April 29, 2020 *Via Email and Fed Ex*

Mr. Russell H. Fish
Office of Remediation 3LD10
RCRA Corrective Action Branch #1
Land, Chemicals and Redevelopment Division
U.S. Environmental Protection Agency Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Regarding: SWMU 9 Data Summary Report
Honeywell Delaware Valley Works
Claymont, Delaware

Dear Mr. Fish:

Wood Environment & Infrastructure Solutions, Inc. (Wood), on behalf of Honeywell International. Inc. (Honeywell), is submitting three (3) copies of the *SMWU 9 Data Summary Report, Honeywell Delaware Valley Works, Claymont, Delaware*.

Please contact Steve Coladonato at 302-791-6738 or John Mihalich at 610-877-6020 if you have questions or require further information.

Sincerely,
Wood Environment & Infrastructure Solutions, Inc.

John P. Mihalich, P.G.
Associate Geologist

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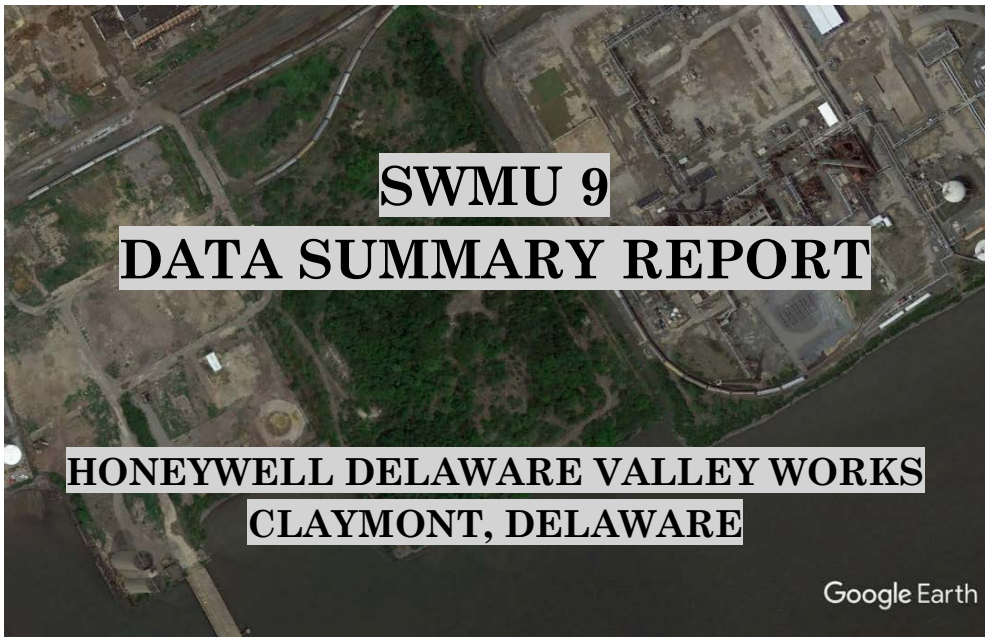

SWMU 9
DATA SUMMARY REPORT

HONEYWELL DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

Prepared for

Honeywell

101 Columbia Road
Morristown, NJ 07962

Prepared by

wood.

Wood Environment & Infrastructure Solutions, Inc.
751 Arbor Way, Suite 180
Blue Bell, PA 19422

April 29, 2020

CERTIFICATION

I certify that the information contained in or accompanying the SWMU 9 Data Summary Report for the Delaware Valley Works in Claymont, Delaware is true, accurate, and complete.

As to the identified portion of the SWMU 9 Data Summary Report for which I cannot personally verify its accuracy, I certify under penalty of law that this Report and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fines and imprisonment for knowing violations.

Honeywell International Inc.

Steven Coladonato

Remediation Manager

SWMU 9 Data Summary Report

SWMU 9 DATA SUMMARY REPORT
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1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood), on behalf of Honeywell International, Inc. (Honeywell), is submitting this Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Data Summary Report for the Honeywell Delaware Valley Works (DVW) Solid Waste Management Unit (SWMU) 9 (the Site). This Data Summary Report is being submitted at the request of the United States Environmental Protection Agency (USEPA) to summarize the data collected to date for the Site.

SWMU 9 is one of several SWMUs that are part of a larger Honeywell site under the USEPA's RCRA Corrective Action Program. The site originally comprised two parcels, one north of Philadelphia Pike (Route 13) known as the North Plant and one South of Philadelphia Pike known as the South Plant. All of Honeywell's SWMUs are located in the North Plant except SWMU 9, which formerly was part of the South Plant. SWMU 9 is bounded on the south by the Delaware River, on the east by a Sunoco facility and on the north and west by the former South Plant property now owned by Drawbridge Claymont, LLC (Drawbridge) (see **Figure 1**).

1.1 SITE HISTORY

Chemical operations at DVW began early in the 20th century. Land for the South Plant was purchased in 1910 and plant operations began in 1913 (Woodard & Curran, 2016). The sulfuric acid and sulfur dioxide made in the plant formed the basis for all products at the South Plant. During World War I, the South Plant produced needed chemicals for the war effort. Increasing production prompted expansion into an idled chemical facility in 1940. This new segment, the North Plant, began operations in 1945.

The entire South Plant is located in Delaware, and approximately two-thirds of the North Plant is located in Pennsylvania and one-third in Delaware, which includes SWMU 9 (see **Figure 1**). The two plants were previously owned by Allied Chemical Corporation, which became Allied-Signal Inc. (Allied-Signal) and is now known as Honeywell. In 1986, Allied-Signal transferred the South Plant and a portion of the North Plant to an entity later known as General Chemical. General Chemical was acquired by Chemtrade Solutions LLC (Chemtrade) in 2014, and Chemtrade sold the South Plant properties to Drawbridge in 2016 and 2019.

Review of aerial photography and historical records indicate that the Site historically functioned as a stockpiling and dewatering impoundment for alum mud sludges from 1966 to the late 1980s. Construction debris and other refuse have been

noted during historical site reconnaissance. The Site reportedly contains over 350,000 tons of gypsum, iron oxide sludge, and alum sludge stockpiled to heights of up to approximately 50 feet above pre-fill grades. Topographic surveys identify three distinct topographic levels within the Site (**Figure 2**). The highest elevation level [ranging from 40 to 50 feet above mean sea level (amsl)] is located in the northwestern third of the Site, the intermediate elevation level (ranging from 25 to 30 feet amsl) is located in the south central portion of the Site, and the lowest elevation level (ranging from 5 to 15 feet amsl) is located in the southernmost third of the Site adjacent to the Delaware River and along the sluiceway and Middle Creek sides of SWMU 9.

In the late 1980s, under guidance from the Delaware Department of Natural Resources and Environmental Control (DNREC), a vegetative cover was installed at the Site for erosion control. In 1994, a Storm Water Plan was prepared for the Site outlining inspection and monitoring requirements for the vegetative cover. Currently, the Site is covered with significant vegetation, mature trees, and shrubs.

1.2 PROJECT OBJECTIVES AND REPORT ORGANIZATION

The purpose of this report is to provide a summary of the data collected to date at SWMU 9 to ultimately support publication of a Statement of Basis by USEPA that will establish capping with institutional controls as an appropriate remedy under the RCRA Corrective Action Program. This report documents the following:

- The results of RFI work completed for SWMU 9, which includes multiple phases of investigation with input from USEPA. All of the data presented in this report has been previously submitted to USEPA.
- A summary of environmental conditions based on the RFI work, including a conceptual site model.

Section 2 summarizes the SWMU 9 RFI soil investigations and results. **Section 3** summarizes the SWMU 9 RFI groundwater investigation activities and results. **Section 4** presents a summary of environmental conditions and the conceptual site model.

1.3 RFI STATUS

On January 20, 2000, Honeywell entered into a Facility Lead Corrective Action Agreement whereby Honeywell would, among other things, assess the sources and magnitude of releases of hazardous wastes and hazardous constituents and conduct interim measures as appropriate. Honeywell performed Phase I and Phase II RFIs

in 2003 as well as an additional investigation in 2010 under the Facility Lead Agreement.

On September 20, 2011, Honeywell entered into an Administrative Consent Order (ACO) with USEPA to complete the RFI and to conduct a Corrective Measures Study (CMS), as necessary, to address SWMUs on the DVW facility, including the Site. The RFI was completed in 2015 and the RFI report was submitted to USEPA in 2016. Additional groundwater investigations were conducted at the Site in 2016. A geotechnical investigation was conducted at the Site in 2018. A supplemental soil and groundwater investigation was conducted at the Site in 2019.

General summaries of each investigation are provided below. Detailed discussions of the soil investigations are provided in **Section 2** and the groundwater investigations are provided in **Section 3**.

2003 Phase I RFI

The Phase I RFI was performed under the USEPA Region III's Facility Lead Corrective Action Agreement, in accordance with Honeywell's Letter of Commitment dated January 20, 2000, and the RCRA Facility Lead Corrective Action Reference Documents. The Phase I RFI was conducted in order to:

- Assess the extent and sources of all releases of hazardous waste or hazardous waste constituents;
- Evaluate and meet the USEPA's Environmental Indicators;
- Perform interim measures at the DVW to prevent or mitigate unacceptable threats to human health and the environment; and,
- Conduct effective public involvement, and communicate with the USEPA, the Commonwealth of Pennsylvania, and the State of Delaware and community as to the corrective action progress at the DVW.

The Phase I RFI included the collection of surface water, groundwater, and soil samples. The Phase I RFI Data Summary Report was submitted to USEPA in October 2003 (MWH Americas, 2003).

2003 Phase II RFI

The Phase II RFI was performed under the USEPA Region III's Facility Lead Corrective Action Agreement, in accordance with Honeywell's Letter of Commitment dated January 20, 2000, and the RCRA Facility Lead Corrective Action Reference Documents (USEPA, 2000). The Phase II activities are described in detail in the

USEPA-approved Work Plan Addendum (MWH Americas, 2004) and the revisions incorporated in response to the August 2004 EPA comments.

The Phase II RFI consisted of the installation of groundwater monitoring wells and the collection of groundwater samples. The Phase II RFI also included a hydraulic conductivity study. The Phase II RFI Data Summary Report was submitted to USEPA in February 2007 (MWH Americas, 2007).

2010 Investigation

In 2010, surface soil and groundwater samples were collected from the Site to address data gaps from earlier investigations. These samples were collected in accordance with an USEPA-approved Work Plan. The results of the 2010 Investigation were included in the RFI Work Plan (Amec Foster Wheeler, 2015).

2015 RFI

In 2015, the RFI was completed in accordance with the USEPA-approved RFI Work Plan (Amec Foster Wheeler, 2015). The key objectives of the RFI were to delineate the extent of waste and the release of hazardous constituents at the DVW, evaluate human health and environmental risk to support selection of corrective measures, and collect groundwater data necessary to support a groundwater environmental indicator (EI) status of "Yes". The RFI Work Plan also included a risk assessment task to be conducted in general accordance with USEPA Risk Assessment Guidance (RAGS), tailored to be consistent with USEPA's Lean Process. The 2015 RFI included the installation of one new groundwater monitoring well at the Site and the collection of groundwater samples from all Site monitoring wells existing at the time. The 2015 RFI also included a geotechnical investigation at the Site consisting of test pits, cone penetrometer tests (CPT), and geotechnical soil borings. The 2015 RFI report was submitted to the USEPA in April 2016 (Amec Foster Wheeler, 2016).

2016 Additional Investigation

In 2016, an additional investigation was conducted to supplement the previous investigations and to assess the impact of arsenic in groundwater. The investigation was conducted in accordance with the USEPA Supplemental Pathway Investigation Work Plan (Wood, 2018a).

The 2016 Additional Investigation included the installation of one groundwater monitoring well on the Site. Groundwater samples were collected for arsenic speciation analysis and slug tests were performed to evaluate hydraulic conductivity at the Site. The 2016 Additional Investigation was summarized in the Supplemental

Pathway Investigation Results Report submitted by Anchor QEA to the USEPA in March 2017 (Wood, 2018a).

2018 Geotechnical Investigation

In 2018, a geotechnical investigation was conducted in accordance with the USEPA-approved SWMU 9 Geotech Investigation Work Plan (Wood, 2018b) to collect supplemental geotechnical and other data necessary to support the design of a corrective measure including a slope stability analyses that will meet the USEPA Corrective Action Lean Project objectives. Six soil borings were advanced and one monitoring well was installed. Soil samples were analyzed for physical and engineering properties to support the corrective measure at the Site. The SWMU 9 Geotechnical Investigation Report was submitted to the USEPA in June 2019 (Wood, 2019a).

2019 Supplemental Investigation

In 2019, in accordance with the USEPA-approved Revised SWMU 9 Supplemental Work Plan (Wood, 2019b), six soil borings were advanced in the southeastern portion of the Site for the collection of soil samples and four monitoring wells (two shallow and two deep) were installed between the Site and the Sunoco property to the northeast. The SWMU 9 Summary Tables and Figures was submitted to the USEPA in January 2020 (Wood, 2020).

2.0 RFI SOIL INVESTIGATIONS

2.1 SOIL INVESTIGATION FIELD ACTIVITIES

2003 Phase I RFI

The Phase I RFI included the installation of 18 soil borings and the collection of 16 soil samples. The Site was divided into six sectors and three borings were advanced within each sector. Soil samples were collected from three intervals in each boring: 0 to 1 foot below ground surface (bgs); 1 to 15 feet bgs; and 15 feet bgs to native material. The 0 to 1 foot bgs samples from the three borings in each sector were composited into one sample; the 1 to 15 feet bgs samples from the three borings in each sector were composited into a second sample; and the 15 feet bgs to native material samples from the three borings in each sector were composited into a third sample. This resulted in three interval-specific samples per sector, except that the bottom samples were not collected from two of the sectors since native material was encountered within 15 feet of ground surface, for a total of 16 soil samples (SM09-SB01-01 through SM09-SB06-02). Soil samples were analyzed for target analyte list (TAL) metals.

2003 Phase II RFI

The Phase II RFI did not include soil investigation activities.

2010 Investigation

Soil samples were collected from the 0 to 0.5 foot bgs depth interval from 16 locations (SP-1 through SP-16) and analyzed for pesticides, arsenic, and lead (see **Figure 2**).

2015 RFI

The 2015 RFI included a geotechnical investigation at the Site consisting of test pits, cone penetrometer tests (CPT), and geotechnical soil borings. Test pits were installed, geotechnical borings were advanced, and CPTs were performed at the Site during the 2015 RFI.

<u>Test Pits</u>

During the 2015 RFI, five test pits (SM9-TP1 through SM9-TP5) were excavated at the Site (see **Figure 2**). Each test pit was approximately 10 feet long by three feet wide. The planned test pit terminal depth was 10 feet bgs; however, the test pit

excavations could not be advanced to the planned depths due to refusal on hard cemented materials that appeared to be of low permeability. Eight bulk grab samples representative of the shallow alum mud waste materials were collected from the test pits and submitted for geotechnical testing.

Soil Borings

During the 2015 RFI, five geotechnical soil borings (SM9-SB3 through SM9-SB-7) were advanced through the alum mud waste to native soils at the approximate locations depicted on **Figure 2.** Each boring was advanced with continuous split-spoon sampling to a depth of 12 feet bgs. Split-spoon samples were collected at five-foot intervals thereafter beginning at 15 feet bgs to terminal depths within the native soils. Representative Shelby tube samples of the alum mud waste and of the underlying native silty clay/silt soils were collected at four boring locations (SM9-SB3, SM9-SB5, SM9-SB6, and SM9-SB7).

Split spoon and Shelby tube samples were analyzed for the following geotechnical parameters:

- Water content (%);
- Liquid limits/plastic limits (Atterberg limits);
- Grain size (sieve and hydrometer);
- Bulk density;
- Permeability;
- Consolidation;
- Compaction; and
- pH – alum mud waste and leachate.

Cone Penetrometer Tests

During the 2015 RFI, seven CPT soundings were attempted at the locations shown on **Figure 2.** The CPTs were performed to collect continuous stratigraphic and penetration resistance (strength) data within the alum mud waste material, however refusal was again encountered on hard cemented materials before reaching the planned terminal depths. One additional CPT (SM9-CP12) was attempted at the location of test pit SM9-TP3 where refusal was encountered during the test pit program. CPT SM9-CP12 also encountered refusal before the planned terminal depth.

2016 Additional Investigation

The 2016 additional investigation did not include soil investigation activities.

2018 Geotechnical Investigation

In 2018, six geotechnical borings were advanced at the Site (SM9-SB1, SM9-SB2, SM9-SB8, SM9-SB9, SM9-SB10, and SM9-SB11) (see **Figure 2**). A total of 84 split spoon samples and six Shelby tube samples were collected for analyses of material physical and engineering properties using the tests below.

- Physical Properties (split spoon samples):
  - Water Content (%) – A American Society for Testing and Materials (ASTM) D2216;
  - Liquid Limits/Plastic Limits (Atterberg Limits) – ASTM D4318;
  - Specific Gravity – ASTM D854;
  - Grain size (sieve/hydrometer) ASTM D422;
  - Unified Soil Classification System (USCS) material classification - ASTM D2487;
  - Bulk Density – ASTM D4531; and
  - Permeability – ASTM D5084
- Engineering Properties (Shelby tube samples):
  - Consolidation Test – ASTM D2435;
  - Unconsolidated Undrained Triaxial Compression Test – ASTM D2850;
  - Consolidated Undrained Triaxial Compression Test – ASTM D4767; and
  - Compaction Test (Standard Proctor) – ASTM D698.

The 2018 Geotechnical Investigation did not include chemical analysis of soil samples.

2019 Supplemental Investigation

In 2019, six soil borings (B1 through B4, MW123S, and MW124S) were advanced in the southeastern portion of the Site for the collection of soil samples, located between existing SWMU 9 well MW-15 and Sunoco well MW-560, approximately 50 feet west of the fenceline (see **Figure 2**). Based on field screening, up to three soil samples per boring were collected (0 to 1 foot bgs; above the water table, which is at approximately 10 ft bgs; and below the water table) and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals, and pesticides.

2.2 SUMMARY OF SOIL INVESTIGATION RESULTS

Soil analytical results were compared to the 2019 USEPA Industrial Soil Screening Levels (ISSLs) and Risk-Based Soil Screening Levels (RSSLs) (with a dilution attenuation factor [DAF) of 20], assuming a target cancer risk (TR) of 1E-06 and a target hazard quotient (THQ) of 1.0. Available boring logs from historical and recent investigations are provided in **Appendix A**.

2003 Phase I RFI

Several constituents exceed the RSSLs, but only the following exceed the ISSLs (see **Table 1** and **Figure 3**).

- VOCs – Samples were not analyzed for VOCs during the 2003 Phase I RFI.
- SVOCs – Samples were not analyzed for SVOCs during the 2003 Phase I RFI.
- Metals – Arsenic, lead, thallium, and mercury exceeded the ISSLs. Arsenic in samples SM09-SB01-03, SM09-SB03-02, SM09-SB03-03, SM09-SB04-03, SM09-SB05-01, SM09-SB05-02, SM09-SB05-02A, SM09-SB06-01, SM09-SB06-02; lead in samples SM09-SB01-03, and SM09-SB-03-03; thallium in sample SM09-SB01-03; and mercury in sample SM09-SB03-03. Thallium and mercury concentrations above the ISSLs were only detected in the 15 to 57-foot bgs intervals, below the water table. Arsenic concentrations range from non-detect to 6,850 milligrams per kilogram (mg/kg). The highest arsenic and lead concentrations, e.g., greater than 1,000 mg/kg, were all in the 15 to 57-foot bgs intervals, below the water table.
- Pesticides – Samples were not analyzed for pesticides during the 2003 Phase I RFI.

2003 Phase II RFI

Soil samples were not collected during the Phase II RFI.

2010 Investigation

Several constituents exceed the RSSLs, but only the following exceed the ISSLs (see **Table 2** and **Figures 3** and **4**).

- VOCs – Samples were not analyzed for VOCs during the 2010 Investigation.
- SVOCs – Samples were not analyzed for SVOCs during the 2010 Investigation.

- Metals – Arsenic and lead exceeded the ISSLs. Arsenic in all samples except for samples SP-10, SP-12, SP-13, SP-16, and SP-16 DUP-1; lead in samples SP-1 and SP-4. Arsenic concentrations range from 0.24 to 973 mg/kg.
- Pesticides – Aldrin, alpha-BHC, beta-BHC, 4,4'-DDD, 4,4'-DDT, and dieldrin exceeded the ISSLs. Aldrin in sample SP-7; alpha-BHC in sample SP-1; beta-BHC in sample SP-1; 4,4'-DDD in sample SP-1; 4,4'-DDT in samples SP-1 and SP-2; and dieldrin in samples SP-1 and SP-3.

2015 RFI

Soil samples were not collected during the 2015 RFI.

2016 Additional Investigation

Soil samples were not collected during the 2016 Additional Investigation.

2018 Geotechnical Investigation

The results of the preliminary slope stability analyses indicate that there are Site locations where the Factor of Safety (FS) of 1.5 for landfill closure is not satisfied for the existing and/or proposed grading scenarios evaluated. However, there is no reason to suspect imminent failure concerns. The results of the preliminary settlement analyses indicated that the settlement magnitude ranged up to several feet for the various proposed grading scenarios evaluated. A limited number of approaches to improve stability were enumerated. Settlement will be dependent on the magnitude and areal extent of the various loading scenarios.

2019 Supplemental Investigation

Several constituents exceed the RSSLs, but only the following exceed the ISSLs (see **Tables 3** through **6** and **Figures 3** through **6**).

- VOCs – There were no exceedances of the ISSLs for VOCs.
- SVOCs – Benzo(a)pyrene in one sample (B4-14-16) exceeded the ISSL.
- Metals – Arsenic, lead, thallium, and mercury exceeded the ISSLs. Arsenic in all samples except for samples B3-0-1, B3-8-10, and 124S-10-12; lead in samples B1-14-16, B2-14-16, B3-14-16, B4-14-16, MW123S-14-16, and MW-124S-14-16; thallium in samples B4-14-16, B-14-16 (duplicate), and MW123S-14-16; and mercury in samples B3-14-16, B4-14-16, and MW123S-14-16. Thallium and mercury concentrations above the ISSLs were only detected in the 14 to 16-foot bgs intervals, below the water table. The highest arsenic and

lead concentrations, e.g., greater than 1,000 mg/kg, were all in the 14 to 16-foot bgs intervals, below the water table.

- Pesticides – 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT exceeded the ISSLs. 4,4'-DDD in B1-6-8 and B1-14-16, 4,4'-DDE in B1-14-16, and 4,4'-DDT in B1-0-1.

3.0 RFI GROUNDWATER INVESTIGATIONS

3.1 GROUNDWATER INVESTIGATION FIELD ACTIVITIES

2003 Phase I RFI

Three "grab" groundwater samples (SM09-GW01 through SM09-GW03) were collected from soil borings; two were collected from the lowest elevation level, closest to the Delaware River, and the third was collected upgradient of the impoundment near the southwest edge of the Site. Groundwater samples were analyzed for total and dissolved TAL metals.

Three surface water runoff samples were collected from within the Site: sample SWMU 9 SM09-Runoff-01 was collected from the center of the lower elevation level; sample SWMU 9 SM09-Runoff-02 was collected from the center of the middle elevation level; and sample SWMU 9 SM09-Runoff-03 was collected from the road to the middle elevation level beneath the western slope. Surface water samples were analyzed for total TAL metals, total dissolved solids (TDS), total suspended solids (TSS), and pH.

The precise location of the grab groundwater and surface water samples are not known; therefore, they are not shown on **Figure 2**.

2003 Phase II RFI

The Phase II RFI consisted of the installation of groundwater monitoring wells and the collection of groundwater samples. Six monitoring wells were installed during the Phase II RFI (MW-14 through MW-19). Groundwater samples were analyzed for dissolved TAL metals and pesticides. The Phase II RFI also included a hydraulic conductivity study. The Phase II RFI Data Summary Report was submitted to USEPA in February 2007 (MWH Americas, 2007).

2010 Investigation

In 2010, groundwater samples were collected from monitoring wells located along the Delaware River (MW-16, MW-17, and MW-18) and analyzed for pesticides, and dissolved lead and arsenic to address data gaps from earlier investigations.

2015 RFI

The 2015 RFI included the installation of one new groundwater monitoring well (SM9-MW1) at the Site and of the collection of groundwater samples from all Site

monitoring wells existing at the time (SM9-MW1, MW-14 through MW-19, and MW-122). Groundwater samples were submitted for analysis for VOCs, SVOCs, metals, and pesticides.

2016 Additional Investigation

The 2016 Additional Investigation included the installation of one groundwater monitoring well (MW-122) on the Site. Groundwater samples were collected from monitoring wells MW-16, MW-17, MW-18, and MW-122 and analyzed for dissolved arsenic, lead, and manganese and arsenic speciation. Slug tests were performed to evaluate hydraulic conductivity at the Site. The 2016 Additional Investigation was summarized in the Supplemental Pathway Investigation Results Report submitted by Anchor QEA to the USEPA in March 2017 (Wood, 2018a).

During the 2016 Additional Investigation, groundwater samples were analyzed for chloride, bromide, fluoride, calcium, potassium, magnesium, sodium, silicon, alkalinity, sulfide, total and dissolved arsenic, total and dissolved iron, total and dissolved manganese. Arsenic speciation analyses was also performed during the 2016 Additional Investigation.

Also, in 2016, hydraulic conductivity tests were conducted to assess the aquifer characteristics.

2018 Geotechnical Investigation

Monitoring wells SWMU9-MW1 and SWMU9-MW2 were completed in the saturated sand and gravel underlying the fill material for potential future groundwater sampling. Groundwater samples were not collected during the 2018 Geotech Investigation.

2019 Supplemental Investigation

Two sets of groundwater monitoring wells (one shallow well and one deep well per set) were installed approximately 50 feet west of the fenceline between SWMU 9 and Sunoco's property. One set of wells was installed opposite Sunoco monitoring well MW-559 and one set of wells was installed opposite Sunoco monitoring well MW-560.

The shallow wells were screened similar to the Sunoco monitoring wells (5 to 15 ft bgs) and the deep monitoring wells were screened in the sand and gravel unit observed during the installation of soil borings/monitoring wells in 2018. The

screens for the deep monitoring wells were cased-off to the depth of the sand and gravel unit so that only the sand and gravel unit is monitored.

The monitoring wells were sampled and analyzed for VOCs, SVOCs, dissolved metals, and pesticides.

3.2 SUMMARY OF GROUNDWATER INVESTIGATION RESULTS

The groundwater analytical results were compared to the 2019 USEPA Regional Screening Levels (RSLs), Tapwater and Maximum Contaminant Levels (MCLs), assuming a target cancer risk (TR) of 1E-06 and a target hazard quotient (THQ) of 1.0. Both the Tapwater and MCLs are drinking water standards; however, groundwater at SWMU 9 is not and never has been used as a source for drinking water and the presumptive remedy will include groundwater restrictions. Available well construction diagrams from historical and recent investigations are provided in **Appendix B**.

2003 Phase I RFI

Three grab groundwater samples were collected from borings during the Phase I RFI from soil boring locations (SM09-GW01, SM09-GW02, and SM09-GW03). These samples were analyzed for total and dissolved metals. Several constituents exceed the Tapwater RSLs, but only the following constituents exceed MCLs in the filtered samples (see **Table 7**):

- VOCs – Samples were not analyzed for VOCs during the 2003 Investigation.
- SVOCs – Samples were not analyzed for SVOCs during the 2003 Investigation.
- Dissolved metals – Arsenic, lead, thallium, beryllium, chromium, and mercury exceeded the MCLs. Arsenic, lead, and thallium in all three samples SM09-GW01, SM09-GW02, and SM09-GW03; beryllium in samples SM09-GW02 and SM09-GW03; chromium in sample SM09-GW02; and mercury in sample SM09-GW01.
- Pesticides – Samples were not analyzed for pesticides during the 2003 Investigation.

Three surface water samples were also collected. The surface water runoff results are also shown in **Table 7**.

2003 Phase II RFI

Six monitoring wells were installed around the perimeter of the Site during the Phase II RFI (MW-14 through MW-19). Each of these monitoring wells and an upgradient monitoring well located on the Drawbridge property, MW-113, were sampled and analyzed for pesticides and TAL metals.

During the Phase II RFI, the interpreted groundwater flow direction was generally toward the south-southwest toward the Delaware River discharge boundary. However, flow towards the Middle Creek and the sluiceway discharge boundaries were also inferred.

2010 Investigation

During the 2010 Investigation, groundwater samples were collected from monitoring wells located along the Delaware River (MW-16 through MW-18) and analyzed for pesticides and total and dissolved lead and arsenic. Several constituents exceed the Tapwater RSLs, but only the following constituents exceed MCLs (see **Tables 8** and **9** and **Figures 7** and **8**):

- VOCs – Samples were not analyzed for VOCs during the 2010 Investigation.
- SVOCs – Samples were not analyzed for SVOCs during the 2010 Investigation.
- Dissolved metals – Arsenic in wells MW-16 and MW-18 exceeded the MCL.
- Pesticides – There were no pesticide exceedances during the 2010 Investigation.

Groundwater elevation data were not collected during the 2010 Investigation.

2015 RFI

During the 2015 RFI, groundwater samples were collected from monitoring wells (SM9-MW1, and MW-14 through MW-19) and analyzed for TCL VOCs, TCL SVOCs, TCL pesticides and TAL metals. Several constituents exceed the Tapwater RSLs, but only the following constituents exceed MCLs (see **Tables 8** through **11** and **Figures 7** through **10**):

- VOCs – Benzene, tetrachloroethene (PCE), and trichloroethene (TCE) exceeded MCLs. Benzene in monitoring well MW-15; PCE in monitoring well MW-19; and TCE in monitoring well MW-15.
- SVOCs – There were no SVOC exceedances during the 2015 RFI.

- Dissolved metals. Antimony, arsenic, beryllium, selenium, and thallium exceeded MCLs. Antimony in monitoring wells MW-15, MW-17, and MW-17 DUP; arsenic in monitoring wells MW-14, MW-15, MW-18, and MW-19; beryllium in monitoring well SM9-MW1; selenium in monitoring wells SM9-MW1 and MW-18; and thallium in monitoring wells SM9-MW1, MW-14, MW-15, and MW-19.
- Pesticides. Gamma-BHC (Lindane) in wells MW-14 and MW-19 exceeded the MCL.

During the 2015 RFI, the interpreted groundwater flow direction was generally to the south-southwest toward the Delaware River discharge boundary. However, flow towards Middle Creek and the sluiceway discharge boundaries were also inferred.

2016 Additional Investigation

During the 2016 Additional Investigation, groundwater samples were collected from monitoring wells MW-16 through MW-18 and MW-122 on Site. Samples were analyzed for chloride, bromide, fluoride, calcium, potassium, magnesium, sodium, silicon, alkalinity, sulfide, total and dissolved arsenic, total and dissolved iron, total and dissolved manganese. Arsenic speciation analyses were also performed. Several constituents exceed the Tapwater RSLs, but only the following constituents exceed MCLs (see **Table 8** and **Figure 7**).

- VOCs – Samples were not analyzed for VOCs during the 2016 Additional Investigation.
- SVOCs – Samples were not analyzed for SVOCs during the 2016 Additional Investigation.
- Dissolved metals. Arsenic in all samples except for MW-17 exceeded the MCL.
- Pesticides – Samples were not analyzed for Pesticides during the 2016 Additional Investigation.

The arsenic speciation is a mixture of As(III) and As(V), with As(III) typically dominant over As(V) in samples with higher dissolved arsenic concentrations. Monomethylarsonic acid (MMA) and dimethylarsinic acid (DMA) were not detected in Site monitoring wells at the laboratory limit of 1.0 to 300 micrograms per liter (µg/L). Dissolved arsenic concentrations in groundwater within SWMU 9 was generally lower and characterized by a greater proportion of As(V).

During the 2016 Additional Investigation, the interpreted groundwater glow direction was similarly toward the Delaware River and the sluiceway on the western

boundary. Groundwater elevation measurements were not collected from wells in the eastern portion of the Site.

2018 Geotechnical Investigation

Groundwater samples were not collected during the 2018 Geotechnical Investigation.

The data indicate that groundwater generally discharges away from SWMU 9 toward Middle Creek to the northeast, the Delaware River to the southeast, and the sluiceway to the southwest, ultimately discharging to the Delaware River. Mounding occurs in some areas, presumably within lower permeability zones of the sand/gravel unit. An apparent higher permeability zone traverses the northwestern portion of SWMU 9. It is manifested as a zone of lower groundwater levels.

2019 Supplemental Investigation

Several constituents exceed the Tapwater RSLs, but only the following constituents exceed MCLs (see **Tables 8** through **11** and **Figures 7** through **10**):

- VOCs – Benzene, chlorobenzene, and TCE exceeded MCLs. Benzene in monitoring wells SWMU9-MW2, MW-15, MW-18, MW-123S, and Sunoco monitoring well MW-559; chlorobenzene and TCE in monitoring well MW-15; and chlorobenzene in Sunoco monitoring well MW-559. The concentrations of benzene and chlorobenzene in Sunoco monitoring well MW-559 were significantly higher than those in the SMWU 9 monitoring wells.
- SVOCs – Benzo(a)pyrene in one monitoring well (SM9-MW1) and pentachlorophenol in one monitoring well (Sunoco well MW-557) exceeded MCLs.
- Dissolved metals – Arsenic, beryllium, copper, lead, mercury, selenium, and thallium exceeded MCLs. Arsenic in all wells except for monitoring wells MW-17, MW-122, and Sunoco monitoring well MW-48; beryllium in monitoring wells SMWU9-MW2 and SM9-MW1; copper in Sunoco monitoring well MW-560; lead in monitoring wells SWMU9-MW2 and SM9-MW1, MW-19, MW-123S and Sunoco monitoring wells MW-48, MW-559, and MW-560; mercury in Sunoco monitoring well MW-559; selenium in monitoring well MW-124S; and thallium in monitoring wells SM9MW-1, MW-14, MW-15, MW-19 and Sunoco monitoring well MW-557. The concentrations of arsenic were significantly higher in monitoring wells MW-18 and MW-19 and Sunoco monitoring well MW-557 than those in other Site monitoring wells.

