-	-	-	-	
	1/30/2017	813	2.03	15.45	13.56	1.89	-	1.71	-	-	-	-	
	2/6/2017	758	9.73	15.45	13.63	1.82	-	1.71	-	-	-	-	
	2/14/2017	813	0.47	15.45	12.87	2.58	-	1.71	-	-	-	-	
	2/20/2017	804	7.44	15.45	13.53	1.92	-	1.71	-	-	-	-	
	2/27/2017	743	1.52	15.45	13.67	1.78	-	1.71	-	-	-	-	
	3/8/2017	756	10.45	15.45	13.74	1.71	-	1.71	-	-	-	-	
	3/13/2017	820	0.72	15.45	13.94	1.51	-	1.71	-	-	-	-	
	3/20/2017	828	5.71	15.45	13.52	1.93	-	1.71	-	-	-	-	
	4/3/2017	805	5.98	15.45	14.53	0.92	-	1.71	-	-	-	-	
	4/10/2017	804	3.23	15.45	13.37	2.08	-	1.71	-	-	-	-	
	4/18/2017	837	4.26	15.45	13.52	1.93	-	1.71	-	-	-	-	
	4/25/2017	839	6.58	15.45	13.78	1.67	-	1.71	-	-	-	-	
	5/1/2017	911	-0.34	15.45	12.97	2.48	-	1.71	-	-	-	-	
	5/15/2017	747	1.82	15.45	12.96	2.49	-	1.71	-	-	-	-	
	5/30/2017	755	1.99	15.45	12.67	2.78	-	1.71	-	-	-	-	
	6/6/2017	1240	6.84	15.45	12.82	2.63	-	1.71	-	-	-	-	
	6/13/2017	1039	2.67	15.45	13.65	1.80	-	1.71	-	-	-	-	
	6/19/2017	828	9.08	15.45	13.61	1.84	-	1.71	-	-	-	-	
	10/6/2017	757	2.18	15.45	13.72	1.73	-	1.71	-	-	-	-	

Table 7
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Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-414	1/4/2017	940	0.49	16.29	14.39	1.9	14.26	2.11	12.15	0.13	+/- 0.03	10	Interface probe.[5]
	1/17/2017	1032	2.37	16.29	13.99	2.3	13.79	2.11	11.68	0.2	+/- 0.06	40	Interface probe.[5]
	1/23/2017	930	7.98	16.29	14.9	1.39	14.54	2.11	12.43	0.36	+ 0 /- 0.10	180	Interface probe.[5]
	1/30/2017	1005	6.4	16.29	14.33	1.96	14.31	2.11	12.2	0.02	+ 0 /- 0.10	-	Interface probe.[5]
	2/6/2017	925	6.91	16.29	14.9	1.39	14.39	2.11	12.28	0.51	+/- 0.0	-	Interface probe.[5]
	2/14/2017	1005	3.8	16.29	14.34	1.95	13.74	2.11	11.63	0.6	+/- 0.0	-	Interface probe.[5]
	2/20/2017	920	5.51	16.29	14.94	1.35	14.14	2.11	12.03	0.8	+/- 0.05	-	Interface probe.[5]
	2/27/2017	825	3.17	16.29	15.06	1.23	14.29	2.11	12.18	0.77	+/- 0.0	-	Interface probe.[5]
	3/8/2017	835	9.92	16.29	15.42	0.87	14.43	2.11	12.32	1.01	+/- 0.03	-	Interface probe.[5]
	3/13/2017	912	2.1	16.29	15.55	0.74	14.61	2.11	12.5	0.94	+/- 0.03	-	Interface probe.[5]
	3/20/2017	905	4.67	16.29	15.17	1.12	14.37	2.11	12.26	0.8	+/- 0.03	-	Interface probe.[5]
	4/3/2017	855	3.79	16.29	14.18	2.11	13.27	2.11	11.16	0.91	+/- 0.01	-	Interface probe.[5]
	4/10/2017	840	4.65	16.29	14.75	1.54	13.78	2.11	11.67	0.97	+/- 0.01	-	Interface probe.[5]
	4/17/147	747	4.22	16.29	15.64	0.65	14.25	2.11	12.14	1.39	+/- 0.01	3,868	Interface probe.[5] Gauged prior to skimming test.
	4/18/2017	1044	1.15	16.29	14.43	1.86	14.35	2.11	12.24	0.08	+/- 0.03	177	Interface probe.[5] Gauged prior to skimming. Product removed on 4/19 and 4/25.
	4/25/2017	1007	9.92	16.29	14.55	1.74	14.52	2.11	14.52	0.03	+/- 0.01	-	Interface probe.[5] Gauged after skimming.
	5/1/2017	736	3.76	16.29	13.74	2.55	13.73	2.11	11.62	0.01	+/- 0.01	148	Interface probe.[5] Gauged before skimming.
	5/1/2017	1130	0.29	16.29	13.82	2.47	13.82	2.11	11.71	0.00	+/- 0.01	-	Interface probe.[5] Gauged after skimming test and before new sock installed.
	5/15/2017	823	0.93	16.29	13.95	2.34	13.94	2.11	11.83	0.01	+/- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	5/30/2017	905	-0.7	16.29	14.51	1.78	14.50	2.11	12.39	0.01	+/- 0.01	-	Interface probe.[5] Sock removed, well gauged, and new sock installed.
	6/6/2017	1040	9	16.29	14.09	2.20	14.09	2.11	11.98	0.00	+/- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	6/13/2017	848	0.3	16.29	14.24	2.05	14.22	2.11	12.11	0.02	+/- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	6/19/2017	942	7.02	16.29	14.41	1.88	14.35	2.11	12.24	0.06	+/- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
	10/6/2017	828	3.4	16.29	15.52	0.77	14.48	2.11	12.37	1.04	+/- 0.01	-	Interface probe.[5] Well gauged, and no sock installed.
MW-415	1/4/2017	840	0.88	16.74	14.74	2	14.73	2.31	12.42	0.01	+/- 0.0	-	Interface probe.[5]
	1/17/2017	841	0.29	16.74	15.17	1.57	15.14	2.31	12.83	0.03	+ .05 /- 0.0	-	Interface probe.[5]
	1/23/2017	833	8.93	16.74	15.1	1.64	-	2.31	-	-	-	-	
	1/30/2017	852	3.54	16.74	14.84	1.90	-	2.31	-	-	-	-	
	2/6/2017	850	8.16	16.74	14.74	2.00	14.71	2.31	12.40	0.03	+/- 0.0	-	Interface probe.[5]
	2/14/2017	1025	4.56	16.74	14.22	2.52	-	2.31	-	-	-	-	
	2/20/2017	847	6.41	16.74	14.79	1.95	-	2.31	-	-	-	-	
	2/27/2017	815	2.76	16.74	14.94	1.80	14.86	2.31	12.55	0.08	+/- 0.0	-	Interface probe.[5]
	3/8/2017	828	10.04	16.74	14.84	1.90	-	2.31	-	-	-	-	
	3/13/2017	902	1.8	16.74	15.22	1.52	-	2.31	-	-	-	-	
	3/20/2017	855	4.95	16.74	14.84	1.90	-	2.31	-	-	-	-	
	4/3/2017	840	4.44	16.74	13.92	2.82	-	2.31	-	-	-	-	
	4/10/2017	835	4.44	16.74	13.38	3.36	-	2.31	-	-	-	-	
	4/18/2017	926	2.89	16.74	14.93	1.81	-	2.31	-	-	-	-	
	4/25/2017	912	8.02	16.74	14.93	1.81	-	2.31	-	-	-	-	
	5/1/2017	948	-1.13	16.74	14.16	2.58	-	2.31	-	-	-	-	
	5/15/2017	818	1.04	16.74	14.28	2.46	-	2.31	-	-	-	-	
	5/30/2017	838	0.13	16.74	14	2.74	-	2.31	-	-	-	-	
	6/6/2017	1140	8.25	16.74	14.56	2.18	-	2.31	-	-	-	-	
	6/13/2017	834	0.32	16.74	14.8	1.94	-	2.31	-	-	-	-	
	6/19/2017	938	7.15	16.74	14.66	2.08	-	2.31	-	-	-	-	
	10/6/2017	1124	10.36	16.74	15.04	1.70	-	2.31	-	-	-	-	
MW-416	1/3/2017	1000	2.06	13.01	11.32	1.69	-	-0.33	-	-	-	-	
	1/17/2017	736	1.3	13.01	11.12	1.89	-	-0.33	-	-	-	-	
	1/23/2017	731	9.18	13.01	11.4	1.61	-	-0.33	-	-	-	-	
	1/30/2017	735	0.86	13.01	11.57	1.44	-	-0.33	-	-	-	-	
	2/6/2017	722	10.44	13.01	11.2	1.81	-	-0.33	-	-	-	-	
	2/14/2017	725	-0.04	13.01	10.09	2.92	-	-0.33	-	-	-	-	
	2/20/2017	733	8.08	13.01	10.98	2.03	-	-0.33	-	-	-	-	
	2/27/2017	715	0.45	13.01	10.95	2.06	-	-0.33	-	-	-	-	
	3/8/2017	730	10.55	13.01	11.31	1.70	-	-0.33	-	-	-	-	
	3/13/2017	728	-0.02	13.01	11.34	1.67	-	-0.33	-	-	-	-	
	3/20/2017	750	6.75	13.01	11.17	1.84	-	-0.33	-	-	-	-	
	4/3/2017	738	7.11	13.01	9.96	3.05	-	-0.33	-	-	-	-	
	4/10/2017	727	2.07	13.01	10.49	2.52	-	-0.33	-	-	-	-	
	4/18/2017	904	3.51	13.01	11.01	2.00	-	-0.33	-	-	-	-	
	4/25/2017	812	4.39	13.01	11.08	1.93	-	-0.33	-	-	-	-	
	5/1/2017	838	0.88	13.01	10.37	2.64	-	-0.33	-	-	-	-	
	5/15/2017	721	2.6	13.01	10.49	2.52	-	-0.33	-	-	-	-	
	5/30/2017	711	4.17	13.01	10.02	2.99	-	-0.33	-	-	-	-	
	6/7/2016	1030	8.87	13.01	10.66	2.35	-	-0.33	-	-	-	-	
	6/13/2017	718	1.79	13.01	10.84	2.17	-	-0.33	-	-	-	-	
	6/19/2017	840	8.82	13.01	11.05	1.96	-	-0.33	-	-	-	-	
	10/6/2017	1143	10.72	13.01	11.24	1.77	-	-0.33	-	-	-	-	

Table 7
Well Gauging Data Through October 6, 2017
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street
Weymouth, Massachusetts

Well	Date	Time	Approximate Tidal Elevation (ft MLLW)[1]	TOR Elevation (ft amsl)	DTW (ft-bTOR)	Groundwater Elevation (ft amsl)	DTP (ft bTOR)	TOR Stickup (ft)	DTP (ft-bgs)	Product Thickness (ft)	Estimated Product Thickness Accuracy (ft)	Volume of Product Removed After Gauging (ml)	Notes
MW-417	1/3/2017	1010	2.41	12.76	11.05	1.71	-	-0.51	-	-	-	-	
	1/17/2017	732	1.42	12.76	10.87	1.89	-	-0.51	-	-	-	-	
	1/23/2017	728	9.17	12.76	11.08	1.68	-	-0.51	-	-	-	-	
	1/30/2017	727	0.67	12.76	10.66	2.10	-	-0.51	-	-	-	-	
	2/6/2017	717	10.49	12.76	10.91	1.85	-	-0.51	-	-	-	-	
	2/14/2017	735	-0.01	12.76	10.27	2.49	-	-0.51	-	-	-	-	
	2/20/2017	729	8.16	12.76	10.65	2.11	-	-0.51	-	-	-	-	
	2/27/2017	712	0.54	12.76	10.68	2.08	-	-0.51	-	-	-	-	
	3/8/2017	726	10.54	12.76	11	1.76	-	-0.51	-	-	-	-	
	3/13/2017	723	-0.04	12.76	11.09	1.67	-	-0.51	-	-	-	-	
	3/23/2017[6]	940	8.26	12.76	11.16	1.60	-	-0.51	-	-	-	-	
	4/3/2017	735	7.23	12.76	9.72	3.04	-	-0.51	-	-	-	-	
	4/10/2017	718	1.82	12.76	10.6	2.16	-	-0.51	-	-	-	-	
	4/18/2017	849	3.92	12.76	10.76	2.00	-	-0.51	-	-	-	-	
	4/25/2017	802	4.95	12.76	10.84	1.92	-	-0.51	-	-	-	-	
	5/1/2017	832	1.13	12.76	10.19	2.57	-	-0.51	-	-	-	-	
	5/15/2017	718	2.69	12.76	10.29	2.47	-	-0.51	-	-	-	-	
	5/30/2015	704	4.52	12.76	9.89	2.87	-	-0.51	-	-	-	-	
	6/7/2017	1200	8.56	12.76	10.17	2.59	-	-0.51	-	-	-	-	
	6/13/2017	708	2.09	12.76	10.61	2.15	-	-0.51	-	-	-	-	
	6/19/2017	837	8.89	12.76	10.78	1.98	-	-0.51	-	-	-	-	
	10/6/2017	1140	10.68	12.76	10.98	1.78	-	-0.51	-	-	-	-	

Abbreviations:
amsl - above mean sea level (vertical datum is North American Vertical Datum of 1988)
bTOR - depth below TOR
DTW - depth to water
DTP - depth to product
ft-bgs - feet below ground surface
TOR - top or well riser
NM - not measured
MLLW - mean lower low water
Stickup - height between TOR and ground surface

Notes:
1 - Based on tidal charts for -tio-l Oceanic and Atmospheric Administration (NOAA) Weymouth Fore River station 8444788.
2 - Oil coated the interface probe so DTW could not be measured.
3 - Developed MW-206.
4 - Attempted to purge product from the well with a peristaltic pump equipped with 3/8" inside diameter tubing- unsuccessfully as it was too viscous.
5 - Oil absorbant sock not deployed to allow LNAPL thickness to reach equilibrium as suggested in MassDEP LNAPL CSM Policy #WSC-16-450 guideline regarding product equilibrium prior to bail-down test.
6 - Did not gauge on 3/20/17 due to frozen ice pile over well. Gauged before sampling on 3/23/17

Table 8
Summary of Analytical Results for Composite Soil Samples -- 2015 and 2016
Spectra - 6 Bridge Street
Weymouth, Massachusetts

Analysis	Analyte	S-2/GW-3	RCS-1	RCS-2	UCLs	Background*	Background**	# of Samples	# of Detects	Freq. of Detects	Min. of Detects	Max. of Detects	Location of Max. Detected	Min. of Non-Detects	Max. of Non-Detects	Mean Concentration	90% Percentile
VPH																	
	Toluene	1,000	30	1,000	10,000	NS	NS	19	2	10.5%	0.016	0.02	Composite TP1-2,T2-2	0.002	0.679	3.8E-02	0.2232
EPH																	
(mg/kg)	C9-C18 Aliphatics	3,000	1,000	3,000	20,000	NS	NS	40	5	12.5%	7.97	108	B-414	6.5	14	7.5E+00	11.14
	C19-C36 Aliphatics	5,000	3,000	5,000	20,000	NS	NS	40	12	30.0%	8.22	175	B-414	6.81	14	1.7E+01	50.74
	C11-C22 Aromatics	3,000	1,000	3,000	10,000	NS	NS	40	19	47.5%	9.61	256	B-414	6.5	14	2.1E+01	36.86
	Naphthalene	1000	4	20	10,000	0.5	1	56	4	7.1%	0.143	0.21	TP-2	0.11	0.636	1.7E-01	0.4732
	2-Methylnaphthalene	500.0	0.7	80	5,000	0.5	1	56	12	21.4%	0.116	0.675	B-405	0.09	0.557	2.0E-01	0.4732
	Acenaphthene	3,000	4	3,000	10,000	0.5	2	45	1	2.2%	0.692	0.692	B-408	0.12	0.636	1.9E-01	0.5132
	Phenanthrene	1000	10	1,000	10,000	3	20	56	20	35.7%	0.152	2.03	B/MW 204	0.13	0.557	3.9E-01	0.646
	Anthracene	3,000	1,000	3,000	10,000	1	4	45	1	2.2%	0.592	0.592	B/MW 201	0.12	0.636	1.9E-01	0.5132
	Fluoranthene	3,000	1,000	3,000	10,000	4	10	56	8	14.3%	0.165	2.57	B/MW 204	0.12	0.557	2.7E-01	0.5522
	Pyrene	3,000	1,000	3,000	10,000	4	20	56	15	26.8%	0.146	2.89	B/MW 204	0.13	0.557	3.4E-01	0.5932
	Benzo(a)anthracene	40	7	40	3,000	2	9	56	9	16.1%	0.13	1.34	B/MW 204	0.13	0.557	2.3E-01	0.5078
	Chrysene	400	70	400	10,000	2	7	56	15	26.8%	0.156	1.5	B/MW 204	0.13	0.557	2.9E-01	0.5832
	Benzo(b)fluoranthene	40	7	40	3,000	2	8	56	9	16.1%	0.13	0.986	B/MW 204	0.13	0.557	2.1E-01	0.5078
	Benzo(k)fluoranthene	400	70	400	10,000	1	4	56	4	7.1%	0.145	0.908	B/MW 204	0.12	1.175	2.5E-01	1.175
	Benzo(a)pyrene	7	2	7	300	2	7	56	5	8.9%	0.25	1.02	B/MW 204	0.12	0.557	2.0E-01	0.4818
	Indeno(1,2,3-cd)pyrene	40	7	40	3,000	1	3	45	2	4.4%	0.145	0.694	B/MW 204	0.12	0.636	2.0E-01	0.5132
	Dibenz(a,h)anthracene	4.0	0.7	4.0	300	0.5	1	45	1	2.2%	0.742	**0.742**	B-408	0.12	0.636	2.0E-01	0.5132
	Benzo(g,h,i)perylene	3,000	1,000	3,000	10,000	1	3	45	2	4.4%	0.19	0.71	B/MW 204	0.12	0.636	2.0E-01	0.5132
Metals, total																	
(mg/kg)	Antimony	30	20	30	300	1	7	34	18	52.9%	3.8	16	COMP-467-Native	2	3.1	4.9E+00	3.84
	Arsenic	20	20	20	500	20	20	48	48	100.0%	2.5	**228**	SS-4D	--	--	**7.0E+01**	**204.2**
	Barium	3,000	1,000	3,000	10,000	50	50	34	34	100.0%	4.5	130	COMP-910-Fill	--	--	6.3E+01	82.3
	Beryllium	200	90	200	2,000	0.4	0.9	48	45	93.8%	0.23	6.7	SS-3	0.2	1.6	2.3E+00	5.24
	Cadmium	100	70	100	1,000	2	3	34	25	73.5%	0.615	2.9	B-6	0.4	0.58	1.1E+00	0.5835
	Chromium	200	100	200	2,000	30	40	48	48	100.0%	2.5	35	COMP-8910-Native	--	--	1.8E+01	30.88
	Copper	NS	NS	NS	NS	40	200	14	14	100.0%	31.3	87	SS-5	--	--	6.5E+01	82.08
	Lead	600	200	600	6,000	100	600	48	44	91.7%	2.1	43.2	Shallow Composite TP1-1, TP2-1, SS-1	8.2	12.2	1.9E+01	28.79
	Mercury	30	20	30	300	0.3	1	48	30	62.5%	0.032	0.4	Shallow Composite TP1-1, TP2-1, SS-1	0.027	0.33	1.3E-01	0.33
	Nickel	1000	600	1,000	10,000	20	30	48	39	81.3%	1.4	38	COMP-467-Fill	8.2	14	1.7E+01	27.32
	Selenium	700	400	700	7,000	0.5	1	48	10	20.8%	0.8	5.9	COMP-123	0.8	6.9	2.2E+00	2.64
	Thallium	60	8	60	800	0.6	5	34	3	8.8%	3.3	3.6	COMP-123	2	3.5	1.6E+00	2.72
	Vanadium	700	400	700	7,000	30	30	34	34	100.0%	8	120	B-4	--	--	6.0E+01	75.7
	Zinc	3,000	1,000	3,000	10,000	100	300	48	48	100.0%	6.5	110	B/MW 201	--	--	3.8E+01	44.71
Metals, SPLP																	
	Arsenic	5*	N/A	N/A	500	20	20	4	2	50.0%	0.005	0.009	B/MW 203	0.005	0.005	4.7E-03	0.0078
	Barium	100	N/A	N/A	10,000	50	50	4	3	75.0%	0.013	0.014	B/MW 202	0.01	0.01	1.1E-02	0.0137
General Chemistry																	
(mg/kg)	Specific conductance	N/A	N/A	N/A	N/A	NS	NS	3	3	100.0%	140	160	COMP-123-Native	--	--	1.5E+02	160
(su)	pH	N/A	N/A	N/A	N/A	NS	NS	6	6	100.0%	5.8	7.95	TP-1	--	--	6.8E+00	7.77

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

mg/L - milligrams per liter.

NA - Sample not analyzed for the listed analyte.

N/A - Not applicable.

NS - No MassDEP standards exist for this analyte.

U - Analyte was not detected at specified quantitation limit.

Values in **Bold** indicate the analyte was detected.

Values shown in Bold and shaded type exceed MassDEP RCS-1.

EPH - Extractable Petroleum Hydrocarbons.

VPH - Volatile Petroleum Hydrocarbons

RC - Reportable concentration.

SPLP - Synthetic Precipitation Leaching Procedure.

UCLs - Upper concentration limits.

* - EPA SW-846 Chapter 7, Table 7-1, Maximum Concentration of Contaminants for Toxicity Characteristic.

Table 9
Smear Zone Physical Properties
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street
Weymouth, Massachusetts

						Initial Fluid Saturations		After Centrifuging (30xG)	
Subcore Sample Location	Depth (ft-bgs)	Lithology	Total Porosity(2) (%)	Dry Bulk Density (g/cc)	Air-Filled Porosity(2) (%)	Water Saturation(3) (%Pv)	LNAPL Saturation(3) (%Pv)	Water Saturation (%)	LNAPL Saturation (%)
Physical Properties Data - Pore Fluid Saturations									
B406A-B	11	Fill	55.9	1.05	31.00	28.40	16.30	NA	NA
B406A-C	12.1	Sand	37.8	1.62	9.00	42.10	34.10	NA	NA
B406A-D	14.1	Sand	40.2	1.60	9.60	36.30	39.80	NA	NA
B404A-B	10.3	Fill	47.5	1.27	9.70	59.80	19.70	NA	NA
B404A-C	12.1	Fill	36.8	1.61	8.30	65.70	11.80	NA	NA
B404A-D	14.1	Fill	48.8	1.18	18.90	59.20	2.00	NA	NA
B412A-B	12.1	Fill	46.8	1.25	6.50	55.70	30.50	NA	NA
B412A-C	14.1	Fill	45.7	1.36	18.00	52.70	7.80	NA	NA
B412A-D	16.1	Fill	46.3	1.30	19.80	49.70	7.50	NA	NA
B413A-B	12.1	Fill	48.5	1.24	10.60	53.50	24.60	NA	NA
B413A-C	14.1	Fill	47.6	1.27	10.10	38.70	40.10	NA	NA
B413A-D	16.1	Fill	47.1	1.22	13.60	59.00	12.20	NA	NA
Oil/Water Capillary Pressure									
B406A-B	11.4	Fill	40	1.42	15.10	NA	NA	NA	NA
B406A-C	12.5	Sand	44	1.50	10.90	NA	NA	NA	NA
B406A-D	14.5	Sand	45.2	1.47	12.40	NA	NA	NA	NA
B404A-B	10.7	Fill	49.8	1.25	15.10	NA	NA	NA	NA
B404A-C	12.5	Fill	41.1	1.37	15.90	NA	NA	NA	NA
B404A-D	14.5	Fill	44.3	1.35	26.80	NA	NA	NA	NA
B412A-B	12.5	Fill	62	0.83	13.00	NA	NA	NA	NA
B412A-C	14.5	Fill	56.7	0.99	10.60	NA	NA	NA	NA
B412A-D	16.45	Fill	62.8	0.79	13.70	NA	NA	NA	NA
B413A-B	12.5	Fill	65.5	0.76	12.00	NA	NA	NA	NA
B413A-C	14.5	Fill	62.7	0.82	9.90	NA	NA	NA	NA
B413A-D	16.5	Fill	51.3	1.23	30.00	NA	NA	NA	NA
Free Product Mobility: Initial and Residual Saturations									
B406A-B(4)	11.2	Fill	59.9	0.89	NA	62.40	21.20	24.8	21.1
B406A-C(5)	12.3	Sand	41.4	1.57	NA	34.60	49.80	14.4	22
B406A-D(5)	14.3	Sand	44.4	1.49	NA	38.00	43.20	10.1	30.5
B404A-B(6)	10.5	Fill	43.3	1.40	NA	52.40	20.10	24.5	20.1
B404A-C(5)	12.3	Fill	49.1	1.14	NA	59.20	21.10	23	18.9
B404A-D(7)	14.3	Fill	40.7	1.41	NA	78.20	1.80	32.8	1.8
B412A-B(4)	12.3	Fill	51.9	1.02	NA	56.60	23.40	25.4	21.2
B412A-C(4)	14.3	Fill	39.4	1.48	NA	80.70	12.00	30.6	11.6
B412A-D(5)	16.3	Fill	46.7	1.27	NA	66.80	8.70	19.7	7.8
B413A-B(5)	12.3	Fill	55.4	0.97	NA	57.90	30.40	28.1	27.8
B413A-C(5)	14.3	Fill	53.1	1.08	NA	57.20	31.80	24.9	30
B413A-D(4)	16.3	Fill	52.4	1.15	NA	47.70	9.50	17.2	9.4

Abbreviations:

ft-bgs - feet below ground surface (existing grade).
g/cc - grams per cubic centimeter
LNAPL - Light Non-Aqueous Phase Liquid
NA - not analyzed
Pv - Pore Volume, cc
Swi - Initial Water Saturation as received prior to centrifuging at 30xGravity(G)
Soi - Initial NAPL Saturation as received prior to centrifuging at 30xG
Srw - Residual Water Saturation after centrifuging at 30xG
Sor - Residual NAPL Saturation after centrifuging at 30xG
Vb - Bulk Volume, cc

Notes:

(1) All soil samples vertical.
(2) Total Porosity = all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids.
(3) Fluid density used to calculate pore fluid saturations: Water = 0.9996 g/cc, NAPL = 0.9724 g/cc.
(4) Trace dark brown LNAPL produced. Produced water clear.
(5) Dark brown LNAPL produced. Produced water clear.
(6) No visible LNAPL produced. Produced water cloudy with brown color and no hydrocarbon odor.
(7) No visible NAPL produced. Produced water clear with no hydrocarbon odor.

Table 10
Petroleum-Containing Soil Thickness, and LNAPL Saturation Estimates
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Boring ID	Observed Top PCS (ft-bgs)	Observed Bottom PCS (ft-bgs)	PID HS (ppm/v)^1	Estimated PCS Thickness (ft)^2	VPH/EPH Sample Depth (ft-bgs)	Calculated TPH (mg/kg)^5	LNAPL Saturation (% PV)^6	Observations/Notes
B-105^3	14	19	-	6	14-17	22,795	0.0854	Strong petroleum odor, gravel/ sand.
B/MW-201	12	18	54.4	6	6-8	123		Black fill
					10-12	8,548		Black fill, staining and odor
B-301	10.5	11.7	20.8	1.2	-	-	-	Black oil stained fll
B-303	10.5	10.7	20.1	0.2	-	-	-	Black oily fill & sand/silt
B-304	10.8	12.5	17.8	1.7	-	-	-	Oil globules, stained fill
B-305	11.2	17	49.5	5.8	-	-	-	Oil saturated/stained fill
B-306	11.8	14.8	116	3	-	-	-	Oil saturated/stained fill
B-309	11.5	16.7	47.7	5.2	-	-	-	Oil saturated fill & fine sand
B-311	11.3	17.3	32.7	6			-	Oil saturated/stained fill
B-312	11.2	16.7	40.9	5.5	-	-	-	Oil saturated/stained fill
B-313	11.3	14	55.2	2.7	-	-	-	Oil saturated f-m sand
B-317	11.7	13	97.3	1.3	11.5	ND		Ash and cinders
					13	16,153	0.0397	Oil saturated fill
B-318	10.7	11.2	22.1	0.5	-	-	-	Oily silt and slag
B-319	12.5	15	137.8	2.5	-	-	-	Oil stained sand & silt
B/MW-404	12	12.5	12.3	0.5	11.4	1,151		Black coal dust
					12	62,500	0.1538	Oily sheen coal, ash cinders
					16.7	ND		F-m sand
B/MW-406	11.5	15	155	3.5	11.8	30,760	0.1152	Oil globules/oil stained f-m sand
					12.5	48,625	0.1821	
					21	ND		F-c sand, mild odors
B/MW-407	10.5	13	30.6	2.5	11.8	53,336	0.1998	Oil stained f-m sand
					12.8	15,686	0.0587	Oil stained f-m sand
					17.5	ND		Tan f-c sand
B/MW-410	11.3	12.8	0.0	1.5	11	11,107	0.0273	Fill with sheen/heavy oil
					12.5	16,670	0.0410	Fill with heavy oil
					14	72		Black fill
B/MW-411	11.1	15.8	14.1	4.7	11.5	357		Fill with sheen
					14	50,300	0.1238	Fill with viscous oil
					16	ND		Olive-green, wet fine sand
B/MW-412	11.3	16.3	0.0	5	11.5	35,190	0.0866	Oily fill
					13	63,200	0.1555	Oily fill
					19	58		Olive-gray fine sand with silt

Table 10
Petroleum-Containing Soil Thickness, and LNAPL Saturation Estimates
Permanent Solution Statement Report
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station
6 Bridge Street, Weymouth, Massachusetts

Boring ID	Observed Top PCS (ft-bgs)	Observed Bottom PCS (ft-bgs)	PID HS (ppm/v)[1]	Estimated PCS Thickness (ft)[2]	VPH/EPH Sample Depth (ft-bgs)	Calculated TPH (mg/kg)[5]	LNAPL Saturation (% PV)[6]	Observations/Notes
B/MW-413	11.1	16.6	25	5.5	11	12,980	0.0319	Black fill with oil
					14-15	65,700	0.1617	Oil saturated fill
					23	35		Silt with clay
B/MW-414	11.4	15	55	3.6	11	501		Black fill
					14	35,520	0.1330	Oily, black, f-m sand with silt
					15.5	539		F-c sand, some silt, little f grave
B/MW-415	11.7	16	30.6	4.3	11.8	18,710	0.0460	Fill with free oil
					12.2	13,890	0.0342	Fill with free oil
					13.4	2,090		Fill (slag and ash) oily to 16 ft.

Minimum Estimated PCS Impact Thickness (ft):	0.2
Maximum Estimated PCS Impact Thickness (ft):	6.0
Average Estimated PCS Thickness (ft).	3.4

0.10 = Average LNAPL in Soil

(TPH greater than 10,000 mg/kg selected to calculate Average LNAPL in Soil to be conservative)

	Lithology	Porosity (%)	Bulk Density (g/cc)
Average	**Fill**	0.50	1.20
	Sand	0.42	1.54

Abbreviations:
c - coarse grained
EPH - Extractable Petroleum Hydrocarbons
f - fine grained
ft-bgs - feet below ground surface
g/cc - grams per cubic centimeter
LNAPL - Light NonAqeous Phase Liquid
m - medium grained
mg/kg - milligrams per kilogram
PCS - petroleum-containing soil
PID HS - Photoionization detector jar headspace
ppmv - parts per million volume
%PV - Percent pore volume
TPH - Total Petroleum Hydrocarbons - sum of detected VPH and EPH analytes
VPH - Volatile Petroleum Hydrocarbons

Notes :
1. Photoionization detector headspace values listed represent highest measured value in depth interval listed
2. Estimated LNAPL thickness may be larger because of limited soil core recovery
3. B-105 - LNAPL thickness estimated between 12 and 18 ft bgs (6 ft thickness) based on depth of LNAPL at MW-201
4. MW-402 - This location was inadvertently included in this table in Status Report #2 as containing "petroleum saturated soils", which is incorrect; only a sheen was observed, so it does not appear on this table.
5. TPH = sum of detected unadjusted EPH, unadjusted VPH and their target analytes
6. Saturation (%PV) - TPH*(Bulk Density*0.000001)/(Total Porosity*LNPAL Density). LNAPL Density = 0.9724.

Table 11
Soil Jar Headspace Results and Product Containing Soils Observations
Permanent Solution Statement Report
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street
Weymouth, Massachusetts

Boring and Monitoring Well Identification	Depth (ft-bgs)	Jar Headspace PID (ppm/V)	Observed Top PCS (ft-bgs)	Observed Bottom PCS (ft-bgs)	Approximate PCS Thickness (ft)
B-105	NA	NA	14	19	5
B-201/MW-201	6-10	0-0.5	12	18	6
B-202/MW-202	1-9	0-2.7	0	0	0
B-203/MW-203	1-9	0-0.4	0	0	0
B-204/MW-204	6-10	0.1-0.6	0	0	0
B-205/MW-205	6-10	0-0.6	0	0	0
B-300	5-10	0.0	0	0	0
B-301	5-10	0.0	10.5	11.7	1.2
B-302	0-10	0.0	0	0	0
B-303	0-10	0-0.3	10.5	10.7	0.2
B-304	0-10	0-0.3	10.8	12.5	1.7
B-305	0-10	0-0.2	11.2	17	5.8
B-306	0-10	0-0.2	11.8	14.8	3
B-307	0-10	0.0	0	0	0
B-308	5-10	0.0	0	0	0
B-309	0-10	0-0.2	11.5	16.7	5.2
B-310/MW-206	0-10	0.0	0	0	0
B-311	0-10	0-0.2	11.3	17.3	6
B-312	0-10	0-0.4	11.2	16.7	5.5
B-313	0-10	0.0	11.3	14	2.7
B-314	0-10	0-0.2	0	0	0
B-315	0-10	0.0	0	0	0
B-317	0-10	0-0.2	11.7	13	1.3
B-318	0-10	0.0	10.7	11.2	0.5
B-319	5-10	0.0	12.5	15	2.5
B-400/MW-400	0-10	0-0.1	0	0	0
B-401/MW-401	0-10	0.0	0	0	0
B-402/MW-402	0-10	0.0	10.8	12.2	1.4
B-403/MW-403	0-10	0.0	0	0	0
B-404/MW-404	0-10	0.0	12	12.5	0.5
B-405/MW-405	0-10	0.0	0	0	0
B-406/MW-406	0-10	0-0.1	11.5	15	3.5
B-407/MW-407	0-10	0.0	10.5	13	2.5
B-408/MW-408	0-10	0.1	0	0	0
B-409/MW-409	0-10	0.0	0	0	0
B-410/MW-410	0-10	0.0	11.3	12.8	1.5
B-411/MW-411	0-10	0.0	11.1	15.8	4.7

Table 11
Soil Jar Headspace Results and Product Containing Soils Observations
Permanent Solution Statement Report
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street
Weymouth, Massachusetts

Boring and Monitoring Well Identification	Depth (ft-bgs)	Jar Headspace PID (ppm/V)	Observed Top PCS (ft-bgs)	Observed Bottom PCS (ft-bgs)	Approximate PCS Thickness (ft)
B-412/MW-412	0-10	0.0	11.3	16.3	5
B-413/MW-413	0-10	0.0	11.1	16.6	5.5
B-414/MW-414	0-10	0-1.8	11.4	15	3.6
B-415/MW-415	0-10	0-0.2	11.7	16	4.3
B-416/MW-416	0-10	0.0	0	0	0
B-417/MW-417	0-10	0.0	0	0	0

Abbreviations:

bgs - below ground surface

ft - feet

PCS - petroleum containing soil.

ppp/V - parts per million per volume

Notes:

1) B-316 does not exist.

Table 12
Summary Statistics for Soil Samples -- Greater Than 3 Foot Interval
Spectra - 6 Bridge Street
Weymouth, Massachusetts

Analysis	Analyte					# of Samples	# of Detects	Freq. of Detects	Min. of Detects (mg/kg)	Max. of Detects (mg/kg)	Location of Max. Detected	Min. of Non-Detects (mg/kg)	Max. of Non-Detects (mg/kg)	Mean Concentration (mg/kg)	EPC (mg/kg)	EPC Rationale
		S-1/GW-2	S-1/GW-3	UCL*	Background											
VPH																
(mg/kg)	C9-C10 Aromatics	100	100	5,000	NA	2	2	100.0%	45	**140**	B-317	--	--	9.3E+01	1.4E+02	Maximum of detects
	C9-C12 Aliphatics	1,000	1,000	20,000	NA	2	1	50.0%	163	163	B-317	12.5	12.5	8.5E+01	1.6E+02	Maximum of detects
EPH																
(mg/kg)	C9-C18 Aliphatics	1,000	1,000	20,000	NA	17	16	94.1%	6.94	**4570**	B105	6.96	6.96	1.5E+03	**2.2E+03**	95% KM (t) UCL
	C19-C36 Aliphatics	3,000	3,000	20,000	NA	17	17	100.0%	32	**9110**	B105	--	--	3.1E+03	**4.4E+03**	95% Student's-t UCL
	C11-C22 Aromatics	1,000	1,000	10,000	NA	17	17	100.0%	18.5	**9070**	B105	--	--	3.8E+03	**9.1E+03**	Maximum of detects
	Naphthalene	20	500	10,000	0.5	17	1	5.9%	11.8	11.8	B-407	0.344	13.1	2.2E+00	2.2E+00	Mean
	2-Methylnaphthalene	80	300	5,000	0.5	17	2	11.8%	0.9125	45.2	B-407	0.344	13.1	4.5E+00	4.5E+00	Mean
	Phenanthrene	500	500	10,000	3	17	4	23.5%	0.4	8.97	B-407	0.35	13.1	2.5E+00	2.5E+00	Mean
	Fluoranthene	1000	1000	10,000	4	17	2	11.8%	0.454	0.674	B-417	0.35	13.1	2.0E+00	NA	Below background
	Pyrene	1,000	1,000	10,000	4	17	3	17.6%	0.486	1.08	B-404	0.35	13.1	2.0E+00	NA	Below backgrounc
	Benzo(a)anthracenc	7	7	3,000	2	17	2	11.8%	0.458	0.91	B-415	0.348	13.1	2.0E+00	NA	Below backgrounc
	Chrysene	70	70	10,000	2	17	4	23.5%	0.409	1.19	B-404	0.35	13.1	2.0E+00	NA	Below backgrounc
	Benzo(b)fluoranthenc	7	7	3,000	2	17	1	5.9%	0.385	0.385	B-417	0.348	13.1	1.9E+00	NA	Below backgrounc
	Benzo(a)pyrenc	2	2	300	2	17	1	5.9%	0.39	0.39	B-417	0.348	13.1	1.9E+00	NA	Below backgrounc
	Benzo(g,h,i)perylenc	1,000	1,000	10,000	1	17	1	5.9%	0.396	0.396	B-417	0.348	13.1	1.9E+00	NA	Below backgrounc

Notes:

mg/kg - milligrams per kilogram (dry weight) or parts per million (ppm).

NA - Not available or not applicable.

Values shown in Bold and shaded type exceed MassDEP S-1 standard.

Boxed maxima exceed natural soil background.

EPH - Extractable Petroleum Hydrocarbons.

VPH - Volatile Petroleum Hydrocarbons

UCL* - Upper Concentration Limit.

Background - Background Concentration for natural soil.

EPC - Exposure point concentration.

UCL - Upper confidence limit.

Table 13
Summary Statistics for Groundwater Samples
Spectra - 6 Bridge Street
Weymouth, Massachusetts

Analysis	Analyte				# of Samples	# of Detects	Freq. of Detects	Min. of Detects (ug/L)	Max. of Detects (ug/L)	Location of Max. Detected	Min. of Non-Detects (ug/L)	Max. of Non-Detects (ug/L)	Mean Concentration (ug/L)	EPC (ug/L)	EPC Rationale
		GW-2	GW-3	UCL											
VPH															
	C9-C10 Aromatics	4,000	50,000	100,000	18	1	6.7%	68.3	68.3	MW-407	50	250	6.4E+01	6.8E+01	Maximum of detects
	C9-C12 Aliphatics	5,000	50,000	100,000	15	1	6.7%	58.3	58.3	MW-414	50	250	5.6E+01	5.8E+01	Maximum of detects
	Ethylbenzene	20,000	5,000	100,000	15	1	6.7%	3.22	3.22	MW-406	2	10	2.3E+00	3.2E+00	Maximum of detects
	Naphthalene	700	20,000	100,000	15	2	6.7%	6.72	7.57	MW-407	4	10	3.2E+00	6.7E+00	Maximum of detects
EPH															
	C19-C36 Aliphatics	NS	50,000	100,000	15	1	6.7%	223	223	MW-404	100	100	6.2E+01	2.2E+02	Maximum of detects
	C11-C22 Aromatics	50,000	5,000	100,000	15	7	40.0%	102	188	MW-414	100	100	8.0E+01	1.9E+02	Maximum of detects

Notes:

ug/L - micrograms per liter.

EPC - Exposure point concentration.

Values in **bold** indicate the analyte was detected.

UCL - Upper Concentration Limit.

VPH - Volatile Petroleum Hydrocarbons.

EPH - Extractable Petroleum Hydrocarbons.

Table 14
Summary of Receptor Risks and Hazards for Soil and Groundwater
Spectra - 6 Bridge Street
Weymouth, Massachusetts

Exposure Point	Scenario/ Receptor	Exposure Media	Exposure Pathway	ELCR	HI	Major contributors to risk/hazard
Disposal Site	Commercial Worker	>3' Soil	Ingestion	N/A	4E-02	N/A
			Dermal	N/A	3E-02	
			Inhalation	N/A	2E-03	
			Total	N/A	7E-02	
	Construction Worker (maximum scenario)	>3' Soil	Ingestion	N/A	2E-02	N/A
			Dermal	N/A	7E-02	
			Inhalation	N/A	2E-03	
		Trench Air - Soil	Inhalation	N/A	2E-04	
		Trench Air - Groundwater	Inhalation	N/A	1E-02	
		Groundwater	Dermal	N/A	7E-02	
			Total	N/A	2E-01	

<u>Notes</u>

Bolded values exceed a cancer risk of 1E-05 or a target organ HI of 1.
HI - Hazard Index
ELCR - Excess Lifetime Cancer Risk

(C) - Carcinogenic Risk
(NC) - Noncarcinogenic Risk
N/A - Not Applicable

Table 15
Feasibility Evaluation Alternatives Screening
Permanent Solution Statement Report
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Alternative No.	Alternative	Description	Site Constraints	Delivery	Advantages	Disadvantages	Relative Cost	Retained
1	No Action	No action is undertaken to monitor, remediate, or pursue an Activity and Use Limitation.	• NA	• NA	• No remedial implementation cost.	• An MCP Permanent Solution is not obtained. • Potential MassDEP MCP non-compliance fines. • Limits future use of property.	Low	No
2	LNAPL Skimming	Large diameter extraction wells equipped with a skimming pump that discharges recovered LNAPL to an above ground tank that is periodically pumped out and properly disposed off-site.	• Similar constraints to air sparging. • Limited effectiveness due to heterogeneity/low LNAPL transmissivity.	• Limited delivery effectiveness due to heterogeneity, LNAPL high viscosity, and low LNAPL transmissivity.	• Proven technology, although frequently not effective at achieving remedial goals. • Easily implemented	• Limited applicability due to low LNAPL transmissivity. • Limited area of influence unless incorporated with groundwater depression. • Slow	Medium	No
3	Air Sparging with Soil Vapor Extraction	AS injects air into LNAPL body to volatilize LNAPL constituents, and vapors are vacuum extracted. AS or SVE can also be used individually if conditions are appropriate (LNAPL phase-change remediation).	• To adequately treat, injection points must be placed below impacted area to form cone of influence. • Sparge wells will not effectively deliver air in low permeability materials. • Limited delivery effectiveness due to heterogeneity, LNAPL high viscosity, and low LNAPL transmissivity.	• Delivery should be successful into gravel and coarse sand fill, but limited by low permeability zone, and LNAPL high viscosity.	• Requires no removal, treatment, storage, or discharge of water • Typically readily available technology and easily implemented	• Capture and treatment of vapor is required • Does not high viscosity LNAPL. • Difficult to treat heterogeneous soils. • Presence of low permeability zones will inhibit volatilization of LNAPL.	Low	No
4	Multi-phase Extraction	LNAPL and groundwater are removed through the use of two in-well dedicated pumps. Vacuum enhancement is typically added to increase LNAPL hydraulic recovery rates (LNAPL mass recovery).	• Limited delivery effectiveness due to heterogeneity, LNAPL high viscosity, and low LNAPL transmissivity.	• Unlikely this alternative would be successful in remediating residual LNAPL.	• Components are readily available and well understood	• Treatment/disposal of fluids necessary; permits required • Relatively high O&M costs	Medium	No

Table 15
Feasibility Evaluation Alternatives Screening
Permanent Solution Statement Report
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Alternative No.	Alternative	Description	Site Constraints	Delivery	Advantages	Disadvantages	Relative Cost	Retained
5	In-situ Chemical Oxidation	LNAPL is depleted by accelerating LNAPL solubilization by the addition of a chemical oxidant into the LNAPL zone (LNAPL phase-change remediation).	• Organics, and reduced iron and manganese in soil will consume the oxidant (i.e., natural oxidant demand).	• Limited delivery effectiveness due to heterogeneity, LNAPL high viscosity, and low LNAPL transmissivity.	• May require only limited removal, treatment, storage, or discharge of groundwater • Short treatment times, 6 months to 2 years under optimal conditions • Readily available equipment • Easy installation	• Numerous injection points and repeated injections required. • Soil heterogeneities and high viscosity NAPL will limit LNAPL contact with oxidant. • Injection and partial oxidation may make LNAPL more mobile and spread into clean zones. • Difficult to control injection and assure containment with extraction. • Likely high oxidant demand from coal ash, and reduced iron, manganese, and other metals in urban fill. • May generate dissolved phase plume. • Contaminant rebound.	Medium	No
6	Surfactant-enhanced Subsurface Remediation	A surfactant is injected that increases LNAPL solubilization and LNAPL mobility. The dissolved phase and LNAPL are then recovered via hydraulic or pneumatic extraction (LNAPL phase-change remediation and LNAPL mass recovery).	• Limited effectiveness due to heterogeneity/low LNAPL transmissivity.	• Surfactant can be injected into high permeability zones.	• Mobilizes LNAPL so it may be removed.	• Likely to be difficult to mobilize all of LNAPL contained in soil. • Hydraulic control required • Remedial additives will likely persist. • Will likely mobilize LNAPL and generate a dissolved phase plume that may impact clean zones.	High	No

Table 15
Feasibility Evaluation Alternatives Screening
Permanent Solution Statement Report
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Altern-ative No.	Alternative	Description	Site Constraints	Delivery	Advantages	Disadvantages	Relative Cost	Retained
7	In Situ Thermal Treatment	Utilizes vertical electrodes installed in the subsurface to elevate in situ temperature to volatilize organic contaminants. Vapors must be recovered via vapor extraction.	• Monitoring wells in the treatment zone would need to be removed and replaced after remediation completed. • High viscosity LNAPL requires additional electrical energy during implementation.	• Combustion moves through soil despite heterogeneities making delivery more successful than most other in-situ technologies. • Addresses heterogeneous materials containing LNAPL.	• Not limited by heterogeneities. • Reduces possibility of rebound effect.	• Requires soil vapor • SVE System; • Higher electrical costs to heat weathered fuel oil. • Possibility of fugitive emissions requires ambient air monitoring • Existing wells must be removed, and replaced after remediation performed.	High	No
8	In Situ Solidification	LNAPL body is physically/chemically bound within a stabilized mass to reduce mobility (LNAPL mass control).	• Limited effectiveness due to heterogeneity/low LNAPL transmissivity. • May limit future site reuse options. • Not easily implemented adjacent to utilities and existing wells.	• Successful if all portions of impacted area can be reached. • Would require soil mixing to enhance probability of success.	• May require only limited removal, treatment, storage, or discharge of groundwater • Readily available equipment. • Fast acting	• Required homogeneity • Residual management • Site reuse options limited in stabilized areas.	Medium – High	No

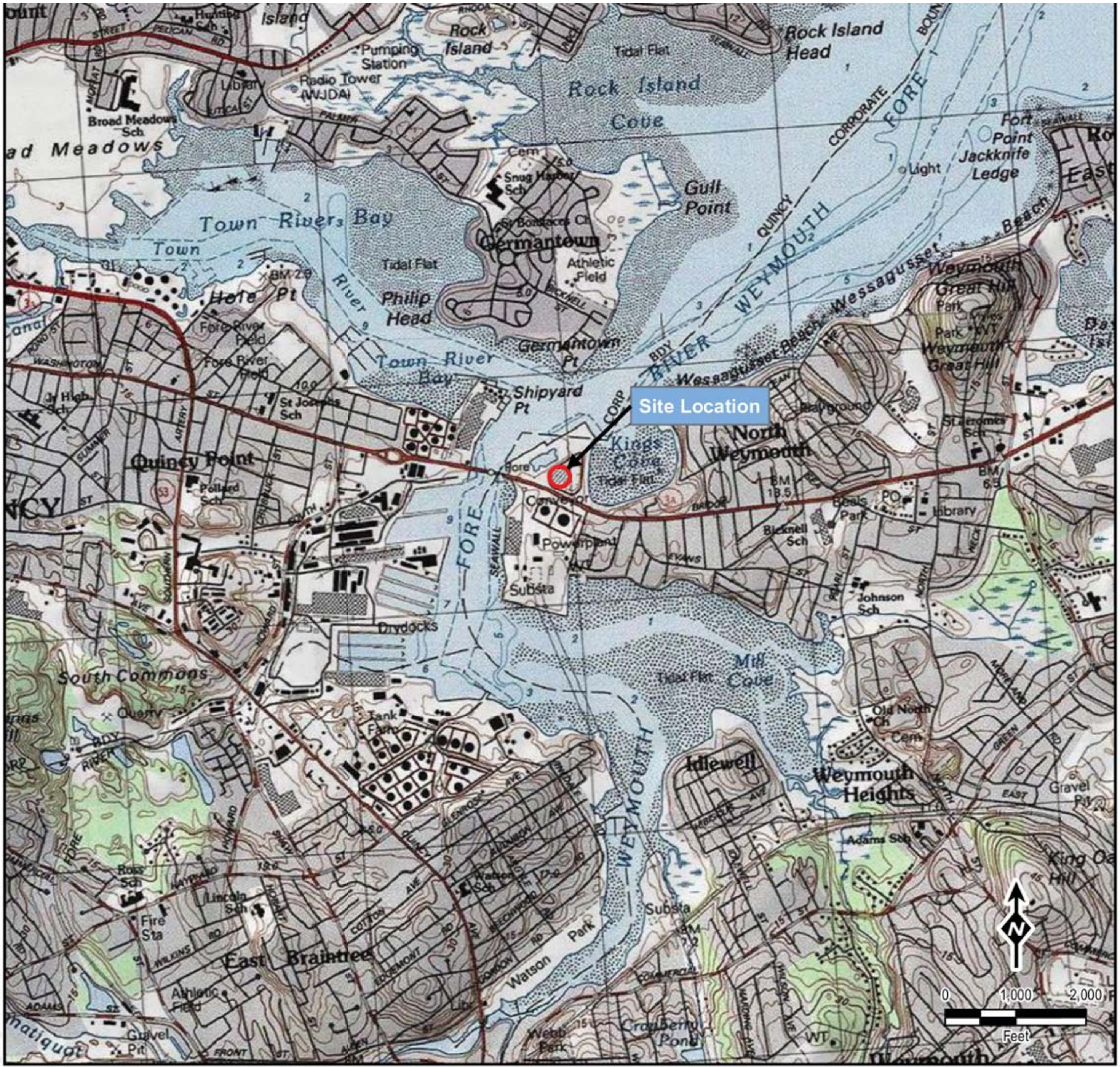
Table 15
Feasibility Evaluation Alternatives Screening
Permanent Solution Statement Report
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Altern-ative No.	Alternative	Description	Site Constraints	Delivery	Advantages	Disadvantages	Relative Cost	Retained
9	Ex Situ Bioremediation	Contaminated soil is excavated and is spread-out on ground in one foot thick layer, nutrients added, and tilled periodically. The contaminants are degraded by volatilization and biodegradation.	• Volatilization and biodegradation has already transformed the No. 2 fuel oil product into high viscosity, sticky oil. • Microbial sampling and pilot testing required to evaluate whether this option is viable.	• Nutrients can be applied uniformly to improve nutrient distribution. • Overcomes in situ heterogeneities that limit nutrient distribution.	• If successful, should reduce time-frame to reach remediation goals. • Relatively less expensive then more aggressive alternatives.	• Likely some soil will not meet applicable MCP S-2 and S-3 standards after implementation and need to be disposed offsite. • Expensive - requires soil excavation, sheeting, dewatering, and backfill with clean soil. • Drainage control system needed. • Threat of contaminating uncontaminated soil. • Remediation time frame may be prolonged because the fuel oil is weathered and highly viscous. • Landfarming area occupies land that could be used for development. • Fence will be needed to prevent unauthorized access.	High	Yes
10	Monitored Natural Attenuation (MNA)	Commonly applied source remediation performed. Impacts naturally diminish over time through volatilization, biodegradation, sorption, dispersion, and dilution. Periodic gauging and groundwater quality monitoring requires additional parameters to evaluate MNA processes.	• Volatilization and biodegradation has already transformed the No. 2 fuel oil product into high viscosity, sticky oil. No significant groundwater contaminant plume and volatile vapors exist.	• N/A	• Monitoring wells already in place. • Requires no removal, treatment, storage, or discharge of groundwater. • Typically effective for a plume that is either stable or shrinking already; site data suggest plume is stable and degrading.	• Unlikely to be effective at reducing LNAPL soil concentrations in the foreseeable future. • Groundwater quality monitoring required for a long period of time. • Will not support an MCP Permanent Solution in the foreseeable future.	Medium	No

Table 15
Feasibility Evaluation Alternatives Screening
Permanent Solution Statement Report
Atlantic Bridge Project
Weymouth Compressor Station
6 and 50 Bridge Street, Weymouth, Massachusetts

Altern-ative No.	Alternative	Description	Site Constraints	Delivery	Advantages	Disadvantages	Relative Cost	Retained
11	Soil Excavation	Sheet pile, dewater and excavate the LNAPL footprint, removing impacted soils to prevent recontamination. Impacted soils are treated on-site or off-site, or disposed off-site.	• LNAPL zone approximately 10 feet below existing grade, LNAPL thickness averages 3.4 feet and observed up to 6 feet thick. Thickness may be higher in some areas.	• Methods of dewatering and excavation are common and well developed	• Complete removal of LNAPL, in a relatively short time period. • No long term monitoring needed • No activity and use limitation needed. • Supports an MCP Permanent Solution without Conditions.	• Requires potentially complicated work around access roads and nearby utilities. • Large site disruption • Large scale and expensive ex situ treatment or disposal operations • Shoring is required because of likely excavation sidewall caving. • Excavation within the water table may be difficult and requires dewatering • Dewatering requires treatment and permit • Large volume of soil for off-site disposal	High	Yes
12	Activity and Use Limitation (AUL)	Dead restriction that restricts the use of the property to limit exposure to LNAPL and identified soil contamination.	• NA	• NA	• Low cost • Support an MCP Permanent Solution relatively quickly. • Allows future development of the property.	• Limits future uses of property. • Does not remediate LNAPL and contaminated soil.	Low	Yes

FIGURES



LEGEND

○ APPROXIMATE SITE LOCATION

MASS. COOR. SYSTEM
NAD 1983 – MAINLAND ZONE

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

SITE LOCUS MAP

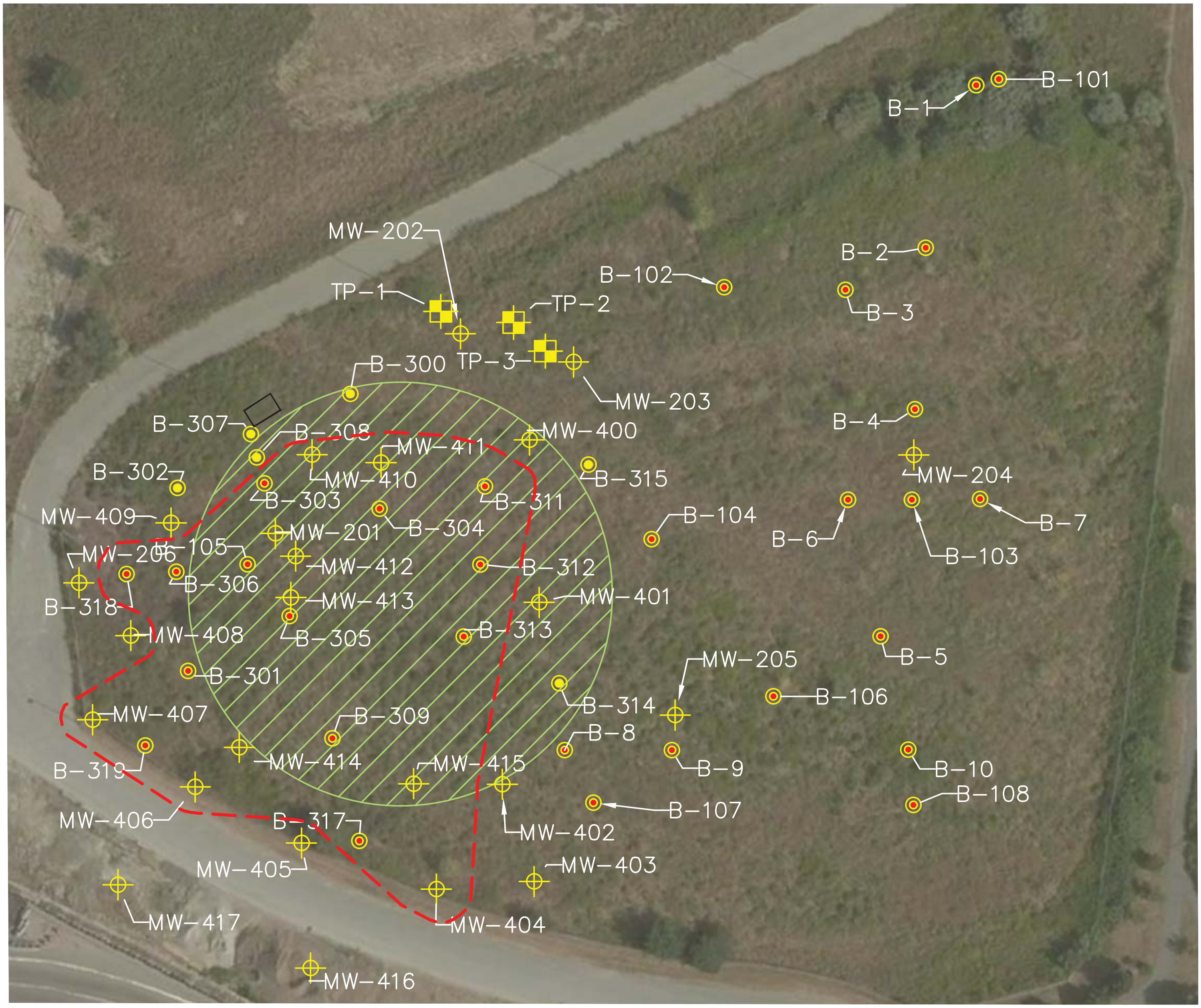
PERMANENT SOLUTION STATEMENT
RTN 4–26230

TRC
2 Liberty Sq
6th Floor
Boston, MA 02113
(617)350–3444

FIGURE 1

DRAWN BY: JMM
CHECKED BY: CR
DATE: MARCH 16, 2018

FILE: J:\140143 – Atlantic Bridge\Weymouth Compressor Station\CAD Files\Boring Plan_Dec2017.dwg



SCALE: 1"=70'

0' 35' 70' 140'

LEGEND

◉ SOIL BORING

⊕ MONITORING WELL

▦ TEST PIT

▨ LOCATION:
FORMER ABOVE-GROUND STORAGE TANK
11,256,000-GALLON
NO. 2 FUEL OIL

☐ APPROXIMATE LOCATION OF FORMER
6,000-GALLON FUEL ADDITIVE
ABOVE-GROUND STORAGE TANK

— — DISPOSAL SITE BOUNDARY

NOTE:
BORING B-316 WAS NOT INSTALLED

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

DISPOSAL SITE BOUNDARY
BORING/MONITORING WELL LOCATIONS

PERMANENT SOLUTION STATEMENT
RTN 4-26230

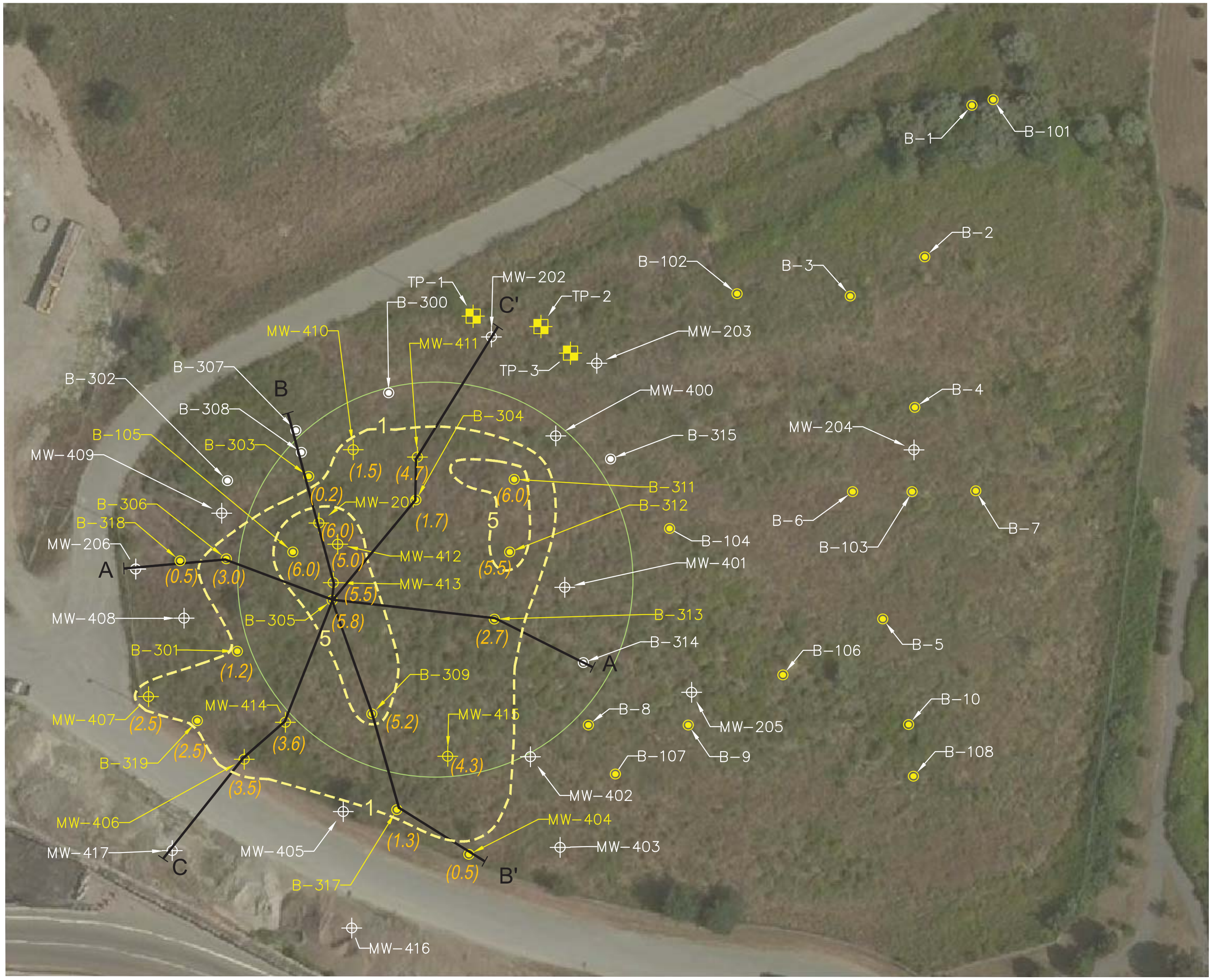
TRC
2 Liberty Sq
6th Floor
Boston, MA 02113
(617)350-3444

FIGURE
2

DRAWN BY: JMM
CHECKED BY: CR

DATE:
MARCH 16, 2018

FILE: J:\140143 - Atlantic Bridge\Weymouth Compressor Station\CAD Files\Boring Plan Dec2017.dwg



NOTES:

NP = NO OBSERVED PETROLEUM-CONTAINING SOILS (WHITE)

LEGEND

◉	SOIL BORING
⊕	MONITORING WELL
▨	TEST PIT
○	APPROXIMATE LOCATION: FORMER ABOVE-GROUND STORAGE TANK 11,256,000-GALLON NO. 2 FUEL OIL
- -5- -	APPROXIMATE PRODUCT SATURATED SOIL THICKNESS IN FEET-DECEMBER 2016
A ├─┤ A'	GEOLOGIC CROSS SECTION LINE
(4.3)	APPROXIMATE PRODUCT THICKNESS IN SOIL (FT.)
)	APPROXIMATE EXTENT OF FORMER FUEL OIL AST

0 50 100 Feet

PROJECT:
ATLANTIC BRIDGE PROJECT-WEYMOUTH COMPRESSOR STATION
BRIDGE ST., WEYMOUTH, MA.