- Pesticides – Gamma-BHC (lindane) in monitoring wells MW-14, MW-19 and Sunoco monitoring wells MW-557 and MW-559 exceeded the MCL.

Water level measurements collected from the 10 existing SWMU 9 monitoring wells (MW-14 through MW-19, MW-122, SM9-MW1, SWMU9-MW1, and SWMU9-MW2), the four new SWMU-9 monitoring wells (MW-123S, MW-124S, MW-123D, and MW-124D), the five adjacent Sunoco monitoring wells (MW-48 and MW-557 through MW-560), and the two staff gauges that were installed in Middle Creek indicate that shallow groundwater flows to the south-southeast toward the Delaware River and Middle Creek while deeper groundwater (screened in the sand and gravel) flows to the east-northeast toward Middle Creek (see **Table 12** and **Figures 11** and **12**).

4.0 SUMMARY OF ENVIRONMENTAL CONDITIONS AND CONCEPTUAL SITE MODEL

The investigations of soils and groundwater described in the previous sections of this report provide a substantial body of information regarding environmental conditions at SWMU 9.

4.1 SITE DESCRIPTION AND PHYSICAL DESCRIPTION

DVW is located within a heavy manufacturing area on the Delaware – Pennsylvania state line at 6200 Philadelphia Pike, Claymont, Delaware. The Site is not contiguous with Honeywell's North Plant but is located approximately 2,100 feet south of Philadelphia Pike on the Delaware River (see **Figure 1**).

The Site is bounded to the north and west by property owned by Drawbridge (see **Figure 2**). A sluiceway separates the Site from this property on the west side. The Site is bounded to the south by the Delaware River and to the east by the west bank of Middle Creek, which is part of the Sunoco refinery.

Site-Specific Geology

The Site is located within the Coastal Plain Physiographic Province and approximately one mile east of the Fall Line, the demarcation of the beginning of the Piedmont Physiographic Province. The Coastal Plain consists of unconsolidated sediments from the Cretaceous, Tertiary, and Quaternary ages overlying pre-Cambrian bedrock and consist of gravel, sand, silt, and clay deposits. These sediments thicken eastward towards the Delaware River (Trapp and Meisler, 1992).

The waste material disposed at the Site consists of an alum mud waste (i.e., waste fill), predominantly of reddish brown and light gray silt-sized material, typically encountered from ground surface to depths of up to approximately 50 feet bgs in some places where the elevation is the greatest. The consistency of the alum mud varies from soft to very stiff. Below the alum mud waste are unconsolidated alluvium deposits of silt/clay and/or sand/gravel deposits of varying thickness. The silt/clay consistency ranges from soft to very stiff and the sand/gravel relative density ranges from loose to dense. The alluvium was found to be of variable composition, consisting of organic silt becoming gray and brown silt or clay, each with trace medium to fine sand, and/or silty fine to coarse sand. This alluvial material is likely former marsh soils or river bottom. The unconsolidated units are interpreted to extend downward to weathered rock (i.e., saprolite) grading into bedrock. At the Site, saprolite and/or bedrock have not been encountered in

monitoring well borings. At the Drawbridge property, immediately adjacent to the Site on the north and west, the bedrock was reportedly encountered at depths ranging from approximately 16 feet bgs along Philadelphia Pike to as deep as 54 feet bgs along the Delaware River.

The results of the 2018 Geotechnical Investigation (which generally support previous geologic interpretations) indicates that the geology of the Site can be summarized as follows:

- Fill material (descending in elevation):
  - Stratum 1, Waste Fill, predominantly alum mud, a reddish brown and light gray silt-size material; and
  - Stratum 2, Industrial Fill, consisting of various landfilled materials such as glass shards, scrap metal, and wood fragments.
- Native material (underlying the fill):
  - Stratum 3, Silt/Clay, an organic silt becoming gray and brown silt or clay; and
  - Stratum 4, Sand and Gravel.

Site-Specific Hydrogeology

The principal water-bearing zone in the Site's subsurface consists of unconsolidated sand and gravel units of the Coastal Plain Sediments. Inter-bedded silt and clay may create localized semi- confined hydraulic conditions at depth. Recharge of the unconsolidated aquifer occurs mainly in the form of precipitation.

Groundwater discharge from the Site likely occurs locally into the Delaware River and the sluiceway along the western boundary and beneath a narrow strip of land owned by Sunoco to Middle Creek along the eastern boundary (see **Figures 11** and **12**).

The sluiceway extends from the Delaware River northward along the western perimeter of the Site and terminates on the Drawbridge property approximately 1,650 feet south of the DVW. The sluiceway outfall is maintained and monitored by Drawbridge under a National Pollutant Discharge Elimination System (NPDES) Permit.

Surface Water

There are no surface water bodies on the Site. As described above, the Site is bounded to the south and west by the Delaware River and the sluiceway, respectively. A narrow strip of land owned by Sunoco separates the east side of the

Site from Middle Creek. Storm water runoff from the Site discharges as sheet flow into either the sluiceway on the Drawbridge property, Middle Creek, or the Delaware River.

4.3 CONCEPTUAL SITE MODEL

Site Stratigraphy

The shallow subsurface at the Site consists of two types of fill, an alum mud waste, including gypsum and iron oxide sludge, predominantly of reddish brown and light gray silt-sized material (Stratum 1), underlain by a lesser amount of industrial fill characterized by glass shards, scrap metal, and wood fragments (Stratum 2). The thickness of the fill is up to approximately 50 feet at the higher elevations. Below the fill are unconsolidated alluvium deposits of silt/clay (Stratum 3), which overlie the sand/gravel (Stratum 4), the principal water-bearing unit at the Site. At the Site, saprolite and/or bedrock have not been encountered in monitoring well borings or geotechnical soil borings.

Site Hydrology

Groundwater flow has been inferred to be laterally toward the discharge boundaries along the sluiceway, Middle Creek, and Delaware River. However, the alum mud waste (including gypsum and iron oxide sludge) was virtually impenetrable by test pits and CPTs during geotechnical testing conducted as part of the 2015 RFI; refusal was encountered in some places at depths ranging from approximately 2 feet to 17 feet bgs and standard penetrometer tests (SPT) N-values were typically greater than 50 blows per foot in shallow fills, suggesting a hard material that may have a low hydraulic conductivity. Consequently, infiltration of precipitation and consequent recharge of the water table may not occur within portions of the Site and may be limited to the peripheral areas of the Site where the waste thickness is the least because of the cementitious nature of the waste materials (Amec Foster Wheeler, 2015). Because of compression dewatering of the underlying native soils caused by the mass of the waste pile, groundwater may be diverted around the alum mud.

Historical Impacts

During previous investigations, exceedances of the Industrial and Residential risk based criteria (RBCs) and/or Ecological Screening Levels were observed at some locations in the Site. Pesticides and metals were detected in concentrations above their RBCs and Ecological Screening Levels in surface and subsurface soil.

Groundwater samples from 2015 were found to have exceedances of the Tapwater and/or MCLs for VOCs, SVOCs, pesticides, and metals.

Currently, the CSM suggests that contaminants could migrate in groundwater from the Site toward the Drawbridge sluiceway, the Delaware River, and Middle Creek discharge boundaries.

Exposure Receptors

The Site is not regularly occupied by Site workers or contractors for any reason other than required annual permit inspections and for operation and maintenance (O&M) activities. Current activities at and in the vicinity of the Site are non-residential. The approximately 16 acre Site is enclosed by a chain link fence on three sides and the Delaware River on the fourth. The Site is over approximately 2,100 feet from the nearest public road and accessible only by traversing the Drawbridge property (secured by chain link fence and daytime caretaker) or by boat from the Delaware River.

Ecological receptors exist on the Site; a number of avian and mammalian species have been observed on Site during reconnaissance activities.

Receptor populations with the potential to be exposed at the Site include Site workers, construction workers, trespassers, and wildlife.

Exposure Pathways

The potential exposure pathways that exist on the Site are:

- Surficial erosion of particulates due to storm water runoff and wind;
- Direct contact with groundwater and alum mud waste;
- Inhalation of dust or vapors;
- Ingestion of hazardous constituents from the alum waste mud or groundwater;
- Volatilization of hazardous constituents into the air or soil vapor; and
- Cross media transfer from groundwater to surface water bordering the Site.

Evaluation of exposure scenarios and current and reasonably expected future receptors associated with these migration pathways suggests the following:

- There are no currently complete direct contact exposure pathways to Site workers or trespassers for surficial soils because the Site is vegetated.

- There are no currently complete direct contact, ingestion, or inhalation exposure pathways to subsurface soils except to construction workers in an excavation scenario, as waste material constituents are below ground surface or covered with vegetation.
- Site related hazardous constituents include VOCs, however neither buildings nor subsurface structures are present. Therefore, inhalation of volatilized VOCs is assumed to not be a complete exposure pathway.
- There are no complete exposure pathways to impacted groundwater beneath the property except for uncontrolled exposure during O&M activities. Groundwater is not used as a resource at the Site or on surrounding properties. Currently, all potable water and water used for processes and fire suppression for properties surrounding the Site is obtained from the Chester Water Authority in Chester, Pennsylvania. As agreed at the RFI Scoping meeting[1], the 2016 Baseline Human Health Risk Assessment (BHHRA) did not evaluate risk of groundwater as a drinking water source if assumed contaminated and the goal is restoration to drinking water standards and screening concentrations where appropriate. The 2016 BHHRA and Baseline Ecological Risk Assessment (BERA) are under USEPA review and have not been approved.
- There are no surface water bodies on Site.

4.4 PRESUMPTIVE REMEDY

The presumptive remedy for the Site includes re-grading and the installation of an engineered cover/capping system addressing approximately the entire 16 acres of the Site supplemented by various enforceable institutional controls. In addition to the current presumptive remedies, an alternate use scenario was evaluated as part of the geotechnical investigation (Wood, 2019b). The alternate use scenario includes re-grading for potential development. A groundwater control component and/or source control measures (e.g., hot spot removal) may be added to the remedy for the Site, if necessary. Any alternate use scenario will only supplement and be in addition to the remedial components documented in the SWMU 9 Geotech Work Plan (Wood, 2018b).

[1] Meeting Summary, August 28, 2014 Meeting, Honeywell/U.S. Environmental Protection Agency/AMEC; Item V, Receptors, "Will not evaluate risk of groundwater as a drinking water source if assumed contaminated and goal is restoration to drinking water standards and screening concentrations where appropriate."

5.0 REFERENCES

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6.0 LIST OF ACRONYMS AND ABBREVIATIONS

ACO	Administrative Consent Order
AOC	Area of Concern
amsl	above mean sea level
ASTM	American Society for Testing and Materials
BERA	Baseline Ecologic Risk Assessment
bgs	Below ground surface
BHHRA	Baseline Human Health Risk Assessment
CMS	Corrective Measures Study
CPT	Cone Penetrometer Tests
CSM	Conceptual Site Model
DAF	Dilution Attenuation Factor
DMA	Dimethylarsinic acid
DNREC	Delaware Department of Natural Resources and Environmental Control
DUP	Sample Duplicate
DVW	Delaware Valley Works
EI	Environmental Indicator
EPA	Environmental Protection Agency
FS	Factor of Safety
FT3/SEC	Cubic Feet per Second
G/CC	Grams per Cubic Centimeter
IDW	Investigation-Derived Waste
ISSLs	Industrial Soil Screening Levels
MCL	Maximum Contaminant Level
MG/KG	Milligrams per Kilogram
MG/L	Milligram per Liter
ML/G	Milliliters per Gram
MMA	Monomethylarsonic acid
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PADEP	Pennsylvania Department of Environmental Protection
PCE	Tetrachloroethylene
pH	Logarithmic scale used to measure acidity
PSO	Project Safety Officer
PVC	Polyvinyl Chloride
RAGS	Risk Assessment Guidance for Superfund
RBC	Risk Based Criteria
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RSLs	Regional Screening Levels
RSSLs	Risk-based Soil Screening Levels
SI	Site Investigation
SPT	Standard Penetrometer Tests
SVOCs	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Units
TAL	Target Analyte List
TCE	Trichloroethylene
TDS	Total Dissolved Solids
THQ	Target Hazard Quotient
TR	Target cancer Risk

TSS	Total Suspended Solids
UG/L	Micrograms per Liter
USEPA	United Stated Environmental Protection Agency
USCS	Unified Soil Classification System
VOCs	Volatile Organic Compounds

TABLES

Table 1
Summary of Soil Analytical Results, Metals, 2003
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SM09-SB01-01 SB01-01 5/29/2003 0-1	SM09-SB01-02 SB01-02 5/29/2003 1-15	SM09-SB01-02A (Duplicate) SB01-02 6/4/2003 1-15	SM09-SB01-03 SB01-03 5/29/2003 15-57	SM09-SB02-01 SB02-01 5/30/2003 0-1	SM09-SB02-02 SB02-02 5/30/2003 1-15	SM09-SB02-03 SB02-03 5/30/2003 15-42	SM09-SB03-01 SB03-01 5/30/2003 0-1	SM09-SB03-02 SB03-02 5/30/2003 1-15	SM09-SB03-03 SB03-03 5/30/2003 15-47
Metals (mg/kg)												
Aluminum	1100000	600000	95500	17400	13400	31200	3310	5280	13600	95500	24900	18400
Antimony	470	7	7.3 U	5.5 U	5.7 U	*22* B	5.1 U	5.8 U	5.5 U	6.6 U	5.5 U	*77.9*
Arsenic	3	0.03	7.1 U	5.4 U	5.6 U	***743***	5 U	5.6 U	5.4 U	6.5 U	***47.1***	***6850***
Barium	220000	3200	23.3 B	267	252	726	263	360	471	35 B	303	1000
Beryllium	2300	380	0.5 B	0.6 B	0.7 B	0.8 B	0.5 B	1 B	0.3 U	0.4 B	0.4 B	1.2 B
Boron	230000	260	4.9 B	1 B	0.9 U	0.8 U	0.8 U	0.9 U	0.9 U	2.9 B	0.9 U	0.9 U
Cadmium	980	NS	0.6 U	0.8 B	0.8 B	7.9	0.4 U	0.5 U	1.4 B	0.6 U	3.3 B	9.4
Calcium	NS	NS	102000	238000	243000	169000	268000	247000	257000	37300	179000	134000
Chromium	NS	NS	96.8	25.3	17.9	33.9	6.8 B	7.2 B	19	92.7	36.4	64.6
Cobalt	350	5.4	4.4 U	*9.4 B*	*11.5 B*	*16.2 B*	3.1 U	3.5 U	3.3 U	4.1 B	*83.6*	*54.1 B*
Copper	47000	560	9.7 B	97.1	119	*6280*	5.2 B	2.9 U	6.2 B	22.7 B	316	388
Iron	820000	7000	3690	*15500*	*20900*	*40900*	912	1200	1530	6240	*93200*	*74600*
Lead	800	NS	57.1	347	415	**2480**	85.7	95.6	184	84.5	338	**5410**
Magnesium	NS	NS	449 U	2860 B	3040 B	334 U	314 U	354 U	337 U	405 U	341 U	1420 B
Manganese	NS	NS	27.4	31.9	32.3	26.4	12.3 B	8.5 B	10.6 B	23.9	63.1	100
Nickel	22000	520	4.5 B	7.8 B	5.1 B	4.9 B	2.8 U	3.1 U	3 U	3.7 B	8.3 B	15.7 B
Potassium	NS	NS	1310 B	377 U	390 U	545 B	539 B	393 U	373 U	2040 B	378 U	1320 B
Selenium	5800	10.4	5.9 U	7	5.4 B	9.9	4.1 U	4.7 U	4.4 U	5.4 U	*129*	*170*
Silver	5800	16	2.6 U	2 U	2 U	5.1 B	1.8 U	3.6 B	1.9 U	2.3 U	2.5 B	6.5 B
Sodium	NS	NS	779 U	590 U	610 U	580 U	545 U	615 U	585 U	704 U	592 U	640 U
Thallium	12	0.28	0.6 U	*0.6* B	*0.5* B	***16.1***	0.4 U	*0.8 B*	0.4 U	0.5 U	*2*	*9.1*
Vanadium	5800	1720	81.9	20.7 B	15.7 B	52.3 B	5 B	8.8 B	28.1 B	105	23.3 B	43.3 B
Zinc	350000	7400	20.9 B	173	209	1670	9.2 B	9.2 B	22.3 B	19.1 B	499	1510
Mercury	46	0.66	0.1	*4*	*2.7*	*4.5*	*13.7*	*5.4*	*2.4*	0.5	0.6	***48.2***
General Chemistry												
% Solids	NS	NS	42	29	29	33	23	24	30	36	29	31
pH	NS	NS	5.6	8.1	8.3	4.7	5.2	4.6	4.4	5.4	5.4	5.1

Notes:

Actual laboratory data packages not available for 2003 data; data qualifier definitions are assumed based on current data qualifier terminology.

U = Indicates the analyte was analyzed for, but not detected.

B = The concentration is less than the reporting limit, and is an approximate value.

mg/kg = Milligrams per kilogram.

ft = feet.

NS = No standard.

Bold values indicate an exceedance of the Industrial Soil Screening Level (SSL) (USEPA, November 2019).

Italicized and shaded values indicate an exceedance of the Risk-Based SSL, assuming a dilution attenuation factor (DAF) of 20 (USEPA, November 2019).

SMWU = Solid Waste Management Unit

RCRA = Resource Conservation and Recovery Act

RFI = RCRA Facility Investigation

DVW = Delaware Valley Works

USEPA= United States Environmental Protection Agency

ID = Field Sample Identification

ft = Feet

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Checked by: Brian Glowark 3/13/2020

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Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SM09-SB04-01 SB04-01 6/2/2003 0-1	SM09-SB04-02 SB04-02 6/2/2003 1-15	SM09-SB04-03 SB04-03 6/2/2003 15-37	SM09-SB05-01 SB05-01 6/4/2006 0-1	SM09-SB05-02 SB05-02 6/4/2003 1-12	SM09-SB05-02A (Duplicate) SB05-02 6/4/2003 1-12	SM09-SB06-01 SB06-01 6/4/2003 0-1	SM09-SB06-02 SB06-02 6/4/2003 1-15
Metals (mg/kg)										
Aluminum	1100000	600000	130000	81000	19100	8710	30200	26900	50700	17200
Antimony	470	7	6.2 U	6.4 U	*24.8 B*	5.5 B	5.6 U	5.7 U	*8.2 B*	*21.8 B*
Arsenic	3	0.03	6.1 U	6.3 U	***176***	***205***	***16.7***	***25.1***	***700***	***324***
Barium	220000	3200	106 B	47.4 B	308	319	122 B	80.9 B	1060	607
Beryllium	2300	380	0.7 B	0.5 B	0.5 B	0.7 B	0.5 B	0.6 B	0.8 B	0.7 B
Boron	230000	260	23.2	5.3 B	0.8 U	0.8 U	0.9 U	0.9 U	2 B	0.8 U
Cadmium	980	NS	0.5 U	0.5 U	5.5	0.5 B	0.5 U	0.5 U	5.1 B	4 B
Calcium	NS	NS	65400	182000	125000	221000	241000	236000	125000	150000
Chromium	NS	NS	99.7	96.2	48.9	20.9	29.9	31.4	74.7	40.1
Cobalt	350	5.4	*10.4 B*	4.1 B	*140*	*16.5 B*	5.3 B	*5.8 B*	*11.9 B*	*60.3*
Copper	47000	560	106	25.8 B	447	89.9	38.7	90.4	229	521
Iron	820000	7000	*8900*	5920	*184000*	*24500*	*13000*	*14500*	*21500*	*97200*
Lead	800	NS	205	57.3	421	238	93.2	118	969	2010
Magnesium	NS	NS	382 U	498 B	707 B	9200	4260 B	4440 B	775 B	2040 B
Manganese	NS	NS	81.1	24.5	61	73.1	25.8	27	56.9	80
Nickel	22000	520	80.1	3.5 U	15.6 B	6 B	3.5 B	3.1 U	8 B	10.6 B
Potassium	NS	NS	869 B	436 U	361 U	883 B	380 U	390 U	402 U	494 B
Selenium	5800	10.4	5 U	5.2 U	*271*	*15.2*	7.8	10	*26*	*117*
Silver	5800	16	2.2 U	2.3 U	8.8 B	1.9 U	2 U	2 U	2.1 U	3.2 B
Sodium	NS	NS	664 U	682 U	565 U	580 U	595 U	610 U	1290 B	783 B
Thallium	12	0.28	0.5 U	0.5 U	*4*	*0.5 B*	*0.4* U	0.4 U	*2.1*	*3.6*
Vanadium	5800	1720	91.5	77	31.1 B	15.9 B	27.1 B	30.5 B	60.9 B	37.6 B
Zinc	350000	7400	705	85.4	1030	141	49.1	59.9	951	1460
Mercury	46	0.66	*1*	*0.7*	*3.6*	*2.3*	*2.1*	*2*	*17.5*	*19.9*
General Chemistry										
% Solids	NS	NS	38	43	31	26	37	37	35	27
pH	NS	NS	5.7	6.7	5.9	11.7	9.1	8.7	6.3	7.4

Notes:

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mg/kg = Milligrams per kilogram.
ft = feet.
NS = No standard.
Bold values indicate an exceedance of the Industrial Soil Screening Level (SSL) (USEPA, November 2019).
Italicized and shaded values indicate an exceedance of the Risk-Based SSL, assuming a dilution attenuation factor (DAF) of 20 (USEPA, November 2019).
SMWU = Solid Waste Management Unit
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RFI = RCRA Facility Investigation
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Prepared by: Matthew Cole 3/6/2020
Checked by: Brian Glowark 3/13/2020

Table 2
Summary of Soil Analytical Results, Pesticides and Metals, 2010
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SP-1 SP-1 7/7/2010 0-0.5	SP-2 SP-2 7/7/2010 0-0.5	SP-3 SP-3 7/7/2010 0-0.5	SP-4 SP-4 7/7/2010 0-0.5	SP-5 SP-5 7/7/2010 0-0.5	SP-6 SP-6 7/7/2010 0-0.5	SP-7 SP-7 7/7/2010 0-0.5	SP-8 SP-8 7/7/2010 0-0.5	SP-9 SP-9 7/7/2010 0-0.5
Pesticides (mg/kg)											
Aldrin	0.18	0.003	0.86 U	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	***0.23***	0.019 U	0.00097 U
alpha-BHC	0.36	0.00084	***2.4***	0.2 U	0.096 U	*0.0017* J	0.021 U	0.019 U	0.017 U	0.019 U	0.00097 U
beta-BHC	1.3	0.003	***2.2***	0.2 U	0.096 U	0.0092 U	0.021 U	*0.0056* J, PG	0.017 U	0.019 U	0.00097 U
delta-BHC	NS	NS	0.32 J, PG	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	0.017 U	0.019 U	0.00097 U
gamma-BHC (Lindane)	2.5	0.0048	*1.4*	0.2 U	0.096 U	0.0092 U	0.021 U	*0.0063* J	0.017 U	0.019 U	0.0004 J
cis-Chlordane	NS	NS	0.67 J	0.13 J	0.036 J, PG	0.0092 U	0.021 U	0.016 J, PG	0.18 PG	0.033	0.00097 U
Gamma-Chlordane	NS	NS	0.86 U	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	0.009 J, PG	0.019 U	0.00097 U
4,4'-DDD	9.6	0.15	***22***	*5.7*	*1.6*	0.062	*0.37*	*0.55*	*0.31*	*0.3*	0.017
4,4'-DDE	9.3	0.2	*9.3*	*2.2*	*1.4*	0.087	0.14	*0.74*	*0.79*	*0.31*	*0.021*
4,4'-DDT	8.5	1.54	***55***	***10***	*4.5*	0.25	0.85	1	1.1	0.5	0.063
Dieldrin	0.14	0.00142	***0.18 J, PG***	0.2 U	***0.49***	0.0092 U	*0.0064* J, PG	*0.09*	0.017 U	*0.092*	*0.0044*
Endosulfan I	NS	NS	0.86 U	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	0.017 U	0.019 U	0.00097 U
Endosulfan II	NS	NS	0.19 J, PG	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	0.017 U	0.019 U	0.00097 U
Endosulfan sulfate	4900	42	0.86 U	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	0.017 U	0.019 U	0.00023 J, PG
Endrin	250	1.84	0.86 U	0.2 U	0.74	0.065	0.021 U	0.14	0.22	0.019 U	0.00097 U
Endrin ketone	NS	NS	0.86 U	0.2 U	0.096 U	0.0092 U	0.021 U	0.017 J	0.0097 J, PG	0.019 U	0.00054 J
Heptachlor	0.63	0.0024	0.86 U	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	*0.061* PG	0.019 U	0.00097 U
Heptachlor epoxide	0.33	0.00056	0.86 U	0.2 U	0.096 U	0.0092 U	0.021 U	0.019 U	*0.28*	0.019 U	0.00097 U
Methoxychlor	4100	40	1.7 U	0.4 U	0.19 U	0.018 U	0.042 U	0.038 U	0.034 U	0.038 U	0.0019 U
Metals (mg/kg)											
Arsenic	3	0.03	***973***	***123***	***84***	***179***	***159***	***94.1***	***37.5***	***50.2***	***8.9***
Lead	800	NS	**3400**	382	314	**1230**	250	323	477	244	143
General Chemistry											
Percent Solids (%)	NS	NS	97.4	83.5	86	90.1	77.6	87.1	97.1	86.9	85.9
Percent Moisture (%)	NS	NS	2.6	17	14	9.9	22	13	2.9	13	14
TOC (mg/kg)	NS	NS	43900	135000	210000	2760	3350	94700	45900	121000	11700

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mg/kg = Milligrams per kilogram.

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Prepared by: Matthew Cole 3/6/2020
Checked by: Brian Glowark 3/13/2020

Table 2
Summary of Soil Analytical Results, Pesticides and Metals, 2010
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SP-10 SP-10 7/7/2010 0-0.5	SP-11 SP-11 7/7/2010 0-0.5	SP-12 SP-12 7/7/2010 0-0.5	SP-13 SP-13 7/7/2010 0-0.5	SP-14 SP-14 7/7/2010 0-0.5	SP-15 SP-15 7/7/2010 0-0.5	SP-16 SP-16 7/7/2010 0-0.5	DUP-1 SP-16 7/7/2010 0-0.5
Pesticides (mg/kg)										
Aldrin	0.18	0.003	0.00093 U	0.0011	0.001 U	0.00051 J, PG	*0.022* PG	0.011 U	0.0011 U	0.0021
alpha-BHC	0.36	0.00084	0.00093 U	0.00044 J, PG	0.001 U	0.0019 U	0.0018 U	*0.0026 J*	0.0011 U	0.00046 U
beta-BHC	1.3	0.003	0.00093 U	0.0011 U	0.001 U	0.0011 J, PG	0.0018 U	0.011 U	0.0011 U	0.001
delta-BHC	NS	NS	0.00014 J, PG	0.0011 U	0.00022 J, PG	0.00035 J, PG	0.0068 PG	0.011 U	0.0011 U	0.00046 U
gamma-BHC (Lindane)	2.5	0.0048	0.0013	0.00079 J	0.00063 J, PG	0.0017 J	0.0011 J, PG	0.011 U	0.00065 J	0.0007
cis-Chlordane	NS	NS	0.00093 U	0.0005 J, PG	0.001 U	0.0022 PG	0.023 PG	0.011 U	0.0011 U	0.00046 U
Gamma-Chlordane	NS	NS	0.00093 U	0.0011 U	0.001 U	0.0019 U	0.0018 U	0.011 U	0.0011 U	0.0014 J
4,4'-DDD	9.6	0.15	0.0019 PG	0.0081 PG	0.0061	0.034	0.014	0.11	0.0099	0.0066
4,4'-DDE	9.3	0.2	0.0016	0.0068	0.0089	0.029	0.015 PG	0.075	0.0095	0.011
4,4'-DDT	8.5	1.54	0.0055	0.023	0.028	0.087	0.038	0.38	0.041 J	0.02 J
Dieldrin	0.14	0.00142	0.001	0.00098 J, PG	0.00069 J, PG	0.0006 J, PG	0.0018 U	*0.026*	0.0023 U	*0.0024 J*
Endosulfan I	NS	NS	0.00093 U	0.0011 U	0.001 U	0.0019 U	0.0018 U	0.011 U	0.0011 U	0.00046 U
Endosulfan II	NS	NS	0.00031 J, PG	0.0011 U	0.001 U	0.0019 U	0.0018 U	0.011 U	0.0011 U	0.00046 U
Endosulfan sulfate	4900	42	0.00061 J, PG	0.001 J, PG	0.001 U	0.0019 U	0.0018 U	0.011 U	0.0011 U	0.00018 J, PG
Endrin	250	1.84	0.00093 U	0.0014 PG	0.00029 J, PG	0.017	0.023	0.011 U	0.001 J	0.0012
Endrin ketone	NS	NS	0.00016 J, PG	0.0016 PG	0.00067 J	0.0019 U	0.0021 PG	0.011 U	0.0014	0.0012 J
Heptachlor	0.63	0.0024	0.00093 U	0.0011 U	0.001 U	0.0019 U	*0.0087 PG*	0.011 U	0.0011 U	0.00017 J
Heptachlor epoxide	0.33	0.00056	0.00093 U	*0.001 J, PG*	0.00029 J	0.0019 U	*0.037*	0.011 U	0.0011 U	0.00087 U
Methoxychlor	4100	40	0.0019 U	0.0021 U	0.0021 U	0.0039 U	0.0036 U	0.022 U	0.0023 U	0.00092 U
Metals (mg/kg)										
Arsenic	3	0.03	*0.24 B*	***11.5***	*0.98*	*0.44* B	***6.1***	***8.7***	*1.1*	*1*
Lead	800	NS	39.1	128	60.9	77.7	248	108	89.4	86.9
General Chemistry										
Percent Solids (%)	NS	NS	88.7	78.3	79.7	86.1	93.1	77.3	72.5	72.2
Percent Moisture (%)	NS	NS	11	22	20	14	6.9	23	27	28
TOC (mg/kg)	NS	NS	8880	48700	39800	9910	48300	14800	3500	35200

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Prepared by: Matthew Cole 3/6/2020
Checked by: Brian Glowark 3/13/2020

Table 3
Summary of Soil Analytical Results, Metals, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB1100119-01 B1 10/1/2019 0-1	SBB1100119-68 B1 10/1/2019 6-8	SBB1100119-1416 B1 10/1/2019 14-16	SBB2100119-01 B2 10/1/2019 0-1	SBB2100119-0810 B2 10/1/2019 8-10	SBB2100119-1416 B2 10/1/2019 14-16	SBB3100319-01 B3 10/3/2019 0-1	SBB3100319-0810 B3 10/3/2019 8-10	SBB3100319-1416 B3 10/3/2019 14-16	SBB3100319-1416 (DUP) FD100319 10/3/2019 14-16	SBB4100319-01 B4 10/3/2019 0-1
Metals (mg/kg)													
Aluminum	1100000	600000	24700	13000	34100	58700	5450	27800	128000	477	42200	36700	7810
Antimony	470	7	4.46 J	3.48 J	*12.5 J*	5.21 U	7.38 U	*23.2 J-*	3.79 U	27.6 U	*202*	*211*	5.58 U
Arsenic	3	0.03	***168***	***146***	***1050***	***48***	***35.4***	***1630***	2.27 U	16.5 U	***7280***	***8060***	***24.6***
Barium	220000	3200	485	179	1800	87.6	99.8	671 J	11	321	2260 J	*4000 J*	25.9
Beryllium	2300	380	0.319 J	0.316 J	0.958	0.324 J	0.419 J	0.865 J-	0.379 U	2.76 U	0.757	0.747	0.187 J
Cadmium	980	NS	0.417 J	1.67	7.29	0.132 J	0.583 J	6.24	0.284 J	2.76 U	5.94	5.18	0.223 J
Calcium	NS	NS	45800	35500	29300	156000	296000	47500 J-	4950	224000	13800	15400	263000
Chromium	NS	NS	54.4	42	122	61.8	33.1	155 J	143	8.27 U	73.6	75.7	8.36
Cobalt	350	5.4	*23.8*	*67.9*	*32.6*	*24.3*	*10.1*	*32.3 J*	1.76	1.72 J	*8.13*	5.33	2.58
Copper	47000	560	130	333	309	118	75.8	465	10.8	4.42 J	*641*	550	13.8
Iron	820000	7000	*43700*	*62100*	*51700*	*24400*	*12200*	*64100*	4620	1820	*33700*	*29600*	3100
Lead	800	NS	430	487	**1370**	173	68.7	**1950 J**	18.2	71.1	**18500**	**14200**	29.7
Magnesium	NS	NS	8500	4940	4280	12000	11300	4780	656	24.4 J	2650	2280	129
Manganese	NS	NS	356	166	168	74.9	74	202 J	28.5	8.67	278	256	49.9
Nickel	22000	520	20.7	23.3	27.8	9.39	11.2	29.5 J	2.87	5.51 U	25.3	25.3	2.82
Potassium	NS	NS	12200	2280	3230	750	990	3720	139	81.3	1900	2010	128
Selenium	5800	10.4	*13.7*	*11.1*	*72.1*	10.3	8.4	*116*	3.79 U	27.6 U	*300*	*227*	2.98 J
Silver	5800	16	1.92	2.65	5.51	2.04	1.48 U	9.03 J-	0.758 U	5.51 U	10.1	8.08	1.12 U
Sodium	NS	NS	292	441	3610	305	6590	11900	75.8 U	551 U	11200	12500	155
Thallium	12	0.28	*8.15*	2.41 U	18.3 U	3.13 U	4.43 U	*4.76 J-*	2.27 U	16.5 U	4.21 UJ	***14.8 J***	3.35 U
Vanadium	5800	1720	91.1	38.7	84.3	44.5	13.7	65 J	67.1	5.51 U	78	73.7	4.89
Zinc	350000	7400	254	519	789	178	113	918 J	21.5	18.3	420	477	33.9
Mercury	46	0.66	*4.73*	*1.51*	*13.5*	*1.05*	*0.739*	*29.4*	0.21	0.449	***152***	***140***	*2.48*
Moisture	NS	NS	11.3	11	40.9	16.6	42.1	46.7	10.2	22.5	38.6	39.9	14.6