ENBRIDGE

TITLE:
PRODUCT THICKNESS AND GEOLOGIC CROSS SECTION LINES
PERMANENT SOLUTION STATEMENT
RTN 4-26230

DRAWN BY:	JMM	PROJ NO.:	140143
CHECKED BY:	CR	**3**	
APPROVED BY:	CR		
DATE:	MARCH 16, 2018		

TRC

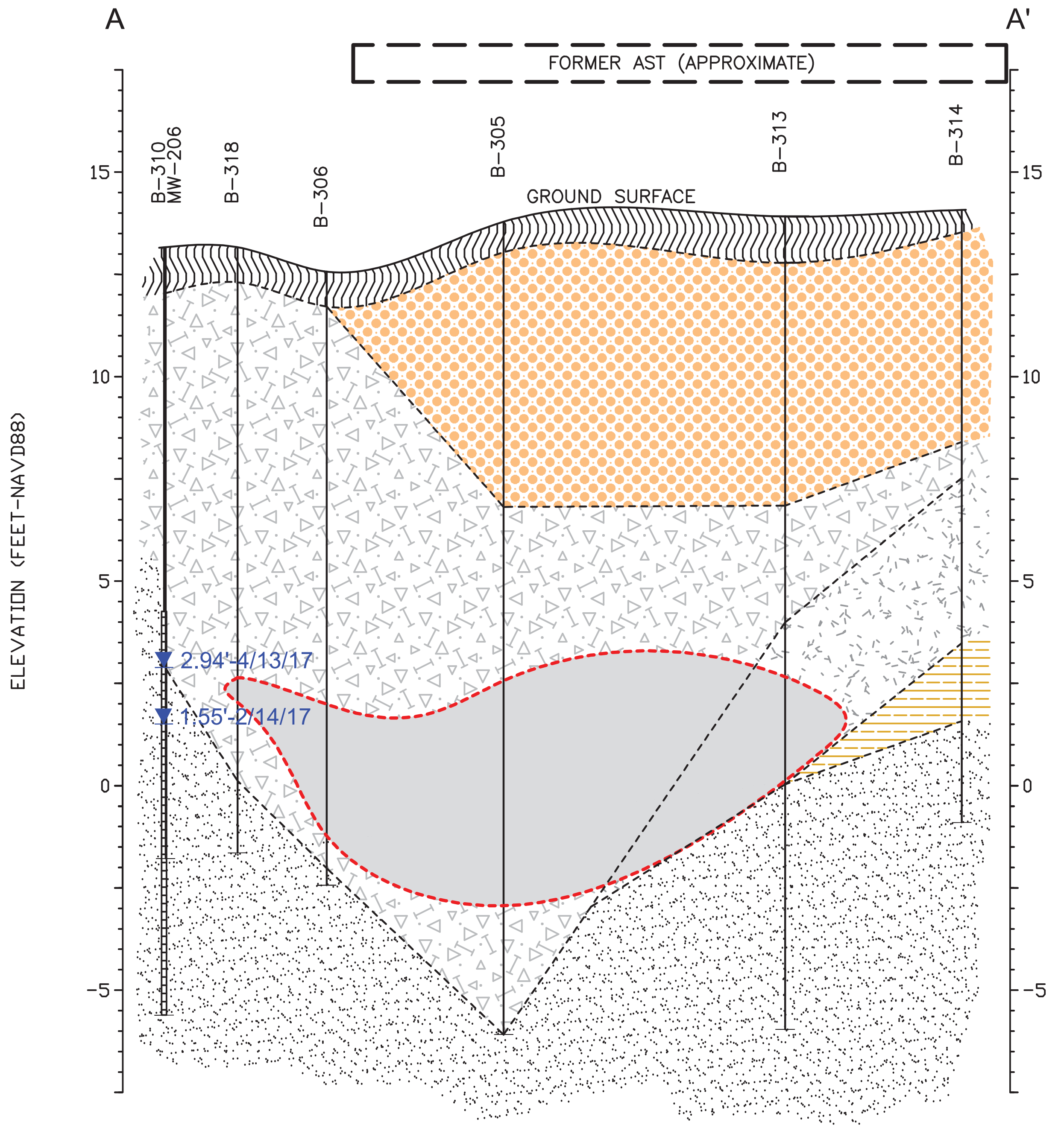
2 Liberty Sq
6th Floor
Boston, MA 02113
(617)350-3444

FILE NO.: PRODUCT AND GEOLOGIC THICKNESS_Dec2017.dwg

11x17 --- ATTACHED XREFS: --- ATTACHED IMAGES: logo enbridge;
DRAWING NAME: J:\140143 - Atlantic Bridge\Weymouth Compressor Station\CAD Files\ PRODUCT AND GEOLOGIC THICKNESS_Dec2017.dwg --- PLOT DATE: March 16, 2018 - 2:37PM --- LAYOUT: DTP Fig 3

Version: 2017-03-03

FILE: J:\140143 - Atlantic Bridge\Weymouth Compressor Station\CAD Files\CrossSection_ABC_Dec2017.dwg



LEGEND

▨ TOP SOIL

▨ FINE TO MEDIUM SAND (FILL)

▨ SAND, GRAVEL, SILT, CLAY CONTAINING BRICK, CONCRETE, CINDERS, CLINKERS, COAL AND/OR COAL ASH LIKE MATERIAL (HISTORIC FILL)

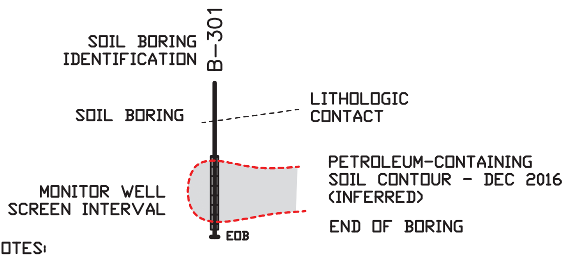
▨ SILT AND SAND

▨ FINE TO COARSE SAND WITH TRACE SILT AND/OR GRAVEL

▨ FINE SAND , SILT AND/OR CLAY, INTERTIDAL-NEAR-SHORE MARINE DEPOSITS

▨ PETROLEUM-CONTAINING SOIL

▼ 2.79-4/03/17 1.66-1/33/17 APPROXIMATE GROUNDWATER ELEVATION (DATE-HIGH-LOW)



NOTES:
1) GROUND SURFACE IS BASED UPON THE SURFACE ELEVATION OF THE SOIL BORINGS.
2) CONTACTS ARE DASHED WHERE INFERRED.
3) ELEVATION DATUM NGVD 1988; FEET ABOVE MEAN SEA LEVEL.

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

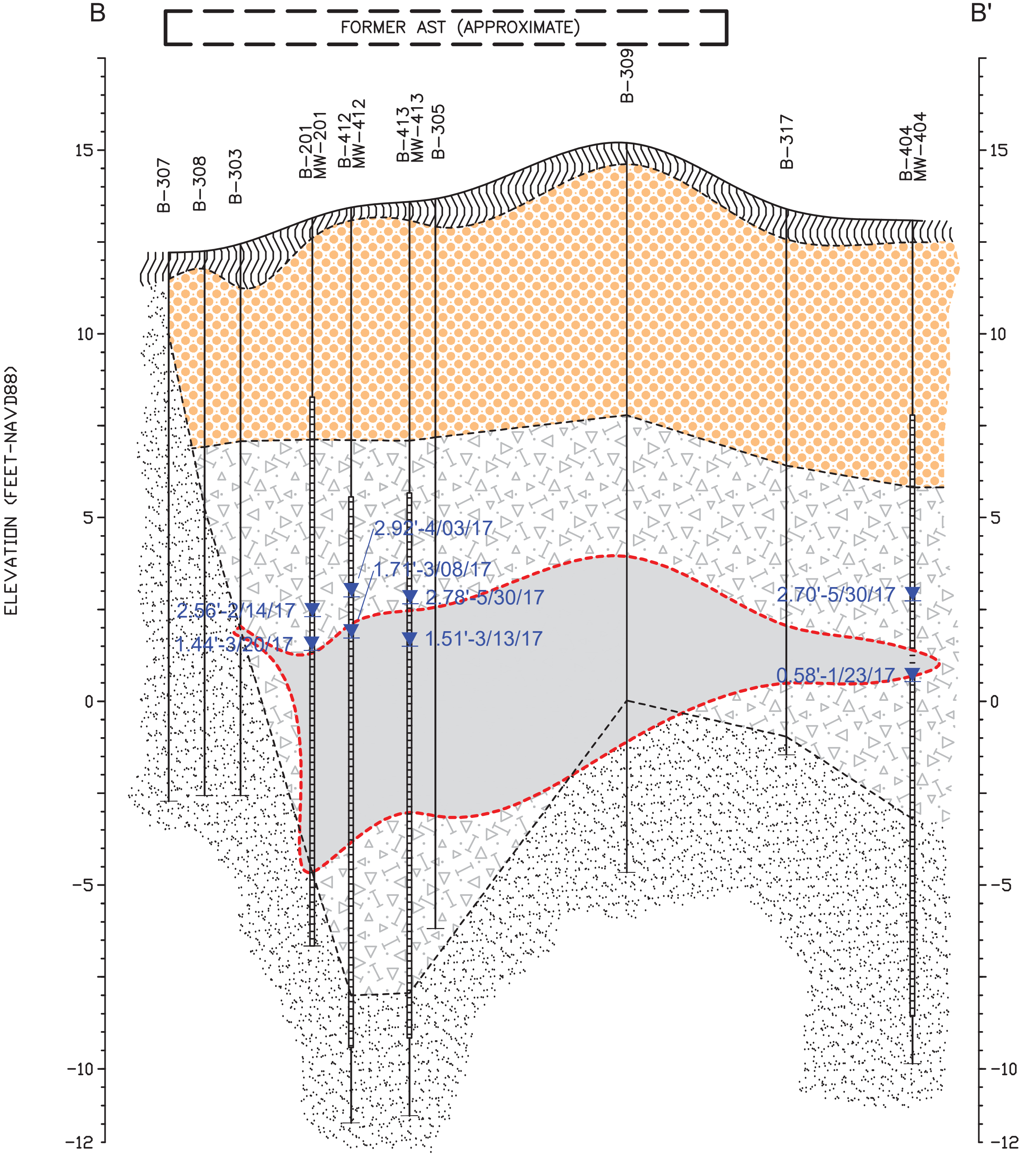
ENBRIDGE

GEOLOGIC CROSS-SECTION A-A'
PERMANENT SOLUTION STATEMENT
RTN 4-26230

TRC
2 Liberty Square
6th Floor
Boston, MA 02109
(617) 350-3444

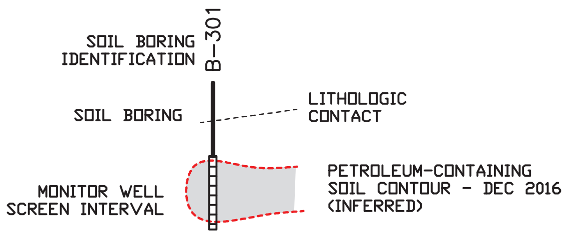
FIGURE
4A

DRAWN BY: JMM
CHECKED BY: CR
DATE:
MARCH16,2018



LEGEND

▨	TOP SOIL
▨	FINE TO MEDIUM SAND (FILL)
▨	SAND, GRAVEL, SILT, CLAY CONTAINING BRICK, CONCRETE, CINDERS, CLINKERS, COAL AND/OR COAL ASH LIKE MATERIAL (HISTORIC FILL)
▨	SILT AND SAND
▨	FINE SAND , SILT AND/OR CLAY, INTERTIDAL-NEAR-SHORE MARINE DEPOSITS
▨	PETROLEUM-CONTAINING SOIL
▼ 2.79-4/03/17 1.66-1/33/17	APPROXIMATE GROUNDWATER ELEVATION (DATE-HIGH-LOW)



NOTES:
1) GROUND SURFACE IS BASED UPON THE SURFACE ELEVATION OF THE SOIL BORINGS.
2) CONTACTS ARE DASHED WHERE INFERRED.
3) ELEVATION DATUM NGVD 1988; FEET ABOVE MEAN SEA LEVEL.

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

GEOLOGIC CROSS-SECTION B-B'
PERMANENT SOLUTION STATEMENT
RTN 26230

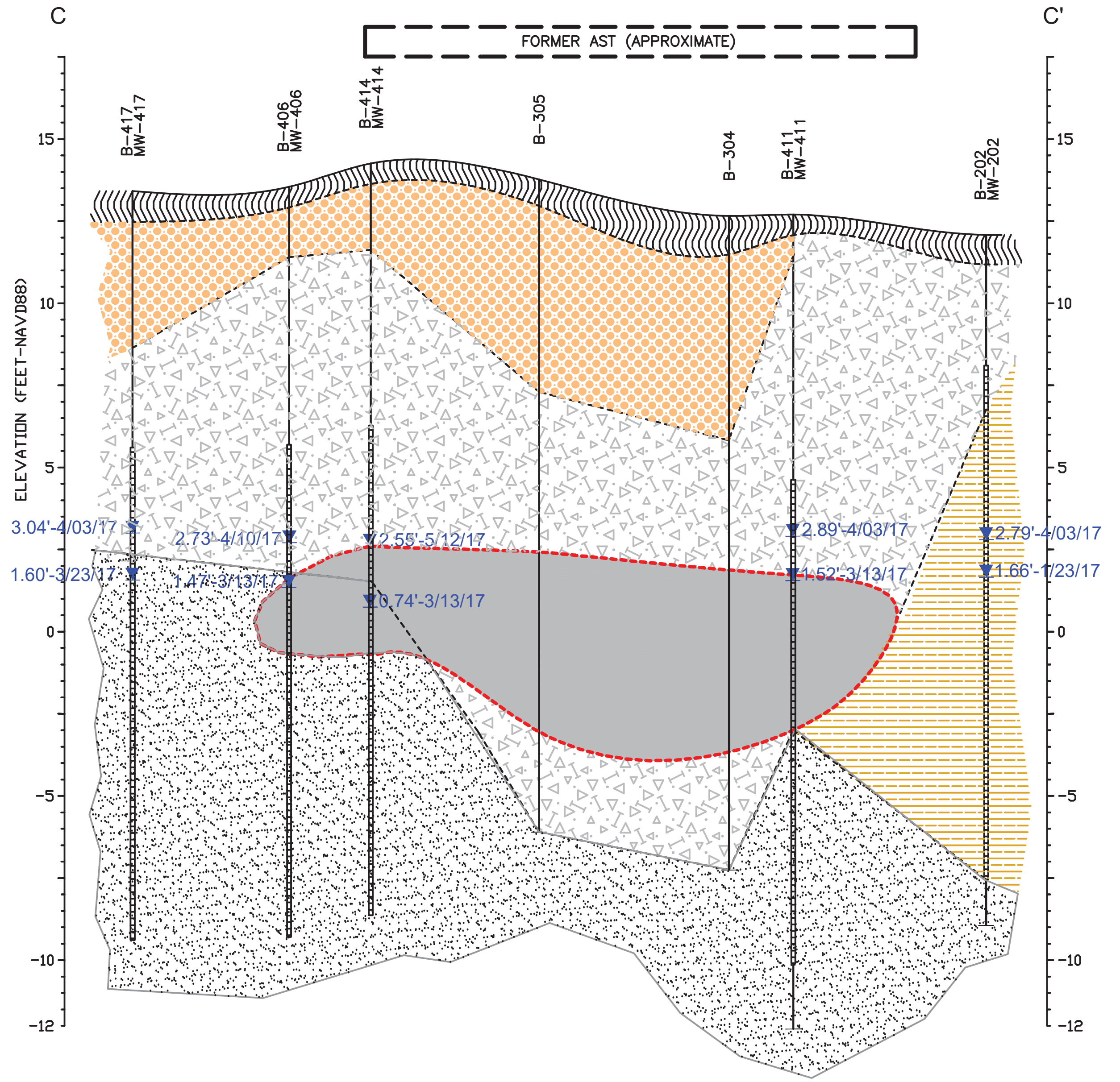
TRC
2 Liberty Square
6th Floor
Boston, MA 02109
(617) 350-3444

FIGURE 4B

DRAWN BY: JMM
CHECKED BY: CR
DATE: MARCH16,2018

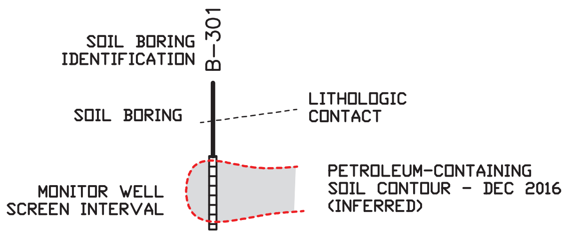
FILE: J:\140143 – Atlantic Bridge\Weymouth Compressor Station\CAD Files\CrossSection_ABC_Dec2017.dwg

FILE: J:\140143 – Atlantic Bridge\Weymouth Compressor Station\CAD Files\CrossSection_ABC_Dec2017.dwg



LEGEND

▨	TOP SOIL
🟧	FINE TO MEDIUM SAND (FILL)
▽	SAND, GRAVEL, SILT, CLAY CONTAINING BRICK, CONCRETE, CINDERS, CLINKERS, COAL AND/OR COAL ASH LIKE MATERIAL (HISTORIC FILL)
⁘	SILT AND SAND
☰	FINE TO COARSE SAND WITH TRACE SILT AND/OR GRAVEL
⁙	FINE SAND , SILT AND/OR CLAY, INTERTIDAL-NEAR-SHORE MARINE DEPOSITS
⬜	PETROLEUM-CONTAINING SOIL
▼ 2.79-4/03/17 1.66-1/33/17	APPROXIMATE GROUNDWATER ELEVATION (DATE-HIGH-LOW)



NOTES:
1) GROUND SURFACE IS BASED UPON THE SURFACE ELEVATION OF THE SOIL BORINGS.
2) CONTACTS ARE DASHED WHERE INFERRED.
3) ELEVATION DATUM NGVD 1988; FEET ABOVE MEAN SEA LEVEL.

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

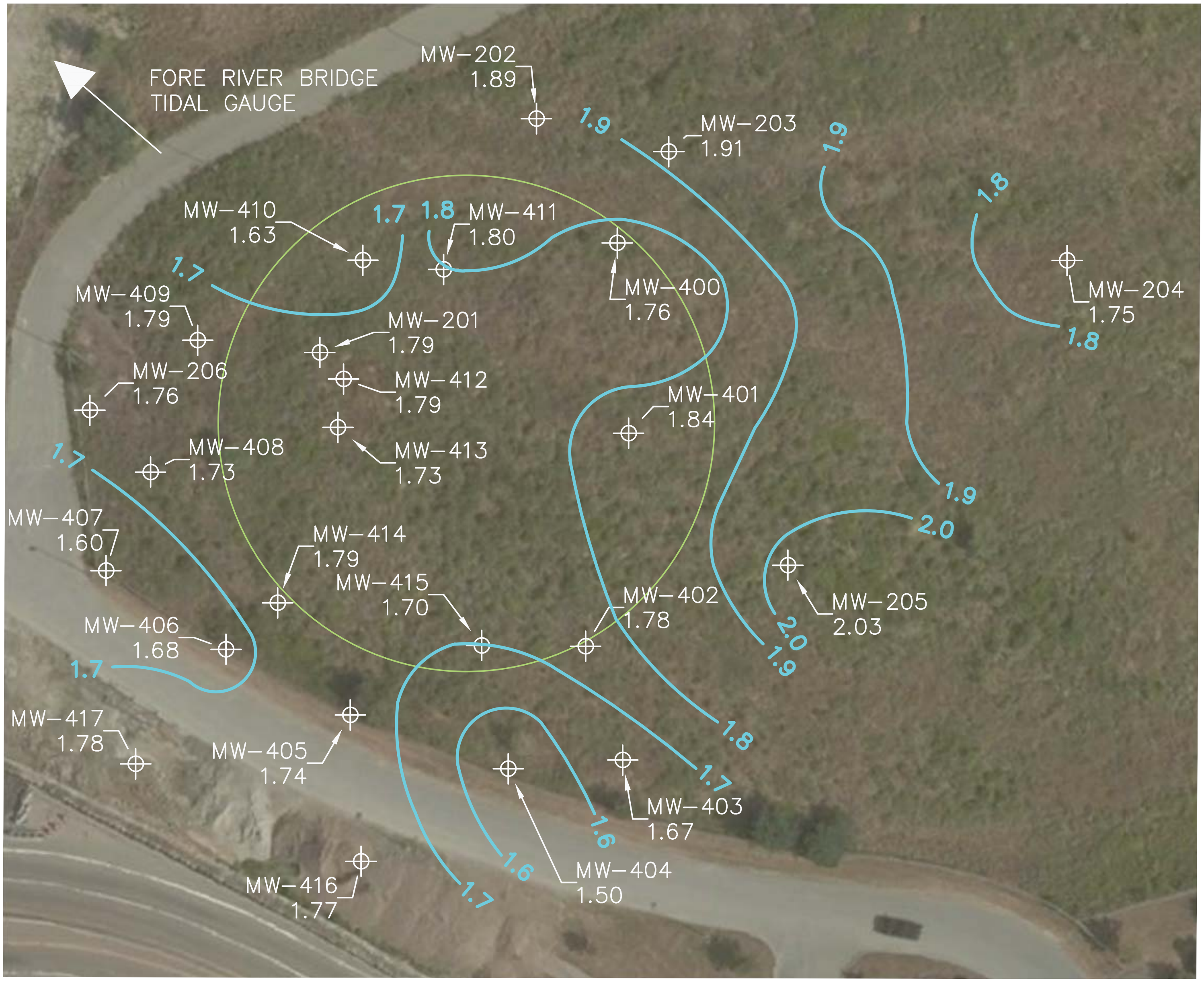
GEOLOGIC CROSS-SECTION C-C'
PERMANENT SOLUTION STATEMENT
RTN 4-26230

TRC

2 Liberty Square
6th Floor
Boston, MA 02109
(617) 350-3444

FIGURE
4C

DRAWN BY: JMM
CHECKED BY: CR
DATE:
MARCH16,2018



LEGEND

MONITORING WELL
GROUNDWATER ELEVATION FOR 10/06/2017
1.85

GROUNDWATER CONTOUR (DASHED WHERE INFERRED)

○ APPROXIMATE LOCATION:
FORMER ABOVE-GROUND STORAGE TANK
11,256,000-GALLON OF NO. 2 FUEL OIL

NOTES

- TIDAL ELEVATION EBBING FROM 1.18 TO 10.72 FEET MEAN LOW LOW WATER DATUM DURING WATER LEVEL MEASUREMENT

MASS. COOR. SYSTEM
NAD 1983 - MAINLAND ZONE

SCALE: 1"=60'
0' 30' 60' 120'

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

GROUNDWATER CONTOUR MAP
OCTOBER 6, 2017

PERMANENT SOLUTION STATEMENT
RTN 4-26230

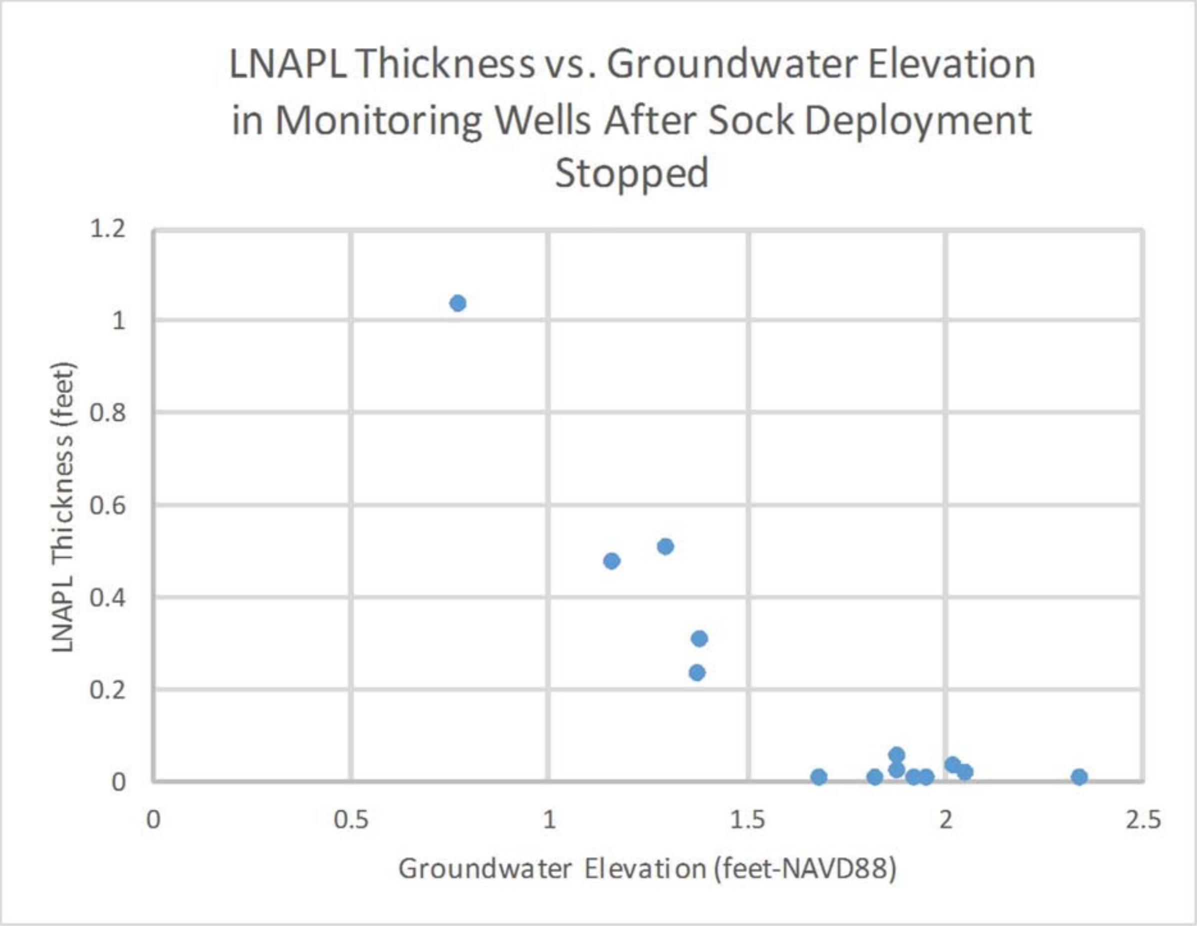
TRC
2 Liberty Sq
6th Floor
Boston, MA 02113
(617)350-3444

FIGURE
5

DRAWN BY: JMM
CHECKED BY: CR

DATE:
MARCH 16, 2018

FILE: J:\140143 - Atlantic Bridge\Weymouth Compressor Station\CAD Files\20171215gwcont.dwg



LEGEND

NOTE: LNAPL THICKNESS AND GROUNDWATER ELEVATION MEASURED IN MONITORING WELLS MW-201, MW-406, MW-407, MW-410, AND MW-414 ON JUNE 13, 2017, JUNE 19 AND OCTOBER 6, 2017

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

LNAPL THICKNESS VS. GROUNDWATER ELEVATION IN MONITORING WELLS AFTER SOCK DEPLOYMENT STOPPED ON JUNE 6, 2017

PERMANENT SOLUTION STATEMENT
RTN 4–26230

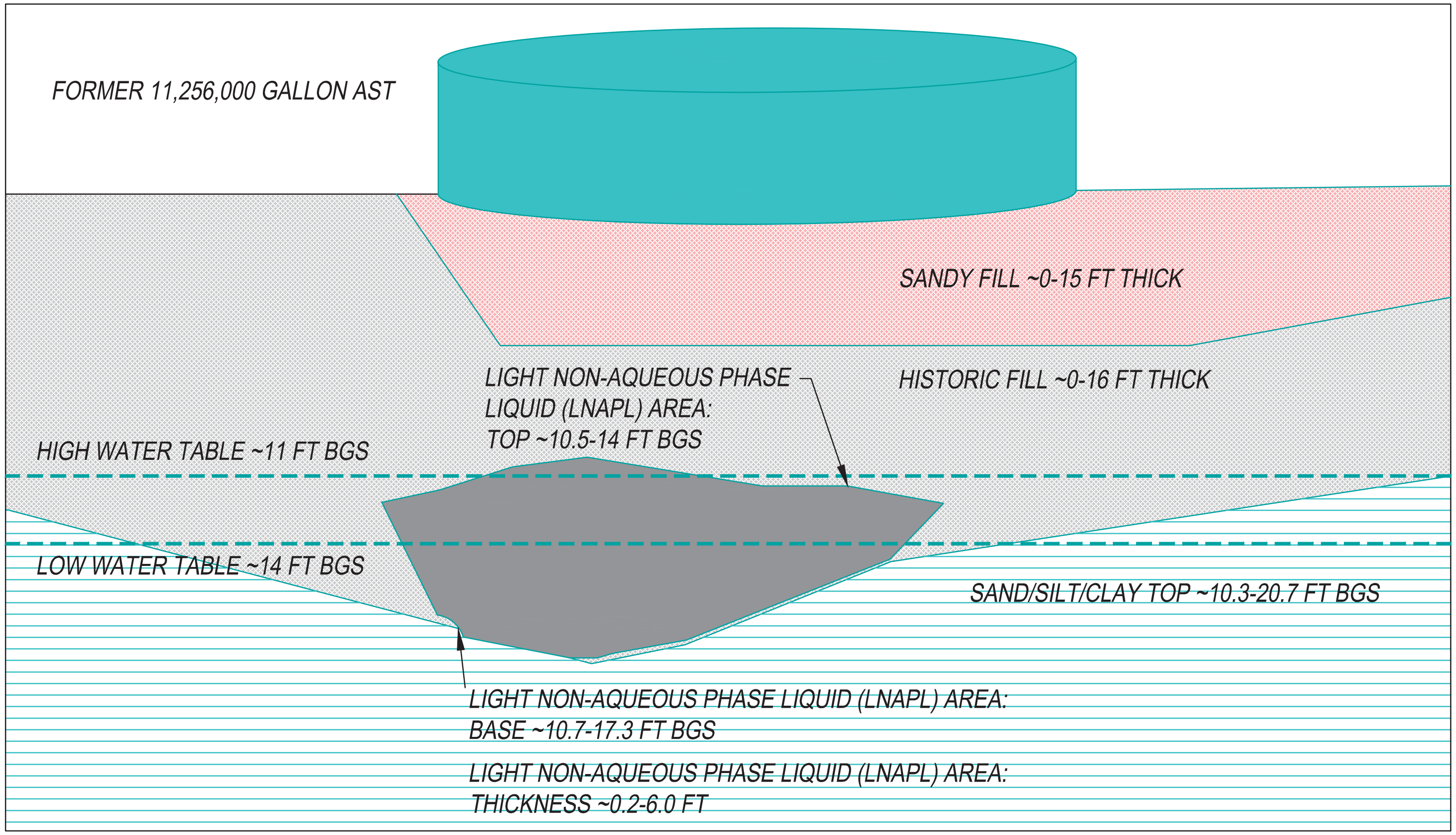
TRC
2 Liberty Sq
6th Floor
Boston, MA 02113
(617)350–3444

FIGURE
6

DRAWN BY: JMM
CHECKED BY: CR

DATE:
MARCH 16, 2018

FILE: J:\140143 – Atlantic Bridge\Weymouth Compressor Station\CAD Files\20171215gwcont.dwg



ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

CONCEPTUAL SITE MODEL
PERMANENT SOLUTION STATEMENT
RTN 4–26230

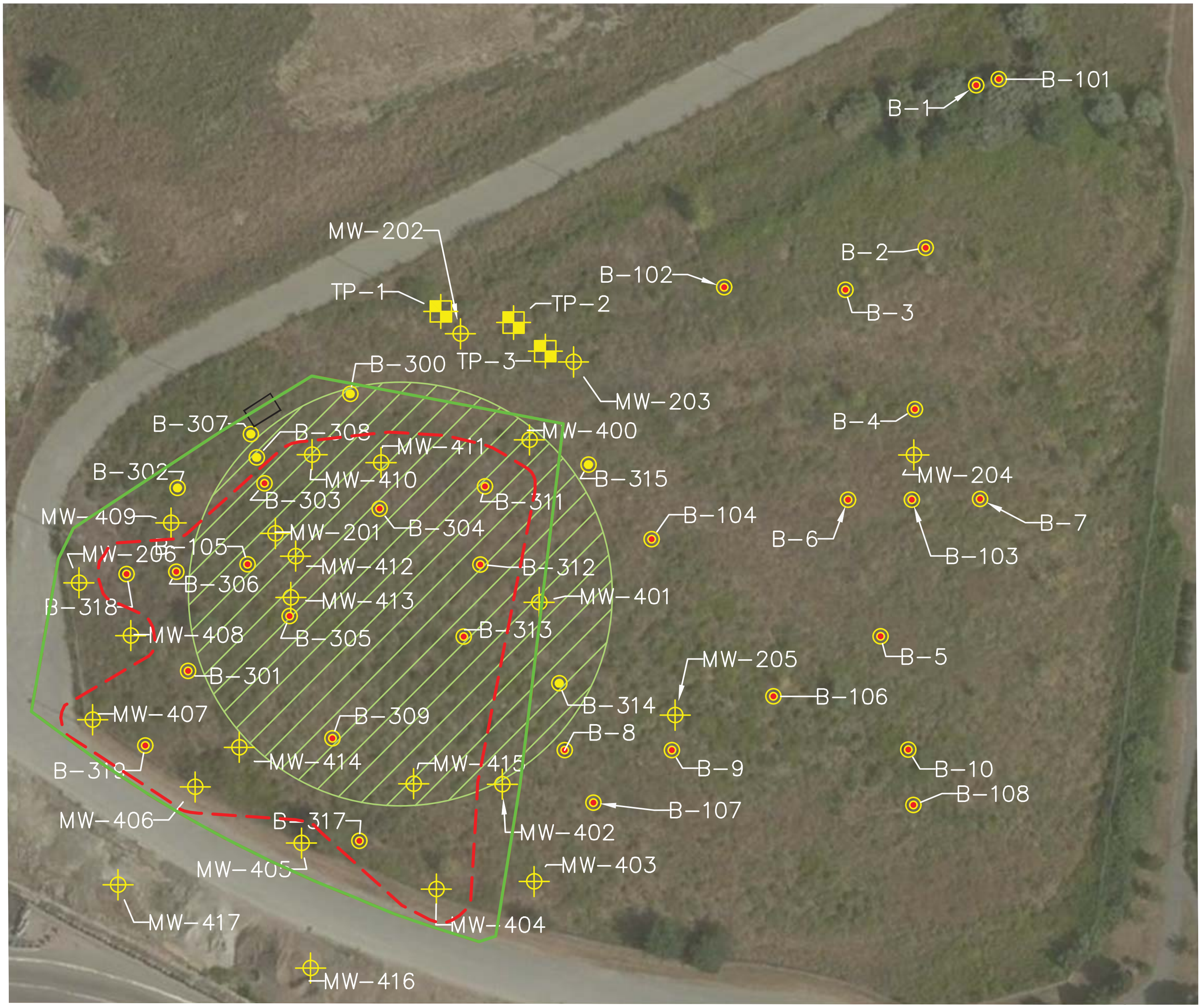
TRC
2 Liberty Sq
6th Floor
Boston, MA 02113
(617)350–3444

FIGURE
7

DRAWN BY: JMM
CHECKED BY: CR

DATE:
MARCH 16, 2018

FILE: J:\140143 – Atlantic Bridge\Weymouth Compressor Station\CAD Files\Boring Plan Jan2017_aul2_MAR2018.dwg



LEGEND

● SOIL BORING

⊕ MONITORING WELL

▨ TEST PIT

LOCATION:
🟩 FORMER ABOVE-GROUND STORAGE TANK
11,256,000-GALLON
NO. 2 FUEL OIL

☐ APPROXIMATE LOCATION OF FORMER
6,000-GALLON FUEL ADDITIVE
ABOVE-GROUND STORAGE TANK

— — DISPOSAL SITE BOUNDARY

— AUL BOUNDARY

NOTE:
BORING B-316 WAS NOT INSTALLED

SCALE: 1"=70'

0' 35' 70' 140'

MASS. COOR. SYSTEM
NAD 1983 - MAINLAND ZONE

ATLANTIC BRIDGE PROJECT
WEYMOUTH COMPRESSOR STATION
BRIDGE ST, WEYMOUTH, MA

ENBRIDGE

DISPOSAL SITE BOUNDARY AND
ACTIVITY AND USE LIMITATION BOUNDARY

PERMANENT SOLUTION STATEMENT
RTN 4-26230

TRC
2 Liberty Sq
6th Floor
Boston, MA 02113
(617)350-3444

FIGURE
8

DRAWN BY: JMM
CHECKED BY: CR

DATE:
MARCH 16, 2018

FILE: J:\140143 - Atlantic Bridge\Weymouth Compressor Station\CAD Files\Boring Plan Dec2017.dwg

APPENDIX A

BORING/MONITORING WELL LOGS, FIELD LOG SHEETS

Monitoring Well Development
Weymouth C/S Site
Weymouth, Massachusetts

Monitoring Well	Development Date	Equipment see notes	Volume Removed (Gal)	Observations/Notes
MW-201	7/29 & 08/03/16	X	30	Purged until visibly clear. Free product (NAPL) noted on water, Sheen and odor present, purge water drummed.
MW-202	8/2/2016	X	37	Purged until visibly clear. Water clearing with time pumped. Final turbidity = 156 NTU. No odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-203	8/2/2016	X	35	Purged until visibly clear. Water clearing with time pumped. Final turbidity = 58.4 NTU. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-204	7/29/2016	X	45	Purged until visibly clear. Water clearing with time pumped. Final turbidity = 97 NTU, No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-205	7/29/2016	X	31	Purged until visibly clear. Water clearing with time pumped. Final turbidity = 38 NTU, No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-206	10/20/2016	X	40	Purged until visibly clear. Water clearing with time pumped. Final turbidity = 100 NTU, No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-400	12/19/2016	X	45	Purged until visibly clear. Water clearing with time pumped and repeated surging of screen. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-401	12/19/2016	X	90	Purged until visibly clear. Water clearing with time pumped and repeated surging of screen. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-402	12/19 & 20/2016	X	52	Purged until visibly clear. Free Product (NAPL), Sheen and odor in water and on tubing and surge block, purged water drummed.
MW-403	12/19/2016	X	35	Purged until visibly clear. Water clearing with time pumped. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-404	12/21/2016	X	35	Purged until visibly clear. Free Product (NAPL), Sheen and moderate odor in water and on tubing and surge block, purged water drummed.
MW-405	12/20/2016	X	35	Purged until visibly clear. Water clearing with time pumped. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-406	12/21/2016	Y	60	Purged until visibly clear. Free Product (NAPL), Sheen and strong petroleum and sulfur-like odor on water. Staining on tubing and pump housing, purged water drummed.
MW-407	12/21/2016	Y	20	Purged until visibly clear. Free Product (NAPL), Sheen and moderate petroleum and sulfur-like odor on water. Staining on tubing and pump housing, purged water drummed.
MW-408	12/20/2016	X	50	Purged until visibly clear. Water clearing with time pumped. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-409	12/21/2016	Y	20	Purged until visibly clear. Water clearing with time pumped. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-410	12/22/2016	Y	45	Purged until visibly clear. Free Product (NAPL), Sheen and odor not extensive but in water and on tubing and surge block, purged water drummed.
MW-411	12/22/2016	Y	40	Purged until visibly clear, Free Product (NAPL), Sheen and petroleum and sulfur-like odor on water and staining on tubing and surge block, purged water drummed.
MW-412	12/22/2016	X	40	Purged until visibly clear. Free Product (NAPL), Sheen and odor in water and on tubing and surge block, purged water drummed.
MW-413	12/22/2016	X	35	Purged until visibly clear, Free Product (NAPL), Sheen and odor in water and on tubing and surge block, purged water drummed.

Monitoring Well Development

Weymouth C/S Site

Weymouth, Massachusetts

Monitoring Well	Development Date	Equipment see notes	Volume Removed (Gal)	Observations/Notes
MW-414	12/21/2016	X	35	Purged until visibly clear, Free Product (NAPL), Sheen and odor in water and on tubing and surge block, purged water drummed.
MW-415	12/20/2016	X	25	Purged until visibly clear, Trace amounts of sheen and odor in water and on tubing and surge block, purged water drummed.
MW-416	12/21/2016	Y	65	Purged until visibly clear. Water clearing with time pumped. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.
MW-417	12/20/2016	X	40	Purged until visibly clear. Water clearing with time pumped and repeated surging of screen. No Odor or sheen. Purged water discharged 25 ft up gradient of the well.

Notes:

X- Watterra hydrolift and check valve with surge block. Unit positioned in water column from top to bottom of screen to remove fines (silt).

Y - Proactive Water Spout 2 submersible pump used. Column surged at 2-3 ft zones throughout screen.

ft- feet

Gal - gallons

gpm - gallons per minute

NAPL - non-aqueous phase liquid

NTU - nephelometric turbidity units

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-101
SHEET: 1 of 5
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350557, 1109165
Ground Surface Elev. (ft.): 18.7
Final Boring Depth (ft.): 124
Date Start - Finish: 3/31/2016 - 4/7/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/6/16	0700	10.5	12 hrs
4/7/16	0700	12.5	36 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
									1		0.5	TOPSOIL	18.2
									2				
		G-1	2.0- 2.5					G-1: Dry, brown, fine to coarse SAND, little Silt, trace Gravel. (SM)					
5								Refer to boring B-01 for data from 2.5'-19.0' bgs.					
10												FILL	
15													
20		S-1	19.0- 21.0	24	3	4 2 2 3	4	S-1: Loose, gray and red, fine to coarse GRAVEL, little medium to coarse Sand, trace Silt. (GP)	3				
		S-2	21.0- 23.0	24	11	5 4 5 6	9	S-2: Loose, gray, fine to medium SAND, some Silt, trace Clay. (SM)	4		21.5	SILTY SAND	-2.8
25		S-3	24.0- 26.0	24	18	8 3 3 3	6	S-3: Medium stiff, gray, CLAY & SILT, trace fine Sand, trace Gravel, trace fibers. Mild organic odor. (CL)	5		24	CLAY/SILT	-5.3
30		S-4	29.0-	24	24	7 7		S-4: Stiff, gray/olive, CLAY & SILT, trace fine Sand. (CL)	6				

REMARKS

1 - Boring location surveyed by VHB on 3/29/16, boring elevation noted on stake.
2 - Borehole preexcavated on 3/31/16 using Vacmaster System 1000 to 6.0' below ground surface (bgs). Started drilling on 4/4/16.
3 - Drove and washed HW casing incrementally from 19.0'-34.0' bgs, drilled openhole from 34.0' bgs.
4 - Driller noted possible strata change at approximately 21.5' bgs based on drill cuttings.
5 - Driller noted possible strata change at approximately 24.0' bgs based on drill cuttings and drill effort.
6 - Pocket penetrometer used on cohesive samples collected. PPv= vertical plane, PPh=horizontal plane, PPr= remolded.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-101

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-101
SHEET: 2 of 5
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350557, 1109165
Ground Surface Elev. (ft.): 18.7
Final Boring Depth (ft.): 124
Date Start - Finish: 3/31/2016 - 4/7/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/6/16	0700	10.5	12 hrs
4/7/16	0700	12.5	36 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			31.0			8 8	15	PPv=1.75tsf, PPh=1.5tsf, PPr=0.9tsf					
35		S-5	34.0- 36.0	24	12	6 5 6 7	11	S-5: Stiff, tan, CLAY & SILT, trace fine Sand. (CL) Approximately 1" thick fine sand lense approximately 4" from tip of split spoon. PPv=2.25tsf, PPh=3.5tsf, PPr=1.25tsf				CLAY/SILT	
											37.5		-18.8
40		S-6	39.0- 41.0	24	12	6 7 9 12	16	S-6: Medium dense, brown, fine SAND and Silt. (SM)				SILTY SAND	
											42.5		-23.8
45		S-7	44.0- 46.0	24	24	7 8 7 13	15	S-7: Stiff, tan, CLAY & SILT, trace fine Sand. (CL) PPv=1.65tsf, PPh=1.25tsf, PPr=0.5tsf				CLAY/SILT	
											47.5		-28.8
50		S-8	49.0- 51.0	24	16	5 5 6 5	11	S-8: Medium dense, gray, fine SAND and Silty Clay. (SC)				SILTY SAND	
											52.5		-33.8
55		S-9	54.0- 56.0	24	24	2 6 8 7	14	S-9: Stiff, gray, Clayey SILT, some fine Sand. (ML) PPv=0.75tsf, PPh=0.75tsf, PPr=0.25tsf	7			CLAY/SILT	
											57.5		-38.8
60		S-10	59.0-	24	24	2 6		S-10: Stiff, gray, Clayey SILT, some fine Sand. (ML)				CLAY/SILT AND SAND	

REMARKS

7 - Measured groundwater depth prior to beginning of drilling on 4/6/16 with casing to 25.0' bgs, see above.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-101

TEST BORING LOG

GZA **GeoEnvironmental, Inc.** *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-101 **SHEET:** 3 of 5 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: C. Navien **Drilling Co.:** New England Boring **Foreman:** B. Cross	**Type of Rig:** ATV Mounted **Rig Model:** Mobile B-53 **Drilling Method:** Drive & Wash	**Boring Location (N,E):** 15350557, 1109165 **Ground Surface Elev. (ft.):** 18.7 **Final Boring Depth (ft.):** 124 **Date Start - Finish:** 3/31/2016 - 4/7/2016	**H. Datum:** NAD 83 **V. Datum:** NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/6/16	0700	10.5	12 hrs
4/7/16	0700	12.5	36 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
			61.0			4 6	10						
65		S-11	64.0- 66.0	24	23	2 4 4 5	8	S-11: Stiff, gray, Clayey SILT, some fine Sand. (ML)				CLAY/SILT AND SAND	
											67.5		-48.8
70		S-12	69.0- 71.0	24	19	6 7 8 11	15	S-12: Medium dense, fine SAND, some Clay. (SC)				SILTY SAND	
											72.5		-53.8
75		S-13	74.0- 76.0	24	15	4 2 4 16	6	S-13: Medium stiff, gray, CLAY & SILT, some fine Sand. (CL) PPv=0.5tsf, PPh=0.3tsf, PPr=0tsf					
80		S-14	79.0- 81.0	24	18	8 6 17 8	23	S-14: Very stiff, gray, CLAY & SILT, some fine Sand. (CL) PPv=0.3tsf,PPh=0.10tsf, PPr=0tsf	8			CLAY/SILT AND SAND	
85		S-15	84.0- 86.0	24	18	8 6 17 8	23	S-15: Very stiff, gray/olive, CLAY & SILT, some fine Sand. (CL) PPv=0.3tsf, PPh=0.1tsf, PPr=0tsf					
											87.5		-68.8
90		S-16	89.0-	24	15	13 23		S-16: Dense, gray/olive, fine SAND, some Silt. (SM)				SAND WITH SILT AND GRAVEL	

REMARKS

8 - Measured groundwater depth prior to beginning of drilling on 4/7/16 with casing to 25.0' bgs, see above.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-101

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-101
SHEET: 4 of 5
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method:
Drive & Wash

Boring Location (N,E): 15350557, 1109165
Ground Surface Elev. (ft.): 18.7
Final Boring Depth (ft.): 124
Date Start - Finish: 3/31/2016 - 4/7/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
4/6/16	0700	10.5	12 hrs
4/7/16	0700	12.5	36 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
			91.0			24 11	47						
95		S-17	94.0- 96.0	24	15	19 23 25 28	48	S-17: Dense, gray, SILT, trace Sand. (ML)					
100		S-18	99.0- 101.0	24	14	20 40 24 23	64	S-18: Very dense, gray/olive, fine to coarse SAND, little Gravel, little Silt. (SM)					
									9				
105		S-19	104.0- 106.0	24	15	11 12 13 6	25	S-19: Medium dense, gray, SILT, trace Sand. (ML) Gravel in tip of split spoon.				SAND WITH SILT AND GRAVEL	
110		S-20	109.0- 111.0	24	10	21 24 30 28	54	S-20: Hard, gray, CLAY & SILT, little Gravel, little fine to coarse Sand. (CL)					
									10				
115		S-21	114.0- 116.0	24	13	21 24 24 23	48	S-21: Very dense, gray, fine to medium SAND, some Clayey Silt, little Gravel. (SM)					
											117.5		-98.8
120		S-22	119.0-	1	1	120/1"	R	S-22: Very dense, gray/white, fine to coarse SAND and				SAND AND GRAVEL	

REMARKS

9 - Driller noted drill chatter from approximately 101.0'-101.5' bgs.
10 - Driller noted drill chatter and increased drill effort at approximately 111.0' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-101

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-101
SHEET: 5 of 5
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350557, 1109165
Ground Surface Elev. (ft.): 18.7
Final Boring Depth (ft.): 124
Date Start - Finish: 3/31/2016 - 4/7/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/6/16	0700	10.5	12 hrs
4/7/16	0700	12.5	36 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			119.1					Gravel, some Clay. (SC)				SAND AND GRAVEL	
									11		124		-105.3
		S-23	123.9-124.0	1	0	120/1"	R	S-23: No recovery.					
125								End of exploration at 124 feet.					
130													
135													
140													
145													
150													

REMARKS

11 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-101

GZA TEMPLATE TEST BORING; 6/6/2016; 9:23:42 AM

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-102
SHEET: 1 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350460, 1109037
Ground Surface Elev. (ft.): 12.7
Final Boring Depth (ft.): 104.1
Date Start - Finish: 3/30/2016 - 4/15/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data
									1	
									2	
5										
10		S-1	9.0-11.0	24	12	4 11 19 26	30	S-1: Medium dense, brown, GRAVEL, some medium to coarse Sand, trace Silt, wet. (trace slag) (GW)	3	
15		S-2	14.0-16.0	24	10	6 5 6 6	11	S-2: Medium dense, dark brown, GRAVEL, some medium to coarse Sand, trace Silt, wet. (trace slag) (GW)		
20		S-3	19.0-21.0	24	8	16 8 7 11	15	S-3: Medium dense, dark brown/black, fine to coarse SAND, little Gravel, trace Silt, wet. (SP)		
25		S-4	24.0-26.0	24	12	9 10 15 16	25	S-4: Medium dense, brown, medium to coarse SAND, wet. (SP)		
30		S-5	29.0-	24	20	10 15		S-5: Very stiff, brown, SILT & CLAY, trace Sand, wet.		

Depth (ft.)	Stratum Description	Elev. (ft.)
0.5	TOPSOIL	12.2
1.8	FILL	10.9
4.5	OBSTRUCTION FILL	8.2
17.5	FILL	-4.8
27.5	SAND	-14.8
	SILT AND SAND	

REMARKS

1 - Boring location surveyed by VHB on 3/29/16, boring elevation noted on stake.
2 - Borehole preexcavated on 3/30/16 using Vacmaster System 1000 to 1.8' bgs, refusal encountered. Drill rig augered from approximately 1.8'-4.5' bgs, then vacced to 6.0' bgs. Started drilling on 4/13/16.
3 - Drove and washed HW casing incrementally from 6.0'-21.0' bgs, drilled open hole to 104.1' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-102

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-102
SHEET: 2 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method:
Drive & Wash

Boring Location (N,E): 15350460, 1109037
Ground Surface Elev. (ft.): 12.7
Final Boring Depth (ft.): 104.1
Date Start - Finish: 3/30/2016 - 4/15/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum		
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value				Depth (ft.)	Description	Elev. (ft.)
			31.0			15 13	30	(CL)					
												SILT AND SAND	
35		S-6	34.0- 36.0	24	18	5 6 8 7	14	S-6: Medium dense, brown, fine SAND and Silt, trace Clay, wet. (SM) 2" clay seam at 34.5' bgs.					
											37.5		-24.8
40		S-7	39.0- 41.0	24	24	5 5 5 7	10	S-7: Stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) PPv=1.4tsf, PPn=1.25tsf, PPr=0.5tsf	4			CLAY/SILT	
											42.5		-29.8
45		S-8	44.0- 46.0	24	24	3 3 4 3	7	S-8: Loose, gray, SILT, some fine Sand, wet. (ML)					
50		S-9	49.0- 51.0	24	24	3 3 10 8	13	S-9: Stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) PPv=0.6tsf, PPn=0.3tsf, PPr=0tsf					
												SILT AND SAND	
55		S-10	54.0- 56.0	24	24	1 5 4 5	9	S-10: Stiff, gray, SILT, some fine Sand, trace Clay, wet. (ML)					
60		S-11	59.0-	24	24	7 5		S-11: Stiff, gray, SILT and fine Sand, wet. (ML)					

REMARKS

4 - Pocket penetrometer used on cohesive samples collected. PPv= vertical plane, PPh=horizontal plane, PPr= remolded.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-102

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-102
SHEET: 3 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350460, 1109037
Ground Surface Elev. (ft.): 12.7
Final Boring Depth (ft.): 104.1
Date Start - Finish: 3/30/2016 - 4/15/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
			61.0			6 9	11						
65		S-12	64.0- 66.0	24	24	6 5 6 9	11	S-12: Medium dense, gray, SILT and fine Sand. (ML)					
												SILT AND SAND	
70		S-13	69.0- 71.0	24	24	7 10 15 20	25	S-13: Medium dense, gray, SILT and fine Sand, wet. (ML)					
											74		-61.3
75		S-14	74.0- 76.0	24	20	10 12 20 10	32	S-14: Hard, gray, SILT and fine Sand, wet. (ML)					
80		S-15	79.0- 81.0	24	24	11 12 4 10	16	S-15: Very stiff, gray, CLAY & SILT, trace Sand, wet. (CL) PPv=0.1tsf, PPn=0tsf, PPr=0tsf					
												CLAY/SILT AND SAND	
85		S-16	84.0- 86.0	24	24	12 12 13 14	25	S-16: Very stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) PPv=0.5tsf, PPn=0.5tsf, PPr=0tsf					
90		S-17	89.0-	24	24	6 9		S-17: Top 21": Hard, gray, CLAY & SILT, trace fine Sand,					

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-102

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-102 **SHEET:** 4 of 4 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: N. Williams **Drilling Co.:** New England Boring **Foreman:** B. Cross	**Type of Rig:** ATV Mounted **Rig Model:** Mobile B-53 **Drilling Method:** Drive & Wash	**Boring Location (N,E):** 15350460, 1109037 **Ground Surface Elev. (ft.):** 12.7 **Final Boring Depth (ft.):** 104.1 **Date Start - Finish:** 3/30/2016 - 4/15/2016	**H. Datum:** NAD 83 **V. Datum:** NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 4.5"/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
			91.0			31 21	40	wet. (CL) Bottom 3": Gray, fine to coarse SAND, little Gravel, wet. (SP) PPv=1.0tsf, PPn=0.9tsf, PPr=0.5tsf					
95		S-18	94.0-96.0	24	14	15 19 24 13	43	S-18: Top 2": Fine to coarse SAND, some Gravel. (SP) Bottom 12": Hard, gray, SILT, trace Sand, wet. (ML)				CLAY/SILT AND SAND	
											99		-86.3
100		S-19	99.0-101.0	24	12	19 33 35 26	68	S-19: Very dense, gray, fine to medium SAND, some Gravel, little Silt, wet. (SM)				SAND AND GRAVEL	
									5 6		104.1		-91.4
105		S-20	104.0-104.1	1	0	100/1"	R	S-20: No recovery. End of exploration at 104.1 feet.					
110													
115													
120													

REMARKS

5 - Refusal on possible Glacial Till/Weathered Bedrock.
6 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.: B-102

TEST BORING LOG

GZA **GeoEnvironmental, Inc.** *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-103 **SHEET:** 1 of 3 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: Truck Mounted
Rig Model: Diedrich D-90
Drilling Method: Drive & Wash

Boring Location (N,E): 15350361, 1109124
Ground Surface Elev. (ft.): 12.8
Final Boring Depth (ft.): 80
Date Start - Finish: 3/29/2016 - 4/4/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5"/5"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/1/16	0630	12	15.5 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
									1		0.5	TOPSOIL	12.3
									2		1.8	FILL	11.0
		G-1	2.0-2.5					G-1: Brown, fine to coarse SAND, little Silt, trace Gravel, dry. (SM)			2.8	OBSTRUCTION FILL	10.0
											3	FILL	9.8
5											5.5	OBSTRUCTION FILL	7.3
		S-1	6.0-8.0	24	18	16 22 24 11	46	S-1: Dense, dark gray/brown, fine to coarse SAND, some Silt, trace Gravel, dry. (SM)					
10		S-2	8.0-10.0	24	16	5 4 3 2	7	S-2: Loose, dark gray, SILT, some fine to coarse Sand, little Gravel, wet. (trace slag) (ML)					
15		S-3	13.0-15.0	24	7	4 1 2 2	3	S-3: Loose, dark gray, fine to medium SAND, little Silt, little Gravel, wet. (SM)				FILL	
20		S-4	18.0-20.0	24	0	7 4 6 3	10	S-4: No recovery.					
25		S-5	23.0-25.0	24	16	7 2 3 3	5	S-5: Top 10": Dark gray, fine to medium SAND and Silt, little shells, trace Gravel, wet. (SM) Bottom 6": Olive/dark gray, SILT & CLAY, trace fine Sand, wet. (ML)			23.8		-11.0
30		S-6	27.5-29.5	24	24	WH 2 1 2	3	S-6: Soft to medium stiff, olive, SILT & CLAY, trace fine Sand, wet. (ML) PPv=1.0tsf, PPh=1.0tsf, PPr=0.5tsf	3			CLAY/SILT	

REMARKS

1 - Boring location surveyed by VHB on 3/29/16, boring elevation noted on stake.
2 - Borehole preexcavated on 3/29/16 and 3/30/16 using hand excavation. Refusal encountered at approximately 1.8' bgs, drill rig augered from approximately 1.8'-2.8' bgs, vacced with Vacmaster System 1000 from 2.8'-3.0' bgs, augered from approximately 3.0'-5.5' bgs, vacced from 5.5'-6.0' bgs. Started drilling on 3/30/16.
3 - Pocket penetrometer used on cohesive samples collected. PPv= vertical plane, PPh=horizontal plane, PPr= remolded.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-103

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-103 **SHEET:** 2 of 3 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: C. Navien **Drilling Co.:** New England Boring **Foreman:** G. Twombly, Jr.	**Type of Rig:** Truck Mounted **Rig Model:** Diedrich D-90 **Drilling Method:** Drive & Wash	**Boring Location (N,E):** 15350361, 1109124 **Ground Surface Elev. (ft.):** 12.8 **Final Boring Depth (ft.):** 80 **Date Start - Finish:** 3/29/2016 - 4/4/2016	**H. Datum:** NAD 83 **V. Datum:** NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5"/5"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time
4/1/16	0630	12	15.5 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		U-1	30.0-32.0	24	6			U-1: Olive, CLAY & SILT, wet. (CL)					
		U-2	33.0-35.0	24	24			U-2: Olive, CLAY & SILT, wet. (CL)					
35													
		S-7	37.5-39.5	24	24	2 2 2 2	4	S-7: Soft to medium stiff, olive, CLAY & SILT, wet. (CL) PPv=1.5tsf, PPh=1.5tsf, PPr=0.75tsf					
40													
		U-3	40.0-42.0	24	24			U-3: Olive, CLAY & SILT, wet. (CL)					
45												CLAY/SILT	
		S-8	47.5-49.5	24	24	2 1 3 5	4	S-8: Soft to medium stiff, olive, CLAY & SILT, little fine Sand, wet. (CL) PPv=1.25tsf, PPh=1.5tsf, PPr=0.5tsf					
50													
		U-4	50.0-52.0	24	6			U-4: Olive, CLAY & SILT, trace fine Sand, wet. (CL)	4				
		U-5	53.0-55.0	24	24			U-5: Olive, SILT & CLAY, trace fine Sand, wet. (CL)					
55													
		S-9	57.5-59.5	24	24	2 11 8 9	19	S-9: Very stiff, olive, SILT & CLAY, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.25tsf, PPr=0.75tsf					
60													

REMARKS

4 - Measured groundwater depth prior to beginning of drilling on 4/1/16 with casing to 25.0' bgs, see above.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-103

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-103
SHEET: 3 of 3
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: Truck Mounted
Rig Model: Diedrich D-90
Drilling Method: Drive & Wash

Boring Location (N,E): 15350361, 1109124
Ground Surface Elev. (ft.): 12.8
Final Boring Depth (ft.): 80
Date Start - Finish: 3/29/2016 - 4/4/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5"/5"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/1/16	0630	12	15.5 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		U-6	60.0- 62.0	24	24			U-6: Olive, SILT, trace fine Sand. (ML)			62	CLAY/SILT	-49.2
65													
70		S-10	68.0- 70.0	24	24	8 18 12 15	30	S-10: Top 8": Olive, fine SAND and Clay. (SC) Middle 12": Very stiff, olive, CLAY & SILT, trace fine Sand. (CL) Bottom 4": Olive, CLAY & SILT, some fine Sand. (CL) PPv=1.25tsf, PPh=1.25tsf, PPr=1.0tsf				CLAY/SILT AND SAND	
75													
80		S-11	78.0- 80.0	24	24	6 3 7 15	10	S-11: Top 15": Stiff to very stiff, olive, CLAY & SILT, trace fine Sand. (CL) Bottom 9": Olive, Silty CLAY, some fine Sand. (CL) PPv=1.5tsf, PPh=1.5tsf, PPr=1.0tsf	5		80		-67.2
								End of exploration at 80 feet.					
85													
90													

REMARKS

5 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-103

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-104 **SHEET:** 1 of 4 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: C. Navien **Drilling Co.:** New England Boring **Foreman:** G. Twombly, Jr.	**Type of Rig:** Truck Mounted **Rig Model:** Diedrich D-90 **Drilling Method:** Drive & Wash	**Boring Location (N,E):** 15350343, 1109003 **Ground Surface Elev. (ft.):** 12.7 **Final Boring Depth (ft.):** 111 **Date Start - Finish:** 3/30/2016 - 4/11/2016	**H. Datum:** NAD 83 **V. Datum:** NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/11/16	0700	11.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
									1		0.5	TOPSOIL	12.2
									2				
5													
		S-1	6.0- 8.0	24	18	10 18 16 15	34	S-1: Dense, gray/brown, fine to coarse SAND, some Gravel, little Silt. (SM)					
		S-2	8.0- 10.0	24	4	10 14 12 11	26	S-2: Medium dense, gray/brown/white, fine to coarse SAND, little Gravel, little Silt. (SM)					
10													
15		S-3	14.0- 16.0	24	8	13 7 5 5	12	S-3: Medium dense, gray, fine to coarse SAND, some Gravel, little Silt. (SM)				FILL	
20		S-4	19.0- 21.0	24	10	10 20 14 13	34	S-4: Dense, gray, fine to coarse SAND, some Gravel, little Silt. (SM)					
25		S-5	24.0- 26.0	24	4	12 10 14 13	24	S-5: Medium dense, gray, fine to coarse SAND and Gravel, little Silt. (Contains slag) (SM)					
30		S-6	29.0-	24	8	16 14		S-6: Medium dense, dark gray, fine to coarse SAND,					