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mg/kg = Milligrams per kilogram.
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exceedance of the Industrial Soil
Italicized and shaded values indicate an exceedance of the Risk-Based SSL, assuming a dilution attenuation factor (DAF) of 20 (USEPA, November 2019).
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Prepared by: Matthew Cole 12/23/2019
Checked by: Joe Spatafore 1/02/2020
Checked by: Jessica Witt 2/4/2020

Table 3
Summary of Soil Analytical Results, Metals, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB4100319-0608 B4 10/3/2019 6-8	SBB4100319-1416 B4 10/3/2019 14-16	SBMW123S-01 MW123S 10/1/2019 0-1	SBMW123S-1012 MW123S 10/1/2019 10-12	SBMW123S-1416 MW123S 10/1/2019 14-16	SBMW123S-1416 (DUP) FD10011901 10/1/2019 14-16	SBMW124S-01 124S 9/30/2019 0-1	SBMW124S-1012 124S 9/30/2019 10-12	SBMW124S-1416 124S 9/30/2019 14-16
Metals (mg/kg)											
Aluminum	1100000	600000	14200	29800 J	29600	14300	38500 J	13100 J	12300	270	27800
Antimony	470	7	5.77 U	*60 J*	3.62 J	3.46 J	*126 J*	*11.5 J*	4.85 U	6.23 U	*12.2*
Arsenic	3	0.03	***7.48***	***12200***	***46.6***	***14.4***	***9200 J***	***301 J***	***119***	3.74 U	***14100***
Barium	220000	3200	28	*6940 J*	55.4	175	2480 J	302 J	185	110	*5240*
Beryllium	2300	380	0.159 J	1.43	0.419 J	0.584 U	0.965 J	0.253 J	0.633	0.623 U	1.14
Cadmium	980	NS	0.218 J	13.4 J	0.333 J	0.584 U	4.7 J	1.39 J	0.418 J	0.896	8.11
Calcium	NS	NS	183000	17900 J	203000	242000	37300 J	226000 J	18100	269000	19900
Chromium	NS	NS	16.4	126 J	41.7	15.3	79.8 J	35.6 J	30.8	5.6	122
Cobalt	350	5.4	2.11	*7.9*	*12.9*	*10.8*	*7.11 J*	*7.68*	*14.3*	0.653	*19.9*
Copper	47000	560	12.6	*686*	72.8	37.4	*681 J*	119 J	104	9.51	493
Iron	820000	7000	4630	*40000*	*17600*	*18400*	24900	*20500*	*47000*	758	*34800*
Lead	800	NS	27.5	**4570**	126	64.7	**14000 J**	477 J	235	138	**2000**
Magnesium	NS	NS	204	5080 J	862	373	2800 J	1490 J	2440	4620	5370
Manganese	NS	NS	22.6	368 J	71.9	28.6	190 J	61.1 J	139	26	269
Nickel	22000	520	2.71	31.2	9.13	2.72	22.3 J	6.74 J	17.8	3.7	29.9
Potassium	NS	NS	208	3760	606	269	2000	2020	1730	187 U	3940
Selenium	5800	10.4	4.49 J	*48.7*	7.64	7.9	*208 J*	*27.2 J*	*25.7*	6.23 U	*99.6*
Silver	5800	16	1.15 U	4.54	1.26	0.955 J	9.81 J	2.3 J	1.6	1.25 U	4.74
Sodium	NS	NS	397	4470 J	233	1230	8830	7030	223	623 U	1100
Thallium	12	0.28	3.46 U	***14.7 J-***	*1.18 J*	3.51 U	***51.3 J***	3.7 UJ	2.91 U	3.74 U	*2.05 J*
Vanadium	5800	1720	10.4	72.9 J	27.7	7.52	79.1 J	17.9 J	38.4	1.25 U	66.6
Zinc	350000	7400	41.1	1370 J	186	38.1	620 J	35.5 J	150	256	1120
Mercury	46	0.66	*2.19*	***72.7***	*0.846*	0.502	***106 J***	*4.69 J*	*1.23*	0.19	*16.8*
Moisture	NS	NS	15.1	47.6	17.6	23.6	35.3	34.7	14.1	27.7	47.2

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Prepared by: Matthew Cole 12/23/2019
Checked by: Joe Spatafore 1/02/2020
Checked by: Jessica Witt 2/4/2020

Table 4
Summary of Soil Analytical Results, Pesticides, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB1100119-01 B1 10/1/2019 0-1	SBB1100119-68 B1 10/1/2019 6-8	SBB1100119-1416 B1 10/1/2019 14-16	SBB2100119-01 B2 10/1/2019 0-1	SBB2100119-0810 B2 10/1/2019 8-10	SBB2100119-1416 B2 10/1/2019 14-16	SBB3100319-01 B3 10/3/2019 0-1	SBB3100319-0810 B3 10/3/2019 8-10	SBB3100319-1416 B3 10/3/2019 14-16	SBB3100319-1416 (DUP) FD100319 10/3/2019 14-16	SBB4100319-01 B4 10/3/2019 0-1
Pesticides (mg/kg)													
Aldrin	0.18	0.003	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 UF1	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
alpha-BHC	0.36	0.00084	*0.069*	*0.026*	0.0064 UJ	*0.008 J*	*0.0025 J*	*0.0071 J-*	0.00073 U	*0.0081*	0.0056 U	0.0056 U	*0.0021*
beta-BHC	1.3	0.003	*0.08*	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 U F1	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
delta-BHC	NS	NS	0.021	0.0064	0.0064 UJ	0.0039 U	0.013 J	0.0056 U F1	0.00073 U	0.002	0.0056 U	0.0056 U	0.0008 U
gamma-BHC (Lindane)	2.5	0.0048	*0.03 J*	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 UJ	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
cis-Chlordane	NS	NS	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 U F1	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
trans-Chlordane	NS	NS	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
4,4'-DDD	9.6	0.15	*7.8 J*	***10 J***	***20 J-***	*1.6 J*	*2.1 J*	*4.7 J*	0.047	*0.61*	*0.2 J*	*0.24 J*	0.047
4,4'-DDE	9.3	0.2	*2*	*2.4*	***18 J-***	*1.3*	*1*	*1.5*	0.037	0.077 J	0.17 J	*0.44 J*	0.055
4,4'-DDT	8.5	1.54	***14***	*5.1*	0.047 J-	*3.3*	*1.5*	0.95	0.067	1	0.0056 U	0.0056 U	0.025
Dieldrin	0.14	0.00142	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 U F1	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Endosulfan I	NS	NS	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 U F1	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Endosulfan II	NS	NS	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Endosulfan sulfate	4900	42	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 UJ	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Endrin	250	1.84	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 UJ	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Endrin aldehyde	NS	NS	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 UJ	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Endrin ketone	NS	NS	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 U F1	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Heptachlor	0.63	0.0024	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 U F1	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Heptachlor epoxide	0.33	0.00056	0.0042 U	0.0038 U	0.0064 UJ	0.0039 U	0.0045 U	0.0056 UJ	0.00073 U	0.00079 U	0.0056 U	0.0056 U	0.0008 U
Methoxychlor	4100	40	0.0082 U	0.0074 U	0.012 UJ	0.0076 U	0.0086 U	0.011 UJ	0.0014 U	0.0015 U	0.011 U	0.011 U	0.0016 U
Toxaphene	2.1	0.22	0.11 U	0.097 U	0.16 UJ	0.1 U	0.11	0.14 U	0.019 U	0.02 U	0.14 U	0.14 U	0.02 U

Notes:

U = Indicates the analyte was analyzed for, but not detected.

UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.

J = Result is less than the limit of quantitation (LOQ) or reporting limit (RL) but greater than or equal to the method detection level (MDL) or detection level (DL) and the concentration is an approximate value.

J-= Result is less than the limit of quantitation (LOQ) or reporting limit (RL) but greater than or equal to the method detection level (MDL) or detection level (DL) and the concentration is an approximate value with a low bias.

J+= Result is less than the limit of quantitation (LOQ) or reporting limit (RL) but greater than or equal to the method detection level (MDL) or detection level (DL) and the concentration is an approximate value with a high bias.

F1= Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) recovery is outside acceptance limits.

D1= Indicates for dual analyses that the result is reported from column 1.

D2= Indicates for dual analyses that the result is reported from column 2.

mg/kg = Milligrams per kilogram.

NS = No standard.

Bold values indicate an exceedance of the Industrial Soil Screening Level (SSL) (USEPA, November 2019).

Italicized and shaded values indicate an exceedance of the Risk-Based SSL, assuming a dilution attenuation factor (DAF) of 20 (USEPA, November 2019).

SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
DVW = Delaware Valley Works
USEPA= United States Environmental Protection Agency
ID = Field Sample Identification
ft = Feet
DUP = Duplicate Sample

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Table 4
Summary of Soil Analytical Results, Pesticides, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB4100319-0608 B4 10/3/2019 6-8	SBB4100319-1416 B4 10/3/2019 14-16	SBMW123S-01 MW123S 10/1/2019 0-1	SBMW123S-1012 MW123S 10/1/2019 10-12	SBMW123S-1416 MW123S 10/1/2019 14-16	SBMW123S-1416 (DUP) FD10011901 10/1/2019 14-16	SBMW124S-01 124S 9/30/2019 0-1	SBMW124S-1012 124S 9/30/2019 10-12	SBMW124S-1416 124S 9/30/2019 14-16
Pesticides (mg/kg)											
Aldrin	0.18	0.003	0.038 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
alpha-BHC	0.36	0.00084	*0.038 D1*	0.0061 UJ	*0.0094 J*	*0.0055 J*	*0.08 J+*	*0.0034 J-*	*0.0042*	0.0009 UJ	0.0051 U
beta-BHC	1.3	0.003	0.045 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	*0.013*	0.0009 UJ	0.0051 U
delta-BHC	NS	NS	0.045 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.0021	0.0009 UJ	0.0051 U
gamma-BHC (Lindane)	2.5	0.0048	*0.013 J D2*	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.0012 J	0.0009 UJ	0.0051 U
cis-Chlordane	NS	NS	0.038 U D1	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
trans-Chlordane	NS	NS	0.038 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.11 UJ	0.00081 U	0.0009 UJ	0.0051 U
4,4'-DDD	9.6	0.15	*0.55 D1*	0.0061 UJ	*0.37 J*	*0.46 J*	*6.4 J+*	0.11 J-	*0.29 J*	0.0048 J	*2.7 J+*
4,4'-DDE	9.3	0.2	*0.57 D2*	0.0061 UJ	*0.36*	0.13	*2.8 J+*	0.047 J-	0.19	0.018 J-	*0.67 J+*
4,4'-DDT	8.5	1.54	0.54 D1	0.0061 UJ	0.66	0.16	0.17 J+	0.005 UJ	0.74 J	0.0093 J-	0.0051 UJ
Dieldrin	0.14	0.00142	0.077 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Endosulfan I	NS	NS	0.038 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Endosulfan II	NS	NS	0.1 U D2	0.0061 UJ	0.004 U	0.0044 U	0.011 J+	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Endosulfan sulfate	4900	42	0.077 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Endrin	250	1.84	0.077 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Endrin aldehyde	NS	NS	0.077 U D1	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Endrin ketone	NS	NS	0.091 U D1	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Heptachlor	0.63	0.0024	0.038 U D1	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Heptachlor epoxide	0.33	0.00056	0.038 U D2	0.0061 UJ	0.004 U	0.0044 U	0.0039 U	0.005 UJ	0.00081 U	0.0009 UJ	0.0051 U
Methoxychlor	4100	40	0.3 U D2	0.012 UJ	0.0078 U	0.0085 U	0.0076 U	0.0098 UJ	0.0016 UJ	0.0017 UJ	0.002 UJ
Toxaphene	2.1	0.22	1.5 U D2	0.15 UJ	0.1 U	0.11 U	0.099 U	0.13 UJ	0.02 U	0.023 UJ	0.026 U

Notes:

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F1= Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) recovery is outside acceptance limits.

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Table 5
Summary of Soil Analytical Results, VOCs, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB1100119-01 B1 10/1/2019 0-1	SBB1100119-68 B1 10/1/2019 6-8	SBB1100119-1416 B1 10/1/2019 14-16	SBB2100119-01 B2 10/1/2019 0-1	SBB2100119-0810 B2 10/1/2019 8-10	SBB2100119-1416 B2 10/1/2019 14-16	SBB3100319-01 B3 10/3/2019 0-1	SBB3100319-0810 B3 10/3/2019 8-10	SBB3100319-1416 B3 10/3/2019 14-16	SBB3100319-1416 (DUP) FD100319 10/3/2019 14-16
Volatile Organic Compounds (VOCs) (mg/kg)												
Acetone	670000	58	0.064	0.042	41 U	0.07 J	0.043	77 U	0.15	0.01 J	35 U	0.1
Benzene	5.1	0.0046	0.004 J	0.003 J	10 U	0.006 U	0.001 J	19 U	0.0008 J	0.007 U	8.8 U	*0.015*
Bromochloromethane	630	0.42	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Bromodichloromethane	1.3	0.00072	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Bromoform	86	0.0174	0.012 U	0.007 U	21 U	0.012 U	0.017 U	39 U	0.011 U	0.014 U	18 U	0.014 U
Bromomethane	30	0.038	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 UJ	0.007 UJ	8.8 U	0.007 UJ
2-Butanone	190000	24	0.006 J	0.006 J	21 U	0.008 J	0.006 J	39 U	0.011 J	0.014 U	18 U	0.014 U
Carbon Disulfide	3500	4.8	0.002 J	0.011	10 U	0.004 J	0.011	19 U	0.0009 J	0.001 J	8.8 U	0.002 J
Carbon Tetrachloride	2.9	0.0036	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Chlorobenzene	1300	1.06	0.015	0.065	*1.7 J*	0.004 J	0.005 J	19 U	0.005 U	0.0008 J	8.8 U	0.007 U
Chloroethane	57000	118	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 UJ	0.007 UJ	8.8 U	0.007 UJ
Chloroform	1.4	0.00122	*0.003 J*	0.0008 J	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Chloromethane	460	0.98	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 UJ	0.007 UJ	8.8 U	0.007 UJ
Cyclohexane	27000	260	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.51 J
1,2-Dibromo-3-chloropropane	0.06	0.0000028	0.006 U	0.004 U	10 UJ	0.006 UJ	0.009 U	19 UJ	0.005 U	0.007 U	8.8 U	0.007 U
Dibromochloromethane	39	0.0046	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,2-Dibromoethane	0.16	0.000042	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,2-Dichlorobenzene	9300	6	0.001 J	0.007	10 U	0.006 U	0.006 J	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,3-Dichlorobenzene	NS	NS	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,4-Dichlorobenzene	11	0.0092	0.0007 J	0.002 J	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Dichlorodifluoromethane	370	6	0.006 U	0.004 U	10 UJ	0.006 UJ	0.009 U	19 UJ	0.005 UJ	0.007 UJ	8.8 UJ	0.007 UJ
1,1-Dichloroethane	16	0.0156	0.006 U	0.004 U	10 UJ	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,2-Dichloroethane	2	0.00096	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,1-Dichloroethene	1000	2	0.006 U	0.004 U	10 UJ	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
cis-1,2-Dichloroethene	2300	0.22	0.0007 J	0.01	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
trans-1,2-Dichloroethene	23000	2.2	0.006 U	0.002 J	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,2-Dichloropropane	11	0.0056	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
cis-1,3-Dichloropropene	NS	NS	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
trans-1,3-Dichloropropene	NS	NS	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,4-Dioxane	24	0.00188	0.31 U	0.18 U	520 U	0.3 U	0.43 U	960 U	0.27 U	0.34 U	440 U	0.35 U
Ethylbenzene	25	0.034	0.006 U	0.0007 J	10 U	0.006 U	0.0008 J	19 U	0.005 U	0.007 U	8.8 U	*0.058*
Freon 113	28000	520	0.012 U	0.007 U	21 U	0.012 U	0.017 U	39 U	0.011 U	0.014 U	18 U	0.014 U
2-Hexanone	1300	0.176	0.012 U	0.007 U	21 U	0.012 U	0.017 U	39 U	0.011 U	0.014 U	18 U	0.014 U
Isopropylbenzene	9900	14.8	0.006 U	0.0005 J	10 U	0.006 U	0.002 J	19 U	0.005 U	0.007 U	8.8 U	0.069
Methyl Acetate	1200000	82	0.006 U	0.039	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Methyl Tertiary Butyl Ether	210	0.064	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
4-Methyl-2-pentanone	140000	28	0.012 U	0.007 U	21 U	0.012 U	0.017 U	39 U	0.011 U	0.014 U	18 U	0.014 U
Methylcyclohexane	NS	NS	0.006 U	0.007	10 U	0.006 J	0.019	5.4 J	0.0007 J	0.007 U	8.8 U	1.1 J
Methylene Chloride	1000	0.058	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Styrene	35000	26	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,1,2,2-Tetrachloroethane	2.7	0.0006	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Tetrachloroethene	100	0.102	0.01 U	0.006 J	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Toluene	47000	15.2	0.001 J	0.002 J	10 U	0.001 J	0.002 J	19 U	0.005 U	0.007 U	8.8 U	0.052
1,2,3-Trichlorobenzene	930	0.42	0.012 U	0.007 U	21 U	0.012 U	0.017 U	39 U	0.011 U	0.007 U	18 U	0.014 U
1,2,4-Trichlorobenzene	110	0.068	0.012 U	0.007 U	21 UJ	0.012 UJ	0.017 U	39 UJ	0.011 U	0.014 U	18 U	0.014 U
1,1,1-Trichloroethane	36000	56	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
1,1,2-Trichloroethane	5	0.00178	0.006 U	0.004 U	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Trichloroethene	6	0.0036	0.003 J	*0.005*	10 U	0.006 U	0.009 U	19 U	0.005 U	0.007 U	8.8 U	0.007 U
Trichlorofluoromethane	350000	66	0.006 U	0.004 U	10 UJ	0.006 UJ	0.009 U	19 UJ	0.005 U	0.007 U	8.8 UJ	0.007 U
Vinyl Chloride	1.7	0.00013	0.006 U	0.001 J	10 U	0.006 U	0.009 U	19 U	0.005 UJ	0.007 UJ	8.8 U	0.007 UJ
m+p-Xylene	NS	NS	0.006 U	0.001 J	10 U	0.006 U	0.002 J	19 U	0.005 U	0.007 U	8.8 U	0.13
o-Xylene	2800	3.8	0.006 U	0.001 J	10 U	0.006 U	0.0008 J	1.8 J	0.005 U	0.007 U	8.8 U	0.11
Xylene (Total)	2500	3.8	0.012 U	0.002 J	21 U	0.012 U	0.003 J	39 U	0.011 U	0.014 U	18 U	0.24

Notes:
U = Indicates the analyte was analyzed for, but not detected.
UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.
J = Result is less than the limit of quantitation (LOQ) or reporting limit (RL) but greater than or equal to the method detection level (MDL) or detection level (DL) and the concentration is an approximate value.
E = Concentration exceeds the calibration range.
mg/kg = Milligrams per kilogram.
NS = No standard.
Bold values indicate an exceedance of the Industrial Soil Screening Level (SSL) (USEPA, November 2019).
Shaded and Italicized values indicate an exceedance of the Risk-Based SSL assuming a dilution attenuation factor (DAF) of 20 (USEPA, November 2019).
SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
DVW = Delaware Valley Works
USEPA= United States Environmental Protection Agency
ID = Field Sample Identification
ft = Feet
DUP = Duplicate Sample

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Table 5
Summary of Soil Analytical Results, VOCs, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB4100319-01 B4 10/3/2019 0-1	SBB4100319-0608 B4 10/3/2019 6-8	SBB4100319-1416 B4 10/3/2019 14-16	SBMW123S-01 MW123S 10/1/2019 0-1	SBMW123S-1012 MW123S 10/1/2019 10-12	SBMW123S-1416 MW123S 10/1/2019 14-16	SBMW123S-1416 (DUP) FD10011901 10/1/2019 14-16	SBMW124S-01 124S 9/30/2019 0-1	SBMW124S-1012 124S 9/30/2019 10-12	SBMW124S-1416 124S 9/30/2019 14-16
Volatile Organic Compounds (VOCs) (mg/kg)												
Acetone	670000	58	0.009 J	0.058	20 U	0.064	0.11	62 U	16 U	0.09	0.019 U	19 U
Benzene	5.1	0.0046	0.006 U	0.006 U	5.1 U	0.007 U	*0.021*	15 U	4 U	0.0008 J	0.005 U	4.8 U
Bromochloromethane	630	0.42	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Bromodichloromethane	1.3	0.00072	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Bromoform	86	0.0174	0.012 U	0.012 U	10 U	0.014 U	0.009 U	31 U	8 U	0.009 U	0.01 U	9.5 U
Bromomethane	30	0.038	0.006 UJ	0.006 UJ	5.1 U	0.007 U	0.005 UJ	15 U	4 U	0.004 U	0.005 U	4.8 U
2-Butanone	190000	24	0.012 U	0.007 J	10 U	0.01 J	0.011	31 U	8 U	0.014	0.01 U	9.5 U
Carbon Disulfide	3500	4.8	0.006 U	0.001 J	5.1 U	0.001 J	0.006	15 U	4 U	0.008	0.005 U	4.8 U
Carbon Tetrachloride	2.9	0.0036	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Chlorobenzene	1300	1.06	0.006 U	0.006 U	5.1 U	0.007 U	0.016	15 U	4 U	0.004 U	0.004 J	4.8 U
Chloroethane	57000	118	0.006 UJ	0.006 UJ	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Chloroform	1.4	0.00122	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.001 J	0.005 U	4.8 U
Chloromethane	460	0.98	0.006 UJ	0.006 UJ	5.1 U	0.007 U	0.005 UJ	15 U	4 U	0.004 U	0.005 U	4.8 U
Cyclohexane	27000	260	0.006 U	0.004 J	5.1 U	0.007 U	0.002 J	15 U	4 U	0.004 U	0.005 U	4.8 U
1,2-Dibromo-3-chloropropane	0.06	0.0000028	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 UJ	4 U	0.004 U	0.005 U	4.8 UJ
Dibromochloromethane	39	0.0046	0.006 U	0.006 U	5.1 U	0.007 U	0.005 UJ	15 U	4 U	0.004 U	0.005 U	4.8 U
1,2-Dibromoethane	0.16	0.000042	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,2-Dichlorobenzene	9300	6	0.006 U	0.006 U	5.1 U	0.007 U	0.011	15 U	4 U	0.004 U	0.005 U	4.8 U
1,3-Dichlorobenzene	NS	NS	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,4-Dichlorobenzene	11	0.0092	0.006 U	0.006 U	5.1 U	0.007 U	0.008	15 U	4 U	0.004 U	0.005 U	4.8 U
Dichlorodifluoromethane	370	6	0.006 UJ	0.006 UJ	5.1 UJ	0.007 U	0.001 J	15 UJ	4 UJ	0.004 U	0.005 U	4.8 UJ
1,1-Dichloroethane	16	0.0156	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,2-Dichloroethane	2	0.00096	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,1-Dichloroethene	1000	2	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
cis-1,2-Dichloroethene	2300	0.22	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
trans-1,2-Dichloroethene	23000	2.2	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,2-Dichloropropane	11	0.0056	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
cis-1,3-Dichloropropene	NS	NS	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
trans-1,3-Dichloropropene	NS	NS	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,4-Dioxane	24	0.00188	0.29 U	0.31 U	250 U	0.35 U	0.24 U	770 U	200 U	0.22 U	0.24 U	240 U
Ethylbenzene	25	0.034	0.006 U	0.006 U	5.1 U	0.0009 J	0.0008 J	15 U	*0.43 J*	0.004 U	0.005 U	4.8 U
Freon 113	28000	520	0.012 U	0.012 U	10 U	0.014 U	0.009 U	31 U	8 U	0.009 U	0.01 U	9.5 U
2-Hexanone	1300	0.176	0.012 U	0.012 U	10 U	0.014 U	0.009 U	31 U	8 U	0.009 U	0.01 U	9.5 U
Isopropylbenzene	9900	14.8	0.006 U	0.0005 J	5.1 U	0.0007 J	0.005 U	15 U	0.36 J	0.004 U	0.005 U	4.8 U
Methyl Acetate	1200000	82	0.006 U	0.046 J	5.1 U	0.006 J	0.005 U	15 U	1 J	0.004 U	0.005 U	4.8 U
Methyl Tertiary Butyl Ether	210	0.064	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
4-Methyl-2-pentanone	140000	28	0.012 U	0.012 U	10 U	0.014 U	0.009 U	31 U	8 U	0.009 U	0.01 U	9.5 U
Methylcyclohexane	NS	NS	0.002 J	0.017	5.1 U	0.037	0.004 J	15 U	3.6 J	0.004 U	0.005 U	2 J
Methylene Chloride	1000	0.058	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Styrene	35000	26	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,1,2,2-Tetrachloroethane	2.7	0.0006	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Tetrachloroethene	100	0.102	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Toluene	47000	15.2	0.006 U	0.006 U	5.1 U	0.001 J	0.002 J	15 U	0.59 J	0.0007 J	0.0006 J	4.8 U
1,2,3-Trichlorobenzene	930	0.42	0.012 U	0.012 U	10 U	0.014 U	0.009 U	31 U	8 U	0.009 U	0.01 U	9.5 U
1,2,4-Trichlorobenzene	110	0.068	0.012 U	0.012 U	10 U	0.014 U	0.009 U	31 UJ	8 U	0.009 U	0.01 U	9.5 UJ
1,1,1-Trichloroethane	36000	56	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
1,1,2-Trichloroethane	5	0.00178	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Trichloroethene	6	0.0036	0.006 U	0.006 U	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
Trichlorofluoromethane	350000	66	0.006 U	0.006 U	5.1 UJ	0.007 U	0.005 U	15 UJ	4 U	0.004 U	0.005 U	4.8 UJ
Vinyl Chloride	1.7	0.00013	0.006 UJ	0.006 UJ	5.1 U	0.007 U	0.005 U	15 U	4 U	0.004 U	0.005 U	4.8 U
m+p-Xylene	NS	NS	0.006 U	0.001 J	5.1 U	0.002 J	0.001 J	15 U	0.85 J	0.004 U	0.005 U	4.8 U
o-Xylene	2800	3.8	0.006 U	0.0007 J	5.1 U	0.001 J	0.0006 J	15 U	0.39 J	0.004 U	0.005 U	4.8 U
Xylene (Total)	2500	3.8	0.012 U	0.002 J	10 U	0.003 J	0.002 J	31 U	1.2 J	0.009 U	0.01 U	9.5 U

Notes:
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Table 6
Summary of Soil Analytical Results, SVOCs, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB1100119-01 B1 10/1/2019 0-1	SBB1100119-68 B1 10/1/2019 6-8	SBB1100119-1416 B1 10/1/2019 14-16	SBB2100119-01 B2 10/1/2019 0-1	SBB2100119-0810 B2 10/1/2019 8-10	SBB2100119-1416 B2 10/1/2019 14-16	SBB3100319-01 B3 10/3/2019 0-1	SBB3100319-0810 B3 10/3/2019 8-10	SBB3100319-1416 B3 10/3/2019 14-16	SBB3100319-1416 (DUP) FD100319 10/3/2019 14-16
Semi-Volatile Organic Compounds (SVOCs) (mg/kg)												
Acenaphthene	45000	110	0.18	0.11	0.14 U	0.099 U	0.039 J	1	0.092 U	0.021 U	0.12 J	0.14 U
Acenaphthylene	NS	NS	0.065 J	0.058 J	0.14 U	0.099 U	0.066 J	0.16 U	0.092 U	0.021 U	0.13 J	0.14 U
Acetophenone	120000	11.6	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.47 U	0.28 U	0.064 U	0.4 U	0.41 U
Anthracene	230000	1160	0.31	0.3	0.17	0.055 J	0.12 J	1.6	0.092 U	0.021 U	0.23	0.14 J
Atrazine	10	0.004	2.4 U	2.4 U	3.7 U	2.6 U	3.7 U	4 U	2.4 U	0.55 U	3.5 U	3.6 U
Benzaldehyde	820	0.082	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Benzo(a)anthracene	21	0.22	*0.93*	*1.2*	0.2	0.16	0.16	*1.5*	0.092 U	0.011 J	*0.34*	0.21
Benzo(a)pyrene	2.1	0.58	*0.82*	*0.97*	0.21	0.15	0.16	*2.1*	0.053 J	0.021 U	0.21	0.095 J
Benzo(b)fluoranthene	21	6	*1.3*	*1.5*	0.27	0.26	0.19	1	0.049 J	0.012 J	0.34	0.13 J
Benzo(g,h,i)perylene	NS	NS	0.57	0.67	0.18	0.14	0.13 J	2.9	0.038 J	0.021 U	0.13 J	0.076 J
Benzo(k)fluoranthene	210	58	0.44	0.59	0.083 J	0.095 J	0.1 J	0.24	0.092 U	0.008 J	0.13 J	0.072 J
1,1'-Biphenyl	200	0.174	0.21 U	0.21 U	0.31 U	0.22 U	0.31 U	*1.1*	0.2 U	0.047 U	0.29 U	0.3 U
4-Bromophenyl-phenylether	NS	NS	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.47 U	0.28 U	0.064 U	0.4 U	0.41 U
Butylbenzylphthalate	1200	4.8	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	*1.3* U	1.4 U
Di-n-butylphthalate	82000	46	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Caprolactam	400000	50	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Carbazole	NS	NS	0.17 J	0.11 J	0.31 U	0.22 U	0.31 U	0.34 U	0.2 U	0.047 U	0.29 U	0.3 U
4-Chloro-3-methylphenol	82000	34	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.47 U	0.28 U	0.064 U	0.4 U	0.41 U
4-Chloroaniline	11	0.0032	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
bis(2-Chloroethoxy)methane	2500	0.26	0.21 U	0.21 U	0.31 U	0.22 U	0.31 U	0.34 U	0.2 U	0.047 U	0.29 U	0.3 U
bis(2-Chloroethyl)ether	1	0.000072	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.47 U	0.28 U	0.064 U	0.4 U	0.41 U
bis(2-Chloroisopropyl)ether	47000	5.2	0.24 U	0.24 U	0.37 U	0.26 U	0.37 U	0.4 U	0.24 U	0.055 U	0.35 U	0.36 U
2-Chloronaphthalene	60000	78	0.19 U	0.19 U	0.28 U	0.2 U	0.29 U	0.31 U	0.18 U	0.043 U	0.27 U	0.28 U
2-Chlorophenol	5800	1.78	0.21 U	0.21 U	0.31 U	0.22 U	0.31 U	0.34 U	0.2 U	0.047 U	0.29 U	0.3 U
4-Chlorophenyl-phenylether	NS	NS	0.24 U	0.24 U	0.37 U	0.26 U	0.37 U	0.4 U	0.24 U	0.055 U	0.35 U	0.36 U
Chrysene	2100	180	0.96	1.4	0.32	0.2	0.26	2.8	0.046 J	0.014 J	0.38	0.19
Dibenz(a,h)anthracene	2.1	1.92	0.17	0.13	0.14 U	0.099 U	0.14 U	0.16 U	0.092 U	0.021 U	0.13 U	0.14 U
Dibenzofuran	1000	3	0.1 J	0.21 U	0.31 U	0.22 U	0.31 U	1	0.2 U	0.047 U	0.29 U	0.3 U
3,3'-Dichlorobenzidine	5.1	0.0164	1.9 U	1.9 U	2.8 U	2 U	2.9 U	3.1 U	1.8 U	0.43 U	2.7 U	2.8 U
2,4-Dichlorophenol	2500	0.46	0.24 U	0.24 U	0.37 U	0.26 U	0.37 U	0.4 U	0.24 U	0.055 U	0.35 U	0.36 U
Diethylphthalate	660000	122	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
2,4-Dimethylphenol	16000	8.4	0.37 U	0.37 U	0.56 U	0.39 U	0.57 U	0.62 U	0.37 UJ	0.085 UJ	0.54 UJ	0.55 UJ
Dimethylphthalate	NS	NS	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
4,6-Dinitro-2-methylphenol	66	0.052	2.8 U	2.8 U	4.2 U	3 U	4.3 U	4.7 U	2.8 U	0.64 U	4 U	4.1 U
2,4-Dinitrophenol	1600	0.88	5.6 U	5.6 U	8.5 U	5.9 U	8.6 U	9.3 U	5.5 U	1.3 U	8 U	8.3 U
2,4-Dinitrotoluene	7.4	0.0064	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
2,6-Dinitrotoluene	1.5	0.00134	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.47 U	0.28 U	0.064 U	0.4 U	0.41 U
bis(2-Ethylhexyl)phthalate	160	26	0.4 J	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Fluoranthene	30000	1780	2.1	2.6	0.43	0.26	0.34	1.9	0.047 J	0.016 J	0.58	0.34
Fluorene	30000	108	0.14	0.11	0.24	0.099 U	0.062 J	3.4	0.092 U	0.005 J	0.39	0.15
Hexachlorobenzene	0.96	0.0024	0.093 U	0.093 U	0.14 U	0.099 U	0.14 U	0.16 U	0.092 U	0.021 U	0.13 U	0.14 U
Hexachlorobutadiene	5.3	0.0054	0.43 U	0.43 U	0.65 UJ	0.45 UJ	0.66 U	0.71 UJ	0.42 U	0.098 U	0.62 U	0.63 U
Hexachlorocyclopentadiene	7.5	0.026	2.8 U	2.8 U	4.2 U	3 U	4.3 U	4.7 U	2.8 U	0.64 U	4 U	4.1 U
Hexachloroethane	8	0.004	0.93 U	0.93 U	1.4 U	0.99 UJ	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Indeno(1,2,3-cd)pyrene	21	19.6	0.5	0.57	0.1 J	0.1	0.095 J	0.53	0.028 J	0.021 U	0.12 J	0.058 J
Isophorone	2400	0.52	0.21 U	0.21 U	0.31 U	0.22 U	0.31 U	0.34 U	0.2 U	0.047 U	0.29 U	0.3 U
2-Methylnaphthalene	3000	3.8	0.043 J	0.042 J	0.4	0.037 J	0.065 J	1.2	0.18 U	0.007 J	0.53	0.42
2-Methylphenol	41000	15	0.37 U	0.37 U	0.56 U	0.39 U	0.57 U	0.62 U	0.37 U	0.085 U	0.54 U	0.55 U
4-Methylphenol	82000	30	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.95	0.28 U	0.064 U	0.4 J	0.26 U
Naphthalene	17	0.0108	*0.099*	*0.068 J*	*0.15 J*	0.099 UJ	*0.096 J*	0.16 UJ	0.092 U	0.021 U	*0.32*	*0.32*
2-Nitroaniline	8000	1.6	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.47 U	0.28 U	0.064 U	0.4 U	0.41 U
3-Nitroaniline	NS	NS	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
4-Nitroaniline	110	0.032	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Nitrobenzene	22	0.00184	0.37 U	0.37 U	0.56 U	0.39 U	0.57 U	0.62 U	0.37 U	0.085 U	0.54 U	0.55 U
2-Nitrophenol	NS	NS	0.32 U	0.32 U	0.48 U	0.34 U	0.49 U	0.53 U	0.31 U	0.072 U	0.45 U	0.47 U
4-Nitrophenol	NS	NS	2.8 U	2.8 U	4.2 U	3 U	4.3 U	4.7 U	2.8 U	0.64 U	4 U	4.1 U
N-Nitroso-di-n-propylamine	0.33	0.000162	0.28 U	0.28 U	0.42 U	0.3 U	0.43 U	0.47 U	0.28 U	0.064 U	0.4 U	0.41 U
N-Nitrosodiphenylamine	470	1.34	0.21 U	0.21 U	0.31 U	0.22 U	0.31 U	0.34 U	0.2 U	0.047 U	0.33	0.3 U
Di-n-octylphthalate	8200	1140	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Pentachlorophenol	4	0.00114	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
Phenanthrene	NS	NS	1.4	0.71	0.3	0.16	0.21	9.2	0.031 J	0.01 J	1 J	0.56 J
Phenol	250000	66	0.21 U	0.21 U	0.31 U	0.22 U	0.31 U	0.34 U	0.2 U	0.047 U	0.29 U	0.3 U
Pyrene	23000	260	1.6	2.3	0.61	0.26	0.38	5.4	0.059 J	0.016 J	0.55	0.33
1,2,4,5-Tetrachlorobenzene	350	0.158	0.21 U	0.21 U	*0.53*	0.22 U	0.31 U	0.34 U	0.2 U	0.047 U	0.29 U	0.3 U
2,3,4,6-Tetrachlorophenol	25000	3.6	0.93 U	0.93 U	1.4 U	0.99 U	1.4 U	1.6 U	0.92 U	0.21 U	1.3 U	1.4 U
2,4,5-Trichlorophenol	82000	80	0.37 U	0.37 U	0.56 U	0.39 U	0.57 U	0.62 U	0.37 U	0.085 U	0.54 U	0.55 U
2,4,6-Trichlorophenol	210	0.08	0.32 U	0.32 U	0.48 U	0.34 U	0.49 U	0.53 U	0.31 U	0.072 U	0.45 U	0.47 U

Notes:
U = Indicates the analyte was analyzed for, but not detected.
UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.
J = Result is less than the limit of quantitation (LOQ) or reporting limit (RL) but greater than or equal to the method detection level (MDL) or detection level (DL) and the concentration is an approximate value.
kilogram.
NS = No standard.
Bold values indicate an exceedance of the Industrial Soil Screening Level (SSL) (USEPA, November 2019).
Shaded and Italicized values indicate an exceedance of the Risk-Based SSL assuming a dilution attenuation factor (DAF) of 20 (USEPA, November 2019).
SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
USEPA= United States Environmental Protection Agency
DVW = Delaware Valley Works
ID = Field Sample Identification
ft = Feet
DUP = Duplicate Sample

Prepared by: Matthew Cole 12/23/2019
Checked by: Joe Spatafore 1/02/2020
Checked by: Jessica Witt 2/4/2020

Table 6
Summary of Soil Analytical Results, SVOCs, 2019
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID Sample Location Sample Date Sample Depth (ft)	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg) DAF20*	SBB4100319-01 B4 10/3/2019 0-1	SBB4100319-0608 B4 10/3/2019 6-8	SBB4100319-1416 B4 10/3/2019 14-16	SBMW123S-01 MW123S 10/1/2019 0-1	SBMW123S-1012 MW123S 10/1/2019 10-12	SBMW123S-1416 MW123S 10/1/2019 14-16	SBMW123S-1416 (Dupe) FD10011901 10/1/2019 14-16	SBMW124S-01 124S 9/30/2019 0-1	SBMW124S-1012 124S 9/30/2019 10-12	SBMW124S-1416 124S 9/30/2019 14-16
Semi-Volatile Organic Compounds (SVOCs) (mg/kg)												
Acenaphthene	45000	110	0.019 U	0.098 U	0.16 U	0.1 U	0.11 U	0.13 U	0.025 U	0.054 J	0.023 U	0.28
Acenaphthylene	NS	NS	0.019 U	0.098 U	0.16 U	0.1 U	0.11 U	0.24 J	0.025 UJ	0.12	0.023 U	0.35
Acetophenone	120000	11.6	0.058 U	0.29 U	0.47 U	0.3 U	0.32 U	0.38 U	0.076 U	0.29 U	0.068 U	0.094 U
Anthracene	230000	1160	0.013 J	0.098 U	1.1	0.039 J	0.11 J	0.51 J	0.13 J	0.21	0.023 U	0.68
Atrazine	10	0.004	0.51 U	2.5 U	4.1 U	2.6 U	2.8 U	3.3 U	0.66 U	2.5 U	0.59 U	0.82 U
Benzaldehyde	820	0.082	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Benzo(a)anthracene	21	0.22	0.022	*0.065 J*	*1.7*	0.13	0.046 J	*0.57 J*	0.14 J	*0.62*	0.023 U	*0.64*
Benzo(a)pyrene	2.1	0.58	0.021	0.087 J	***2.7***	0.15	0.053 J	0.36 J	0.16 J	*0.59*	0.023 U	0.57
Benzo(b)fluoranthene	21	6	0.028	0.074 J	1.2	0.18	0.075 J	0.54 J	0.091 J	1.1	0.023 U	0.45
Benzo(g,h,i)perylene	NS	NS	0.017 J	0.098 U	3.4	0.12	0.11	0.22	0.16	0.54	0.023 U	0.81
Benzo(k)fluoranthene	210	58	0.015 J	0.098 U	0.31	0.076 J	0.11	0.2 J	0.024 J	0.3	0.023 U	0.11
1,1'-Biphenyl	200	0.174	0.043 U	0.22 U	*0.72*	0.22 U	0.24 U	*0.23 J*	0.097 J	0.21 U	0.05 U	*0.34*
4-Bromophenyl-phenylether	NS	NS	0.058 U	0.29 U	0.47 U	0.3 U	0.32 U	0.38 U	0.076 U	0.29 U	0.068 U	0.094 U
Butylbenzylphthalate	1200	4.8	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Di-n-butylphthalate	82000	46	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Caprolactam	400000	50	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Carbazole	NS	NS	0.043 U	0.22 U	0.34 U	0.22 U	0.24 U	0.28 U	0.056 U	0.21 U	0.05 U	0.069 U
4-Chloro-3-methylphenol	82000	34	0.058 U	0.29 U	0.47 U	0.3 U	0.32 U	0.38 U	0.076 U	0.29 U	0.068 U	0.094 U
4-Chloroaniline	11	0.0032	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
bis(2-Chloroethoxy)methane	2500	0.26	0.043 U	0.22 U	0.34 U	0.22 U	0.24 U	0.28 U	0.056 U	0.21 U	0.05 U	0.069 U
bis(2-Chloroethyl)ether	1	0.000072	0.058 U	0.29 U	0.47 U	0.3 U	0.32 U	0.38 U	0.076 U	0.29 U	0.068 U	0.094 U
bis(2-Chloroisopropyl)ether	47000	5.2	0.051 U	0.25 U	0.41 U	0.26 U	0.28 U	0.33 U	0.066 U	0.25 U	0.059 U	0.082 U
2-Chloronaphthalene	60000	78	0.039 U	0.2 U	0.31 U	0.2 U	0.22 U	0.25 U	0.051 U	0.19 U	0.045 U	0.063 U
2-Chlorophenol	5800	1.78	0.043 U	0.22 U	0.34 U	0.22 U	0.24 U	0.28 U	0.056 U	0.21 U	0.05 U	0.069 U
4-Chlorophenyl-phenylether	NS	NS	0.051 U	0.25 U	0.41 U	0.26 U	0.28 U	0.33 U	0.066 U	0.25 U	0.059 U	0.082 U
Chrysene	2100	180	0.02	0.078 J	3.6	0.15	0.056 J	0.78 J	0.22 J	0.64	0.023 U	1.1
Dibenz(a,h)anthracene	2.1	1.92	0.019 U	0.098 U	0.53	0.1 U	0.11 U	0.13 UJ	0.027 J	0.15	0.023 U	0.11
Dibenzofuran	1000	3	0.043 U	0.22 U	0.99	0.22 U	0.24 U	0.21 J	0.087 J	0.21 U	0.05 U	0.42
3,3'-Dichlorobenzidine	5.1	0.0164	0.39 U	2 U	3.1 U	2 U	2.2 U	2.5 U	0.51 U	1.9 U	0.45 U	0.63 U
2,4-Dichlorophenol	2500	0.46	0.051 U	0.25 U	0.41 U	0.26 U	0.28 U	0.33 U	0.066 U	0.25 U	0.059 U	*0.52*
Diethylphthalate	660000	122	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
2,4-Dimethylphenol	16000	8.4	0.078 UJ	0.39 UJ	0.63 UJ	0.4 U	0.43 U	0.51 U	0.1 U	0.38 U	0.091 U	0.13 U
Dimethylphthalate	NS	NS	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
4,6-Dinitro-2-methylphenol	66	0.052	0.58 U	2.9 U	4.7 U	3 U	3.2 U	3.8 U	0.76 U	2.9 U	0.68 U	0.94 U
2,4-Dinitrophenol	1600	0.88	1.2 U	5.9 U	9.4 U	6 U	6.5 U	7.6 U	1.5 U	5.7 U	1.4 U	1.9 U
2,4-Dinitrotoluene	7.4	0.0064	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
2,6-Dinitrotoluene	1.5	0.00134	0.058 U	0.29 U	0.47 U	0.3 U	0.32 U	0.38 U	0.076 U	0.29 U	0.068 U	0.094 U
bis(2-Ethylhexyl)phthalate	160	26	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Fluoranthene	30000	1780	0.047	0.13	1.9	0.18	0.071 J	1.3 J	0.15 J	1.2	0.023 U	1.3
Fluorene	30000	108	0.012 J	0.098 U	3.4	0.1 U	0.11 U	0.74 J	0.23 J	0.055 J	0.023 U	1.3
Hexachlorobenzene	0.96	0.0024	0.019 U	0.098 U	0.16 U	0.1 U	0.11 U	0.13 U	0.025 U	0.095 U	0.023 U	0.031 U
Hexachlorobutadiene	5.3	0.0054	0.09 U	0.45 U	0.72 U	0.46 U	0.5 U	0.58 UJ	0.12 U	0.44 U	0.1 U	0.14 UJ
Hexachlorocyclopentadiene	7.5	0.026	0.58 U	2.9 U	4.7 U	3 U	3.2 U	3.8 U	0.76 U	2.9 U	0.68 U	0.94 U
Hexachloroethane	8	0.004	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Indeno(1,2,3-cd)pyrene	21	19.6	0.011 J	0.098 U	0.63	0.097 J	0.032	0.15 J	0.042 J	0.43	0.023 U	0.2
Isophorone	2400	0.52	0.043 U	0.22 U	0.34 U	0.22 U	0.24 U	0.28 U	0.056 U	0.21 U	0.05 U	0.069 U
2-Methylnaphthalene	3000	3.8	0.021 J	0.033 J	*19*	0.021 J	0.22 U	2 J	0.91 J	0.022 J	0.045 U	1.9
2-Methylphenol	41000	15	0.078 U	0.39 U	0.63 U	0.4 U	0.43 U	0.51 U	0.1 U	0.38 U	0.091 U	0.13 U
4-Methylphenol	82000	30	0.058 U	0.29 U	1.4	0.3 U	0.32 U	0.43 J	0.076 UJ	0.29 U	0.068 U	0.79
Naphthalene	17	0.0108	0.019 U	0.098 U	*3.1*	0.1 U	0.11 U	*0.85 J*	*0.15 J*	0.095 U	0.023 U	*0.57 J*
2-Nitroaniline	8000	1.6	0.058 U	0.29 U	0.47 U	0.3 U	0.32 U	0.38 U	0.076 U	0.29 U	0.068 U	0.094 U
3-Nitroaniline	NS	NS	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
4-Nitroaniline	110	0.032	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Nitrobenzene	22	0.00184	0.078 U	0.39 U	0.63 U	0.4 U	0.43 U	0.51 U	0.1 U	0.38 U	0.091 U	0.13 U
2-Nitrophenol	NS	NS	0.066 U	0.33 U	0.53 U	0.34 U	0.37 U	0.43 U	0.087 U	0.32 U	0.077 U	0.11 U
4-Nitrophenol	NS	NS	0.58 U	2.9 U	4.7 U	3 U	3.2 U	3.8 U	0.76 U	2.9 U	0.68 U	0.94 U
N-Nitroso-di-n-propylamine	0.33	0.000162	0.058 U	0.29 U	0.47 U	0.3 U	0.32 U	0.38 U	0.076 U	0.29 U	0.068 U	0.094 U
N-Nitrosodiphenylamine	470	1.34	0.043 U	0.22 U	0.34 U	0.22 U	0.24 U	0.28 U	0.056 U	0.21 U	0.05 U	0.069 U
Di-n-octylphthalate	8200	1140	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Pentachlorophenol	4	0.00114	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
Phenanthrene	NS	NS	0.051	0.1	9.9	0.15	0.047 J	2.1 J	0.61 J	0.66	0.006 J	1.8
Phenol	250000	66	0.043 U	0.22 U	0.34 U	0.22 U	0.24 U	0.28 U	0.056 U	0.21 U	0.05 U	0.069 U
Pyrene	23000	260	0.045	0.14	5.8	0.21	0.057 J	1.2 J	0.37 J	0.91	0.023 U	2.5
1,2,4,5-Tetrachlorobenzene	350	0.158	0.043 U	0.22 U	0.34 U	0.22 U	0.24 U	0.28 U	0.056 U	0.21 U	0.05 U	0.069 U
2,3,4,6-Tetrachlorophenol	25000	3.6	0.19 U	0.98 U	1.6 U	1 U	1.1 U	1.3 U	0.25 U	0.95 U	0.23 U	0.31 U
2,4,5-Trichlorophenol	82000	80	0.078 U	0.39 U	0.63 U	0.4 U	0.43 U	0.51 U	0.1 U	0.38 U	0.091 U	0.13 U
2,4,6-Trichlorophenol	210	0.08	0.066 U	0.33 U	0.53 U	0.34 U	0.37 U	0.43 U	0.087 U	0.32 U	0.077 U	0.11 U

Notes:
U = Indicates the analyte was analyzed for, but not detected.
UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.
J = Result is less than the limit of quantitation (LOQ) or reporting limit (RL) but greater than or equal to the method detection level (MDL) or detection level (DL) and the concentration is an approximate value.
kilogram.
NS = No standard.
Bold values indicate an exceedance of the Industrial Soil Screening Level (SSL) (USEPA, November 2019).
Shaded and Italicized values indicate an exceedance of the Risk-Based SSL assuming a dilution attenuation factor (DAF) of 20 (USEPA, November 2019).
SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
USEPA= United States Environmental Protection Agency
DVW = Delaware Valley Works
ID = Field Sample Identification
ft = Feet
DUP = Duplicate Sample

Prepared by: Matthew Cole 12/23/2019
Checked by: Joe Spatafore 1/02/2020
Checked by: Jessica Witt 2/4/2020

Table 7
Summary of Grab Groundwater and Surface Water Results, Metals, 2003
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Sample ID **Sample Location** **Sample Date**	**Tap Water (ug/L)**	*MCL (ug/L)*	SM09-GW01 SM09-GW010604031 6/4/2003	SM09-GW02 SM09-GW020604031 6/4/2003	SM09-GW03 SM09-GW030604031 6/4/2003	SM09-Runoff-01* SM09-Runoff-01060403 6/4/2003	SM09-Runoff-02* SM09-Runoff-02060403 6/4/2003	SM09-Runoff-03* SM09-Runoff-03060403 6/4/2003
Dissolved Metals (ug/L)								
Aluminum	20000	NS	37400	**77900**	**248000**	9720	2170	1670
Antimony	7.8	6	***15.7 B***	5.9 B	***178***	5.2 B	4.8 U	4.8
Arsenic	0.05	10	***174***	***577***	***101000***	97.1	4.7 U	4.7
Barium	3800	2000	926	115 B	525	36.8 B	13.5 U	22.6
Beryllium	25	4	3.5 B	*10.8*	*10.4*	0.4 B	0.3 U	0.3
Boron	4000	NS	522	7.5 U	1090	26.8 B	11.7 B	15.4
Cadmium	NS	NS	7.9	2.4 B	80	5.7	0.4 U	1.9
Calcium	NS	NS	701000	172000	344000	595000	232000	460000
Chromium	NS	100	54.8	*138*	291	2.7 B	3.6 B	3.3
Cobalt	6	NS	**57.6**	**60.2**	**173**	30.6 B	2.9 U	20.1 B
Copper	800	1300	156	21.2 B	99	103	8.1 B	9.5 B
Iron	14000	NS	**67700**	**343000**	**962000**	949	564	554
Lead	15	15	***665***	***267***	***3100***	23.5	11.5	15
Magnesium	NS	NS	1130000	75500	106000	7020	1630	7200
Manganese	NS	NS	3110	3240	7010	211	80.5	142
Mercury	0.63	2	0.5	0.4	***3***	0.1 B	0.1 U	0.1 U
Nickel	NS	NS	171	61.7	232	23.6 B	4.8 B	10.6 B
Potassium	NS	NS	53100	7350 B	33900	3530 B	5930 B	7050 B
Selenium	100	50	31.1	3.9 U	3.9	27.5	3.9 U	6.8
Silver	94	NS	3.3 B	1.8 B	6.6	1.7 U	1.7 U	1.7 B
Sodium	NS	NS	724000	34700	395000	2140 B	643 B	3010 B
Thallium	0.2	2	3.6 U	***4.3 B***	*95.5*	3.6 U	3.6 U	3.6 U
Vanadium	86	NS	49.2 B	**105**	**494**	4.2 B	3 U	3.5 B
Zinc	6000	NS	**7790**	1180	3540	668	36.6	235

Notes:
Actual laboratory data packages not available for 2003 data; data qualifier definitions are assumed based on current data qualifier terminology.
Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).
Bold values indicate an exceedance of Tap Water screening levels.
Italicized shaded values indicate an exceedance of MCL screening levels.
U = Indicates the analyte was analyzed for but not detected.
B = The concentration is less than the reporting limit. The result is an approximate value.
* = Surface water samples not filtered.
NA = Chemical not analyzed for.
NS = No standard
ug/L = Micrograms per liter.
Surface water results shown; screening criteria not applicable.
SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act

Created by: Joe Spatafore 3/17/2020
Checked by: Matthew Cole 3/20/2020

Table 8
Summary of Groundwater Analytical Results, Metals
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	SM9-MW1 SM9-MW01_100515 10/5/2015	SM9-MW1 SM9MW1-09-120419 12/4/2019	SWMU9-MW1 SWMU9-MW1-09-120419 12/4/2019	SMWU9-MW2 SMWU9-MW2-09-120319 12/3/2019	MW-14 37982-0031-09 12/17/2004	MW-14 MW-14_092915 9/29/2015	MW14 MW14-09-120519 12/5/2019	MW-15 37982-0030-10 12/11/2004	MW-15 MW-15_092915 9/29/2015	MW15 MW15-09-120619 12/6/2019
Dissolved Metals (ug/L)												
Aluminum	20000	NS	**199000**	**296000**	322	**62000**	**54500 J**	**21200**	**50200**	4120	1630	1970
Antimony	7.8	6	200 U	500 U	50 U	50 U	1.6	100 U	50 UJ	5.2	***54.6***	50 U
Arsenic	0.05	10	200 U	***409***	***33.6***	***71.8***	***16600***	***13100***	***8470***	***293***	***251***	***314***
Arsenic (V)	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic III Ion	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsinic Acid	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	3800	2000	18	83.4	348	10.7	13.9 L	6.6 U	5 U	13.8	8.5 U	10.9
Beryllium	25	4	*13.3 J*	*23.2 J*	5 U	*14.6*	3.2 B	25 U	5 U	0.97 U	5 U	5 U
Cadmium	NS	NS	50 U	50 U	1.2 J	1.5 J	3.8 U	25 U	5 U	0.032	5 U	5 U
Calcium	NS	NS	436000	394000	40400	436000	354000 J	444000	444000	410000	484000	435000
Chromium	NS	100	67 J	18 J	1.9 J	62.5	24.3 L	31.2 J	15 U	0.013 U	15 U	15 U
Cobalt	6	NS	**287**	**170**	5 U	**207**	**1810 K**	**530**	**539**	**90.4**	**20.7**	**13.6**
Copper	800	1300	63 J	100 U	20 U	20 U	13.5 UL	50 U	498	0.011	10 U	20 U
Iron	14000	NS	**2620000**	**2440000**	**108000**	**372000**	**2710000**	**1420000**	**971000**	617	**329000**	**374000**
Lead	15	15	150 U	***32.5***	15 U	***110***	***16.9 J***	75 U	15 U	***17.6 J***	15 U	***15***
Magnesium	NS	NS	414000	363000	25700	407000	443000 J	286000	187000	108000	71600	72400
Manganese	NS	NS	76600	64800	2060	4760	13200 J	6710	6150	5810	2790	2930
Mercury	0.63	2	0.2 U	0.11 J	0.2 U	0.2 U	0.087 B	0.2 U	0.21	0.11 J	0.2 U	0.2 U
Methyl Arsonic Acid	200	NS										
Nickel	NS	NS	238	85.4	9.5 J	77.8	282 J	105	139	44.7	10 U	14.7
Potassium	NS	NS	16600	25200	10000	46100	60000	51100	33500	49800	37900	39200
Selenium	100	50	***469***	500 U	50 U	50 U	*61.8*	100 U	250 U	26.8	20 U	50 U
Silver	94	NS	48.2 J	100 U	5.7 J	10 U	2 U	25 U	**111**	2.2 J	48.6	10 U
Sodium	NS	NS	2730000	2840000	65500	200000	745000	615000	430000	1390000	956000	877000
Thallium	0.2	2	***178 J***	***59.6***	30 U	30 U	***4.9***	***112 J***	***40.9 J-***	0.12 U	***13.3 J***	***9.5 J***
Vanadium	86	NS	50 U	**102**	5.9 J	70.9	**324 J**	25 U	58	48.1	5 U	19.9
Zinc	6000	NS	4460	2570	20 U	1090	**19400**	5260	4440	319	20 U	29.8

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Checked by: MC 3/20/2020

Table 8
Summary of Groundwater Analytical Results, Metals
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	MW-16 37982-0032-02 12/20/2004	MW-16 MW-16 7/6/10 7/6/2010	MW-16 MW-16_092915 9/29/2015	MW-16 MW-16-11162016 11/16/2016	MW16 MW16-09-120519 12/5/2019	MW-17 37982-0033-02 12/20/2004	MW-17 MW-17 7/6/10 7/6/2010	MW-17 MW-17_100515 10/5/2015	MW-17 (DUP) DUP18_100515 10/5/2015	MW-17 MW-17-11162016 11/16/2016	MW17 MW17-09-120619 12/6/2019
Dissolved Metals (ug/L)													
Aluminum	20000	NS	414 J	NA	200 U	NA	200 U	1330	NA	3320	3620	NA	481
Antimony	7.8	6	1.6	NA	20 U	NA	50 U	3.8	NA	***8.6 J***	***12.4 J***	NA	50 U
Arsenic	0.05	10	***264***	***63.2 J***	20 U	***27***	***85.6***	**6.8**	5 U	20 U	20 U	**1.15**	30 U
Arsenic (V)	NS	NS	NA	NA		6.97	NA	NA	NA	NA	NA	0.502 J	NA
Arsenic III Ion	NS	NS	NA	NA		30.4	NA	NA	NA	NA	NA	0.532 J	NA
Arsinic Acid	NS	NS	NA	NA		1.05 U	NA	NA	NA	NA	NA	1.05 U	NA
Barium	3800	2000	11 L	NA	21.7 U	NA	10.4	12.1	NA	10.9	12.4	NA	11.1
Beryllium	25	4	0.97 UL	NA	5 U	NA	5 U	0.97 U	NA	5 U	5 U	NA	5 U
Cadmium	NS	NS	0.91 J	NA	5 U	NA	5 U	0.76 U	NA	6.4	7.4	NA	4.5 J
Calcium	NS	NS	528000 J	NA	238000	NA	593000	502000	NA	536000	490000	NA	539000
Chromium	NS	100	2.5 UL	NA	15 U	NA	15 U	2.5 U	NA	1.8 J	2.3 J	NA	15 U
Cobalt	6	NS	**6.5 K**	NA	5 U	NA	5 U	2 U	NA	**16.3**	**19.1**	NA	2.8 J
Copper	800	1300	2.7 UL	NA	10 U	NA	20 U	2.7 U	NA	10 U	10 U	NA	20 U
Iron	14000	NS	**32000**	NA	228 U	3040	12900	11400	NA	**78100**	**89100**	**74900**	9860
Lead	15	15	10 UL	5 U	15 U	NA	15 U	10 U	5 U	15 U	15 U	NA	15 U
Magnesium	NS	NS	152000 J	NA	19300	NA	44200	296000	NA	278000	325000	NA	168000
Manganese	NS	NS	535 J	NA	5 U	51	238	109	NA	723	811	1310	107
Mercury	0.63	2	0.042 J	NA	0.2 U	NA	0.2 U	0.073 J	NA	0.2 U	0.2 U	NA	0.2 U
Methyl Arsonic Acid	200	NS		NA		1.15 U	NA	NA	NA	NA	NA	1.15 U	NA
Nickel	NS	NS	6.5 J	NA	10 U	NA	10 U	3.1 U	NA	10.2	11.7	NA	4 J
Potassium	NS	NS	26300	NA	7420	NA	12000	39300	NA	39600	45000	NA	24500
Selenium	100	50	13.7	NA	20 U	NA	50 U	*69.6*	NA	21.1	26.7	NA	28.5 J
Silver	94	NS	2 U	NA	5 U	NA	10 U	2 U	NA	5 U	5 U	NA	10 U
Sodium	NS	NS	105000	NA	145000	NA	107000	34400	NA	39800	45300	NA	98700
Thallium	0.2	2	**0.74**	NA	30 U	NA	30 U	**0.48 J**	NA	30 U	30 U	NA	30 U
Vanadium	86	NS	1.6 UJ	NA	5 U	NA	10 U	1.6 U	NA	5 U	5 U	NA	10 U
Zinc	6000	NS	138	NA	20 U	NA	12.6 J	4.8 U	NA	1380	1560	NA	161

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Table 8
Summary of Groundwater Analytical Results, Metals
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	MW-18 37982-0033-04 12/20/2004	MW-18 MW-18 7/6/10 7/6/2010	MW-18 MW-18_100515 10/5/2015	MW-18 MW-18-11162016 11/16/2016	MW18 MW18-09-120619 12/6/2019	MW-19 37982-0032-04 12/20/2004	MW-19 MW-19_092915 9/29/2015	MW19 MW19-09-120619 12/6/2019	MW-122 MW-122-11162016 11/16/2016	MW122 MW122-09-120519 12/5/2019	MW122 (DUP) DUP02-09-120519 12/5/2019
Dissolved Metals (ug/L)													
Aluminum	20000	NS	**32200**	NA	111 J	NA	2790	**74800** J	**49900**	**35200**	NA	10300	10200
Antimony	7.8	6	5.5	NA	20 U	NA	50 U	***14.9***	100 U	50 U	NA	50 U	50 U
Arsenic	0.05	10	***65800***	***5070 J***	***78.3***	***13300***	***20300***	***33200***	***44300***	***41800***	***12.2***	30 U	30 U
Arsenic (V)	NS	NS	NA	NA	NA	7240	NA	NA	NA	NA	7.43	NA	NA
Arsenic III Ion	NS	NS	NA	NA	NA	3980	NA	NA	NA	NA	5.56	NA	NA
Arsinic Acid	NS	NS	NA	NA	NA	21 U	NA	NA	NA	NA	1.05 U	NA	NA
Barium	3800	2000	8.6	NA	14.4	NA	16.1	37.8 L	12.5 U	11.6	NA	9.6	9.8
Beryllium	25	4	1.8 J	NA	5 U	NA	5 U	1.7 J	25 U	5 U	NA	5 U	5 U
Cadmium	NS	NS	80.1	NA	1.6 J	NA	9.1	0.76 U	25 U	5 U	NA	5 U	5 U
Calcium	NS	NS	428000	NA	596000	NA	542000	437000 J	502000	460000	NA	532000	583000
Chromium	NS	100	0.013 U	NA	1.7 J	NA	15 U	8 L	25 J	15 U	NA	15 U	15 U
Cobalt	6	NS	**258**	NA	**9.3**	NA	5 U	**157 K**	**63.1**	**75.6**	NA	**31.1**	**32.9**
Copper	800	1300	17.5	NA	8.3 J	NA	20 U	23.8 L	50 U	29.3	NA	20 U	20 U
Iron	14000	NS	**1450000**	NA	520	**442000**	**400000**	**1400000**	**897000**	**675000**	**186000**	**93800**	**94700**
Lead	15	15	***292***	1.2 J	15 U	NA	15 U	***317 L***	75 U	***87.1***	NA	15 U	15 U
Magnesium	NS	NS	180000	NA	19900	NA	51500	113000 J	120000	130000	NA	317000	319000
Manganese	NS	NS	5360	NA	12	992	986	7740 J	4760	3450	1390	604	613
Mercury	0.63	2	0.067 J	NA	0.2 U	NA	0.2 U	0.048 J	0.2 U	0.16 J	NA	0.2 U	0.2 U
Methyl Arsonic Acid	200	NS	NA	NA	NA	23 U	NA	NA	NA	NA	1.15 U	NA	NA
Nickel	NS	NS	67.8	NA	8.2 J	NA	3 J	99.1 J	41.6 J	56.8	NA	8.3 J	9.2 J
Potassium	NS	NS	25900	NA	6780	NA	15500	51700	41600	33500	NA	36100	34700
Selenium	100	50	***216***	NA	***123***	NA	50 U	***131***	100 U	50 U	NA	50 U	50 U
Silver	94	NS	2 U	NA	5 U	NA	35.5	2 U	25 U	59.2	NA	10 U	10 U
Sodium	NS	NS	191000	NA	7140	NA	38500	396000	250000	157000	NA	32600	31500
Thallium	0.2	2	***12.8***	NA	30 U	NA	30 U	**1.9**	***57.9 J***	***27.8 J***	NA	30 U	30 U
Vanadium	86	NS	**285**	NA	5 U	NA	10 U	**100 J**	25 U	38	NA	2.2 J	3.2 J
Zinc	6000	NS	**11500**	NA	446	NA	836	1990	671	634	NA	83.2	76.9

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Table 8
Summary of Groundwater Analytical Results, Metals
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	MW-123 MW-123-11162016 11/16/2016	MW123S MW123S-09-120619 12/6/2019	MW123D MW123D-09-120519 12/5/2019	MW-124 MW-124-11172016 11/17/2016	MW124S MW124S-09-120419 12/4/2019	MW124S (DUP) DUP01-09-120419 12/4/2019	MW124D MW124D-09-120519 12/5/2019	MW48 MW48-SUN-120319 12/3/2019	MW557 MW557-SUN-120419 12/4/2019	MW559 MW559-SUN-120419 12/4/2019	MW560 MW560-SUN-120319 12/3/2019
Dissolved Metals (ug/L)													
Aluminum	20000	NS	NA	521	200 U	NA	200 U	189 J	200 U	2370	9810	3510	9400
Antimony	7.8	6	NA	50 U	50 U	NA	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Arsenic	0.05	10	***60.7***	***409***	***27.4 J***	***203***	***309***	***369***	***435***	30 U	***22000***	***167***	***985***
Arsenic (V)	NS	NS	22	NA	NA	94.1	NA	NA	NA	NA	NA	NA	NA
Arsenic III Ion	NS	NS	4.28	NA	NA	110	NA	NA	NA	NA	NA	NA	NA
Arsinic Acid	NS	NS	1.05 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	3800	2000	NA	24.3	149	NA	11.1	16.2	144	10.6	5.8	19	14.6
Beryllium	25	4	NA	5 U	5 U	NA	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cadmium	NS	NS	NA	5 U	5 U	NA	5 U	5 U	5 U	2.6 J	25 U	5 U	7.9
Calcium	NS	NS	NA	447000	349000	NA	554000	544000	293000	45700	479000	568000	353000
Chromium	NS	100	NA	15 U	15 U	NA	15 U	15 U	15 U	15 U	15 U	3.2 J	3.9 J
Cobalt	6	NS	NA	3.3 J	3.8 J	NA	2.7 J	2.4 J	1.6 J	**13.5**	**104**	**10.9**	**63.6**
Copper	800	1300	NA	20 U	20 U	NA	20 U	20 U	20 U	216	100 U	114	***3280***
Iron	14000	NS	**574000**	**267000**	**108000**	**40600**	8430	8880	**31600**	471	**701000**	**101000**	**17000**
Lead	15	15	NA	***21.9***	15 U	NA	15 U	15 U	15 U	***19***	10.3 J	***248***	***26.5***
Magnesium	NS	NS	NA	102000	169000	NA	193000	201000	25500	6350	66000	40800	12100
Manganese	NS	NS	40100	2310	3170	755	274	286	395	111	4810	1700	297
Mercury	0.63	2	NA	0.23	0.2 U	NA	0.2 U	0.2 U	0.2 U	0.055 J	0.2 U	***2.2***	0.2 U
Methyl Arsonic Acid	200	NS	1.15 U	NA	NA	5.33 J	NA	NA	NA	NA	NA	NA	NA
Nickel	NS	NS	NA	14.1	10 U	NA	10.2	13.2	3.4 J	13.1	10 U	8.7 J	34.1
Potassium	NS	NS	NA	244000	25000	NA	15700	16100	22400	3910	27200	23500	3290
Selenium	100	50	NA	50 U	50 U	NA	***72.9***	***107***	50 U	50 U	50 U	24.6 J	18.1 J
Silver	94	NS	NA	200 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Sodium	NS	NS	NA	24300000	526000	NA	60200	63600	191000	10800	493000	245000	99800
Thallium	0.2	2	NA	30 U	30 U	NA	30 U	30 U	30 U	30 U	***25.6 J***	30 U	30 U
Vanadium	86	NS	NA	23.5	10 U	NA	10 U	10 U	10 U	10 U	13.2	10 U	10 U
Zinc	6000	NS	NA	20 U	20 U	NA	37.9	59	20 U	598	47.2	151	2120