REMARKS

1 - Boring location surveyed by VHB on 3/29/16, boring elevation noted on stake.
2 - Borehole preexcavated on 3/30/16 using Vacmaster System 1000. Started drilling on 4/7/16.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-104

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-104 **SHEET:** 2 of 4 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: C. Navien **Drilling Co.:** New England Boring **Foreman:** G. Twombly, Jr.	**Type of Rig:** Truck Mounted **Rig Model:** Diedrich D-90 **Drilling Method:** Drive & Wash	**Boring Location (N,E):** 15350343, 1109003 **Ground Surface Elev. (ft.):** 12.7 **Final Boring Depth (ft.):** 111 **Date Start - Finish:** 3/30/2016 - 4/11/2016	**H. Datum:** NAD 83 **V. Datum:** NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	**Time**	**Water Depth**	**Stab. Time**
4/11/16	0700	11.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum		
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value				Depth (ft.)	Description	Elev. (ft.)
			31.0			8 9	22	some Gravel, little Silt. (Contains slag) (SM)				FILL	
											32.5		-19.8
												CLAY/SILT	
35		S-7	34.0- 36.0	24	24	1 2 6 6	8	S-7: Top 20": Stiff, gray, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.5tsf, PPr=0.75tsf Bottom 4": Gray, medium to coarse SAND, little Silt, trace Gravel. (SM)	3		35.7		-23.0
												SILTY SAND	
40		S-8	39.0- 41.0	24	20	3 4 4 4	8	S-8: Top 12": Gray, fine SAND, some Silt. (SM) Bottom 8": Gray, medium stiff, CLAY & SILT, trace fine Sand. (CL) PPv=2.0tsf, PPh=1.5tsf, PPr=1.0tsf			40		-27.3
45		S-9	44.0- 46.0	24	20	3 2 3 3	5	S-9: Medium stiff, gray, Clayey SILT, some fine Sand. (ML)					
50		S-10	49.0- 51.0	24	24	4 3 2 6	5	S-10: Medium stiff to stiff, gray, CLAY & SILT, trace fine Sand. (CL) PPv=1.75tsf, PPh=1.5tsf, PPr=0.75tsf				CLAY/SILT	
55		S-11	54.0- 56.0	24	24	4 6 4 11	10	S-11: Stiff, gray, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.5tsf, PPr=1.0tsf	4				
60		S-12	59.0-	24	24	2 7		S-12: Top 14": Stiff to very stiff, gray, CLAY & SILT, trace					

REMARKS

3 - Pocket penetrometer used on cohesive samples collected. PPv= vertical plane, PPh=horizontal plane, PPr= remolded.
4 - Drove and washed 4" ID casing incrementally to 55.0' bgs, drilled open hole below 55.0' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

TEST BORING LOG

GZA
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Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-104
SHEET: 3 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: Truck Mounted
Rig Model: Diedrich D-90
Drilling Method:
Drive & Wash

Boring Location (N,E): 15350343, 1109003
Ground Surface Elev. (ft.): 12.7
Final Boring Depth (ft.): 111
Date Start - Finish: 3/30/2016 - 4/11/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/11/16	0700	11.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			61.0			8 10	15	fine Sand. (CL) PPv=1.0tsf, PPh=0.75tsf, PPr=0.5tsf Bottom 8": Stiff to very stiff, gray, Clayey SILT and fine Sand. (ML)			60.2		-47.5
65		S-13	64.0-66.0	24	24	6 6 7 10	13	S-13: Stiff, gray, Clayey SILT and fine Sand. (ML)					
70		S-14	69.0-71.0	24	10	11 17 28 16	45	S-14: Hard, gray, Clayey SILT and fine Sand. (ML)					
75		S-15	74.0-76.0	24	24	1 6 10 22	16	S-15: Very stiff, gray, CLAY & SILT. (CL) Approximately 2" sand seam approximately 6" from tip of split spoon. PPv=1.0tsf, PPh=1.0tsf, PPr=0.5tsf				CLAY/SILT AND SAND	
80		S-16	79.0-81.0	24	24	16 17 21 21	38	S-16: Hard, gray, Clayey SILT, some fine Sand. (ML)	5				
85		S-17	84.0-86.0	24	18	18 20 18 19	38	S-17: Hard, gray, Clayey SILT, some fine Sand. (ML)					
90		S-18	89.0-	24	24	18 12		S-18: Top 12": Gray, CLAY & SILT, some fine Sand. (CL)					

REMARKS

5 - Measured groundwater depth prior to beginning of drilling on 4/11/16 with casing to 54.0' bgs, see above.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-104

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-104
SHEET: 4 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: Truck Mounted
Rig Model: Diedrich D-90
Drilling Method: Drive & Wash

Boring Location (N,E): 15350343, 1109003
Ground Surface Elev. (ft.): 12.7
Final Boring Depth (ft.): 111
Date Start - Finish: 3/30/2016 - 4/11/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/11/16	0700	11.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
			91.0			13 16	25	Middle 6": Silty CLAY, trace fine Sand. (CL) PPv=1.75tsf, PPh=1.5tsf, PPr=1.25tsf Bottom 6": Clayey SILT, some fine Sand. (ML)				CLAY/SILT AND SAND	
											92.5		-79.8
95		S-19	94.0- 96.0	24	10	20 20 18 18	38	S-19: Dense, brown, fine to medium SAND, little Silt, trace Gravel. (SP-SM)					
												SAND WITH SILT	
100		S-20	99.0- 101.0	24	12	20 21 28 19	49	S-20: Top 6": Dense, brown, fine to medium SAND, little Silt. (SM) Bottom 6": Hard, gray, Clayey SILT, some fine Sand. (ML)					
											102		-89.3
									6				
105		S-21	104.0- 106.0	24	10	15 51 38 25	89	S-21: Very dense, gray, SILT and fine to coarse Sand, little Gravel. (ML)				SAND AND GRAVEL	
											107		-94.3
									7			PROBABLE BOULDER	
											109		-96.3
110		S-22	109.0- 111.0	24	12	43 29 23 18	52	S-22: Very dense, gray, fine to coarse SAND and Gravel, little Clay. (SC)	8			SAND AND GRAVEL	
											111		-98.3
								End of exploration at 111 feet.					
115													
120													

REMARKS

6 - Driller noted increased drill effort and chatter at 102.0' bgs, indicating probable strata change.
7 - Driller noted increased drill effort and chatter at 107.0'-109.0' bgs, indicating probable boulder.
8 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-104

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-105
SHEET: 1 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350331, 1108815
Ground Surface Elev. (ft.): 13.0
Final Boring Depth (ft.): 107.6
Date Start - Finish: 3/29/2016 - 4/15/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
									1		0.5	TOPSOIL	12.5
									2		2	FILL	11.0
			2.0- 6.0					VacuumVacuum excavated cuttings comprised of Slag from 2.0'-6.0' bgs.				SLAG	
5											6		7.0
		S-1	6.0- 8.0	24	8	11 6 5 4	11	S-1: Medium dense, brown, GRAVEL, some fine to coarse Sand, trace Silt, wet. (GW)	3				
		S-2	8.0- 10.0	24	12	7 4 6 4	10	S-2: Loose, black, GRAVEL, some fine to coarse Sand, trace Silt, wet. (trace Slag) (GW)					
10												FILL	
15		S-3	14.0- 16.0	24	6			S-3: Brown, GRAVEL, some fine to coarse Sand, trace Silt, wet. (GW) Strong petroleum odor from 14.0'-19.0' bgs.	4				
20		S-4	19.0- 21.0	24	12	7 4 3 3	7	S-4: Loose, olive, fine to medium SAND, trace Silt, wet. Slight petroleum odor. (SP)			21		-8.0
		S-5	21.0- 23.0	24	16	7 5 5 2	10	S-5: Stiff, gray, CLAY & SILT, some fine Sand, wet.(CL)			22.5	CLAY/SILT	-9.5
25		S-6	24.0- 26.0	24	14	4 3 6 8	9	S-6: Loose, brown, fine to coarse SAND and Clay, wet. (SC)				SAND AND CLAY	
											27.5		-14.5
30		S-7	29.0-	24	24	9 12		S-7: Very stiff, olive-gray, CLAY & SILT, trace fine Sand,				CLAY/SILT	

REMARKS

1 - Boring location surveyed by VHB on 3/29/16, boring elevation noted on stake.
2 - Borehole preexcavated using Vacmaster System 1000 to 6.0' bgs on 3/29/16. Started drilling on 4/12/16.
3 - Drove and washed PW casing incrementally from 6.0'-19.0' bgs. Drove and washed HW casing incrementally from 19.0'-107.0' bgs.
4 - Elevated PID readings were reported and recorded by TRC between 14.0' and 19.0' bgs. Additional split spoon sampling was conducted as directed by TRC. Soil with high PID readings and cuttings in tub were placed in drum.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-105

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-105 **SHEET:** 2 of 4 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350331, 1108815
Ground Surface Elev. (ft.): 13.0
Final Boring Depth (ft.): 107.6
Date Start - Finish: 3/29/2016 - 4/15/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			31.0			11 7	23	wet. (CL)					
35		S-8	34.0- 36.0	24	0	10 8 10 10	18	S-8: No recovery.					
40		S-9	39.0- 41.0	24	24	4 4 5 12	9	S-9: Stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL)					
45		S-10	44.0- 46.0	24	24	4 5 5 3	10	S-10: Stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) PPv=0.25tsf, PPn=0.25tsf, PPr=0tsf	5			CLAY/SILT	
50		S-11	49.0- 51.0	24	24	3 3 5 4	8	S-11: Medium stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) PPv=0.9tsf, PPn=0.8tsf, PPr=0.25tsf					
55		S-12	54.0- 56.0	24	24	4 2 5 4	7	S-12: Medium stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) PPv=0.75tsf, PPn=1.0tsf, PPr=0.25tsf			59		-46.0
60		S-13	59.0-	24	12	9 11		S-13: Medium dense, gray, SILT and fine Sand, wet. (ML)				SILT AND SAND	

REMARKS

5 - Pocket penetrometer used on cohesive samples collected. PPv= vertical plane, PPh=horizontal plane, PPr= remolded.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-105

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-105
SHEET: 3 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350331, 1108815
Ground Surface Elev. (ft.): 13.0
Final Boring Depth (ft.): 107.6
Date Start - Finish: 3/29/2016 - 4/15/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			61.0			10 10	21						
65		S-14	64.0- 66.0	24	16	6 13 9 8	22	S-14: Medium dense, gray, SILT and fine Sand, wet. (ML)					
70		S-15	69.0- 71.0	24	18	4 7 20 22	27	S-15: Medium dense, gray, SILT and fine Sand, wet. (ML)					
75		S-16	74.0- 76.0	24	18	3 13 30 28	43	S-16: Dense, gray, SILT & CLAY, little fine Sand, wet. (ML)				SILT AND SAND	
80		S-17	79.0- 81.0	24	16	23 20 24 9	44	S-17: Dense, gray, SILT and fine Sand, wet. (ML)					
85		S-18	84.0- 86.0	24	12	23 28 21 22	49	S-18: Dense, gray, SILT and fine Sand, wet. (ML)					
90		S-19	89.0-	24	18	28 24		S-19: Very dense, gray, fine to medium SAND, little Silt,					

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-105

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-105
SHEET: 4 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350331, 1108815
Ground Surface Elev. (ft.): 13.0
Final Boring Depth (ft.): 107.6
Date Start - Finish: 3/29/2016 - 4/15/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
			91.0			31 30	55	wet. (SM)				SILT AND SAND	
											94		-81.0
95		S-20	94.0- 96.0	24	4	16 19 24 21	43	S-20: Dense, gray, fine to coarse SAND and Gravel, little Silt, wet. (SM)					
100		S-21	99.0- 101.0	24	8	21 23 26 37	49	S-21: Dense, gray, fine to coarse SAND and Gravel, trace Silt, wet. (SP)				SAND AND GRAVEL	
105		S-22	104.0- 106.0	24	6	11 19 27 19	46	S-22: Dense, gray, fine to coarse SAND and Gravel, trace Silt, wet. (SP)					
		S-23	107.0- 107.6	7	5	52 100/1"	R	S-23: Very dense, gray, fine to coarse SAND and Gravel, trace Silt, wet. (SP)	6		107.6		-94.6
								End of exploration at 107.6 feet.					
110													
115													
120													

REMARKS

6 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-105

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-106
SHEET: 1 of 3
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: Truck Mounted
Rig Model: Diedrich D-90
Drilling Method: Drive & Wash

Boring Location (N,E): 15350269, 1109060
Ground Surface Elev. (ft.): 13.9
Final Boring Depth (ft.): 81
Date Start - Finish: 3/29/2016 - 4/6/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
									1		0.5	TOPSOIL	13.4
									2				
		G-1	2.0- 2.5					G-1: Gray/brown, fine to coarse SAND, some Silt, trace Gravel, dry. (SP)					
5													
		S-1	6.0- 8.0	24	10	7 7 6 6	13	S-1: Medium dense, gray, fine SAND and Silt, little Gravel. (SM)	3				
		S-2	8.0- 10.0	24	10	2 2 1 1	3	S-2: Very loose, gray, SILT, some fine to medium Sand, little Gravel. (ML)					
10												FILL	
		S-3	13.0- 15.0	24	10	1 WOH 3 3	3	S-3: Loose, dark gray, fine to medium SAND and Silt, trace Gravel. (SM)					
15													
		S-4	18.0- 20.0	24	8	7 4 6 3	10	S-4: Loose, gray, fine to coarse SAND, little Gravel, little Silt, trace shells in tip of split spoon. (SP-SM)					
20											20		-6.1
		S-5	23.0- 25.0	24	8	7 5 2 1	7	S-5: Loose, gray, fine to medium SAND and Silt, trace Gravel. (SM)					
25												SAND AND SILT	
		S-6	27.0- 29.0	24	24	7 6 7 3	13	S-6: Medium dense, gray, fine to coarse SAND, some Silt, trace Gravel, trace shells. (SM)					
30		S-7	29.0-	24	14	5 3		S-7: Loose, gray, SILT, some fine Sand, trace shells.					

REMARKS

1 - Boring location surveyed by VHB on 3/29/16, boring elevation noted on stake.
2 - Borehole preexcavated to 6.0' bgs on 3/29/16 using Vacmaster System 1000. Started drilling on 4/4/16.
3 - Advanced PW casing incrementally to 25.0' bgs, sampled open hole below 25.0' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-106

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-106
SHEET: 2 of 3
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: Truck Mounted
Rig Model: Diedrich D-90
Drilling Method: Drive & Wash

Boring Location (N,E): 15350269, 1109060
Ground Surface Elev. (ft.): 13.9
Final Boring Depth (ft.): 81
Date Start - Finish: 3/29/2016 - 4/6/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			31.0			3 4	6	(ML)					
35		S-8	34.0-36.0	24	2	3 7 9 8	16	S-8: Medium dense, gray, GRAVEL, some fine to coarse Sand, trace Silt. (GP)					
		S-9	36.0-38.0	24	3	3 12 14 14	26	S-9: Medium dense, gray, GRAVEL, some fine to coarse Sand, trace Silt. (GP)					
		S-10	38.0-40.0	24	3	5 8 14 12	22	S-10: Medium dense, gray, GRAVEL, some fine to coarse Sand, trace Silt. (GP)				SAND AND SILT	
40													
45		S-11	44.0-46.0	24	18	9 17 15 14	32	S-11: Dense, gray, SILT and fine Sand, little Gravel, trace Clay. (ML)					
											47.5		-33.6
50		S-12	49.0-51.0	24	24	6 8 10 7	18	S-12: Very stiff, gray, Clayey SILT, trace fine Sand. (ML) PPv=1.0tsf, PPh:1.0tsf, PPr=0.75tsf	4				
55		S-13	54.0-56.0	24	24	7 10 10 9	20	S-13: Very stiff, gray/olive, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.25tsf, PPr=1.0tsf	5			CLAY/SILT AND SAND	
60		S-14	59.0-	24	24	12 12		S-14: Very stiff, gray/olive, CLAY & SILT, some fine					

REMARKS

4 - Pocket penetrometer used on cohesive samples collected. PPv= vertical plane, PPh=horizontal plane, PPr= remolded.
5 - Drove and washed HW casing to 55.0' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-106

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-106
SHEET: 3 of 3
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: Truck Mounted
Rig Model: Diedrich D-90
Drilling Method:
Drive & Wash

Boring Location (N,E): 15350269, 1109060
Ground Surface Elev. (ft.): 13.9
Final Boring Depth (ft.): 81
Date Start - Finish: 3/29/2016 - 4/6/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			61.0			13 14	25	Sand. (CL) PPv=1.75tsf, PPh=1.5tsf, PPr=1.25tsf					
65		S-15	64.0- 66.0	24	24	12 12 10 14	22	S-15: Top 12": Very stiff, gray/olive, SILT, some fine Sand, trace Clay. (ML) PPv=1.5tsf, PPh=1.25tsf, PPr=1.0tsf Bottom 12": Gray/olive, Silty CLAY, trace fine Sand. (CL)					
70		S-16	69.0- 71.0	24	24	5 8 15 12	23	S-16: Top 12": Very stiff, gray/olive, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.25tsf, PPr=1.0tsf Bottom 12": Gray/brown, fine SAND and Silt. (SM)				CLAY/SILT AND SAND	
75		S-17	74.0- 76.0	24	24	16 14 15 19	29	S-17: Top 9": Very stiff, gray/olive, SILT, some fine Sand, little Clay. (ML) Middle 6": Gray/olive, Clayey SILT, some fine Sand. (ML) Bottom 9": Gray/olive, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.5tsf, PPr=1.0tsf					
80		S-18	79.0- 81.0	24	24	16 13 11 12	24	S-18: Very stiff, gray/olive, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.5tsf, PPr=1.0tsf	6		81		-67.1
								End of exploration at 81 feet.					
85													
90													

REMARKS

6 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-106

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-107
SHEET: 1 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350220, 1108976
Ground Surface Elev. (ft.): 14.4
Final Boring Depth (ft.): 109
Date Start - Finish: 3/31/2016 - 4/20/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5, 4.5/4, 3.

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
								Refer to boring B-08 for additional data from 0'-13.0' bgs.	1		0.5	TOPSOIL	13.9
									2				
5													
10													
		S-1	13.0- 15.0	24	4	11 17 13 10	30	S-1: Dense, brown/blue/white, fine GRAVEL, some coarse Sand, wet. (GW) Gravel is rounded.	3				
15												FILL	
20													
		S-2	23.0- 25.0	24	6	11 8 5 5	13	S-2: Medium dense, brown/blue/white, fine GRAVEL, some coarse Sand, wet. (GW) Gravel is rounded.					
25													
30													

REMARKS

1 - Boring location surveyed by VHB on 3/29/16, boring elevation noted on stake.
2 - Borehole preexcavated on 3/31/16 using Vacmaster System 1000 to 6.0' bgs. Started drilling on 4/15/16
3 - Drove and washed PW casing incrementally from 6.0'-20.0' bgs. Drove and washed HW casing incrementally from 20.0'-40.0' bgs. Drove and washed NW casing incrementally from 40.0'-108.0' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-107

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-107
SHEET: 2 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350220, 1108976
Ground Surface Elev. (ft.): 14.4
Final Boring Depth (ft.): 109
Date Start - Finish: 3/31/2016 - 4/20/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5, 4.5/4, 3.5/3

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
												FILL	
											33		-18.6
35		S-3	33.0- 35.0	24	12	15 3 3 2	6	S-3: Medium stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) 2" of organic silt at 33.0' bgs.					
40		S-4	39.0- 41.0	24	24	7 9 12 11	21	S-4: Very stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) 2" fine sand seam at 40.0' bgs.					
												CLAY/SILT	
45		S-5	44.0- 46.0	24	24	4 5 14 10	19	S-5: Top 12": Very stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL) Bottom 12": Very stiff, gray, Clayey SILT, trace fine Sand, wet. (ML)					
50		S-6	49.0- 51.0	24	24	3 4 4 5	8	S-6: Medium stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL)					
											52.5		-38.1
55		S-7	54.0- 56.0	24	24	11 9 5 6	14	S-7: Stiff, gray, Clayey SILT, some fine Sand, wet. (ML)					
												CLAY/SILT AND SAND	
60		S-8	59.0-	24	24	5 20		S-8: Hard, gray, CLAY & SILT, trace fine Sand, wet. (CL)					

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-107

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-107
SHEET: 3 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350220, 1108976
Ground Surface Elev. (ft.): 14.4
Final Boring Depth (ft.): 109
Date Start - Finish: 3/31/2016 - 4/20/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5, 4.5/4, 3.5/3

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			61.0			11 14	31	2" sand seam at 60.0' bgs.					
65		S-9	64.0- 66.0	24	24	9 8 5 6	13	S-9: Very stiff, gray, CLAY & SILT, trace fine Sand, wet. (CL)				CLAY/SILT AND SAND	
70		S-10	69.0- 71.0	24	24	7 3 4 11	7	S-10: Medium stiff, gray, Clayey SILT, trace fine Sand, wet. (ML)					
											72.5		-58.1
75		S-11	74.0- 76.0	24	18	17 13 25 31	38	S-11: Dense, gray, SILT and fine Sand, wet. (ML)					
80		S-12	79.0- 81.0	24	24	23 22 26 33	48	S-12: Dense, gray, fine SAND and Silt, wet. (SM)				SILTY SAND	
85		S-13	84.0- 86.0	24	0	24 26 24 23	50	S-13: No recovery.					
90		S-14	89.0-	24	14	37 41		S-14: Top 5": Hard, gray, gravelly CLAY, some fine to					

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-107

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-107
SHEET: 4 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: N. Williams
Drilling Co.: New England Boring
Foreman: G. Twombly, Jr.

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method:
Drive & Wash

Boring Location (N,E): 15350220, 1108976
Ground Surface Elev. (ft.): 14.4
Final Boring Depth (ft.): 109
Date Start - Finish: 3/31/2016 - 4/20/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5, 4.5/4, 3.

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			91.0			45 53	86	coarse Sand, wet. (CL) Bottom 9": Very dense, brown, fine to medium SAND, trace Gravel, trace Silt, wet. (SP)					
95		S-15	94.0- 96.0	24	10	17 16 15 16	31	S-15: Dense, gray, fine to coarse SAND, some Silt, little Gravel, wet. (SM)				SILTY SAND	
											99		-84.6
100		S-16	99.0- 101.0	24	10	26 19 24 21	43	S-16: Dense, light brown, fine to coarse SAND, some Gravel, little Silt, wet. (SM)					
105		S-17	103.0- 105.0	24	8	66 30 32 32	62	S-17: Very dense, gray, GRAVEL and fine to coarse Sand, little Silt, wet. (GM)				SAND AND GRAVEL	
		S-18	108.0- 109.0	12	10	153 110		S-18: Very dense, gray, fine to coarse SAND, little Gravel, little Silt, wet. (SM)	4		109		-94.6
110								End of exploration at 109 feet.					
115													
120													

REMARKS

4 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-107

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-108
SHEET: 1 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien / N. Williams
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350219, 1109125
Ground Surface Elev. (ft.): 14.2
Final Boring Depth (ft.): 106
Date Start - Finish: 3/30/2016 - 4/13/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/11/16	0700	8.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
									1		0.5	TOPSOIL	13.7
									2			FILL	
		G-1	2.0- 3.0					G-1: Gray/brown, fine to coarse SAND, little Silt, little Gravel. (SM)					
											4		10.2
											4.1	OBSTRUCTION FILL	10.1
											4.6	FILL	9.6
5											5	OBSTRUCTION FILL	9.2
		S-1	6.0- 8.0	24	18	39 20 7 8	27	S-1: Dense, gray/brown, fine to coarse SAND, some Gravel, little Silt. (SM)	3				
10		S-2	9.0- 11.0	24	13	5 3 2 4	5	S-2: Medium stiff, gray, SILT, trace fine to medium Sand, trace brick. (ML)				FILL	
15		S-3	14.0- 16.0	24	18	3 2 1 1	3	S-3: Soft, dark gray, SILT, some fine to medium Sand, trace Gravel. (ML)					
											17		-2.8
20		S-4	19.0- 21.0	24	24	WOH WOH 2 1	2	S-4: Very soft, gray, CLAY & SILT, trace fine Sand. (CL) PPv=0.75tsf, PPh=0.5tsf, PPr=0.5tsf	4				
		U-1	22.0- 24.0	24	23			U-1: Gray-brown, CLAY & SILT. (CL)				ORGANIC SILT	
25		S-5	24.0- 26.0	24	24	1 2 2 6	4	S-5: Top 18": Medium stiff, Clayey SILT, little fine Sand. (ML) Bottom 6": Gray, CLAY & SILT, trace organic fibers. (CL) PPv=1.0tsf, PPh=0.75tsf, PPr=0.5tsf					
30		S-6	29.0-	24	0	WOH 1		S-6: Recovery was 4" of wash material; possible slag.					

REMARKS

1 - Boring Location surveyed by VHB on 3/19/16, boring elevation noted on stake.
2 - Borehole preexcavated on 3/30/16 to 6.0' bgs using Vacmaster System 1000. Vacuum excavation met refusal at 4.0' bgs, drill rig advanced augers to 4.1' bgs, vacced to 4.6' bgs, augered to 5.0' bgs, vacced to 6.0' bgs. Started drilling on 4/7/16.
3 - Advanced PW casing incrementally to 25.0' bgs, drilled open hole below 25.0' bgs.
4 - Pocket penetrometer used on cohesive samples collected. PPv= vertical plane, PPh=horizontal plane, PPr= remolded.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-108

TEST BORING LOG

GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-108
SHEET: 2 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien / N. Williams
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350219, 1109125
Ground Surface Elev. (ft.): 14.2
Final Boring Depth (ft.): 106
Date Start - Finish: 3/30/2016 - 4/13/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/11/16	0700	8.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
			31.0			1 2	2					ORGANIC SILT	
35		S-7	34.0- 36.0	24	24	WOH 1 1 2	2	S-7: Top 14": Gray, CLAY & SILT, trace fine Sand. (CL) PPv=0.5tsf, PPh=0.5tsf, PPr=0.25tsf Middle 6": Gray, Clayey SILT, little fine Sand. (ML) Bottom 4": Gray, fine to medium SAND, little Silt. (SP)			35.7		-21.5
												SILTY SAND	
											37.5		-23.3
40		S-8	39.0- 41.0	24	24	3 3 3 3	6	S-8: Medium stiff to stiff, gray, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.25tsf, PPr=1.0tsf					
		U-2	42.0- 44.0	24	0			U-2: No recovery.					
45		U-3	45.0- 47.0	24	24			U-3: Olive, Silty CLAY. (CL)					
		S-9	47.0- 49.0	24	24	3 3 4 8	7	S-9: Medium stiff to stiff, gray, Silty CLAY, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.25tsf, PPr=1.0tsf				CLAY/SILT	
50		S-10	49.0- 51.0	24	24	8 4 5 6	9	S-10: Stiff, gray, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.25tsf, PPr=1.0tsf					
55		S-11	54.0- 56.0	24	24	3 2 3 3	5	S-11: Medium stiff to stiff, gray, CLAY & SILT, trace fine Sand. (CL) PPv=1.75tsf, PPh=1.5tsf, PPr=1.0tsf	5				
											57.5		-43.3
60		S-12	59.0-	24	24	6 10		S-12: Medium dense, gray, SILT, trace fine Sand. (ML)				CLAY/SILT AND SAND	

REMARKS

5 - Measured groundwater depth prior to beginning of drilling on 4/11/16 with casing to 39.0' bgs, see above.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-108

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Spectra Energy
Weymouth Compressor Station
Weymouth, Massachusetts

EXPLORATION NO.: B-108
SHEET: 3 of 4
PROJECT NO: 09.0025891.00
REVIEWED BY: A. Blaisdell

Logged By: C. Navien / N. Williams
Drilling Co.: New England Boring
Foreman: B. Cross

Type of Rig: ATV Mounted
Rig Model: Mobile B-53
Drilling Method: Drive & Wash

Boring Location (N,E): 15350219, 1109125
Ground Surface Elev. (ft.): 14.2
Final Boring Depth (ft.): 106
Date Start - Finish: 3/30/2016 - 4/13/2016

H. Datum: NAD 83
V. Datum: NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)

Date	Time	Water Depth	Stab. Time
4/11/16	0700	8.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
			61.0			9 7	19						
65		S-13	64.0- 66.0	24	24	5 4 7 5	11	S-13: Stiff, gray, SILT, trace fine Sand. (ML)					
70		S-14	69.0- 71.0	24	24	3 4 8 12	12	S-14: Top 18": Very stiff, gray, CLAY & SILT, trace fine Sand. (CL) PPv=1.5tsf, PPh=1.25tsf, PPr=0.75tsf Bottom 6": Gray, Clayey SILT, some fine Sand. (ML)				CLAY/SILT AND SAND	
75		S-15	74.0- 76.0	24	24	11 13 7 7	20	S-15: Top 12": Very stiff, gray, SILT & CLAY, little fine Sand. (ML) PPv=1.5tsf, PPh=1.25tsf, PPr=0.75tsf Bottom 6": Gray, Clayey SILT, some fine Sand. (ML)					
											79		-64.8
80		S-16	79.0- 81.0	24	10	23 19 26 17	45	S-16: Dense, brown, GRAVEL and fine to coarse Sand, trace Silt. (GP-GM)	6 7				
85		S-17	84.0- 86.0	24	12	26 24 17 23	41	S-17: Dense, brown, GRAVEL, little Silt, little fine Sand, wet. (GM)				SAND WITH SILT AND GRAVEL	
90		S-18	89.0-	24	16	10 39		S-18: Very dense, brown, fine to coarse SAND and					

REMARKS

6 - Driller noted probable strata change at 79.0' bgs due to drill effort and chatter.
7 - Driller advanced HW casing to 84.0' bgs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-108

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*	**Spectra Energy** **Weymouth Compressor Station** **Weymouth, Massachusetts**	**EXPLORATION NO.:** B-108 **SHEET:** 4 of 4 **PROJECT NO:** 09.0025891.00 **REVIEWED BY:** A. Blaisdell

Logged By: C. Navien / N. Williams **Drilling Co.:** New England Boring **Foreman:** B. Cross	**Type of Rig:** ATV Mounted **Rig Model:** Mobile B-53 **Drilling Method:** Drive & Wash	**Boring Location (N,E):** 15350219, 1109125 **Ground Surface Elev. (ft.):** 14.2 **Final Boring Depth (ft.):** 106 **Date Start - Finish:** 3/30/2016 - 4/13/2016	**H. Datum:** NAD 83 **V. Datum:** NAVD 88

Hammer Type: Safety Hammer
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Auger or Casing O.D./I.D Dia (in.): 5.5/5" & 4.5/4"

Sampler Type: SS
Sampler O.D. (in.): 2
Sampler Length (in.): 24
Rock Core Size: None

Groundwater Depth (ft.)			
Date	**Time**	**Water Depth**	**Stab. Time**
4/11/16	0700	8.5	84 hrs

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value						
			91.0			33 36	72	Gravel, little Silt, wet. (SM)					
95		S-19	94.0- 96.0	24	6	14 17 14 20	31	S-19: Dense, brown, medium to coarse SAND, little Gravel, wet. (SP)				SAND WITH SILT AND GRAVEL	
100		S-20	99.0- 101.0	24	24	36 38 61 61	99	S-20: Very dense, brown, medium to coarse SAND, little Gravel, trace Silt, wet. (SP)					
									8 9		103		-88.8
105		S-21	104.0- 106.0	24	8	52 64 51 18	>100	S-21: Very dense, gray, fine to coarse SAND, some Gravel, trace Silt, wet. (SP)				SAND AND GRAVEL	
											106		-91.8
								End of exploration at 106 feet.					
110													
115													
120													

REMARKS

8 - Driller noted probable strata change at 103.0' bgs due to drilling effort and chatter; possible Sand and Gravel.
9 - Upon completion of drilling, borehole was backfilled with cuttings. Casing was removed as/after cuttings were placed. During casing retrieval, the lower approximately 50' of casing sheared-off and remained in the borehole. The borehole was backfilled with cuttings with the lower portion of the casing in place.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Exploration No.:
B-108

TRC
650 Suffolk Street
Lowell, MA
Telephone: 978-970-5600
Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
BORING/WELL NUMBER B-1
TRC GEOLOGIST Max Scott
SCREEN TYPE/SLOT NA
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
FILTER PACK TYPE NA
DATE DRILLED 6/26/2015
SEAL TYPE NA
LOCATION 6 Bridge St
DEPTH TO WATER (Approximate Feet) NA
SAMPLING METHOD 24" Split spoon
TOTAL DEPTH (Feet) 24
DRILLING METHOD HSA
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

NOTES Hand auger to 1'; Vac-ex to 6'; Cored to 9'; Hollow-stem auger to 24'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1 2 3 4 5					Dark grey SILT and brown fine SAND.	2.7	COMP-123 0-1'	No monitoring well installed.
6 7 8					Pre-cored to 9 feet. No sample.			
9 10 11 12 13	10 15 14 12	24/20			Black to brown fine to medium SAND, some clinkers and brick, little fine to coarse gravel and silt.	0.1		
14 15 16 17	23 15 8 5	24/10			Black to brown fine to medium SAND, some clinkers, brick, and coal, little fine to coarse gravel and silt.	0.1	COMP-123-Fill	
18 19	3 3	24/6			Black to brown fine to medium SAND, some clinkers, brick, and coal, little fine to coarse gravel and silt.	0.3		
	2 2				Grey Silty CLAY, some fine sand.			
20 21	4 7	24/15			Dark brown to black fine to meidum SAND, some silt, brick, and clinkers.	0.0		
	7 8				Red-brown fine to coarse SAND and fine to coarse GRAVEL, little silt.			
22 23	6 7	24/16			Red-brown fine to coarse SAND and fine to coarse GRAVEL, little silt.	0.0	COMP-123-Native	
24	3 3				Grey Silty CLAY, some fine to medium sand.			
					End of Boring @ 24 feet-terminated.			

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Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
BORING/WELL NUMBER B-2
TRC GEOLOGIST Max Scott
SCREEN TYPE/SLOT NA
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
FILTER PACK TYPE NA
DATE DRILLED 6/26/2015
SEAL TYPE NA
LOCATION 6 Bridge St
DEPTH TO WATER (Approximate Feet) NA
SAMPLING METHOD 24" Split spoon
TOTAL DEPTH (Feet) 30
DRILLING METHOD HSA
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)
NOTES Hand auger to 1'; Vac-ex to 3'; Cored to 8'; Hollow-stem auger to 30'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1 2 3					Dark grey SILT, little fine to coarse gravel, trace clinkers, coal, and brick (refusal with vaccuum excavation at 3').	0.0	COMP-123 0-1'	No monitoring well installed.
4 5 6					Solid obstruction (most likely concrete agregate).			
7 8					Pre-cored to 8 feet. No sample.			
9 10 11 12 13	7 6 8 5	24/8			Black fine to coarse SAND and fine GRAVEL, some silt, brick, clinkers.	0.1		
14 15 16 17 18	3 3 2 5	24/5			Black fine to coarse SAND and fine GRAVEL, some silt, brick, clinkers.	0.3	COMP-123-Fill	
19 20 21 22 23	2 3 2 4	24/3			Black fine to coarse SAND and fine GRAVEL, some silt, brick, clinkers.	0.1		
24 25 26 27 28	4 2 5 5	24/3			Black SILT and fine to coarse SAND, some fine to coarse gravel, brick, and clinkers.	0.0		
29 30	8 6 3 2	24/8			Grey Silty CLAY, some very fine sand.	0.0	COMP-123-Native	
					End of Boring @ 30 feet-terminated.			

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BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978

TRC GEOLOGIST Max Scott

DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry

DATE DRILLED 6/26/2015

LOCATION 6 Bridge St

SAMPLING METHOD 24" Split spoon

DRILLING METHOD HSA

BORING/WELL NUMBER B-3

SCREEN TYPE/SLOT NA

FILTER PACK TYPE NA

SEAL TYPE NA

DEPTH TO WATER (Approximate Feet) NA

TOTAL DEPTH (Feet) 27

GROUND ELEVATION (Feet)

REFERENCE ELEVATION (Feet)

NOTES Hand auger to 1'; Vac-ex to 3'5"; Cored to 9'; Hollow-stem auger to 27'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1					Dark grey SILT, little fine to coarse gravel, trace clinkers, coal, and brick (refusal with vaccuum excavation at 3'5").	0.0	COMP-123 0-1' 1340	No monitoring well installed.
2								
3								
4					Solid obstruction (most likely concrete agregate).			
5								
6					Pre-cored to 9 feet. No sample.			
7								
8								
9	7 6 8 9	24/3			Black to brown fine to coarse SAND and fine to coarse GRAVEL, some brick and clinkers.	0.3		
10								
11								
12								
13								
14		24/0					COMP-123-Fill	
15								
16								
17								
18								
19	8 8 8 9	24/6			Black to brown fine to coarse SAND and fine to coarse GRAVEL, some silt.	0.1		
20								
21								
22								
23	11 18 36 36	24/10			Light brown fine to medium SAND.	0.0		
24					Light brown very dense CLAY and SILT.			
25		24/24			Light brown very dense CLAY and SILT.	0.0	COMP-123-Native	
26								
27								
					End of Boring @ 27 feet-terminated.			

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Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
BORING/WELL NUMBER B-4
TRC GEOLOGIST Max Scott
SCREEN TYPE/SLOT NA
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
FILTER PACK TYPE NA
DATE DRILLED 6/23/2015
SEAL TYPE NA
LOCATION 6 Bridge St
DEPTH TO WATER (Approximate Feet) NA
SAMPLING METHOD 24" Split spoon
TOTAL DEPTH (Feet) 101
DRILLING METHOD Drive and Wash
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)
NOTES Hand auger to 1'; Vac-ex to 3'2"; Cored to 9'; Hollow-stem auger to 101'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1 2 3					Dark grey SILT, little fine to coarse gravel, clinkers, coal, ash, and brick (refusal with vaccuum excavation at 3'2").	0.5	COMP-467 0-1'	No monitoring well installed.
4 5					Solid obstruction (most likely concrete agregate).			
6 7 8					Pre-cored to 9'. No sample.			
9 10 11 12 13	7 7 7 8	24/20			Dark brown fine SANDY SILT, trace brick and clinkers, wet @ 11'.	0.1		
14 15 16 17 18	3 2 5 7	24/9			Dark brown fine to medium SAND, little silt, trace brick and clinkers.	0.0		
19 20 21 22 23	4 4 3 2	24/6			Black to brown coarse SAND and fine GRAVEL, some brick and clinkers, little silt.	5.6	COMP-467-FILL	
24 25	WOR WOH 4 2	24/24			Grey to black SILTY CLAY, some fine gravel, brick, clinkers, and coal.	1.0		
26 27 28 29 30 31 32 33 34 35 36 37 38					Less dense grey CLAY, some silt, trace medium sand. Shear Strength tests and Shelby Tube collection.			
39 40 41 42 43	3 2 1 4	24/24			Grey CLAY, little silt.	0.0	COMP-467-Native	
44 45 46 47 48 49 50	4 3 3 4	24/23			Grey CLAY, some silt, little very fine sand.	0.0 0.0		

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BORING/WELL CONSTRUCTION LOG

BORING/WELL NUMBER B-4
DATE DRILLED 6/23/2015

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
51	5	24/24						
52	7							
53	3							
54	4							
55	4	24/24				0.0		
56	3							
57	2							
58	4							
59								
60								
61					Grey SILTY very fine SAND, some clay to terminal depth.			
62								
63								
64								
65								
66								
67								
68								
69								
70								
71								
72								
73								
74								
75								
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95								
96								
97								
98								
99								
100								
101								
					End of Boring @ 101 feet-terminated.			

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650 Suffolk Street
Lowell, MA
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Fax: 978-453-1995

BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
BORING/WELL NUMBER B-5
TRC GEOLOGIST Max Scott
SCREEN TYPE/SLOT NA
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
FILTER PACK TYPE NA
DATE DRILLED 6/17/2015
SEAL TYPE NA
LOCATION 6 Bridge St
DEPTH TO WATER (Approximate Feet) NA
SAMPLING METHOD 24" Split spoon
TOTAL DEPTH (Feet) 124
DRILLING METHOD Drive and Wash
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)
NOTES Hand auger to 1'; Vac-ex to 4'; Cored to 9'; Hollow-stem auger to 124'3"

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1					Dark grey SILT and brown SAND, some fine to coarse gravel, trace clinkers.	0.0		No monitoring well installed.
2 3					Dark grey to black fine SAND and SILT, some fine to coarse gravel, brick, and clinkers.			
4					Brown fine SAND (refusal with vaccuum excavation at 4').			
5					Solid obstruction (most likely concrete agregate).			
6 7 8					Pre-cored to 9'. No sample.			
9 10 11 12 13	6 5 2 3	24/12			Dark grey to black SILT, little clay, fine sand, fine to medium gravel, brick, plastic, and glass fragments.	0.3		
14 15 16	1 1 4 7	24/21			Dark grey to black SILT, some clay, little fine to medium sand.	0.2		
17 18					Dark grey to black SILT and fine SAND, trace clay and fine gravel.			
19 20 21 22 23	7 4 2 5	24/8			Black SILT and FILL DEBRIS (brick, clinkers, fine to medium gravel).	6.4	B-5 (19-21') 1035	
24 25 26 27 28	1 1 2 5	24/24			Dark grey SILT, some fine sand, little clay.	0.3		
29 30 31 32 33	1 1 3 2	24/24			Grey SILT and CLAY.	1.3		
34 35	1 1 6 3	24/24			Grey SILT and CLAY.	1.2		
36 37 38					Dark grey to black SILTY SAND.			
39 40 41 42 43	WOR WOH 2 5	24/24			Grey CLAY, little silt.	1.3		
44 45 46 47 48 49 50	6 21 21 13	24/24			Grey CLAY with interbedded SILT and fine SAND to terminal depth. Glacial till observed 101-124'3".	1.0		

TRC

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BORING/WELL CONSTRUCTION LOG

BORING/WELL NUMBER B-5
DATE DRILLED 6/17/2015

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
51				▨				
52				▨				
53				▨				
54				▨				
55				▨				
56				▨				
57				▨				
58				▨				
59				▨				
60				▨				
61				▨				
62				▨				
63				▨				
64				▨				
65				▨				
66				▨				
67				▨				
68				▨				
69				▨				
70				▨				
71				▨				
72				▨				
73				▨				
74				▨				
75				▨				
76				▨				
77				▨				
78				▨				
79				▨				
80				▨				
81				▨				
82				▨				
83				▨				
84				▨				
85				▨				
86				▨				
87				▨				
88				▨				
89				▨				
90				▨				
91				▨				
92				▨				
93				▨				
94				▨				
95				▨				
96				▨				
97				▨				
98				▨				
99				▨				
100				▨				
101				▨				
102				▨				
103				▨				
104				▨				
105				▨				
106				▨				
107				▨				

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BORING/WELL CONSTRUCTION LOG

BORING/WELL NUMBER B-5
DATE DRILLED 6/17/2015

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124				▨				
					End of Boring @ 124 feet 3 inches-terminated.			

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BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
BORING/WELL NUMBER B-6
TRC GEOLOGIST Max Scott
SCREEN TYPE/SLOT NA
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
FILTER PACK TYPE NA
DATE DRILLED 6/25/2015
SEAL TYPE NA
LOCATION 6 Bridge St
DEPTH TO WATER (Approximate Feet) NA
SAMPLING METHOD 24" Split spoon
TOTAL DEPTH (Feet) 23
GROUND ELEVATION (Feet)
DRILLING METHOD HSA
REFERENCE ELEVATION (Feet)

NOTES Hand auger to 1'; Vac-ex to 2'2"; Cored to 9'; Hollow-stem auger to 23'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1					Dark grey SILT and brown SAND, some fc gravel, trace clinkers.			No monitoring well installed.
2					Brown fine SAND (refusal with vaccuum excavation at 2'2").	0.3	COMP-467 0-1'	
3 4 5					Solid obstruction (most likely concrete agregate).			
6					Black SILT, little fine sand and clinkers.			
7 8					Pre-cored to 9 feet. No sample.			
9 10 11 12 13	2 4 6 10	24/12			Brown to black fine to coarse SAND and SILT, little brick and coal.	0.1		
14 15 16 17 18	5 4 6 4	24/8			Dark brown to black fine to coarse SAND and fine GRAVEL, some silt, brick, and clinkers.	0.4	COMP-467-FILL	
19 20	5 5 10	24/10			Dark brown to black fine to coarse SAND and fine GRAVEL, some silt, brick, and clinkers.	0.1		
21 22	3 4 3 2 3	24/14			Dark brown to black fine to coarse SAND and fine GRAVEL, some silt, brick, and clinkers.	0.1	COMP-467-Native	
					Grey less dense CLAY, some silt, little fine sand.			
23					End of Boring @ 23 feet-terminated.			

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BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978

BORING/WELL NUMBER B-7

TRC GEOLOGIST Max Scott

SCREEN TYPE/SLOT NA

DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry

FILTER PACK TYPE NA

DATE DRILLED 6/25/2015

SEAL TYPE NA

LOCATION 6 Bridge St

DEPTH TO WATER (Approximate Feet) NA

SAMPLING METHOD 24" Split spoon

TOTAL DEPTH (Feet) 25

DRILLING METHOD HSA

GROUND ELEVATION (Feet)

REFERENCE ELEVATION (Feet)

NOTES Hand auger to 1'; Vac-ex to 3'4"; Cored to 9'; Hollow-stem auger to 25'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1 2 3					Dark grey SILT, little fine to coarse gravel, trace clinkers, coal, and brick (refusal with vaccuum excavation at 3'4").	0.1	COMP-467 0-1'	No monitoring well installed.
4 5					Solid obstruction (most likely concrete agregate).			
6 7 8 9					Pre-cored to 9 feet. No sample.			
10 11 12 13	2 1 2 2	24/2			Brown to black fine to medium SAND and SILT, some brick, clinkers, and fine to medium gravel.	0.1		
14 15 16 17 18	8 8 5 4	24/10			Dark brown to black fine SAND and SILT, little brick, clinkers, and fine to medium gravel.	0.0	COMP-467-FILL	
19 20	5 4 4 8	24/2			Dark brown to black fine SAND and SILT, little brick, clinkers, and fine to medium gravel.	0.3		
21 22	6 3 4 2	24/6			Dark brown to black fine to coarse SAND and fine GRAVEL, some silt, brick, and clinkers. Grey less dense CLAY, some silt, little fine sand.	0.4		
23 24 25	3 3 3 3	24/8			Grey to black Silty CLAY, little fine sand.	0.0	COMP-467-Native	
					End of Boring @ 25 feet-terminated.			

BORING/WELL CONSTRUCTION LOG

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CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
TRC GEOLOGIST Max Scott
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
DATE DRILLED 6/25/2015
LOCATION 6 Bridge St
SAMPLING METHOD 24" Split spoon
DRILLING METHOD HSA

BORING/WELL NUMBER B-8
SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 38
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

NOTES Hand auger to 1'; Vac-ex to 6'; Cored to 8'; Hollow-stem auger to 38'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
					Dark grey fine SAND and SILT, little fine to coarse gravel, trace ash and clinkers.			No monitoring well installed.
1 2					Dark grey to black SILT, some fine sand, little clinkers and brick fragments.	8.4	COMP-8910 0-1'	
3 4 5					Brown fine to medium SAND.			
6 7					Pre-cored to 8 feet. No sample.			
8 9 10 11 12	21 26 21 21	24/16			Dark brown SILT and fine SAND, trace clinkers and brick.	NA		
13 14	10 9 10 8	24/0			No recovery	NA	COMP-8910-Fill	
15 16 17								
18 19 20 21 22 23	4 6 5 6	24/8			Grey fine to coarse SAND, little fine to medium gravel and silt.	0.7		
24 25 26 27 28	5 5 7 8	24/4			Dark brown to black fine to coarse SAND, some fine to coarse gravel, little silt.	0.0		
29 30	7	24/6			Grey fine to coarse SAND, some fine to coarse gravel, little silt.	0.0		

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BORING/WELL CONSTRUCTION LOG

BORING/WELL NUMBER B-8
DATE DRILLED 6/25/2015

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
	4							
31	6							
	6							
32								
33								
34								
	5	24/7			Grey fine to coarse SAND, some fine to coarse gravel, little silt.	0.0		
35	7							
	6				Dark grey to black CLAY, little silt and fine sand.			
36	11							
	16	24/10			Grey fine SAND and SILT, some clay.	0.0	COMP-8910-Native	
37	7							
	12							
38	8				End of Boring @ 38 feet-terminated.			

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BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
BORING/WELL NUMBER B-9
TRC GEOLOGIST Max Scott
SCREEN TYPE/SLOT NA
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
FILTER PACK TYPE NA
DATE DRILLED 6/25/2015
SEAL TYPE NA
LOCATION 6 Bridge St
DEPTH TO WATER (Approximate Feet) NA
SAMPLING METHOD 24" Split spoon
TOTAL DEPTH (Feet) 36
DRILLING METHOD HSA
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

NOTES Hand auger to 1'; Vac-ex to 6'; Cored to 9'; Hollow-stem auger to 36'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1 2 3 4 5					Dark grey fine SAND and SILT, little fc gravel, trace ash, brick, and clinkers.	1.0	COMP-8910 0-1'	No monitoring well installed.
6 7 8					Pre-cored to 9 feet. No sample.			
9 10 11 12 13	13 12 11 11	24/23			Dark brown SILT and fine to medium SAND, wet @ 9.5 feet.	0.0		
14 15 16 17 18	8 7 7 7	24/3			Dark brown SILT and fine to coarse SAND, trace fine gravel and brick fragments.	0.0	COMP-8910-Fill	
19 20 21 22 23	9 11 6 6	24/10			Brown fine to coarse SAND, trace fine gravel and silt.	0.0		
24 25	5 6 6 8	24/8			Brown fine to coarse SAND, some fine to medium gravel, little silt.	0.0		
26 27 28					Grey Silty fine SAND, little clay.			
29 30	12	24/4			Grey fine to coarse SAND, some fine to coarse gravel, little silt.	0.1		

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BORING/WELL CONSTRUCTION LOG

BORING/WELL NUMBER B-9
DATE DRILLED 6/25/2015

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
31 32 33	7 9 9			⁘				
34 35 36	2 4 5 14	24/23		☰	Grey to black CLAY, some silt and fine sand.	0.0	COMP-8910-Native	
					End of Boring @ 36 feet-terminated.			

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BORING/WELL CONSTRUCTION LOG

CLIENT/PROJECT NUMBER SPECTRA/140143.000.7978
TRC GEOLOGIST Max Scott
DRILLING CONTRACTOR/FOREMAN New England Boring Company/Jerry
DATE DRILLED 6/25/2015
LOCATION 6 Bridge St
SAMPLING METHOD 24" Split spoon
DRILLING METHOD HSA

BORING/WELL NUMBER B-10
SCREEN TYPE/SLOT NA
FILTER PACK TYPE NA
SEAL TYPE NA
DEPTH TO WATER (Approximate Feet) NA
TOTAL DEPTH (Feet) 26
GROUND ELEVATION (Feet)
REFERENCE ELEVATION (Feet)

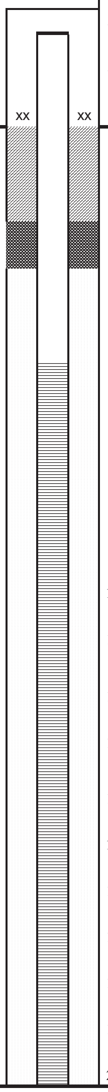
NOTES Hand auger to 1'; Vac-ex to 2'8"; Cored to 8'; Hollow-stem auger to 26'

DEPTH (ft. BGL)	BLOW COUNTS	PEN/REC (INCHES)	CORE #	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	Field Testing (ppm)	SAMPLE ID/ TIME	WELL DIAGRAM
1 2					Dark grey fine SAND and SILT, little fine to coarse gravel, trace ash and clinkers (refusal with vaccuum excavation at 2'8").	0.7	COMP-8910 0-1'	No monitoring well installed.
3 4 5					Solid obstruction (most likely concrete agregate).			
6 7 8					Pre-cored to 8 feet. No sample.			
9 10 11 12	12 10 11 10	24/18			Brown fine to medium SAND, some silt. Dark grey to black SILT, little brick, slag, and fine sand.	2.5		
13 14 15 16 17	1 1 1 6	24/2			Black fine SAND and SILT.	0.7	COMP-8910-Fill	
18 19	2 1 1 1	24/9			Grey SILT and CLAY, little fine sand.	0.1		
20 21 22 23	WOR WOH 2 2	24/22			Grey SILT and CLAY, little fine sand.			
24 25 26	WOH WOH WOH 2	24/24				0.0	COMP-8910-Native	
					End of Boring @ 26 feet-terminated			

Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-201**
		Monitor Well ID No.:	**MW-201**
		Sheet 1 of 1	
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.2 feet	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 10.0 feet below ground surface	Dated Drilled:	5/12/2016
Depth to Static Water:		Drill Type:	Hollow Stem Auger
Stabilization Time:		Sampling Method:	Continuous
Blow Count Info	**Notes:**	Drill Rig and Model Number:	Truck / Diedrich D 120
Type: SPT	HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0)	Drilling Company:	New England Boring Contractors
Hammer: 140 lbs		Driller's Name:	Norm and Shawn
Fall: 30 inches		TRC Representative:	C. Ragnelli / L. Hopp

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2	NA					0 - 6": Topsoil (grass)	Native Fill 0.0-2.0'	1 2
3 4	NA					Advanced vac-rig to 6' below ground surface	Bentonite -2.0-3.0' (1' thickness)	3 4
5 6	NA						Seven (7) Feet 2" Schedule 40 PVC Riser (-)2-5'	5 6
7 8	B/MW 201 (6-8') Submitted for Total Metals, Dissolved Metals, EPH-10, hold SPLP	5,5,7,6	0.5	S-1	24/7	6-8': Dry black f-c SAND, trace f gravel, fill (brick 5%, coal slag 5%)	Filter Sand Pack 3-20' (17' thickness)	7 8
9 10	NA	4,3,2,4	0.0	S-2	24/9	8-10': Moist, brown f-c SAND, trace f gravel, fill (klinkers 40%)		9 10
11 12	B/MW 201 (10-12') Submitted for Total Metals, Dissolved Metals, EPH-10, hold SPLP, Collected DUP-1	4,6,15,13	7.0	S-3	24/11	10-12': Moist to wet black f-c SAND, some f gravels, fill (brick 20%, klinkers 20%)	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 5-20'	11 12
13 14	NA	23,13,14,10	47.7	S-4	24/16	12-14': Wet black f-c SAND (50%) and FILL (klinkers 3%, brick 20%) trace f gravel Staining and odor		13 14
15 16	NA	5,4,3,4	54.4	S-5	24/8	14-16': Wet black f-c SAND and FILL (brick 20%, klinkers 30%), trace f gravel, trace silt Staining and odor		15 16
17 18	NA	6,3,4,4		S-6	24/9	16-18': Wet black f-c SAND and FILL (brick 20%, klinkers 30%), trace f gravel Staining and odor		17 18
19 20	NA		60.3 20.8	S-7	24/13	18-20': 7": Wet brown to grey f-c SAND, trace f gravel, little silt 6": Wet black f-c SAND and SILT		19 20



Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

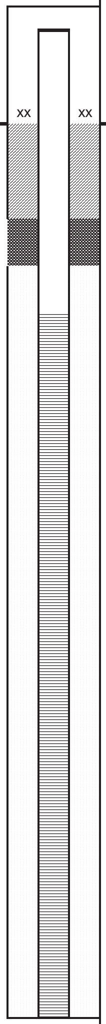
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete	xxx
Silica Sand Pack	☐
Native Fill	▨
Bentonite Seal	▩
Riser	☐
Screen	▤

Boring & Well Construction Log

TRC		**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-202** Monitor Well ID No.: **MW-202** Sheet 1 of 1
Boring Location:	N: 15350438.4477 E: 1108914.0582	Project Number:	140143.0000.7478
Ground Elevation:	12.0 feet	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 10.0 feet below ground surface	Dated Drilled:	5/11/2016
Depth to Static Water:		Drill Type:	Hollow Stem Auger
Stabilization Time:		Sampling Method:	Continuous
Blow Count Info	**Notes:**	Drill Rig and Model Number:	Truck / Diedrich D 120
Type: SPT	HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0)	Drilling Company:	New England Boring Contractors
Hammer: 140 lbs		Driller's Name:	Norm and Shawn
Fall: 30 inches		TRC Representative:	C. Ragnelli / L. Hopp

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1						0-6": Topsoil (grass, dirt)	Native Fill 0.0-2.0'	1
2 3	NA	8,8,10,22	2.6	S-1	24/20	1-3' 4": Dry, topsoil (roots) 6": Dry brown to black f-c SAND, little f gravel, little fill (bricks 10%, very f coal slag 5%)	Bentonite -2.0.-3.0' (1' thickness)	2 3
4 5	NA	20,19,20,22	0.3 0.0	S-2	24/22	3-5' Dry, organics, roots Dry black f-m SAND, trace f gravel, FILL (very f coal slag 80%) Dry tan very f SAND, trace silt, trace f gravel	Six (6) Feet 2" Schedule 40 PVC Riser (-)2-4'	4 5
6 7	B/MW 202 (5-7') Submitted for Total Metals, Dissolved Metals, EPH-10, SPLP Metals	9,9,6,4	0.2	S-3	24/15	5-7': 3": Dry black f-c SAND, trace FILL (very f coal slag 5%) 3": Dry brown to grey f-c SAND, trace f gravel 3": Dry grey CLAY, little f-m sand 6": Dry brown reddish f-c SAND		6 7
8 9	NA	5,4,5,4	2.7	S-4	24/13	7-9': Dry brown f-c SAND, trace f gravel	Filter Sand Pack 3-19' (16' thickness)	8 9
10 11	B/MW 202 (9-11') Submitted for Total Metals, Dissolved Metals, EPH-10, SPLP Metals	4,4,5,5	0.2	S-5	24/12	9-11': Moist, wet brown f-c SAND	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 4-19'	10 11
12 13	NA	2,4,4,5	3.2	S-6	24/15	11-13': Wet brown f-c SAND, trace f gravel		12 13
14 15	NA	4,10,38,43	0.2	S-7	24/17	13-15': Wet brown f-c SAND, trace f gravel, trace silt		14 15
16 17	NA	5,3,7,18	0.5 0.8	S-8	24/20	15-17' 10": Wet brown f-c SAND 5": Wet grey f SILTY SAND		16 17
18 19	NA	1/12",3,4		S-9	24/12	17-19': Wet brown f-c SAND, trace silt		18 19
20 21	NA	6,21,61,66	0.8 0.4	S-10	24/24	19-21' 18": Wet brown f-c SAND, trace f gravel 4": Wet CLAY with some silt 2": Wet brown f-c SAND		20 21



Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

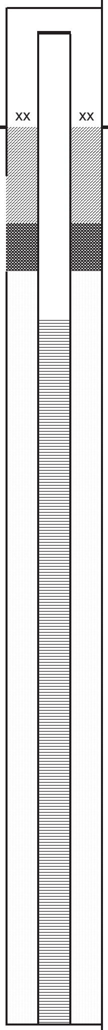
Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete	xxx xxx
Silica Sand Pack	
Native Fill	▨
Bentonite Seal	▩
Riser	
Screen	▤

TRC	**Boring & Well Construction Log**	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-203** Monitor Well ID No.: **MW-203** Sheet 1 of 1
Boring Location:	N: 15350425.3168 E: 1108966.7489	Project Number:	140143.0000.7478
Ground Elevation:	12.2 feet	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 10.0 feet below ground surface	Dated Drilled:	5/11-12/2016
Depth to Static Water:		Drill Type:	Hollow Stem Auger
Stabilization Time:		Sampling Method:	Continuous
Blow Count Info	**Notes:**	Drill Rig and Model Number:	Truck / Diedrich D 120
Type: SPT	HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0)	Drilling Company:	New England Boring Contractors
Hammer: 140 lbs		Driller's Name:	Norm and Shawn
Fall: 30 inches		TRC Representative:	C. Ragnelli / L. Hopp

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3 -2 -1 0							 xx xx	-3 -2 -1 0
1						0-4": Topsoil (grass, dirt)	Native Fill 0.0-2.0'	1
2 3	NA	8,26,29,26	0.2 0.1	S-1	24/18	1-3' 14": Dry black f-c SAND, trace f gravel FILL (brick 10%, coal slag 5%) 4": Dry SILTY SAND, trace f gravel	Bentonite -2.0.-3.0' (1' thickness)	2 3
4 5	NA	9,8,12,9	0.2	S-2	24/15	3-5': Dry black f-c SAND, FILL (brick 10%, kinkers 10%)	Six (6) Feet	4 5
6 7	B/MW 203 (5-7') Submitted for Total Metals, Dissolved Metals, EPH-10, SPLP Metals	7,6,5,4	0.2	S-3	24/7	5-7': Dry brown to black f-c SAND, trace f gravel, fill (coal slag 20%)	2" Schedule 40 PVC Riser (-)2-4'	6 7
8 9	NA	8,4,5,5	0.4	S-4	24/7	7-9': Dry brown to black f-c SAND, trace f gravel, fill (klinkers 20%, brick 20%)	Filter Sand Pack 3-19' (16' thickness)	8 9
10 11	B/MW 203 (5-7') Submitted for Total Metals, Dissolved Metals, EPH-10, SPLP Metals	9,14,10,9	0.1 0.1	S-5	24/12	9-11' 10": Wet black f-c SAND, trace f gravel, fill (brick 5%, klinkers 10%) 2": Wet fine GRAVEL	Fifteen (15) Feet 2" Schedule 40	10 11
12 13	NA	2,10,6,7	6.7 4.5	S-6	24/9	11-13' 7": Wet black f-c SAND, trace f gravel, trace silt, FILL (brick 5%, klinker 5%) 2": Wet f SAND, trace silt	0.01 Slotted Screen 4-19'	12 13
14 15	NA	1,1/12,1	0.5	S-7	24/2	13-15': Wet black f-m SAND		14 15
16 17	NA	4,3,2,4	0.6	S-8	24/8	15-17': Wet black grey f-c SAND, trace f gravel, trace silt		16 17
18 19	NA	6-100/5	6.1	S-9	24/12	17-19': Wet black-grey f-c SAND, trace f gravel, trace silt		18 19
20 21	NA	14-10-5-7	8 36.7	S-10	24/13	19-21' 3": Wet black f-c SAND, trace silt, trace f gravel 5": Wet black f-c SAND, some f gravel (30%), some wood (organics) 5": Wet brown f- SAND, little silt		20 21

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

___ Change in Material Type

▬ Change in Deposit Type

Penetration Resistance ("Blow Counts")

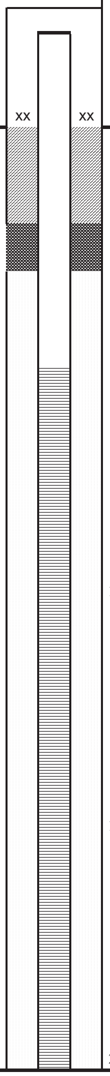
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete	xxx xxx
Silica Sand Pack	☐
Native Fill	▨
Bentonite Seal	▩
Riser	☐
Screen	▤

Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-204**
		Monitor Well ID No.:	**MW-204**
		Sheet 1 of 1	
Boring Location:	N: 15350381.9915 E: 1109125.3309	Project Number:	140143.0000.7478
Ground Elevation:	12.9 feet	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 10.0 feet below ground surface	Dated Drilled:	5/10/2016
Depth to Static Water:		Drill Type:	Hollow Stem Auger
Stabilization Time:		Sampling Method:	Continuous
Blow Count Info	**Notes:**	Drill Rig and Model Number:	Truck / Diedrich D 120
Type: SPT	HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0)	Drilling Company:	New England Boring Contractors
Hammer: 140 lbs		Driller's Name:	Norm and Shawn
Fall: 30 inches		TRC Representative:	C. Ragnelli / L. Hopp