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Table 9
Summary of Groundwater Analytical Results, Pesticides
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	SWMU9-MW1 SWMU9-MW1-09-120419 12/4/2019	SMWU9-MW2 SMWU9-MW2-09-120319 12/3/2019	SM9-MW1 SM9-MW01_100515 10/5/2015	SM9-MW1 SM9MW1-09-120419 12/4/2019	MW-14 37982-0031-08 12/17/2004	MW-14 MW-14_092915 9/29/2015	MW14 MW14-09-120519 12/5/2019	MW-15 37982-0030-09 12/11/2004	MW-15 MW-15_092915 9/29/2015	MW15 MW15-09-120619 12/6/2019
Pesticides (ug/L)												
4,4'-DDD	0.032	NS	0.012 J-	0.03 J-	0.071 UJ	**3.2 J-**	0.056 U	0.025 UJ	0.03 J-	**2.3**	**1.3**	**2 J-**
4,4'-DDE	0.046	NS	0.01 UJ	0.01 UJ	0.011 UJ	**0.072 J-**	0.029 U	0.011 UJ	0.01 UJ	**3.6**	**0.26 J**	**0.26 J-**
4,4'-DDT	0.23	NS	0.01 UJ	0.01 UJ	0.16 UJ	**0.5 J-**	0.081 U	0.011 UJ	0.01 UJ	0.16 U	0.011 UJ	0.011 UJ
Aldrin	0.00092	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.029 U	0.011 UJ	0.01 UJ	0.057 U	0.011 UJ	0.011 UJ
alpha-BHC	0.0072	NS	**0.024 J-**	**0.13 J-**	**0.38 J**	**0.22 J-**	**12 J**	**61**	**16 J-**	**51**	**5.5**	**4.1 J-**
cis-Chlordane	NS	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.023 U	0.011 UJ	0.01 UJ	0.046 U	0.011 UJ	0.011 UJ
beta-BHC	0.025	NS	0.0053 J-	**0.029 J-**	**0.16 J**	**0.07 J-**	**1.2**	**6.8**	**0.81 J-**	**4.2 J**	**2.6**	**1 J-**
delta-BHC	NS	NS	0.0062 J-	0.041 J-	0.16 J	0.052 J-	0.68 J	6.3	0.94 J-	6.9	9	10 J-
Dieldrin	0.0018	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.038 U	0.011 UJ	0.01 UJ	0.076 U	0.011 UJ	0.011 UJ
Endosulfan I	NS	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.038 U	0.011 UJ	0.01 UJ	0.076 U	0.011 UJ	0.011 UJ
Endosulfan II	NS	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.13 U	0.011 UJ	0.01 UJ	0.27 U	0.011 UJ	0.011 UJ
Endosulfan sulfate	110	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.04 U	0.011 UJ	0.01 UJ	0.08 U	0.011 UJ	0.0049 J-
Endrin	2.30	2.00	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.04 U	0.011 UJ	0.01 UJ	0.08 U	0.011 UJ	0.011 UJ
Endrin aldehyde	NS	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.19 UJ	0.011 UJ	0.01 UJ	0.38 U	0.011 UJ	0.011 UJ
Endrin ketone	NS	NS	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.038 U	0.011 UJ	0.01 UJ	0.076 U	0.011 UJ	0.011 UJ
gamma-BHC (Lindane)	0.042	0.20	0.01 UJ	0.01 UJ	**0.069 J**	0.026 J-	***2.2 J***	***11***	***2.8 J-***	0.038 U	**0.096 J**	0.011 UJ
Gamma-Chlordane	NS	NS	NA	NA	0.011 UJ	NA	NA	0.011 UJ	NA	NA	0.011 UJ	NA
trans-Chlordane	NS	NS	0.01 UJ	0.01 UJ	NA	0.011 UJ	0.21 UJ	NA	0.01 UJ	0.42 U	NA	0.011 UJ
Heptachlor	0.0014	0.4	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.019 U	0.011 UJ	0.01 UJ	0.038 U	0.011 UJ	0.011 UJ
Heptachlor epoxide	0.0014	0.2	0.01 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.03 U	0.011 UJ	0.01 UJ	0.061 U	0.011 UJ	0.011 UJ
Kepone	0.0035	NS	NA	NA	NA	NA	0.67 U	NA	NA	NA U	NA	NA
Methoxychlor	37	40	0.021 UJ	0.021 UJ	0.021 UJ	0.022 UJ	0.29 UJ	0.021 UJ	0.021 UJ	0.57 U	0.021 UJ	0.021 UJ
Toxaphene	0.071	3	0.26 UJ	0.26 UJ	0.26 UJ	0.27 UJ	2.9 U	0.26 UJ	0.26 UJ	5.7 U	0.26 UJ	0.27 UJ

Notes:

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Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).

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Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore a sample was not collected.

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Created By: BCB 3/13/2020
Checked By: MD 3/20/2020

Table 9
Summary of Groundwater Analytical Results, Pesticides
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	MW-16 37982-0032-01 12/20/2004	MW-16 MW-16 7/6/10 7/6/2010	MW-16 MW-16_092915 9/29/2015	MW16 MW16-09-120519 12/5/2019	MW-17 37982-0033-01 12/20/2004	MW-17 MW-17 7/6/10 7/6/2010	MW-17 MW-17_100515 10/5/2015	MW-17 (DUP) DUP18_100515 10/5/2015	MW17 MW17-09-120619 12/6/2019
Pesticides (ug/L)											
4,4'-DDD	0.032	NS	**0.67**	0.13 U	0.011 U	**0.62 J-**	**5.7 J**	**0.14 L**	**0.3**	**0.32 J**	**0.36 J-**
4,4'-DDE	0.046	NS	**0.057 J**	0.13 U	0.011 U	0.055 UJ	**0.67 J**	0.025 L	0.03 U	0.037 UJ	0.011 UJ
4,4'-DDT	0.23	NS	0.0082 U	0.13 U	0.029 U	0.055 UJ	**1.5**	0.0066 UL	**0.31 J**	**0.28 J**	0.011 UJ
Aldrin	0.00092	NS	0.0029 U	0.13 U	0.011 U	0.055 UJ	0.015 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
alpha-BHC	0.0072	NS	**3.4 J**	**0.4**	0.069 U	**0.2 J-**	**0.75**	**0.088 JL**	**0.46**	**0.39 J**	**0.22 J-**
cis-Chlordane	NS	NS	0.0023 U	0.13 U	0.011 U	0.055 UJ	0.012 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
beta-BHC	0.025	NS	**0.92**	0.13 U	0.023 U	**0.091 J-**	**3.4**	**0.3 L**	**0.64**	**0.56 J**	**0.8** J-
delta-BHC	NS	NS	0.96	0.54	0.039	0.53 J-	0.03 J	0.0066 UL	0.048	0.044 J	0.011 J-
Dieldrin	0.0018	NS	0.0038 U	0.13 U	0.011 U	0.055 UJ	0.02 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
Endosulfan I	NS	NS	0.016 J	0.13 U	0.011 U	0.055 UJ	0.067	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
Endosulfan II	NS	NS	0.013 U	0.13 U	0.011 U	0.055 UJ	0.068 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
Endosulfan sulfate	110	NS	0.004 U	0.13 U	0.011 U	0.055 UJ	0.021 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
Endrin	2.30	2.00	0.004 U	0.13 UJ	0.011 U	0.055 UJ	0.021 U	0.0066 UJL	0.011 U	0.011 UJ	0.011 UJ
Endrin aldehyde	NS	NS	0.019 U	0.13 U	0.011 U	0.055 UJ	0.098 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
Endrin ketone	NS	NS	0.0038 U	0.13 U	0.011 U	0.055 UJ	0.02 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
gamma-BHC (Lindane)	0.042	0.20	0.0019 U	0.13 U	0.025	0.055 UJ	0.0098 U	0.042 JL	0.034	0.032 J	0.025 J-
Gamma-Chlordane	NS	NS	NA	NA	0.011 U	NA	NA	NA	0.011 U	0.011 UJ	NA
trans-Chlordane	NS	NS	0.021 U	0.13 U	NA	0.055 UJ	0.23 J	0.026 L	NA	NA	0.011 UJ
Heptachlor	0.0014	0.4	0.0019 U	0.13 U	0.011 U	0.055 UJ	0.0098 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
Heptachlor epoxide	0.0014	0.2	0.0031 U	0.13 U	0.011 U	0.055 UJ	0.016 U	0.0066 UL	0.011 U	0.011 UJ	0.011 UJ
Kepone	0.0035	NS	1.2 UJ	NA	NA	NA	8.1 UJ	NA	NA	NA	NA
Methoxychlor	37	40	0.029 U	0.24 U	0.021 U	0.11 UJ	0.15 UJ	0.013 UL	0.021 U	0.021 UJ	0.023 UJ
Toxaphene	0.071	3	0.29 U	9.8 U	0.26 U	0.28 UJ	1.5 U	0.51 UL	0.26 U	0.26 UJ	0.29 UJ

Notes:

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Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore a sample was not collected.

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Checked By: MD 3/20/2020

Table 9
Summary of Groundwater Analytical Results, Pesticides
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	MW-18 37982-0033-03 12/20/2004	MW-18 MW-18 7/6/10 7/6/2010	MW-18 MW-18_100515 10/5/2015	MW18 MW18-09-120619 12/6/2019	MW-19 37982-0032-03 12/20/2004	MW-19 MW-19_092915 9/29/2015	MW19 MW19-09-120619 12/6/2019	MW122 MW122-09-120519 12/5/2019	MW122 (DUP) DUP02-09-120519 12/5/2019
Pesticides (ug/L)											
4,4'-DDD	0.032	NS	**0.14 J**	2.5 U	0.012 U	0.011 UJ	**0.081 J**	**0.42 J**	**0.46 J-**	**0.056 J-**	**0.052 J-**
4,4'-DDE	0.046	NS	0.058 UJ	2.5 U	0.011 U	0.011 UJ	**0.056 J**	**0.06 J**	0.01 UJ	0.0042 J-	0.011 UJ
4,4'-DDT	0.23	NS	0.16 U	2.5 U	0.015 U	0.011 UJ	0.12 J	0.11 J	0.01 UJ	0.011 UJ	0.011 UJ
Aldrin	0.00092	NS	0.058 U	2.5 U	0.011 U	0.011 UJ	0.029 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
alpha-BHC	0.0072	NS	**87**	**52**	**0.69**	**75 J-**	**25**	**22**	**22 J-**	**0.55 J-**	**0.58 J-**
cis-Chlordane	NS	NS	0.046 U	2.5 U	0.011 U	0.011 UJ	0.023 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
beta-BHC	0.025	NS	**13**	**5.5**	**0.49**	**10 J-**	**1.8**	**1.7**	**1.4 J-**	**0.06 J-**	**0.07 J-**
delta-BHC	NS	NS	34	20	0.42	20 J-	1.4	1.1	1.2 J-	0.024 J-	0.023 J-
Dieldrin	0.0018	NS	0.077 U	2.5 U	0.011 U	0.011 UJ	0.038 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Endosulfan I	NS	NS	0.077 U	2.5 U	0.011 U	0.011 UJ	0.038 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Endosulfan II	NS	NS	0.27 U	2.5 U	0.011 U	0.011 UJ	0.13 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Endosulfan sulfate	110	NS	0.081 U	2.5 U	0.011 U	0.011 UJ	0.04 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Endrin	2.30	2.00	0.081 U	2.5 UJ	0.011 U	0.011 UJ	0.04 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Endrin aldehyde	NS	NS	0.38 U	2.5 U	0.011 U	0.011 UJ	0.19 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Endrin ketone	NS	NS	0.077 U	2.5 U	0.011 U	0.011 UJ	0.038 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
gamma-BHC (Lindane)	0.042	0.20	***5.2***	2.5 U	**0.029**	0.011 UJ	***2.4***	***2.8***	***2.3 J-***	0.027 J-	0.031 J-
Gamma-Chlordane	NS	NS	NA	NA	0.011 U	NA	NA	0.011 UJ	NA	NA	NA
trans-Chlordane	NS	NS	0.42 U	2.5 U	NA	0.011 UJ	0.21 U	NA	0.01 UJ	0.011 UJ	0.011 UJ
Heptachlor	0.0014	0.4	0.038 U	2.5 U	0.011 U	0.011 UJ	0.019 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Heptachlor epoxide	0.0014	0.2	0.062 U	2.5 U	0.011 U	0.011 UJ	0.031 U	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ
Kepone	0.0035	NS	1.3 UJ	NA	NA	NA	0.67 UJ	NA	NA	NA	NA
Methoxychlor	37	40	0.58 UJ	4.8 U	0.021 U	0.022 UJ	0.29 U	0.021 UJ	0.021 UJ	0.021 UJ	0.022 UJ
Toxaphene	0.071	3	5.8 U	190 U	0.26 U	0.27 UJ	2.9 U	0.26 UJ	0.26 UJ	0.27 UJ	0.28 UJ

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Table 9
Summary of Groundwater Analytical Results, Pesticides
SWMU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location Sample ID Sample Date	Tap Water (ug/L)	*MCL (ug/L)*	MW123S MW123S-09-120619 12/6/2019	MW123D MW123D-09-120519 12/5/2019	MW124S MW124S-09-120419 12/4/2019	MW124S (DUP) DUP01-09-120419 12/4/2019	MW124D MW124D-09-120519 12/5/2019	MW48 MW48-SUN-120319 12/3/2019	MW557 MW557-SUN-120419 12/4/2019	MW559 MW559-SUN-120419 12/4/2019	MW560 MW560-SUN-120319 12/3/2019
Pesticides (ug/L)											
4,4'-DDD	0.032	NS	**1.3 J-**	**0.048 J**	**0.55 J-**	**1.6 J-**	**0.13 J-**	**0.044 J-**	**5.1 J-**	**22 J-**	**0.88**
4,4'-DDE	0.046	NS	**0.18 J-**	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.0054 J-	**1.1 J-**	**5.4 J-**	**0.064**
4,4'-DDT	0.23	NS	**0.26 J-**	0.052 UJ	0.029 J-	0.011 J-	0.04 J-	0.015 J-	**2.7 J-**	**15 J-**	**0.31**
Aldrin	0.00092	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
alpha-BHC	0.0072	NS	**0.2 J-**	**0.045 J-**	**0.14 J-**	**0.1 J-**	**0.059 J-**	**0.22 J-**	0.011 UJ	**440 J-**	**5.7 J**
cis-Chlordane	NS	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
beta-BHC	0.025	NS	**0.21 J-**	0.018 J	**0.14 J-**	**0.14 J-**	**0.07 J-**	**0.13 J-**	**14 J-**	**45 J-**	**2.1 J**
delta-BHC	NS	NS	0.25 J-	0.035 J-	0.19 J-	0.2 J-	0.023 J-	0.031 J-	5.4 J-	140 J-	1.5 J
Dieldrin	0.0018	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Endosulfan I	NS	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Endosulfan II	NS	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Endosulfan sulfate	110	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Endrin	2.30	2.00	0.05 UJ	0.01 UJ	0.01 UJ	0.0098 J-	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Endrin aldehyde	NS	NS	0.05 UJ	0.052 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Endrin ketone	NS	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
gamma-BHC (Lindane)	0.042	0.20	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.028 J-	***5.8 J-***	***2.1 J-***	**0.18**
Gamma-Chlordane	NS	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-Chlordane	NS	NS	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Heptachlor	0.0014	0.4	0.05 UJ	0.052 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Heptachlor epoxide	0.0014	0.2	0.05 UJ	0.01 UJ	0.01 UJ	0.01 UJ	0.011 UJ	0.01 UJ	0.011 UJ	0.011 UJ	0.011 U
Kepone	0.0035	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	37	40	0.1 UJ	0.1 UJ	0.02 UJ	0.021 UJ	0.021 UJ	0.021 UJ	0.021 UJ	0.022 UJ	0.021 U
Toxaphene	0.071	3	0.25 UJ	0.26 UJ	0.26 UJ	0.26 UJ	0.27 UJ	0.26 UJ	0.26 UJ	0.27 UJ	0.26 U

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Table 10
Summary of Groundwater Analytical Results, VOCs
SMUW 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location			SM9-MW1	SM9-MW1	SWMU9-MW1	SMWU9-MW2	MW-14	MW14	MW-15	MW15	MW-16	MW16
Sample ID	Tapwater	*MCL*	SM9-MW01_100515	SM9MW1-09-120419	SWMU9-MW1-09-120419	SMWU9-MW2-09-120319	MW-14_092915	MW14-09-120519	MW-15_092915	MW15-09-120619	MW-16_092915	MW16-09-120519
Sample Date	(ug/L)	*(ug/L)*	10/5/2015	12/4/2019	12/4/2019	12/3/2019	9/29/2015	12/5/2019	9/29/2015	12/6/2019	9/29/2015	12/5/2019
Volatile Organic Compounds (ug/L)												
1,1,1-Trichloroethane	8000	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.08	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.28	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
1,1-Dichloroethane	2.8	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	5 U	0.5 U	0.5 U
1,1-Dichloroethene	280	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	7	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	1.2	70	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.6	0.8 J	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	0.00033	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	300	600	0.5 U	0.5 U	0.5 U	1.2	0.5 U	0.5 U	3.9	5.6	0.5 U	0.1 J
1,2-Dichloroethane	0.17	5	0.5 U	0.5 U	0.5 U	**0.4 J**	0.5 U	0.06 J	0.5 U	**0.5 J**	0.5 U	0.5 U
1,2-Dichloropropane	0.85	5	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	**3.2**	**4.4 J**	0.5 U	0.5 U
1,3-Dichlorobenzene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	0.48	75	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	**4.3**	**5.8**	0.5 U	0.1 J
1,4-Dioxane	0.46	NS	100 U	100 U	100 U	100 U	100 U	100 U	100 U	1000 U	100 U	100 U
2-BUtanone	5600	NS	8.3 UJ	5 U	5 U	1.8 J	5 U	5 U	5 U	50 U	5 U	5 U
2-Hexanone	38	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U	5 U	5 U
4-Methyl-2-pentanone	6300	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	50 U	5 U	5 U
Acetone	14000	NS	44 U	1.8 J	5 U	12	5 U	5 U	5 U	50 U	5 U	5 U
Benzene	0.46	5	0.5 U	0.05 J	0.06 J	***7***	**0.6**	0.4 J	***5.9***	***5.4***	0.5 U	0.5 U
Bromochloromethane	83	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Bromodichloromethane	0.13	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Bromoform	3.3	80	0.5 U	1 U	1 U	1 U	0.5 U	1 U	0.5 U	10 U	0.5 U	1 U
Bromomethane	7.5	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Carbon Disulfide	810	NS	1 U	0.2 J	1 U	10	1 U	1 U	1 U	10 U	1 U	0.09 J
Carbon Tetrachloride	0.46	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Chlorobenzene	78	100	0.1 J	0.08 J	0.5 U	67	0.5 U	0.3 J	**81**	***160***	0.5 U	1.8
Chloroethane	21000	NS	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Chloroform	0.22	80	0.2 J	0.5 U	0.5 U	0.1 J	**0.4 J**	**0.8**	**0.7**	5 U	0.5 U	0.5 U
Chloromethane	190	NS	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	36	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	9.2	5.8 J	0.5 U	0.5 U
cis-1,3-Dichloropropene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Cyclohexane	13000	NS	0.5 U	0.5 U	0.5 U	0.8	0.5 U	0.5 U	0.3 J	5 U	0.5 U	0.5 U
Dibromochloromethane	0.87	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Dichlorodifluoromethane	200	NS	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	5 UJ	0.5 U	0.5 UJ
Ethylbenzene	1.5	700	0.5 U	0.5 U	0.07 J	1.1	0.5 U	0.5 U	0.8 U	5 U	0.5 U	0.5 U
Freon 113	10000	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Isopropylbenzene	450	NS	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.3 J	5 U	0.5 U	0.5 U
m+p-Xylene	190	NS	0.5 U	0.5 U	0.5 U	3.1	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.1 J
Methyl Acetate	20000	NS	1 UJ	1 UJ	1 U	1 U	1 U	1 U	1 U	10 U	1 U	1 U
Methyl Tertiary Butyl Ether	14	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.05 J	0.5 U	5 U	0.5 U	0.5 U
Methylcyclohexane	NS	NS	0.5 U	0.5 U	0.5 U	1.8	0.5 U	0.5 U	0.1 J	5 U	0.5 U	0.1 J
Methylene Chloride	11	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
o-Xylene	190	NS	0.5 U	0.5 U	0.1 J	1.3	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Styrene	1200	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Tetrachloroethene	11	5	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.07 J	0.5 U	5 U	0.5 U	0.5 U
Toluene	1100	1000	0.5 U	0.5 U	0.5 U	1.6	0.5 U	0.5 U	1.6	5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	360	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6	5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Trichloroethene	0.49	5	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.4 J	***16***	***14***	0.5 U	0.5 U
Trichlorofluoromethane	5200	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Vinyl Chloride	0.2	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	5 U	0.5 U	0.5 U
Xylene (Total)	190	10000	0.5 U	1 U	1 U	4.4	0.5 U	1 U	0.5 U	10 U	0.5 U	1 U

Notes:

Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).

Bold values indicate an exceedance of Tap Water screening levels.

Italicized shaded values indicate an exceedance of MCL screening levels.

U = Indicates the analyte was analyzed for but not detected.

UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.

J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Level (MDL) and the concentration is an approximate value.

Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore, a sample was not collected.

NS = No Standard.

ug/L = Micrograms per liter.

SMWU = Solid Waste Management Unit

RCRA = Resource Conservation and Recovery Act

RFI = RCRA Facility Investigation

DVW = Delaware Valley Works

ID = Field Sample Identification

DUP = Duplicate

Created By: BCB 3/13/2020
Checked By: MC 3/23/2020

Table 10
Summary of Groundwater Analytical Results, VOCs
SMUW 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location			MW-17	MW-17 (DUP)	MW17	MW-18	MW18	MW-19	MW19	MW122	MW122 (DUP)
Sample ID	Tapwater	*MCL*	MW-17_100515	DUP18_100515	MW17-09-120619	MW-18_100515	MW18-09-120619	MW-19_092915	MW19-09-120619	MW122-09-120519	DUP02-09-120519
Sample Date	(ug/L)	*(ug/L)*	10/5/2015	10/5/2015	12/6/2019	10/5/2015	12/6/2019	9/29/2015	12/6/2019	12/5/2019	12/5/2019
Volatile Organic Compounds (ug/L)											
1,1,1-Trichloroethane	8000	200	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.08	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.28	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	2.8	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	280	7	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	7	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 UJ	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	1.2	70	0.5 U	0.5 U	0.08 J	0.5 U	0.5 J	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	0.00033	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	300	600	0.5 U	0.5 U	0.06 J	0.5 U	5.3	0.5 U	0.09 J	0.5 U	0.5 U
1,2-Dichloroethane	0.17	5	0.1 J	**0.2 J**	0.07 J	0.5 U	0.5 U	**0.5**	**0.3 J**	**0.4 J**	**0.4 J**
1,2-Dichloropropane	0.85	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	0.48	75	0.5 U	0.5 U	0.09 J	0.5 U	**4.2**	0.1 J	0.1 J	0.5 U	0.5 U
1,4-Dioxane	0.46	NS	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
2-BUtanone	5600	NS	5 UJ	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U
2-Hexanone	38	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	6300	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	14000	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	0.46	5	0.5 U	0.5 U	0.5 U	0.5 U	***6.8***	**2.5**	**1.8**	0.5 U	0.5 U
Bromochloromethane	83	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.13	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	3.3	80	0.5 U	0.5 U	1 U	0.5 U	1 U	0.5 U	1 U	1 U	1 U
Bromomethane	7.5	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Disulfide	810	NS	1 U	1 U	1 U	1 U	0.06 J	1 U	1 U	1 U	1 U
Carbon Tetrachloride	0.46	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	78	100	0.5 U	0.5 U	0.08 J	0.2 J	45	0.9 U	1.1	0.5 U	0.5 U
Chloroethane	21000	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.22	80	0.5 U	0.1 J	**0.6**	0.2 J	**0.4 J**	**0.4 J**	**0.5 J**	0.5 U	0.5 U
Chloromethane	190	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	36	70	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.09 J	0.5 U	0.5 U
cis-1,3-Dichloropropene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane	13000	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.06 J	0.1 J	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.87	80	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane	200	NS	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Ethylbenzene	1.5	700	0.5 U	0.5 U	0.5 U	0.5 U	0.08 J	0.5 U	0.5 U	0.5 U	0.5 U
Freon 113	10000	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isopropylbenzene	450	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.08 J	0.5 U	0.5 U
m+p-Xylene	190	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Acetate	20000	NS	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U
Methyl Tertiary Butyl Ether	14	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylcyclohexane	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	11	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	190	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	1200	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	11	5	0.5 U	0.5 U	0.2 J	0.5 U	0.5 J	*5.4*	3	0.5 U	0.5 U
Toluene	1100	1000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	360	100	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,3-Dichloropropene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.49	5	0.5 U	0.5 U	0.2 J	0.5 U	0.1 J	3.7 U	**0.8**	0.07 J	0.07 J
Trichlorofluoromethane	5200	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.2	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene (Total)	190	10000	0.5 U	0.5 U	1 U	0.5 U	0.2 J	0.5 U	1 U	1 U	1 U

Notes:

Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).

Bold values indicate an exceedance of Tap Water screening levels.

Italicized shaded values indicate an exceedance of MCL screening levels.

U = Indicates the analyte was analyzed for but not detected.

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J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Level (MDL) and the concentration is an approximate value.

Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore, a sample was not collected.

NS = No Standard.

ug/L = Micrograms per liter.

SMWU = Solid Waste Management Unit

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DVW = Delaware Valley Works

ID = Field Sample Identification

DUP = Duplicate

Created By: BCB 3/13/2020
Checked By: MC 3/23/2020

Table 10
Summary of Groundwater Analytical Results, VOCs
SMUW 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location			MW123S	MW123D	MW124S	MW124S (DUP)	MW124D	MW48	MW557	MW559	MW560
Sample ID	Tapwater	*MCL*	MW123S-09-120619	MW123D-09-120519	MW124S-09-120419	DUP01-09-120419	MW124D-09-120519	MW48-SUN-120319	MW557-SUN-120419	MW559-SUN-120419	MW560-SUN-120319
Sample Date	(ug/L)	*(ug/L)*	12/6/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019
Volatile Organic Compounds (ug/L)											
1,1,1-Trichloroethane	8000	200	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.08	NS	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
1,1,2-Trichloroethane	0.28	5	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
1,1-Dichloroethane	2.8	NS	5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	2.5 U	0.5 U
1,1-Dichloroethene	280	7	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
1,2,3-Trichlorobenzene	7	NS	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.4 J	0.5 U
1,2,4-Trichlorobenzene	1.2	70	5 U	0.5 U	0.09 J	0.1 J	0.5 U	0.5 U	0.7	**4.2**	0.5 U
1,2-Dibromo-3-chloropropane	0.00033	0.2	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
1,2-Dichlorobenzene	300	600	6	0.1 J	0.2 J	0.2 J	0.5 U	0.5 U	1.1	18	0.1 J
1,2-Dichloroethane	0.17	5	5 U	0.5 U	0.1 J	0.09 J	0.5 U	0.5 U	0.06 J	2.5 U	0.08 J
1,2-Dichloropropane	0.85	5	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	2.5 U	0.5 U
1,3-Dichlorobenzene	NS	NS	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.09 J	1.5 J	0.5 U
1,4-Dichlorobenzene	0.48	75	**5.1**	0.08 J	0.1 J	0.2 J	0.5 U	0.5 U	**1.8**	**21**	0.2 J
1,4-Dioxane	0.46	NS	1000 U	100 U	100 U	100 U	100 U	100 U	100 U	500 U	100 U
2-BUtanone	5600	NS	50 U	5 U	5 U	5 U	1.7 J	5 U	5 U	25 U	5 U
2-Hexanone	38	NS	50 U	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
4-Methyl-2-pentanone	6300	NS	50 U	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Acetone	14000	NS	50 U	10	5 U	5.6	8.7	5 U	2.2 J	6.2 J	5 U
Benzene	0.46	5	***19***	0.5 U	0.4 J	0.3 J	0.4 J	0.5 U	**1.3**	***30***	0.5 U
Bromochloromethane	83	NS	5 U	0.5 U	0.5 U	0.5 U	0.06 J	0.5 U	0.5 U	2.5 U	0.5 U
Bromodichloromethane	0.13	80	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Bromoform	3.3	80	10 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U
Bromomethane	7.5	NS	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Carbon Disulfide	810	NS	10 U	0.1 J	0.07 J	1 U	0.9 J	1 U	1 U	5 U	1 U
Carbon Tetrachloride	0.46	5	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Chlorobenzene	78	100	55	1.6	20	22	0.6	0.08 J	7.2	***650***	4.3
Chloroethane	21000	NS	5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	2.5 UJ	0.5 UJ
Chloroform	0.22	80	5 U	0.5 U	0.2 J	0.2 J	**1.7**	0.1 J	**0.4 J**	2.5 U	**0.9**
Chloromethane	190	NS	5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	2.5 UJ	0.5 UJ
cis-1,2-Dichloroethene	36	70	5 U	0.5 U	0.5	0.5	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
cis-1,3-Dichloropropene	NS	NS	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Cyclohexane	13000	NS	3.4 J	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.2 J	0.3 J	0.5 U
Dibromochloromethane	0.87	80	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Dichlorodifluoromethane	200	NS	5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Ethylbenzene	1.5	700	1.3 J	0.5 U	0.2 J	0.2 J	0.08 J	0.5 U	0.3 J	1.1 J	0.5 U
Freon 113	10000	NS	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Isopropylbenzene	450	NS	0.5 J	0.5 U	0.2 J	0.2 J	0.4 J	0.5 U	0.2 J	0.4 J	0.5 U
m+p-Xylene	190	NS	2 J	0.5 U	0.7	0.6	0.7	0.5 U	0.2 J	0.6 J	0.5 U
Methyl Acetate	20000	NS	10 U	1 UJ	1 U	1 U	1 UJ	1 U	1 U	5 U	1 UJ
Methyl Tertiary Butyl Ether	14	NS	5 U	0.5 U	0.5 U	0.5 U	0.07 J	0.5 U	0.5 U	2.5 U	0.5 U
Methylcyclohexane	NS	NS	4 J	0.5 U	3.6	3.2	0.5	0.5 U	0.8	2.5 U	0.5 U
Methylene Chloride	11	5	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
o-Xylene	190	NS	1.7 J	0.5 U	0.5	0.5 J	0.4 J	0.5 U	0.2 J	2.5 U	0.5 U
Styrene	1200	100	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Tetrachloroethene	11	5	5 U	0.5 U	0.1 J	0.1 J	0.5 U	0.5 U	0.06 J	2.5 U	0.5 U
Toluene	1100	1000	5 U	0.5 U	0.3 J	0.3 J	0.1 J	0.5 U	0.2 J	0.8 J	0.5 U
trans-1,2-Dichloroethene	360	100	5 U	0.5 U	0.2 J	0.3 J	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
trans-1,3-Dichloropropene	NS	NS	5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Trichloroethene	0.49	5	5 U	0.5 U	**0.6**	**0.8**	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Trichlorofluoromethane	5200	NS	5 U	0.5 U	0.5 U	0.06 J	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Vinyl Chloride	0.2	2	5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	2.5 U	0.5 U
Xylene (Total)	190	10000	3.7 J	1 U	1.2	1.1	1.1	1 U	0.4 J	5 U	1 U

Notes:

Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).

Bold values indicate an exceedance of Tap Water screening levels.

Italicized shaded values indicate an exceedance of MCL screening levels.

U = Indicates the analyte was analyzed for but not detected.

UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.

J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Level (MDL) and the concentration is an approximate value.

Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore, a sample was not collected.

NS = No Standard.

ug/L = Micrograms per liter.

SMWU = Solid Waste Management Unit

RCRA = Resource Conservation and Recovery Act

RFI = RCRA Facility Investigation

DVW = Delaware Valley Works

ID = Field Sample Identification

DUP = Duplicate

Created By: BCB 3/13/2020
Checked By: MC 3/23/2020

Table 11
Summary of Groundwater Analytical Results, SVOCs
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location			SM9-MW1	SM9-MW1	SWMU9-MW1	SMWU9-MW2	MW-14	MW14	MW-15	MW15	MW-16	MW16
Sample ID	Tap Water	*MCL*	SM9-MW01_100515	SM9MW1-09-120419	SWMU9-MW1-09-120419	SMWU9-MW2-09-120319	MW-14_092915	MW14-09-120519	MW-15_092915	MW15-09-120619	MW-16_092915	MW16-09-120519
Sample Date	(ug/L)	*(ug/L)*	10/5/2015	12/4/2019	12/4/2019	12/3/2019	9/29/2015	12/5/2019	9/29/2015	12/6/2019	9/29/2015	12/5/2019
Semi-Volatile Organic Compounds (ug/L)												
1,1'-Biphenyl	0.83	NS	1 U	250 U	10 U	10 U	1 U	10 U	1 U	10 U	1 U	11 U
1,2,4,5-Tetrachlorobenzene	1.7	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
2,3,4,6-Tetrachlorophenol	240	NS	1 U	250 U	10 U	10 U	1 U	10 U	1 U	10 U	1 U	11 U
2,4,5-Trichlorophenol	1200	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
2,4,6-Trichlorophenol	4.1	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
2,4-Dichlorophenol	46	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
2,4-Dimethylphenol	360	NS	1 U	250 U	10 U	10 U	1 U	10 U	1 U	10 U	1 U	11 U
2,4-Dinitrophenol	39	NS	31 U	750 R	30 R	30 U	30 U	30 U	30 U	30 R	30 U	32 U
2,4-Dinitrotoluene	0.24	NS	5 U	130 R	5 R	5 U	5 U	5 U	5 U	5 R	5 U	5 U
2,6-Dinitrotoluene	0.05	NS	1 U	50 R	2 R	2 U	1 U	2 U	1 U	2 R	1 U	2 U
2-Chloronaphthalene	750	NS	1 U	25 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	91	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
2-Methylnaphthalene	36	NS	0.5 U	13 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Methylphenol	930	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
2-Nitroaniline	190	NS	1 U	180 R	7 R	7 U	1 U	7 U	1 U	7 R	1 U	7 U
2-Nitrophenol	NS	NS	1 U	250 R	10 R	10 U	1 U	10 U	1 U	10 R	1 U	11 U
3,3'-Dichlorobenzidine	0.13	NS	5 U	250 U	10 U	10 U	5 U	10 U	5 U	10 U	5 U	11 U
3-Nitroaniline	NS	NS	1 U	180 R	7 R	7 U	1 U	7 U	1 U	7 R	1 U	7 U
4,6-Dinitro-2-methylphenol	1.5	NS	16 U	530 R	21 R	21 U	15 U	21 U	15 U	21 R	15 U	22 U
4-Bromophenyl-phenylether	NS	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
4-Chloro-3-methylphenol	1400	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
4-Chloroaniline	0.37	NS	4 U	250 U	10 U	10 U	4 U	10 U	4 U	10 U	4 U	11 U
4-Chlorophenyl-phenylether	NS	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
4-Methylphenol	1900	NS	42	50 U	2 U	2 J	1 U	2 U	1 U	2 U	1 U	2 U
4-Nitroaniline	3.8	NS	1 U	75 R	3 R	3 U	1 U	3 U	1 U	3 R	1 U	3 U
4-Nitrophenol	NS	NS	31 U	750 R	30 R	30 U	30 U	30 U	30 U	30 R	30 U	32 U
Acenaphthene	530	NS	0.5 U	13 U	0.5 U	0.5 U	0.2 J	0.5 U	4	5	0.5 U	0.5 U
Acenaphthylene	NS	NS	0.5 U	13 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.1 J	0.5 U	0.5 U
Acetophenone	1900	NS	1 U	250 U	10 U	10 U	1 U	10 U	1 U	10 U	1 U	11 U
Anthracene	1800	NS	0.5 U	13 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U
Atrazine	0.3	3	5 U	130 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	19	NS	5 U	250 U	10 U	10 U	5 U	10 U	5 U	10 U	5 U	11 U
Benzo(a)anthracene	0.03	NS	0.5 U	**4 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(a)pyrene	0.025	0.2	0.5 U	***4 J***	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(b)fluoranthene	0.25	NS	0.5 U	**4 J**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(g,h,i)perylene	NS	NS	0.5 U	13 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(k)fluoranthene	2.5	NS	0.5 U	13 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
bis(2-Chloroethoxy)methane	59	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
bis(2-Chloroethyl)ether	0.01	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
bis(2-Chloroisopropyl)ether	710	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
bis(2-Ethylhexyl)phthalate	5.6	6	5 U	280 U	11 U	11 U	5 U	11 U	5 U	11 U	5 U	12 U
Butylbenzylphthalate	16	NS	5 U	130 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	9900	NS	16 UJ	280 R	11 R	11 UJ	15 UJ	11 U	15 UJ	11 R	15 UJ	12 UJ
Carbazole	NS	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
Chrysene	25	NS	0.5 U	4 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibenz(a,h)anthracene	0.03	NS	5 U	13 U	0.5 U	0.5 U	5 U	0.5 U	5 U	0.5 U	5 U	0.5 U
Dibenzofuran	7.9	NS	5 U	50 U	2 U	2 U	5 U	2 U	5 U	2 U	5 U	2 U
Diethylphthalate	15000	NS	0.5 U	130 U	5 U	5 U	0.5 U	5 U	0.5 U	5 U	0.5 U	5 U
Dimethylphthalate	NS	NS	1 U	130 UJ	5 UJ	5 U	1 U	5 U	1 U	5 U	1 U	5 U
Di-n-butylphthalate	900	NS	5 U	130 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	200	NS	5 U	280 U	11 U	11 U	5 U	11 U	5 U	11 U	5 U	12 U
Fluoranthene	800	NS	0.5 U	10 J	0.5 U	0.5 U	0.5 U	0.5 U	1	0.5	0.5 U	0.5 U
Fluorene	290	NS	0.5 U	13 U	0.5 U	0.5 U	0.5 U	0.5 U	1	0.5 U	0.5 U	0.5 U
Hexachlorobenzene	0.01	NS	0.5 U	13 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.14	NS	1 U	50 R	2 R	2 U	1 U	2 U	1 U	2 R	1 U	2 U
Hexachlorocyclopentadiene	0.41	50	16 UJ	280 UJ	11 UJ	11 UJ	15 U	11 UJ	15 U	11 UJ	15 U	12 UJ
Hexachloroethane	0.33	NS	5 U	130 R	5 R	5 U	5 U	5 U	5 U	5 R	5 U	5 U
Indeno(1,2,3-cd)pyrene	0.25	NS	0.5 U	13 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isophorone	78	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
Naphthalene	0.17	NS	0.5 U	13 U	**0.3 J**	**0.7**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	0.14	NS	1 U	50 R	2 R	2 U	1 U	2 U	1 U	2 R	1 U	2 U
N-Nitroso-di-n-propylamine	0.01	NS	1 U	75 U	3 U	3 U	1 U	3 U	1 U	3 U	1 U	3 U
N-Nitrosodiphenylamine	12	NS	1 U	75 U	3 U	3 U	1 U	3 U	**59**	**54**	1 U	3 U
Pentachlorophenol	0.04	1	5 U	130 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenanthrene	NS	NS	0.5 U	8 J	0.2 J	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.5 U
Phenol	5800	NS	1 U	50 U	2 U	2 U	1 U	2 U	1 U	2 U	1 U	2 U
Pyrene	120	NS	0.5 U	9 J	0.5 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U

Notes:
Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).
Bold values indicate an exceedance of Tap Water screening levels.
Italicized shaded values indicate an exceedance of MCL screening levels.
U = Indicates the analyte was analyzed for but not detected.
UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.
J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Level (MDL) and the concentration is an approximate value.
R = Result is rejected and unusable.
Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore, a sample was not collected.
NS = No Standard.
ug/L = Micrograms per liter.
SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
DVW = Delaware Valley Works
ID = Field Sample Identification
DUP = Duplicate

Created By: BCB 3/13/2020
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Table 11
Summary of Groundwater Analytical Results, SVOCs
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location			MW-17 (DUP)	MW-17	MW17	MW-18	MW18	MW-19	MW19	MW122	MW122 (DUP)
Sample ID	Tap Water	*MCL*	DUP18_100515	MW-17_100515	MW17-09-120619	MW-18_100515	MW18-09-120619	MW-19_092915	MW19-09-120619	MW122-09-120519	DUP02-09-120519
Sample Date	(ug/L)	*(ug/L)*	10/5/2015	10/5/2015	12/6/2019	10/5/2015	12/6/2019	9/29/2015	12/6/2019	12/5/2019	12/5/2019
Semi-Volatile Organic Compounds (ug/L)											
1,1'-Biphenyl	0.83	NS	1 U	1 U	11 U	1 U	10 U	1 U	10 U	10 U	10 U
1,2,4,5-Tetrachlorobenzene	1.7	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
2,3,4,6-Tetrachlorophenol	240	NS	1 U	1 U	11 U	1 U	10 U	1 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	1200	NS	1 U	1 U	2 U	1 U	2 U	13	9	2 U	2 U
2,4,6-Trichlorophenol	4.1	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
2,4-Dichlorophenol	46	NS	1 U	1 U	2 U	1 U	2 U	1	2 U	2 U	2 U
2,4-Dimethylphenol	360	NS	1 U	1 U	11 U	1 U	10 U	1 U	10 U	10 U	10 U
2,4-Dinitrophenol	39	NS	30 U	30 U	32 U	30 U	31 R	30 U	31 R	31 R	31 UJ
2,4-Dinitrotoluene	0.24	NS	5 U	5 U	5 U	5 U	5 R	5 U	5 R	5 R	5 UJ
2,6-Dinitrotoluene	0.05	NS	1 U	1 U	2 U	1 U	2 R	1 U	2 R	2 R	2 UJ
2-Chloronaphthalene	750	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	91	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
2-Methylnaphthalene	36	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Methylphenol	930	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
2-Nitroaniline	190	NS	1 U	1 U	8 U	1 U	7 R	1 U	7 R	7 R	7 UJ
2-Nitrophenol	NS	NS	1 U	1 U	11 U	1 U	10 R	1 U	10 R	10 R	10 UJ
3,3'-Dichlorobenzidine	0.13	NS	5 U	5 U	11 U	5 U	10 U	5 U	10 U	10 U	10 U
3-Nitroaniline	NS	NS	1 U	1 U	8 U	1 U	7 R	1 U	7 R	7 R	7 UJ
4,6-Dinitro-2-methylphenol	1.5	NS	15 U	15 U	23 U	15 U	22 R	15 U	22 R	22 R	22 UJ
4-Bromophenyl-phenylether	NS	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
4-Chloro-3-methylphenol	1400	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
4-Chloroaniline	0.37	NS	4 U	4 U	11 U	4 U	10 U	4 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	NS	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
4-Methylphenol	1900	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
4-Nitroaniline	3.8	NS	1 U	1 U	3 U	1 U	3 R	1 U	3 R	3 R	3 UJ
4-Nitrophenol	NS	NS	30 U	30 U	32 U	30 U	31 R	30 U	31 R	31 R	31 UJ
Acenaphthene	530	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 J	0.2 J	0.5 U	0.5 U
Acenaphthylene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U
Acetophenone	1900	NS	1 U	1 U	11 U	1 U	10 U	1 U	10 U	10 U	10 U
Anthracene	1800	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.2 J	0.5 U	0.5 U
Atrazine	0.3	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	19	NS	5 U	5 U	11 U	5 U	10 U	5 U	10 U	10 U	10 U
Benzo(a)anthracene	0.03	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(a)pyrene	0.025	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(b)fluoranthene	0.25	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(g,h,i)perylene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Benzo(k)fluoranthene	2.5	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
bis(2-Chloroethoxy)methane	59	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
bis(2-Chloroethyl)ether	0.01	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
bis(2-Chloroisopropyl)ether	710	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
bis(2-Ethylhexyl)phthalate	5.6	6	5 U	5 U	12 U	5 U	11 U	5 U	11 U	11 U	11 U
Butylbenzylphthalate	16	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	9900	NS	15 UJ	15 UJ	12 UJ	15 UJ	11 R	15 UJ	11 R	11 R	11 UJ
Carbazole	NS	NS	1 U	1 U	2 U	1 U	2 U	1	0.6 J	2 U	2 U
Chrysene	25	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibenz(a,h)anthracene	0.03	NS	5 U	5 U	0.5 U	5 U	0.5 U	5 U	0.5 U	0.5 U	0.5 U
Dibenzofuran	7.9	NS	5 U	5 U	2 U	5 U	2 U	5 U	2 U	2 U	2 U
Diethylphthalate	15000	NS	0.5 U	0.5 U	5 U	0.5 U	5 U	0.5 U	5 U	5 U	5 U
Dimethylphthalate	NS	NS	1 U	1 U	5 U	1 U	5 U	0.9 J	5 U	5 U	5 U
Di-n-butylphthalate	900	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	200	NS	5 U	5 U	12 U	5 U	11 U	5 U	11 U	11 U	11 U
Fluoranthene	800	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.4 J	0.2 J	0.5 U	0.5 U
Fluorene	290	NS	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U
Hexachlorobenzene	0.01	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.14	NS	1 U	1 U	2 U	1 U	2 R	1 U	2 R	2 R	2 UJ
Hexachlorocyclopentadiene	0.41	50	15 UJ	15 UJ	12 UJ	15 UJ	11 UJ	15 U	11 UJ	11 UJ	11 UJ
Hexachloroethane	0.33	NS	5 U	5 U	5 U	5 U	5 R	5 U	5 R	5 R	5 UJ
Indeno(1,2,3-cd)pyrene	0.25	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Isophorone	78	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
Naphthalene	0.17	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Nitrobenzene	0.14	NS	1 U	1 U	2 U	1 U	2 R	1 U	2 R	2 R	2 UJ
N-Nitroso-di-n-propylamine	0.01	NS	1 U	1 U	3 U	1 U	3 U	1 U	3 U	3 U	3 U
N-Nitrosodiphenylamine	12	NS	1 U	1 U	3 U	1 U	3 U	1 U	3 U	3 U	3 U
Pentachlorophenol	0.04	1	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Phenanthrene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.3 J	0.5 U	0.5 U
Phenol	5800	NS	1 U	1 U	2 U	1 U	2 U	1 U	2 U	2 U	2 U
Pyrene	120	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U

Notes:
Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).
Bold values indicate an exceedance of Tap Water screening levels.
Italicized shaded values indicate an exceedance of MCL screening levels.
U = Indicates the analyte was analyzed for but not detected.
UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.
J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Level (MDL) and the concentration is an approximate value.
R = Result is rejected and unusable.
Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore, a sample was not collected.
NS = No Standard.
ug/L = Micrograms per liter.
SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
DVW = Delaware Valley Works
ID = Field Sample Identification
DUP = Duplicate

Created By: BCB 3/13/2020
Checked By: MC 3/23/2020

Table 11
Summary of Groundwater Analytical Results, SVOCs
SMWU 9 Data Summary Report
Honeywell DVW
Claymont, DE

Location			MW123S	MW123D	MW124S	MW124S (DUP)	MW124D	MW48	MW557	MW559	MW560
Sample ID	Tap Water	*MCL*	MW123S-09-120619	MW123D-09-120519	MW124S-09-120419	DUP01-09-120419	MW124D-09-120519	MW48-SUN-120319	MW557-SUN-120419	MW559-SUN-120419	MW560-SUN-120319
Sample Date	(ug/L)	*(ug/L)*	12/6/2019	12/5/2019	12/4/2019	12/4/2019	12/5/2019	12/3/2019	12/4/2019	12/4/2019	12/3/2019
Semi-Volatile Organic Compounds (ug/L)											
1,1'-Biphenyl	0.83	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
1,2,4,5-Tetrachlorobenzene	1.7	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2,3,4,6-Tetrachlorophenol	240	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
2,4,5-Trichlorophenol	1200	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2,4,6-Trichlorophenol	4.1	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.7 J	2 U
2,4-Dichlorophenol	46	NS	0.9 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2,4-Dimethylphenol	360	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
2,4-Dinitrophenol	39	NS	31 R	31 R	30 U	31 U	30 U	30 U	30 R	32 R	30 U
2,4-Dinitrotoluene	0.24	NS	5 R	5 R	5 U	5 U	5 U	5 U	5 R	5 R	5 U
2,6-Dinitrotoluene	0.05	NS	2 R	2 R	2 U	2 U	2 U	2 U	2 R	2 R	2 U
2-Chloronaphthalene	750	NS	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Chlorophenol	91	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	3	2 U
2-Methylnaphthalene	36	NS	2	0.5 U	0.2 J	0.2 J	0.2 J	0.5 U	0.5 U	0.5 U	0.5 U
2-Methylphenol	930	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
2-Nitroaniline	190	NS	7 R	7 R	7 U	7 U	7 U	7 U	7 R	7 R	7 U
2-Nitrophenol	NS	NS	10 R	10 R	10 U	10 U	10 U	10 U	10 R	11 R	10 U
3,3'-Dichlorobenzidine	0.13	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
3-Nitroaniline	NS	NS	7 R	7 R	7 U	7 U	7 U	7 U	7 R	7 R	7 U
4,6-Dinitro-2-methylphenol	1.5	NS	22 R	21 R	21 U	22 U	21 U	21 U	21 R	22 R	21 U
4-Bromophenyl-phenylether	NS	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-Chloro-3-methylphenol	1400	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-Chloroaniline	0.37	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
4-Chlorophenyl-phenylether	NS	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-Methylphenol	1900	NS	0.6 J	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
4-Nitroaniline	3.8	NS	3 R	3 R	3 U	3 U	3 U	3 U	3 R	3 R	3 U
4-Nitrophenol	NS	NS	31 R	31 R	30 U	31 U	30 U	30 U	30 R	32 R	30 U
Acenaphthene	530	NS	0.3 J	0.5 U	0.2 J	0.2 J	110	0.5 U	0.7	2	0.5 U
Acenaphthylene	NS	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Acetophenone	1900	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
Anthracene	1800	NS	0.5 U	0.5 U	0.1 J	0.2 J	1	0.5 U	0.2 J	0.7	0.5 U
Atrazine	0.3	3	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzaldehyde	19	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U
Benzo(a)anthracene	0.03	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.3 J**	0.5 U
Benzo(a)pyrene	0.025	0.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	***0.2 J***	0.5 U
Benzo(b)fluoranthene	0.25	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.3 J**	0.5 U
Benzo(g,h,i)perylene	NS	NS	0.2 J	0.5 U	0.5 U	0.1 J	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U
Benzo(k)fluoranthene	2.5	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U
bis(2-Chloroethoxy)methane	59	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
bis(2-Chloroethyl)ether	0.01	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
bis(2-Chloroisopropyl)ether	710	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
bis(2-Ethylhexyl)phthalate	5.6	6	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U	11 U
Butylbenzylphthalate	16	NS	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Caprolactam	9900	NS	11 R	11 R	11 U	11 U	11 UJ	11 UJ	11 R	12 R	11 UJ
Carbazole	NS	NS	2 U	2 U	2 U	2 U	2 J	2 U	0.6 J	0.8 J	2 U
Chrysene	25	NS	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U
Dibenz(a,h)anthracene	0.03	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibenzofuran	7.9	NS	2 U	2 U	2 U	2 U	2	2 U	0.7 J	0.8 J	2 U
Diethylphthalate	15000	NS	5 U	5 U	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U
Dimethylphthalate	NS	NS	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ	5 UJ	5 U
Di-n-butylphthalate	900	NS	5 U	5 U	5 **U**	5 U	5 U	5 U	5 U	5 U	5 U
Di-n-octylphthalate	200	NS	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U	11 U
Fluoranthene	800	NS	0.3 J	0.5 U	0.2 J	0.3 J	0.5 U	0.5 U	0.4 J	1	0.1 J
Fluorene	290	NS	0.7	0.5 U	0.3 J	0.3 J	10	0.5 U	1	2	0.5 U
Hexachlorobenzene	0.01	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.14	NS	2 R	2 R	2 U	2 U	2 U	2 U	2 R	2 R	2 U
Hexachlorocyclopentadiene	0.41	50	11 UJ	11 UJ	11 UJ	11 U	11 UJ	11 UJ	11 UJ	12 UJ	11 UJ
Hexachloroethane	0.33	NS	5 R	5 R	5 U	5 U	5 U	5 U	5 R	5 R	5 U
Indeno(1,2,3-cd)pyrene	0.25	NS	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J	0.5 U
Isophorone	78	NS	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Naphthalene	0.17	NS	**0.8**	0.5 U	0.1 J	0.1 J	**0.2 J**	0.5 U	0.1 J	0.5 U	0.5 U
Nitrobenzene	0.14	NS	2 R	2 R	2 U	2 U	2 U	2 U	2 R	2 R	2 U
N-Nitroso-di-n-propylamine	0.01	NS	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
N-Nitrosodiphenylamine	12	NS	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Pentachlorophenol	0.04	1	5 U	5 U	5 U	5 U	5 U	5 U	***2 J***	***1 J***	5 U
Phenanthrene	NS	NS	0.8	0.5 U	0.3 J	0.3 J	0.6	0.5 U	0.3 J	0.2 J	0.5 U
Phenol	5800	NS	2 U	2 U	2 U	2 U	2	2 U	2 U	2 U	2 U
Pyrene	120	NS	0.5 J	0.5 U	0.3 J	0.5 J	0.5 U	0.5 U	0.3 J	0.9	0.5 U

Notes:
Tap Water and Maximum Contaminant Levels (MCLs) from U.S. Environmental Protection Agency (USEPA) 2019 Regional Screening Levels (RSLs).
Bold values indicate an exceedance of Tap Water screening levels.
Italicized shaded values indicate an exceedance of MCL screening levels.
U = Indicates the analyte was analyzed for but not detected.
UJ = Indicates the analyte was analyzed for but not detected with an estimated detection limit.
J = Result is less than the Reporting Limit (RL) but greater than or equal to the Method Detection Level (MDL) and the concentration is an approximate value.
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Sunoco well MW-558 contained light nonaqueous phase liquid (NAPL) on the day of sampling; therefore, a sample was not collected.
NS = No Standard.
ug/L = Micrograms per liter.
SMWU = Solid Waste Management Unit
RCRA = Resource Conservation and Recovery Act
RFI = RCRA Facility Investigation
DVW = Delaware Valley Works
ID = Field Sample Identification
DUP = Duplicate

Created By: BCB 3/13/2020
Checked By: MC 3/23/2020

Table 12
Water Level Summary
December 6, 2019
SMUW 9 Data Summary Report
Honeywell DVW
Claymont, DE

Well ID	Total Depth (ft bgs)	Screened Interval (ft bgs)	Depth to Water (ft btoc)	Product Thickness (ft)	Reference Elevation[(a)(b)] (ft msl)	Groundwater Elevation (ft msl)	Time
MW-14	16	6-16	13.86	NA	16.69	2.83	1604
MW-15	14	4-14	9.99	NA	14.12	4.13	1550
MW-16	14	4-14	7.94	NA	11.10	3.16	1453
MW-17	16	6-16	10.00	NA	13.60	3.60	1658
MW-18	30	20-30	14.06	NA	17.49	3.43	1628
MW-19	14	4-14	12.73	NA	16.22	3.49	1407
MW-122	24	14-24	13.50	NA	16.31	2.81	1432
MW-48	16	5-15	5.98	NA	10.04	4.06	1520
MW-557	16	5-15	7.22	NA	9.72	2.50	1528
MW-558*	16	5-15	12.00	1.25	12.72	1.80	1538
MW-559	16	5-15	10.18	NA	12.30	2.12	1551
MW-560	16	5-15	6.98	NA	8.95	1.97	1555
SWMU9-MW-1-2018	87	77-87	45.30	NA	47.84	2.54	1745
SWMU9-MW-2-2018	57	47-57	28.10	NA	30.98	2.88	1731
SM9-MW1	40	30-40	16.97	NA	21.54	4.57	1715
MW-123S	15	5-15	9.10	NA	12.95	3.85	1529
MW-123D	35	25-35	10.67	NA	12.73	2.06	1537
MW-124S	15	5/15	7.93	NA	11.32	3.39	1515
MW-124D	38	28-38	9.16	NA	11.16	2.00	1506
Lower stream gauge	NA	NA	4.97	NA	0.90	4.87	1620
Upper stream gauge	NA	NA	4.97	NA	-0.07	2.90	1610

Notes:

ft bgs = feet below ground surface.

ft btoc = feet below top of PVC casing.

ft msl = feet above mean sea level.

[(a)] Reference Elevation for lower stream gauge was surveyed at the 2-foot mark.

[(b)] Reference Elevation for upper stream gauge was surveyed at 1-foot mark.

NA = Not applicable.

* Corrected water elevation = water elevation + (product density x product thickness); density assumed to be 0.86.

SMWU = Solid Waste Management Unit

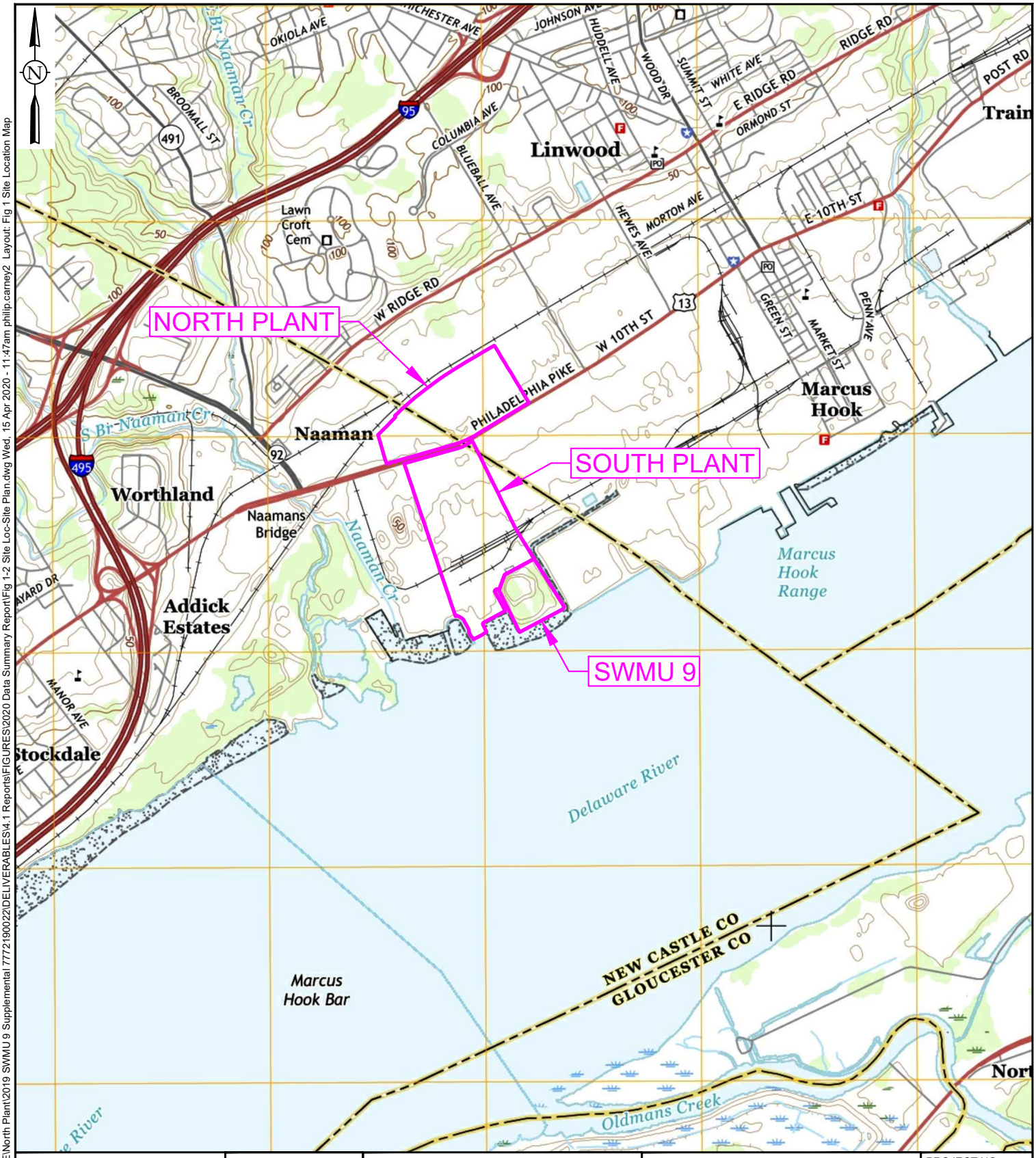
RCRA = Resource Conservation and Recovery Act

RFI = RCRA Facility Investigation

DVW = Delaware Valley Works

Created By: BSC 12-10-19
Checked By: JPM 01-24-20

FIGURES



LEGEND

APPROXIMATE SITE BOUNDARY

SOURCE

USGS QUAD "MARCUS HOOK, PA-DE-NJ", 2016.

0 1000' 2000'

SCALE: 1" = 2,000'

SITE VICINITY
NEW CASTLE COUNTY, DE

Honeywell

DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

wood.

751 Arbor Way, Suite 180
Blue Bell, PA 19422

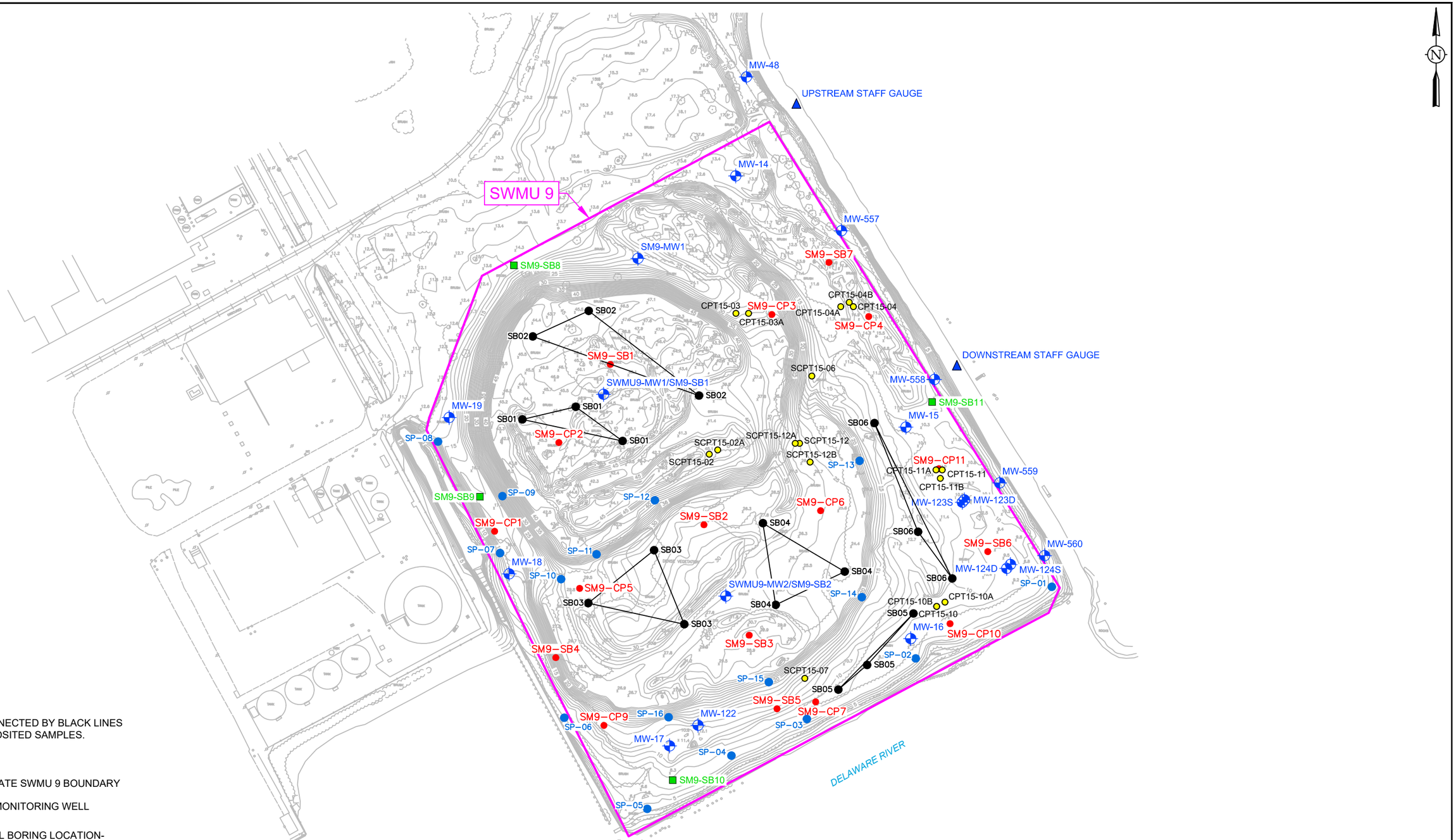
Tel. 610-828-8100
www.woodplc.com

SWMU 9
DATA SUMMARY REPORT

SITE LOCATION MAP

PROJECT NO.:	7772190022
PREPARED BY:	PJC
CHECKED BY:	JPM
REVISION NO.:	0
FIGURE NO.:	1

\\phl-fs1\projects\Honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 1-2 Site Loc-Site Plan.dwg Wed, 15 Apr 2020 - 11:47am philip.carney2 Layout: Fig 1 Site Location Map



NOTE

SOIL BORINGS CONNECTED BY BLACK LINES REPRESENT COMPOSITED SAMPLES.