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)
-3 -2 -1 0							
1 2	NA					0 - 4": Topsoil (grass)	Native Fill 0.0-2.0'
3 4	NA					Advanced vac-rig to 6' below ground surface	Bentonite -2.0-3.0' (1' thickness)
5 6	NA						Seven (7) Feet 2" Schedule 40 PVC Riser (-)2-5'
7 8	B/MW 204 (6-8') Submitted for Total Metals, Dissolved Metals, EPH-10, hold SPLP	12,9,13,16	0.6	S-1	24/16	6-8': 8": Dry dark f-m SAND, little f gravel, trace silt 8": FILL (coal slag 75%, brick 25%)	Filter Sand Pack 3-20' (17' thickness)
9 10	B/MW 204 (8-10') Submitted for Total Metals, Dissolved Metals, EPH-10, hold SPLP	6,5,7,6	0.1	S-2	24/24	8-10': 6": Moist brown f SAND, trace silt 18": Wet dark brown f SAND	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 5-20'
11 12	NA	2,1,1,3	0.1	S-3	24/24	10-12': Wet dark brown f SILTY SAND	
13 14	NA	2,1,1,1	0.6 0.4	S-4	24/18	12-14' 5": Wet black m-c SAND, trace silt 13": Wet dark brown SILTY SAND	
15 16	NA	1,5,3,4	10.0 21.5	S-5	24/14	14-16': 7": Wet dark brown f-c SAND and SILT, trace fill (brick 5%) 7": Wet dark brown f-c SAND and f GRAVEL, and FILL (coal slag, 20%, bricks 40%)	
17 18	NA	4,4,3,4	0.5	S-6	24/10	16-18': Wet dark brown f-c SAND, fill (klinkers 5-10%), trace silt	
19 20	NA	5,3,5,17	26.2	S-7	24/8	18-20': Wet dark brown f-c SAND, little silt	



Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete	xxx xxx
Silica Sand Pack	
Native Fill	▨
Bentonite Seal	▩
Riser	
Screen	☰

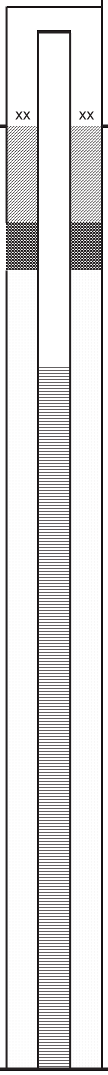
Boring & Well Construction Log

Project: 6 Bridge Street
Weymouth, MA

Boring ID No.: **B-205**
Monitor Well ID No.: **MW-205**
Sheet 1 of 1

Boring Location:	N: 15350260.6793 E: 1109014.1582	Project Number:	140143.0000.7478
Ground Elevation:	14.4 feet	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 10.0 feet below ground surface	Dated Drilled:	5/12/2016
Depth to Static Water:		Drill Type:	Hollow Stem Auger
Stabilization Time:		Sampling Method:	Continuous
Blow Count Info	**Notes:**	Drill Rig and Model Number:	Truck / Diedrich D 120
Type: SPT	HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0)	Drilling Company:	New England Boring Contractors
Hammer: 140 lbs		Driller's Name:	Norm and Shawn
Fall: 30 inches		TRC Representative:	C. Ragnelli / L. Hopp

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2	NA					0 - 6": Topsoil (grass)	Native Fill 0.0-2.0'	1 2
3 4	NA					Advanced vac-rig to 6' below ground surface	Bentonite -2.0-3.0' (1' thickness)	3 4
5 6	NA						Seven (7) Feet 2" Schedule 40 PVC Riser (-)2-5'	5 6
7 8	B/MW 205 (6-8)' Submitted for Total Metals, Dissolved Metals, EPH-10, hold SPLP	12,12,18,16	0.6 0.0	S-1	24/15	6-8' 3": Dry black f-m SAND 12": Dry light brown f-m SAND, trace f gravel	Filter Sand Pack 3-20' (17' thickness)	7 8
9 10	NA	8,14,13,13	0.0	S-2	24/20	8-10": Dry black-brown f-m SAND and SILT, fill (brick 5%, coal salg 5%		9 10
11 12	B/MW 205 (10-12)' Submitted for Total Metals, Dissolved Metals, EPH-10, hold SPLP	7,6,7,6	0.0	S-3	24/22	10-12': Moist to wet black SILTY SAND	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 5-20'	11 12
13 14	NA	8,9,6,6	2.1 0.8	S-4	24/12	12-14' 4": Wet grey-black f-m SAND and SILT 8": Wet brown f-c SAND, trace silt, trace f gravel		13 14
15 16	NA	11,4,4,5	0.0 0.2	S-5	24/15	14-16' 2": Wet brown f-c SAND and SILT 13": Wet brown f-c SAND, little f gravel		15 16
17 18	NA	5,4,410	1.2	S-6	24/13	16-18': Wet grey f-c SAND and SILT, trace f gravel		17 18
19 20	NA	2,2,3,3	0.4	S-7	24/8	18-20': Wet grey f-c SAND and f SILT, trace f gravel		19 20



Proportions Used
0-10% Trace
10-20% Little
20-35% Some
35-50% And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete	xxx xxx
Silica Sand Pack	
Native Fill	▨
Bentonite Seal	▩
Riser	
Screen	▤

Boring & Well Construction Log

TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-300** Monitor Well ID No.: **NA** Sheet 1 of 1

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	11.59'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		NA	S-1	60/0	No Recovery 0-5 ft		1
2								2
3								3
4								4
5	S-2 5-10 ft.		0.0	S-2	60/42			5
6								6
7			0.0			14 " Dark Brown Silt and organic topsil, trace roots and grass (reworked from 0-5 ft but recovered in this liner)		7
8						20 " Tan fine to medium SAND		8
9			0.0					9
10								10
11	S-3 10-15 ft.		0.0					11
12						46 " Tan fine to Medium SAND, trace fine gravel		12
13			0.0		60/46			13
14								14
15								15
16								16
17	S-4 15-20 ft.		0.0		60/36	30" Tan fine to medium SAND moist at 11 ft.Wet at 12 ft. 6 " Gray SILT some fine sand. No odors stain or PID readings		17
18								18
19			0.0			EOB 20 ft.		19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

Boring & Well Construction Log

TRC

		Project: 6 Bridge Street Weymouth, MA	Boring ID No.: **B-301** Monitor Well ID No.: **NA** Sheet 1 of 1
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.7'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		NA	S-1	60/0	No Recovery 0-5 ft		1
2								2
3								3
4								4
5	S-2 5-10 ft.		0.0	S-2	60/36			5
6								6
7			0.0			4 " Dark Brown SILT and organic topsoil, trace roots and grass (reworked from 0-5 ft but recovered in this liner) some fine Sand trace fine Gravel		7
8						32 " Dark Brown to Tan and Black SLAG, traces of yellow fire brick Pulverized (FILL)		8
9			0.0					9
10								10
11	S-3 10-15 ft.		0.0			6" SAA moist		11
12								12
13			OS= 4.7, HS = 20.8		60/30	14 " Black Oil Stained fine to medium SAND. Wet		13
14								14
15			OS= 0.4			10 " Grey fine SAND Saturated. (water) Mild odor no staining		15
16						EOB 15 ft		16
17								17
18								18
19								19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

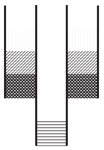
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-302** Monitor Well ID No.: **NA** Sheet 1 of 1
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.55'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		0.0	S-1	60/30	6" Gray organic topsoil roots and grass. Some Silt Some fine SAND trace fine Gravel		1
2						24" Tan fine to Medium SAND, some fine gravel Pulverized		2
3			0.0					3
4								4
5	S-2 5-10 ft.							5
6						20" Tan fine to Medium SAND, Some uniform Grained very fine SAND		6
7			0.0	S-2	60/28			7
8								8
9			0.0			8" Black uniform grained fine SAND (coal dust?)		9
10								10
11	S-3 10-15 ft.		0.0			50 " Tan Fine to Medium SAND, Wet at 12 ft. Saturated at 13 ft. no odor no staining		11
12								12
13			0.0		60/50			13
14								14
15								15
16						EOB 15 ft		16
17								17
18								18
19								19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

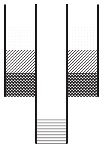
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-303** Monitor Well ID No.: **NA** Sheet 1 of 1

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.48'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		0.0	S-1	60/14	14" Gray to organic topsoil roots and grass.		1
2								2
3								3
4								4
5	S-2 5-10 ft.							5
6						4" Gray organic SILT		6
7			0.1	S-2	60/40	30" Red to Rusty Colored fine to coarse FILL, Slag Coal, Ash Bricks.		7
8								8
9			0.3			6" Red to Rusty Colored fine to coarse FILL, Slag Coal, Ash Bricks, moist		9
10								10
11	S-3 10-15 ft.		HS=20.1			6" Red to Rusty Colored fine to coarse FILL, Slag Coal, Ash Bricks, moist 2 " Black oily saturated FILL, thin oil layer (2 "), mild odor and staining		11
12						14 " Black Stained fine SAND and SILT, saturated with water, mild odor and staining		12
13			OS= 4.0 to 5.9		60/42			13
14						20 " Tan Fine SAND and SILT, saturated with water, no odor or staining		14
15			OS =3.7 to 1.1					15
16						EOB 15 ft		16
17								17
18								18
19								19
20								20

Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

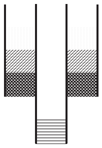
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

TRC	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.:	**B-304**
		Monitor Well ID No.:	**NA**
		Sheet 1 of 1	

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.68'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		0.0	S-1	60/38	14" Gray to black fine SAND and SILT trace fine Gravel trace organic root matter.		1
2						24 " Tan fine SAND , trace fine Gravel (fill)		2
3								3
4								4
5	S-2 5-10 ft.							5
6						16 " Tan fine SAND , some fine Gravel (fill)		6
7			0.1	S-2	60/36	6" Black fine SAND and SILT, some fine gravel (fill), .		7
8								8
9			0.3			14" Red Brick colored and stained SLAG, Coal, Ash, some larger chunks orange SLAG		9
10								10
11	S-3 10-15 ft.		OS= 0.6			10 " Black SLAG fill, moist		11
12								12
13			OS= 0.8		60/30	20 " Oil stained SLAG saturated zone of oil and coincident with the water table. Oil globules mild odor significant staining		13
14						Headspace at ~ 14 ft.		14
15			OS =1.1, HS = 17.8					15
16								16
17	S-4 15-20		0.3		60/20	16" SLAG, Coal Brick Fill Saturated (water)		17
18						4 " Gray SILT some Fine SAND		18
19								19
20						EOB 20 ft		20

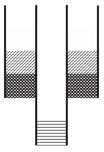
Proportions Used
0-10% Trace
10-20% Little
20-35% Some
35-50% And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	B-305
		Monitor Well ID No.:	NA
		Sheet 1 of 1	

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.82'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0), Boring completed in VP-2 pre-cleared location	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5	S-1 0-5 ft.		0.0	S-1	60/30	10" Black fine to medium SAND, trace Silt trace fine gravel 20" Tan fine to medium SAND		1 2 3 4 5
6 7 8 9 10	S-2 5-10 ft.		OS=0.1 OS= 0.2	S-2	60/40	18" Tan fine -medium SAND 22" Black coal SLAG some ash and coal, trace fine sand, trace fine gravel (fill).		6 7 8 9 10
11 12 13 14 15	S-3 10-15 ft.		OS= 0.1 OS =4.1, HS = 49.5 OS =1.1		60/42	14 " Black coal SLAG some ash and coal, trace fine gravel (fill), Dry 28 " Black Oil stained and saturated SLAG (fill) coincident with the water table. Highest readings and headspace taken ~ 14 ft		11 12 13 14 15
16 17 18 19 20	S-4 15-20		OS =2.2, HS = 14.6		60/24	24" SLAG, loose saturated with oil. No native soil was recoverd at depth due to collapse of loose materials at depth. Stained with oil and in the water table. EOB 20 ft		16 17 18 19 20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

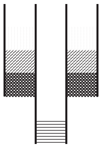
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-306** Monitor Well ID No.: **NA** Sheet 1 of 1
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.67'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0), Boring completed in VP-3 in pre-cleared location	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0						10" Gray fine SAND some Silt, some fine Gravel, (loose)		0
1	S-1 0-5 ft.		OS=0.2	S-1	60/28			1
2						18" Black to Rusty colored SLAG, glass, some fine to coarse SAND, little fine Gravel		2
3								3
4								4
5	S-2 5-10 ft.							5
6						4 Red Bricks (Fill)		6
7			OS=0.1	S-2	60/36			7
8								8
9			OS= 0.2			32" Black coal SLAG some ash and coal, trace concrete rubble, some fine gravel (fill).		9
10								10
11	S-3 10-15 ft.					10" Black coal SLAG some ash and coal, trace fine gravel (fill), Dry		11
12								12
13			OS =3.8, HS = 116		60/48	28 " Black coal SLAG ash and rubble, Oil stained and saturated, odor and sheen. Oil saturation appx 11.8 to 14.8 ft. (~ 3 ft)		13
14						4" Gray very Fine SAND, some Silt, Wet		14
15						Highest readings and headspace taken ~ 14 ft EOB 15 ft		15
16								16
17								17
18								18
19								19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

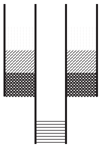
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-307** Monitor Well ID No.: **NA** Sheet 1 of 1
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.32'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0						8" Black fine SAND some Silt, organic topsoil roots and grass, (loose)		0
1	S-1 0-5 ft.		OS=0.0	S-1	60/24			1
2						16" Tan fine to medium SAND, trace fine gravel (rounded), trace Silt.		2
3								3
4								4
5	S-2 5-10 ft.							5
6								6
7			OS=0.0	S-2	60/40	40" Tan Fine to medium SAND trace fine gravel (rounded)		7
8								8
9								9
10								10
11	S-3 10-15 ft.							11
12						44" Tan Fine to medium SAND, trace fine gravel, Wet at 12.5 ft., Saturated to 15 ft		12
13			OS=0.0	S-3	60/44			13
14								14
15						Highest readings and headspace taken ~ 14 ft EOB 15 ft		15
16								16
17								17
18								18
19								19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

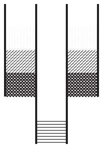
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC

Boring & Well Construction Log

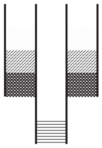
Project: 6 Bridge Street Weymouth, MA	Boring ID No.:	**B-308**
	Monitor Well ID No.:	**NA**
	Sheet 1 of 1	

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.32'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		NA	S-1	60/0	No recovery 0-5		1
2								2
3								3
4								4
5	S-2 5-10 ft.							5
6						6" Reworked organic topsoil (sluff from -0-5)		6
7			OS=0.0	S-2	60/32	16" Black to Tan SLAG, trace fine Gravel trace fine SAND		7
8								8
9						10 " Tan fine SAND, some SILT, trace fine Gravel (rusty laminations around 10 ft)		9
10								10
11	S-3 10-15 ft.							11
12						10" Tan Fine SAND, some fine gravel, trace Silt trace fine gravel		12
13			OS=0.0	S-3	60/46	36 " Tan Fine to Medium SAND, Wet at 12.5 ft. Saturated to 15 ft No Odors or staining		13
14								14
15						EOB 15 ft		15
16								16
17								17
18								18
19								19
20								20

Proportions Used		Penetration Resistance ("Blow Counts")			
		Cohesionless Density		Cohesive Consistency	
0-10%	Trace	0-4	Very Loose	0-2	Very Soft
10-20%	Little	5-9	Loose	3-4	Soft
20-35%	Some	10-29	Med. Dense	5-8	M/Stiff
35-50%	And	30-49	Dense	9-15	Stiff
Change in Material Type		50+	Very Dense	16-30	Very Soft
Change in Deposit Type				31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA	
Boring ID No.:	**B-309**
Monitor Well ID No.:	**NA**
Sheet 1 of 1	

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	14.26'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		OS=0.0	S-1	60/14	6" Topsoil Silt roots and grass, some fine Sand disturbed / reworked		1
2						8" Loose Tan fine SAND		2
3								3
4								4
5	S-2 5-10 ft.		OS=0.1					5
6						30" Tan Fine SAND trace fine Gravel		6
7			OS=0.2	S-2	60/48	18" Black coal SLAG, trace fine Gravel trace fine SAND		7
8								8
9								9
10								10
11	S-3 10-15 ft.		0.4 to 1.2					11
12						18" Black coal SLAG, trace fine Gravel, trace fine SAND, moist on bottom		12
13			HS= 47.7	S-3	60/46	18 " Oil Saturated SLAG fill (SAA) stained with sheen and odor at water table		13
14						Headspace ~ 14 ft.		14
15								15
16								16
17	S-4 15-20 ft.			S-4		4 " Oil Saturated SLAG fill (SAA) stained with sheen and odor at water table 16 " Gray fine SAND stained and globules of oil throughout, saturated 10 " Gray Fine SAND, some silt saturated.		17
18						Fill terminated around 15.5 ft.		18
19								19
20						EOB 20 ft		20

Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

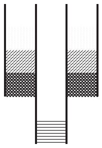
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

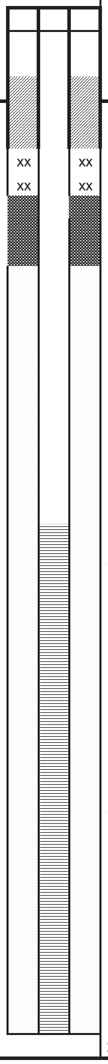


Boring & Well Construction Log

TRC	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.:	**B-310**
		Monitor Well ID No.:	**MW-206**
		Sheet 1 of 1	

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.1'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1							Steel standpipe w/locking cover	-1
0								**0**
1	S-1 0-5 ft.		OS=0.0	S-1	60/16	16" loose organic topsoil roots and grass, some Silt some fine gravel reworked	Concrete Pad	1
2							Native Fill 1.0-2.0'	2
3							Bentonite -2.0.-3.0' (1' thickness)	3
4								4
5	S-2 5-10 ft.							**5**
6								6
7			OS=0.0	S-2	60/36	2" pulverized Concrete (fill) 34" Tan Fine to medium SAND, some silt, trace fine gravel	Six (12) Feet 2" Schedule 40 PVC Riser 0 to 9 ft (plus 2 ft Ags)	7
8								8
9								9
10								**10**
11	S-3 10-15 ft.					4" Tan Fine to medium SAND, some silt, trace fine gravel		11
12						12 " Black fine SAND, uniform grain size (coal dust?) dry.	Filter Sand Pack 3-19ft (16' thickness)	12
13			OS=0.0, HS=0.8	S-3	60/38	4" Brown to tan fine SAND Silt Moist to wet.		13
14						18" Brown to Tan Silt some fine SAND Saturated		14
15						Headspace taken ~ 14 ft EOB 15 ft		**15**
16								16
17							Ten (10) Feet 2" Schedule 40 0.01 Slotted Screen 9-19'	17
18								18
19								19
20								**20**



Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

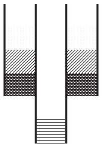
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-311** Monitor Well ID No.: **NA** Sheet 1 of 1
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.58'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		OS=0.0	S-1	60/36	36" Tan Fine to medium SAND, trace fine Gravel		1
2								2
3								3
4								4
5	S-2 5-10 ft.		OS=0.0					5
6						12" Tan Fine to medium SAND, trace fine Gravel		6
7			OS=0.2	S-2	60/48	18" Dark gray SILT and Clay, traces of slag and ash (fill)		7
8						18" Dark Brown to Black ash and cinders		8
9								9
10								10
11	S-3 10-15 ft.		OS= 0.2			12" Dark Brown to Black ash and cinders, moist at the bottom		11
12						4 " Grey Silt moist		12
13			OS= 4.7, HS= 32.7	S-3	60/42	26 " Oil Saturated and stained SLAG fill, trace fine gravel in shoe		13
14						Headspace ~ 12.5 ft. in highest OS reading zone		14
15			OS=2.5					15
16						18" Oil Saturated SLAG and Silty SAND Sheen and odor in water table		16
17	S-4 15-20 ft.		OS=3.6, HS=20.6	S-4	60/28			17
18						10 " Gray fine SAND some Silt, staining and odor, saturated		18
19								19
20						EOB 20 ft		20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

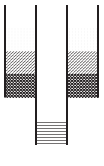
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC

Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA	Boring ID No.:	B-312	
	Monitor Well ID No.:	NA	
	Sheet 1 of 1		

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.12'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		OS=0.0	S-1	60/10	10" Organic topsoil grass and roots loose, disturbed		1
2								2
3								3
4								4
5	S-2 5-10 ft.		OS=0.0					5
6						26" Tan Fine to medium SAND, trace fine Gravel		6
7			OS=0.4	S-2	60/56	30" Black SILT and SLAG, coal, Ash, Brick (fill)		7
8								8
9								9
10								10
11	S-3 10-15 ft.		OS= 0.3			14" Black SILT and SLAG, coal, Ash, Brick (fill), moist at the bottom		11
12								12
13			OS= 5.3, HS= 40.9	S-3	60/40	26 " Oil Saturated (globules) and stained SLAG fill, water saturated		13
14						Headspace ~ 12.5 ft. in highest OS reading zone		14
15								15
16						20" loose SLAG with oily saturation, collapsed? No native horizon observed		16
17	S-4 15-20 ft.		OS=4.2 HS=20.1	S-4	60/20			17
18						Heaspace at around 18 ft based on recovery		18
19								19
20						EOB 20 ft		20

Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

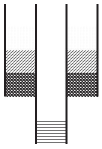
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

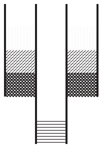


Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-313**
		Monitor Well ID No.:	**NA**
		Sheet 1 of 1	
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.91'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0						14" Organic topsoil silt grass and roots loose, some fine gravel disturbed		0
1	S-1 0-5 ft.		OS=0.0	S-1	60/48			1
2						34" Tan Fine to medium SAND		2
3			OS=0.0					3
4								4
5	S-2 5-10 ft.		OS=0.0					5
6						24" Tan Fine to medium SAND,		6
7			OS= 0.0	S-2	60/56	32" Black SLAG, multicolored, some fine to coarse SAND, trace fine Gravel		7
8								8
9								9
10								10
11	S-3 10-15 ft.		OS= 0.4			16" Tan Fine to medium SAND, trace fine Gravel		11
12								12
13			OS= 4.2, HS= 55.2	S-3	60/40	30" Oily saturated Fine to medium SAND, saturated		13
14						2" Black SILT		14
15			OS=2.6			Headspace ~ 14 ft. in highest OS reading zone		15
16						No true recovery all loose sluff / collapse of loose slag.		16
17	S-4 15-20 ft.		OS=2.3	S-4	60/10	Native horizon noted at 14.8 ft (14 ' 10 ")		17
18								18
19								19
20						EOB 20 ft		20

Proportions Used		Penetration Resistance ("Blow Counts")				
		Cohesionless Density		Cohesive Consistency		
0-10%	Trace	0-4	Very Loose	0-2	Very Soft	Concrete
10-20%	Little	5-9	Loose	3-4	Soft	Silica Sand Pack
20-35%	Some	10-29	Med. Dense	5-8	M/Stiff	Native Fill
35-50%	And	30-49	Dense	9-15	Stiff	Bentonite Seal
Change in Material Type		50+	Very Dense	16-30	Very Soft	Riser
Change in Deposit Type				31+	Hard	Screen



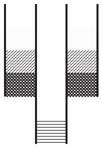
Boring & Well Construction Log

TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-314** Monitor Well ID No.: **NA** Sheet 1 of 1
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.97'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		OS=0.0	S-1	60/28	6" Brown Organic topsoil silt grass and roots loose, reworked		1
2						22" Tan Fine to medium SAND		2
3			OS=0.0					3
4								4
5	S-2 5-10 ft.		OS=0.0					5
6						8" Tan Fine to medium SAND,		6
7			OS= 0.2	S-2	60/56	4" Pulverized white gravel		7
8						6" Black Slag, coal, some fine Sand and gravel		8
9			OS=0.0			16" Black organic SILT,		9
10								10
11	S-3 10-15 ft.		OS=0.0			8" Black organic SILT,		11
12								12
13			OS=0.0	S-3	60/38	24" Tan Fine to medium SAND, trace fine Gravel, wet		13
14						6" Gray SILT , some Clay saturated		14
15			OS=0.0			EOB 15 ft		15
16								16
17								17
18								18
19								19
20								20

Proportions Used		Penetration Resistance ("Blow Counts")			
		Cohesionless Density		Cohesive Consistency	
0-10%	Trace	0-4	Very Loose	0-2	Very Soft
10-20%	Little	5-9	Loose	3-4	Soft
20-35%	Some	10-29	Med. Dense	5-8	M/Stiff
35-50%	And	30-49	Dense	9-15	Stiff
	Change in Material Type	50+	Very Dense	16-30	Very Soft
	Change in Deposit Type			31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-315** Monitor Well ID No.: **NA** Sheet 1 of 1
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.36'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore		Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneematic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0						16" Dark Brown Organic SILT grass and roots loose, reworked		0
1	S-1 0-5 ft.		OS=0.0	S-1	60/16			1
2								2
3								3
4								4
5	S-2 5-10 ft.		OS=0.0					5
6						34" SLAG, Black to rusty colored, Bricks ,Ash		6
7			OS=0.0	S-2	60/36			7
8								8
9			OS=0.0			2" Black fine SAND		9
10								10
11	S-3 10-15 ft.		OS=0.0			6" Black fine SAND, some Slag		11
12								12
13			OS=0.4	S-3	60/40	24" Gray SILT some Clay, wet at the top (perched?) moist throughout		13
14						10" Black SLAG saturated.		14
15			OS=0.1			EOB 15 ft		15
16								16
17								17
18								18
19								19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

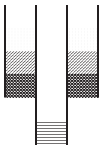
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-317**
		Monitor Well ID No.:	**NA**
		Sheet 1 of 1	
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.66	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		OS=0.0	S-1	60/18	8" Blackish organic Topsoil Roots and grass (disturbed)		1
2								2
3						10" Tan Fine to medium SAND		3
4								4
5			OS=0.0					5
6						24" Tan Fine to medium SAND, trace fine Gravel		6
7	S-2 5-10 ft.		OS=0.2	S-2	60/50	26" Black fine SAND (Coal dust?) Black Slag and pulverized Slag (fill)		7
8								8
9								9
10								10
11			OS= 0.4			4" Dark Brown to Black ash and cinders, moist at the bottom		11
12						4 " White pulverized Gravel		12
13	S-3 10-15 ft.		OS= 1.6, HS= 97.3	S-3	60/28	16 " Oil Saturated SLAG fill and Oil Stained fine SAND wet		13
14						4" Grey SILT		14
15			OS=0.2			Headspace ~ 12.5 ft. in highest OS reading zone EOB 15 ft		15
16								16
17								17
18								18
19								19
20								20

Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

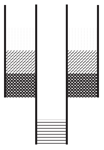
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-318**
		Monitor Well ID No.:	**NA**
		Sheet 1 of 1	
Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	12.98'	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1	S-1 0-5 ft.		OS=0.0	S-1	60/28	8" Brown organic topsoil trace bricks trace fine to coarse SAND, trace fine gravel (disturbed)		1
2								2
3						20" Black Slag and coal, yellow and orange fire brick pulverized		3
4								4
5								5
6								6
7	S-2 5-10 ft.		OS=0.0	S-2	60/32	32 " Orange SLAG		7
8								8
9								9
10								10
11	S-3 10-15 ft.		OS= 0.2			8 " Orange SLAG		11
12						6" Oily SILT and Slag Saturated (water)		12
13			OS= 0.8, HS= 22.1	S-3	60/38	24 " Tan Fine to Medium SAND, saturated		13
14						4" Grey SILT		14
15			OS=0.2			Headspace ~ 12.5 ft. in highest OS reading zone EOB 15 ft		15
16								16
17								17
18								18
19								19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

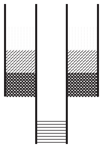
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA	Boring ID No.: **B-319**	Monitor Well ID No.: **NA**	Sheet 1 of 1

Boring Location:	N: 15350345.3936 E: 1108827.8344	Project Number:	140143.0000.7478
Ground Elevation:	13.34	Project Manager:	Ryan Niles
Depth to First Water:	Approximately 12 feet below ground surface	Dated Drilled:	10/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	6620 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 3000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3 to 0								-3 to 0
0-5	S-1 0-5 ft.			S-1	60/0	0-5 No Recovery (pushed cobble) (disturbed)		0-5
5-10	S-2 5-10 ft.		OS=0.0	S-2	60/34	6 " Brown organic topsoil roots and grass, trace fine to medium Sand, trace silt 28 " Tan to Brown to Rusty colored SLAG. Fire brick, ash cinders, coal, some f gravel		5-10
10-15	S-3 10-15 ft.		OS= 0.0 OS=4.7 HS= 137.8 OS=0.2	S-3	60/46	10" Tan to Brown to Rusty colored SLAG. Fire brick, ash cinders, coal, some f gravel 30" Black Oil stained SAND (saturated from 12.5 to 15 ft.), mild odor 6 " Grey SILT some fine Sand, wet 4" Grey SILT Headspace ~ 12.5 ft. in highest OS reading zone EOB 15 ft		10-15
15-20	S-4		NA		60/10	10" Mixed sluff - no true recovery (Attempted to confirm native materials at depth below fill , no recovery) EOB 17 ft.		15-20

Proportions Used
- 0-10% Trace
- 10-20% Little
- 20-35% Some
- 35-50% And

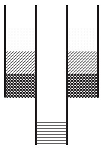
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

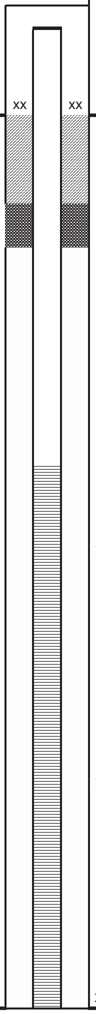
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-400**
		Monitor Well ID No.:	**MW-400**
		Sheet 1 of 2	

Boring Location:	N: 15350388.97' E: 1108946.22'	Project Number:	140143.0000.4903
Ground Elevation:	12.26'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster



Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1						4" Organic topsoil, roots and grass, wet.	Quikrete 0-2' (2' thickness)	1
2						12" Brown fine to coarse SAND, some fine gravel, trace gravel, trace concrete.	Bentonite -2.0.-3.0'	2
3			OS= 0.1 HS= 0.0	S-1	60/44	28" Gray and Black fine to medium SAND, trace fine gravel, trace silt, wet.	(1' thickness)	3
4								4
5							Ten (10) Feet	5
6						26" fine BRICK, slag, coal, ash, cinders, dry.	2" Schedule 40 PVC Riser	6
7			OS= 0.0 HS= 0.0	S-2	60/26		(-)2-8'	7
8							Filter Sand Pack 3-23'	8
9							(20' thickness)	9
10								10
11	B400 (11.4') @ 1150					8" SLAG fall in and fine brick, dry.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen	11
12	B400 (12.4') @ 1155					18" SLAG fall in wet to saturated.	8-23'	12
13				S-3	60/36	10" Dark brown to black fine to coarse SAND, some fine gravel, trace slag, saturated.		13
14								14
15								15
16						6" Grey silt, wet.		16
17			OS= 0.0 HS= 0.0	S-4	60/12	6" Fall in		17
18								18
19								19
20								20

Proportions Used

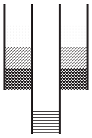
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

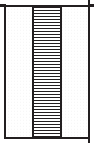
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard



TRC	# Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-400** Monitor Well ID No.: **MW-400** Sheet 2 of 2
Boring Location:	see pg 1	Project Number:	140143.0000.4903
Ground Elevation:	12.26'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21			OS= 0.0 HS= 0.0	S-5	60/38	38" Gray SAND and SILT, some clay layers.		21
22						End of boring @ 23', MW installed @ 23'.		22
23								23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

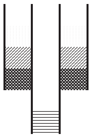
Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Change in Material Type

Change in Deposit Type

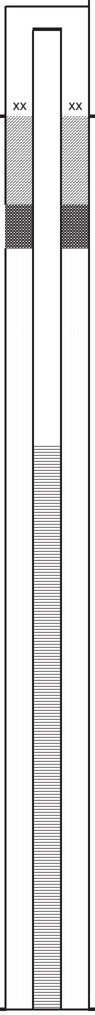
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-401**
		Monitor Well ID No.:	**MW-401**
		Sheet 1 of 2	
Boring Location:	N: 15350313.21' E: 1108950.74'	Project Number:	140143.0000.4903
Ground Elevation:	13.44'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5			OS= 0.1 HS= 0.0	S-1	60/40	6" Dark brown ORGANICS, topsoil, roots, grass and moss 8" Tan fine coarse SAND and fine GRAVEL, trace black silt. 28" Tan fine to medium SAND, dry.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	1 2 3 4 5
6 7 8 9 10			OS= 0.0 HS= 0.0	S-2	60/50	30" Tan fine to medium SAND 8" Gray fine SAND 12" Black COAL, slag, dry.	Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8' Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14 15	B400 (11.5') @ 1100 B400 (12.2') @ 1110		OS= 0.0 HS= 0.4	S-3	60/28	16" Black COAL and SLAG, last 4" moist to wet. 12" Tan to brown fine to coarse SAND, saturated. No free oil.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 7.6-22.6	11 12 13 14 15
16 17 18 19 20			OS= 0.0 HS= 0.0	S-4	60/34	30" gray fine to medium SAND, some silt, saturated. 4" Gray CLAY, saturated.		16 17 18 19 20



Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

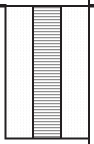
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-401** Monitor Well ID No.: **MW-401** Sheet 2 of 2
Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.44'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						34" Gray fine to medium SAND, some silt, 4" gray clay, saturated.		21
22						End of boring @ 23', MW installed @ 23'.		22
23			OS= 0.0 HS= 0.0	S-5	60/38			23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

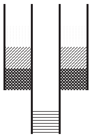
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

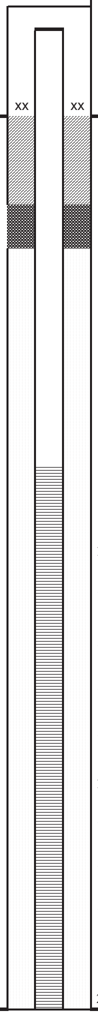


Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-402**
		Monitor Well ID No.:	**MW-402**
		Sheet 1 of 2	

Boring Location:	N: 15350228.45' E: 1108933.61'	Project Number:	140143.0000.4903
Ground Elevation:	14.62'	Project Manager:	Ryan Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1 0							xx xx	-3 -2 -1 0
1 2 3 4 5			OS= 0.0 HS= 0.0	S-1	60/44	6" Dark brown ORGANICS, top soil, roots, grass, moist. 18" Gray fine SAND, some silt, trace fine gravel, trace coal. 20" Tan fine to medium SAND.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	1 2 3 4 5
6 7 8 9 10			OS= 0.0 HS= 0.0	S-2	60/54	40" Tan fine to medium SAND 14" Black COAL, SLAG and COAL DUST, dry.	Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8' Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14 15	B402 (11.6') @ 1010 B402 (12.2') @ 1015 B402 (12.8') @ 1020		OS= 0.2 HS= 20.1	S-3	60/44	10" Black COAL, SLAG and COAL DUST, dry. 14" Tan fine to coarse SAND, some fine gravel, moist. Bottom 4" mild odor, slight sheen. 20" Tan fine SAND, some silt,	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11 12 13 14 15
16 17 18 19 20			OS= 0.0 HS= 0.0	S-4	60/8	8" Grey fine SAND and CLAY, some silt, wet.		16 17 18 19 20

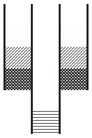


Proportions Used
0-10% Trace
10-20% Little
20-35% Some
35-50% And

Penetration Resistance ("Blow Counts")

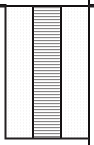
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Change in Material Type
Change in Deposit Type



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-402** Monitor Well ID No.: **MW-402** Sheet 2 of 2

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	14.62'	Project Manager:	Ryan Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						Boring end @ 20', MW installation @ 23'.		21
22								22
23			OS= 0.0 HS= 0.0	S-5	60/0			23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

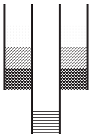
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

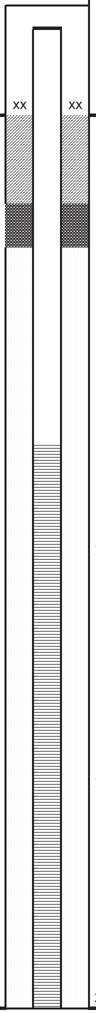
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-403** Monitor Well ID No.: **MW-403** Sheet 1 of 2

Boring Location:	N: 15350183.12' E: 1108948.42'	Project Number:	140143.0000.4903
Ground Elevation:	13.11'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	C. Foster



Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
0							xx xx	0
1						Vacuum cleared to 5'.	Quikrete 0-2' (2' thickness)	1
2						18" Medium to dark brown fine to medium SAND, some silt, trace gravel, no odor, no staining.		2
3			OS= 0.0 HS= 0.0	S-1	60/60	42" Medium to light brown, medium to coarse SAND, trace silt, no odor, no staining.	Bentonite -2.0.-3.0' (1' thickness)	3
4								4
5							Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8'	5
6						22" Tan fine to medium SAND		6
7			OS= 0.0 HS= 0.0	S-2	60/50	14" Black COAL dust, trace slag, trace brick.		7
8						8" Tan SILT and CLAY.	Filter Sand Pack 3-23' (20' thickness)	8
9						6" Tan fine to coarse SAND, moist.		9
10	B403 (10') @ 1305							10
11						30" Tan fine to coarse SAND, some gravel, saturated.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen	11
12	B403 (12') @ 1310					6" Black fine SAND and COAL DUST, no odor, no sheen.	8-23'	12
13			OS= 0.0 HS= 0.0	S-3	60/36			13
14								14
15								15
16						24" Black SLAG, CINDERS, ASH and COAL, saturated.		16
17			OS= 0.0 HS= 0.0	S-4	60/24			17
18								18
19								19
20								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

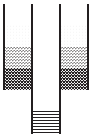
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

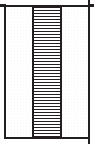
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-403** Monitor Well ID No.: **MW-403** Sheet 2 of 2

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.11'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						12" Black SLAG, CINDERS and COAL, saturated.		21
22								22
23			OS= 0.0 HS= 0.0	S-5	60/12			23
24								24
25								**25**
26						28" Black SLAG and FILL, saturated.		26
27			OS= 0.0 HS= 0.0	S-5	60/28	End of Boring @ 30', MW install @ 23'.		27
28								28
29								29
30								**30**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

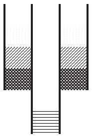
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

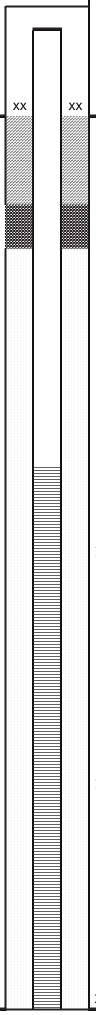
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC

Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-404**
		Monitor Well ID No.:	**MW-404**
		Sheet 1 of 2	
Boring Location:	N: 15350179.6' E: 1108902.85'	Project Number:	140143.0000.4903
Ground Elevation:	13.06'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT & Truck Mounted CME 75
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster



Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1								-3 -2 -1
0 1 2 3 4			OS= 0.0 HS= 0.0	S-1	60/60	Vacuum truck removed 0-5' 24" Brown fine to coarse SAND, some gravel, trace silt, no odor, no staining. 12" Medium brown fine to medium SAND, trace silt, no odor, no staining. 24" Medium to light brown fine to meidum SAND, no odor, no staining.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	0 1 2 3 4
5 6 7 8 9			OS= 0.0 HS= 0.0	S-2	60/46	6" Dark brown fine SAND, trace fine gravel. 20" Tan fine to medium SAND 20" Black COAL DUST (fine sand size).	Ten (10) Feet 4" Schedule 40 PVC Riser (-)2-5.4' Filter Sand Pack 3-23' (20' thickness)	5 6 7 8 9
10 11 12 13 14	B404 (11.4) @ 1350 B404 (12.0) @ 1400		OS= 1.0 HS= 12.3	S-3	60/36	6" Black COAL DUST 6" Black COAL, SLAG, ASH, CINDERS, moist oily sheen. 24" Black COAL, SLAG, ASH, CINDERS	Fifteen (15) Feet 4" Schedule 40 0.01 Slotted Screen 5.4-20.4'	10 11 12 13 14
15 16 17 18 19 20	B404 (16.7) @ 1410		OS= 0.2 HS= 1.3	S-4	60/26	16" COAL, SLAG, fill, saturated. 10" Brown fine to medium SAND, saturated.		15 16 17 18 19 20

Proportions Used

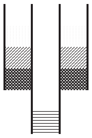
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

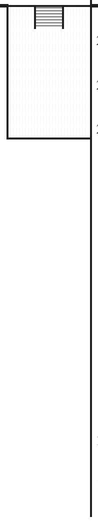
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-404**
		Monitor Well ID No.:	**MW-404**
		Sheet 2 of 2	
Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.06'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						20" Brown to tan fine SAND, saturated.		21
22						End of Boring at 23', MW installed at 20.4'		22
23			OS= 0.0 HS= 0.0	S-5	60/20			23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

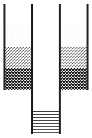
Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Change in Material Type

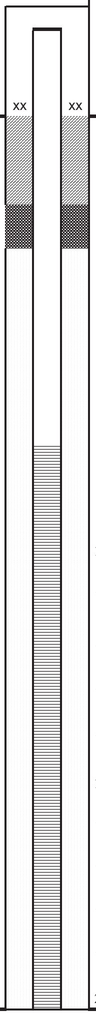
Change in Deposit Type

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



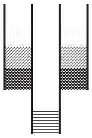
Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-405**
		Monitor Well ID No.:	**MW-405**
		Sheet 1 of 2	
Boring Location:	N: 15350179.6' E: 1108839.99'	Project Number:	140143.0000.4903
Ground Elevation:	13.87'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5			OS= 0.0 HS= 0.0	S-1	60/60	Vacuum truck removed 0-5'. 24" Dark brown medium to coarse SAND, trace gravel, no odor, no staining. 36" Black fine to medium SAND, some silt, no odor, no staining.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	1 2 3 4 5
6 7 8 9 10			OS= 0.0 HS= 0.0	S-2	60/34	34" SLAG, COAL DUST, COAL, trace bricks, trace fine sand, moist near 10'.	Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8' Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14 15	B405 (11.5) @ 1440 B405(12.5) @ 1450		OS= 0.1 HS= 0.0	S-3	60/38	16" SLAG, SANDY COAL DUST, COAL, trace bricks. 22" Tan fine to medium SAND, saturated, no oil observed.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 6.5 - 21.5	11 12 13 14 15
16 17 18 19 20			OS= 0.0 HS= 0.0	S-4	60/34	34" Tan fine to medium SAND, saturated.		16 17 18 19 20

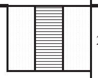
Penetration Resistance ("Blow Counts")

Proportions Used	Cohesionless Density		Cohesive Consistency		
0-10% Trace	0-4	Very Loose	0-2	Very Soft	Concrete
10-20% Little	5-9	Loose	3-4	Soft	Silica Sand Pack
20-35% Some	10-29	Med. Dense	5-8	M/Stiff	Native Fill
35-50% And	30-49	Dense	9-15	Stiff	Bentonite Seal
Change in Material Type	50+	Very Dense	16-30	Very Soft	Riser
Change in Deposit Type			31+	Hard	Screen



TRC	# Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-405** Monitor Well ID No.: **MW-405** Sheet 2 of 2

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.87'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						End of Boring @ 20', MW-405 installed at 21.5'.		21
22								22
23								3
24								4
25								5
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

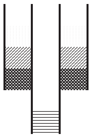
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

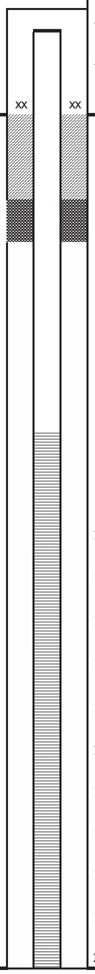
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-406** Monitor Well ID No.: **MW-406** Sheet 1 of 2
Boring Location:	N: 15350227.18' E: 1108790.51'	Project Number:	140143.0000.4903
Ground Elevation:	13.34'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5			OS= 0.0 HS= 0.0	S-1	60/60	Vacuum truck removed 0-5'. 12" Dark brown to black, fine to medium SAND, little silt, trace gravel, no odor, no staining. 12" CONCRETE 24" Medium to coarse SAND and GRAVEL, SLAG, some brick, no odor, no staining. 12" Fine to coarse SAND and SILT, some gravel, no odor, no staining.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	1 2 3 4 5
6 7 8 9 10			OS= 0.0 HS= 0.1	S-2	60/28	28" Black COAL DUST, SLAG, traces ash and cinder.	Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8' Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14 15	B406 (11.8) EPH B406 (12.5) EPH + VPH		OS= 1.2 HS= 34.1 @ 11.5' OS= 40.0 HS= 155 @ 14.5'	S-3	60/40	10" Black COAL SLAG, oil saturated at 11.5 30" Fine to medium SAND with gray trace of silt/sand, saturated with oil globules.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11 12 13 14 15
16 17 18 19 20			OS= 14.3 HS= 88.7 @ 17.5'	S-4	60/30	30" Tan fine to medium SAND, oil stained, odorous, saturated.		16 17 18 19 20



Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

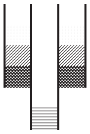
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

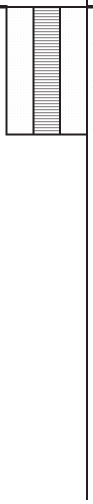
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

		Project: 6 Bridge Street Weymouth, MA	Boring ID No.: **B-406** Monitor Well ID No.: **MW-406** Sheet 2 of 2
Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.34'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21	B406 (21) - EPH					28" Tan fine to medium SAND, oil stained, saturated, odors.		21
22						End of Boring at 23', MW install at 23'.		22
23			OS= 10.6 HS= 40.6 @ 21'	S-5	60/28			23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

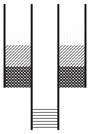
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

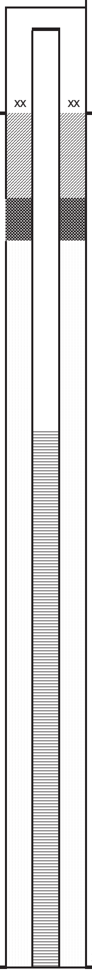


Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA	Boring ID No.: **B-407** Monitor Well ID No.: **MW-407** Sheet 1 of 2

Boring Location:	N: 15350258.53' E: 1108742.7'	Project Number:	140143.0000.4903
Ground Elevation:	13.18'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/15/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5			OS= 0.0 HS= 0.0	S-1	60/60	Vacuum truck removed 0-5'. 24" Dark to medium brown, medium to coarse SAND, some gravel, no odor, no staining. 24" Dark brown to black fine to coarse SAND, some gravel, little silt, no odor, no staining. 12" Black fine to coarse SAND, little silt, no odor, no staining.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	1 2 3 4 5
6 7 8 9 10			OS= 0.0 HS= 0.0	S-2	60/38	8" Brown to orange SLUFF, trace bricks. 6" Tan SILT, some fine sand, trace clay. 24" Tan fine to coarse SAND, trace fine gravel, moist @ bottom.	Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8' Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14 15	B407 (11.8) @ 1440 - EPH B407 (12.8) @ 1450 - EPH		OS= 1.4 HS= 30.6 OS= 0.6 HS= 14.5	S-3	60/40	10" Tan fine to medium SAND, trace fine gravel, moist @ bottom. 20" Black fine to medium SAND, odorous, oil stained. 10" Grey fine to medium SAND, saturated.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11 12 13 14 15
16 17 18 19 20	B407 (17.5) @ 1500 - EPH		OS= 0.0 HS= 4.8	S-4	60/38	16" Tan to grey fine to medium SAND, mild odor. 22" Tan fine to coarse SAND, saturated.		16 17 18 19 20



Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

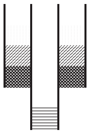
Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

— Change in Material Type

— Change in Deposit Type

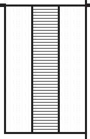
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

TRC	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.:	**B-407**
		Monitor Well ID No.:	**MW-407**
		Sheet 2 of 2	

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.18'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/15/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						End of Boring @ 20', MW-407 to 23'.		21
22								22
23								23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

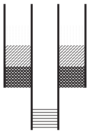
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

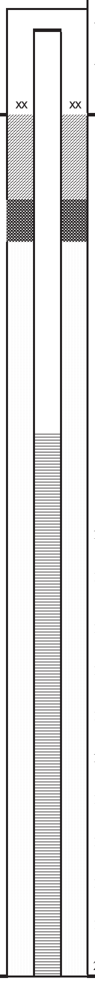


Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-408**
		Monitor Well ID No.:	**MW-408**
		Sheet 1 of 2	
Boring Location:	N: 15350297.77' E: 1108760.42'	Project Number:	140143.0000.4903
Ground Elevation:	13.04'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample
0-5			OS= 0.0 HS= 0.1 @ 5'	S-1	60/38	7" Dark Brown fine to coarse SAND with some silt and trace gravel 3" Wood 28" Dry FILL. Cinders, ash and fine to medium sand, klinkers.
5-10			OS= 0.0 HS= 0.1 @ 10'	S-2	60/34	14" Dry FILL. Cinders, ash and fine to medium sand, klinkers. 20 " FILL with crushed brick and cinders, klinkers.
10-15	B408 (11') @ 0850 - EPH B408 (15') @ 0855 - EPH		OS= 0.0 HS= 0.0	S-3	60/51	10" Red, moist FILL with klinkers and cinders 8" Black, FILL with cinders, ash and klinkers. 33" Olive green/brown, fine to medium SAND with some silt and coarse sand, trace subangular fine gravel,
15-20			OS= 0.0 HS= 0.0	S-4	60/20	20" Olive green/brown, fine to medium SAND with some silt and coarse sand, trace subangular fine gravel,

Well Construction
(Stick-Up)



Quikrete 0-2'
(2' thickness)

Bentonite -2.0.-3.0'
(1' thickness)

Ten (10) Feet
2" Schedule 40
PVC Riser
(-)2-8'

Filter Sand Pack
3-23'
(20' thickness)

Fifteen (15) Feet
2" Schedule 40
0.01 Slotted Screen
8-23'

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

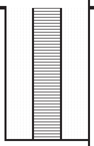
Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-408** Monitor Well ID No.: **MW-408** Sheet 2 of 2
Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.04'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						End of Boring @ 20', MW-408 installed at 23'		21
22								22
23								23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete

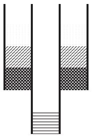
Silica Sand Pack

Native Fill

Bentonite Seal

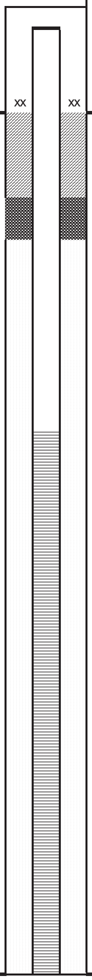
Riser

Screen



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-409** Monitor Well ID No.: **MW-409** Sheet 1 of 1
Boring Location:	N: 15350350.26' E: 1108779.22'	Project Number:	140143.0000.4903
Ground Elevation:	12.84'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 10 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5			OS= 0.0 HS= 0.0 @ 5'	S-1	54/33	6" SAND and SILT mix, moist, dark brown and black with some angular gravel. 27" Black, dry, FILL with cinders, ash, klinkers and crushed brick.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness) Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8'	1 2 3 4 5
6 7 8 9 10	B409 (10') @ 1515 - EPH		OS= 0.0 HS= 0.0 @ 10'	S-2	60/41	10" Dry, FILL, ash and cinders. 8" Crushed brick. 23" Cinders, ash and powdered coal.	Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14 15	B409 (11.5') @ 1520 - EPH		OS= 0.0 HS= 0.0 @ 15'	S-3	60/50	15" Black, wet, FILL, cinders, ash and crushed brick. 22" Fine SAND with silt, little clay, medium to coarse sand and fine gravel, bottom 2" crushed shale or coal fragment. 13" Brown, fine to medium SAND with some silt and sand, wet.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11 12 13 14 15
16 17 18 19 20			OS= 0.0 HS= 0.0 @ 20'	S-4	60/30	30" Oliver green/brown, fine to medium SAND with some silt and sand, trace subangular small gravel.		16 17 18 19 20



Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete

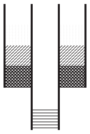
Silica Sand Pack

Native Fill

Bentonite Seal

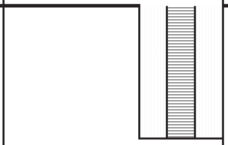
Riser

Screen



Boring & Well Construction Log

TRC		**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-409** Monitor Well ID No.: **MW-409** Sheet 2 of 2
Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	12.84'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 10 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

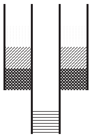
Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						End of boring @ 20', MW-409 installed at 23'.		21
22								22
23								23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used		Cohesionless Density		Cohesive Consistency		
0-10%	Trace	0-4	Very Loose	0-2	Very Soft	Concrete
10-20%	Little	5-9	Loose	3-4	Soft	Silica Sand Pack
20-35%	Some	10-29	Med. Dense	5-8	M/Stiff	Native Fill
35-50%	And	30-49	Dense	9-15	Stiff	Bentonite Seal
		50+	Very Dense	16-30	Very Soft	Riser
				31+	Hard	Screen

Penetration Resistance ("Blow Counts")

Change in Material Type

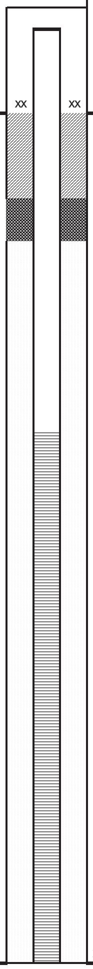
Change in Deposit Type



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-410** Monitor Well ID No.: **MW-410** Sheet 1 of 2

Boring Location:	N: 15350382.09' E: 1108844.98'	Project Number:	140143.0000.4903
Ground Elevation:	12.45'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pnuematic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5			OS= 0.0 HS= 0.0 @ 5'	S-1	54/33	6" Removed by shovel, not in core. 7" Moist, black, fine SAND with some silt. 26" Dark brown and black FILL with ash, cinders, and klinkers. Klinkers increase with depth. Some powdered coal at 6" to 10".	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	1 2 3 4 5
6 7 8 9 10			OS= 0.0 HS= 0.0 @ 10'	S-2	60/29	29" Dry, moist FILL (crushed brick, ash, and cinders).	Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8' Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14 15	B410 (11') @ 1430 - EPH B410 (12.5') @ 1435 - EPH B410 (14') @ 1440 - EPH		OS= 0.0 HS= 0.0 @ 15'	S-3	60/33	16" Moist, brick laden FILL with cinders, ash, and klinkers. 17" Wet, black FILL (cinders, ash, klinkers) with sheen. Heavy oil between 12"-30" of recovery.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11 12 13 14 15
16 17 18 19 20			OS= 0.0 HS= 0.0 @ 20'	S-4	60/29	29" Wet, olive green (darker on top and lighter on bottom), fine to coarse SAND, little silt and clay, trace small gravel.		16 17 18 19 20



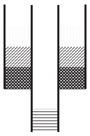
Proportions Used
0-10% Trace
10-20% Little
20-35% Some
35-50% And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

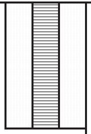
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **MW-410** Monitor Well ID No.: **MW-410** Sheet 2 of 2

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	12.45'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
21			OS= 0.0 HS= 0.0 @ 25'	S-5	60/37	37" Wet brown to dark brown fine to coarse SAND with some silt and little clay. Trace gravel at top. Lighter color with depth. End of boring @ 25', MW installed @ 23'.		21
##								22
23								23
24								4
25								5
26								6
27								7
28								8
29								9
30								10
31								11
32								12
33								13
34								14
35								15
36								16
37								17
38								18
39								19
40								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

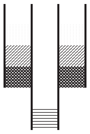
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

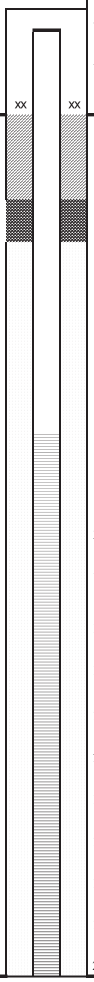


Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-411**
		Monitor Well ID No.:	**MW-411**
		Sheet 1 of 2	

Boring Location:	N: 15350378.39' E: 1108877.08'	Project Number:	140143.0000.4903
Ground Elevation:	12.53'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 9.5 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes: Offset 15' north from original boring because of access road**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								**0**
1						6" Removed by shovel, not in core.	Quikrete 0-2' (2' thickness)	1
2						6" Moist dark brown/black fine to medium SAND with silt. Little coarse sand and small gravel.		2
3			OS= 0.0 HS= 0.0 @ 5'	S-1	54/36	30" FILL (cinders, ash, klinkers, and brick). Increased brick towards bottom.	Bentonite -2.0.-3.0' (1' thickness)	3
4								4
5							Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8'	**5**
6						25" red FILL (cinders, ash, klinkers, and brick).		6
7			OS= 0.0 HS= 0.0 @ 10'	S-2	60/31	6" Black moist to wet FILL (cinders, ash, klinkers, and brick).		7
8							Filter Sand Pack 3-23' (20' thickness)	8
9								9
10								**10**
11	B411(11.5') @ 1325 - EPH					13" Wet FILL (brown to red crushed brick with ash).	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11
12						34" Wet, black FILL (ash, cinders and klinkers) with sheen. Bottom 4" viscous oil.		12
13			OS= 0.0 HS= 14.1 @ 13'	S-3	60/47			13
14	B411(14') @1340 - EPH							14
15								**15**
16	B411(16') @ 1335 - EPH					10" Wet FILL (ash, cinders, and klinkers) with sheen.		16
17			OS= 0.0 HS= 0.0 @ 16'	S-4	60/39	29" Wet, olive green, fine SAND with some silt, increasing silt with depth.		17
18								18
19								19
20								**20**



Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

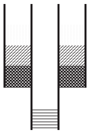
Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Change in Material Type

Change in Deposit Type

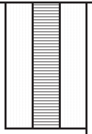
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-411**
		Monitor Well ID No.:	**MW-411**
		Sheet 2 of 2	

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	12.53'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 9.5 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes: Offset 15' north from original boring because of access road**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
21			OS= 0.0 HS= 0.0 @ 21'	S-5	60/34	34" Wet, olive green, medium to coarse SAND with some silt and fine sand. Trace small grey gravel.		21
22						End of boring @ 25', MW installed @ 23'.		22
23								23
24								4
25								5
26								6
27								7
28								8
29								9
30								10
31								11
32								12
33								13
34								14
35								15
36								16
37								17
38								18
39								19
40								20

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

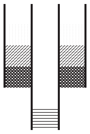
— Change in Material Type

— Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

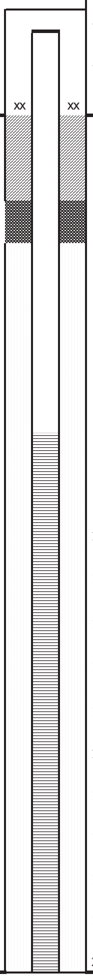
Project: 6 Bridge Street
Weymouth, MA

Boring ID No.:	**B-412**
Monitor Well ID No.:	**MW-412**

Sheet 1 of 2

Boring Location:	N: 15350334.78' E: 1108837.28'	Project Number:	140143.0000.4903
Ground Elevation:	13.61'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes: MW-412 completed 12/20/16**	Drill Rig and Model Number:	7822 DT & Truck Mounted CME 75
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1						6" Removed by shovel, not in core.	Quikrete 0-2' (2' thickness)	1
2						14" Black, moist, fine SAND and SILT, trace subangular gravel and clay.		2
3			OS= 0.0 HS= 0.0 @ 5'	S-1	54/27	6" Moist, light brown fine SAND with some fine to medium sand and silt, little small gravel.	Bentonite -2.0.-3.0' (1' thickness)	3
4						7" Dry, brown fine to medium SAND with some silt and fine sand.		4
5							Ten (10) Feet 4" Schedule 40 PVC Riser (-)2-8.5'	5
6						26" Dry FILL (crushed brick, cinders, ash, shattered rock).		6
7			OS= 0.0 HS= 0.0 @ 10'	S-2	60/26			7
8							Filter Sand Pack 25-Mar (20' thickness)	8
9								9
10								10
11	B412(11.5') @ 1135 - EPH					11" dry FILL (crushed brick, ash, cinders).	Fifteen (15) Feet 4" Schedule 40 0.01 Slotted Screen 8-23'	11
12						25" wet FILL(cinders, klinkers, ash). Light brown crushed firebrick at 26" to 28" Oily from 16" to 36".		12
13	B412(13') @ 1145 - EPH		OS= 0.0 HS= 0.0 @ 15'	S-3	60/36			13
14								14
15								15
16						18" Wet FILL (cinders, ash, klinkers) some fine to coarse sand. Oily from 0" to 15". 6" Wet, olive grey fine SAND with silt.		16
17			OS= 0.0 HS= 0.0 @ 16'	S-4	60/24			17
18								18
19	B412(19') @ 155 - EPH							19
20								20



Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

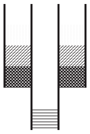
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



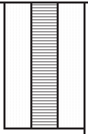
TRC

Boring & Well Construction Log

Project: 6 Bridge Street
Weymouth, MA

Boring ID No.:	**B-412**
Monitor Well ID No.:	**MW-412**
Sheet 2 of 2	

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.61'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes: MW-412 completed 12/20/16**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
21			OS= 0.0 HS= 0.0 @ 25'	S-5	60/28	8" Wet light brown/ olive green fine to medium SAND with some silt.		21
22						8" Black, wet FILL (cinders, ash, trace klinkers).		22
23						8" Moist, olive green SILT with some clay, moderate to highly plastic.		23
24						4" Wet, brown, medium to coarse SAND with little fine sand, silt and clay.		4
25						End of Boring @ 25', MW installed @ 23'.		**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

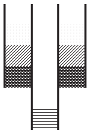
— Change in Material Type

━ Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



TRC

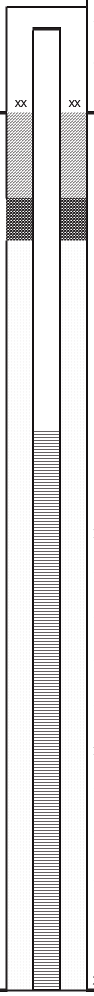
Boring & Well Construction Log

Project: 6 Bridge Street
Weymouth, MA

Boring ID No.:	**B-413**
Monitor Well ID No.:	**MW-413**
Sheet 1 of 2	

Boring Location:	N: 15350315.56' E: 1108835.03'	Project Number:	140143.0000.4903
Ground Elevation:	13.74'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT & Truck Mounted CME 75
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1						18" Dark black SILT with some fine sand.	Quikrete 0-2' (2' thickness)	1
2						35" Dry light brown, medium to coarse SAND with silt and little gravel.	Bentonite -2.0.-3.0' (1' thickness)	2
3			OS= 0.0 HS= 0.0 @ 5'	S-1	54/53			3
4								4
5							Ten (10) Feet 4" Schedule 40 PVC Riser (-)2-8.3'	5
6						22" Light brown medium to coarse SAND with silt and little gravel.		6
7			OS= 0.0 HS= 0.0 @ 10'	S-2	60/48	14" Dark black FILL (ash and cinders).		7
8							Filter Sand Pack 3-25' (20' thickness)	8
9								9
10							Fifteen (15) Feet 4" Schedule 40 0.01 Slotted Screen 8-23'	10
11	B413(11') @ 1015 - EPH					5" Fine to medium moist light brown SAND with some cinders.		11
12						26" Wet FILL with some cinders. Oil saturation at 13" to 31". Klinkers at bottom.		12
13	B413(14') @ 1025 - EPH		OS= 9.0 HS= 18.0 @ 13'	S-3	60/31			13
14								14
15								15
16						19" Wet, black FILL (cinders, ash) saturated with oil. Gravel size klinkers at bottom.		16
17			OS= 5.0 HS= 25.0 @ 16'	S-4	60/19			17
18								18
19								19
20								20



Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

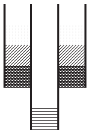
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

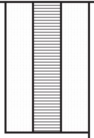
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-413**
		Monitor Well ID No.:	**MW-413**
		Sheet 2 of 2	
Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.74'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/12/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS =	Drilling Company:	New England Geotech
Hammer: GH-60	Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
21 22 23 24 25	B413(23') @ 1040 - EPH		OS= 0.0 HS= 0.0	S-5	60/29	9" Wet dark grey/ green fine SAND with silt. 12" Wet black FILL (cinders, ash, small klinkers). 8" Wet SILT with some clay, trace sand. Moderately plastic. End of boring @ 25', MW installed @ 23.3'.		21 22 23 4 5
26 27 28 29 30								6 7 8 9 10
31 32 33 34 35								11 12 13 14 15
36 37 38 39 40								16 17 18 19 20

<u>Proportions Used</u>

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

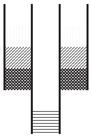
Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

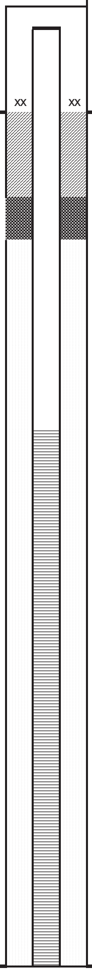
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



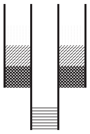
TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-414** Monitor Well ID No.: **MW-414** Sheet 1 of 2

Boring Location:	N: 15350245.69' E: 1108811.06'	Project Number:	140143.0000.4903
Ground Elevation:	14.18'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 10 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes: well completed on 12/20/16**	Drill Rig and Model Number:	7822 DT & Truck Mounted CME 75
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton



Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3 -2 -1 0								-3 -2 -1 0
1 2 3 4 5			OS= 0.0 HS= 0.0	S-1	60/48	8" Dark brown fine SAND with some silt, moist. 24" Dark brown fine SAND with some silt, little angular gravel, moist to dry. 16" Black FILL with cinders, ash, fire brick, dry.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness)	1 2 3 4 5
6 7 8 9 10			OS= 0.0 HS= 1.8 @ 10'	S-2	60/31	31" Black FILL with klinkers, cinders, ash and fire brick, dry.	Ten (10) Feet 4" Schedule 40 PVC Riser (-)2-8' Filter Sand Pack 3-23' (20' thickness)	6 7 8 9 10
11 12 13 14	B414 (11') @ 1120 - EPH B414 (14') @ 1128 - EPH		OS= 0.5 @ 11' OS= 1.1 HS= 55 @ 14'	S-3	60/39	17" Black FILL, cinders and klinkers, moist to wet. 22" Black fine to medium SAND with some silt, wet, oily.	Fifteen (15) Feet 4" Schedule 40 0.01 Slotted Screen 8-23'	11 12 13 14
15 16 17 18 19 20	B414 (15.5) @ 1125 - EPH		OS= 0.0 HS= 15 @ 16'	S-4	60/29	29" Olive green to brown fine to coarse SAND with some silt and little fine gravel, wet.		15 16 17 18 19 20

Proportions Used		Penetration Resistance ("Blow Counts")				
		Cohesionless Density		Cohesive Consistency		
0-10%	Trace	0-4	Very Loose	0-2	Very Soft	Concrete
10-20%	Little	5-9	Loose	3-4	Soft	Silica Sand Pack
20-35%	Some	10-29	Med. Dense	5-8	M/Stiff	Native Fill
35-50%	And	30-49	Dense	9-15	Stiff	Bentonite Seal
Change in Material Type		50+	Very Dense	16-30	Very Soft	Riser
Change in Deposit Type				31+	Hard	Screen

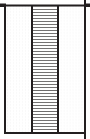


TRC

Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-414**
		Monitor Well ID No.:	**MW-414**
		Sheet 2 of 2	

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	14.18'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 10 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes: well completed on 12/20/16**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace	Drilling Company:	New England Geotech
Hammer: GH-60	PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						End of Boring @ 20', MW-414 to 23'.		21
22								22
23								23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

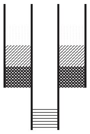
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

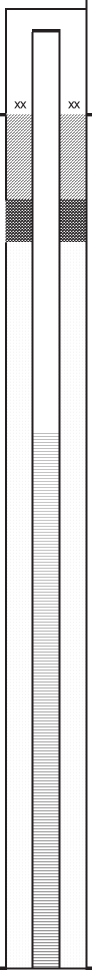
Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard



TRC	Boring & Well Construction Log	**Project:** 6 Bridge Street Weymouth, MA	Boring ID No.: **B-415** Monitor Well ID No.: **MW-415** Sheet 1 of 2

Boring Location:	N: 15350228.72' E: 1108892.28'	Project Number:	140143.0000.4903
Ground Elevation:	14.43'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Stick-Up)	Depth (feet)
-3								-3
-2								-2
-1								-1
0								0
1						6" ORGANICS, top soil, roots and grass, moist.	Quikrete 0-2' (2' thickness)	1
2						16" Brown to white fine to coase SAND, some fine gravel, some concrete.		2
3			OS= 0.0 HS= 0.0	S-1	60/38	16" Tan fine to medium SAND.	Bentonite -2.0.-3.0' (1' thickness)	3
4								4
5							Ten (10) Feet 2" Schedule 40 PVC Riser (-)2-8'	5
6						36" Tan fine to medium SAND.		6
7			OS= 0.0 HS= 0.2	S-2	60/50	14" Black COAL SLAG, some ash, some coal dust, dry.		7
8							Filter Sand Pack 3-23' (20' thickness)	8
9								9
10								10
11	B415 (11.8') @ 0835 - EPH		OS= 0.2 HS= 0.8			16" Black COAL SLAG, some ash, some coal dust, dry.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11
12	B415 (12.2') @ 0840 - EPH					4" Black SLAG and ASH, fall in, moist.		12
13	B415 (13.4') @ 0845 - EPH Duplicate B451 (13.4) - EPH		OS= 1.1 HS= 30.6	S-3	60/28	8" Black FILL and FREE OIL, saturated.		13
14								14
15								15
16						30" FILL, slag and ash, oily to 16', water saturated.		16
17			OS= 1.1 HS= 5.3	S-4	60/30			17
18								18
19								19
20								20



Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

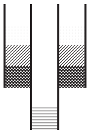
— Change in Material Type

— Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

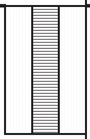
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-415**
		Monitor Well ID No.:	**MW-415**
		Sheet 2 of 2	

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	14.43'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11.5 feet below ground surface	Dated Drilled:	12/14/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21			OS= 0.2 HS= 1.1	S-5	60/28	20" SLAG and FILL, water saturated.		21
22						8" Gray fine SAND, some silt.		22
23						End of boring @ 23', MW Installed @ 23'.		23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

Proportions Used

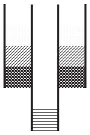
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard


Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

TRC

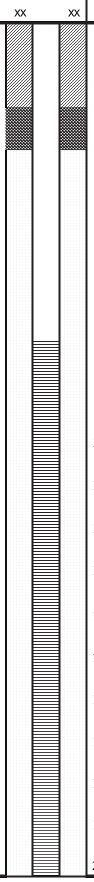
Boring & Well Construction Log

Project: 6 Bridge Street
Weymouth, MA

Boring ID No.:	**B-416**
Monitor Well ID No.:	**MW-416**
Sheet 1 of 2	

Boring Location:	N: 15350142.8' E: 1108844.24'	Project Number:	140143.0000.4903
Ground Elevation:	13.34'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
0							xx xx	0
1						Vacuum truck removed 0-6'.	Quikrete 0-2' (2' thickness)	1
2						24" Dark brown to black medium to fine SAND, little coarse sand, trace gravel, no odor, no staining.		2
3			OS= 0.0 HS= 0.0	S-1	60/60	24" Dark brown to black medium to fine SAND, some coarse sand, no odor, no staining.	Bentonite -2.0.-3.0' (1' thickness)	3
4						12" Black fine to coarse SAND, trace gravel, no odor, no staining.		4
5							Ten (10) Feet 2" Schedule 40 PVC Riser 0-10'	5
6								6
7			OS= 0.0 HS= 0.0 @ 10'	S-2	48/26	6" FILL with cinders and ash, dry.		7
8						20" Fine to medium SAND with some silt and coarse sand, silt decreased with depth, dry.	Filter Sand Pack 3-25' (22' thickness)	8
9								9
10								10
11	B416 (11') @ 1405 - EPH					12" FILL with cinders and klinkers, moist.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'	11
12						38" Brown fine to coarse SAND with silt, wet.		12
13			OS= 0.0 HS= 0.0 @ 11'	S-3	60/50			13
14								14
15	B416 (15') @ 1400 - EPH							15
16						39" Brown fine to coarse SAND with some silt, little fine gravel. Iron staining from 18"-22" of recovery, wet.		16
17			OS= 1.1 HS= 5.3	S-4	60/39			17
18						End of Boring @ 20', MW-414 to 23'.		18
19								19
20								20



Proportions Used	
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

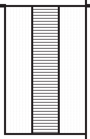
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen

Boring & Well Construction Log

Project: 6 Bridge Street
Weymouth, MA

Boring ID No.:	**B-416**
Monitor Well ID No.:	**MW-416**
Sheet 2 of 2	

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.34'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	J. Stapleton

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								0
21						End of Boring @ 20', MW-416 to 23'.		21
22								22
23								23
24								4
25								5
26								6
27								7
28								8
29								9
30								10
31								11
32								12
33								13
34								14
35								15
36								16
37								17
38								18
39								19
40								20

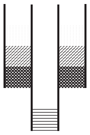
Proportions Used
0-10% Trace
10-20% Little
20-35% Some
35-50% And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard

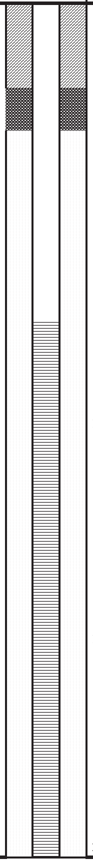
Concrete
Silica Sand Pack
Native Fill
Bentonite Seal
Riser
Screen



Boring & Well Construction Log

Project: 6 Bridge Street Weymouth, MA		Boring ID No.:	**B-417**
		Monitor Well ID No.:	**MW-417**
		Sheet 1 of 2	
Boring Location:	N: 15350181.59' E: 1108754.52'	Project Number:	140143.0000.4903
Ground Elevation:	13.27'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)
-3 to 0							xx xx
0-6			OS= 0.0 HS= 0.0	S-1	60/60	Vacuum truck removed 0-6'. 24" Dark brown to black medium to fine SAND, little coarse sand, some gravel, no odor, no staining. 24" Dark brown to black medium to fine SAND, some coarse sand, no odor, no staining. 12" Black fine to coarse SAND, trace gravel, no odor, no staining.	Quikrete 0-2' (2' thickness) Bentonite -2.0.-3.0' (1' thickness) Ten (10) Feet 2" Schedule 40 PVC Riser 0-10'
6-10			OS= 0.0 HS= 0.0 @ 10'	S-2	48/37	5" Black CLAY with fine sand, ash and cinders 32" Fine to medium SAND with some silt and coarse sand, trace shattered cobble, dry. Decreasing silt with depth.	Filter Sand Pack 3-25' (22' thickness)
10-15	B417 (11') @ 1254 - EPH B417 (15') @ 1256 - EPH		OS= 0.0 HS= 0.0 @ 15'	S-3	60/50	7" Fine to medium SAND with some silt and coarse sand, trace shattered cobble, dry. 7" Black FILL with cinders and ash, some fine sand, moist to wet. 36" Fine to coarse SAND with some silt, wet.	Fifteen (15) Feet 2" Schedule 40 0.01 Slotted Screen 8-23'
15-20			OS= 0.0 HS= 0.0	S-4	60/31	31" Brown medium to coarse SAND with some fine sand and silt, trace angular gravel, wet. End of Boring @ 20', MW-417 to 23'.	



Proportions Used

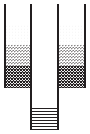
0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type

Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard



Concrete

Silica Sand Pack

Native Fill

Bentonite Seal

Riser

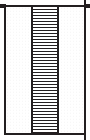
Screen

Boring & Well Construction Log

Project: 6 Bridge Street
Weymouth, MA

Boring ID No.:	**B-417**
Monitor Well ID No.:	**MW-417**
Sheet 2 of 2	

Boring Location:	see pg. 1	Project Number:	140143.0000.4903
Ground Elevation:	13.27'	Project Manager:	Rick Paquette
Depth to First Water:	Approximately 11 feet below ground surface	Dated Drilled:	12/13/2016
Depth to Static Water:		Drill Type:	Direct Push - Geoprobe
Stabilization Time:		Sampling Method:	Continuous
Sampler Description	**Notes:**	Drill Rig and Model Number:	7822 DT
Type: 5 foot Macrocore	OS = open liner reading at corresponding depth of Headspace. HS = Headspace PID reading with a MiniRAE 2000 (10.6 eV Lamp and RF = 1.0),	Drilling Company:	New England Geotech
Hammer: GH-60		Driller's Name:	Hayes Rebijas
Fall: 60 inch pneumatic		TRC Representative:	C. Foster

Depth (feet)	Sample I.D.	Blow Counts	PID HS (ppm/v)	Split Spoon	Pen/Rec (In.)	Description of Sample	Well Construction (Flush Mount)	Depth (feet)
-3								-3
-2								-2
-1								-1
20								**0**
21						End of Boring @ 20', MW-417 to 23'.		21
22								22
23								23
24								4
25								**5**
26								6
27								7
28								8
29								9
30								**10**
31								11
32								12
33								13
34								14
35								**15**
36								16
37								17
38								18
39								19
40								**20**

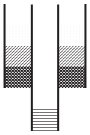
Proportions Used

0-10%	Trace
10-20%	Little
20-35%	Some
35-50%	And

Change in Material Type
Change in Deposit Type

Penetration Resistance ("Blow Counts")

Cohesionless Density		Cohesive Consistency	
0-4	Very Loose	0-2	Very Soft
5-9	Loose	3-4	Soft
10-29	Med. Dense	5-8	M/Stiff
30-49	Dense	9-15	Stiff
50+	Very Dense	16-30	Very Soft
		31+	Hard



Low-Flow System Sampling

Date:	8/30/2016	Turbidity Make/Model:	LaMotte2020we		
Operator Name:	L.Hopp	Well ID:	201		
Pump Model/Type:	Geopump	Well diameter:	2 in PVC		
Company Name:	TRC	Well Total Depth:	NM	Start Time:	1300 hrs
Tubing Type:	LDPE	Screen Length:	10 ft	Sample Collected:	1400 hrs
Project Name:	140143.0000.7478	Depth to Water:	NM		
Site Name:	Weymouth C/S	Final Pumping Rate:	250 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.09 L		
Pump in take:	NM	Calculated Sample Rate:	300 sec		
Sonde SN:	387487	Total Volume Pumped:	8 gallons		

Low Flow Stabilization Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
300	6.19	-14.4	11597.3	-0.01	17.03	1.92	NM
600	6.15	-3.4	11711.5	-0.01	16.56	1.65	NM
900	6.15	7.1	11835.6	-0.01	16.33	1.99	NM
1200	6.14	19.3	11917.9	-0.01	16.33	2.05	NM
1500	6.13	32.9	11955.6	-0.01	16.41	2.15	NM
1800	6.13	50.5	11993.1	-0.01	16.38	3.69	NM
2100	6.13	63.5	12336.8	0.5	16.24	3.75	NM
2400	6.14	45.5	12357.5	0	16.14	3.69	NM
2700	6.13	35	12273.7	-0.01	16.28	3.66	NM
3000	6.13	31.6	12165.3	-0.01	16.34	3.72	NM

NOTE:

MW 201 depth to water could not be accurately measured due to the thick, viscous product coating the probe.

Low-Flow System Sampling

Date:	8/29/2016	Turbidity Make/Model:	Lamotte2020we		
Operator Name:	L.Hopp	Well ID:	202		
Pump Model/Type:	Geopump	Well diameter:	2 in PVC		
Company Name:	TRC	Well Total Depth:	19.75 ft	Start Time:	0930 hrs
Tubing Type:	LDPE	Screen Length:	10 ft	Sample Collected:	1130 hrs
Project Name:	140143.0000.7478	Depth to Water:	12.78 ft		
Site Name:	Weymouth C/S	Final Pumping Rate:	300 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.09 L		
Pump in take:	16 ft	Calculated Sample Rate:	300 sec		
Sonde SN:	387487	Total Volume Pumped:	10 gallons		

Low Flow Stabilzation Summary

Time	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
300	6.34	-4.7	31094.3	0.06	15.66	NM	12.8
600	6.40	8.5	31340.1	0.03	15.36	NM	12.8
900	6.42	16.6	31614.7	0.03	15.51	NM	12.8
1200	6.43	22.5	31453.2	0.03	15.58	NM	12.8
1500	6.44	27.2	31498.1	0.02	15.59	NM	12.8
1800	6.45	31	31449.2	0.02	15.61	NM	12.8
2100	6.46	33.5	31455.8	0.02	15.61	NM	12.81
2400	6.46	36.1	31509.4	0.02	15.67	NM	12.81
2700	6.47	38	31491.8	0.02	15.77	NM	12.81
3000	6.47	38	31990.4	0.04	15.67	NM	12.81
3300	6.48	38.1	31973.6	0.07	15.64	NM	12.82
3600	6.48	36.8	32025	0.05	15.57	NM	12.82
3900	6.48	36.1	32054.5	0.07	15.48	NM	12.82
4200	6.49	36.6	31940	0.08	15.51	NM	12.82
4500	6.49	36.9	32122	0.07	15.44	NM	12.82
4800	6.49	36.4	32076.5	0.07	15.48	NM	12.83
5100	6.49	36.8	31954.8	0.09	15.26	NM	12.83
5400	6.49	36.9	31961.9	0.05	15.25	NM	12.83
5700	6.49	37	32010.3	0.05	15.23	NM	12.83
6000	6.48	35.2	32164.2	0.02	15.3	3.68	12.84

Low-Flow System Sampling

Date:	8/29/2016	Turbidity Make/Model:	Lamotte2020we		
Operator Name:	L.Hopp	Well ID:	203		
Pump Model/Type:	Geopump	Well diameter:	2 in PVC		
Company Name:	TRC	Well Total Depth:	19.75 ft	Start Time:	1230 hrs
Tubing Type:	LDPE	Screen Length:	10 ft	Sample Collected:	1415 hrs
Project Name:	140143.0000.7478	Depth to Water:	12.78 ft		
Site Name:	Weymouth C/S	Final Pumping Rate:	300 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.09 L		
Pump in take:	16 ft	Calculated Sample Rate:	300 sec		
Sonde SN:	387487	Total Volume Pumped:	10 gallons		

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
300	6.46	22.8	41022.8	0	14.98	5.46	12.78
600	6.46	24.6	40807.3	0.01	14.94	5.32	12.78
900	6.46	25.9	41279.3	0.02	14.89	2.22	12.78
1200	6.46	27.6	41328	0.03	14.8	2.31	12.78
1500	6.46	29.7	40879.9	0.04	14.79	2.31	12.8
1800	6.46	31	40799.5	0.05	15.01	2.28	12.8
2100	6.46	31.7	40632.4	0.08	14.91	2.2	12.82
2400	6.46	32.8	40386.3	0.09	15.21	2.35	12.82
2700	6.46	33.7	40547.8	0.13	15.35	2.25	12.84
3000	6.46	34.4	40701.8	0.16	14.98	2.19	12.84
3300	6.46	34.7	40441	0.16	15.21	2.15	12.86
3600	6.46	36	40302.8	0.18	15.3	2.2	12.86
3900	6.46	36.4	40407.8	0.19	15.21	2.23	12.86
4200	6.46	36.5	40604.2	0.22	14.9	2.18	12.86

Low-Flow System Sampling

Date:	8/29/2016	Turbidity Make/Model:	Lamotte2020we		
Operator Name:	L.Hopp	Well ID:	204		
Pump Model/Type:	Geopump	Well diameter:	2 in PVC		
Company Name:	TRC	Well Total Depth:	20.85	Start Time:	1510 hrs
Tubing Type:	LDPE	Screen Length:	10 ft	Sample Collected:	1545 hrs
Project Name:	140143.0000.7478	Depth to Water:	13.8 ft		
Site Name:	Weymouth C/S	Final Pumping Rate:	300 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.09 L		
Pump in take:	17 ft	Calculated Sample Rate:	300 sec		
Sonde SN:	387487	Total Volume Pumped:	10 gallons		

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
300	6.82	126.6	29870.8	0.63	15.19	5.07	13.85
600	6.72	107.2	31969.2	0.54	14.6	8	13.85
900	6.69	99.8	30954.9	0.4	14.49	10.17	13.85
1200	6.68	95.1	32159.3	0.17	14.32	4.87	13.87
1500	6.67	92.7	31991.5	0.19	14.38	2.16	13.87
1800	6.67	91	31912.4	0.17	14.33	2.1	13.87

Low-Flow System Sampling

Date:	8/30/2016	Turbidity Make/Model:	Lamotte2020we		
Operator Name:	L.Hopp	Well ID:	205		
Pump Model/Type:	Geopump	Well diameter:	2 in PVC		
Company Name:	TRC	Well Total Depth:	21.9 ft	Start Time:	0750 hrs
Tubing Type:	LDPE	Screen Length:	10 ft	Sample Collected:	1000 hrs
Project Name:	140143.0000.7478	Depth to Water:	14.85 ft		
Site Name:	Weymouth C/S	Final Pumping Rate:	300 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.09 L		
Pump in take	18 ft	Calculated Sample Rate:	300 sec		
Sonde SN:	387487	Total Volume Pumped:	10 gallons		

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
300	6.87	-28.8	21618.7	0.03	13.76	6.23	14.85
600	6.94	-14.7	22863.3	0.05	13.63	2.49	14.85
900	6.97	-1.3	22892	0.04	13.62	2.03	14.85
1200	6.98	17.8	22820.2	0.05	13.58	2.13	14.87
1500	6.98	45.7	22814.5	0.04	13.58	2.22	14.87
1800	6.99	84.1	22885.4	0.04	13.58	2.15	14.88
2100	6.99	123.9	23071.8	0.01	13.66	2.08	14.88
2400	7.00	168	22879.4	0.01	13.66	2.14	14.88
2700	7.00	215.4	22821.2	0.01	13.71	2.04	14.9
3000	7.00	271.7	22627.2	0.02	13.76	1.96	14.9
3300	7.00	356	22613.1	0.03	13.81	1.85	14.9

Low-Flow System Sampling

Date:	8/30/2016	Turbidity Make/Model:	Lamotte2020we		
Operator Name:	L.Hopp	Well ID:	205		
Pump Model/Type:	Geopump	Well diameter:	2 in PVC		
Company Name:	TRC	Well Total Depth:	21.9 ft	Start Time:	0750 hrs
Tubing Type:	LDPE	Screen Length:	10 ft	Sample Collected:	1000 hrs
Project Name:	140143.0000.7478	Depth to Water:	14.85 ft		
Site Name:	Weymouth C/S	Final Pumping Rate:	300 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.09 L		
Pump in take	18 ft	Calculated Sample Rate:	300 sec		
Sonde SN:	387487	Total Volume Pumped:	10 gallons		

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
3600	7.00	460.5	22692.7	0.03	13.85	1.84	14.91
3900	7.01	538.6	22568.4	0.04	13.85	1.82	14.91
4200	7.01	565.9	22649.7	0.04	13.88	1.8	14.92
4500	7.01	596.1	22579.1	0.04	13.83	1.76	14.92
4800	7.01	631.8	22582.3	0.03	13.92	1.74	14.93
5100	7.01	638.2	22874.1	0.01	13.92	1.7	14.93
5400	7.01	667.3	22749.5	0.02	14.05	1.75	14.94
5700	7.01	695.6	22744.9	0.01	14.12	1.72	14.94
6000	7.01	703.7	22526.4	0.02	14.14	1.68	14.94
6300	7.01	685.9	22654.5	0.01	14.15	1.74	14.95
6600	7.01	636.5	22484	0.01	14.24	1.78	14.95
6900	7.01	564.1	22374.8	0.02	14.22	1.72	14.95

Low-Flow System Sampling

Date:	11/3/2016	Turbidity Make/Model:	HACH 2100Q		
Operator Name:	L.Hopp	Well ID:	201		
Pump Model/Type:	Geopump	Well diameter:	2 in PVC		
Company Name:	TRC	Well Total Depth:	22.90 ft	Start Time:	1150 hrs
Tubing Type:	LDPE	Screen Length:	15 ft	Sample Collected:	1215 hrs
Project Name:	140143.0000.7478	Depth to Water:	14.00 ft	Dup = MW-221	
Site Name:	Weymouth C/S	Final Pumping Rate:	200 mL/min	Sample Collected:	1115 hrs
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.09 L		
Pump in take:	18 ft	Calculated Sample Rate:	180 sec		
Sonde SN:	33922	Total Volume Pumped:	2 gallons		

Low Flow Stabilzation Summary

Time	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
180	7.23	-51.1	26937.7	0.29	15.88	-	14.00
360	7.25	-44.9	27550.8	0.20	15.30	40.1	14.00
540	7.23	-42.1	27696.6	0.23	15.30	21.8	14.00
720	7.22	-40.3	27252.7	0.23	15.30	20.1	14.00
900	7.20	-37.6	26934.7	0.21	15.24	16.3	14.00
1080	7.19	-35.5	26880.1	0.20	15.21	16.2	14.00
1260	7.19	-34.0	26864.5	0.18	15.12	17.1	14.00
1440	7.18	-33.7	27227.7	0.18	15.12	16.5	14.00
1620	7.19	-32.5	27240.9	0.19	15.11	16.1	14.00
1800	7.19	-31.6	27283.3	0.18	15.08	16.0	14.00

Low-Flow System Sampling

Date: 11/1/2016
Operator Name: L.Hopp
Pump Model/Type: Geopump
Company Name: TRC
Tubing Type: LDPE
Project Name: 140143.0000.7478
Site Name: Weymouth C/S
Tubing Diameter: .170 x 1/4 in
Pump in take: 16.25 ft
Sonde SN: 33922

Turbidity Make/Model: Hach
Well ID: 202
Well diameter: 2 in. PVC
Well Total Depth: 19.95 ft
Screen Length: 15 ft
Depth to Water: 12.60 ft
Final Pumping Rate: 200 mL/min
Total System Volume: 0.02399567 gal
Calculated Sample Rate: 180 sec
Total Volume Pumped: 1.3 gallons

Start Time: 1100 hrs
Sample Collected: 1138 hrs

Low Flow Stabilzation Summary

Time	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
180	6.27	51.6	38748.6	0.70	10.43	12.67	12.6
360	6.30	49.1	39319.9	0.45	11.01	9.04	12.61
540	6.35	46.5	38889.9	0.38	11.66	9.34	12.61
720	6.39	44.2	38898.4	0.33	11.94	9.63	12.61
900	6.42	42.0	38916.4	0.29	12.13	9.40	12.61
1080	6.46	39.9	38723.8	0.26	12.39	9.30	12.61
1260	6.49	38.3	38778.8	0.25	12.4	8.00	12.61
1440	6.52	36.3	38779.0	0.24	12.56	6.27	12.61
1620	6.55	34.4	38767.9	0.23	12.63	6.15	12.61
1800	6.58	32.7	38723.6	0.22	12.76	6.20	12.61
1980	6.61	31.0	38564.3	0.22	12.82	6.18	12.61

Low-Flow System Sampling

Date:	11/1/2016	Turbidity Make/Model:	Hach		
Operator Name:	C.Foster	Well ID:	203		
Pump Model/Type:	Geopump	Well diameter:	2 in. PVC		
Company Name:	TRC	Well Total Depth:	19.80 ft	Start Time:	1130 hrs
Tubing Type:	LDPE	Screen Length:	15 ft	Sample Collected:	1205 hrs
Project Name:	140143.0000.7478	Depth to Water:	12.98 ft		
Site Name:	Weymouth C/S	Final Pumping Rate:	300 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.02399567 gal		
Pump in take:	16.34 ft	Calculated Sample Rate:	180 sec		
Sonde SN:	30666	Total Volume Pumped:	4 gallons		

Low Flow Stabilzation Summary

Time	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
180	6.49	24.1	39812.5	1.34	16.65	16.2	13.26
360	6.50	12.6	41680.5	1.07	15.17	7.41	13.26
540	6.50	11.3	41712.1	0.76	15.22	7.48	13.25
720	6.50	10.8	41754.4	0.62	15.21	4.49	13.24
900	6.50	10.8	41923.8	0.52	15.07	4.42	13.24
1080	6.49	10.1	42002.2	0.46	14.94	3.88	13.24
1260	6.49	10.3	42100.4	0.40	14.89	3.94	13.24
1440	6.49	10.4	42007.2	0.36	14.88	1.93	13.24
1620	6.49	9.50	42385.8	0.33	14.53	1.56	13.24
1800	6.49	9.50	42211.5	0.29	14.88	1.48	13.24
1980	6.49	9.80	42068.9	0.28	15.12	1.49	13.24

Low-Flow System Sampling

Date: 11/1/2016
Operator Name: L.Hopp
Pump Model/Type: Geopump
Company Name: TRC
Tubing Type: LDPE
Project Name: 140143.0000.7478
Site Name: Weymouth C/S
Tubing Diameter: .170 x 1/4 in
Pump in take: 17.29 ft
Sonde SN: 33922

Turbidity Make/Model: Hach
Well ID: 204
Well diameter: 2 in. PVC
Well Total Depth: 20.7 ft
Screen Length: 15 ft
Depth to Water: 13.9 ft
Final Pumping Rate: 200 mL/min
Total System Volume: 0.05283441 gal
Calculated Sample Rate: 180 sec
Total Volume Pumped: 1.1 gallon

Start Time: 1300 hrs
Sample Collected: 1330 hrs

Low Flow Stabilzation Summary

Time	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
180	7.20	25.5	31268.9	1.03	13.46	3.09	13.90
360	7.12	26.5	33371.7	0.50	13.35	2.58	13.85
540	7.04	27.0	35258.9	0.38	13.38	2.76	13.85
720	7.00	26.5	36113.0	0.30	13.37	1.03	13.85
900	6.97	26.0	36618.7	0.28	13.39	0.84	13.85
1080	6.96	25.6	36794.6	0.25	13.30	0.92	13.85
1260	6.95	25.1	37185.5	0.23	13.19	1.65	13.85
1440	6.94	24.8	37378.4	0.21	13.17	1.32	13.78
1620	6.93	24.4	37663.3	0.21	13.17	0.74	13.78
1800	6.93	24.1	37689.6	0.20	13.12	0.38	13.75

Low-Flow System Sampling

Date: 11/1/2016
Operator Name: C.Foster
Pump Model/Type: Geopump
Company Name: TRC
Tubing Type: LDPE
Project Name: 140143.0000.7478
Site Name: Weymouth C/S
Tubing Diameter: .170 x 1/4 in
Pump in take: 18.31 ft
Sonde SN: 30666

Turbidity Make/Model: Hach
Well ID: 205
Well diameter: 2 in. PVC
Well Total Depth: 22.00 ft
Screen Length: 15 ft
Depth to Water: 14.83 ft
Final Pumping Rate: 250 mL/min
Total System Volume: 0.02399567 gal
Calculated Sample Rate: 180 sec
Total Volume Pumped: 2.5 gallons

Start Time: 1335 hrs
Sample Collected: 1355 hrs

Low Flow Stabilzation Summary

Time	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
180	7.03	-63.3	20009.7	0.27	17.77	0.87	14.89
360	7.04	-56.7	25135.9	0.12	14.72	1.32	14.90
540	7.04	-53.5	26104.3	0.10	14.41	0.42	14.90
720	7.04	-52.4	26331.4	0.08	14.40	0.68	14.90
900	7.04	-51.2	26295.3	0.07	14.45	0.87	14.90
1080	7.04	-50.3	26270.9	0.07	14.40	0.36	14.90

Low-Flow System Sampling

Date:	11/1/2016	Turbidity Make/Model:	Hach		
Operator Name:	C.Foster	Well ID:	206		
Pump Model/Type:	Geopump	Well diameter:	2 in. PVC		
Company Name:	TRC	Well Total Depth:	20.98 ft	Start Time:	1524 hrs
Tubing Type:	LDPE	Screen Length:	10 ft	Sample Collected:	1550 hrs
Project Name:	140143.0000.7478	Depth to Water:	14.22 ft		
Site Name:	Weymouth C/S	Final Pumping Rate:	250 mL/min		
Tubing Diameter:	.170 x 1/4 in	Total System Volume:	0.02399567 gal		
Pump in take:	17.60 ft	Calculated Sample Rate:	180 sec		
Sonde SN:	30666	Total Volume Pumped:	3 gallons		

Low Flow Stabilzation Summary

Time	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)
180	6.88	-32.50	2989	1.02	16.65	0.56	14.22
360	6.78	-45.80	4074	0.94	16.14	0.68	14.22
540	6.73	-50.00	4872	0.83	16.12	0.28	14.22
720	6.71	-50.30	5200	0.73	16.11	0.32	14.22
900	6.70	-49.90	5328	0.70	16.12	0.26	14.22
1080	6.69	-49.20	5368	0.67	16.11	0.28	14.22
1260	6.68	-48.50	5441	0.68	16.13	0.26	14.22

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 140143
Date/Time: 1/4/17
Sheet 1 of 1
TRC Personnel: Kolleen Shea
Well ID: MW-201

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment:

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth — ft.
Well Volume ______
LNAPL/DNAPL Depth = 13.64
NAPL Thickness = ______

Depth of pump intake: 18 ft
Static water level after pump put into well: [illegible]
Initial purge Rate/ Water Level (100-400 ml/min): 300 ml/min
Adjusted purge Rates/time/WL(record changes)

Flow rate at time of sampling: 300 ml/min
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0930	0935	0940	0945	0950	0955	1000	1005	1010
Temp. (°C)	P	10.44	11.83	12.02	12.03	12.03	12.12	12.10	12.08
Conduct. (μmhos/cm)		36823	36418	36462	36463	36463	36502	36536	36564
DO (mg/L)	U	3.50	2.21	2.23	2.24	2.16	1.93	1.85	1.85
pH (su)	R	6.00	6.30	6.27	6.27	6.20	6.25	6.25	6.25
ORP (millivolts)	G	-44.0	-56.9	-64.7	-66.5	-67.1	-69.5	-71.4	-71.5
Turbidity (NTU)	E	13.0	2.90	3.19	2.09	2.05	1.06	1.53	2.06
Flow (ml/min)		300	300	300	300	300	300	300	300
Depth To Water (ft)	13.64	—	—	—	—	—	—	—	—
Cumulative Purge Vol. (gal or L)									

Time	1015	1020	10:25	10:25		
Temp. (°C)	12.17	12.11	12.10	S		
Conduct. (μmhos/cm)	36586	36650	36654			
DO (mg/L)	1.80	1.75	1.78	A		
pH (Std. Units)	6.25	6.25	6.25	M		
Eh/ORP (millivolts)	-72.0	-73.0	-73.5			
Turbidity (NTU)	2.03	1.41	1.09	P		
Flow (ml/min)	300	300	300	L		
Depth To Water (ft)	—	—	—	E		
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:
final DTP: 13.89 ft
dump ~ 4 gallons water in labeled drum

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L A	1025	none	
VPH	N	HCl	3	40mL A	1025	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 143140
Date/Time: 1/4/17
Sheet 1 of 1

TRC Personnel: Kolleeny
Well ID: MW-202

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: YSI

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☐ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth 23 ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 12.23 ft.
Well Volume ______
LNAPL/DNAPL Depth = NA
NAPL Thickness = NA

Depth of pump intake: ~18 ft
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 350ml/min

Adjusted purge Rates/time/WL(record changes) 350 → 300 @ 0920

Flow rate at time of sampling: 360ml/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0910	0915	0920	0925	0930	0935	0940	0945	0950
Temp. (°C)	P	11.64	11.56	11.65	11.57	11.67	11.69	11.69	11.69
Conduct. (µmhos/cm)		30514	30137	24892	29902	29950	29919	29991	30005
DO (mg/L)	U	1.10	0.69	.68	.60	.65	.56	.57	.57
pH (su)	R	6.48	6.27	6.18	6.16	6.12	6.10	6.10	6.10
ORP (millivolts)	G	-18.2	-15.4	-15.2	-15.6	-15.6	-16.0	-5.8	-161
Turbidity (NTU)	E	25.1	20.0	11.5	6.54	4.83	4.53	4.21	4.12
Flow (ml/min)	350	350	350	300	300	300	300	300	300
Depth To Water (ft)	12.23	12.26	12.27	12.26	12.26	12.26	12.26	12.26	12.26
Cumulative Purge Vol. (gal or L)									

Time	0955	1000	1000			
Temp. (°C)	11.65	11.65	S			
Conduct. (µmhos/cm)	30001	30000				
DO (mg/L)	.58	.57	A			
pH (Std. Units)	6.10	6.10	M			
Eh/ORP (millivolts)	-16.1	-16.2	P			
Turbidity (NTU)	4.32	4.11	L			
Flow (ml/min)	300	300	E			
Depth To Water (ft)	12.26	12.26				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L A	1000	none	
VPH	N	HCl	3	40mL A	1000	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S
Project No.: 146143.0000 4403
Date/Time: 1/3/17 1410
Sheet 1 of 1

TRC Personnel: BA
Well ID: MW-203

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic pump
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other:

WELL MATERIAL
☑ PVC ☒ SS
Other:

Well Depth ____ ft. ☒ top of riser ☐ top of casing ☐ ____ ☐ measured ☐ historical

Water Depth 13.32 ft.
Well Volume
LNAPL/DNAPL Depth =
NAPL Thickness =

Depth of pump intake:
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 220
Adjusted purge Rates/time/WL(record changes): 260, 270
Flow rate at time of sampling: 270
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1410	1415	1420	1425	1430	1435	1440	1445	1450
Temp. (°C)	Start	11.37	11.40	11.49	11.54	11.64	11.49	11.50	11.60
Conduct. (µmhos/cm)	Purge	4199.7	4196.4	4193.6	4194.7	41875	4187.4	4186.4	4173.3
DO (mg/L)	↓	3.61	2.41	3.73	2.59	4.39	4.62	4.54	4.53
pH (su)		6.51	6.48	6.50	6.48	6.48	6.48	6.47	6.47
ORP (millivolts)		93.4	89.1	921.	89.3	87.9	89.3	87.1	86.1
Turbidity (NTU)			28.4	23.7	26.4	21.0	19.3	18.7	13.6
Flow (ml/min)	220	260	270	→					
Depth To Water (ft)	13.32	13.39	→						
Cumulative Purge Vol. (gal or L)									

Time	1455	1500	1505	1510	1515	1320
Temp. (°C)	11.41	11.47	11.53	11.51	11.56	11.57
Conduct. (µmhos/cm)	41734	41831	4197.6	4201.6	4163.4	4189.6
DO (mg/L)	4.76	4.41	5.31	5.61	550	5.63
pH (Std. Units)	6.46	6.47	6.47	6.45	6.46	6.45
Eh/ORP (millivolts)	85.3	84.4	82.6	83.7	83.4	82.6
Turbidity (NTU)	11.4	9.79	8.76	10.41	11.3	9.70
Flow (ml/min)	270	→				
Depth To Water (ft)	13.39	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	~~2~~ 3	40ml Ambr	1320		
EPH	↓	HCl	~~3~~ 2	1L Amber	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth CS
Project No.: 14093.0000.4603
Date/Time: 1/4/17 0845
Sheet 1 **of** 1

TRC Personnel: BA
Well ID: MW-204

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 13.28 ft.
Well Volume ______
LNAPL/DNAPL Depth = ______
NAPL Thickness = ______

Depth of pump intake: 18
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 230
Adjusted purge Rates/time/WL(record changes) 290
Flow rate at time of sampling: 290
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0850	0855	0900	0905	0910	0915	0920	0925	0930
Temp. (°C)	Start	12.36	12.27	12.24	12.21	12.23	12.48	12.46	12.35
Conduct. (µmhos/cm)	Purge	31913	32059	32147	32269	32373	32471	32502	32673
DO (mg/L)		2.19	2.14	2.01	1.85	1.82	1.87	1.94	1.92
pH (su)		6.76	6.73	6.68	6.66	6.64	6.61	6.58	6.56
ORP (millivolts)		50.3	44.5	44.6	44.7	42.6	40.3	31.1	27.6
Turbidity (NTU)	↓	49.4	47.3	42.1	33.4	24.7	21.3	19.7	6.41
Flow (ml/min)	230	290	→						
Depth To Water (ft)	13.28	13.32	→						
Cumulative Purge Vol. (gal or L)									

Time	0935	0940	0945	0950	0955	
Temp. (°C)	12.37	12.57	12.53	12.53	12.56	
Conduct. (µmhos/cm)	32417	32343	32004	31747	31515	
DO (mg/L)	2.03	2.10	2.24	2.39	2.26	
pH (Std. Units)	6.58	6.53	6.53	6.53	6.54	
Eh/ORP (millivolts)	20.7	15.2	10.5	7.2	6.2	
Turbidity (NTU)	5.31	2.55	2.31	2.01	1.93	
Flow (ml/min)	290	→				
Depth To Water (ft)	13.32	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Amber	0955		MW-204
VPH	↓	HCl	3	40mL Amber	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

ord

Project: Spectra Project No.: 140143 Date/Time: 1/3/17 Sheet 1 of 1

TRC Personnel: Kolleen Ma Well ID: MW-205

	YES	NO
g Secure	☒	☐
ar Intact	☒	☐
p Intact	☒	☐
Present	☒	☐
Lock Present	☒	☐

ng Equipment: YSI

w-thru Cell Volume:

ID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL ☑ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 15.00 ft.

Well Volume ______

LNAPL/DNAPL Depth = —

NAPL Thickness = —

Depth of pump intake: ~18 ft

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 400ml/min

Adjusted purge Rates/time/WL(record changes) 400 → 380 @ 1430

Flow rate at time of sampling: 350 ml/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1430	1430	1435	1440	1445	1450	1455	1500	1505
Temp. (°C)	P	12.01	12.02	12.04	12.07	12.08	12.05	12.05	12.04
Conduct. (µmhos/cm)	U	27023	27320	27100	27108	27579	27611	27635	27653
DO (mg/L)	R	1.21	1.20	1.13	1.01	.90	1.12	2.19	2.36
pH (su)	G	7.08	7.08	7.08	7.08	7.07	7.07	7.06	7.06
ORP (millivolts)	E	-94.6	-94.3	-95.6	-96.1	-98.8	-95.6	-96.7	-96.8
Turbidity (NTU)		5.86	5.51	4.23	3.82	3.72	2.89	3.24	3.58
Flow (ml/min)	400	400	350	350	350	350	380	380	350
Depth To Water (ft)	15.00	15.02	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Cumulative Purge Vol. (gal or L)									

Time	1510	1515	1520	1525	1525	
Temp. (°C)	12.03	12.11	12.01	11.99	S	
Conduct. (µmhos/cm)	27810	27899	27911	27944	A	
DO (mg/L)	2.30	2.60	2.51	2.47	M	
pH (Std. Units)	7.06	7.05	7.05	7.05	P	
Eh/ORP (millivolts)	-94.8	-84.6	-84.2	-83.6	L	
Turbidity (NTU)	2.92	3.81	3.92	3.34	E	
Flow (ml/min)	350	380	350	350		
Depth To Water (ft)	1500	1500	1500	15.00		
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria* (3 consecutive readings)

- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1LA	1525	none	
VPH	N	HCl	3	40mA	1525	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 140143
Date/Time: 1/4/17
Sheet 1 of 1
TRC Personnel: Kolleen Shea
Well ID: MW 206

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: YSI
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.
Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical
Water Depth 14.18 ft.
Well Volume ______
LNAPL/DNAPL Depth = —
NAPL Thickness = —
Depth of pump intake: ~18ft
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 400 ml/min
Adjusted purge Rates/time/WL(record changes) 400 → 350 @ 1220
Flow rate at time of sampling: 350ml/min
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1215	1220	1225	1230	1235	1240	1245	1250	1255
Temp. (°C)	P	12.97	12.92	12.91	12.96	13.03	13.01	13.03	12.99
Conduct. (µmhos/cm)	U	5081	5454	5458	5525	5448	5351	5321	5306
DO (mg/L)	R	3.28	2.97	2.97	3.00	3.33	3.36	3.40	3.42
pH (su)	G	6.58	6.44	6.44	6.43	6.42	6.42	6.42	6.41
ORP (millivolts)	E	-68.1	-74.5	-74.5	-73.8	-71.1	-71.0	-70.9	-69.9
Turbidity (NTU)		23.1	10.16	6.86	2.97	3.11	3.25	2.17	0.97
Flow (ml/min)	400	400	350	350	350	350	350	350	350
Depth To Water (ft)	14.18	14.21	14.20	14.20	14.20	14.19	14.19	14.19	14.19
Cumulative Purge Vol. (gal or L)									

Time	1300	1305	1310	1310		
Temp. (°C)	13.01	13.00	12.99	S		
Conduct. (µmhos/cm)	5299	5285	5280			
DO (mg/L)	3.51	3.60	3.61	A		
pH (Std. Units)	6.42	6.42	6.42	M		
Eh/ORP (millivolts)	-68.8	-68.2	-68.5	P		
Turbidity (NTU)	0.87	0.56	0.61			
Flow (ml/min)	350	350	350	L		
Depth To Water (ft)	14.19	14.19	14.19	E		
Cumulative Purge Vol. (gal or L)						

**Stabilization Criteria*
(3 consecutive readings)**
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1LA	1310	none	
VPH	N	HCl	3	40mLA	1310	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

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TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S
Project No.: H0143.0000
Date/Time: 1/3/17 1235
Sheet 1 **of** ___

TRC Personnel: BA
Well ID: MW-400

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Peristaltic pump

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) BA ~~N/A~~ 2 ft.

Riser Stick-up (from ground) BA ~~N/A~~ 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other: ________

WELL MATERIAL

☑ PVC ☐ SS

Other: ________

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ________ ☑ measured ☐ historical

Water Depth 13.31 ft.

Well Volume ______

LNAPL/DNAPL Depth = ______

NAPL Thickness = ______

Depth of pump intake: ______

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 220

Adjusted purge Rates/time/WL(record changes) 260

Flow rate at time of sampling: 260

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1235	1240	1245	1250	1255	1300	1305	1310	1315
Temp. (°C)	Start	12.37	12.24	12.13	12.07	12.10	12.06	12.09	12.11
Conduct. (µmhos/cm)	Purge	4136.4	4127.6	4114.3	4117.7	4128.9	4150.5	4163.1	4171.1
DO (mg/L)	↓	1.23	1.24	3.97	4.40	4.52	4.56	4.49	4.47
pH (su)		6.45	6.39	6.37	6.36	6.36	6.35	6.35	6.35
ORP (millivolts)		151.5	143.6	137.1	134.5	130.6	126.2	120.3	120.4
Turbidity (NTU)			29.6	24.3	21.6	17.7	7.40	2.27	2.17
Flow (ml/min)	220	260	→						
Depth To Water (ft)	11.31	11.35	11.37	→					
Cumulative Purge Vol. (gal or L)									

Time	1320	1325	1330	1335		
Temp. (°C)	12.18	12.18	12.28	12.16		
Conduct. (µmhos/cm)	4187.2	4199.8	4198.8	4211.1		
DO (mg/L)	4.47	4.63	4.72	4.75		
pH (Std. Units)	6.33	6.35	6.34	6.35		
Eh/ORP (millivolts)	119.8	118.6	117.7	116.9		
Turbidity (NTU)	2.31	2.10	1.96	1.40		
Flow (ml/min)	260	→				
Depth To Water (ft)	11.30	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria* (3 consecutive readings)

- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ________	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HNO_3	2	3 X 40mL	1335		
EPH		HCl	3	1L Amber	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 140143
Date/Time: 1/3/17
Sheet 1 of 1

TRC Personnel: Kollaenne
Well ID: MW-401

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: YSI

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 14.38 ft.
Well Volume ______
LNAPL/DNAPL Depth = —
NAPL Thickness = —

Depth of pump intake: ~18 ft
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 200 ml/min

Adjusted purge Rates/time/WL(record changes): 200 → 150 @ 1305

Flow rate at time of sampling: 150 ml/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1255	1300	1305	1310	1315	1320	1325	1330	1335
Temp. (°C)	P	12.40	12.39	12.51	12.50	12.53	12.69	12.71	12.72
Conduct. (µmhos/cm)		29077	29005	29026	29035	29219	29381	29382	29910
DO (mg/L)	U	1.86	1.71	1.73	1.70	1.60	1.58	1.59	1.55
pH (su)	R	7.02	7.02	7.02	7.02	7.01	7.01	7.01	7.02
ORP (millivolts)	G	31.2	21.2	20.8	20.5	19.6	19.5	16.9	15.0
Turbidity (NTU)	E	2.95	3.05	2.97	3.75	2.00	3.23	4.01	3.02
Flow (ml/min)	200	200	150	150	150	150	150	150	150
Depth To Water (ft)		14.42	14.42	14.42	14.42	14.42	14.42	14.42	14.42
Cumulative Purge Vol. (gal or L)									

Time	1340	1345	1350	1350		
Temp. (°C)	12.69	12.71	12.72	S		
Conduct. (µmhos/cm)	29898	29878	29879	A		
DO (mg/L)	1.55	1.54	1.54			
pH (Std. Units)	7.02	7.02	7.02	M		
Eh/ORP (millivolts)	14.6	14.2	14.1	P		
Turbidity (NTU)	3.12	3.17	3.60	L		
Flow (ml/min)	150	150	150	E		
Depth To Water (ft)	14.42	14.42	14.42			
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1 L A	1350	none	
VPH	N	HCl	3	40 mL A	1350	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 14014 3
Date/Time: 1/5/17
Sheet 1 of 1
TRC Personnel: Kollerman
Well ID: MW-402

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: YSI
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.
Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☐ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical
Water Depth 14.99 ft.
Well Volume ______
LNAPL/DNAPL Depth = —
NAPL Thickness = —
Depth of pump intake: ~18ft
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 350ml/min
Adjusted purge Rates/time/WL(record changes) 350 → 300 @ 0840
Flow rate at time of sampling: 300ml/min
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0835	0840	0845	0850	0855	0900	0905	0910	0915
Temp. (°C)	P	14.00	14.03	14.4	14.12	14.18	14.18	14.29	14.28
Conduct. (µmhos/cm)	U	35318	37305	37302	37039	36161	36165	35545	35545
DO (mg/L)	R	1.11	1.44	1.21	1.44	1.16	1.18	1.56	1.51
pH (su)	G	6.59	6.60	6.62	6.64	6.67	6.67	6.68	6.68
ORP (millivolts)	E	2.8	-25.2	-31.2	-44.2	-54.3	-54.6	-61.4	-61.6
Turbidity (NTU)		10.3	5.81	1.41	1.24	3.58	2.78	0.87	0.51
Flow (ml/min)	350	350	300	300	300	300	300	300	300
Depth To Water (ft)	14.99	15.03	15.03	15.03	15.03	15.03	15.03	15.03	15.03
Cumulative Purge Vol. (gal or L)									

Time	0920	0925	0930	0930		
Temp. (°C)	14.18	14.21	14.20	S		
Conduct. (µmhos/cm)	34975	34952	34968	A		
DO (mg/L)	1.56	1.59	1.60	M		
pH (Std. Units)	6.69	6.70	6.70	P		
Eh/ORP (millivolts)	-66.9	-66.8	-66.1	L		
Turbidity (NTU)	0.79	0.83	0.92	E		
Flow (ml/min)	300	300	300			
Depth To Water (ft)	15.03	15.03	15.03			
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: were particles (yellow) precipitate that accumulates at bottom of purge bucket

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1LA	0930	none	
VPH	N	HCl	3	40mLA	0930	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Kollerman

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S
Project No.: 140413.0000 -1403
Date/Time: 1/4/17 1355
Sheet 1 of 1

TRC Personnel: BA
Well ID: MW-403

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☒ measured ☐ historical

Water Depth 13.65 ft.

Well Volume ______

LNAPL/DNAPL Depth = ______

NAPL Thickness = ______

Depth of pump intake: 18'

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 270

Adjusted purge Rates/time/WL(record changes)

Flow rate at time of sampling: 270

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1355	1400	1405	1410	1415	1420	1425	1430	1435
Temp. (°C)	Start	13.46	13.99	13.51	13.68	13.69	13.41	13.67	13.63
Conduct. (µmhos/cm)	Purge	29052	29431	29606	31343	33593	34172	34379	36967
DO (mg/L)	↓	4.47	4.52	4.69	3.50	3.43	3.21	3.03	2.53
pH (su)		6.47	6.46	6.42	6.39	6.37	6.36	6.36	6.35
ORP (millivolts)		62.4	62.9	63.4	67.4	69.2	69.7	69.6	70.6
Turbidity (NTU)		6.91	6.32	4.48	3.72	3.69	3.60	3.14	2.71
Flow (ml/min)		270	→						
Depth To Water (ft)	13.65	13.67	→						
Cumulative Purge Vol. (gal or L)									

Time	1440	1445	1450	1455		
Temp. (°C)	13.61	13.56	13.59	13.60		
Conduct. (µmhos/cm)	36946	37821	38675	39272		
DO (mg/L)	2.61	2.76	2.53	2.61		
pH (Std. Units)	6.35	6.34	6.34	6.34		
Eh/ORP (millivolts)	70.7	70.7	71.7	72.5		
Turbidity (NTU)	2.96	2.87	2.74	2.68		
Flow (ml/min)	270	→				
Depth To Water (ft)	13.67	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/o, N/s

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	3	40mL Ambers	1455		MW-403
EPH	↓	↓	2	1 L Ambers	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 140143
Date/Time: 1/5/17
Sheet 1 of 1
TRC Personnel: Kolleen [illegible]
Well ID: MW-404

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: ______

Flow-thru Cell Volume: ______

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☐ 2 inch ☑ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☐ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 12.85 ft.
Well Volume ______
LNAPL/DNAPL Depth = light sheen
NAPL Thickness = ______

Depth of pump intake: ~18ft
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 400 ml/min

Adjusted purge Rates/time/WL(record changes): 400 → 375 @ 1315

Flow rate at time of sampling: 375

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1310	1315	1320	1325	1330	1335	1340	1345	1350
Temp. (°C)	13.21	13.37	13.33	13.37	13.35	13.38	13.43	13.44	13.44
Conduct. (µmhos/cm)	45777	45774	45768	45746	45758	45760	45761	45781	45783
DO (mg/L)	1.02	0.55	0.53	0.49	0.47	0.46	0.45	0.42	0.41
pH (su)	6.54	6.40	6.40	6.35	6.34	6.34	6.33	6.32	6.32
ORP (millivolts)	-25.6	-13.5	-13.3	-11.9	-12.0	-12.0	-12.0	-11.6	-11.5
Turbidity (NTU)	4.51	6.59	5.66	2.69	3.25	3.77	3.53	3.21	7.34
Flow (ml/min)	400	400	375	375	375	375	375	375	375
Depth To Water (ft)	12.85	12.88	12.88	12.88	12.88	12.58	12.88	12.88	12.88
Cumulative Purge Vol. (gal or L)									

Time	1355	1400	1405	1405		
Temp. (°C)	13.44	13.44	13.44	S		
Conduct. (µmhos/cm)	45780	45778	45781			
DO (mg/L)	0.42	0.43	0.43	A		
pH (Std. Units)	6.31	6.31	6.31	M		
Eh/ORP (millivolts)	-11.5	-11.5	-11.2	P		
Turbidity (NTU)	3.50	2.96	2.20	L		
Flow (ml/min)	375	375	375			
Depth To Water (ft)	12.88	12.88	12.88	E		
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1 LA	1405	none	
VPH	N	HCl	3	40 mLA	1405	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Kolleen [illegible]

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 140145
Date/Time: 1/4/17
Sheet 1 of 1

TRC Personnel: Kolleenren
Well ID: MW-405

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: YSI

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 14.33 ft.
Well Volume ______
LNAPL/DNAPL Depth = —
NAPL Thickness = —

Depth of pump intake: ~18ft
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 400ml/min

Adjusted purge Rates/time/WL(record changes) 400 → 375 @ 1355

Flow rate at time of sampling: 375 ml/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1350	1355	1400	1405	1410	1415	1420	1425	1430
Temp. (°C)	P	15.06	15.08	15.11	15.03	15.05	15.06	15.07	15.11
Conduct. (µmhos/cm)	P	32545	33158	35207	35397	36880	36920	36881	36981
DO (mg/L)	U	1.03	1.08	0.74	0.66	.59	.57	.53	0.53
pH (su)	R	5.84	5.86	5.89	5.89	5.88	5.88	5.88	5.87
ORP (millivolts)	G	98.2	98.9	101.2	101.1	101.1	101.2	101.1	101.0
Turbidity (NTU)	E	6.64	3.95	3.52	2.38	1.79	1.50	1.02	1.31
Flow (ml/min)	400	400	375	375	375	375	375	375	375
Depth To Water (ft)	14.33	14.35	14.35	14.35	14.35	14.35	14.35	14.35	14.35
Cumulative Purge Vol. (gal or L)									

Time	1435	1440	1440			
Temp. (°C) KS 1/4 15.11	~~37141~~	~~37359~~ 15.11	S 1/4			
Conduct. (µmhos/cm)	37141	37359	A			
DO (mg/L)	0.54	.53	M			
pH (Std. Units)	5.87	5.87	P			
Eh/ORP (millivolts)	101.0	101.1	L			
Turbidity (NTU)	1.01	.97				
Flow (ml/min)	375	375	E			
Depth To Water (ft)	14.33	14.33				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1LA	1440	none	
VPH	N	HCl	3	40mLA	1440	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Kolleenren

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S
Project No.: 140133.0002 4403
Date/Time: 1/5/17 1510
Sheet 1 of 1
TRC Personnel: BA
Well ID: MW-406

DUP-2

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Peristaltic
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other:

WELL MATERIAL
☑ PVC ☐ SS
Other:

Well Depth ____ ft. ☒ top of riser ☐ top of casing ☐ ____ ☒ measured ☐ historical

Water Depth 13.84 ft.
Well Volume
LNAPL/DNAPL Depth = 13.80
NAPL Thickness = 0.04
Depth of pump intake: 18'
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 280
Adjusted purge Rates/time/WL(record changes) 320
Flow rate at time of sampling: 320
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1510	1515	1520	1525	1530	1535	1540	1545	1550
Temp. (°C)	Start	12.56	12.61	12.59	12.62	12.70	12.66	12.62	12.57
Conduct. (µmhos/cm)	Pumping	976	26311	27401	26407	28614	35281	37205	37477
DO (mg/L)	↓	11.12	3.74	3.01	2.86	2.25	1.80	1.87	2.00
pH (su)		6.91	6.73	6.27	6.19	6.18	6.19	6.22	6.22
ORP (millivolts)		-104.4	-93.6	-84.9	-80.9	-77.4	-73.7	-76.1	-77.2
Turbidity (NTU)		000		20.3	13.9	10.1	8.94	7.31	4.22
Flow (ml/min)	280	320	→						
Depth To Water (ft)	13.84	13.59	→						
Cumulative Purge Vol. (gal or L)									

Time	1555	1600				
Temp. (°C)	12.59	12.61				
Conduct. (µmhos/cm)	37711	37812				
DO (mg/L)	2.10	2.13				
pH (Std. Units)	6.22	6.22				
Eh/ORP (millivolts)	-78.7	-79.2				
Turbidity (NTU)	8.97	3.74				
Flow (ml/min)	320	→				
Depth To Water (ft)	13.89	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments:
Product @ 13.80' DTW: 13.84'
Tubing able to pierce through product and into water table
Clear, Sl. odor, Sl. Sheen

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	3	40 mL Amber	1600		MW-406
EPH	↓	↓	2	1 L Amber	↓		↓

DUP-2

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra
Project No.: 140143
Date/Time: 1/5/17
Sheet 1 of 1
TRC Personnel: Kollenslea
Well ID: MW-407

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment:

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☐ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 14.57 ft.
Well Volume ______
LNAPL/DNAPL Depth = 14.54
NAPL Thickness = .03
Depth of pump intake: ~ 18ft
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 300
Adjusted purge Rates/time/WL(record changes)
Flow rate at time of sampling: 350ml/min
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1515	1520	1525	1535	1540	1545	1550	1555	1600
Temp. (° C)	P	13.12	13.14	13.13	13.24	13.24	13.28	13.31	13.32
Conduct. (µmhos/cm)		18080	18065	17947	18014	18001	18013	18020	18035
DO (mg/L)	U	1.74	2.05	2.09	1.87	1.89	1.87	1.89	1.91
pH (su)	R	6.54	6.54	6.53	6.55	6.55	6.55	6.55	6.55
ORP (millivolts)	G	-116.6	-116.7	-114.8	-122.0	-126.0	-127.0	-128.1	-127.9
Turbidity (NTU)	G	11.11	10.16	5.52	3.77	2.69	2.65	2.37	3.15
Flow (ml/min)	E	350	350	350	350	350	350	350	350
Depth To Water (ft)	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57	14.57
Cumulative Purge Vol. (gal or L)									

Time	1605	1610	1610			
Temp. (° C)	13.32	13.33	S			
Conduct. (µmhos/cm)	18016	18,000				
DO (mg/L)	1.92	1.89	A			
pH (Std. Units)	6.55	6.55	M			
Eh/ORP (millivolts)	-129.2	128.4	P			
Turbidity (NTU)	3.12	3.25	L			
Flow (ml/min)	350	350	E			
Depth To Water (ft)	14.57	14.57				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: faint sheen in water, dump in drum

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L A	1610		
VPH	N	HCl	3	40mL A	1610		

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S
Project No.: 140M3.0000.4(003)
Date/Time: 1/5/17 0845
Sheet 1 of 1

TRC Personnel: BA
Well ID: MW-4C8

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Peristaltic Pump
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL

☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☑ measured ☐ historical

Water Depth 13.36 ft.
Well Volume ______
LNAPL/DNAPL Depth = ______
NAPL Thickness = ______

Depth of pump intake: 19'

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 230

Adjusted purge Rates/time/WL(record changes) 280, 300

Flow rate at time of sampling: 300

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0845	0850	0855	0900	0905	0910	0915	0920	0925
Temp. (°C)	Start	10.31	11.08	10.98	11.39	11.46	11.36	11.35	11.38
Conduct. (µmhos/cm)	purge	6741	7592	7240	6697	6621	6774	6731	6744
DO (mg/L)	↓	6.31	7.69	6.44	7.41	7.24	6.91	6.44	7.31
pH (su)	↓	6.87	6.91	6.86	6.79	6.78	6.76	6.75	6.75
ORP (millivolts)	↓	-130.3	-122.8	-134.2	-151.3	-152.8	-150.8	-154.1	-153.7
Turbidity (NTU)	↓	73.4	68.3	57.4	41.6	35.4	27.1	24.3	18.4
Flow (ml/min)	230	230	280	300	→	→	→	→	→
Depth To Water (ft)	13.36	13.39	13.39	→	→	→	→	→	→
Cumulative Purge Vol. (gal or L)									

Time	0930	0935	0940	0945	0950	
Temp. (°C)	11.41	11.63	11.33	11.46	11.60	
Conduct. (µmhos/cm)	6725	6954	6568	6454	6457	
DO (mg/L)	4.31	4.24	4.11	4.03	3.97	
pH (Std. Units)	6.74	6.72	6.76	6.74	6.76	
Eh/ORP (millivolts)	-155.5	-160.3	-163.4	-165.0	-162.1	
Turbidity (NTU)	16.7	12.7	9.75	8.73	7.31	
Flow (ml/min)	300	→	→	→	→	
Depth To Water (ft)	13.39	→	→	→	→	
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	3	3 40mL Amber	0450		MW-4C8
EPH	↓	↓	2	1L Amber	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

~~Rev.~~ April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S

Project No.: 140143.0000 4403

Date/Time: 1/4/17 1025

Sheet 1 of 1

TRC Personnel: BA

Well ID: MW-409

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: peristaltic pump

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☑ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☒ measured ☐ historical

Water Depth 13.08 ft.