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- EXISTING MONITORING WELL LOCATION
- HISTORICAL BORING LOCATION- MWH/CUMMINGS RITTER (2003 SOIL BORING LOCATION)
- COUPLED BORINGS WITH COMPOSITE SAMPLE
- 2010 SOIL POINT LOCATION
- 2015 RFI SOIL BORING LOCATION
- 2015 RFI CPT BORING LOCATION
- 2018 SOIL BORING LOCATION
- STAFF GAUGE

wood. 751 Arbor Way, Suite 180 Blue Bell, PA 19422 Tel. 610-828-8100 www.woodplc.com	CLIENT: Honeywell DELAWARE VALLEY WORKS CLAYMONT, DELAWARE	PROJECT: SWMU 9 DATA SUMMARY REPORT	PROJECT NO.: 7772190022
			REVISION NO.: 0
			DATE: APRIL 2020
PROJECTION / DATUM: DE83F	PREPARED BY: PJC	TITLE: SITE PLAN	FIGURE NO.: 2
0 75' 150' SCALE: 1" = 150'	CHECKED BY: MJC		
	REVIEWED BY: JPM		

\\phl-fs1\projects\Honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 1-2 Site Loc-Site Plan.dwg Wed, 15 Apr 2020 - 11:50am philip.carney2 Layout: Fig 2 Site Plan

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B3			
Depth (ft)			0-1	08-10	14-16	14-16 (DUP)
Sample Date			10/3/2019	10/3/2019	10/3/2019	10/3/2019
Metals (mg/kg)						
Antimony	470	7	3.79 U	27.6 U	*202*	*211*
Arsenic	3	0.03	2.27 U	16.5 U	***7280***	***8060***
Barium	220000	3200	11	321	2350 J	*4000 J*
Cobalt	350	5.4	1.76	1.72 J	*8.13*	5.33
Copper	47000	560	10.8	4.42 J	*641*	550
Iron	820000	7000	4620	1820	*33700*	*29600*
Lead	800	NS	18.2	71.1	**18500**	**14200**
Selenium	5800	10.4	3.79 U	27.6 U	*300*	*227*
Thallium	12	0.28	2.27 U	16.5 U	4.21 UJ	***14.8 J***
Mercury	46	0.66	0.21	0.449	***152***	***140***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B4		
Depth (ft)			0-1	06-08	14-16
Sample Date			10/3/2019	10/3/2019	10/3/2019
Metals (mg/kg)					
Antimony	470	7	5.58 U	5.77 U	*60 J*
Arsenic	3	0.03	***24.6***	***7.48***	***12200***
Barium	220000	3200	25.9	28	*6940 J*
Cobalt	350	5.4	2.58	2.11	*7.9*
Copper	47000	560	13.8	12.6	*686*
Iron	820000	7000	3100	4630	*40000*
Lead	800	NS	29.7	27.5	**4570**
Selenium	5800	10.4	2.98 J	4.49 J	*48.7*
Thallium	12	0.28	3.35 U	3.46 U	***14.7 J-***
Mercury	46	0.66	*2.48*	*2.19*	***72.7***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-13
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	*0.44 B*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SB02-01	SB02-02	SB02-03
Depth (ft)			0-1	1-15	15-42
Sample Date			5/30/2003	5/30/2003	5/30/2003
Metals (mg/kg)					
Thallium	12	0.28	0.4 U	*0.8 B*	0.4 U
Mercury	46	0.66	*13.7*	*5.4*	*2.4*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SB04-01	SB04-02	SB04-03
Depth (ft)			0-1	1-15	15-37
Sample Date			6/2/2003	6/2/2003	6/2/2003
Metals (mg/kg)					
Arsenic	3	0.03	6.1 U	6.3 U	***176***
Cobalt	350	5.4	*10.4 B*	4.1 B	*140*
Iron	820000	7000	*8300*	5920	*184000*
Selenium	5800	10.4	5 U	5.2 U	*271*
Thallium	12	0.28	0.5 U	0.5 U	*4*
Mercury	46	0.66	*1*	*0.7*	*3.6*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SB01-01	SB01-02	SB01-02A	SB01-03
Depth (ft)			0-1	0-15	0-15	15-57
Sample Date			5/29/2003	5/29/2003	6/4/2003	5/29/2003
Metals (mg/kg)						
Antimony	470	7	7.3 U			*22 B*
Arsenic	3	0.03	7.1 U			***7.13***
Cobalt	350	5.4	4.4 U	*9.4* B	*11.5 B*	*16.2 B*
Copper	47000	560	9.7 B			*6280*
Iron	820000	7000	3690	*15500*	*20900*	*40900*
Lead	800	NS	57.1			**2480**
Thallium	12	0.28	0.6 U	*0.6* B	*0.5 B*	***16.1***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-8
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***50.2***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-12
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	*0.98*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-9
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***8.9***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-11
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***11.5***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-10
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	*0.24 B*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-7
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***37.5***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SB03-01	SB03-02	SB03-03
Depth (ft)			0-1	1-15	15-47
Sample Date			5/30/2003	5/30/2003	5/30/2003
Metals (mg/kg)					
Arsenic	3	0.03	6.5 U	***17.1***	***6850***
Cobalt	350	5.4	4.1 B	*83.6*	*54.1 B*
Iron	820000	7000	6240	*93200*	*74600*
Selenium	5800	10.4	5.4 U	*129*	*170*
Thallium	12	0.28	0.5 U	*2*	*9.1*
Mercury	46	0.66	0.5	0.6	***48.2***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-6
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***94.1***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-5
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***159***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-4
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***179***
Lead	800	NS	**1230**

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	MW123S			
Depth (ft)			0-1	10-12	14-16	14-16 (DUP)
Sample Date			10/1/2019	10/1/2019	10/1/2019	10/1/2019
Metals (mg/kg)						
Antimony	470	7	3.62 J	3.46 J	*126 J*	*11.5 J*
Arsenic	3	0.03	***46.6***	***14.4***	***9200 J***	***301 J***
Cobalt	350	5.4	*12.9*	*10.8*	*7.11 J*	*7.68*
Copper	47000	560	72.8	37.4	*681 J*	119 J
Iron	820000	7000	*17600*	*18400*	24900	*20500*
Lead	800	NS	126	64.7	**14000 J**	477 J
Selenium	5800	10.4	7.64	7.9	*208 J*	*27.2 J*
Thallium	12	0.28	*1.18 J*	3.51 U	***51.3 J***	3.7 UJ
Mercury	46	0.66	*0.846*	0.502	***106 J***	*4.69 J*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B2		
Depth (ft)			0-1	08-10	14-16
Sample Date			10/1/2019	10/1/2019	10/1/2019
Metals (mg/kg)					
Antimony	470	7	5.21 U	7.38 U	*23.2 J-*
Arsenic	3	0.03	*48*	***35.4***	***1630***
Cobalt	350	5.4	*24.3*	*10.1*	*32.3 J*
Iron	820000	7000	*24400*	*12200*	*64100*
Lead	800	NS	173	68.7	**1950 J**
Selenium	5800	10.4	10.3	8.4	*116*
Thallium	12	0.28	3.13 U	4.43 U	*4.76 J-*
Mercury	46	0.66	*1.65*	*0.739*	*29.4*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B1		
Depth (ft)			0-1	6-8	14-16
Sample Date			10/1/2019	10/1/2019	10/1/2019
Metals (mg/kg)					
Antimony	470	7	4.46 J	3.48 J	*12.5 J*
Arsenic	3	0.03	***168***	***146***	***1050***
Cobalt	350	5.4	*23.8*	*67.9*	*32.6*
Iron	820000	7000	*43700*	*62100*	*51700*
Lead	800	NS	430	487	**1370**
Selenium	5800	10.4	*13.7*	*11.1*	*72.1*
Thallium	12	0.28	*8.15*	2.41 U	18.3 U
Mercury	46	0.66	*4.73*	*1.51*	*13.5*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SB06-01	SB06-02
Depth (ft)			6/4/2003	6/4/2003
Sample Date			0-1	1-15
Metals (mg/kg)				
Arsenic	3	0.03	***700***	***324***
Cobalt	350	5.4	*11.9* B	*60.3*
Iron	820000	7000	*21500*	*97200*
Selenium	5800	10.4	*26*	*117*
Thallium	12	0.28	*2.1*	*3.6*
Mercury	46	0.66	*17.5*	*19.9*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	MW124S		
Depth (ft)			0-1	10-12	14-16
Sample Date			9/30/2019	9/30/2019	9/30/2019
Metals (mg/kg)					
Antimony	470	7	4.85 U	6.23 U	*12.2*
Arsenic	3	0.03	***119***	3.74 U	***14100***
Barium	220000	3200	185	110	*5240*
Cobalt	350	5.4	*14.3*	0.653	*19.9*
Iron	820000	7000	*47000*	758	*34800*
Lead	800	NS	235	138	**2000**
Selenium	5800	10.4	*25.7*	6.23 U	*29.6*
Thallium	12	0.28	2.91 U	3.74 U	*2.05 J*
Mercury	46	0.66	*1.23*	0.19	*16.8*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-1
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***973***
Lead	800	NS	**3400**

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-14
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***6.1***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-2
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***123***

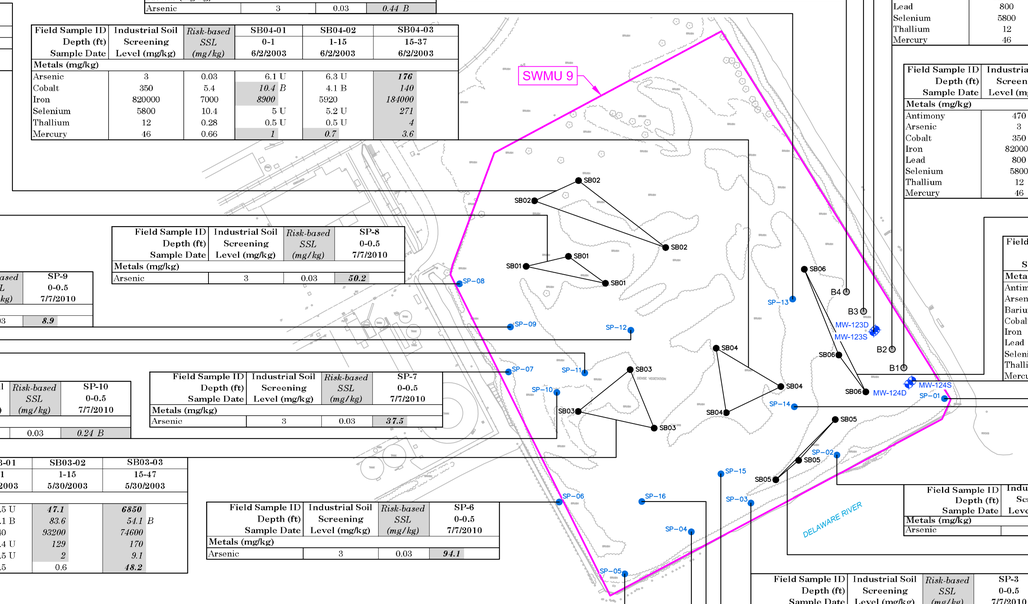
Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SB05-01	SB05-02	SB05-02 Duplicate
Depth (ft)			0-1	1-12	1-12
Sample Date			6/4/2006	6/4/2003	6/4/2003
Metals (mg/kg)					
Arsenic	3	0.03	***205***	***16.7***	***23.1***
Cobalt	350	5.4	*16.5 B*	5.3 B	*5.8 B*
Iron	820000	7000	*24500*	*13000*	*14500*
Selenium	5800	10.4	*15.2*	7.8	10
Thallium	12	0.28	*0.5 B*	*0.4* U	0.4 U
Mercury	46	0.66	*2.3*	*2.1*	*2*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-3
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***84***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-15
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	***8.7***

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-16
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	*1.1 B*

Field Sample ID	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	SP-16 (DUP)
Depth (ft)			0-0.5
Sample Date			7/7/2010
Metals (mg/kg)			
Arsenic	3	0.03	*1*



NOTE

SOIL BORINGS CONNECTED BY BLACK LINES REPRESENT COMPOSITED SAMPLES.

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- HISTORICAL BORING LOCATION- MWH/CUMMINGS RITTER (2003 SOIL BORING LOCATION)
- COUPLED BORINGS WITH COMPOSITE SAMPLE
- 2010 SOIL POINT LOCATION
- 2019 MONITORING WELL LOCATION
- 2019 SOIL BORING LOCATION

NOTES

1. U = THE ANALYTE WAS ANALYZED FOR, BUT NOT DETECTED.
2. UJ = INDICATES THE ANALYTE WAS ANALYZED FOR BUT NOT DETECTED WITH AN ESTIMATED DETECTION LIMIT.
3. J = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
4. J- = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LEVEL (MDL) OR DETECTION LEVEL (DL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE WITH A LOW BIAS.
5. **BOLD VALUES** INDICATE AN EXCEEDANCE OF THE INDUSTRIAL SOIL SCREENING LEVEL (SSL) (USEPA, NOVEMBER 2019).
6. *ITALICIZED AND SHADED VALUES* INDICATE AN EXCEEDANCE OF THE RISK-BASED SSL, ASSUMING A DILUTION ATTENUATION FACTOR (DAF) OF 20 (USEPA, NOVEMBER 2019).
7. mg/kg = MILLIGRAMS PER KILOGRAM.
8. NS = NO STANDARD.
9. ID = FIELD SAMPLE IDENTIFICATION.
10. DUP = DUPLICATE SAMPLE.
11. ft = FEET.
12. B = ANALYTE WAS ALSO DETECTED IN THE BLANK; CONCENTRATION IS LESS THAN THE REPORTING LIMIT AND MAY REPRESENT AN ESTIMATED VALUE.

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PROJECTION / DATUM: DE83F
0 75' 150'
SCALE: 1" = 150'

PREPARED BY: PJC
CHECKED BY: MJC
REVIEWED BY: JPM

CLIENT: Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU 9
DATA SUMMARY REPORT

TITLE: SOIL ANALYTICAL RESULTS
METALS
2003, 2010 AND 2019

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020
FIGURE NO.: 3

\\pts-fs1\projects\Honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 3 Soil Analytical Results-Metals_2003-2010-2019.dwg Wed, 15 Apr 2020 - 11:54am philip.carney2 Layout: Fig 3 Soil Analytical Results-Metals_2003-2010-2019

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B3 0-1 10/3/2019	B3 08-10 10/3/2019	B3 14-16 10/3/2019	B3 14-16 (DUP) 10/3/2019
Pesticides (mg/kg)						
alpha-BHC	0.36	0.00084	0.00073 U	*0.0081*	0.0056 U	0.0056 U
4,4'-DDD	9.6	0.15	0.047	*0.61*	*0.2 J*	*0.24 J*
4,4'-DDE	9.3	0.2	0.037	0.077 J	0.17 J	*0.44 J*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B4 0-1 10/3/2019	B4 06-08 10/3/2019	B4 14-16 10/3/2019
Pesticides (mg/kg)					
alpha-BHC	0.36	0.00084	*0.0021*	*0.038 D1*	0.0061 UJ
gamma-BHC (Lindane)	2.5	0.0048	0.0008 U	*0.013 J D2*	0.0061 UJ
4,4'-DDD	9.6	0.15	0.047	*0.55 D1*	0.0061 UJ
4,4'-DDE	9.3	0.2	0.055	*0.57 D2*	0.0061 UJ

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	MW123S 0-1 10/1/2019	MW123S 10-12 10/1/2019	MW123S 14-16 10/1/2019	MW123S 14-16 (DUP) 10/1/2019
Pesticides (mg/kg)						
alpha-BHC	0.36	0.00084	*0.0094 J*	*0.0055 J*	*0.08 J+*	*0.0034 J-*
4,4'-DDD	9.6	0.15	*0.37 J*	*0.46 J*	*6.4 J+*	0.11 J-
4,4'-DDE	9.3	0.2	*0.36*	0.13	*2.8 J+*	0.047 J-

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B2 0-1 10/1/2019	B2 08-10 10/1/2019	B2 14-16 10/1/2019
Pesticides (mg/kg)					
alpha-BHC	0.36	0.00084	*0.008 J*	*0.0025 J*	*0.0071 J-*
4,4'-DDD	9.6	0.15	*1.6 J*	*2.1 J*	*4.7 J*
4,4'-DDE	9.3	0.2	*1.3*	*1*	*1.5*
4,4'-DDT	8.5	1.54	*3.3*	*1.5*	0.95

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B1 0-1 10/1/2019	B1 6-8 10/1/2019	B1 14-16 10/1/2019
Pesticides (mg/kg)					
alpha-BHC	0.36	0.00084	*0.069*	*0.026*	0.0064 UJ
beta-BHC	1.3	0.003	*0.08*	0.0038 U	0.0064 UJ
gamma-BHC (Lindane)	2.5	0.0048	*0.03 J*	0.0038 U	0.0064 UJ
4,4'-DDD	9.6	0.15	*7.8 J*	***10 J***	***20 J-***
4,4'-DDE	9.3	0.2	*2*	*2.4*	***18 J-***
4,4'-DDT	8.5	1.54	***14***	*5.1*	0.047 J-

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	MW124S 0-1 9/30/2019	MW124S 10-12 9/30/2019	MW124S 14-16 9/30/2019
Pesticides (mg/kg)					
alpha-BHC	0.36	0.00084	*0.0042*	0.0009 UJ	0.0051 U
beta-BHC	1.3	0.003	*0.013*	0.0009 UJ	0.0051 U
4,4'-DDD	9.6	0.15	*0.29 J*	0.0048 J	*2.7 J+*
4,4'-DDE	9.3	0.2	0.19	0.018 J-	*0.67 J+*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-11 0-0.5 7/7/2010
Pesticides (mg/kg)			
Heptachlor epoxide	0.33	0.00056	*0.001 J, PG*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-9 0-0.5 7/7/2010
Pesticides (mg/kg)			
4,4'-DDE	9.3	0.2	*0.021*
Dieldrin	0.14	0.00142	*0.0044*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-8 0-0.5 7/7/2010
Pesticides (mg/kg)			
4,4'-DDD	9.6	0.15	*0.3*
4,4'-DDE	9.3	0.2	*0.31*
Dieldrin	0.14	0.00142	*0.092*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-7 0-0.5 7/7/2010
Pesticides (mg/kg)			
Aldrin	0.18	0.003	***0.23***
4,4'-DDD	9.6	0.15	*0.31*
4,4'-DDE	9.3	0.2	*0.79*
Heptachlor	0.63	0.0024	*0.061 PG*
Heptachlor epoxide	0.33	0.00056	*0.28*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-6 0-0.5 7/7/2010
Pesticides (mg/kg)			
beta-BHC	1.3	0.003	*0.0056 J, PG*
gamma-BHC (Lindane)	2.5	0.0048	*0.0063 J*
4,4'-DDD	9.6	0.15	*0.55*
4,4'-DDE	9.3	0.2	*0.74*
Dieldrin	0.14	0.00142	*0.09*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-5 0-0.5 7/7/2010
Pesticides (mg/kg)			
4,4'-DDD	9.6	0.15	*0.37*
Dieldrin	0.14	0.00142	*0.0064 J, PG*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-4 0-0.5 7/7/2010
Pesticides (mg/kg)			
alpha-BHC	0.36	0.00084	*0.0017 J*

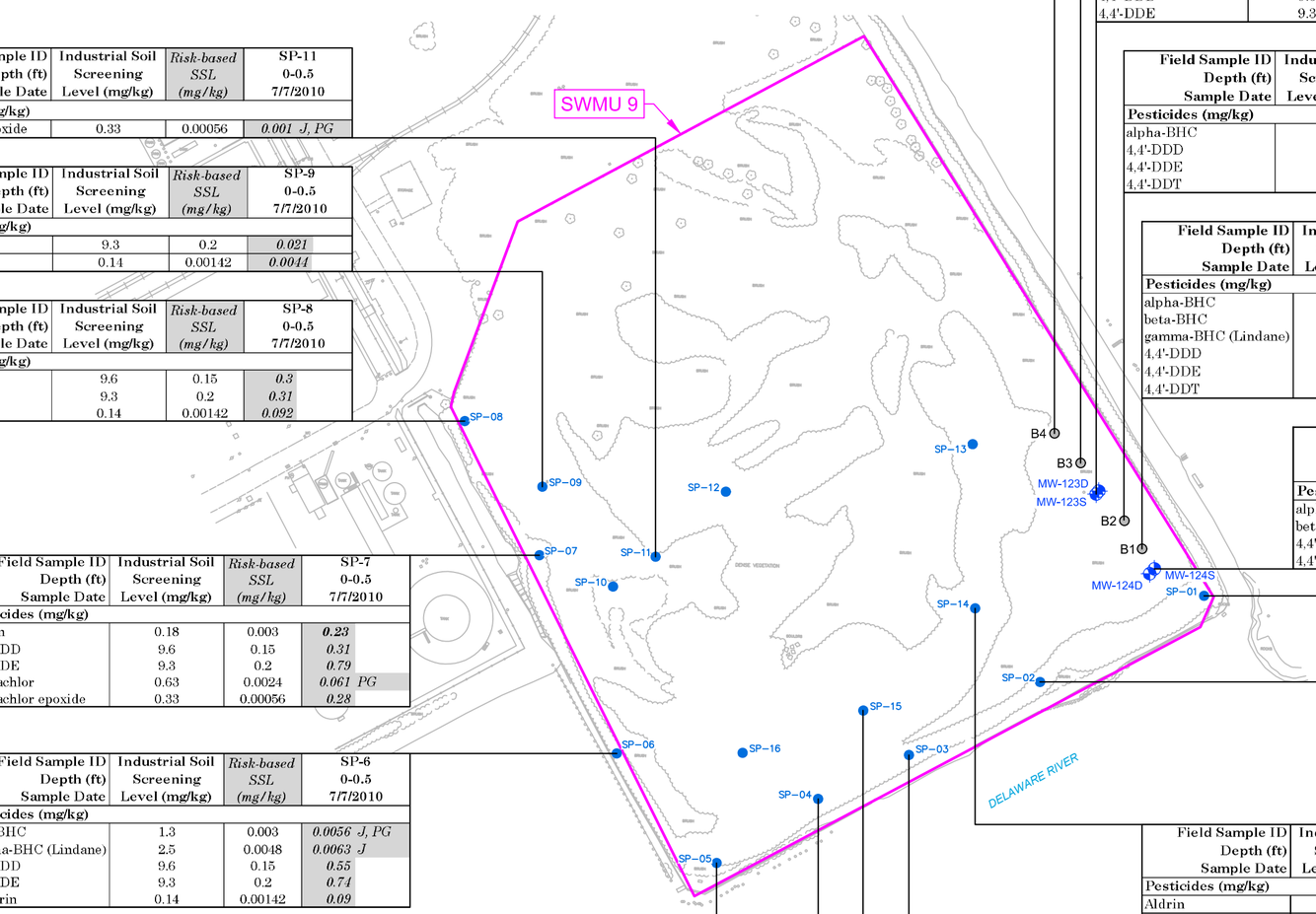
Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-2 0-0.5 7/7/2010
Pesticides (mg/kg)			
4,4'-DDD	9.6	0.15	*5.7*
4,4'-DDE	9.3	0.2	*2.2*
4,4'-DDT	8.5	1.54	***10***

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-14 0-0.5 7/7/2010
Pesticides (mg/kg)			
Aldrin	0.18	0.003	*0.022 PG*
Heptachlor	0.63	0.0024	*0.0087 PG*
Heptachlor epoxide	0.33	0.00056	*0.037*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-3 0-0.5 7/7/2010
Pesticides (mg/kg)			
4,4'-DDD	9.6	0.15	*1.6*
4,4'-DDE	9.3	0.2	*1.4*
4,4'-DDT	8.5	1.54	*4.5*
Dieldrin	0.14	0.00142	***0.49***

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-1 0-0.5 7/7/2010
Pesticides (mg/kg)			
alpha-BHC	0.36	0.00084	***2.4***
beta-BHC	1.3	0.003	***2.2***
gamma-BHC (Lindane)	2.5	0.0048	*1.4*
4,4'-DDD	9.6	0.15	***22***
4,4'-DDE	9.3	0.2	***9.3***
4,4'-DDT	8.5	1.54	***55***
Dieldrin	0.14	0.00142	***0.18 J, PG***

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	SP-15 0-0.5 7/7/2010
Pesticides (mg/kg)			
alpha-BHC	0.36	0.00084	*0.0026 J*
Dieldrin	0.14	0.00142	*0.026*



LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- 2010 SOIL POINT LOCATION
- 2019 MONITORING WELL LOCATION
- 2019 SOIL BORING LOCATION

NOTES

1. U = THE ANALYTE WAS ANALYZED FOR, BUT NOT DETECTED.
2. UJ = INDICATES THE ANALYTE WAS ANALYZED FOR BUT NOT DETECTED WITH AN ESTIMATED DETECTION LIMIT.
3. J = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE
4. J- = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LEVEL (MDL) OR DETECTION LEVEL (DL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE WITH A LOW BIAS.
5. J+ = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LEVEL (MDL) OR DETECTION LEVEL (DL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE WITH A HIGH BIAS.
6. **BOLD VALUES** INDICATE AN EXCEEDANCE OF THE INDUSTRIAL SOIL SCREENING LEVEL (SSL) (USEPA, NOVEMBER 2019).
7. *ITALICIZED AND SHADED VALUES* INDICATE AN EXCEEDANCE OF THE RISK-BASED SSL, ASSUMING A DILUTION ATTENUATION FACTOR (DAF) OF 20 (USEPA, NOVEMBER 2019).
8. mg/kg = MILLIGRAMS PER KILOGRAM.
9. D1 = FOR DUAL ANALYSES, THE RESULT IS REPORTED FROM COLUMN 1.
10. D2 = FOR DUAL ANALYSES, THE RESULT IS REPORTED FROM COLUMN 2.
11. ID = FIELD SAMPLE IDENTIFICATION.
12. DUP = DUPLICATE SAMPLE.
13. ft = FEET.
14. PG = THE PERCENT DIFFERENCE BETWEEN COLUMNS IS GREATER THAN THE METHOD CRITERIA OF 40 PERCENT. THE RESULTS ARE ESTIMATED.

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PROJECTION / DATUM: DE83F
0 75' 150'
SCALE: 1" = 150'

PREPARED BY: PJC
CHECKED BY: MJC
REVIEWED BY: JPM

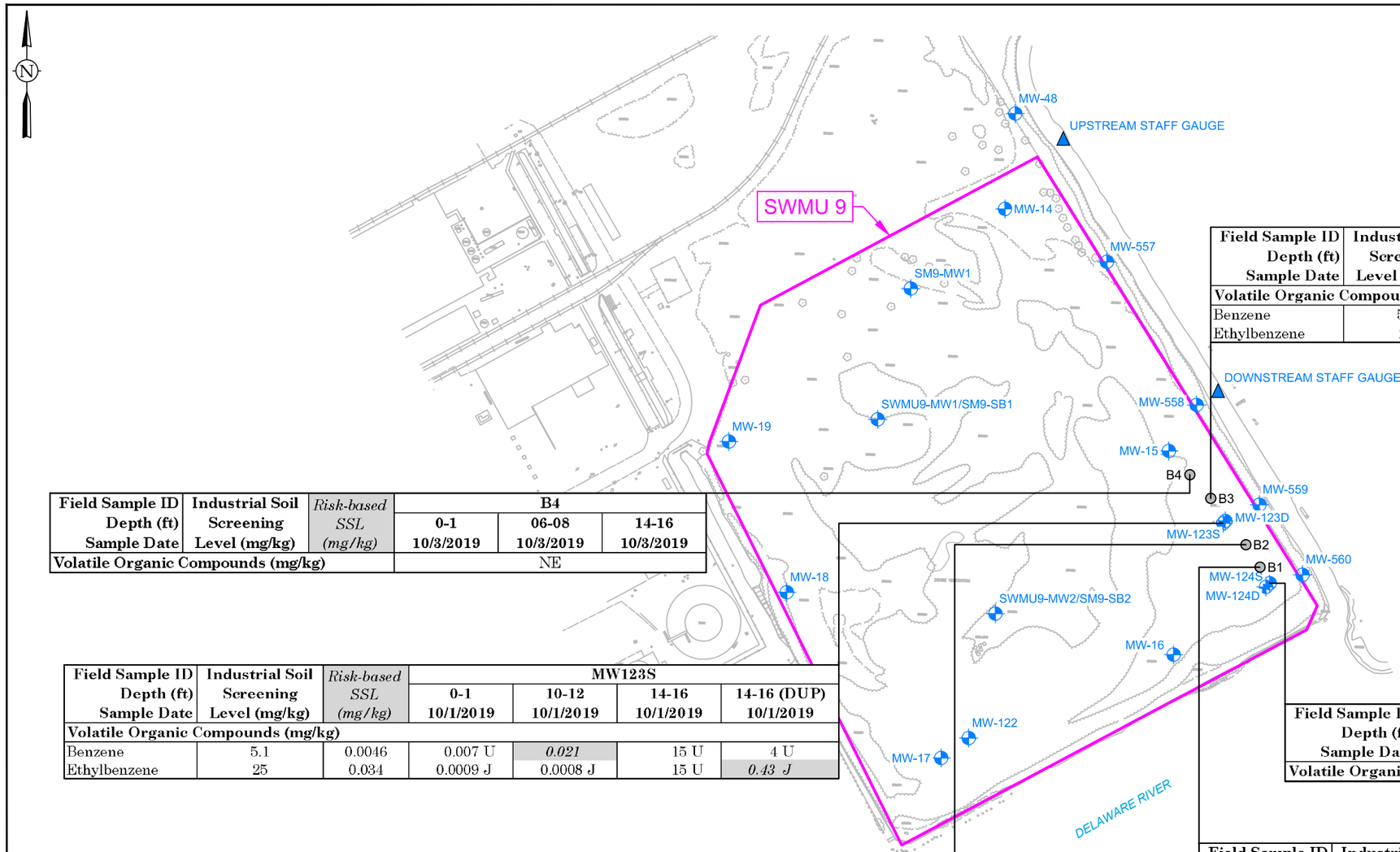
CLIENT: Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU 9 DATA SUMMARY REPORT

TITLE: SOIL ANALYTICAL RESULTS PESTICIDES 2010 AND 2019

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020
FIGURE NO.: 4

\\phi-fs1\projects\Honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 4 Soil Analytical Results-Pesticides_2010-2019.dwg Wed, 15 Apr 2020 - 11:57am philip.carney2 Layout: Fig 4 Soil Analytical Results-Pesticides_2010-2019



Field Sample ID Depth (ft) Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B3 0-1 10/3/2019	08-10 10/3/2019	14-16 10/3/2019	14-16 (DUP) 10/3/2019
Volatile Organic Compounds (mg/kg)						
Benzene	5.1	0.0046	0.0008 J	0.007 U	8.8 U	*0.015*
Ethylbenzene	25	0.034	0.005 U	0.007 U	8.8 U	*0.058*

Field Sample ID Depth (ft) Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B4 0-1 10/3/2019	06-08 10/3/2019	14-16 10/3/2019
Volatile Organic Compounds (mg/kg)			NE		

Field Sample ID Depth (ft) Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	MW123S 0-1 10/1/2019	10-12 10/1/2019	14-16 10/1/2019	14-16 (DUP) 10/1/2019
Volatile Organic Compounds (mg/kg)						
Benzene	5.1	0.0046	0.007 U	*0.021*	15 U	4 U
Ethylbenzene	25	0.034	0.0009 J	0.0008 J	15 U	*0.43 J*

Field Sample ID Depth (ft) Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	MW124S 0-1 9/30/2019	10-12 9/30/2019	14-16 9/30/2019
Volatile Organic Compounds (mg/kg)			NE		

Field Sample ID Depth (ft) Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B2 0-1 10/1/2019	08-10 10/1/2019	14-16 10/1/2019
Volatile Organic Compounds (mg/kg)			NE		

Field Sample ID Depth (ft) Sample Date	Industrial Soil Screening Level (mg/kg)	*Risk-based SSL (mg/kg)*	B1 0-1 10/1/2019	6-8 10/1/2019	14-16 10/1/2019
Volatile Organic Compounds (mg/kg)					
Chlorobenzene	1300	1.06	0.015	0.065	*1.7 J*
Chloroform	1.4	0.00122	*0.003 J*	0.0008 J	10 U
Trichloroethene	6	0.0036	0.003 J	*0.005*	10 U

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- EXISTING MONITORING WELL
- EXISTING SOIL BORING
- STAFF GAUGE

NOTES

1. U = THE ANALYTE WAS ANALYZED FOR, BUT NOT DETECTED.
2. J = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
3. **BOLD VALUES** INDICATE AN EXCEEDANCE OF THE INDUSTRIAL SOIL SCREENING LEVEL (SSL) (USEPA, NOVEMBER 2019).
4. *ITALICIZED AND SHADED VALUES* INDICATE AN EXCEEDANCE OF THE RISK-BASED SSL, ASSUMING A DILUTION ATTENUATION FACTOR (DAF) OF 20 (USEPA, NOVEMBER 2019).
5. mg/kg = MILLIGRAMS PER KILOGRAM.
6. NE = NO EXCEEDANCE.
7. ID = FIELD SAMPLE IDENTIFICATION.
8. DUP = DUPLICATE SAMPLE.
9. ft = FEET.