LNAPL/DNAPL Depth = ______

NAPL Thickness = ______

Well Volume ______

Depth of pump intake: 18'

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 220

Adjusted purge Rates/time/WL(record changes): 270

Flow rate at time of sampling: 270

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1035	1040	1045	1050	1055	1100	1105	1110	1115
Temp. (°C)	Start		12.23	12.29	12.37	12.50	12.88	12.66	12.44
Conduct. (µmhos/cm)	Purge		6057	7107	6688	6540	3568	6321	6490
DO (mg/L)	↓		6.97	6.94	10.14	11.40	8.85	10.21	10.58
pH (su)	↓		6.85	6.71	6.64	6.70	6.70	6.69	6.67
ORP (millivolts)	↓		-130.0	-127.2	-134.1	-136.7	-133.3	-135.7	-139.9
Turbidity (NTU)	↓		21.6	14.1	10.2	8.16	8.01	7.91	7.31
Flow (ml/min)	220	270	→	→	→	→	→	→	→
Depth To Water (ft)	13.08	13.17	13.18	→	→	→	→	→	→
Cumulative Purge Vol. (gal or L)									

Time	1120	1125	1130	1135	1140	1145
Temp. (°C)	12.34	12.46	12.31	12.37	12.38	
Conduct. (µmhos/cm)	6315	6251	6166	6260	6269	
DO (mg/L)	9.92	9.54	7.93	7.35	7.39	
pH (Std. Units)	6.68	6.68	6.69	6.69	6.68	
Eh/ORP (millivolts)	-144.0	-145.9	-149.9	-150.3	-151.0	
Turbidity (NTU)	6.21	4.23	3.79	2.94	2.91	
Flow (ml/min)	270	→	→	→	→	
Depth To Water (ft)	13.18	→	→	→	→	
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)

- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Amber	1140		MW-409
VPH	↓	↓	3	40mL Amber	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

a Record

Project: Spectra Weymouth
Project No.: 140143
Date/Time: 11/20/17
Sheet 1 of 1

TRC Personnel: Kolleen Mea
Well ID: MW-410

INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☐ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth — ft.
Well Volume ______
LNAPL/DNAPL Depth = 13.02
NAPL Thickness = ______

Depth of pump intake: 18 ft
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min):

Adjusted purge Rates/time/WL(record changes)

Flow rate at time of sampling: 300 mL/m

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1135	1140	1145	1150	1155	1200	1205	1210	1215
Temp. (°C)	P	11.78	11.83	11.83	11.76	11.78	11.85	11.78	11.79
Conduct. (µmhos/cm)	U	31990	35260	35532	35898	36233	36653	36901	36920
DO (mg/L)	R	4.91	4.66	4.73	4.82	4.93	5.10	5.26	5.30
pH (su)	G	6.68	6.51	6.49	6.46	6.44	6.41	6.39	6.59
ORP (millivolts)	E	-74.2	-29.8	-27.8	-26.0	-24.3	-24.2	-39.6	-41.6
Turbidity (NTU)		22.2	12.7	8.07	8.04	5.59	2.84	2.98	2.98
Flow (ml/min)		300	300	300	300	300	300	300	300
Depth To Water (ft) manual	13.02	—	—	—	—	—	—	—	—
Cumulative Purge Vol. (gal or L)									

Time	1220	1225	1230	1230			**Stabilization Criteria*** (3 consecutive readings)
Temp. (°C)	11.81	11.80	11.79	S			- Temperature: ± 3 %
Conduct. (µmhos/cm)	37011	37721	37210	A			- Conduct. (µmhos/cm): ± 3 %
DO (mg/L)	5.34	5.37	5.40	M			- DO (mg/L): ± 10 % (for values >0.5 mg/L)
pH (Std. Units)	6.37	6.37	6.37	P			- pH (Std. Units): ± 0.1 SU
Eh/ORP (millivolts)	-43.3	-45.9	-46.2	L			- ORP (millivolts): ± 10 mV
Turbidity (NTU)	1.25	0.89	1.20	E			- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
Flow (ml/min)	300	300	300				- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)
Depth To Water (ft)	—	—	—				
Cumulative Purge Vol. (gal or L)							

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Final DTW: 13.08 ft

dump ~6 gallons of water into labeled drum

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L	1230	NA	
VPH	N	HCl	3	40mL	1230	NA	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Kolleen Mea

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra   Project No.: 14943   Date/Time: 1/4/17   Sheet 1 of 1

TRC Personnel: Kolleensha   Well ID: MW-41)

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: YSI

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL ☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 12.86 ft.

Well Volume ______

LNAPL/DNAPL Depth = —

NAPL Thickness = —

Depth of pump intake: ~18ft

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): ~18ft

Adjusted purge Rates/time/WL(record changes) 400→375@1040

Flow rate at time of sampling: 375ml/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1035	1040	1045	1050	1055	1100	1105	1110	1115
Temp. (°C)	P	13.73	13.71	13.68	13.70	13.68	13.66	13.67	13.67
Conduct. (µmhos/cm)	U	29071	28986	28982	28826	28826	28658	29126	29135
DO (mg/L)	R	1.01	.99	.56	.61	.52	.49	.49	.51
pH (su)	G	6.03	6.02	6.02	6.02	6.02	6.02	6.03	6.03
ORP (millivolts)	E	-39.3	-40.7	-46.6	-49.4	-52.9	-54.2	-57.9	-57.8
Turbidity (NTU)		5.50	4.60	4.12	4.05	4.39	4.05	3.82	3.92
Flow (ml/min)	400	400	375	375	375	375	375	375	375
Depth To Water (ft)	12.86	12.88	12.88	12.88	12.88	12.88	12.89	12.89	12.89
Cumulative Purge Vol. (gal or L)									

Time	1120	1125	1125			
Temp. (°C)	13.72	13.71	S			
Conduct. (µmhos/cm)	29139	29135				
DO (mg/L)	.51	.52	A			
pH (Std. Units)	6.02	6.02	M			
Eh/ORP (millivolts)	-58.3	-58.5	P			
Turbidity (NTU)	4.12	3.84				
Flow (ml/min)	375	375	L			
Depth To Water (ft)	12.89	12.89	E			
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1LA	1125	none	
VPH	N	HCl	3	40mL A	1125	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Kolleensha

Rev: April 2014

TRC

Groundwater Field Data Record

Project: spectra **Project No.:** 143140 **Date/Time:** 1/5/17 **Sheet** 1 **of** 1

TRC Personnel: Kolleman **Well ID:** MW-412 (DUP-1)

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: ______

Flow-thru Cell Volume: ______

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☐ 2 inch ☒ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 13.37 ft.
Well Volume ______
LNAPL/DNAPL Depth = ______
NAPL Thickness = Sheen

Depth of pump intake: ~18ft
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 250 ml/min

Adjusted purge Rates/time/WL(record changes): 250 → 200 @ 1040

Flow rate at time of sampling: 200ml/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1035	1040	1045	1050	1055	1100	1105	1110	1115
Temp. (°C)	P	12.64	12.57	12.49	12.55	12.59	12.61	12.68	12.70
Conduct. (µmhos/cm)	U	30388	30392	30397	30385	30395	30365	30345	30333
DO (mg/L)	R	1.38	1.13	1.15	1.03	1.07	0.98	0.99	0.94
pH (su)		6.30	6.24	6.24	6.22	6.22	6.21	6.26	6.20
ORP (millivolts)	G	8.5	11.8	12.68	11.4	11.4	13.1	12.9	13.2
Turbidity (NTU)	E	21.0	12.8	11.08	9.21	7.28	6.15	7.10	6.44
Flow (ml/min)	250	250	200	200	200	200	200	200	200
Depth To Water (ft)	13.37	13.42	13.42	13.42	13.42	13.42	13.42	13.42	13.42
Cumulative Purge Vol. (gal or L)									

Time	1120	1125	1130	1130		
Temp. (°C)	12.68	12.67	12.66			
Conduct. (µmhos/cm)	30359	303216	30327	S		
DO (mg/L)	0.92	0.92	0.91	A		
pH (Std. Units)	6.19	6.18	6.19	M		
Eh/ORP (millivolts)	14.6	19.4	15.4	P		
Turbidity (NTU)	4.89	4.48	4.47	L		
Flow (ml/min)	200	200	200	E		
Depth To Water (ft)	13.42	13.42	13.42			
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: ~~fluffy brownish precipitate~~
fluffy, brownish precipitate at bottom of purge bucket

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1LA	1130	~~None~~	DUP-1
VPH	N	HCl	3	40 MLA	1130	~~None~~	DUP-1

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Kolleman

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S **Project No.:** 140145.0000.0002 **Date/Time:** 1/3/17 1030 **Sheet** 1 **of** 1

TRC Personnel: BA **Well ID:** MW-413

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL ☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☒ measured ☐ historical

Water Depth 13.71 ft.

Well Volume ______

LNAPL/DNAPL Depth = ______

NAPL Thickness = ______

Depth of pump intake: 18'

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 330

Flow rate at time of sampling: 330

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1030	1035	1040	1045	1050	1055	1100	1105	1110
Temp. (°C)	Start	11.64	11.88	12.14	12.10	11.93	11.91	11.75	11.70
Conduct. (µmhos/cm)	Purge	26013	26174	27066	27641	27655	27806	27884	28030
DO (mg/L)	↓	5.21	4.95	4.29	4.02	3.88	3.30	3.59	1.80
pH (su)		6.37	6.33	6.26	6.24	6.20	6.18	6.17	6.17
ORP (millivolts)		-43.0	-41.4	-40.4	-38.7	-36.7	-34.5	-32.7	-30.2
Turbidity (NTU)		54.3	37.9	31.7	26.9	23.4	20.2	15.6	13.1
Flow (ml/min)	300	330	→						
Depth To Water (ft)	13.71	13.75	→						
Cumulative Purge Vol. (gal or L)									

Time	1115	1120	1125	1130	1135	1140
Temp. (°C)	11.74	11.88	11.72	12.07	11.98	12.09
Conduct. (µmhos/cm)	28134	28165	28128	28147	28150	28141
DO (mg/L)	1.74	1.57	1.50	1.13	1.21	1.21
pH (Std. Units)	6.16	6.16	6.16	6.16	6.16	6.16
Eh/ORP (millivolts)	-29.4	-27.3	-26.2	-25.7	-24.9	-24.6
Turbidity (NTU)	13.4	12.8	10.41	8.85	7.41	7.43
Flow (ml/min)	330	→				
Depth To Water (ft)	13.75	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:
Note: YSI DO readings high, recalibrated
@ 1035, no readings then - Start @ 1040
Clear, Sl. sheen, Sl. petro odor

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	3	40mL Amber	1140		
EPH	↓	↓	2	1L Amber	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouthers **Project No.:** 141443.4403 **Date/Time:** 1/6/17 1235 **Sheet** 1 **of** 1

TRC Personnel: BA **Well ID:** MW-414

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☐ 2 inch ☒ 4 inch ☐ 6 inch

Other:

WELL MATERIAL

☒ PVC ☐ SS

Other:

Well Depth ____ ft. ☒ top of riser ☐ top of casing ☐ ____ ☑ measured ☐ historical (BA)

Water Depth 14.65 ft.

Well Volume

LNAPL/DNAPL Depth = ~~14.68~~ 14.60

NAPL Thickness = 0.05 BA

Depth of pump intake: 18'

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 330

Flow rate at time of sampling:

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1235	1240	1245	1250	1255	1300	1305	1310	1315
Temp. (°C)	Start	12.05	312.11	12.27	12.16	12.06	12.16	12.17	12.21
Conduct. (µmhos/cm)	Purge	26707	26731	26688	26367	26195	26055	25745	25640
DO (mg/L)	↓	6.31	6.36	6.41	6.50	6.54	6.58	6.64	6.69
pH (su)		6.26	6.26	6.24	6.22	6.21	6.21	6.21	6.21
ORP (millivolts)		-32.4	-33.1	-35.1	-38.4	-34.3	-40.3	-42.2	-43.2
Turbidity (NTU)		42.7	33.9	31.6	22.5	17.2	13.9	9.31	8.84
Flow (ml/min)	300	330	→						
Depth To Water (ft)	14.65	→							
Cumulative Purge Vol. (gal or L)									

Time	1320					
Temp. (°C)	12.22					
Conduct. (µmhos/cm)	25480					
DO (mg/L)	6.70					
pH (Std. Units)	6.21					
Eh/ORP (millivolts)	-43.7					
Turbidity (NTU)	7.31					
Flow (ml/min)	330					
Depth To Water (ft)	14.65					
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Clear, sl petro odr, Shen

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	3	40mL Ambr	1320		MW-414
EPH	↓	↓	2	1L Ambr	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra/Weymouth CS
Project No.: M0143.000.4403
Date/Time: 1/5/17 1310
Sheet 1 of 1
TRC Personnel: BA
Well ID: MW-415

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Peristaltic
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.
Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☒ measured ☐ historical
Water Depth 15.35 ft.
Well Volume ______
LNAPL/DNAPL Depth = ______
NAPL Thickness = ______
Depth of pump intake: 18'
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 260
Adjusted purge Rates/time/WL(record changes) 300, 330
Flow rate at time of sampling: 330
Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1310	1315	1320	1325	1330	1335	1340	1345	1350
Temp. (° C)	Start	13.03	13.45	13.33	13.65	13.58	13.98	14.01	13.83
Conduct. (µmhos/cm)	Purge	25452	25446	25622	25768	25787	25953	26093	26100
DO (mg/L)	↓	1.79	1.89	1.76	1.34	1.22	0.51	0.99	1.05
pH (su)		6.78	6.75	6.72	6.72	6.72	6.72	6.76	6.73
ORP (millivolts)		-43.1	-56.2	-67.8	-72.7	-74.6	-81.0	-85.3	-88.4
Turbidity (NTU)		7.86	4.97	3.98	2.80	2.63	1.65	1.37	1.21
Flow (ml/min)	260	300	330	→					
Depth To Water (ft)	15.35	15.39	→						
Cumulative Purge Vol. (gal or L)									

Time	1355	1400	1405	1410	1415	1420
Temp. (° C)	3.84	13.87	13.86	13.86	14.03	14.01
Conduct. (µmhos/cm)	26069	26031	26100	26059	26071	26107
DO (mg/L)	1.19	1.24	1.37	1.55	1.41	1.39
pH (Std. Units)	6.73	6.73	6.73	6.74	6.74	6.74
Eh/ORP (millivolts)	-89.4	-93.4	-97.6	-98.3	-101.2	-103.4
Turbidity (NTU)	0.99	0.91	0.89	0.75	0.59	0.61
Flow (ml/min)	330	→				
Depth To Water (ft)	1539	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, Sheen, Sl. Petro odor

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	3	40ml Amber	1420		MW-415
EPH	↓	↓	2	1 L Amber	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth C/S
Project No.: 262443.0000
Date/Time: 1/3/17 0945
Sheet 1 of 8 BA

TRC Personnel: BA
Well ID: BMW-41B

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Peristaltic pump
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) NM ft.

Riser Stick-up (from ground) NM ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other:

WELL MATERIAL
☒ PVC ☐ SS
Other:

Well Depth ____ ft. ☒ top of riser ☐ top of casing ☐ ____ ☒ measured ☐ historical

Water Depth 11.32 ft.
Well Volume
LNAPL/DNAPL Depth =
NAPL Thickness =

Depth of pump intake: 18'
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 240 ML/min

Adjusted purge Rates/time/WL(record changes)
270 ML/min

Flow rate at time of sampling: 270 m/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0945	0950	0955	1000	1005	1010	1015	1020	1025
Temp. (°C)	Start	11.93	11.91	11.81	11.98	11.86	11.90	11.94	
Conduct. (µmhos/cm)	Purge		3174.6	3044.6	3369.0	3571.6	3361.6	3476.1	3481.0
DO (mg/L)	↓	2.21	1.99	1.87	2.11	2.31	2.39	2.41	2.68
pH (su)		6.24	6.27	6.27	6.28	6.28	6.29	6.29	6.29
ORP (millivolts)		191.3	190.1	186.1	181.7	173.4	171.6	174.3	173.7
Turbidity (NTU)		OOR	29.6	24.7	22.7	19.3	17.6	15.5	17.1
Flow (ml/min)	240	270	→						
Depth To Water (ft)	11.32	11.37	11.37	11.38	→				
Cumulative Purge Vol. (gal or L)									

Time	1030	1035	1040	1045	1050	1055
Temp. (°C)	12.15	12.10	12.04	12.20	12.19	12.22
Conduct. (µmhos/cm)	3561.3	3571.0	3592	4016.0	3950.1	3457.6
DO (mg/L)	2.71	2.81	3.02	3.16	3.30	3.17
pH (Std. Units)	6.29	6.30	6.31	6.28	6.29	6.24
Eh/ORP (millivolts)	172.9	174.0	172.8	173.1	169.1	168.3
Turbidity (NTU)	16.7	17.2	17.0	22.1	10.01	8.27
Flow (ml/min)	270	→				
Depth To Water (ft)	10.38	→				
Cumulative Purge Vol. (gal or L)					5 gal	

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Clear, N/O, NS

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	~~CASTS~~ HCl	2	1L Amber	1055		MW-41B BA
VPH	↓	HNO_3	3	3 40ml	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra **Project No.:** 14 0143 **Date/Time:** 1/3/17 0955 **Sheet** 1 **of** 1

TRC Personnel: Kolleen Mc **Well ID:** MW417

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: YSI

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL ☑ PVC ☐ SS

Other: ______

Well Depth — ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☐ historical

Water Depth 11.05 ft.

Well Volume ______

LNAPL/DNAPL Depth = —

NAPL Thickness = —

Depth of pump intake: ~17 ft

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 200 Ml/min

Adjusted purge Rates/time/WL(record changes) 200 → 150 @ 1000

Flow rate at time of sampling: 150 Ml/min

Total volume of water purged:

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0955	1000	1005	1010	1015	1020	1025	1030	1035
Temp. (°C)	11.62	11.93	11.93	11.94	11.94	11.95	11.99	12.03	12.11
Conduct. (μmhos/cm)	36131	35965	35964	35989	35954	36017	36052	36103	36152
DO (mg/L)	1.33	1.40	1.39	1.38	1.35	1.36	1.26	1.21	1.17
pH (su)	6.62	6.38	6.37	6.35	6.33	6.33	6.33	6.32	6.30
ORP (millivolts)	63.3	104.36	117.5	115.6	117.0	119.1	122.2	126.3	126.4
Turbidity (NTU)	19.37	15.53	15.41	14.32	12.91	10.51	9.97	8.56	10.01
Flow (ml/min)	200	150	150	150	150	150	150	150	150
Depth To Water (ft)	11.07	11.07	11.07	11.07	11.07	11.07	11.07	11.07	11.07
Cumulative Purge Vol. (gal or [✓ L])									

Time	1040	1045				
Temp. (°C)	12.12	S				
Conduct. (μmhos/cm)	36163	A				
DO (mg/L)	1.17	M				
pH (Std. Units)	6.30	P				
Eh/ORP (millivolts)	126.9	L				
Turbidity (NTU)	9.98	E				
Flow (ml/min)	150					
Depth To Water (ft)	11.07					
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	Hcl	2	1 LA	1045	none	MW-417
VPH	N	HCl	3	40mLA	1045	none	

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Kolleen

Rev: April 2014

Low-Flow System Sampling

Date:	3/20/2017	Turbidity Make/Model:	HACH		
Operator Name:	Acornell	Well ID:	MW-205		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	22.08 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	14.69 ft	Start Time:	1122 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Sample Collected:	1240 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	20 ft	Total Volume Pumped:	3.3 gallons		
Sonde SN:	452165				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	7.12	-9.9	24297.3	0.13	10.97	7.39	14.74	350
360	7.09	-10	24682.0	0.1	10.97	7.12	14.74	350
540	7.11	-10.1	24774.8	0.09	10.97	6.58	14.74	350
720	7.11	-11.6	24785.6	0.07	11.01	6.24	14.74	350
900	7.10	-10.6	24854.7	0.07	11.05	6.56	14.74	350
1080	7.11	-10.4	24751.0	0.06	11.04	4.53	14.74	350
1260	7.1	-10.6	24779.9	0.06	11.02	4.3	14.74	350
1440	7.1	-10.6	24721.4	0.07	11.01	3.65	14.74	350
1620	7.1	-10.6	24708.5	0.07	11.04	3.48	14.74	350
1800	7.11	-10.4	24541.9	0.07	11.01	2.95	14.74	350
1980	7.10	-10.6	24534.2	0.06	11.01	3.32	14.74	350
2160	7.11	-10.6	24531.0	0.07	11.03	2.77	14.74	350

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1240	N	MW-205
EPH-10	N	HCL	2	1L A	1240	N	MW-205

Notes: Water measurements are from top of PVC.

Low-Flow System Sampling

Date:	3/20/2017	Turbidity Make/Model:	HACH		
Operator Name:	Acornell	Well ID:	MW-401		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	25.08 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	14 ft	Start Time:	1020 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	350 mL/min	Sample Collected:	1120 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	20 ft	Total Volume Pumped:	4.5 gallons		
Sonde SN:	452165				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	7.33	-16.2	40815.7	2.53	11.64	94.4	14.04	350
360	7.42	-14.2	40319.1	2.51	11.86	80.6	14.05	350
540	7.42	-9.5	39856.0	2.48	11.93	67.8	14.05	350
720	7.4	-6	39633.1	2.36	11.94	43.8	14.05	350
900	7.37	-3.8	39337.3	2.23	11.94	43.5	14.05	350
1080	7.37	-1.5	39202.2	2.04	11.93	32.2	14.05	350
1260	7.36	0.3	38948.0	1.91	11.89	24.9	14.05	350
1440	7.37	0.7	38867.9	1.78	11.89	20.20	14.05	350
1620	7.36	1.6	38742.9	1.62	11.85	15.7	14.05	350
1800	7.35	2.6	38691.2	1.44	11.85	12.3	14.05	350
1980	7.34	3.4	38581.3	1.23	11.85	10.3	14.05	350
2160	7.34	3.8	38537.0	1.06	11.88	8.34	14.05	350
2340	7.33	4.4	38435.7	0.88	11.85	7.49	14.05	350
2520	7.34	5.3	38340.7	0.75	11.85	5.48	14.05	350
2700	7.33	5.6	38328.0	0.64	11.87	4.83	14.05	350
2882	7.33	6.6	38291.4	0.55	11.89	4.44	14.05	350

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1120	N	MW-401
EPH-10	N	HCL	2	1L A	1120	N	MW-401

Notes: Water measurements are from top of PVC.

Low-Flow System Sampling

Date: 3/20/2017
Operator Name: Acornell
Company Name: TRC
Project Name: 140143.0000.4903
Site Name: Weymouth C/S
Tubing Type: LDPE
Tubing Diameter: .170 x 1/4 in
Pump Model/Type: Geopump Peristaltic
Pump in take: 20 ft
Sonde SN: 452165

Turbidity Make/Model: HACH
Well ID: MW-402
Well diameter: 2 in. PVC
Well Total Depth: 25.14 ft
Screen Length: 15 ft
Depth to Water: 15.24 ft
Final Pumping Rate: 350 mL/min
Calculated Sample Rate: 180 sec
Total Volume Pumped: 3.6 gallons

Page 1 of 1

Start Time: 1305 hrs
Sample Collected: 1345 hrs

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.9	45.7	24971.2	0.99	11.11	42.5	15.27	350
360	6.87	43.7	24130.1	0.91	10.97	21.9	15.28	350
540	6.91	37.8	23226.8	0.83	10.92	15.9	15.28	350
720	6.92	30.2	22497.4	0.75	10.92	10.9	15.28	350
901	6.94	16.3	21889.4	0.68	10.97	6.19	15.28	350
1082	6.95	8.9	21261.8	0.63	11.11	5.29	15.28	350
1262	6.96	0.3	20672.4	0.58	11.14	3.4	15.28	350
1442	6.97	-3.1	20338.4	0.57	11.11	2.80	15.28	350
1622	6.96	-6.5	20012.1	0.54	11.15	2.38	15.29	350
1802	6.97	-10.5	19630.9	0.51	11.18	2.17	15.29	350
1982	6.98	-20.3	19142.3	0.47	11.20	3.35	15.3	350
2162	7	-24.4	18846.5	0.45	11.20	1.96	15.3	350
2342	7	-28.6	18661.5	0.42	11.19	2.21	15.3	350

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40mlV	1345	N	MW-402
EPH-10	N	HCL	2	1LA	1345	N	MW-402

Notes: Water measurements are from top of PVC.

Low-Flow System Sampling

Date:	3/23/2017	Turbidity Make/Model:	HACH		
Operator Name:	ACornell	Well ID:	MW-404		
Company Name:	TRC	Well diameter:	in. PVC	Page 1 of 2	
Project Name:	140143.0000.4903	Well Total Depth:	20 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.52 ft	Start Time:	0945 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	350 mL/min	Sample Collected:	1100 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	17 ft	Total Volume Pumped:	7.2 gallons		
Sonde SN:	452165				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
181	6.28	38.3	40026.5	0.27	8.90	18.3	13.14	350
361	6.32	32.9	39586.0	0.19	9.38	23.9	13.16	350
541	6.33	31.1	39356.6	0.16	9.61	25	13.16	350
721	6.33	30	39261.5	0.13	9.62	18.3	13.16	350
901	6.33	29.7	39195.9	0.13	9.66	36.8	13.16	350
1081	6.34	29.4	39245.7	0.11	9.66	19.5	13.16	350
1261	6.35	29.4	39222.0	0.11	9.68	24.4	13.16	350
1441	6.36	29.3	39378.6	0.1	9.68	27.3	13.16	350
1621	6.35	29.4	39382.0	0.1	9.71	24.5	13.16	350
1801	6.35	29.5	39232.7	0.1	9.73	10.8	13.16	350
1981	6.36	29.6	39252.1	0.1	9.70	8.63	13.16	350
2161	6.35	29.8	39187.6	0.09	9.71	8.26	13.16	350
2341	6.34	30	39158.6	0.09	9.80	7.02	13.16	350
2521	6.35	30.2	39005.2	0.09	9.84	7.5	13.16	350
2701	6.35	29.2	38931.7	0.09	9.85	6.17	13.16	350
2881	6.36	26.4	38518.6	0.08	9.95	7.13	13.16	350
3061	6.36	24.9	38196.6	0.08	10.06	19	13.16	350
3241	6.34	24.3	38027.2	0.08	10.08	7.92	13.16	350
3421	6.34	24.2	37700.5	0.08	10.11	8.12	13.16	350
3601	6.34	24.2	37547.8	0.08	10.18	10.4	13.16	350
3780	6.34	24.5	37240.6	0.07	10.23	10.1	13.16	350
3960	6.32	24.8	37281.4	0.07	10.24	11.5	13.16	350
4140	6.33	25	37151.2	0.07	10.31	7.82	13.16	350
4320	6.32	24.9	37027.8	0.07	10.31	6.73	13.16	350

Low-Flow System Sampling

Date: 3/23/2017
Operator Name: Acornell
Company Name: TRC
Project Name: 140143.0000.4903
Site Name: Weymouth C/S
Tubing Type: LDPE
Tubing Diameter: .170 x 1/4 in
Pump Model/Type: Geopump Peristaltic
Pump in take: 17 ft
Sonde SN: 452165

Turbidity Make/Model: HACH
Well ID: MW-404
Well diameter: in. PVC
Well Total Depth: 20 ft
Screen Length: 15 ft
Depth to Water: 13.52 ft
Final Pumping Rate: 350 mL/min
Calculated Sample Rate: 180 sec
Total Volume Pumped: 7.2 gallons

Page 2 of 2
Start Time: 0945 hrs
Sample Collected: 1100 hrs

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
4500	6.32	25	36939.8	0.07	10.32	6.62	13.16	350
4680	6.33	25	36914.1	0.07	10.35	6.5	13.16	350

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1100	N	MW-404
EPH-10	N	HCL	2	1L A	1100	N	MW-404

Notes: Water measurements are from top of PVC.

Low-Flow System Sampling

Date:	3/23/2017	Turbidity Make/Model:	HACH		
Operator Name:	Acornell	Well ID:	MW-405		
Company Name:	TRC	Well diameter:	4 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	21 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	14.75 ft	Start Time:	1130 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	350 mL/min	Sample Collected:	1205 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	18 ft	Total Volume Pumped:	3 gallons		
Sonde SN:	452165				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.45	74.5	5277.3	0.76	12.70	1.59	14.75	350
360	6.38	75.4	4935.4	0.8	12.77	1.2	14.75	350
540	6.33	75.2	4940.9	0.8	12.84	0.58	14.75	350
720	6.32	74.5	4698.3	0.78	12.89	0.6	14.75	350
900	6.30	74	4618.7	0.77	12.86	0.45	14.75	350
1080	6.29	73.6	4479.4	0.76	12.83	0.92	14.75	350
1260	6.3	72.3	4186.5	0.74	12.76	0.41	14.75	350
1440	6.28	72.2	4274.4	0.72	12.76	0.57	14.75	350
1620	6.28	71.4	4225.3	0.7	12.73	0.28	14.75	350
1800	6.27	71.2	4222.6	0.68	12.72	0.31	14.75	350
1980	6.26	71	4172.3	0.67	12.81	0.22	14.75	350

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1205	N	MW-405
EPH-10	N	HCL	2	1L A	1205	N	MW-405

Notes: Water measurements are from top of PVC.

Low-Flow System Sampling

Date:	3/21/2017	Turbidity Make/Model:	HACH	Page 1 of 1	
Operator Name:	Acornell	Well ID:	MW-406		
Company Name:	TRC	Well diameter:	2 in. PVC		
Project Name:	140143.0000.4903	Well Total Depth:	23 ft	Depth to Product:	13.93 ft
Site Name:	Weymouth C/S	Screen Length:	15 ft	Product Thickness:	0.02
Tubing Type:	LDPE	Depth to Water:	13.95 ft		
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	350 mL/min		
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec	Start Time:	1025 hrs
Pump in take:	20 ft	Total Volume Pumped:	3 gallons	Sample Collected:	1100 hrs
Sonde SN:	452165				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	5.85	-57	28930.8	0.05	12.65	2.35		350
360	5.87	-59.4	29802.3	0.02	12.54	2.28		350
540	5.88	-59.6	31613.3	0.03	12.57	3.71		350
720	5.91	-61.6	32248.8	0.01	12.63	1.65		350
900	5.93	-64.5	32816.8	0.01	12.67	1.5		350
1080	5.94	-67.9	33362.1	-0.01	12.72	1.48		350
1260	5.95	-72.2	33500.9	-0.02	12.74	1.67		350
1440	5.96	-76.9	34357.1	-0.03	12.76	1.58		350
1620	5.97	-79.4	34401.1	-0.03	12.77	1.68		350
1800	5.97	-83.1	34630.0	-0.03	12.81	1.11		350
1980	5.98	-84.9	34752.9	-0.02	12.82	1.52		350

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1100	N	MW-406
EPH-10	N	HCL	2	1L A	1100	N	MW-406

Notes: Water measurements are from top of PVC. DTW was not recorded during sampling due to the thick viscous product.
Dup sample collected.

Low-Flow System Sampling

Date: 3/21/2017
Operator Name: ACornell
Company Name: TRC
Project Name: 140143.0000.4903
Site Name: Weymouth C/S
Tubing Type: LDPE
Tubing Diameter: .170 x 1/4 in
Pump Model/Type: Geopump Peristaltic
Pump in take: 20 ft
Sonde SN: 452165

Turbidity Make/Model: HACH
Well ID: MW-407
Well diameter: 2 in. PVC
Well Total Depth: 25.14 ft
Screen Length: 15 ft
Depth to Water: 15.42 ft
Final Pumping Rate: 350 mL/min
Calculated Sample Rate: 180 sec
Total Volume Pumped: 3 gallons

Page 1 of 1
Depth to Product: 14.42ft
Product Thickness: 1 ft
Start Time: 1250 hrs
Sample Collected: 1330 hrs

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.36	28	40195.9	0.82	12.68	25.4		350
360	6.4	24.2	40231.8	0.7	12.58	22.6		350
540	6.39	21.5	40153.9	0.6	12.52	23.9		350
720	6.4	19	40171.0	0.51	12.49	24.8		350
901	6.40	17.1	40142.0	0.43	12.54	20.2		350
1082	6.42	15.9	40147.7	0.35	12.58	22.9		350
1262	6.41	15.2	40153.0	0.29	12.58	23.2		350
1442	6.42	14.1	40026.7	0.23	12.61	23.00		350
1622	6.43	14	40086.2	0.18	12.62	25.3		350
1802	6.45	13.9	40142.9	0.14	12.58	23.4		350
1982	6.45	13.8	40024.9	0.11	12.63	24.6		350

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1330	N	MW-407
EPH-10	N	HCL	2	1L A	1330	N	MW-407

Notes: Water measurements are from top of PVC. DTW was not recorded during sampling due to the thick viscous product.

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH			
Operator Name:	ACornell	Well ID:	MW-412			
Company Name:	TRC	Well diameter:	4 in. PVC	Page 1 of 1		
Project Name:	140143.0000.4903	Well Total Depth:	23 ft			
Site Name:	Weymouth C/S	Screen Length:	15 ft			
Tubing Type:	LDPE	Depth to Water:	13.52 ft	Start Time:	1045 hrs	
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min	Sample Collected:	1120 hrs	
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec			
Pump in take:	18 ft	Total Volume Pumped:	2.9 gallons			
Sonde SN:	452165					

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.13	7.1	34596.2	0.14	10.70	8.65	13.46	300
360	6.12	6.1	33848.7	0.11	10.73	25.5	13.46	300
540	6.1	6.1	33361.5	0.09	10.92	5.65	13.46	300
720	6.1	5.6	33062.4	0.07	11.18	5.18	13.46	300
900	6.11	5	32703.5	0.06	11.15	2.69	13.46	300
1080	6.1	4.8	32349.3	0.06	11.09	3.59	13.46	300
1260	6.13	4.2	32207.7	0.06	11.07	3.97	13.46	300
1440	6.13	2.6	32104.3	0.05	10.92	3.37	13.46	300
1620	6.1	4	32409.6	0.05	11.06	3.68	13.46	300
1800	6.10	4.2	31842.1	0.05	11.15	3.3	13.46	300
1980	6.12	4.3	31922.8	0.04	11.11	3.28	13.46	300

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1120	N	MW-412
EPH-10	N	HCL	2	1L A	1120	N	MW-412

Notes: Water measurements are from top of PVC.

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH		
Operator Name:	Annie	Well ID:	MW-413		
Company Name:	TRC	Well diameter:	4 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	23 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.98 ft	Start Time:	0930 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	150 mL/min	Sample Collected:	1015 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	19 ft	Total Volume Pumped:	2 gallons		
Sonde SN:	452165				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.2	-7.1	18935.6	6.54	11.20	66.2	13.82	150
360	6.22	-16.7	19820.3	6.15	11.10	50.8	13.81	150
540	6.23	-20.5	20503.2	5.89	10.96	49.6	13.81	150
900	6.23	-25	21230.1	5.46	10.92	32.9	13.81	150
1080	6.23	-26	21523.2	5.28	10.85	25.9	13.81	150
1260	6.22	-29.8	21810.5	5.13	10.90	23.5	13.81	150
1440	6.22	-28.4	21963.7	4.99	10.84	18.2	13.81	150
1620	6.21	-27	22096.0	4.83	10.87	14.2	13.81	150
1800	6.21	-26.7	22243.7	4.66	10.84	13.1	13.81	150
1980	6.21	-27.8	22412.3	4.49	10.83	14.7	13.81	150
2161	6.2	-26.6	22441.7	4.35	10.83	14.4	13.81	150
2341	6.2	-26.9	22539.9	4.21	10.83	11.1	13.81	150
2521	6.19	-26.4	22558.9	4.03	10.92	11.20	13.81	150
2701	6.19	-25.6	22631.1	3.89	10.99	10.8	13.81	150

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1015	N	MW-413
EPH-10	N	HCL	2	1L A	1015	N	MW-413

Notes: Water measurements are from top of PVC.

Low-Flow System Sampling

Date:	3/21/2017	Turbidity Make/Model:	HACH	Page 1 of 1	
Operator Name:	BAyers	Well ID:	MW-201		
Company Name:	TRC	Well diameter:	2 in. PVC		
Project Name:	140143.0000.4903	Well Total Depth:	20.41 ft	Depth to Product:	13.70 ft
Site Name:	Weymouth C/S	Screen Length:	15 ft	Product Thickness:	0.17
Tubing Type:	LDPE	Depth to Water:	13.87 ft		
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min		
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec	Start Time:	1136 hrs
Pump in take:	20 ft	Total Volume Pumped:	6 gallons	Sample Collected:	1155 hrs
Sonde SN:	358315				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
300	6.96	-247.1	27161	-0.08	13.46	0.86	13.89	300
600	6.97	-221.4	27472.2	-0.07	12.96	0.74	13.89	300
900	6.96	-211.8	27484.0	-0.08	12.99	0.81	13.89	300
1200	6.94	-207.3	27474.6	-0.08	12.93	0.73	13.89	300
1500	6.93	-204.1	27532.8	-0.07	12.91	0.74	13.89	300
1800	6.93	-203.1	27669.0	-0.08	12.74	0.97	13.89	300
2100	6.93	-202.4	27555.1	-0.08	12.80	1.08	13.89	300
2400	6.92	-202.7	27569.5	-0.09	12.81	1.01	13.89	300

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1155	N	MW-201
EPH-10	N	HCL	2	1L A	1155	N	MW-201

Notes: Heavy product, groundwater purged for approximately 3 gallons before water quality parameters gauged/taken, clear, petro odor, sheen in bucket. DTW is not measured due to the thick viscous product.

Low-Flow System Sampling

Date:	3/20/2017	Turbidity Make/Model:	HACH		
Operator Name:	BAyers	Well ID:	MW-204		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	20 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.84 ft	Start Time:	1150 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min	Sample Collected:	1245 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec		
Pump in take:	19 ft	Total Volume Pumped:	0 gallons		
Sonde SN:	358315				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
300	6.73	-104.7	35100.6	0.15	12.48	19.4	13.86	300
600	6.76	-113.2	35696.8	0.13	12.26	13.6	13.86	300
900	6.78	-117.1	35579.7	0.11	12.42	9.31	13.86	300
1200	6.79	-116.7	35456.1	0.1	12.48	5.96	13.86	300
1500	6.79	-111.9	35647.0	0.32	12.58	4.32	13.86	300
1800	6.79	-108.7	35592.9	0.16	12.57	4.09	13.86	300
2100	6.79	-98.5	35549.5	0.1	12.61	3.96	13.86	300
2400	6.78	-81.2	35461.0	0.09	12.70	4.21	13.86	300
2700	6.76	-63.4	35707.8	0.2	12.47	3.71	13.86	300
3000	6.75	-61.1	35597.7	0.18	12.57	3.67	13.86	300
3300	6.75	-56.9	35540.5	0.18	12.66	3.51	13.86	300
3600	6.74	-53.9	35564.7	0.15	12.62	3.27	13.86	300
3900	6.74	-53.5	35518.7	0.14	12.66	3.19	13.86	300

Analytical Parameter	Filtered (Y/N)	Preservative	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1245	N	MW-204
EPH-10	N	HCL	2	1L A	1245	N	MW-204

Notes: Clear no odor, no sheen, Water measurements are from top of PVC

Low-Flow System Sampling

Date:	3/20/2017	Turbidity Make/Model:	HACH		
Operator Name:	BAyers	Well ID:	MW-400		
Company Name:	TRC	Well diameter:	in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	23 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	12.88 ft	Start Time:	1320 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min	Sample Collected:	1415 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec		
Pump in take:	19 ft	Total Volume Pumped:	0 gallons		
Sonde SN:	358315				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
300	-	-	-	-	-	-	-	-
600	6.61	-13.2	44144.0	0.11	13.25	5.21	12.96	300
900	6.61	-15.6	44044	0.11	13.26	3.46	12.98	300
1200	6.62	-43.4	43909.0	0.09	13.37	1.56	12.98	300
1500	6.62	-49	43845.0	0.08	13.48	1.37	12.98	300
1800	6.61	-41	43757.0	0.07	13.57	0.66	12.98	300
2100	6.6	-10.5	43726.0	0.06	13.66	0.56	12.98	300
2400	6.55	72.1	43652	0.06	13.61	0.39	12.98	300
2700	6.54	64.4	43639	0.06	13.66	0.32	12.98	300
3000	6.54	63.6	43589.8	0.06	13.68	0.2	12.98	300
3300	6.53	63.1	43550.9	0.06	13.7	0.19	12.98	300

Analytical Parameter	Filtered (Y/N)	Preservative	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1415	N	MW-400
EPH-10	N	HCL	2	1L A	1415	N	MW-400

Notes: Purged first 5 minutes, clear no odor, no staining, water measurements are from top of PVC

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH		
Operator Name:	BAyers	Well ID:	MW-403		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 2	
Project Name:	140143.0000.4903	Well Total Depth:	23 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.51 ft	Start Time:	1030 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min	Sample Collected:	1215 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec		
Pump in take:	20 ft	Total Volume Pumped:	0 gallons		
Sonde SN:	358315				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
300	-	-	-	-	-	-	-	-
600	6.75	-104.6	43441	0.95	8.47	2.96	13.51	300
900	6.75	-115.1	43314.3	0.68	8.17	2.47	13.51	300
1200	6.74	-122.3	42665.1	0.49	8.17	2.4	13.51	300
1500	6.75	-128.4	41920.8	0.38	8.03	1.31	13.51	300
1800	6.75	-133.2	40897.2	0.29	8.22	0.86	13.51	300
2100	6.78	-137.1	39486.3	0.24	8.33	0.73	13.51	300
2400	6.8	-142	38640.0	0.18	8.35	0.69	13.51	300
2700	6.83	-144.3	37634.0	0.11	8.12	1.28	13.51	300
3000	6.84	-148.7	36282.4	0.09	8.37	1.18	13.51	300
3300	6.88	-149.6	35109.8	0.08	8.26	0.17	13.51	300
3600	6.9	-149.9	34607.1	0.07	8.37	0.39	13.51	300
3900	6.92	-149.9	34105.3	0.06	8.65	0.68	13.51	300
4200	6.93	-150.6	34053.9	0.06	8.93	0.71	13.51	300
4500	6.95	-150.4	33075.0	0.08	9.32	0.53	13.51	300
4800	6.95	-148.2	32693.3	0.1	9.41	0.69	13.51	300
5100	6.95	-147.2	30742.5	0.14	9.45	0.75	13.51	300
5400	6.92	-146.8	31848.4	0.16	9.21	0.79	13.51	300
5700	6.91	-144.7	31260	0.2	8.70	0.71	13.51	300
6000	6.9	-142.9	30439.8	0.22	8.65	0.6	13.51	300
6300	6.91	-141.2	30129.9	0.22	8.62	0.60	13.51	300
6600	6.92	-138.6	28828.1	0.27	8.51	0.57	13.51	300

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH		
Operator Name:	BAyers	Well ID:	MW-403		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 2 of 2	
Project Name:	140143.0000.4903	Well Total Depth:	23 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	15.42 ft	Start Time:	1030 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min	Sample Collected:	1215 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec		
Pump in take:	20 ft	Total Volume Pumped:	0 gallons		
Sonde SN:	358315				

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1215	N	MW-403
EPH-10	N	HCL	2	1L A	1215	N	MW-403

Notes: Purged first 5 minutes, clear, no odor, no sheen, water measurements are from top of PVC

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH		
Operator Name:	BAyers	Well ID:	MW-411		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	23 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.37 ft	Start Time:	0840 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min	Sample Collected:	0930 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec		
Pump in take:	20 ft	Total Volume Pumped:	0 gallons		
Sonde SN:	358315				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
300	-	-	-	-	-	-	-	-
600	6.31	-47.5	44110.6	0.05	11.28	15.3	13.38	300
900	6.51	-107.8	42757.7	-0.07	12.34	10.9	13.38	300
1200	6.54	-145.8	40587.4	-0.08	11.78	20.3	13.38	300
1500	6.53	-162.9	39579.8	-0.09	11.74	7.31	13.38	300
1800	6.51	-176.5	38790.3	-0.11	12.38	4.26	13.38	300
2100	6.52	-178.9	38984.6	-0.1	11.88	4.07	13.38	300
2400	6.54	-180.4	38443.6	-0.11	12.19	3.75	13.38	300
2700	6.53	-184.3	38511.1	-0.11	12.14	2.46	13.38	300
3000	6.52	-184.3	38481.4	-0.11	12.10	1.47	13.38	300
3300	6.53	-188.6	38725.3	-0.11	11.60	1.39	13.38	300
3600	6.63	-67.2	38391.6	10.76	10.71		13.38	300

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	930	N	MW-411
EPH-10	N	HCL	2	1L	930	N	MW-411

Notes: Purged first 5 minutes, clear, no oil, no sheen, water measurements are from top of PVC

Low-Flow System Sampling

Date:	3/21/2017	Turbidity Make/Model:	HACH	Page 1 of 1	
Operator Name:	BAyers	Well ID:	MW-414		
Company Name:	TRC	Well diameter:	2 in. PVC		
Project Name:	140143.0000.4903	Well Total Depth:	23 ft	Depth to Product:	14.42 ft
Site Name:	Weymouth C/S	Screen Length:	15 ft	Product Thickness:	1 ft
Tubing Type:	LDPE	Depth to Water:	15.42 ft		
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min		
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec	Start Time:	1335 hrs
Pump in take:	20 ft	Total Volume Pumped:	0 gallons	Sample Collected:	1425 hrs
Sonde SN:	358315				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
300	6.66	-186.2	37622	0.09	13.52	3.31	15.44	300
600	6.63	185.2	37740	0.05	13.41	2.95	15.44	300
900	6.63	-188.8	37885.2	-0.01	13.36	2.3	15.44	300
1200	6.64	-196.7	37806.8	-0.04	13.48	2.14	15.44	300
1500	6.68	-198	37787.6	-0.06	13.54	2.01	15.44	300
1800	6.64	-199.4	37393.5	-0.07	13.41	1.39	15.44	300
2100	6.52	-200.6	37822.3	-0.08	13.43	1.97	15.44	300
2400	6.5	-201.9	37625.7	-0.09	13.33	1.84	15.44	300
2700	6.5	-202.8	37354.0	-0.1	13.39	1.73	15.44	300
3000	6.5	-203.6	38076.2	-0.1	13.30	1.69	15.44	300
3300	6.5	-204.2	37963	-0.1	13.21	1.58	15.44	300

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1425	N	MW-414
EPH-10	N	HCL	2	1L A	1425	N	MW-414

Notes: Began purging MW-414 at 1305 will purge 3 gallons before collecting WQIP. Clear, N/O. N/S LNAPL observed. Water measurements are from top of PVC. DTW is not measured due to the thick viscous product.

Low-Flow System Sampling

Date:	3/23/2017	Turbidity Make/Model:	HACH		
Operator Name:	BAyers	Well ID:	MW-417		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	23 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	11.16 ft	Start Time:	0940 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	300 mL/min	Sample Collected:	1040 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	300 sec		
Pump in take:	17 ft	Total Volume Pumped:	0 gallons		
Sonde SN:	358315				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
300	-	-	-	-	-	-	-	-
600	7.59	-54.9	1911.2	0.97	9.4	37.3	11.16	300
900	7.21	-83.5	2682.6	0.55	9.68	26	11.16	300
1200	7.19	-89.7	2711.6	0.47	9.74	23.6	11.16	300
1500	7.17	-91.8	2751.3	0.39	9.78	18.7	11.16	300
2100	7.24	-107.4	2774.9	0.33	9.78	13.6	11.16	300
2400	7.26	-123.7	2755.0	0.29	9.82	8.61	11.16	300
3000	7.26	-136.2	2721.2	0.24	9.93	5.31	11.16	300
3300	7.26	-139.5	2682.3	0.23	10.15	4.71	11.16	300
3900	7.26	-148.9	2697.9	0.2	10.22	3.16	11.16	300
4200	7.36	-149.7	2667.3	0.2	10.12	2.93	11.16	300
4500	7.38	-152.8	2655.7	0.17	10.06	2.26	11.16	300
4800	8.36	-87	0.0	11.96	10.66	2.16	11.16	300

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40ml V	1040	N	MW-417
EPH-10	N	HCL	2	1L A	1040	N	MW-417

Note: Purge first 5 minutes, water measurements are from top of PVC. Dup sample collected.

Low-Flow System Sampling

Date:	3/20/2017	Turbidity Make/Model:	HACH		
Operator Name:	L.Hopp	Well ID:	MW-202		
Company Name:	TRC	Well diameter:	2 in. PVC		
Project Name:	140143.0000.4903	Well Total Depth:	19.95 ft	Page 1 of 1	
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	12.64 ft		
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Start Time:	1330 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec	Sample Collected:	1406 hrs
Pump in take:	16.3 ft	Total Volume Pumped:	3.3 gallons		
Sonde SN:	358206				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.54	459.6	30631.8	0.22	10.4	56.6	12.66	250
360	6.49	409.9	30647.1	0.16	10.33	25.1	12.67	250
540	6.48	382.4	30505.3	0.17	10.35	15.9	12.67	250
720	6.48	368.6	30189.5	0.14	10.31	11.8	12.67	250
900	6.48	362.4	29917.5	0.13	10.32	10.8	12.67	250
1080	6.47	360.2	29828.0	0.12	10.36	10.0	12.67	250
1260	6.47	359.2	29772.8	0.12	10.36	7.04	12.67	250
1440	6.47	362.7	29699.4	0.12	10.27	6.85	12.67	250
1620	6.47	364.7	29555.4	0.12	10.31	5.64	12.67	250
1800	6.47	376.2	29436.7	0.12	10.27	4.39	12.67	250
1980	6.47	387.5	29422.3	0.11	10.3	2.1	12.67	250
2160	6.47	388.2	29306.1	0.12	10.29	1.82	12.67	250
2340	6.47	390.8	29318.4	0.12	10.27	1.3	12.67	250

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40mL V	1406	N	MW-202
EPH-10	N	HCL	2	1 L A	1406	N	MW-202

Notes: Water measures are from top of PVC.

Low-Flow System Sampling

Date:	3/20/2017	Turbidity Make/Model:	HACH		
Operator Name:	L.Hopp	Well ID:	MW-203		
Company Name:	TRC	Well diameter:	2 in PVC		
Project Name:	140143.0000.7478	Well Total Depth:	20.62 ft	Page 1 of 1	
Site Name:	Weymouth C/S	Screen Length:	10 ft		
Tubing Type:	LDPE	Depth to Water:	12.96 ft	Start Time:	1200 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Sample Collected:	1233 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	16.8 ft	Total Volume Pumped:	3 gallons		
Sonde SN:	358206				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.43	522.3	36442.5	0.13	11.67	25.5	13.03	250
360	6.45	548.9	36236.2	0.21	11.61	6.89	13.04	250
540	6.46	561.8	36037.7	0.3	11.61	4.21	13.04	250
720	6.46	570.4	35943.5	0.38	11.61	2.95	13.04	250
900	6.44	578.5	35882.9	0.45	11.65	2.89	13.04	250
1080	6.43	589.3	35842.2	0.52	11.67	2.7	13.04	250
1260	6.43	597.2	35713	0.57	11.66	2.9	13.04	250
1440	6.43	607.2	35699.2	0.61	11.66	1.11	13.06	250
1620	6.43	611.9	35660.2	0.64	11.66	1.25	13.06	250
1800	6.43	618.8	35575.5	0.67	11.65	0.95	13.06	250
1980	6.43	624.7	35606	0.69	11.65	0.85	13.06	250
2160	6.43	629.9	35551.5	0.7	11.67	0.75	13.06	250

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	3 40mL V	1233	N	MW-203
EPH-10	N	HCL	2	1 L A	1233	N	MW-203

Notes: Water measures are from top of PVC.

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH			
Operator Name:	L.Hopp	Well ID:	MW-206			
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 2		
Project Name:	140143.0000.4903	Well Total Depth:	20.98 ft			
Site Name:	Weymouth C/S	Screen Length:	15 ft			
Tubing Type:	LDPE	Depth to Water:	14.46 ft	Start Time:	1035 hrs	
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Sample Collected:	1123 hrs	
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec			
Pump in take:	18 ft	Total Volume Pumped:	4.0 gallons			
Sonde SN:	358206					

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	-	-	-	-	-	-	-	-
360	6.38	279.3	2843.5	3.57	7.99	69.8	14.46	250
540	6.31	305.6	2830.5	3.33	8.49	33.6	14.46	250
720	6.27	322.4	2883.1	3.18	8.71	26.3	14.46	250
900	6.22	334.6	3060.3	3.12	8.75	24.3	14.46	250
1080	6.38	344.5	3421.4	2.88	8.71	17	14.46	250
1260	6.35	349.6	3601.5	2.75	8.66	14.1	14.46	250
1440	6.34	353.3	3719.4	2.7	8.61	11	14.46	250
1620	6.32	357.6	3745.4	2.61	8.65	8.57	14.46	250
1800	6.32	362	3851.4	2.54	8.7	8.03	14.46	250
1980	6.31	365.6	3797.4	2.53	8.65	6.33	14.46	250
2160	6.31	367.2	3816.5	2.52	8.43	5.8	14.46	250
2340	6.31	369.4	3851.4	2.51	8.4	5.75	14.46	250
2520	6.29	373.5	4010.7	2.46	8.61	4.8	14.46	250

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH		
Operator Name:	L.Hopp	Well ID:	MW-206		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 2 of 2	
Project Name:	140143.0000.4903	Well Total Depth:	20.98 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	14.46 ft	Start Time:	1035 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Sample Collected:	1123 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	18 ft	Total Volume Pumped:	4.0 gallons		
Sonde SN:	358206				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
2700	6.3	373.9	3937.4	2.43	8.47	4.72	14.46	250
2880	6.3	374.8	3887.6	2.4	8.62	4.28	14.46	250
3060	6.3	380.9	3874.5	2.37	8.62	4.1	14.46	250

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40mL V	1123	N	MW-206
EPH-10	N	HCL	2	1 L A	1123	N	MW-206

Notes: Purged the first 3 minutes, Water measures are from top of PVC.

Low-Flow System Sampling

Date:	3/21/2017	Turbidity Make/Model:	HACH		
Operator Name:	L.Hopp	Well ID:	MW-408		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 2	
Project Name:	140143.0000.4903	Well Total Depth:	25.48 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.6 ft	Start Time:	1328 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Sample Collected:	1448 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	19.5 ft	Total Volume Pumped:	8.0 gallons		
Sonde SN:	358206				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.7	508.7	7535.8	0.26	12.51	17.6	13.61	250
360	6.64	513.6	7780.3	0.48	12.2	16.4	13.61	250
540	6.66	513.8	7753.9	0.63	12.16	16.4	13.61	250
720	6.66	513.8	7757.1	0.66	12.1	11.7	13.61	250
900	6.59	514.7	9277.2	0.63	12.05	10.8	13.61	250
1080	6.62	511.4	8613.8	0.69	12.07	8.4	13.61	250
1260	6.62	503.8	8534.6	0.68	12.04	6.61	13.62	250
1440	6.62	498.3	8472.4	0.69	12.11	5.37	13.62	250
1620	6.63	504.4	8301.2	0.63	12.14	4.27	13.62	250
1800	6.61	504.4	9103.6	0.58	12.16	404	13.62	250
1980	6.59	503.5	8974.7	0.5	12.12	3.92	13.62	250
2160	6.59	504.2	9255.8	0.46	12.07	4.1	13.62	250
2340	6.61	499	8884.3	0.43	12.07	4.37	13.62	250
2520	6.62	494.7	8576.8	0.37	12.07	4	13.62	250

Low-Flow System Sampling

Date:	3/21/2017	Turbidity Make/Model:	HACH		
Operator Name:	L.Hopp	Well ID:	MW-408		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 2 of 2	
Project Name:	140143.0000.4903	Well Total Depth:	25.48 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.6 ft	Start Time:	1328 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Sample Collected:	1448 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	19.5 ft	Total Volume Pumped:	8.0 gallons		
Sonde SN:	358206				

Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping
2700	6.62	561	8691.4	0.34	11.99	4.13	13.62	250
2880	6.61	566.7	8563.2	0.32	11.86	4.22	13.62	250
3060	6.61	535.3	8490.2	0.3	11.93	3.61	13.62	250
3240	6.62	523.4	8657.8	0.28	11.93	3.3	13.62	250
3420	6.59	513	9270.2	0.26	11.93	2.3	13.62	250
3600	6.59	506.7	9222	0.25	11.93	2.2	13.62	250
3780	6.59	496.4	9336.3	0.24	11.84	2.34	13.62	250
3960	6.57	484.5	9587.5	0.24	11.88	2.42	13.62	250
4140	6.59	483.2	9420.8	0.24	11.85	2.12	13.62	250
4320	6.58	503.7	9630.6	0.24	11.84	2.0	13.62	250
4500	6.48	512.9	12595.5	0.21	11.84	4.25	13.62	250
4680	6.47	493.8	13034.8	0.2	11.79	4.82	13.62	250
4860	6.5	544.6	12000.8	0.2	11.79	4.0	13.62	250
5040	6.51	597.3	11765.2	0.21	11.75	3.75	13.62	250

Analytical Parameter	Filtered (Y/N)	Preserva- tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40mL V	1448	N	MW-408
EPH-10	N	HCL	2	1 L A	1448	N	MW-408

Notes: Water measures are from top of PVC.

Low-Flow System Sampling

Date:	3/22/2017	Turbidity Make/Model:	HACH		
Operator Name:	L.Hopp	Well ID:	MW-409		
Company Name:	TRC	Well diameter:	2 in. PVC	Page 1 of 1	
Project Name:	140143.0000.4903	Well Total Depth:	25.10 ft		
Site Name:	Weymouth C/S	Screen Length:	15 ft		
Tubing Type:	LDPE	Depth to Water:	13.4 ft	Start Time:	0905 hrs
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min	Sample Collected:	0935 hrs
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec		
Pump in take:	19 ft	Total Volume Pumped:	3.3 gallons		
Sonde SN:	358206				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	-	-	-	-	-	-	-	-
360	5.75	274.9	27211.3	0.24	10.54	3.69	13.4	250
540	5.84	267.7	24077.2	0.19	10.75	3.63	13.4	250
720	5.83	269.9	24312.9	0.15	10.88	1.05	13.4	250
900	5.83	274.9	24074.3	0.14	11	2.39	13.4	250
1080	5.83	286.3	24282.2	0.13	11.06	3.05	13.4	250
1260	5.83	301.1	24287.3	0.12	11.2	0.74	13.4	250
1440	5.83	320.2	24512.9	0.11	11.2	0.92	13.4	250
1620	5.84	337.6	24231	0.11	11.1	1	13.4	250
1800	5.84	346	24509.4	0.11	10.95	0.64	13.4	250
1980	5.84	347.6	24552.7	0.1	10.9	0.44	13.4	250

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40mL V	935	N	MW-409
EPH-10	N	HCL	2	1 L A	935	N	MW-409

Notes: Wind and snow, flow thru- in shade. Purged first 3 minutes. Water measures are from top of PVC.

Low-Flow System Sampling

Date:	3/21/2017	Turbidity Make/Model:	HACH	Page 1 of 1	
Operator Name:	L.Hopp	Well ID:	MW-410		
Company Name:	TRC	Well diameter:	2 in. PVC		
Project Name:	140143.0000.4903	Well Total Depth:	25.29 ft	Depth to Product:	13.11 ft
Site Name:	Weymouth C/S	Screen Length:	15 ft	Product Thickness:	0.25
Tubing Type:	LDPE	Depth to Water:	13.36 ft		
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min		
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec	Start Time:	1118 hrs
Pump in take:	19 ft	Total Volume Pumped:	1.7 gallons	Sample Collected:	1136 hrs
Sonde SN:	358206				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature C	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	6.48	512.3	24907	0.13	13.06	2.64	13.36	250
360	6.53	539.4	25811.2	0.12	12.4	2.71	13.36	250
540	6.56	554.6	26370.7	0.12	12.25	2.52	13.36	250
720	6.56	566.9	26650.8	0.11	12.21	1.37	13.36	250
900	6.57	570.5	27096.9	0.11	12.12	1.88	13.36	250
1080	6.57	569.2	27428.8	0.11	12.09	1.55	13.36	250
1260	6.57	566.5	27716.3	0.11	12.11	1.22	13.36	250

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	3 40mL V	1136	N	MW-410
EPH-10	N	HCL	2	1 L A	1136	N	MW-410

Notes: Purged approximately 3 gallons of water from the well before starting water quality measurements. Odor and sheen visible. DTW could not be measured during stabilization readings due to the thick viscous LNAPL observed in the well.

Low-Flow System Sampling

Date:	3/23/2017	Turbidity Make/Model:	HACH	Page 1 of 1	
Operator Name:	L.Hopp	Well ID:	MW-415		
Company Name:	TRC	Well diameter:	2 in. PVC		
Project Name:	140143.0000.4903	Well Total Depth:	23 ft	Depth to Product:	14.92 ft
Site Name:	Weymouth C/S	Screen Length:	15 ft	Product Thickness:	0.1
Tubing Type:	LDPE	Depth to Water:	15.02 ft		
Tubing Diameter:	.170 x 1/4 in	Final Pumping Rate:	250 mL/min		
Pump Model/Type:	Geopump Peristaltic	Calculated Sample Rate:	180 sec	Start Time:	1213 hrs
Pump in take:	19 ft	Total Volume Pumped:	2.2 gallons	Sample Collected:	1240 hrs
Sonde SN:	387325				

Low Flow Stabilzation Summary

Time (sec)	pH	ORP (mV)	Conductivity (µS/cm)	DO (mg/L)	Temperature (C)	Turbidity (NTU)	DTW (ft)	Pumping Rate (mL/min)
180	-	-	-	-	-	-	-	-
360	6.14	69	15828.3	0.08	11.2	19.8	15.46	250
540	5.91	68.9	29570.4	0.12	10.92	6.29	15.46	250
720	5.99	61.5	32666.6	0.05	11.18	1.98	15.46	250
900	6.02	57.3	33199.8	0.03	11	1.17	15.46	250
1080	6.04	55.6	33301.7	0.02	10.93	1.21	15.46	250
1260	6.04	55	33473.1	0.02	10.84	1.08	15.46	250
1440	6.05	55.6	33711.9	0.01	11.33	0.06	15.46	250
1620	6.05	58.2	33727	0.01	11.4	0.92	15.46	250
1800	6.05	61.9	33457.9	0	11.13	1.06	15.46	250

Analytical Parameter	Filtered (Y/N)	Preserva-tive	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH-10	N	HCL	3	40mL V	1240	N	MW-415
EPH-10	N	HCL	2	1L A	1240	N	MW-415

Notes: Residual product on inside of well, purged 2 gallons and first 3 minutes, no sheen. Water measures are from top of PVC.

TRC

Groundwater Field Data Record

Project: Weymouth Spectra Energy
Project No.: 140143
Date/Time: 6/7/17 0830
Sheet 1 **of** 1

TRC Personnel: B Ayres
Well ID: MW-201

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch
Other:

WELL MATERIAL
☑ PVC ☐ SS
Other:

Well Depth ____ ft. ☑ top of riser ☐ top of casing ☐ ____
☐ measured ☑ historical (BA)

Water Depth 13.05 ft.
Well Volume
LNAPL/DNAPL Depth = ~~0'~~ 12.97
NAPL Thickness = ~~0'~~ 0.8

Depth of pump intake: 19'
Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 230

Adjusted purge Rates/time/WL(record changes) ~~X~~

Flow rate at time of sampling: 230
Total volume of water purged: 4 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0830	0835	0840	0845	0850	0855	0900	0905	0910
Temp. (°C)	Start	12.1	12.1	12.0	11.9	11.8	11.8	11.8	11.8
Conduct. (µmhos/cm)	Purge	26061	27101	26031	26059	26051	26094	26019	26070
DO (mg/L)	↓	~~26~~ 1.41	1.61	1.41	1.30	1.19	0.35	0.31	0.27
pH (su)		6.34	6.33	6.31	6.31	6.24	6.29	6.30	6.32
ORP (millivolts)		10.6	5.3	0.21	-9.5	-9.5	-11.1	-15.7	-16.6
Turbidity (NTU)		10.3	2.66	1.74	1.91	0.95	0.71	0.62	0.54
Flow (ml/min)	230	→							
Depth To Water (ft)	13.05	13.07	→						
Cumulative Purge Vol. (gal or L)									

Time	0915	0920	0925	0930		
Temp. (°C)	11.8	11.9	11.9	11.9		
Conduct. (µmhos/cm)	25942	26089	26002	26034		
DO (mg/L)	0.61	0.00	0.60	0.00		
pH (Std. Units)	6.43	6.36	6.37	6.38		
Eh/ORP (millivolts)	-23.0	-25.6	-28.6	-32.2		
Turbidity (NTU)	0.47	0.41	0.39	0.27		
Flow (ml/min)	230	→				
Depth To Water (ft)	13.07	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria* **(3 consecutive readings)**
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: heavy Sheenin bucket, small globs of LNAPL product, water clear, petro odor

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Am gl	0930		MW-201
VPH	↓	↓	3	40mL vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spetra Weymouth Project No.:
Date/Time: 0840 6/5/17
Sheet 1 of 1
TRC Personnel: Annie Cornell
Well ID: MW-202

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) 2 ft.
Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other:

WELL MATERIAL
☒ PVC ☐ SS
Other:

Well Depth ____ ft. ☑ top of riser ☐ top of casing ☐ ____ ☐ measured ☑ historical
Water Depth 12.62 ft.
Well Volume
LNAPL/DNAPL Depth = 0
NAPL Thickness = —
Depth of pump intake: 15ft
Static water level after pump put into well: 12.65
Initial purge Rate/ Water Level (100-400 ml/min): 300
Adjusted purge Rates/time/WL(record changes) 300
Flow rate at time of sampling: 300
Total volume of water purged: 5gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	842	847	852	857	902	907	912	915	S
Temp. (°C)	12.09	12.04	12.01	11.96	11.95	11.94	11.87	11.91	A
Conduct. (μmhos/cm)	31004	31040	31133	31134	31159	31207	31281	31281	M
DO (mg/L)	0.10	0.08	0.06	0.06	0.05	0.05	0.05	0.04	
pH (su)	6.45	6.47	6.48	6.49	6.49	6.49	6.49	6.49	P
ORP (millivolts)	-49.10	-46.9	-45.0	-43.0	-41.8	-39.8	-38.80	-37.7	L
Turbidity (NTU)	10.3	5.32	9.78	4.64	3.65	5.92	3.25	3.27	
Flow (ml/min)	300	300	300	300	300	300	360	300	E
Depth To Water (ft)	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65	
Cumulative Purge Vol. (gal or L)									

Time							
Temp. (°C)							
Conduct. (μmhos/cm)							
DO (mg/L)							
pH (Std. Units)							
Eh/ORP (millivolts)							
Turbidity (NTU)							
Flow (ml/min)							
Depth To Water (ft)							
Cumulative Purge Vol. (gal or L)							

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250 A	915		MW-202
VPH	N	HCL	3	vials	915		

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Ann C

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Energy

Project No.: ~~10416T~~ 140143 BA

Date/Time: 6/5/17 0900

Sheet 1 of 7

TRC Personnel: BAyres

Well ID: MW-203

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other:

WELL MATERIAL ☑ PVC ☐ SS

Other:

Well Depth ____ ft. ☑ top of riser ☐ top of casing ☐ ____ ☑ measured ☐ historical

Water Depth 13.15 ft.

Well Volume

LNAPL/DNAPL Depth = N/A

NAPL Thickness = N/A

Depth of pump intake: 19'

Static water level after pump put into well: 13.20'

Initial purge Rate/ Water Level (100-400 ml/min): 200

Adjusted purge Rates/time/WL(record changes) 240

Flow rate at time of sampling: 240

Total volume of water purged: 4 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0900	0905	0910	0915	0920	0925	0930	0935	0940
Temp. (°C)	Start	13.22	12.56	12.41	12.35	12.35	12.35	12.34	12.35
Conduct. (µmhos/cm)	Purge	34759	35355	35417.8	35467	35440	35462.4	35439.6	35365.4
DO (mg/L)	↓	0.24	0.14	0.12	6.11	0.10	0.10	6.16	6.10
pH (su)		6.18	6.28	6.31	6.33	6.33	6.34	6.34	6.34
ORP (millivolts)		37.5	23.3	20.2	19.1	19.1	19.1	19.8	20.4
Turbidity (NTU)		OOR	41.9	32.7	26.4	23.4	23.9	21.5	16.6
Flow (ml/min)	200	240	→						
Depth To Water (ft)	13.15	13.17	→						
Cumulative Purge Vol. (gal or L)									

Time	0945	0950	0955		
Temp. (°C)	12.35	12.84	12.37		
Conduct. (µmhos/cm)	35359.4	35334	352807		
DO (mg/L)	0.09	0.10	0.10		
pH (Std. Units)	6.34	6.34	6.34		
Eh/ORP (millivolts)	20.5	21.1	21.0		
Turbidity (NTU)	13.9	15.1	14.2		
Flow (ml/min)	240	→			
Depth To Water (ft)	13.17	→			
Cumulative Purge Vol. (gal or L)					

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Cloudy, N/O, N/S → Clear, N/O, N/S
Orange flakes noted in sample jars,
was not present during purge

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH	N	HCl	3	1L Agl			MW-203
EPH	↓	~~AS DS~~	2	40mL Vial	↓		↓
		BA HCl					

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Energy Weymouth

Project No.: 140143 ~~164164~~ (BA)

Date/Time: 6/5/17 1015

Sheet 1 **of** 1

TRC Personnel: B Ayres

Well ID: MW-204

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic Pump

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL ☑ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 13.82 ft.

Well Volume ______

LNAPL/DNAPL Depth = N/A

NAPL Thickness = N/A

Depth of pump intake: 191

Static water level after pump put into well: 13.85

Initial purge Rate/ Water Level (100-400 ml/min): 230

Adjusted purge Rates/time/WL(record changes)

Flow rate at time of sampling: 230

Total volume of water purged: 2 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1015	1020	1025	1030	1035	1040	1045	1050	
Temp. (°C)	Start	12.21	11.82	11.77	11.65	11.61	11.64	11.61	
Conduct. (μmhos/cm)	Purge	30104.3	32855.9	32215.5	32282.0	32293	32442.4	32742.6	
DO (mg/L)	↓	0.55	0.16	0.14	0.12	0.11	0.10	0.09	
pH (su)		6.75	6.59	6.56	6.55	6.55	6.54	6.54	
ORP (millivolts)		76.3	71.9	72.1	68.6	69.5	73.4	70.4	
Turbidity (NTU)		OOR	12.2	9.21	7.39	5.87	1.59	0.64	
Flow (ml/min)	230	→							
Depth To Water (ft)	13.82	→							
Cumulative Purge Vol. (gal or L)									

Time							
Temp. (°C)							
Conduct. (μmhos/cm)							
DO (mg/L)							
pH (Std. Units)							
Eh/ORP (millivolts)							
Turbidity (NTU)							
Flow (ml/min)							
Depth To Water (ft)							
Cumulative Purge Vol. (gal or L)							

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Cloudy, N/O, N/S -> Clear, N/O, N/S
Orange flakes notes noted in Sample
Jars, not present during
purge

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Gl Am	1050		MW-204
VPH	↓	↓	3	40mL Vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spetra Weymouth
Project No.:
Date/Time: 6/5/17 1040
Sheet 1 **of** 1

TRC Personnel: Annie Cornell
Well ID: MW-205

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	–
Well Mouth	–

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 14.64 ft.

Well Volume ______

LNAPL/DNAPL Depth = –

NAPL Thickness = –

Depth of pump intake: 18 ft

Static water level after pump put into well: 14.66

Initial purge Rate/ Water Level (100-400 ml/min): 360

Adjusted purge Rates/time/WL(record changes): 300

Flow rate at time of sampling: 300

Total volume of water purged: 3 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1040	1045	1050	1055	1100	1105	1110		
Temp. (°C)	12.28	11.53	11.45	11.41	11.45	11.41	11.36		
Conduct. (µmhos/cm)	27574	25353	24919	23960	23757	23639	23621		
DO (mg/L)	0.10	0.14	0.09	0.06	0.06	0.05	0.05		
pH (su)	6.84	6.95	6.96	6.99	6.99	6.98	6.99		
ORP (millivolts)	-30.8	-39.5	-45.8	-43.2	-42.5	-42.1	-41.4		
AC ~~Turbidity (NTU)~~ flow	300	300	300	300	300	300	300		
AC ~~Flow (ml/min)~~ turbidity	3.78	3.04	3.17	3.45	2.55	4.35	2.45		
Depth To Water (ft)	14.66	14.65	14.65	14.64	14.64	14.62	14.62		
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)

- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250A	1110		
VPH	N	HCL	3	vials	1110		MW-205

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Am CM

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth Spectra Energy **Project No.:** ~~10416~~ 140143
Date/Time: 0900 6/6/17
Sheet 1 **of** 1
TRC Personnel: B Ayres
Well ID: MW-206

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic Pump
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.
Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical
Water Depth 14.17 ft.
Well Volume ______
LNAPL/DNAPL Depth = N/A
NAPL Thickness = N/A
Depth of pump intake: 19'
Static water level after pump put into well: 14.17
Initial purge Rate/ Water Level (100-400 ml/min): 230
Adjusted purge Rates/time/WL(record changes)
Flow rate at time of sampling: 230
Total volume of water purged: 3.5 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0900	0905	0910	0915	0920	0925	0930	0935	0940
Temp. (°C)	Start	10.21	11.00	11.03	11.05	11.10	11.10	11.09	11.05
Conduct. (µmhos/cm)	purge	3500.6	3510.1	3539.1	3548.6	3576.8	3586.4	3587.5	3591.2
DO (mg/L)	↓	1.67	1.51	1.47	1.43	1.39	1.39	1.37	1.37
pH (su)		7.91	7.81	7.73	7.45	7.33	7.28	7.21	7.19
ORP (millivolts)		143.6	137.6	122.9	113.6	79.2	76.4	71.0	69.5
Turbidity (NTU)		OOR	OOR	64.3	58.6	37.6	19.1	245	18.9
Flow (ml/min)	230	→							
Depth To Water (ft)	14.17	14.19	→						
Cumulative Purge Vol. (gal or L)									

Time	0945	0950	0955			
Temp. (°C)	11.05	11.06	11.07			
Conduct. (µmhos/cm)	3588.8	3592.6	3602.5			
DO (mg/L)	1.37	1.36	1.35			
pH (Std. Units)	7.17	7.14	7.13			
Eh/ORP (millivolts)	70.6	67.4	67.1			
Turbidity (NTU)	9.04	8.32	7.61			
Flow (ml/min)	230	→				
Depth To Water (ft)	14.19	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:
Mine @ 11', bolt used to keep tubing down
Clear, Slight Sheen in bucket, no odor

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Agl	0955		MW-206
VPH	↓	↓	3	40mL Vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spetra Weymouth **Project No.:**

Date/Time: 6/5/17

Sheet 1 **of** 1

TRC Personnel: Annie Covnell

Well ID: MW-400

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: Smart troll, hach

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 12.97 ft.

Well Volume ______

LNAPL/DNAPL Depth = —

NAPL Thickness = —

Depth of pump intake: 15ft

Static water level after pump put into well: 12.94

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 300

Flow rate at time of sampling: 300

Total volume of water purged: 3 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	945	950	955	1000	1005	1010	1015		
Temp. (°C)	12.58	12.28	12.28	12.28	12.26	12.24	12.24		
Conduct. (µmhos/cm)	37478	37546	37522	37485	37435	37415	37420		
DO (mg/L)	0.32	0.09	0.06	0.06	0.05	0.05	0.05		
pH (su)	6.55	6.49	6.46	6.45	6.44	6.44	6.43		
ORP (millivolts)	7.5	3.0	2.0	1.5	0.1	-1.4	-1.9		
Turbidity (NTU)	53.9	4.39	2.32	2.43	1.32	0.63	1.36		
Flow (ml/min)	300	300	300	300	300	300	300		
Depth To Water (ft)	12.94	12.92	12.91	12.91	12.91	12.89	12.89		
Cumulative Purge Vol. (gal or L)									

Time							
Temp. (°C)							
Conduct. (µmhos/cm)							
DO (mg/L)							
pH (Std. Units)							
Eh/ORP (millivolts)							
Turbidity (NTU)							
Flow (ml/min)							
Depth To Water (ft)							
Cumulative Purge Vol. (gal or L)							

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250A	1015		MW-400
VPH	N	HCL	3	vials	1015		

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Ann C

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth **Project No.:**

Date/Time: 1155 6/5/17

Sheet 1 **of** 2

TRC Personnel: Annie Cornell

Well ID: MW-401

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, HACH

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other:

WELL MATERIAL

☒ PVC ☐ SS

Other:

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 13.87 ft.

Well Volume ______

LNAPL/DNAPL Depth = —

NAPL Thickness = —

Depth of pump intake:

Static water level after pump put into well: 13.89

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes)

300

Flow rate at time of sampling: 300

Total volume of water purged: 2.5 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1155	1200	1205	1210	1215	1220	1225	1230	
Temp. (°C)	12.09	11.55	11.33	11.31	11.30	11.27	11.27	11.27	
Conduct. (μmhos/cm)	41234	41614	41325	41119	40961	40808	40645	40005	
DO (mg/L)	0.22	0.12	0.07	0.07	0.05	0.05	0.04	0.04	
pH (su)	7.15	7.22	7.27	7.27	7.26	7.26	7.26	7.26	
ORP (millivolts)	-39.3	-45.2	-43.4	-42.1	-42.0	-41.1	-42.0	-41.0	
Turbidity (NTU)	10.9	4.61	6.70	6.57	6.49	4.72	2.40	2.73	
Flow (ml/min)	300	300	300	300	300	300	300	300	
Depth To Water (ft)	13.87	13.88	13.88	13.87	13.87	13.86	13.86	13.86	
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (μmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250A	1230		MW-401
VPH	N	HCL	3	vials	1230		

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Energy Spectra Weymouth **Project No.:** 14014 ~~104461~~ (3A) **Date/Time:** 6/5/17 1335 **Sheet** 1 **of** 1

TRC Personnel: B Ayres **Well ID:** MW-402

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☑ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 14.75 ft.

Well Volume______

LNAPL/DNAPL Depth = NA

NAPL Thickness = NA

Depth of pump intake: 19'

Static water level after pump put into well: 14.75

Initial purge Rate/ Water Level (100-400 ml/min): 240

Adjusted purge Rates/time/WL(record changes)

Flow rate at time of sampling: 240

Total volume of water purged: 2.5 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1335	1340	1345	1350	1355	1400	1405	1410	1415
Temp. (°C)	Start	10.49	10.31	10.30	10.26	10.24	10.26	10.21	10.20
Conduct. (µmhos/cm)	Purge	341930	337863	330023	324152	320988	314341	304740	305370
DO (mg/L)	↓	0.35	0.32	0.33	0.33	0.35	0.37	0.38	0.42
pH (su)		6.82	6.78	6.75	6.75	6.75	6.75	6.75	6.76
ORP (millivolts)		69.1	63.2	61.2	60.2	59.8	60.0	58.5	57.9
Turbidity (NTU)		27.1	4.71	1.94	1.32	0.97	1.20	0.71	1.48
Flow (ml/min)	240	→							
Depth To Water (ft)	14.75	→							
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Amber	1415		MW-402
VPH	↓	↓	3	40mL Vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth Energy
Project No.: ~~14HLT~~ 140143
Date/Time: 6/5/17 1150
Sheet 1 **of** 1

TRC Personnel: B Ayres
Well ID: MW-403

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☑ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 13.01 ft.

LNAPL/DNAPL Depth = N/A

NAPL Thickness = N/A

Well Volume ______

Depth of pump intake: 19'

Static water level after pump put into well: 13.05

Initial purge Rate/ Water Level (100-400 ml/min): 230

Adjusted purge Rates/time/WL(record changes) ~~230~~ 230

Flow rate at time of sampling: 230

Total volume of water purged: 4 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1150	1155	1200	1205	1210	1215	1220	1225	1230
Temp. (°C)	Start	11.32	12.07	12.24	12.36	12.89	11.56	11.27	11.22
Conduct. (µmhos/cm)	purge	37931.3	37941.4	37962.1	379954	37982.7	37618	37913.0	37879.3
DO (mg/L)	↓	3.08	3.09	3.17	3.29	3.32	3.19	3.10	3.04
pH (su)		6.86	6.80	6.70	6.66	6.66	6.65	6.66	6.66
ORP (millivolts)		93.5	91.7	96.3	86.2	85.7	86.1	85.0	85.0
Turbidity (NTU)		18.7	11.2	6.71	3.21	0.49	0.61	0.71	0.32
Flow (ml/min)	230	→							
Depth To Water (ft)	13.01	13.03	→						
Cumulative Purge Vol. (gal or L)									

Time	1235	1240	1245	1250	1255	1300
Temp. (°C)	11.17	11.08	11.02	10.91	10.85	10.81
Conduct. (µmhos/cm)	37412.6	37312.9	36749.0	361690	35809.0	35153.4
DO (mg/L)	2.81	2.63	2.29	1.98	1.67	1.60
pH (Std. Units)	6.66	6.65	6.64	6.63	6.62	6.61
Eh/ORP (millivolts)	85.2	85.5	85.5	84.4	83.9	83.6
Turbidity (NTU)	0.31	0.17	1.01	0.67	0.43	0.37
Flow (ml/min)	230	→				
Depth To Water (ft)	13.03	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria* **(3 consecutive readings)**
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Amber	1300		MW-403
VPH	↓	↓	3	40mL	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth
Project No.:
Date/Time: 6/6/17 0840
Sheet 1 **of** ___
TRC Personnel: Annie Cornell
Well ID: MW-404

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☐ 2 inch ☒ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☒ historical

Water Depth 12.70 ft.
Well Volume______
LNAPL/DNAPL Depth = —
NAPL Thickness = —

Depth of pump intake: 17
Static water level after pump put into well: 12.71
Initial purge Rate/ Water Level (100-400 ml/min): 300
Adjusted purge Rates/time/WL(record changes) 300
Flow rate at time of sampling: 300
Total volume of water purged: 6 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	840	045	850	855	900	0905	0910	0915	0920
Temp. (°C)	10.95	10.80	10.76	10.74	10.74	10.73	10.71	10.70	10.69
Conduct. (µmhos/cm)	37347	37528	37572	37468	37456	37230	37255	37232	36971
DO (mg/L)	0.12	0.08	.05	.02	.00	.00	.00	0.00	0.00
pH (su)	5.99	6.22	6.41	6.51	6.47	6.50	6.52	6.52	6.53
ORP (millivolts)	62.6	46.8	39.9	37.8	36.9	35.7	36.1	34.0	33.3
Turbidity (NTU)	70.1	43.8	33.8	56.8	41.8	66.7	67.9	47.7	69.1
Flow (ml/min)	300	300	300	300	300	300	300	300	300
Depth To Water (ft)	12.71	12.70	12.70	12.70	12.70	12.70	12.70	12.70	17.10
Cumulative Purge Vol. (gal or L)									

Time	0925	0930	0935	0940	0945	0950	0955 -samp
Temp. (°C)	10.67	10.67	10.66	10.66	10.67	10.66	10.64
Conduct. (µmhos/cm)	37104	37011	36919	36822	36743	36590	36453
DO (mg/L)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pH (Std. Units)	6.53	6.53	6.52	6.51	6.51	6.50	6.50
Eh/ORP (millivolts)	34.9	33.7	33.3	32.7	32.9	29.1	28.2
Turbidity (NTU)	10.9	12.5	18.2	13.5	16.3	18.7	14.7
Flow (ml/min)	300	300	300	300	300	300	300
Depth To Water (ft)	12.70	12.20	12.10	12.70	12.70	12.70	12.70
Cumulative Purge Vol. (gal or L)							

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, NO, NS

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250 A	955		MW-404
VPH	N	HCL	3	vials	955		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth **Project No.:**

Date/Time: 1035 4/6/17

Sheet 1 **of** 1

TRC Personnel: Annie Cornell

Well ID: MW-405

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smarTroll, hach

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	–
Well Mouth	–

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 14.15 ft.

Well Volume ______

LNAPL/DNAPL Depth = ______

NAPL Thickness = ______

Depth of pump intake: 17

Static water level after pump put into well: 14.15

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 300

Flow rate at time of sampling: 300

Total volume of water purged: 3 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1025	1030	1035	1040	1045	1050			
Temp. (°C)	12.51	12.72	12.74	12.76	12.82	12.86			
Conduct. (µmhos/cm)	27358	33737	32922	33765	34390	34713			
DO (mg/L)	0.14	0.06	0.04	0.02	0.01	0.01			
pH (su)	6.48	6.32	6.33	6.32	6.30	6.30			
ORP (millivolts)	83.1	84.7	81.5	82.3	82.3	78.9			
Turbidity (NTU)	11.3	2.8	2.12	1.41	3.14	1.22			
Flow (ml/min)	300	300	300	300	300	300			
Depth To Water (ft)	14.15	14.15	14.15	14.15	14.14	14.14			
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*

(3 consecutive readings)

- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250A	1050		MW-405
VPH	N	HCL	3	vials	1050		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth **Project No.:** **Date/Time:** 6/7/17 **Sheet** 1 **of** 1

TRC Personnel: Annie Cornell **Well ID:** MW-406 /DUP-2

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☒ top of riser ☐ top of casing ☐ ______ ☐ measured ☒ historical

Water Depth 13.39 ft. **LNAPL/DNAPL Depth** = 13.39

Well Volume ______ **NAPL Thickness** = minimal (globs)

Depth of pump intake: 18 ft

Static water level after pump put into well: 13.39

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 300

Flow rate at time of sampling: 300

Total volume of water purged: 5 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	845	850	855	900	905	910	915	920	925
Temp. (°C)	12.47	12.47	12.55	12.61	12.67	12.73	12.74	12.77	12.79
Conduct. (µmhos/cm)	5953	13476	23045	28593	30537	31670	32082	32331	32451
DO (mg/L)	0.08	0.06	0.04	0.02	0.01	0.00	0.00	0.00	0.00
pH (su)	6.02	6.06	6.16	6.26	6.31	6.34	6.34	6.34	6.34
ORP (millivolts)	-37.4	-36.1	-23.7	-23.3	-24.0	-28.0	-28.6	-30.1	-32.6
Turbidity (NTU)	27.9	33.8	32.6	100	68.9	42.3	32.7	19.2	13.4
Flow (ml/min)	300	300	300	300	300	300	300	300	300
Depth To Water (ft)	—	—	—	—	—	—	—	—	—
Cumulative Purge Vol. (gal or L)									

Time	930	935	938	941	945	
Temp. (°C)	12.83	12.88	12.88	12.92	S	
Conduct. (µmhos/cm)	32541	32657	32710	32707	A	
DO (mg/L)	0.00	0.00	0.00	0.00	M	
pH (Std. Units)	6.33	6.32	6.31	6.31	P	
Eh/ORP (millivolts)	-35.7	-40.0	-41.9	-43.6	L	
Turbidity (NTU)	7.52	5.44	5.23	4.07	E	
Flow (ml/min)	300	300	300	300		
Depth To Water (ft)	—	—	—	—	—	
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: depth to water not taken due to NAPL in the well

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250A	945		MW-406 /DUP-2
VPH	N	HCL	3	VIALS	945		

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth **Project No.:** **Date/Time:** 6/7/17 **Sheet** 1 **of** 1

TRC Personnel: Annie Cornell **Well ID:** MW-407

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 13.16 ft.

LNAPL/DNAPL Depth = minimal ←

NAPL Thickness = ______ ~13.13 ←

Well Volume ______

Depth of pump intake: 15 ft

Static water level after pump put into well: 13.13

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 300

Flow rate at time of sampling: 300

Total volume of water purged: 3 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1025	1030	1035	1040	1045	1050			
Temp. (°C)	13.11	12.66	12.73	12.74	12.69	12.65			
Conduct. (µmhos/cm)	4003	5574	5768	5749	5765	5840			
DO (mg/L)	0.12	0.06	0.04	0.03	0.02	6.02			
pH (su)	6.72	6.65	6.62	6.62	6.61	6.60			
ORP (millivolts)	-123.9	-128.1	-128.0	-127.4	-127.0	-126.5			
Turbidity (NTU)	8.93	6.51	7.74	7.71	7.84	7.91			
Flow (ml/min)	300	300	300	300	300	300			
Depth To Water (ft)	13.13	13.14	13.14	13.14	13.14	13.13			
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:

Clear, N/S

Some globulars of NAPL @ ~13.13

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250 A	1050		MW-407
VPH	N	HCL	3	vials	1050		

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth Spectra Energy **Project No.:** 104161 **Date/Time:** 6/6/17 1205 **Sheet** 1 **of** 1

TRC Personnel: B Ayres **Well ID:** MW-408

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☐	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other:

WELL MATERIAL ☑ PVC ☐ SS

Other:

Well Depth ____ ft. ☑ top of riser ☐ top of casing ☐ ____ ☐ measured ☑ historical

Water Depth 13.15 ft. **LNAPL/DNAPL Depth =** NA

Well Volume ____ **NAPL Thickness =** NA

Depth of pump intake: 18'

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 230

Adjusted purge Rates/time/WL(record changes)

Flow rate at time of sampling: 230

Total volume of water purged: 2.5 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1205	1210	1215	1220	1225	1230	1235	1240	1245
Temp. (°C)	Start	11.56	11.41	11.10	11.07	11.04	11.03	11.00	11.01
Conduct. (μmhos/cm)	Purge	3372.8	4169.0	4738.7	4758	4765.1	4826.1	4868.9	4768.4
DO (mg/L)	↓	3.69	3.21	2.55	2.51	2.48	2.30	2.19	2.18
pH (su)	↓	7.25	7.10	6.97	6.96	6.95	6.93	6.92	6.93
ORP (millivolts)	↓	57.7	46.2	35.3	32.6	30.9	27.6	24.6	23.1
Turbidity (NTU)	↓	6.91	2.47	1.97	1.76	1.50	1.27	0.85	0.76
Flow (ml/min)	230	→	→	→	→	→	→	→	→
Depth To Water (ft)	13.15	→	→	→	→	→	→	→	→
Cumulative Purge Vol. (gal or L)									

Time							
Temp. (°C)							
Conduct. (μmhos/cm)							
DO (mg/L)							
pH (Std. Units)							
Eh/ORP (millivolts)							
Turbidity (NTU)							
Flow (ml/min)							
Depth To Water (ft)							
Cumulative Purge Vol. (gal or L)							

Stabilization Criteria*
(3 consecutive readings)
- Temperature: + 3 %
- Conduct. (μmhos/cm): + 3 %
- DO (mg/L): + 10 % (for values >0.5 mg/L)
- pH (Std. Units): + 0.1 SU
- ORP (millivolts): + 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Clean, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Ang1	1245		MW-408
VPH	↓	↓	3	40mL Vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth Spectra Energy
Project No.: 104161
Date/Time: 6/6/18 1030
Sheet 1 of 1

TRC Personnel: B Ayres
Well ID: MW 409

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☐	☐

Sampling Equipment: Peristaltic
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.
Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch
Other:

WELL MATERIAL
☑ PVC ☐ SS
Other:

Well Depth ____ ft. ☑ top of riser ☐ top of casing ☐ ____ ☐ measured ☑ historical
Water Depth 12.98 ft.
Well Volume ____
LNAPL/DNAPL Depth = N/A
NAPL Thickness = N/A
Depth of pump intake: 18'
Static water level after pump put into well: 13.00
Initial purge Rate/ Water Level (100-400 ml/min): 230
Adjusted purge Rates/time/WL(record changes)
Flow rate at time of sampling: 230
Total volume of water purged: 3 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1030	1035	1040	1045	1050	1055	1100	1105	1110
Temp. (°C)	Start	10.92	10.85	10.87	10.91	10.88	10.87	10.88	10.88
Conduct. (μmhos/cm)	purge	5600.9	5731.6	5758.7	5686.0	5565.0	5417.3	5421.9	5263.1
DO (mg/L)	↓	0.31	0.24	0.19	0.18	0.17	0.16	0.17	0.16
pH (su)		6.99	6.92	6.92	6.91	6.91	6.91	6.91	6.90
ORP (millivolts)		-13.8	-15.4	-16.4	-18.2	-17.3	-16.9	-15.8	-14.2
Turbidity (NTU)				2.04	1.31	0.08	0.91	2.01	1.93
Flow (ml/min)	230	→							
Depth To Water (ft)	12.98	13.00	→						
Cumulative Purge Vol. (gal or L)									

Time	1115	1120	~~1125~~			
Temp. (°C)	10.86	10.87				
Conduct. (μmhos/cm)	5087.6	4921.0				
DO (mg/L)	0.15	0.15				
pH (Std. Units)	6.89	6.89				
Eh/ORP (millivolts)	-13.6	-13.1				
Turbidity (NTU)	2.16	1.97				
Flow (ml/min)	230	230				
Depth To Water (ft)	13.00	13.06				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Amber	1120		MW-409
VPH	↓	↓	3	40mL Vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth C/S
Project No.: 140143.0000.4903
Date/Time: 6/7/17 0915
Sheet 1 **of** 1

TRC Personnel: L. Hopp
Well ID: MW 410

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: ______

Flow-thru Cell Volume: ______

PID SCREENING MEAS.

Background	NM
Well Mouth	NM

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 12.65 ft.
Well Volume ______
LNAPL/DNAPL Depth = ND
NAPL Thickness = NM

Depth of pump intake: 18'
Static water level after pump put into well: 18'
Initial purge Rate/ Water Level (100-400 ml/min): 400 mL/min
Adjusted purge Rates/time/WL(record changes) 300 mL/min
Flow rate at time of sampling: 300
Total volume of water purged: 1.75

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	0915	0920	0925	0930	0935	0940	0945	0950	
Temp. (°C)	P	12.36	12.03	12.05	12.06	12.11	12.14	12.15	
Conduct. (µmhos/cm)		~~30532~~ 40903	~~30644~~ 40851	41204	41456	41534	41487	41477	
DO (mg/L)	U	0.75	.77	.70	.57	.55	.54	.54	
pH (su)		6.58	6.66	6.67	6.67	6.68	6.69	6.68	
ORP (millivolts)	R	67.3	66.3	67.7	69.2	70.4	71.9	73.0	
Turbidity (NTU)	G	3.67	3.58	2.05	1.97	1.84	2.06	1.71	
Flow (ml/min)		300	300	300	300	300	300	300	
Depth To Water (ft)	E	18'	18'	18'	18'	18'	18'	18'	
Cumulative Purge Vol. (gal or L)		.25	.50	.75	1.00	1.25	1.50	1.75	

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:
Started 0900 - purged 2 gallons
Flow Thru Cell in Shade and Sun

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH Deluxe	N	Acl	2	1LA	0950	LH	MW410
VPH Deluxe	N	HCl	3	340mLV	0950	LH	MW410

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Lauren V. Hopp

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth MC/S
Project No.: 140143
Date/Time: 6/7/17 1120
Sheet 1 **of** 1

TRC Personnel: L. Hopp
Well ID: MW 411

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: ______

Flow-thru Cell Volume: ______

PID SCREENING MEAS.

Background	NM
Well Mouth	NM

Protective Casing Stick-up (from ground) ______ ft.

Riser Stick-up (from ground) ______ ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☒ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☒ historical

Water Depth 12.83 ft.
Well Volume ______
LNAPL/DNAPL Depth = ND
NAPL Thickness = ND

Depth of pump intake: ______

Static water level after pump put into well: 12.86

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) NA

Flow rate at time of sampling: 300

Total volume of water purged: 1.75

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1120	1125	1130	1135	1140	1145	1150	1155	
Temp. (°C)	P	12.56	12.73	12.70	12.70	12.79	12.70	12.75	
Conduct. (µmhos/cm)	U	36818	37295	36548	35972	35320	34913	34543	
DO (mg/L)	R	.19	.16	.13	.12	.10	.10	.08	
pH (su)	G	6.37	6.38	6.38	6.36	6.36	6.37	6.36	
ORP (millivolts)	E	70.1	70.1	70.0	69.9	69.9	70.2	70.4	
Turbidity (NTU)		2.49	1.53	0.83	0.82	.77	.32	.39	
Flow (ml/min)		300	300	300	300	300	300	300	
Depth To Water (ft)		12.82	12.82	12.82	12.82	12.82	12.82	12.82	
Cumulative Purge Vol. (gal or L)		.25	.50	.75	1	1.25	1.50	1.75,	

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments:
LVH 6/7/17
~~[illegible] equipment [illegible]~~
Flow Thru Cell in shade/sun
Purged a gallon before starting

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
VPH Deluxe	N	HCl	3	40 mL V	1155	44	MW 411
EPH Deluxe			2	1 L A		44	MW 411

- Consult the applicable regulatory guidance for the specific criteria.

Signed: Lauren V. Hopp

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth Spectra Energy **Project No.:** 104161

Date/Time: 1328 6/6/17

Sheet 1 **of** 1

TRC Personnel: B Ayes

Well ID: MW-412

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: peristaltic pump

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL

☑ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 13.16 ft.

LNAPL/DNAPL Depth = N/A

Well Volume ______

NAPL Thickness = N/A

Depth of pump intake: 19'

Static water level after pump put into well:

Initial purge Rate/ Water Level (100-400 ml/min): 230

Adjusted purge Rates/time/WL(record changes)

Flow rate at time of sampling: 230

Total volume of water purged: 2 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1320	1325	1330	1335	1340	1345	1350	1355	
Temp. (°C)	Start	11.98	11.72	11.61	11.58	11.56	11.56	11.56	
Conduct. (µmhos/cm)	Purge	29862.3	29739.8	29811.6	29869.7	29840.6	29847.4	29846.1	
DO (mg/L)	↓	0.16	0.13	0.07	0.07	0.04	0.04	0.04	
pH (su)		6.44	6.42	6.40	6.39	6.39	6.39	6.39	
ORP (millivolts)		-5.0	-4.7	-5.0	-5.2	-6.1	-6.7	-6.4	
Turbidity (NTU)		4.61	4.17	3.91	1.80	1.21	1.31	0.97	
Flow (ml/min)	230	→							
Depth To Water (ft)	13.16	→							
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)

- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Amber	1355		MW-412
VPH	↓	↓	3	40ml Vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth **Project No.:**
Date/Time: 1220 6/14/17
Sheet 1 **of** 1

TRC Personnel: Annie Connell
Well ID: MW-413

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	–
Well Mouth	–

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☐ 2 inch ☒ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL ☐ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 12.82 ft.
Well Volume ______
LNAPL/DNAPL Depth = ______
NAPL Thickness = ______

Depth of pump intake: 16
Static water level after pump put into well: 12.81
Initial purge Rate/ Water Level (100-400 ml/min): 300
Adjusted purge Rates/time/WL(record changes) 300
Flow rate at time of sampling: 300
Total volume of water purged: 3 gallons, sample

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1240	1245	1250	1255	1300	1305	1310	1315	
Temp. (°C)	11.64	11.78	11.78	11.78	11.77	11.78	11.79		
Conduct. (µmhos/cm)	31235	30815	30865	31135	31587	32006	32114		
DO (mg/L)	0.52	0.13	0.06	0.01	0.00	0.00	0.00		
pH (su)	6.38	6.32	6.30	6.29	6.28	6.28	6.28		
ORP (millivolts)	-30.8	-35.9	-38.8	-41.3	-433	-449	-45.4		
Turbidity (NTU)	10.8	8.84	11.2	9.89	1.89	1.21	1.64		
Flow (ml/min)	300	300	300	300	300	300	300		
Depth To Water (ft)	12.81	12.80	12.80	12.80	12.80	12.80	12.80		
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (µmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, Nro, NrS

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250A	1315		
VPH	N	HCL	3	vials	1315		

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth **Project No.:** **Date/Time:** 6/7/17 **Sheet** 1 **of** 1

TRC Personnel: Annie Connell **Well ID:** MW-414

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	—
Well Mouth	—

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☐ 2 inch ☒ 4 inch ☐ 6 inch

Other: ______

WELL MATERIAL ☒ PVC ☐ SS

Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 13.96 ft. **LNAPL/DNAPL Depth =** 13.94

Well Volume ______ **NAPL Thickness =** 0.02

Depth of pump intake: 18 ft

Static water level after pump put into well: 13.96

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 300

Flow rate at time of sampling: 300

Total volume of water purged: 4 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1210	1215	1220	1225	1230	1235	1240	1245	1250
Temp. (°C)	13.61	12.88	12.89	12.92	12.90	13.02	12.99	13.10	13.15
Conduct. (µmhos/cm)	4004	4612	5240	5767	6091	6217	6390	6426	6288
DO (mg/L)	0.13	0.05	0.03	0.02	0.01	0.01	0.01	0.00	0.00
pH (su)	6.91	6.66	6.55	6.50	6.48	6.46	6.45	6.44	6.44
ORP (millivolts)	-23.3	-25.1	-25.2	-24.9	-24.8	-25.1	-25.3	-25.4	-26.6
Turbidity (NTU)	69.9	53.6	40.4	38.4	35.8	34.7	21.6	18.8	17.3
Flow (ml/min)	300	300	300	200	300	300	306	300	300
Depth To Water (ft)									
Cumulative Purge Vol. (gal or L)									

Time	1255	1300				
Temp. (°C)	13.32	13.34				
Conduct. (µmhos/cm)	5992	5983				
DO (mg/L) 0.01	~~5992~~	0.01				
pH (Std. Units)	6.45	6.44				
Eh/ORP (millivolts)	-27.5	-27.9				
Turbidity (NTU)	16.7	18.2				
Flow (ml/min)	300	300				
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: depth to water was not taken due to NAPL in the well

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250 A	1300		MW-414
VPH	N	HCL	3	vials	1300		〃

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Spectra Weymouth **Project No.:**

Date/Time: 6/6/17 1140

Sheet 1 **of** 1

TRC Personnel: Annie Cornell

Well ID: MW-415

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☒	☐
Concrete Collar Intact	☒	☐
PVC Stick-up Intact	☒	☐
Well Cap Present	☒	☐
Security Lock Present	☒	☐

Sampling Equipment: smart troll, hach

Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	–
Well Mouth	

Protective Casing Stick-up (from ground) 2 ft.

Riser Stick-up (from ground) 2 ft.

WELL DIAMETER ☒ 2 inch ☐ 4 inch ☐ 6 inch

Other: ____

WELL MATERIAL

☒ PVC ☐ SS

Other: ____

Well Depth ____ ft. ☑ top of riser ☐ top of casing ☐ ____ ☐ measured ☑ historical

Water Depth 14.56 ft.

Well Volume____

LNAPL/DNAPL Depth = –

NAPL Thickness = –

Depth of pump intake: 17

Static water level after pump put into well: 14.45

Initial purge Rate/ Water Level (100-400 ml/min): 300

Adjusted purge Rates/time/WL(record changes) 300

Flow rate at time of sampling: 300

Total volume of water purged: 3 gallons

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

							sample		
Time	1140	1145	1150	1155	1200	1205	1210		
Temp. (°C)	10.36	10.33	10.24	10.24	10.24	10.24			
Conduct. (μmhos/cm)	34960	35227	35613	35715	35926	35925			
DO (mg/L)	0.05	0.02	0.00	0.00	0.00	0.00			
pH (su)	6.36	6.35	6.33	6.31	6.30	6.29			
ORP (millivolts)	33.0	31.5	29.9	29.5	29.2	29.1			
Turbidity (NTU)	26.2	5.00	1.27	3.39	0.56	1.30			
Flow (ml/min)	300	300	300	300	300	300			
Depth To Water (ft)	14.45	14.45	14.41	14.41	14.34	14.39			
Cumulative Purge Vol. (gal or L)									

Time						
Temp. (°C)						
Conduct. (μmhos/cm)						
DO (mg/L)						
pH (Std. Units)						
Eh/ORP (millivolts)						
Turbidity (NTU)						
Flow (ml/min)						
Depth To Water (ft)						
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☒	☒
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ____	☐	☐

Comments: Clear, Nro, Nrs

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCL	2	250A	1210		MW-415
VPH	N	HCL	3	vials	1210		d

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth Spectra Energy
Project No.: 140143
Date/Time: 6/7/17 1030
Sheet 1 **of** 1

TRC Personnel: BAyres
Well ID: MW-416

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) N/A ft.

Riser Stick-up (from ground) N/A ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch
Other: ______

WELL MATERIAL
☑ PVC ☐ SS
Other: ______

Well Depth ______ ft. ☑ top of riser ☐ top of casing ☐ ______ ☐ measured ☑ historical

Water Depth 10.66 ft.
Well Volume ______
LNAPL/DNAPL Depth = N/A
NAPL Thickness = N/A

Depth of pump intake: 17'
Static water level after pump put into well: 10.67
Initial purge Rate/ Water Level (100-400 ml/min): 230
Adjusted purge Rates/time/WL(record changes)
Flow rate at time of sampling: 230
Total volume of water purged: 3.5 gal

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1030	1035	1040	1045	1050	1055	1100	1105	1110
Temp. (°C)	Start	12.6	12.4	12.4	12.3	12.4	12.5	12.4	12.4
Conduct. (μmhos/cm)	Purge	3426	8799	9337	10125	10462	10770	11422	12479
DO (mg/L)	↓	3.31	2.49	2.39	2.26	2.20	2.16	2.07	2.00
pH (su)		6.73	6.58	6.59	6.59	6.59	6.58	6.58	6.58
ORP (millivolts)		6.4	15.1	15.8	17.3	18.4	19.7	20.7	21.7
Turbidity (NTU)		7.9	7.83	7.94	7.64	6.93	6.27	6.01	5.91
Flow (ml/min)	230	→							
Depth To Water (ft)	10.66	10.68	10.69	→					
Cumulative Purge Vol. (gal or L)									

Time	1115	1120	1125			
Temp. (°C)	12.4	12.5	12.5			
Conduct. (μmhos/cm)	13330	13461	14133			
DO (mg/L)	1.85	1.90	1.86			
pH (Std. Units)	6.58	6.58	6.58			
Eh/ORP (millivolts)	22.8	23.3	23.7			
Turbidity (NTU)	4.63	4.50				
Flow (ml/min)	230	→				
Depth To Water (ft)	10.69	→				
Cumulative Purge Vol. (gal or L)						

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (μmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other: ______	☐	☐

Comments: Clear, NO, NS

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Am gl	1125		MW-416
VPH	↓	↓	3	40mL Vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed: ______

Rev: April 2014

TRC

Groundwater Field Data Record

Project: Weymouth Spectra Energy
Project No.: 140143
Date/Time: 6/7/17 1200
Sheet 1 of 1
TRC Personnel: B Agnes
Well ID: MW-417

WELL INTEGRITY

	YES	NO
Protect. Casing Secure	☑	☐
Concrete Collar Intact	☑	☐
PVC Stick-up Intact	☑	☐
Well Cap Present	☑	☐
Security Lock Present	☑	☐

Sampling Equipment: Peristaltic
Flow-thru Cell Volume:

PID SCREENING MEAS.

Background	
Well Mouth	

Protective Casing Stick-up (from ground) N/A ft.
Riser Stick-up (from ground) N/A ft.

WELL DIAMETER ☑ 2 inch ☐ 4 inch ☐ 6 inch
Other:

WELL MATERIAL
☑ PVC ☐ SS
Other:

Well Depth ____ ft. ☑ top of riser ☐ top of casing ☐ ____ ☐ measured ☑ historical
Water Depth 10.17 ft.
Well Volume
LNAPL/DNAPL Depth = N/A
NAPL Thickness = N/A
Depth of pump intake: 17'
Static water level after pump put into well:
Initial purge Rate/ Water Level (100-400 ml/min): 230
Adjusted purge Rates/time/WL(record changes)
Flow rate at time of sampling: 230
Total volume of water purged: 2 gal

FB
FB 1310
TB 1315

FIELD WATER QUALITY MEASUREMENTS (record at appropriate intervals)

Time	1200	1205	1210	1215	1220	1225	1230		
Temp. (°C)	Start	12.8	12.8	13.0	12.9	12.8	12.8		
Conduct. (µmhos/cm)	Purge	6259	6010	5680	5631	5586	5531		
DO (mg/L)	↓	0.67	0.39	0.35	0.35	0.35	0.35		
pH (su)		6.64	6.61	6.58	6.57	6.57	6.56		
ORP (millivolts)		24.4	23.0	20.1	18.9	17.3	15.0		
Turbidity (NTU)		37.9	26.8	8.50	7.43	3.34	2.94		
Flow (ml/min)	230	→					→		
Depth To Water (ft)	10.17	10.26	10.28	→			→		
Cumulative Purge Vol. (gal or L)									

Time					
Temp. (°C)					
Conduct. (µmhos/cm)					
DO (mg/L)					
pH (Std. Units)					
Eh/ORP (millivolts)					
Turbidity (NTU)					
Flow (ml/min)					
Depth To Water (ft)					
Cumulative Purge Vol. (gal or L)					

Stabilization Criteria*
(3 consecutive readings)
- Temperature: ± 3 %
- Conduct. (µmhos/cm): ± 3 %
- DO (mg/L): ± 10 % (for values >0.5 mg/L)
- pH (Std. Units): ± 0.1 SU
- ORP (millivolts): ± 10 mV
- Turbidity (NTU): +/- 10 % (for values >5.0 NTUs)
- Drawdown: < 0.3 ft (can be greater as long as water level stabilizes above well screen)

	Purge	Sample
Peristaltic Pump	☑	☑
Submersible Pump	☐	☐
Bladder Pump	☐	☐
Bailer	☐	☐
Other:	☐	☐

Comments: Clear, N/O, N/S

Analytical Parameter	Filtered (Y/N)	Preservation	# Bottles	Size/Type Bottles	Time Collected	QC	Sample #
EPH	N	HCl	2	1L Amb	1230		MW-417
VPH	↓	↓	3	40mL vial	↓		↓

- Consult the applicable regulatory guidance for the specific criteria.

Signed:

Rev: April 2014

Appendix A-3
Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/22/2016 20:00	6.83			8.31			5.17		1.66			7.58	
12/22/2016 20:10	6.91			8.32			5.17		1.67				
12/22/2016 20:20	6.91			8.33			5.17		1.67				
12/22/2016 20:30	6.91			8.32			5.17		1.67			6.9	
12/22/2016 20:40	6.92			8.32			5.17		1.67				
12/22/2016 20:50	6.92			8.32			5.16		1.67				
12/22/2016 21:00	6.92			8.32			5.16		1.67			6.11	
12/22/2016 21:10	6.93			8.32			5.16		1.67				
12/22/2016 21:20	6.92			8.31			5.15		1.67				
12/22/2016 21:30	6.92			8.31			5.16		1.66			5.2	
12/22/2016 21:40	6.92			8.29			5.15		1.66				
12/22/2016 21:50	6.92			8.28			5.15		1.66				
12/22/2016 22:00	6.92			8.26			5.15		1.65			4.19	
12/22/2016 22:10	6.91			8.25			5.14		1.65				
12/22/2016 22:20	6.90			8.23			5.14		1.64				
12/22/2016 22:30	6.89			8.21			5.14		1.64			3.13	
12/22/2016 22:40	6.89			8.20			5.14		1.64				
12/22/2016 22:50	6.88			8.17			5.12		1.63				
12/22/2016 23:00	6.87			8.15			5.12		1.63			2.16	
12/22/2016 23:10	6.86			8.14			5.13		1.62				
12/22/2016 23:20	6.86			8.13			5.12		1.62				
12/22/2016 23:30	6.84			8.10			5.11		1.61			1.43	
12/22/2016 23:40	6.84			8.09			5.12		1.61				
12/22/2016 23:50	6.82			8.07			5.11		1.60				
12/23/2016 0:00	6.82			8.04			5.11		1.60			1.04	
12/23/2016 0:10	6.82			8.02			5.10		1.60				
12/23/2016 0:20	6.81			8.01			5.09		1.59				
12/23/2016 0:30	6.81			8.00			5.09		1.59			1.02	low
12/23/2016 0:40	6.81			7.99			5.08		1.59				
12/23/2016 0:50	6.80			7.98			5.07		1.58				
12/23/2016 1:00	6.80			7.97			5.07		1.59			1.29	
12/23/2016 1:10	6.80			7.96			5.07		1.59				
12/23/2016 1:20	6.80			7.95			5.06		1.58				
12/23/2016 1:30	6.80			7.95			5.05		1.58			1.74	
12/23/2016 1:40	6.80			7.94			5.05		1.58				
12/23/2016 1:50	6.80			7.94			5.05		1.59				
12/23/2016 2:00	6.80			7.93			5.04		1.59			2.31	
12/23/2016 2:10	6.80			7.94			5.04		1.59				

Appendix A-3
Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/23/2016 2:20	6.81			7.93			5.04		1.60				
12/23/2016 2:30	6.81			7.94			5.04		1.60			2.98	
12/23/2016 2:40	6.81			7.94			5.04		1.60				
12/23/2016 2:50	6.82			7.94			5.04		1.61				
12/23/2016 3:00	6.82			7.94			5.03		1.61			3.78	
12/23/2016 3:10	6.82			7.95			5.03		1.62				
12/23/2016 3:20	6.83			7.95			5.03		1.62				
12/23/2016 3:30	6.83			7.95			5.01		1.63			4.73	
12/23/2016 3:40	6.83			7.95			5.02		1.63				
12/23/2016 3:50	6.84			7.95			5.00		1.63				
12/23/2016 4:00	6.84			7.96			4.99		1.63			5.78	
12/23/2016 4:10	6.85			7.96			4.99		1.64				
12/23/2016 4:20	6.85			7.96			4.98		1.65				
12/23/2016 4:30	6.86			7.95			4.96		1.65			6.84	
12/23/2016 4:40	6.86			7.95			4.96		1.65				
12/23/2016 4:50	6.87			7.96			4.96		1.66				
12/23/2016 5:00	6.87			7.96			4.96		1.65			7.78	
12/23/2016 5:10	6.88			7.96			4.95		1.66				
12/23/2016 5:20	6.88			7.96			4.94		1.66				
12/23/2016 5:30	6.89			7.97			4.94		1.67			8.54	
12/23/2016 5:40	6.89			7.97			4.94		1.66				
12/23/2016 5:50	6.89			7.98			4.94		1.67				
12/23/2016 6:00	6.90			7.97			4.93		1.67			9.06	
12/23/2016 6:10	6.90			7.98			4.93		1.68				
12/23/2016 6:20	6.91			7.98			4.93		1.68				
12/23/2016 6:30	6.91			7.98			4.92		1.68			9.32	
12/23/2016 6:40	6.91			7.98			4.91		1.68				
12/23/2016 6:50	6.92			7.98			4.91		1.68				
12/23/2016 7:00	6.92			7.99			4.91		1.68			9.33	high
12/23/2016 7:10	6.92			8.00			4.92		1.69				
12/23/2016 7:20	6.92			7.99			4.91		1.69				
12/23/2016 7:30	6.93			8.00			4.92		1.69			9.11	
12/23/2016 7:40	6.93			8.01			4.91		1.69				
12/23/2016 7:50	6.93			8.01			4.91		1.69				
12/23/2016 8:00	6.93			8.01			4.91		1.70	7:30	0.11	8.7	
12/23/2016 8:10	6.94			8.02			4.89		1.70				
12/23/2016 8:20	6.94			8.02			4.90		1.69				
12/23/2016 8:30	6.94			8.03	8:00	0.09	4.90		1.70			8.13	
12/23/2016 8:40	6.95	8:10	0.15	8.03			4.89		1.70				
12/23/2016 8:50	6.94			8.02			4.89		1.70				

Appendix A-3
Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/23/2016 9:00	6.94			8.03			4.88		1.70			7.44	
12/23/2016 9:10	6.95			8.02			4.88		1.70				
12/23/2016 9:20	6.95			8.01			4.88		1.70				
12/23/2016 9:30	6.95			8.01			4.87		1.70			6.62	
12/23/2016 9:40	6.95			8.00			4.87		1.70				
12/23/2016 9:50	6.95			7.97			4.86		1.70				
12/23/2016 10:00	6.95			7.97			4.85		1.69			5.66	
12/23/2016 10:10	6.95			7.94			4.85		1.69				
12/23/2016 10:20	6.94			7.92			4.84		1.69				
12/23/2016 10:30	6.93			7.90			4.83		1.69			4.59	
12/23/2016 10:40	6.93			7.87			4.82		1.68				
12/23/2016 10:50	6.92			7.84			4.82		1.68				
12/23/2016 11:00	6.91			7.82			4.82		1.67			3.47	
12/23/2016 11:10	6.91			7.79			4.80		1.66				
12/23/2016 11:20	6.89			7.77			4.80		1.66				
12/23/2016 11:30	6.88			7.74			4.78		1.65			2.45	
12/23/2016 11:40	6.87			7.72			4.77		1.64				
12/23/2016 11:50	6.86			7.70			4.77		1.64				
12/23/2016 12:00	6.85			7.67			4.76		1.63			1.68	
12/23/2016 12:10	6.83			7.64			4.77		1.63				
12/23/2016 12:20	6.83			7.63			4.76		1.62				
12/23/2016 12:30	6.81			7.61			4.75		1.62			1.25	
12/23/2016 12:40	6.81			7.60			4.74		1.61				
12/23/2016 12:50	6.80			7.57			4.74		1.61				
12/23/2016 13:00	6.80			7.56			4.74		1.60			1.17	low
12/23/2016 13:10	6.79			7.54			4.74		1.60				
12/23/2016 13:20	6.79			7.53	6:20	0.50	4.72		1.60				
12/23/2016 13:30	6.78	6:30	0.16	7.53			4.73		1.59	6:30	0.10	1.36	
12/23/2016 13:40	6.78			7.53			4.74		1.59				
12/23/2016 13:50	6.78			7.53			4.74		1.59				
12/23/2016 14:00	6.78			7.54			4.74		1.59			1.72	
12/23/2016 14:10	6.78			7.53			4.73		1.59				
12/23/2016 14:20	6.78			7.54			4.74		1.59				
12/23/2016 14:30	6.78			7.54			4.75		1.59			2.18	
12/23/2016 14:40	6.78			7.54			4.75		1.59				
12/23/2016 14:50	6.78			7.55			4.75		1.59				
12/23/2016 15:00	6.78			7.55			4.76		1.60			2.76	
12/23/2016 15:10	6.78			7.57			4.76		1.60				
12/23/2016 15:20	6.79			7.58			4.76		1.60				
12/23/2016 15:30	6.79			7.58			4.77		1.61			3.48	

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Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/23/2016 15:40	6.79			7.60			4.78		1.61				
12/23/2016 15:50	6.79			7.61			4.78		1.61				
12/23/2016 16:00	6.80			7.62			4.79		1.62			4.36	
12/23/2016 16:10	6.80			7.63			4.80		1.62				
12/23/2016 16:20	6.80			7.64			4.79		1.63				
12/23/2016 16:30	6.81			7.64			4.79		1.63			5.33	
12/23/2016 16:40	6.81			7.65			4.79		1.64				
12/23/2016 16:50	6.82			7.66			4.80		1.64				
12/23/2016 17:00	6.83			7.67			4.80		1.65			6.31	
12/23/2016 17:10	6.83			7.67			4.80		1.65				
12/23/2016 17:20	6.83			7.68			4.79		1.66				
12/23/2016 17:30	6.84			7.69			4.80		1.66			7.18	
12/23/2016 17:40	6.84			7.69			4.79		1.66				
12/23/2016 17:50	6.85			7.69			4.79		1.67				
12/23/2016 18:00	6.85			7.70			4.79		1.67			7.87	
12/23/2016 18:10	6.86			7.71			4.79		1.67				
12/23/2016 18:20	6.87			7.72			4.79		1.68				
12/23/2016 18:30	6.87			7.73			4.79		1.68			8.32	
12/23/2016 18:40	6.87			7.73			4.79		1.68				
12/23/2016 18:50	6.87			7.74			4.79		1.69				
12/23/2016 19:00	6.88			7.74			4.78		1.70			8.54	high
12/23/2016 19:10	6.89			7.75			4.79		1.69				
12/23/2016 19:20	6.89			7.76			4.79		1.70				
12/23/2016 19:30	6.90			7.76			4.79		1.70			8.53	
12/23/2016 19:40	6.90			7.77			4.79		1.70				
12/23/2016 19:50	6.91			7.77			4.80		1.70				
12/23/2016 20:00	6.91			7.78			4.79		1.70			8.31	
12/23/2016 20:10	6.91			7.79			4.79		1.71				
12/23/2016 20:20	6.92			7.78			4.79		1.71				
12/23/2016 20:30	6.92			7.79			4.78		1.71			7.92	
12/23/2016 20:40	6.92			7.79			4.78		1.71				
12/23/2016 20:50	6.92			7.80			4.78		1.71				
12/23/2016 21:00	6.93			7.80			4.78		1.71			7.38	
12/23/2016 21:10	6.94	8:10	0.15	7.80			4.77		1.71				
12/23/2016 21:20	6.93			7.81			4.77		1.71				
12/23/2016 21:30	6.94			7.81			4.77		1.72	8:30	0.12	6.73	
12/23/2016 21:40	6.94			7.82			4.78		1.71				
12/23/2016 21:50	6.95			7.82			4.77		1.72				
12/23/2016 22:00	6.95			7.82			4.77		1.71			5.96	
12/23/2016 22:10	6.94			7.83			4.78		1.72				

Appendix A-3
Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/23/2016 22:20	6.95			7.83			4.78		1.72				
12/23/2016 22:30	6.95			7.84	9:30	0.31	4.77		1.71			5.06	
12/23/2016 22:40	6.95			7.83			4.77		1.72				
12/23/2016 22:50	6.95			7.82			4.77		1.71				
12/23/2016 23:00	6.94			7.81			4.77		1.71			4.06	
12/23/2016 23:10	6.95			7.80			4.77		1.71				
12/23/2016 23:20	6.94			7.79			4.77		1.71				
12/23/2016 23:30	6.94			7.77			4.77		1.70			3.04	
12/23/2016 23:40	6.94			7.77			4.76		1.70				
12/23/2016 23:50	6.93			7.76			4.77		1.70				
12/24/2016 0:00	6.93			7.75			4.78		1.69			2.14	
12/24/2016 0:10	6.92			7.73			4.77		1.69				
12/24/2016 0:20	6.92			7.72			4.77		1.68				
12/24/2016 0:30	6.91			7.70			4.77		1.68			1.51	
12/24/2016 0:40	6.90			7.69			4.78		1.68				
12/24/2016 0:50	6.90			7.68			4.78		1.68				
12/24/2016 1:00	6.89			7.68			4.78		1.67	6:00	0.05	1.23	low
12/24/2016 1:10	6.89			7.67			4.78		1.67				
12/24/2016 1:20	6.89			7.66			4.78		1.67				
12/24/2016 1:30	6.88			7.66			4.78		1.67			1.3	
12/24/2016 1:40	6.88			7.64	6:40	0.19	4.78		1.67				
12/24/2016 1:50	6.88			7.65			4.78		1.67				
12/24/2016 2:00	6.87	7:00	0.06	7.65			4.79		1.67			1.61	
12/24/2016 2:10	6.87			7.65			4.78		1.67				
12/24/2016 2:20	6.88			7.65			4.79		1.67				
12/24/2016 2:30	6.88			7.65			4.79		1.67			2.07	
12/24/2016 2:40	6.88			7.66			4.80		1.67				
12/24/2016 2:50	6.87			7.66			4.80		1.68				
12/24/2016 3:00	6.88			7.68			4.80		1.68			2.64	
12/24/2016 3:10	6.88			7.68			4.80		1.69				
12/24/2016 3:20	6.88			7.68			4.79		1.69				
12/24/2016 3:30	6.89			7.69			4.80		1.69			3.32	
12/24/2016 3:40	6.89			7.70			4.80		1.70				
12/24/2016 3:50	6.89			7.72			4.81		1.70				
12/24/2016 4:00	6.90			7.72			4.81		1.70			4.14	
12/24/2016 4:10	6.90			7.74			4.82		1.70				
12/24/2016 4:20	6.90			7.74			4.82		1.71				
12/24/2016 4:30	6.91			7.75			4.82		1.71			5.1	
12/24/2016 4:40	6.91			7.76			4.82		1.71				
12/24/2016 4:50	6.92			7.76			4.82		1.72				

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Enbridge
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Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/24/2016 5:00	6.92			7.77			4.82		1.72			6.15	
12/24/2016 5:10	6.93			7.78			4.82		1.72				
12/24/2016 5:20	6.93			7.78			4.82		1.72				
12/24/2016 5:30	6.93			7.80			4.82		1.73			7.17	
12/24/2016 5:40	6.93			7.81			4.84		1.73				
12/24/2016 5:50	6.93			7.82			4.84		1.73				
12/24/2016 6:00	6.94			7.85			4.85		1.73			8.06	
12/24/2016 6:10	6.94			7.86			4.85		1.74				
12/24/2016 6:20	6.95			7.86			4.87		1.74				
12/24/2016 6:30	6.95			7.88			4.87		1.74			8.74	
12/24/2016 6:40	6.95			7.90			4.88		1.74				
12/24/2016 6:50	6.95			7.91			4.88		1.74				
12/24/2016 7:00	6.95			7.91			4.88		1.74			9.19	
12/24/2016 7:10	6.95			7.92			4.90		1.75				
12/24/2016 7:20	6.96			7.94			4.91		1.75				
12/24/2016 7:30	6.96			7.96			4.92		1.75			9.38	
12/24/2016 7:40	6.96			7.97			4.92		1.75				
12/24/2016 7:50	6.96			7.96			4.92		1.76				
12/24/2016 8:00	6.96			7.97			4.92		1.76			9.33	high
12/24/2016 8:10	6.97			7.98			4.93		1.76				
12/24/2016 8:20	6.97			7.99			4.92		1.76				
12/24/2016 8:30	6.97			7.99			4.92		1.76			9.06	
12/24/2016 8:40	6.97			8.00			4.94		1.76				
12/24/2016 8:50	6.97			8.03			4.96		1.76				
12/24/2016 9:00	6.98			8.03			4.96		1.76			8.6	
12/24/2016 9:10	6.99	8:10	0.11	8.03			4.95		1.76				
12/24/2016 9:20	6.98			8.05			4.96		1.77	8:20	0.09		
12/24/2016 9:30	6.98			8.05			4.96		1.77			8	
12/24/2016 9:40	6.99			8.04			4.96		1.77				
12/24/2016 9:50	6.99			8.06			4.97		1.77				
12/24/2016 10:00	6.99			8.06			4.97		1.77			7.27	
12/24/2016 10:10	7.00			8.07	9:10	0.43	4.98		1.77				
12/24/2016 10:20	6.99			8.07			4.98		1.77				
12/24/2016 10:30	6.99			8.07			4.98		1.77			6.4	
12/24/2016 10:40	7.00			8.07			4.99		1.77				
12/24/2016 10:50	6.99			8.06			4.97		1.77				
12/24/2016 11:00	6.99			8.04			4.97		1.76			5.39	
12/24/2016 11:10	6.99			8.03			4.97		1.76				
12/24/2016 11:20	6.99			8.02			4.98		1.75				
12/24/2016 11:30	6.99			8.00			4.97		1.76			4.27	

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Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/24/2016 11:40	6.97			7.98			4.97		1.75				
12/24/2016 11:50	6.97			7.97			4.98		1.74				
12/24/2016 12:00	6.96			7.97			4.99		1.74			3.15	
12/24/2016 12:10	6.95			7.95			5.00		1.73				
12/24/2016 12:20	6.94			7.94			5.00		1.72				
12/24/2016 12:30	6.92			7.92			5.00		1.72			2.16	
12/24/2016 12:40	6.92			7.90			5.00		1.71				
12/24/2016 12:50	6.90			7.88			5.00		1.70				
12/24/2016 13:00	6.89			7.87			5.00		1.70			1.46	
12/24/2016 13:10	6.88			7.85			5.01		1.69				
12/24/2016 13:20	6.87			7.85			5.02		1.68				
12/24/2016 13:30	6.86			7.85			5.03		1.68			1.12	
12/24/2016 13:40	6.85			7.85			5.05		1.67				
12/24/2016 13:50	6.85			7.84			5.04		1.67				
12/24/2016 14:00	6.84			7.83	6:00	0.24	5.06		1.66			1.1	low
12/24/2016 14:10	6.84			7.84			5.06		1.66				
12/24/2016 14:20	6.84			7.83			5.07		1.65				
12/24/2016 14:30	6.83			7.84			5.08		1.66			1.32	
12/24/2016 14:40	6.83			7.84			5.09		1.65	6:40	0.11		
12/24/2016 14:50	6.83			7.85			5.10		1.65				
12/24/2016 15:00	6.82	7:00	0.17	7.85			5.11		1.65			1.69	
12/24/2016 15:10	6.82			7.85			5.11		1.66				
12/24/2016 15:20	6.82			7.86			5.12		1.65				
12/24/2016 15:30	6.82			7.87			5.13		1.66			2.16	
12/24/2016 15:40	6.82			7.89			5.14		1.66				
12/24/2016 15:50	6.82			7.90			5.14		1.65				
12/24/2016 16:00	6.82			7.90			5.15		1.66			2.76	
12/24/2016 16:10	6.82			7.92			5.16		1.66				
12/24/2016 16:20	6.82			7.91			5.16		1.66				
12/24/2016 16:30	6.82			7.92			5.17		1.67			3.52	
12/24/2016 16:40	6.82			7.94			5.18		1.69				
12/24/2016 16:50	6.83			7.96			5.18		1.68				
12/24/2016 17:00	6.83			7.96			5.20		1.69			4.43	
12/24/2016 17:10	6.83			7.97			5.20		1.69				
12/24/2016 17:20	6.84			7.99			5.21		1.70				
12/24/2016 17:30	6.84			8.01			5.22		1.71			5.42	
12/24/2016 17:40	6.85			8.02			5.22		1.71				
12/24/2016 17:50	6.85			8.04			5.22		1.71				
12/24/2016 18:00	6.85			8.04			5.23		1.72			6.39	
12/24/2016 18:10	6.85			8.04			5.23		1.72				

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Enbridge
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6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/24/2016 18:20	6.86			8.05			5.23		1.72				
12/24/2016 18:30	6.87			8.06			5.22		1.72			7.23	
12/24/2016 18:40	6.87			8.07			5.22		1.72				
12/24/2016 18:50	6.88			8.07			5.22		1.73				
12/24/2016 19:00	6.88			8.07			5.22		1.73			7.87	
12/24/2016 19:10	6.89			8.08			5.21		1.73				
12/24/2016 19:20	6.89			8.08			5.21		1.74				
12/24/2016 19:30	6.89			8.09			5.21		1.74			8.28	
12/24/2016 19:40	6.90			8.09			5.20		1.75				
12/24/2016 19:50	6.90			8.09			5.20		1.75				
12/24/2016 20:00	6.91			8.10			5.20		1.75			8.46	high
12/24/2016 20:10	6.91			8.10			5.20		1.75				
12/24/2016 20:20	6.92			8.09			5.20		1.76				
12/24/2016 20:30	6.93			8.10			5.20		1.76			8.41	
12/24/2016 20:40	6.93			8.10			5.20		1.76				
12/24/2016 20:50	6.93			8.11			5.19		1.77				
12/24/2016 21:00	6.94			8.11			5.18		1.77			8.16	
12/24/2016 21:10	6.94			8.12			5.18		1.77				
12/24/2016 21:20	6.94			8.12			5.17		1.77				
12/24/2016 21:30	6.95			8.12			5.17		1.78	7:30	0.12	7.74	
12/24/2016 21:40	6.95			8.12			5.17		1.78				
12/24/2016 21:50	6.95			8.11			5.17		1.78				
12/24/2016 22:00	6.96			8.12			5.17		1.78			7.2	
12/24/2016 22:10	6.96			8.13			5.17		1.78				
12/24/2016 22:20	6.96			8.14			5.17		1.78				
12/24/2016 22:30	6.97			8.15	8:30	0.31	5.17		1.78			6.54	
12/24/2016 22:40	6.97			8.14			5.16		1.78				
12/24/2016 22:50	6.98	8:50	0.16	8.13			5.15		1.78				
12/24/2016 23:00	6.97			8.13			5.14		1.78			5.75	
12/24/2016 23:10	6.98			8.12			5.13		1.78				
12/24/2016 23:20	6.98			8.11			5.12		1.78				
12/24/2016 23:30	6.98			8.12			5.12		1.78			4.83	
12/24/2016 23:40	6.97			8.10			5.11		1.78				
12/24/2016 23:50	6.98			8.09			5.11		1.78				
12/25/2016 0:00	6.97			8.08			5.11		1.77			3.82	
12/25/2016 0:10	6.98			8.05			5.10		1.77				
12/25/2016 0:20	6.97			8.04			5.10		1.76				
12/25/2016 0:30	6.97			8.01			5.09		1.76			2.83	
12/25/2016 0:40	6.96			7.99			5.08		1.76				
12/25/2016 0:50	6.96			7.98			5.07		1.76				

Appendix A-3
Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/25/2016 1:00	6.95			7.97			5.07		1.75			2.01	
12/25/2016 1:10	6.94			7.94			5.06		1.75				
12/25/2016 1:20	6.93			7.93			5.06		1.74				
12/25/2016 1:30	6.93			7.90			5.05		1.74			1.5	
12/25/2016 1:40	6.92			7.88			5.04		1.73				
12/25/2016 1:50	6.91			7.86			5.04		1.73				
12/25/2016 2:00	6.91			7.85			5.04		1.73			1.34	low
12/25/2016 2:10	6.90			7.84			5.04		1.72				
12/25/2016 2:20	6.90			7.83			5.03		1.72				
12/25/2016 2:30	6.90			7.82			5.04		1.72			1.5	
12/25/2016 2:40	6.89			7.81			5.04		1.71	6:40	0.06		
12/25/2016 2:50	6.89			7.80			5.03		1.71				
12/25/2016 3:00	6.88	7:00	0.09	7.80			5.03		1.72			1.87	
12/25/2016 3:10	6.88			7.80			5.04		1.72				
12/25/2016 3:20	6.88			7.80			5.03		1.72				
12/25/2016 3:30	6.88			7.80			5.03		1.72			2.37	
12/25/2016 3:40	6.88			7.79	7:40	0.36	5.03		1.72				
12/25/2016 3:50	6.88			7.79			5.03		1.72				
12/25/2016 4:00	6.88			7.79			5.03		1.72			2.97	
12/25/2016 4:10	6.89			7.79			5.03		1.73				
12/25/2016 4:20	6.88			7.80			5.03		1.73				
12/25/2016 4:30	6.89			7.80			5.02		1.73			3.7	
12/25/2016 4:40	6.89			7.80			5.02		1.74				
12/25/2016 4:50	6.89			7.80			5.02		1.74				
12/25/2016 5:00	6.90			7.80			5.01		1.74			4.57	
12/25/2016 5:10	6.90			7.80			5.00		1.75				
12/25/2016 5:20	6.91			7.81			4.99		1.75				
12/25/2016 5:30	6.91			7.82			4.99		1.76			5.56	
12/25/2016 5:40	6.91			7.82			4.99		1.75				
12/25/2016 5:50	6.92			7.83			4.99		1.76				
12/25/2016 6:00	6.92			7.84			4.99		1.77			6.61	
12/25/2016 6:10	6.93			7.84			4.99		1.77				
12/25/2016 6:20	6.93			7.84			4.98		1.78				
12/25/2016 6:30	6.93			7.85			4.98		1.77			7.6	
12/25/2016 6:40	6.94			7.86			4.99		1.78				
12/25/2016 6:50	6.94			7.86			4.99		1.78				
12/25/2016 7:00	6.95			7.87			4.99		1.78			8.43	
12/25/2016 7:10	6.95			7.88			4.99		1.79				
12/25/2016 7:20	6.95			7.89			4.99		1.79				
12/25/2016 7:30	6.96			7.90			4.99		1.79			9.03	

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Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
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Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/25/2016 7:40	6.97			7.89			4.98		1.79				
12/25/2016 7:50	6.97			7.90			4.98		1.79				
12/25/2016 8:00	6.97			7.90			4.98		1.80			9.38	
12/25/2016 8:10	6.98			7.92			4.99		1.80				
12/25/2016 8:20	6.98			7.91			4.98		1.80				
12/25/2016 8:30	6.98			7.93			4.98		1.80			9.48	high
12/25/2016 8:40	6.99			7.92			4.97		1.80				
12/25/2016 8:50	6.99			7.93			4.98		1.80				
12/25/2016 9:00	6.98			7.93			4.97		1.80			9.33	
12/25/2016 9:10	6.99			7.93			4.97		1.81				
12/25/2016 9:20	6.99			7.94			4.97		1.81				
12/25/2016 9:30	6.99			7.95	7:30	0.16	4.97		1.82	7:30	0.10	8.98	
12/25/2016 9:40	7.00			7.94			4.97		1.81				
12/25/2016 9:50	7.00			7.95			4.96		1.81				
12/25/2016 10:00	7.00			7.94			4.96		1.82			8.44	
12/25/2016 10:10	7.01			7.94			4.94		1.81				
12/25/2016 10:20	7.01			7.94			4.94		1.82				
12/25/2016 10:30	7.01			7.94			4.93		1.81			7.77	
12/25/2016 10:40	7.01			7.94			4.93		1.82				
12/25/2016 10:50	7.01			7.93			4.92		1.82				
12/25/2016 11:00	7.01			7.93			4.92		1.82			6.96	
12/25/2016 11:10	7.01			7.92			4.91		1.82				
12/25/2016 11:20	7.01			7.91			4.91		1.82				
12/25/2016 11:30	7.01			7.91			4.90		1.82			6.02	
12/25/2016 11:40	7.02	9:40	0.13	7.89			4.89		1.82				
12/25/2016 11:50	7.01			7.88			4.89		1.82				
12/25/2016 12:00	7.02			7.87			4.89		1.82			4.94	
12/25/2016 12:10	7.01			7.85			4.87		1.81				
12/25/2016 12:20	7.01			7.82			4.87		1.81				
12/25/2016 12:30	7.01			7.81			4.86		1.80			3.79	
12/25/2016 12:40	7.00			7.77			4.85		1.80				
12/25/2016 12:50	7.00			7.75			4.84		1.80				
12/25/2016 13:00	6.98			7.72			4.83		1.79			2.67	
12/25/2016 13:10	6.97			7.70			4.82		1.79				
12/25/2016 13:20	6.97			7.66			4.82		1.78				
12/25/2016 13:30	6.95			7.64			4.81		1.77			1.75	
12/25/2016 13:40	6.94			7.63			4.81		1.77				
12/25/2016 13:50	6.93			7.61			4.81		1.76				
12/25/2016 14:00	6.92			7.59			4.80		1.75			1.16	
12/25/2016 14:10	6.91			7.56			4.79		1.75				

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Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/25/2016 14:20	6.90			7.54			4.78		1.75				
12/25/2016 14:30	6.90			7.53			4.78		1.74			0.92	low
12/25/2016 14:40	6.89			7.50			4.77		1.74				
12/25/2016 14:50	6.89			7.48			4.76		1.73				
12/25/2016 15:00	6.88			7.46			4.76		1.73			1	
12/25/2016 15:10	6.88			7.46			4.75		1.73				
12/25/2016 15:20	6.87			7.44			4.74		1.73				
12/25/2016 15:30	6.87			7.42			4.73		1.73			1.28	
12/25/2016 15:40	6.87			7.42			4.72		1.72	7:10	0.09		
12/25/2016 15:50	6.87			7.40			4.72		1.73				
12/25/2016 16:00	6.86	7:30	0.15	7.40			4.72		1.73			1.69	
12/25/2016 16:10	6.86			7.39			4.71		1.73				
12/25/2016 16:20	6.86			7.38			4.70		1.73				
12/25/2016 16:30	6.86			7.38			4.69		1.73			2.22	
12/25/2016 16:40	6.87			7.37	8:10	0.58	4.69		1.74				
12/25/2016 16:50	6.86			7.37			4.69		1.74				
12/25/2016 17:00	6.87			7.37			4.69		1.75			2.88	
12/25/2016 17:10	6.87			7.37			4.68		1.75				
12/25/2016 17:20	6.87			7.37			4.68		1.75				
12/25/2016 17:30	6.87			7.37			4.68		1.75			3.71	
12/25/2016 17:40	6.87			7.38			4.68		1.76				
12/25/2016 17:50	6.87			7.39			4.68		1.76				
12/25/2016 18:00	6.88			7.38			4.67		1.77			4.68	
12/25/2016 18:10	6.88			7.39			4.67		1.77				
12/25/2016 18:20	6.88			7.40			4.66		1.77				
12/25/2016 18:30	6.89			7.39			4.65		1.78			5.69	
12/25/2016 18:40	6.90			7.39			4.64		1.79				
12/25/2016 18:50	6.90			7.39			4.64		1.79				
12/25/2016 19:00	6.91			7.40			4.63		1.79			6.64	
12/25/2016 19:10	6.91			7.40			4.62		1.80				
12/25/2016 19:20	6.92			7.41			4.62		1.80				
12/25/2016 19:30	6.92			7.41			4.62		1.80			7.44	
12/25/2016 19:40	6.93			7.42			4.62		1.81				
12/25/2016 19:50	6.93			7.42			4.61		1.81				
12/25/2016 20:00	6.93			7.42			4.61		1.81			8.01	
12/25/2016 20:10	6.94			7.42			4.60		1.82				
12/25/2016 20:20	6.95			7.42			4.60		1.82				
12/25/2016 20:30	6.95			7.43			4.60		1.82			8.35	
12/25/2016 20:40	6.95			7.42			4.59		1.82				
12/25/2016 20:50	6.96			7.44			4.59		1.83				

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Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/25/2016 21:00	6.96			7.43			4.59		1.83			8.46	high
12/25/2016 21:10	6.97			7.43			4.58		1.83				
12/25/2016 21:20	6.97			7.44			4.58		1.83				
12/25/2016 21:30	6.98			7.44			4.58		1.84			8.33	
12/25/2016 21:40	6.98			7.44			4.57		1.84				
12/25/2016 21:50	6.99			7.44			4.57		1.84				
12/25/2016 22:00	6.99			7.45			4.56		1.84			8.02	
12/25/2016 22:10	6.99			7.44			4.55		1.84				
12/25/2016 22:20	7.00			7.44			4.54		1.85				
12/25/2016 22:30	7.00			7.44			4.54		1.85			7.55	
12/25/2016 22:40	7.01			7.45			4.54		1.85				
12/25/2016 22:50	7.00			7.45			4.53		1.85				
12/25/2016 23:00	7.01			7.45			4.53		1.85			6.96	
12/25/2016 23:10	7.01			7.46			4.53		1.85				
12/25/2016 23:20	7.02			7.45			4.52		1.85				
12/25/2016 23:30	7.01			7.45			4.52		1.85			6.25	
12/25/2016 23:40	7.02			7.46	9:10	0.09	4.51		1.85				
12/25/2016 23:50	7.02			7.46			4.51		1.86	9:20	0.13		
12/26/2016 0:00	7.03	9:30	0.16	7.46			4.50		1.86			5.41	
12/26/2016 0:10	7.02			7.46			4.51		1.86				
12/26/2016 0:20	7.03			7.45			4.48		1.86				
12/26/2016 0:30	7.03			7.45			4.49		1.86			4.46	
12/26/2016 0:40	7.03			7.44			4.49		1.86				
12/26/2016 0:50	7.03			7.44			4.47		1.86				
12/26/2016 1:00	7.03			7.42			4.47		1.85			3.45	
12/26/2016 1:10	7.03			7.42			4.46		1.85				
12/26/2016 1:20	7.03			7.40			4.46		1.85				
12/26/2016 1:30	7.03			7.39			4.45		1.85			2.52	
12/26/2016 1:40	7.02			7.37			4.45		1.85				
12/26/2016 1:50	7.03			7.36			4.45		1.85				
12/26/2016 2:00	7.02			7.35			4.44		1.85			1.81	
12/26/2016 2:10	7.02			7.34			4.45		1.84				
12/26/2016 2:20	7.02			7.32			4.43		1.84				
12/26/2016 2:30	7.01			7.31			4.44		1.84			1.43	
12/26/2016 2:40	7.01			7.29			4.44		1.83				
12/26/2016 2:50	7.01			7.29			4.44		1.83				
12/26/2016 3:00	7.00	6:00	0.02	7.29			4.43		1.83	6:00	0.03	1.41	low
12/26/2016 3:10	7.01			7.27			4.43		1.83				
12/26/2016 3:20	7.00			7.27			4.43		1.83				
12/26/2016 3:30	7.00			7.26			4.43		1.83			1.69	

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Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/26/2016 3:40	7.00			7.26			4.42		1.83				
12/26/2016 3:50	7.00			7.26			4.43		1.83				
12/26/2016 4:00	7.00			7.25	7:00	0.20	4.43		1.83			2.14	
12/26/2016 4:10	7.00			7.25			4.43		1.84				
12/26/2016 4:20	7.00			7.25			4.42		1.84				
12/26/2016 4:30	7.00			7.25			4.42		1.84			2.71	
12/26/2016 4:40	7.01			7.25			4.42		1.84				
12/26/2016 4:50	7.01			7.25			4.41		1.84				
12/26/2016 5:00	7.01			7.25			4.41		1.85			3.38	
12/26/2016 5:10	7.01			7.25			4.41		1.85				
12/26/2016 5:20	7.01			7.25			4.41		1.85				
12/26/2016 5:30	7.02			7.26			4.40		1.85			4.17	
12/26/2016 5:40	7.02			7.26			4.39		1.86				
12/26/2016 5:50	7.02			7.27			4.40		1.86				
12/26/2016 6:00	7.02			7.27			4.40		1.86			5.11	
12/26/2016 6:10	7.03			7.27			4.39		1.86				
12/26/2016 6:20	7.03			7.28			4.39		1.87				
12/26/2016 6:30	7.03			7.29			4.39		1.87			6.14	
12/26/2016 6:40	7.03			7.29			4.39		1.87				
12/26/2016 6:50	7.03			7.30			4.40		1.87				
12/26/2016 7:00	7.03			7.31			4.40		1.87			7.19	
12/26/2016 7:10	7.04			7.33			4.41		1.87				
12/26/2016 7:20	7.04			7.34			4.42		1.87				
12/26/2016 7:30	7.04			7.35			4.43		1.88			8.12	
12/26/2016 7:40	7.05			7.36			4.43		1.88				
12/26/2016 7:50	7.05			7.35			4.42		1.88				
12/26/2016 8:00	7.05			7.37			4.44		1.88			8.86	
12/26/2016 8:10	7.05			7.38			4.43		1.89				
12/26/2016 8:20	7.05			7.39			4.44		1.89				
12/26/2016 8:30	7.06			7.38			4.44		1.89			9.36	
12/26/2016 8:40	7.06			7.39			4.44		1.89				
12/26/2016 8:50	7.06			7.39			4.45		1.89				
12/26/2016 9:00	7.06			7.41			4.45		1.89			9.58	high
12/26/2016 9:10	7.06			7.40			4.44		1.89				
12/26/2016 9:20	7.06			7.41			4.44		1.90				
12/26/2016 9:30	7.07			7.40			4.44		1.90			9.55	
12/26/2016 9:40	7.08			7.40			4.44		1.90				
12/26/2016 9:50	7.08			7.39			4.43		1.90				
12/26/2016 10:00	7.08			7.40			4.42		1.90			9.27	
12/26/2016 10:10	7.08			7.40			4.42		1.90				

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Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/26/2016 10:20	7.08			7.40			4.44		1.91	7:20	0.08		
12/26/2016 10:30	7.08			7.42			4.43		1.91			8.79	
12/26/2016 10:40	7.08			7.43	7:40	0.17	4.44		1.91				
12/26/2016 10:50	7.09			7.43			4.44		1.91				
12/26/2016 11:00	7.09			7.43			4.44		1.91			8.15	
12/26/2016 11:10	7.09			7.43			4.44		1.91				
12/26/2016 11:20	7.09			7.43			4.44		1.91				
12/26/2016 11:30	7.09			7.43			4.44		1.91			7.38	
12/26/2016 11:40	7.10	8:40	0.09	7.43			4.43		1.91				
12/26/2016 11:50	7.09			7.43			4.43		1.91				
12/26/2016 12:00	7.10			7.43			4.43		1.91			6.48	
12/26/2016 12:10	7.09			7.43			4.43		1.91				
12/26/2016 12:20	7.09			7.42			4.44		1.91				
12/26/2016 12:30	7.09			7.41			4.43		1.90			5.46	
12/26/2016 12:40	7.09			7.39			4.44		1.90				
12/26/2016 12:50	7.09			7.38			4.44		1.90				
12/26/2016 13:00	7.08			7.37			4.44		1.89			4.32	
12/26/2016 13:10	7.08			7.35			4.43		1.88				
12/26/2016 13:20	7.08			7.33			4.43		1.88				
12/26/2016 13:30	7.06			7.33			4.45		1.87			3.15	
12/26/2016 13:40	7.06			7.32			4.44		1.86				
12/26/2016 13:50	7.04			7.30			4.45		1.85				
12/26/2016 14:00	7.02			7.29			4.46		1.85			2.08	
12/26/2016 14:10	7.01			7.28			4.47		1.84				
12/26/2016 14:20	7.00			7.26			4.47		1.83				
12/26/2016 14:30	6.99			7.26			4.48		1.82			1.27	
12/26/2016 14:40	6.98			7.25			4.50		1.82				
12/26/2016 14:50	6.96			7.24			4.50		1.81				
12/26/2016 15:00	6.95			7.22			4.50		1.81			0.82	
12/26/2016 15:10	6.94			7.20			4.50		1.80				
12/26/2016 15:20	6.93			7.19			4.51		1.79				
12/26/2016 15:30	6.93			7.18			4.51		1.79			0.73	low
12/26/2016 15:40	6.92			7.18			4.52		1.78				
12/26/2016 15:50	6.91			7.17			4.53		1.78				
12/26/2016 16:00	6.91			7.17			4.52		1.78			0.92	
12/26/2016 16:10	6.90			7.16	7:10	0.26	4.53		1.77				
12/26/2016 16:20	6.90			7.16			4.53		1.77				
12/26/2016 16:30	6.90			7.16			4.54		1.77			1.3	
12/26/2016 16:40	6.89			7.17			4.55		1.76	7:40	0.14		
12/26/2016 16:50	6.89			7.18			4.57		1.76				

Appendix A-3
Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/26/2016 17:00	6.89			7.19			4.58		1.76			1.8	
12/26/2016 17:10	6.89			7.19			4.58		1.76				
12/26/2016 17:20	6.88	8:20	0.22	7.20			4.58		1.76				
12/26/2016 17:30	6.88			7.21			4.59		1.76			2.42	
12/26/2016 17:40	6.88			7.21			4.59		1.77				
12/26/2016 17:50	6.88			7.21			4.60		1.77				
12/26/2016 18:00	6.88			7.22			4.60		1.77			3.18	
12/26/2016 18:10	6.88			7.24			4.61		1.77				
12/26/2016 18:20	6.88			7.24			4.61		1.77				
12/26/2016 18:30	6.88			7.25			4.62		1.78			4.1	
12/26/2016 18:40	6.89			7.26			4.61		1.79				
12/26/2016 18:50	6.89			7.27			4.61		1.79				
12/26/2016 19:00	6.89			7.29			4.63		1.79			5.12	
12/26/2016 19:10	6.89			7.31			4.65		1.79				
12/26/2016 19:20	6.90			7.33			4.67		1.80				
12/26/2016 19:30	6.90			7.36			4.69		1.80			6.14	
12/26/2016 19:40	6.90			7.38			4.70		1.80				
12/26/2016 19:50	6.91			7.40			4.72		1.81				
12/26/2016 20:00	6.91			7.42			4.74		1.81			7.06	
12/26/2016 20:10	6.91			7.43			4.74		1.82				
12/26/2016 20:20	6.91			7.45			4.76		1.82				
12/26/2016 20:30	6.92			7.47			4.76		1.83			7.77	
12/26/2016 20:40	6.92			7.48			4.77		1.83				
12/26/2016 20:50	6.93			7.49			4.77		1.83				
12/26/2016 21:00	6.93			7.51			4.78		1.83			8.25	
12/26/2016 21:10	6.94			7.53			4.79		1.84				
12/26/2016 21:20	6.94			7.55			4.80		1.84				
12/26/2016 21:30	6.95			7.57			4.81		1.85			8.48	high
12/26/2016 21:40	6.95			7.58			4.81		1.85				
12/26/2016 21:50	6.95			7.60			4.82		1.85				
12/26/2016 22:00	6.96			7.62			4.84		1.85			8.47	
12/26/2016 22:10	6.96			7.64			4.85		1.85				
12/26/2016 22:20	6.96			7.66			4.86		1.86	6:50	0.09		
12/26/2016 22:30	6.98			7.68			4.88		1.86			8.23	
12/26/2016 22:40	6.97			7.70			4.89		1.86				
12/26/2016 22:50	6.98			7.73			4.90		1.86				
12/26/2016 23:00	6.98			7.75			4.92		1.86			7.82	
12/26/2016 23:10	6.99			7.77			4.93		1.86				
12/26/2016 23:20	6.99			7.79			4.95		1.86				
12/26/2016 23:30	6.99			7.79			4.95		1.86			7.26	

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Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
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Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/26/2016 23:40	6.99			7.81			4.96		1.86				
12/26/2016 23:50	7.00			7.82			4.98		1.86				
12/27/2016 0:00	7.00			7.84			4.99		1.86			6.59	
12/27/2016 0:10	7.00			7.87			5.00		1.86				
12/27/2016 0:20	7.00			7.88			5.02		1.86				
12/27/2016 0:30	7.01	9:00	0.13	7.90			5.03		1.86			5.82	
12/27/2016 0:40	7.01			7.91			5.03		1.86				
12/27/2016 0:50	7.01			7.92			5.05		1.85				
12/27/2016 1:00	7.01			7.93			5.07		1.85			4.93	
12/27/2016 1:10	7.00			7.94			5.08		1.85				
12/27/2016 1:20	7.01			7.94			5.10		1.84				
12/27/2016 1:30	7.00			7.95			5.11		1.84			3.96	
12/27/2016 1:40	7.00			7.95			5.13		1.83				
12/27/2016 1:50	7.00			7.95			5.14		1.83				
12/27/2016 2:00	6.99			7.95			5.16		1.82			2.97	
12/27/2016 2:10	6.99			7.96			5.17		1.82				
12/27/2016 2:20	6.98			7.95			5.19		1.81				
12/27/2016 2:30	6.97			7.97			5.21		1.80			2.12	
12/27/2016 2:40	6.96			7.96			5.23		1.80				
12/27/2016 2:50	6.95			7.98			5.25		1.79				
12/27/2016 3:00	6.94			7.99	11:30	0.82	5.27		1.79			1.55	
12/27/2016 3:10	6.93			7.98			5.28		1.78				
12/27/2016 3:20	6.92			7.97			5.28		1.77				
12/27/2016 3:30	6.91			7.96			5.28		1.77			1.35	low
12/27/2016 3:40	6.91			7.95			5.27		1.77				
12/27/2016 3:50	6.89			7.95			5.29		1.76				
12/27/2016 4:00	6.89			7.96			5.30		1.76			1.5	
12/27/2016 4:10	6.88			7.95			5.31		1.75				
12/27/2016 4:20	6.88			7.96			5.32		1.75				
12/27/2016 4:30	6.88			7.94	7:00	0.04	5.32		1.75			1.91	
12/27/2016 4:40	6.87			7.95			5.32		1.75				
12/27/2016 4:50	6.87			7.95			5.32		1.75				
12/27/2016 5:00	6.87			7.96			5.34		1.74	7:30	0.11	2.47	
12/27/2016 5:10	6.87			7.97			5.35		1.74				
12/27/2016 5:20	6.87			7.97			5.34		1.75				
12/27/2016 5:30	6.87			7.98			5.35		1.75			3.13	
12/27/2016 5:40	6.87			8.00			5.37		1.75				
12/27/2016 5:50	6.87			8.02			5.39		1.75				
12/27/2016 6:00	6.86	8:30	0.14	8.05			5.41		1.75			3.89	
12/27/2016 6:10	6.87			8.06			5.42		1.75				

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Tidal Study Data
Enbridge
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Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/27/2016 6:20	6.88			8.08			5.44		1.75				
12/27/2016 6:30	6.87			8.10			5.45		1.76			4.78	
12/27/2016 6:40	6.87			8.13			5.47		1.76				
12/27/2016 6:50	6.87			8.14			5.47		1.76				
12/27/2016 7:00	6.88			8.15			5.48		1.77			5.78	
12/27/2016 7:10	6.88			8.18			5.51		1.77				
12/27/2016 7:20	6.88			8.21			5.51		1.77				
12/27/2016 7:30	6.89			8.20			5.51		1.78			6.84	
12/27/2016 7:40	6.88			8.22			5.52		1.78				
12/27/2016 7:50	6.88			8.24			5.54		1.79				
12/27/2016 8:00	6.90			8.27			5.56		1.79			7.85	
12/27/2016 8:10	6.90			8.27			5.55		1.80				
12/27/2016 8:20	6.90			8.27			5.56		1.79				
12/27/2016 8:30	6.90			8.30			5.57		1.81			8.71	
12/27/2016 8:40	6.91			8.31			5.57		1.81				
12/27/2016 8:50	6.92			8.33			5.58		1.81				
12/27/2016 9:00	6.92			8.33			5.59		1.81			9.32	
12/27/2016 9:10	6.92			8.35			5.59		1.82				
12/27/2016 9:20	6.93			8.35			5.58		1.82				
12/27/2016 9:30	6.93			8.35			5.57		1.83			9.66	
12/27/2016 9:40	6.94			8.37			5.57		1.83				
12/27/2016 9:50	6.95			8.38			5.58		1.83				
12/27/2016 10:00	6.95			8.39			5.57		1.83			9.72	high
12/27/2016 10:10	6.94			8.39			5.58		1.84				
12/27/2016 10:20	6.96			8.41			5.58		1.84				
12/27/2016 10:30	6.96			8.42			5.59		1.84			9.52	
12/27/2016 10:40	6.96			8.43			5.60		1.85				
12/27/2016 10:50	6.97			8.42			5.59		1.84				
12/27/2016 11:00	6.97			8.44			5.59		1.85			9.08	
12/27/2016 11:10	6.97			8.44			5.59		1.86	7:40	0.11		
12/27/2016 11:20	6.98			8.44			5.59		1.85				
12/27/2016 11:30	6.99			8.46			5.59		1.86			8.46	
12/27/2016 11:40	6.99			8.46			5.60		1.86				
12/27/2016 11:50	6.99			8.47			5.60		1.86				
12/27/2016 12:00	6.99			8.47			5.60		1.86			7.69	
12/27/2016 12:10	6.99			8.45			5.58		1.86				
12/27/2016 12:20	6.99			8.47			5.59		1.86				
12/27/2016 12:30	7.00	9:00	0.14	8.48	9:00	0.53	5.60		1.85			6.81	
12/27/2016 12:40	7.00			8.48			5.60		1.85				
12/27/2016 12:50	7.00			8.47			5.60		1.85				

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Tidal Study Data
Enbridge
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Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/27/2016 13:00	6.99			8.45			5.59		1.84			5.82	
12/27/2016 13:10	6.99			8.43			5.60		1.84				
12/27/2016 13:20	6.99			8.42			5.60		1.83				
12/27/2016 13:30	6.98			8.41			5.60		1.82			4.72	
12/27/2016 13:40	6.97			8.39			5.60		1.82				
12/27/2016 13:50	6.96			8.38			5.61		1.81				
12/27/2016 14:00	6.96			8.37			5.61		1.80			3.55	
12/27/2016 14:10	6.94			8.35			5.62		1.80				
12/27/2016 14:20	6.93			8.34			5.62		1.78				
12/27/2016 14:30	6.91			8.32			5.62		1.78			2.41	
12/27/2016 14:40	6.90			8.31			5.63		1.77				
12/27/2016 14:50	6.89			8.30			5.64		1.76				
12/27/2016 15:00	6.88			8.27			5.63		1.76			1.44	
12/27/2016 15:10	6.86			8.25			5.63		1.75				
12/27/2016 15:20	6.85			8.22			5.62		1.75				
12/27/2016 15:30	6.84			8.20			5.62		1.74			0.78	
12/27/2016 15:40	6.83			8.18			5.61		1.73				
12/27/2016 15:50	6.82			8.16			5.61		1.73				
12/27/2016 16:00	6.82			8.15			5.60		1.72			0.51	low
12/27/2016 16:10	6.81			8.13			5.60		1.71				
12/27/2016 16:20	6.80			8.12			5.60		1.71				
12/27/2016 16:30	6.80			8.10			5.59		1.71			0.6	
12/27/2016 16:40	6.79			8.10			5.59		1.71				
12/27/2016 16:50	6.79			8.08			5.57		1.71				
12/27/2016 17:00	6.79			8.08			5.58		1.70	7:00	0.16	0.95	
12/27/2016 17:10	6.78	7:10	0.22	8.07			5.57		1.70				
12/27/2016 17:20	6.78			8.07			5.57		1.70				
12/27/2016 17:30	6.78			8.07			5.56		1.70			1.46	
12/27/2016 17:40	6.78			8.07			5.56		1.70				
12/27/2016 17:50	6.78			8.06			5.55		1.70				
12/27/2016 18:00	6.78			8.06			5.54		1.70			2.08	
12/27/2016 18:10	6.79			8.06			5.54		1.70				
12/27/2016 18:20	6.78			8.06			5.53		1.71				
12/27/2016 18:30	6.78			8.06			5.52		1.71			2.81	
12/27/2016 18:40	6.79			8.05	8:40	0.42	5.51		1.71				
12/27/2016 18:50	6.78			8.06			5.52		1.71				
12/27/2016 19:00	6.79			8.06			5.51		1.72			3.69	
12/27/2016 19:10	6.79			8.07			5.51		1.72				
12/27/2016 19:20	6.79			8.06			5.50		1.73				
12/27/2016 19:30	6.80			8.06			5.50		1.73			4.69	

Appendix A-3
Tidal Study Data
Enbridge
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Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/27/2016 19:40	6.80			8.07			5.49		1.73				
12/27/2016 19:50	6.80			8.07			5.48		1.74				
12/27/2016 20:00	6.81			8.07			5.48		1.75			5.74	
12/27/2016 20:10	6.81			8.07			5.47		1.75				
12/27/2016 20:20	6.82			8.08			5.47		1.75				
12/27/2016 20:30	6.82			8.09			5.46		1.76			6.74	
12/27/2016 20:40	6.82			8.08			5.46		1.77				
12/27/2016 20:50	6.83			8.08			5.46		1.77				
12/27/2016 21:00	6.84			8.09			5.46		1.77			7.57	
12/27/2016 21:10	6.84			8.09			5.45		1.78				
12/27/2016 21:20	6.85			8.09			5.45		1.79				
12/27/2016 21:30	6.85			8.09			5.44		1.79			8.17	
12/27/2016 21:40	6.85			8.09			5.43		1.79				
12/27/2016 21:50	6.86			8.10			5.43		1.80				
12/27/2016 22:00	6.86			8.11			5.43		1.80			8.51	
12/27/2016 22:10	6.87			8.12			5.44		1.81				
12/27/2016 22:20	6.87			8.11			5.42		1.81				
12/27/2016 22:30	6.87			8.12			5.42		1.81			8.59	high
12/27/2016 22:40	6.88			8.12			5.42		1.82				
12/27/2016 22:50	6.89			8.12			5.42		1.82				
12/27/2016 23:00	6.89			8.14			5.42		1.82			8.42	
12/27/2016 23:10	6.89			8.13			5.40		1.82				
12/27/2016 23:20	6.90			8.14			5.40		1.82				
12/27/2016 23:30	6.91			8.13			5.39		1.82			8.04	
12/27/2016 23:40	6.91			8.14			5.38		1.83				
12/27/2016 23:50	6.92			8.15			5.38		1.83				
12/28/2016 0:00	6.92			8.16			5.38		1.83			7.5	
12/28/2016 0:10	6.92			8.16			5.38		1.83				
12/28/2016 0:20	6.93			8.17			5.38		1.83				
12/28/2016 0:30	6.93			8.19			5.38		1.83			6.84	
12/28/2016 0:40	6.93			8.19			5.38		1.84	8:40	0.14		
12/28/2016 0:50	6.94			8.21			5.39		1.84				
12/28/2016 1:00	6.94			8.21			5.40	9:00	1.83			6.09	
12/28/2016 1:10	6.94			8.22			5.39		1.84				
12/28/2016 1:20	6.94			8.22			5.38		1.84				
12/28/2016 1:30	6.95	9:30	0.17	8.23	9:30	0.17	5.40		1.84			5.25	
12/28/2016 1:40	6.95			8.22			5.40		1.84				
12/28/2016 1:50	6.95			8.22			5.40		1.84				
12/28/2016 2:00	6.95			8.22			5.39		1.83			4.32	
12/28/2016 2:10	6.95			8.21			5.39		1.84				

Appendix A-3
Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/28/2016 2:20	6.95			8.20			5.39		1.83				
12/28/2016 2:30	6.95			8.20			5.39		1.82			3.34	
12/28/2016 2:40	6.95			8.18			5.39		1.82				
12/28/2016 2:50	6.95			8.17			5.39		1.82				
12/28/2016 3:00	6.94			8.16			5.39		1.81			2.42	
12/28/2016 3:10	6.94			8.15			5.40		1.81				
12/28/2016 3:20	6.94			8.14			5.40		1.80				
12/28/2016 3:30	6.93			8.13			5.40		1.80			1.7	
12/28/2016 3:40	6.92			8.11			5.40		1.79				
12/28/2016 3:50	6.92			8.10			5.40		1.79				
12/28/2016 4:00	6.91			8.09			5.40		1.79			1.32	low
12/28/2016 4:10	6.90			8.08			5.39		1.79				
12/28/2016 4:20	6.90			8.06			5.39		1.78				
12/28/2016 4:30	6.89			8.05			5.39		1.78			1.32	
12/28/2016 4:40	6.89			8.04			5.39		1.77	6:10	0.06		
12/28/2016 4:50	6.89			8.03			5.38		1.77				
12/28/2016 5:00	6.88			8.02			5.38		1.77			1.66	
12/28/2016 5:10	6.88			8.01			5.37		1.77				
12/28/2016 5:20	6.88			8.01			5.36		1.77				
12/28/2016 5:30	6.87	7:00	0.08	8.00	7:00	0.23	5.36		1.77			2.22	
12/28/2016 5:40	6.88			8.00			5.36		1.77				
12/28/2016 5:50	6.87			8.00			5.36		1.77				
12/28/2016 6:00	6.87			8.00			5.35		1.77			2.91	
12/28/2016 6:10	6.88			8.00			5.35		1.77				
12/28/2016 6:20	6.87			8.00			5.35		1.78				
12/28/2016 6:30	6.88			8.00			5.35		1.78			3.69	
12/28/2016 6:40	6.88			8.01			5.35		1.78				
12/28/2016 6:50	6.88			8.02			5.35		1.78				
12/28/2016 7:00	6.88			8.03			5.35		1.79			4.55	
12/28/2016 7:10	6.89			8.03			5.35		1.79				
12/28/2016 7:20	6.90			8.03			5.35		1.80				
12/28/2016 7:30	6.90			8.04			5.35		1.80			5.52	
12/28/2016 7:40	6.90			8.04			5.34		1.81				
12/28/2016 7:50	6.90			8.04			5.33		1.81				
12/28/2016 8:00	6.91			8.04			5.33		1.82			6.58	
12/28/2016 8:10	6.92			8.05			5.33		1.82				
12/28/2016 8:20	6.92			8.06			5.31		1.83				
12/28/2016 8:30	6.92			8.06			5.31		1.83			7.62	
12/28/2016 8:40	6.93			8.07			5.31		1.84				
12/28/2016 8:50	6.93			8.08			5.31		1.84				

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Tidal Study Data
Enbridge
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6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/28/2016 9:00	6.94			8.07			5.30		1.85			8.56	
12/28/2016 9:10	6.94			8.08			5.31		1.85				
12/28/2016 9:20	6.94			8.09			5.31		1.85				
12/28/2016 9:30	6.95			8.09			5.30		1.86			9.28	
12/28/2016 9:40	6.96			8.10			5.30		1.86				
12/28/2016 9:50	6.96			8.09			5.30		1.87				
12/28/2016 10:00	6.96			8.11			5.30		1.87			9.73	
12/28/2016 10:10	6.97			8.11			5.30		1.87				
12/28/2016 10:20	6.96			8.11			5.30		1.87				
12/28/2016 10:30	6.97			8.12			5.29		1.88			9.88	high
12/28/2016 10:40	6.97			8.12			5.29		1.87				
12/28/2016 10:50	6.98			8.12			5.29		1.88				
12/28/2016 11:00	6.98			8.13			5.29		1.88			9.74	
12/28/2016 11:10	6.98			8.12			5.29		1.88				
12/28/2016 11:20	6.99			8.13			5.29		1.88				
12/28/2016 11:30	6.99			8.13			5.28		1.88			9.34	
12/28/2016 11:40	6.99			8.13			5.28		1.88				
12/28/2016 11:50	7.00			8.14	7:20	0.14	5.27		1.89	7:20	0.11		
12/28/2016 12:00	7.00			8.14			5.27		1.89			8.72	
12/28/2016 12:10	7.00			8.14			5.27		1.89				
12/28/2016 12:20	7.01	7:50	0.13	8.13			5.26		1.89				
12/28/2016 12:30	7.00			8.14			5.26		1.89			7.94	
12/28/2016 12:40	7.00			8.13			5.26		1.88				
12/28/2016 12:50	7.00			8.13			5.25		1.89				
12/28/2016 13:00	7.01			8.12			5.25		1.88			7.05	
12/28/2016 13:10	7.00			8.12			5.25		1.88				
12/28/2016 13:20	7.01			8.10			5.25		1.87				
12/28/2016 13:30	7.00			8.09			5.25		1.87			6.06	
12/28/2016 13:40	7.00			8.07			5.24		1.86				
12/28/2016 13:50	6.99			8.06			5.25		1.85				
12/28/2016 14:00	6.98			8.04			5.24		1.84			5	
12/28/2016 14:10	6.97			8.02			5.24		1.83				
12/28/2016 14:20	6.96			7.99			5.24		1.83				
12/28/2016 14:30	6.94			7.97			5.24		1.81			3.86	
12/28/2016 14:40	6.92			7.95			5.24		1.80				
12/28/2016 14:50	6.90			7.91			5.24		1.79				
12/28/2016 15:00	6.89			7.89			5.23		1.79			2.69	
12/28/2016 15:10	6.88			7.85			5.23		1.77				
12/28/2016 15:20	6.86			7.82			5.22		1.76				
12/28/2016 15:30	6.84			7.80			5.21		1.76			1.63	

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Tidal Study Data
Enbridge
Atlantic Bridge Project
Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/28/2016 15:40	6.82			7.76			5.21		1.75				
12/28/2016 15:50	6.81			7.73			5.20		1.74				
12/28/2016 16:00	6.79			7.70			5.19		1.73			0.81	
12/28/2016 16:10	6.77			7.67			5.18		1.72				
12/28/2016 16:20	6.75			7.64			5.18		1.71				
12/28/2016 16:30	6.74			7.61			5.17		1.71			0.36	
12/28/2016 16:40	6.73			7.58			5.16		1.70				
12/28/2016 16:50	6.73			7.56			5.16		1.69				
12/28/2016 17:00	6.72			7.55			5.15		1.69			0.32	low
12/28/2016 17:10	6.71			7.53			5.14		1.68				
12/28/2016 17:20	6.71			7.52			5.13		1.68				
12/28/2016 17:30	6.70			7.50			5.13		1.67			0.61	
12/28/2016 17:40	6.70			7.49			5.12		1.67				
12/28/2016 17:50	6.70			7.49			5.10		1.67				
12/28/2016 18:00	6.69	7:30	0.32	7.47			5.10		1.66	7:30	0.22	1.14	
12/28/2016 18:10	6.69			7.47			5.10		1.66				
12/28/2016 18:20	6.69			7.46	7:50	0.67	5.09		1.66				
12/28/2016 18:30	6.69			7.47			5.08		1.66			1.79	
12/28/2016 18:40	6.69			7.47			5.08		1.66				
12/28/2016 18:50	6.69			7.46			5.07		1.66				
12/28/2016 19:00	6.69			7.46			5.06		1.66			2.54	
12/28/2016 19:10	6.70			7.47			5.06		1.66				
12/28/2016 19:20	6.70			7.48			5.06		1.66				
12/28/2016 19:30	6.70			7.49			5.06		1.67			3.4	
12/28/2016 19:40	6.70			7.49			5.05		1.67				
12/28/2016 19:50	6.71			7.50			5.04		1.67				
12/28/2016 20:00	6.70			7.50			5.04		1.68			4.38	
12/28/2016 20:10	6.71			7.51			5.04		1.68				
12/28/2016 20:20	6.71			7.51			5.04		1.68				
12/28/2016 20:30	6.72			7.52			5.03		1.69			5.43	
12/28/2016 20:40	6.72			7.52			5.03		1.69				
12/28/2016 20:50	6.73			7.53			5.03		1.70				
12/28/2016 21:00	6.73			7.53			5.02		1.70			6.48	
12/28/2016 21:10	6.74			7.55			5.03		1.70				
12/28/2016 21:20	6.74			7.55			5.03		1.71				
12/28/2016 21:30	6.74			7.56			5.02		1.71			7.41	
12/28/2016 21:40	6.75			7.57			5.03		1.72				
12/28/2016 21:50	6.75			7.57			5.02		1.72				
12/28/2016 22:00	6.76			7.57			5.01		1.72			8.11	
12/28/2016 22:10	6.76			7.57			5.01		1.73				

Appendix A-3
Tidal Study Data
Enbridge
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Weymouth Compressor Station,
6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/28/2016 22:20	6.76			7.57			5.01		1.73				
12/28/2016 22:30	6.77			7.57			5.01		1.73			8.55	
12/28/2016 22:40	6.78			7.59			5.01		1.73				
12/28/2016 22:50	6.78			7.60			5.01		1.74				
12/28/2016 23:00	6.79			7.61			5.01		1.74			8.71	high
12/28/2016 23:10	6.79			7.61			5.01		1.74				
12/28/2016 23:20	6.80			7.62			5.01		1.74				
12/28/2016 23:30	6.80			7.63			5.01		1.75			8.6	
12/28/2016 23:40	6.81			7.64			5.02		1.75				
12/28/2016 23:50	6.81			7.65			5.01		1.75				
12/29/2016 0:00	6.81			7.65			5.00		1.76	7:00	0.09	8.25	
12/29/2016 0:10	6.82			7.66			5.01		1.76				
12/29/2016 0:20	6.82			7.67			5.01		1.76				
12/29/2016 0:30	6.83			7.68			5.00		1.76			7.72	
12/29/2016 0:40	6.83			7.69			5.00		1.76				
12/29/2016 0:50	6.83			7.69			5.01		1.76				
12/29/2016 1:00	6.83			7.70			5.00		1.76			7.04	
12/29/2016 1:10	6.84			7.71			5.01		1.76				
12/29/2016 1:20	6.84			7.72	8:20	0.25	5.01		1.76				
12/29/2016 1:30	6.85	8:30	0.15	7.72			5.02		1.76			6.28	
12/29/2016 1:40	6.85			7.72			5.01		1.76				
12/29/2016 1:50	6.85			7.73			5.01		1.76				
12/29/2016 2:00	6.85			7.72			5.01		1.76			5.45	
12/29/2016 2:10	6.85			7.72			5.01		1.75				
12/29/2016 2:20	6.85			7.71			5.01		1.75				
12/29/2016 2:30	6.85			7.70			5.01		1.74			4.56	
12/29/2016 2:40	6.84			7.68			5.01		1.74				
12/29/2016 2:50	6.83			7.67			5.00		1.73				
12/29/2016 3:00	6.83			7.65			5.00		1.73			3.61	
12/29/2016 3:10	6.82			7.63			4.99		1.72				
12/29/2016 3:20	6.81			7.62			5.00		1.72				
12/29/2016 3:30	6.80			7.60			5.00		1.71			2.67	
12/29/2016 3:40	6.79			7.59			4.99		1.70				
12/29/2016 3:50	6.78			7.58			5.00		1.70				
12/29/2016 4:00	6.77			7.55			5.00		1.69			1.86	
12/29/2016 4:10	6.75			7.54			4.99		1.69				
12/29/2016 4:20	6.74			7.52			4.99		1.68				
12/29/2016 4:30	6.73			7.52			5.00		1.67			1.32	
12/29/2016 4:40	6.72			7.49			4.98		1.67				
12/29/2016 4:50	6.72			7.48			4.98		1.66				

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Tidal Study Data
Enbridge
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6 Bridge Street, Weymouth, Massachusetts

Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide
12/29/2016 5:00	6.71			7.47			4.98		1.66			1.16	low
12/29/2016 5:10	6.71			7.46			4.97		1.66				
12/29/2016 5:20	6.71			7.45			4.97		1.65				
12/29/2016 5:30	6.70	6:30	0.14	7.44	6:30	0.28	4.97		1.65			1.39	
12/29/2016 5:40	6.70			7.44			4.97		1.65				
12/29/2016 5:50	6.70			7.44			4.97		1.65				
12/29/2016 6:00	6.70			7.45			4.97		1.64	7:00	0.11	1.94	
12/29/2016 6:10	6.70			7.45			4.97		1.64				
12/29/2016 6:20	6.70			7.45			4.97		1.64				
12/29/2016 6:30	6.70			7.44			4.97		1.64			2.66	
12/29/2016 6:40	6.70			7.45			4.97		1.64				
12/29/2016 6:50	6.70			7.46			4.98		1.64				
12/29/2016 7:00	6.70			7.48			4.98		1.64			3.49	
12/29/2016 7:10	6.70			7.49			4.98		1.65				
12/29/2016 7:20	6.71			7.49			4.98		1.65				
12/29/2016 7:30	6.71			7.50			4.99		1.65			4.37	
12/29/2016 7:40	6.72			7.52			4.99		1.65				
12/29/2016 7:50	6.72			7.53			5.00		1.66				
12/29/2016 8:00	6.73			7.55			5.00		1.66			5.33	
12/29/2016 8:10	6.72			7.57			5.01		1.66				
12/29/2016 8:20	6.72			7.58			5.02		1.67				
12/29/2016 8:30	6.73			7.59			5.02		1.67			6.36	
12/29/2016 8:40	6.74			7.61			5.03		1.68				
12/29/2016 8:50	6.74			7.62			5.04		1.68				
12/29/2016 9:00	6.74			7.64			5.04		1.68			7.43	
12/29/2016 9:10	6.75			7.66			5.05		1.68				
12/29/2016 9:20	6.75			7.68			5.07		1.69				
12/29/2016 9:30	6.76			7.69			5.07		1.69			8.42	
12/29/2016 9:40	6.76			7.70			5.07		1.70				
12/29/2016 9:50	6.77			7.70			5.07		1.70				
12/29/2016 10:00	6.77			7.71			5.07		1.71			9.23	
12/29/2016 10:10	6.78			7.72			5.07		1.71				
12/29/2016 10:20	6.78			7.72			5.07		1.71				
12/29/2016 10:30	6.79			7.75			5.09		1.72			9.77	
12/29/2016 10:40	6.79			7.76			5.09		1.72				
12/29/2016 10:50	6.79			7.77			5.10		1.72				
12/29/2016 11:00	6.80			7.79			5.10		1.72			10.01	
Average	---	7:57	0.14	---	7:57	0.31	---	minor tidal influence	---	7:18	0.11	---	---
Minimum	---	6:00	0.02	---	6:00	0.04	---		---	6:00	0.03	---	---
Maximum	---	9:40	0.32	---	11:30	0.82	---		---	9:20	0.22	---	---

Appendix A-3
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Enbridge
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Date/Time	MW-202 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-205 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	MW-206 Depth to Water (ft)	Lag Time (hr:min)	MW-417 Depth to Water (ft)	Lag Time (hr:min)	Delta (ft)	Fore River Bridge Stage (ft-MLLW)	Observed High and Low Tide

Notes:

Fore River Bridge stage data from NOAA Station 344788, relative to mean low low water (MLLW) datum.

Highlighted cells used to identify first occurrence of low and high depth to waterrelative to high tide and low tide, respectively, measured at Fore River Bridge (NOAA Station 344788).

Appendix A-4
Permanent Solution Statement Report Photograph Log: MW-201 Skimming Test


Photo 1: MW-201 – NAPL coating probe and pad, 4/17/17.


Photo 2: MW-201 – NAPL and water discharge, 4/17/17.


Photo 3: MW-201 – NAPL in tubing and floating in pail, 4/17/17.


Photo 4: MW-201 – NAPL adhered to inside of pail, 4/17/17.


Photo 5: MW-201 – NAPL adhered to side of pail held vertically, 4/17/17.


Photo 6: MW-201 – NAPL plugging ½-inch inside diameter peristaltic tubing on 4/17/17.

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Appendix A-4
IRA Completion Report Photograph Log: MW-414 Manual Skimming Test


Photo 1: MW-414 – skimming test setup, 4/17/17.


Photo 2: MW-414 – NAPL pumping, 4/17/17.


Photo 3: MW-414 – NAPL and water discharge, 4/17/17.


Photo 4: MW-414 – NAPL coating probe, 4/17/17.


Photo 5: MW-414 – water and NAPL on probe tip, 4/18/17.


Photo 6: MW-414 – NAPL coating tape, 4/18/17.

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Appendix A-4
IRA Completion Report Photograph Log: MW-414 Manual Skimming Test

Photo 7: MW-414 – NAPL being removed from tape, 4/18/17.

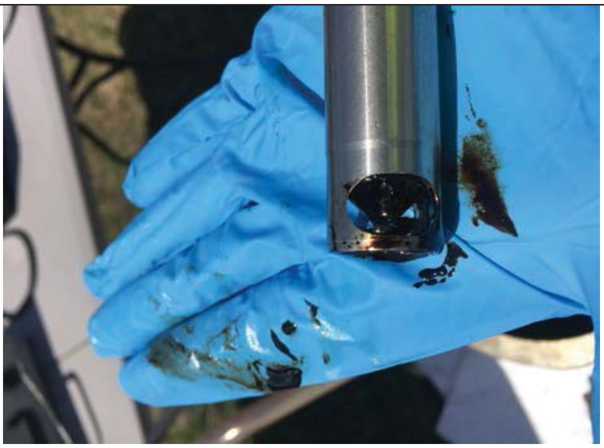

Photo 8: MW-414 – NAPL and water on probe tip, 4/19/17.

Photo 9: MW-414 – water and NAPL globs – top view, 4/19/17.

Photo 10: MW-414 – water and NAPL globs – side view, 4/19/17.

Photo 11: MW-414 – NAPL coating 2.5 quart container-side, 4/19/17.

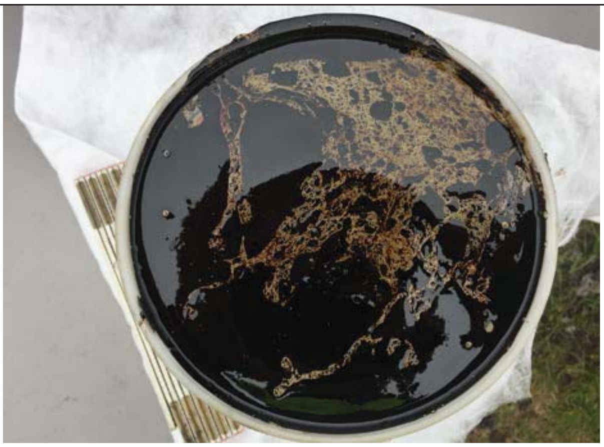

Photo 12: MW-414 – NAPL and water discharge top view, 4/25/17.

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Appendix A-4
IRA Completion Report Photograph Log: MW-414 Manual Skimming Test

Photo 13: MW-414 – NAPL and water side view, 4/25/17.

Photo 14: MW-414 – NAPL and water discharge side, 5/1/17.

Photo 15: MW-414 – NAPL and water discharge into left container, and partial decant to right container, 5/1/17.

Photo 16: MW-414 – NAPL and water decanted top, 5/1/17.

Photo 17: MW-414 – NAPL and water decanted side close-up, 5/1/17.

Photo 18: MW-414 – NAPL and water, most water decanted off, 5/1/17.

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Well: MW-414

Site: 6 Bridge St., Weymouth, MA

Skimming Recovery Field Form

Site:	6 Bridge St., Weymouth, MA	**Project #:**	140143.0000.4903
Monitoring Well:	MW-414	**Field Staff:**	C.Race, L. Hopp, A. Cornell
Evacuation Method:	Peristaltic pump	**Weather:**	

Well Information		**Pump and Liquid Volume Measurement Information**	
Casing Diameter (inches):	4"	**Pump Type:**	Peristaltic pump
Total Well Depth (feet):	23' bgs		
Depth to Top of Screen (feet)	8 bgs	**Volume Measurement Method:**	Graduated container
Screen Length (feet):	15'		

Pumping Status	Date	Time Hour:Min	LNAPL Volume Recovered (milliliters)	Water Volume Recovered (milliliters)	DTP (feet)	DTW (feet)	Comments
Off/Static	4/17/17	0747	—	—	14.25	15.64	PreTest
Pump ~~On~~ OFF		0858	—	—	14.24	15.65	" "
Pump ~~Off~~ ON		0910	—	—	—	—	Mixture NAPL & H_2O
		0914	—	—	—	—	NAPL
		0922	—	—	—	-	Water and NAPL globules
		0927	—	—	—	—	" " " "
		0929	—	—	—	—	Water
↓		0930	—	—	—	—	lift line, pumping air
Pump off		0932	3000	8000	—	—	
		0944	—	—	14.35	15.96	recheck DTW
		0946	—	—	—	1600	" "
		0951	—	—	14.35	14.43	0.08' NAPL Thickness
		1027	—	—	14.35	14.78	recheck DTW
		10:35	—	—	—	14.53	0.18' NAPL Thickness
		12:21	—	—	14.41	1500	recheck DTW
		12:23	—	—	—	15.10	" "
		12:25	—	—	—	14.42	" "
		12:26	—	—	—	14.50	0.08' NAPL Thickness
		13:40	—	—	14.44	—	
		13:44	—	—	—	14.65	recheck DTW
		13:47	—	—	—	14.62	" "
		13:48	—	—	—	14.87	" "
↓		13:49	—	—	—	14.91	" "
Pump ON		13:58	—	—	—	—	
Pump off		14:04	750	3,250			Some product in Tubing from
—		—	—	—	—	—	previous pumping at 0910.
Pump off		14:12	—	—	14.44	—	
		14:14	—	—	—	14.41	recheck DTW.
	↓	14:16	—	—	—	14.42	
	4/18/17	0722	—	—	14.39	—	
		07:24	—	—	—	15.51	recheck DTW
		0725	—	—	—	15.52	" "
		0726	—	—	—	15.19	" "
		0727	—	—	—	14.40	" "
↓	↓	0728	—	—	—	14.70	" "

Well: MW-414

Site: 6 Bridge St., Weymouth, MA

Skimming Recovery Field Form

Site:	6 Bridge St., Weymouth, MA	**Project #:**	140143.0000.4903
Monitoring Well:	MW-414	**Field Staff:**	C.Race, L. Hopp, A. Cornell
Evacuation Method:	Peristaltic pump	**Weather:**	

Well Information		**Pump and Liquid Volume Measurement Information**	
Casing Diameter (inches):	4"	**Pump Type:**	Peristaltic pump
Total Well Depth (feet):	23' bgs		
Depth to Top of Screen (feet)	8' bgs	**Volume Measurement Method:**	Graduated container
Screen Length (feet):	15'		

Pumping Status	Date	Time Hour:Min	LNAPL Volume Recovered (milliliters)	Water Volume Recovered (milliliters)	DTP (feet)	DTW (feet)	Comments
Off/~~Static~~	4/18/17	07:30	—	—	—	14.68	0.29' NAPL thickness
Pump On ✓		07:40	—	—	—	—	
Pump Off		07:53	118	11 000	—	—	
		07:55	—	—	—	14.47	
		07:58	—	—	14:39	—	
		07:59	—	—	—	14.88	recheck DTW
		08:00	—	—	—	14.32	" DTW
		08:01	—	—	—	14.41	" "
		08:02	—	—	—	14.38	reproduced. 0.01' thick
		10:44	—	—	14.43	15.24	recheck DTW
		—	—	—	—	14.38	" "
		10:53	—	—	—	14.35	0.08' NAPL thickness.
		12:15	—	—	14.46	—	
		12:16	—	—	—	14.75	recheck DTW
		12:17	—	—	—	14.45	" "
		12:18	—	—	—	14.45	reproduced.
		13:21	—	—	14.52	14.47	
		14:16	—	—	14.52	14.52	product on tape
	4/19/17	07:28	—	—	14.53	—	
		07:30	—	—	—	14.55	product on probe
		10:22	—	—	14.52	—	—
		10:25	—	—	14.53	14.53	product on probe
		11:55			14.53	—	
		12:20			14.51	14.53	
		13:03			14.57	14.57	
Pump ON		13:12	59	2129			
Pump off.		13:14			14.57	14.57	
" "	4/25/17	07:17	—	—	14.42	14.44	
Pump ON		07:30	—	—	—	—	
Pump off		07:32	118	2366	14.45	14.45	
		10:07	—	—	14.52	—	
		10:09	—	—	—	14.55	recheck DTW
		10:11	—	—	—	14.55	reproduced
		10:20	—	—	14.50	—	
	5/1/17	09:20	—	—	13.73	13.94	recheck DTW

Well: MW-414

Site: 6 Bridge St., Weymouth, MA

Skimming Recovery Field Form

Site:	6 Bridge St., Weymouth, MA	**Project #:**	140143.0000.4903
Monitoring Well:	MW-414	**Field Staff:**	C.Race, L. Hopp, ~~A. Cornell~~
Evacuation Method:	Peristaltic pump	**Weather:**	

Well Information		**Pump and Liquid Volume Measurement Information**	
Casing Diameter (inches):	4"	**Pump Type:**	Peristaltic pump
Total Well Depth (feet):	33' bgs		
Depth to Top of Screen (feet)	8' bgs	**Volume Measurement Method:**	Graduated container
Screen Length (feet):	15'		

Pumping Status	Date	Time Hour:Min	LNAPL Volume Recovered (milliliters)	Water Volume Recovered (milliliters)	DTP (feet)	DTW (feet)	Comments
Off/~~Static~~	5/1/17	07:30	—	—	—	13.74	recheck DTP & DTW
Pump ~~On~~ OFF		07:36	—	—	13.74	13.74	product on tape + probe
Pump ~~Off~~ ON		07:50	—	—	—	—	
" "		07:51	—	—	—	—	Water discharge w/ NAPL blobs
Pump off		07:52	—	—	—	—	same, then water
" "		08:00	148	1750	13.74	13.74	Stop skimming test.

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Appendix A-4
IRA Completion Report: Sock Inspection Photograph Log

Photo 1: MW-201 – sock removed 1 day after installation, 4/19/17.

Photo 2: MW-201 – sock removed 6 days after installation, 4/25/17.

Photo 3: MW-201 – sock removed 6 days after installation, 5/1/17.

Photo 4: MW-406 –sock removed 1 day after installation, 4/19/17.

Photo 5: MW-406 – sock removed 6 days after installation, 4/25/17.

Photo 6: MW-406 – sock removed 6 days after installation, 5/1/17.

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Appendix A-4
IRA Completion Report: Sock Inspection Photograph Log

Photo 7: MW-407 – sock removed 1 day after installation, 4/19/17.

Photo 8: MW-407 – sock removed 6 days after installation, 4/25/17.

Photo 9: MW-407 – sock removed 6 days after installation, 5/1/17.

Photo 10: MW-410 – sock removed 1 day after installation 4/19/17.

Photo 11: MW-410 – sock removed 6 days after installation, 4/25/17.

Photo 12: MW-410 – sock removed 6 days after installation, 5/1/17.