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PROJECTION / DATUM: DE83F
0 100' 200'
SCALE: 1" = 200'

PREPARED BY: PJC
CHECKED BY: MJC
REVIEWED BY: JPM

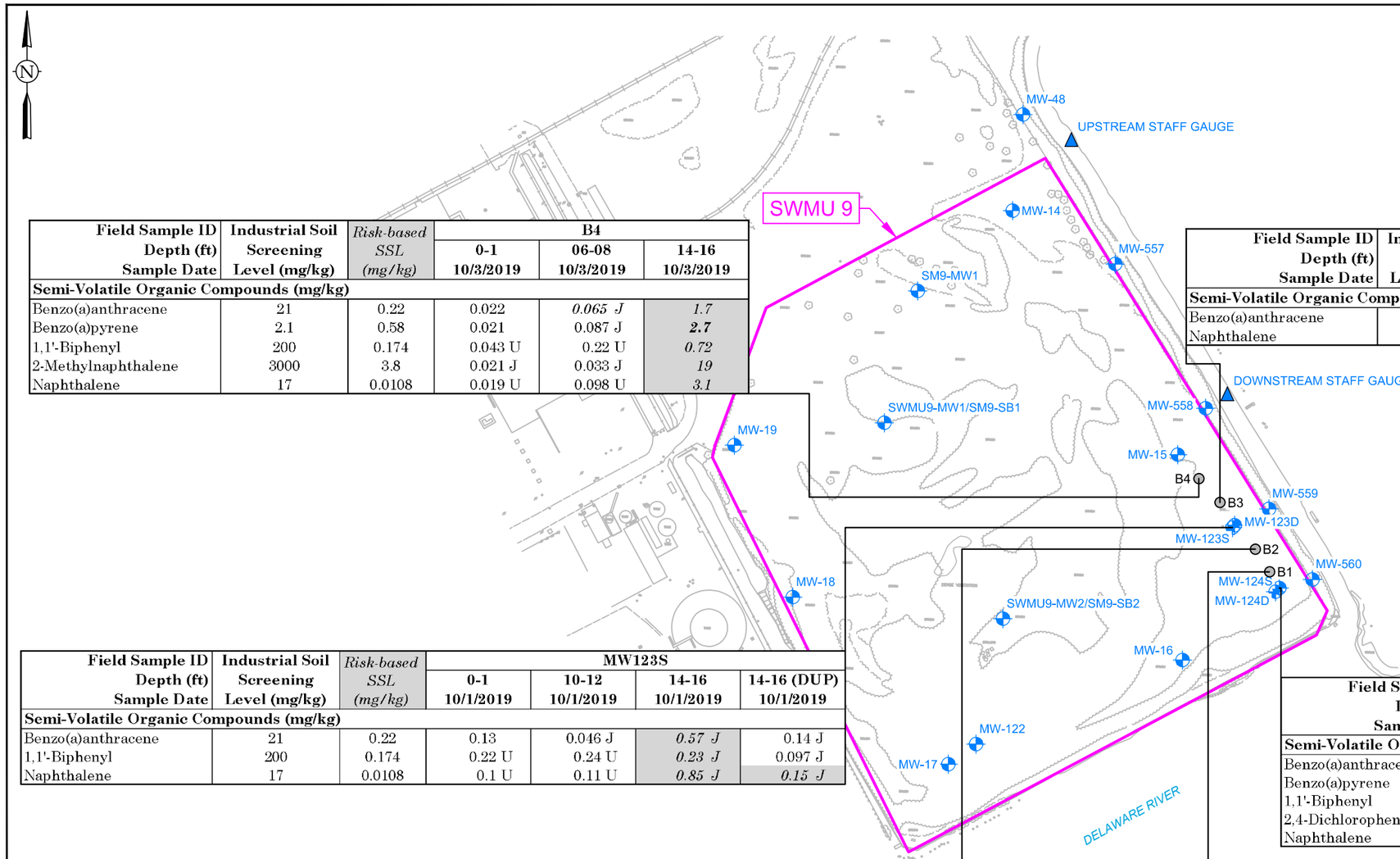
CLIENT
Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT
SWMU 9
DATA SUMMARY REPORT

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020

TITLE
SOIL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS (VOCs)
OCTOBER 2019

FIGURE NO.: 5



Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B4 0-1 10/3/2019	B4 06-08 10/3/2019	B4 14-16 10/3/2019
Semi-Volatile Organic Compounds (mg/kg)					
Benzo(a)anthracene	21	0.22	0.022	*0.065 J*	*1.7*
Benzo(a)pyrene	2.1	0.58	0.021	0.087 J	***2.7***
1,1'-Biphenyl	200	0.174	0.043 U	0.22 U	*0.72*
2-Methylnaphthalene	3000	3.8	0.021 J	0.033 J	*19*
Naphthalene	17	0.0108	0.019 U	0.098 U	*3.1*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B3 0-1 10/3/2019	B3 08-10 10/3/2019	B3 14-16 10/3/2019	B3 14-16 (DUP) 10/3/2019
Semi-Volatile Organic Compounds (mg/kg)						
Benzo(a)anthracene	21	0.22	0.092 U	0.011 J	*0.34*	0.21
Naphthalene	17	0.0108	0.092 U	0.021 U	*0.32*	*0.32*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	MW123S 0-1 10/1/2019	MW123S 10-12 10/1/2019	MW123S 14-16 10/1/2019	MW123S 14-16 (DUP) 10/1/2019
Semi-Volatile Organic Compounds (mg/kg)						
Benzo(a)anthracene	21	0.22	0.13	0.046 J	*0.57 J*	0.14 J
1,1'-Biphenyl	200	0.174	0.22 U	0.24 U	*0.23 J*	0.097 J
Naphthalene	17	0.0108	0.1 U	0.11 U	*0.85 J*	*0.15 J*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	MW124S 0-1 9/30/2019	MW124S 10-12 9/30/2019	MW124S 14-16 9/30/2019
Semi-Volatile Organic Compounds (mg/kg)					
Benzo(a)anthracene	21	0.22	*0.62*	0.023 U	*0.64*
Benzo(a)pyrene	2.1	0.58	*0.59*	0.023 U	0.57
1,1'-Biphenyl	200	0.174	0.21 U	0.05 U	*0.34*
2,4-Dichlorophenol	2500	0.46	0.25 U	0.059 U	*0.52*
Naphthalene	17	0.0108	0.095 U	0.023 U	*0.57 J*

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B2 0-1 10/1/2019	B2 08-10 10/1/2019	B2 14-16 10/1/2019
Semi-Volatile Organic Compounds (mg/kg)					
Benzo(a)anthracene	21	0.22	0.16	0.16	*1.5*
Benzo(a)pyrene	2.1	0.58	0.15	0.16	*2.1*
1,1'-Biphenyl	200	0.174	0.22 U	0.31 U	*1.1*
Naphthalene	17	0.0108	0.099 UJ	*0.096 J*	0.16 UJ

Field Sample ID / Depth (ft) / Sample Date	Industrial Soil Screening Level (mg/kg)	Risk-based SSL (mg/kg)	B1 0-1 10/1/2019	B1 6-8 10/1/2019	B1 14-16 10/1/2019
Semi-Volatile Organic Compounds (mg/kg)					
Benzo(a)anthracene	21	0.22	*0.93*	*1.2*	0.2
Benzo(a)pyrene	2.1	0.58	*0.82*	*0.97*	0.21
Benzo(b)fluoranthene	21	6	*1.3*	*1.5*	0.27
Naphthalene	17	0.0108	*0.099*	*0.068 J*	*0.15 J*
1,2,4,5-Tetrachlorobenzene	350	0.158	0.21 U	0.21 U	*0.53*

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- EXISTING MONITORING WELL
- EXISTING SOIL BORING
- STAFF GAUGE

NOTES

1. U = THE ANALYTE WAS ANALYZED FOR, BUT NOT DETECTED.
2. UJ = INDICATES THE ANALYTE WAS ANALYZED FOR BUT NOT DETECTED WITH AN ESTIMATED DETECTION LIMIT.
3. J = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
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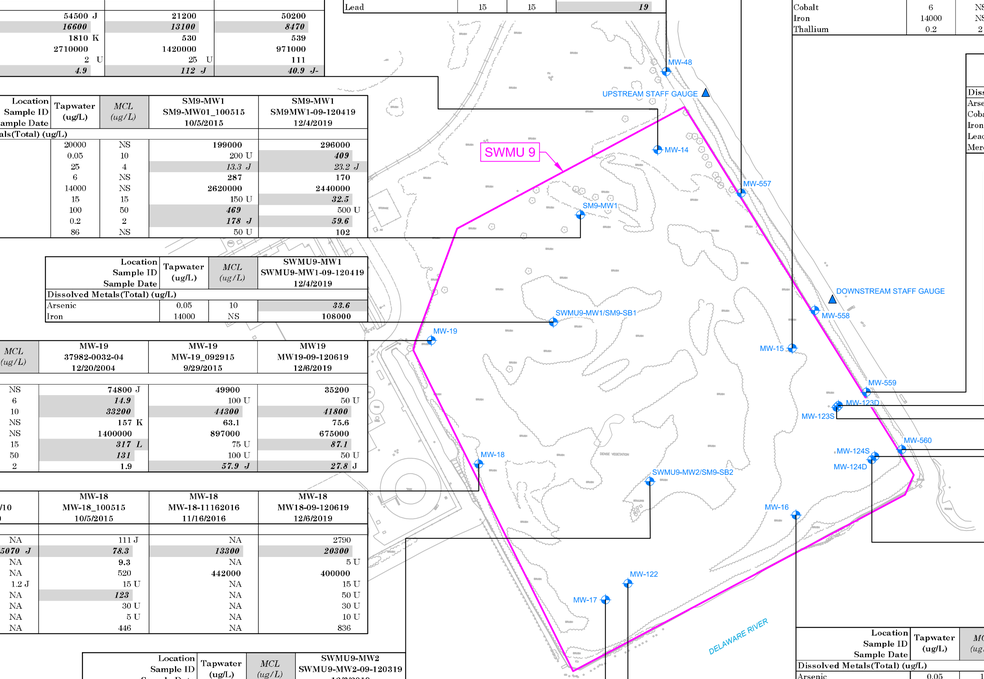
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU 9
DATA SUMMARY REPORT

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020

TITLE: SOIL ANALYTICAL RESULTS
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)
OCTOBER 2019

FIGURE NO.: 6



Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-557 MW557-SUN-120419 12/4/2019
Dissolved Metals(Total) (ug/L)			
Arsenic	0.05	10	***22000***
Cobalt	6	NS	**104**
Iron	14000	NS	**701000**
Thallium	0.2	2	***25.6 J***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-48 MW48-SUN-120319 12/3/2019
Dissolved Metals(Total) (ug/L)			
Cobalt	6	NS	**13.5**
Lead	15	15	***19***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-14 37982-0031-09 12/17/2004	MW-14 MW-14_092915 9/29/2015	MW-14 MW14-09-120519 12/5/2019
Dissolved Metals(Total) (ug/L)					
Aluminum	20000	NS	**54500 J**	**21200**	**50200**
Arsenic	0.05	10	***16600***	***13100***	***8470***
Cobalt	6	NS	**1810 K**	**530**	**539**
Iron	14000	NS	**2710000**	**1420000**	**971000**
Silver	94	NS	**2 U**	**25 U**	**111**
Thallium	0.2	2	***4.9***	***112 J***	***40.9 J-***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SM9-MW1 SM9-MW01_100515 10/5/2015	SM9-MW1 SM9MW1-09-120419 12/4/2019
Dissolved Metals(Total) (ug/L)				
Aluminum	20000	NS	**199000**	**296000**
Arsenic	0.05	10	**200 U**	***109***
Beryllium	25	4	*13.3 J*	*23.2 J*
Cobalt	6	NS	**287**	**170**
Iron	14000	NS	**2620000**	**2440000**
Lead	15	15	**150 U**	***32.3***
Selenium	100	50	***163***	**500 U**
Thallium	0.2	2	***178 J***	***59.6***
Vanadium	86	NS	**50 U**	**102**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SWMU9-MW1 SWMU9-MW1-09-120419 12/4/2019
Dissolved Metals(Total) (ug/L)			
Arsenic	0.05	10	***33.6***
Iron	14000	NS	**108000**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-19 37982-0032-04 12/20/2004	MW-19 MW-19_092915 9/29/2015	MW19 MW19-09-120619 12/6/2019
Dissolved Metals(Total) (ug/L)					
Aluminum	20000	NS	**74800 J**	**49900**	**35200**
Antimony	7.8	6	***14.9***	**100 U**	**50 U**
Arsenic	0.05	10	***33200***	***41300***	***41800***
Cobalt	6	NS	**157 K**	**63.1**	**75.6**
Iron	14000	NS	**1400000**	**897000**	**675000**
Lead	15	15	***317 L***	**75 U**	***87.1***
Selenium	100	50	***131***	**100 U**	**50 U**
Thallium	0.2	2	**1.9**	***57.9 J***	***27.8 J***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-18 37982-0033-04 12/20/2004	MW-18 MW-18 7/6/10 7/6/2010	MW-18 MW-18_100515 10/5/2015	MW-18 MW-18-11162016 11/16/2016	MW18 MW18-09-120619 12/6/2019
Dissolved Metals(Total) (ug/L)							
Aluminum	20000	NS	**32200**	**NA**	**111 J**	**NA**	**2790**
Arsenic	0.05	10	***65800***	***5070 J***	***78.3***	***13300***	***20300***
Cobalt	6	NS	**258**	**NA**	**9.3**	**NA**	**5 U**
Iron	14000	NS	**1450000**	**NA**	**520**	**442000**	**400000**
Lead	15	15	***292***	**1.2 J**	**15 U**	**NA**	**15 U**
Selenium	100	50	***216***	**NA**	***123***	**NA**	**50 U**
Thallium	0.2	2	***12.8***	**NA**	**30 U**	**NA**	**30 U**
Vanadium	86	NS	**285**	**NA**	**5 U**	**NA**	**10 U**
Zinc	6000	NS	**11500**	**NA**	**446**	**NA**	**836**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SWMU9-MW2 SWMU9-MW2-09-120319 12/3/2019
Dissolved Metals(Total) (ug/L)			
Aluminum	20000	NS	**62000**
Arsenic	0.05	10	***71.8***
Beryllium	25	4	*14.6*
Cobalt	6	NS	**207**
Iron	14000	NS	**372000**
Lead	15	15	***110***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-17 37982-0033-02 12/20/2004	MW-17 MW-17 7/6/10 7/6/2010	MW-17 MW-17_100515 10/5/2015	MW-17 (DUP) DUP18_100515 10/5/2015	MW-17 MW-17-11162016 11/16/2016	MW-17 MW17-09-120619 12/6/2019
Dissolved Metals(Total) (ug/L)								
Antimony	7.8	6	**3.8**	**NA**	***8.6 J***	***12.4 J***	**NA**	**50 U**
Arsenic	0.05	10	**6.8**	**5 U**	**20 U**	**20 U**	**1.15**	**30 U**
Cobalt	6	NS	**2 U**	**NA**	**16.3**	**19.1**	**NA**	**2.8 J**
Iron	14000	NS	**11400**	**NA**	**78100**	**89100**	**74900**	**9860**
Selenium	100	50	*69.6*	**NA**	**21.1**	**26.7**	**NA**	**28.5 J**
Thallium	0.2	2	**0.48 J**	**NA**	**30 U**	**30 U**	**NA**	**30 U**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-15 37982-0030-10 12/11/2004	MW-15 MW-15_092915 9/29/2015	MW-15 MW15-09-120619 12/6/2019
Dissolved Metals(Total) (ug/L)					
Antimony	7.8	6	**5.2**	***54.6***	**50 U**
Arsenic	0.05	10	***293***	***251***	***314***
Cobalt	6	NS	**90.4**	**20.7**	**13.6**
Iron	14000	NS	**617**	**329000**	**374000**
Thallium	0.2	2	**0.12 U**	***13.3 J***	***9.3 J***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-559 MW559-SUN-120419 12/4/2019
Dissolved Metals(Total) (ug/L)			
Arsenic	0.05	10	***167***
Cobalt	6	NS	**10.9**
Iron	14000	NS	**101000**
Lead	15	15	***248***
Mercury	0.63	2	***2.2***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-123D MW123D-09-120519 12/5/2019
Dissolved Metals(Total) (ug/L)			
Arsenic	0.05	10	***27.4 J***
Iron	14000	NS	**108000**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-123S MW123S-09-120619 12/6/2019
Dissolved Metals(Total) (ug/L)			
Arsenic	0.05	10	***109***
Iron	14000	NS	**267000**
Lead	15	15	***21.9***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-560 MW560-SUN-120319 12/3/2019
Dissolved Metals(Total) (ug/L)			
Arsenic	0.05	10	***985***
Cobalt	6	NS	**63.6**
Copper	800	1300	***3240***
Iron	14000	NS	**17000**
Lead	15	15	***26.5***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-124S MW124S-09-120419 12/4/2019	MW-124S (DUP) DUP01-09-120419 12/4/2019
Dissolved Metals(Total) (ug/L)				
Arsenic	0.05	10	***309***	***369***
Selenium	100	50	*72.9*	***107***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-124D MW124D-09-120519 12/5/2019
Dissolved Metals(Total) (ug/L)			
Arsenic	0.05	10	***435***
Iron	14000	NS	**31600**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-16 37982-0032-02 12/20/2004	MW-16 MW-16 7/6/10 7/6/2010	MW-16 MW-16_092915 9/29/2015	MW-16 MW-16-11162016 11/16/2016	MW-16 MW16-09-120519 12/5/2019
Dissolved Metals(Total) (ug/L)							
Arsenic	0.05	10	***264***	***63.2 J***	**20 U**	***27***	***85.6***
Cobalt	6	NS	**6.5 K**	**NA**	**5 U**	**NA**	**5 U**
Iron	14000	NS	**32000**	**NA**	**228 U**	**3040**	**12900**
Thallium	0.2	2	**0.74**	**NA**	**30 U**	**NA**	**30 U**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-122 MW-122-11162016 11/16/2016	MW122 MW122-09-120519 12/5/2019	MW122 (DUP) DUP02-09-120519 12/5/2019
Dissolved Metals(Total) (ug/L)					
Arsenic	0.05	10	***12.2***	**30 U**	**30 U**
Cobalt	6	NS	**NA**	**31.1**	**32.9**
Iron	14000	NS	**186000**	**93800**	**94700**

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- EXISTING MONITORING WELL
- STAFF GAUGE

NOTES

1. ACTUAL LABORATORY DATA PACKAGES NOT AVAILABLE FOR DATA PRIOR TO 2010; DATA QUALIFIER DEFINITIONS ARE ASSUMED BASED ON CURRENT DATA QUALIFIER TERMINOLOGY.
2. J = RESULT IS LESS THAN THE REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
3. J- = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LEVEL (MDL) OR DETECTION LEVEL (DL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE WITH A LOW BIAS.
4. **BOLD VALUES** INDICATE AN EXCEEDANCE OF TAPWATER SCREENING LEVELS.
5. *ITALICIZED AND SHADED VALUES* INDICATE AN EXCEEDANCE OF THE MAXIMUM CONTAMINANT LEVEL (MCL).
6. ug/L = MICROGRAMS PER LITER
7. TAPWATER AND MAXIMUM CONTAMINANT LEVELS (MCLs) FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA) 2019 REGIONAL SCREENING LEVELS (RSLs).
8. NA = NOT ANALYZED.
9. NS = NO STANDARD.
10. MW-558: LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) OBSERVED IN WELL; NO SAMPLE COLLECTED IN 2019.
11. ID = FIELD SAMPLE IDENTIFICATION.
12. DUP = DUPLICATE SAMPLE.
13. K = IDENTIFICATION CRITERIA NOT MET.
14. L = RESULT IS BIASED LOW.
15. U = NOT DETECTED AT THE DETECTION LEVEL SHOWN.

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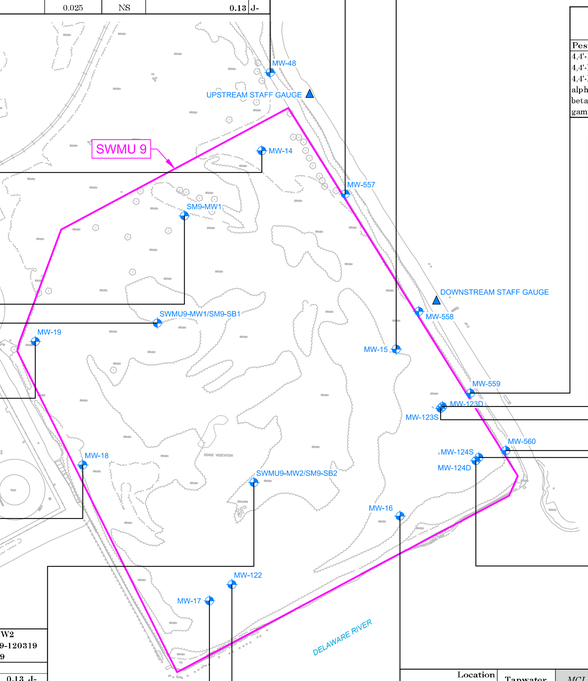
CLIENT: Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU DATA SUMMARY REPORT

TITLE: GROUNDWATER ANALYTICAL RESULTS METALS 2004, 2010, 2015, 2016 AND 2019

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020
FIGURE NO.: 7

\\ph-fs1\projects\honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4. Reports\FIGURES\2020 Data Summary Report\Fig 7 GW Analytical Results-Metals_2004-2010-2015-2016-2019.dwg Wed, 15 Apr 2020 - 12:00pm philip.carney2, Layout: Fig 7 GW Analytical Results-Metals_2004-2010-2015-2016-2019



Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW557 MW557-SUN-120419 12/4/2019
Pesticides			
4,4'-DDD	0.032	NS	5.1 J-
4,4'-DDE	0.046	NS	1.1 J-
4,4'-DDT	0.23	NS	2.7 J-
beta-BHC	0.025	NS	14 J-
gamma-BHC (Lindane)	0.042	0.20	*5.8 J-*

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW48 MW48-SUN-120319 12/3/2019
Pesticides			
4,4'-DDD	0.032	NS	0.044 J-
alpha-BHC	0.0072	NS	0.22 J-
beta-BHC	0.025	NS	0.13 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-15 37982-0030-09 12/11/2004	MW-15 MW-15_092915 9/29/2015	MW15 MW15-09-120619 12/6/2019
Pesticides					
4,4'-DDD	0.032	NS	2.3	1.3	2 J-
4,4'-DDE	0.046	NS	3.6	0.26 J	0.26 J-
alpha-BHC	0.0072	NS	5.1	5.5	4.1 J-
beta-BHC	0.025	NS	4.2 J	2.6	1 J-
gamma-BHC (Lindane)	0.042	0.2	0.038 U	0.096 J	0.011 UJ

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW559 MW559-SUN-120419 12/4/2019
Pesticides			
4,4'-DDD	0.032	NS	22 J-
4,4'-DDE	0.046	NS	5.4 J-
4,4'-DDT	0.23	NS	15 J-
alpha-BHC	0.0072	NS	440 J-
beta-BHC	0.025	NS	45 J-
gamma-BHC (Lindane)	0.042	0.2	*2.1 J-*

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW123D MW123D-09-120519 12/5/2019
Pesticides			
4,4'-DDD	0.032	NS	0.048 J
alpha-BHC	0.0072	NS	0.045 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW123S MW123S-09-120619 12/6/2019
Pesticides			
4,4'-DDD	0.032	NS	1.3 J-
4,4'-DDE	0.046	NS	0.18 J-
4,4'-DDT	0.23	NS	0.26 J-
alpha-BHC	0.0072	NS	0.2 J-
beta-BHC	0.025	NS	0.21 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW560 MW560-SUN-120319 12/3/2019
Pesticides			
4,4'-DDD	0.032	NS	0.88
4,4'-DDE	0.046	NS	0.064
4,4'-DDT	0.23	NS	0.31
alpha-BHC	0.0072	NS	5.7 J
beta-BHC	0.025	NS	2.1 J
gamma-BHC (Lindane)	0.042	0.20	0.18

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW124S MW124S-09-120419 12/4/2019	MW124S (DUP) DUP01-09-120419 12/4/2019
Pesticides				
4,4'-DDD	0.032	NS	0.55 J-	1.6 J-
4,4'-DDT	0.23	NS	0.029 J-	0.011 J-
alpha-BHC	0.0072	NS	0.14 J-	0.1 J-
beta-BHC	0.025	NS	0.14 J-	0.14 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW124D MW124D-09-120519 12/5/2019
Pesticides			
4,4'-DDD	0.032	NS	0.13 J-
alpha-BHC	0.0072	NS	0.059 J-
beta-BHC	0.025	NS	0.07 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-14 37982-0031-08 12/17/2004	MW-14 MW-14_092915 9/29/2015	MW14 MW14-09-120519 12/5/2019
Pesticides					
alpha-BHC	0.0072	NS	12 J	61.0	16 J-
beta-BHC	0.025	NS	1.2	6.8	0.81 J-
gamma-BHC (Lindane)	0.042	0.2	*2.2 J*	*11.0*	*2.8 J-*

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SM9-MW1 SM9-MW01_100515 10/5/2015	SM9-MW1 SM9MW1-09-120419 12/4/2019
Pesticides				
4,4'-DDD	0.032	NS	0.071 UJ	3.2 J-
4,4'-DDE	0.046	NS	0.011 UJ	0.072 J-
4,4'-DDT	0.23	NS	0.16 UJ	0.5 J-
alpha-BHC	0.0072	NS	0.38 J	0.22 J-
beta-BHC	0.025	NS	0.16 J	0.07 J-
gamma-BHC (Lindane)	0.042	0.20	0.069 J	0.026 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SWMU9-MW1 SWMU9-MW1-09-120419 12/4/2019
Pesticides			
alpha-BHC	0.0072	NS	0.24 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-19 37982-0032-03 12/20/2004	MW-19 MW-19_092915 9/29/2015	MW19 MW19-09-120619 12/6/2019
Pesticides					
4,4'-DDD	0.032	NS	0.081 J	0.4 J	0.46 J-
4,4'-DDE	0.046	NS	0.056 J	0.06 J	0.01 UJ
alpha-BHC	0.0072	NS	25.0	22.0	22.0 J-
beta-BHC	0.025	NS	1.8	1.7	1.4 J-
gamma-BHC (Lindane)	0.042	0.2	*2.4*	*2.6*	*2.3 J-*

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-18 37982-0033-03 12/20/2004	MW-18 MW-18 7/6/10 7/6/2010	MW-18 MW-18_100515 10/5/2015	MW18 MW18-09-120619 12/6/2019
Pesticides						
4,4'-DDD	0.032	NS	0.14 J	2.5 U	0.012 U	0.011 UJ
alpha-BHC	0.0072	NS	87	52.00	0.69	75 J-
beta-BHC	0.025	NS	13	5.5	0.49	10 J-
gamma-BHC (Lindane)	0.042	0.2	*5.2*	2.5 U	0.029	0.011 UJ

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SWMU9-MW2 SWMU9-MW2-09-120319 12/3/2019
Pesticides			
alpha-BHC	0.0072	NS	0.13 J-
beta-BHC	0.025	NS	0.029 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-17 37982-0033-01 12/20/2004	MW-17 MW-17 7/6/10 7/6/2010	MW-17 MW-17_100515 10/5/2015	MW-17 (DUP) DUP18_100515 10/5/2015	MW17 MW17-09-120619 12/6/2019
Pesticides							
4,4'-DDD	0.032	NS	5.7 J	0.1 L	0.3	0.32 J	0.36 J-
4,4'-DDE	0.046	NS	0.67 J	0.03 L	0.03 U	0.037 UJ	0.011 UJ
4,4'-DDT	0.23	NS	1.5	0.0066 UL	0.31 J	0.28 J	0.011 UJ
alpha-BHC	0.0072	NS	0.75	0.1 JL	0.46	0.39 J	0.22 J-
beta-BHC	0.025	NS	3.4	0.3 L	0.64	0.56 J	0.8 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-16 37982-0032-01 12/20/2004	MW-16 MW-16 7/6/10 7/6/2010	MW-16 MW-16_092915 9/29/2015	MW16 MW16-09-120519 12/5/2019
Pesticides						
4,4'-DDD	0.032	NS	0.67	0.1 U	0.011 U	0.62 J-
4,4'-DDE	0.046	NS	0.057 J	0.13 U	0.011 U	0.055 UJ
alpha-BHC	0.0072	NS	3.4 J	0.4	0.069 U	0.2 J-
beta-BHC	0.025	NS	0.92	0.1 U	0.023 U	0.091 J-

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW122 MW122-09-120519 12/5/2019	MW122 (DUP) DUP02-09-120519 12/5/2019
Pesticides				
4,4'-DDD	0.032	NS	0.056 J-	0.1 J-
alpha-BHC	0.0072	NS	0.55 J-	0.6 J-
beta-BHC	0.025	NS	0.1 J-	0.1 J-

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- EXISTING MONITORING WELL
- STAFF GAUGE

NOTES

1. ACTUAL LABORATORY DATA PACKAGES NOT AVAILABLE FOR DATA PRIOR TO 2010; DATA QUALIFIER DEFINITIONS ARE ASSUMED BASED ON CURRENT DATA QUALIFIER TERMINOLOGY.
2. U = THE ANALYTE WAS ANALYZED FOR, BUT NOT DETECTED.
3. J = RESULT IS LESS THAN THE REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
4. J- = RESULT IS LESS THAN THE LIMIT OF QUANTITATION (LOQ) OR REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LEVEL (MDL) OR DETECTION LEVEL (DL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE WITH A LOW BIAS.
5. **BOLD VALUES** INDICATE AN EXCEEDANCE OF TAPWATER SCREENING LEVELS.
6. *ITALICIZED AND SHADED VALUES* INDICATE AN EXCEEDANCE OF THE MAXIMUM CONTAMINANT LEVEL (MCL).
7. ug/L = MICROGRAMS PER LITER.
8. TAPWATER AND MAXIMUM CONTAMINANT LEVELS (MCLs) FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA) 2019 REGIONAL SCREENING LEVELS (RSLs).
9. NS = NO STANDARD.
10. MW-558: LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) OBSERVED IN WELL; NO SAMPLE COLLECTED IN 2019.
11. ID = FIELD SAMPLE IDENTIFICATION.
12. DUP = DUPLICATE SAMPLE
13. UJ = DETECTION LIMIT IS ESTIMATED AND BIASED LOW.

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PROJECTION / DATUM: DE83F
0 75' 150'
SCALE: 1" = 150'
PREPARED BY: PJC
CHECKED BY: MJC
REVIEWED BY: JPM

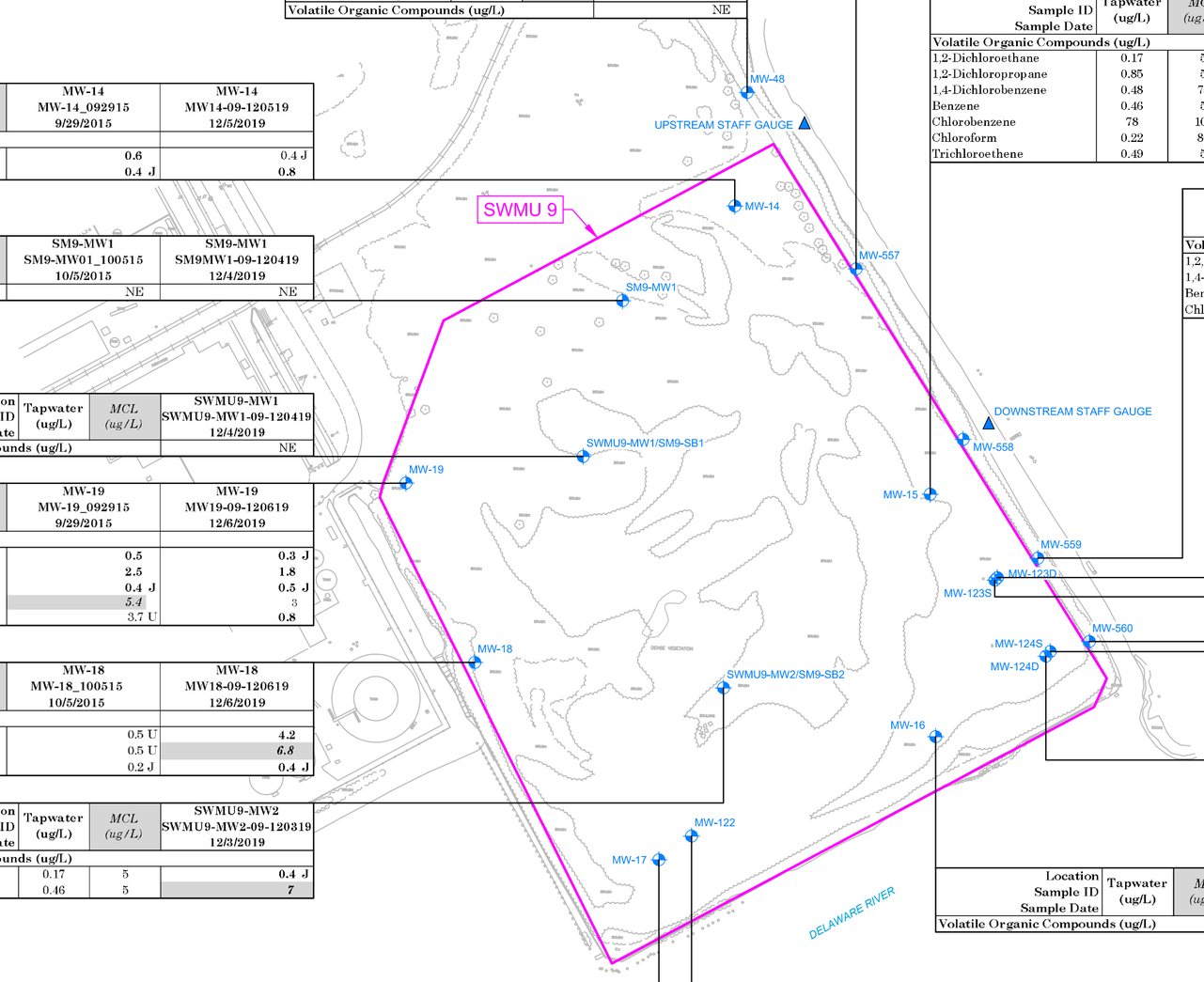
CLIENT: Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU 9
DATA SUMMARY REPORT

TITLE: GROUNDWATER ANALYTICAL RESULTS
PESTICIDES
2004, 2010, 2015 AND 2019

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020
FIGURE NO.: 8

tph-f4 (projects\honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 8 GW Analytical Results-Pesticides_2004-2010-2015-2019.dwg Wed, 15 Apr 2020 - 12:07pm philip.carney2, Layout: Fig 8 GW Analytical Results-Pesticides_2004-2010-2015-2019



Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-557 MW557-SUN-120419 12/4/2019
Volatile Organic Compounds (ug/L)			
1,4-Dichlorobenzene	0.48	75	**1.8**
Benzene	0.46	5	**1.3**
Chloroform	0.22	80	**0.4 J**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-48 MW48-SUN-120319 12/3/2019
Volatile Organic Compounds (ug/L)			NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-15 MW-15_092915 9/29/2015	MW-15 MW15-09-120619 12/6/2019
Volatile Organic Compounds (ug/L)				
1,2-Dichloroethane	0.17	5	0.5 U	**0.5 J**
1,2-Dichloropropane	0.85	5	**3.2**	**4.4 J**
1,4-Dichlorobenzene	0.48	75	**4.3**	**5.8**
Benzene	0.46	5	***5.9***	***5.4***
Chlorobenzene	78	100	**82**	***160***
Chloroform	0.22	80	**0.7**	5 U
Trichloroethene	0.49	5	***16***	***14***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-14 MW-14_092915 9/29/2015	MW-14 MW14-09-120519 12/5/2019
Volatile Organic Compounds (ug/L)				
Benzene	0.46	5	**0.6**	0.4 J
Chloroform	0.22	80	**0.4 J**	**0.8**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SM9-MW1 SM9-MW01_100515 10/5/2015	SM9-MW1 SM9MW1-09-120419 12/4/2019
Volatile Organic Compounds (ug/L)			NE	NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SWMU9-MW1 SWMU9-MW1-09-120419 12/4/2019
Volatile Organic Compounds (ug/L)			NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-19 MW-19_092915 9/29/2015	MW-19 MW19-09-120619 12/6/2019
Volatile Organic Compounds (ug/L)				
1,2-Dichloroethane	0.17	5	**0.5**	**0.3 J**
Benzene	0.46	5	**2.5**	**1.8**
Chloroform	0.22	80	**0.4 J**	**0.5 J**
Tetrachloroethene	11	5	*5.4*	3
Trichloroethene	0.49	5	3.7 U	**0.8**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-18 MW-18_100515 10/5/2015	MW-18 MW18-09-120619 12/6/2019
Volatile Organic Compounds (ug/L)				
1,4-Dichlorobenzene	0.48	75	0.5 U	**4.2**
Benzene	0.46	5	0.5 U	***6.8***
Chloroform	0.22	80	0.2 J	**0.4 J**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SWMU9-MW2 SWMU9-MW2-09-120319 12/3/2019
Volatile Organic Compounds (ug/L)			
1,2-Dichloroethane	0.17	5	**0.4 J**
Benzene	0.46	5	**7**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-559 MW559-SUN-120419 12/4/2019
Volatile Organic Compounds (ug/L)			
1,2,4-Trichlorobenzene	1.2	70	**4.2**
1,4-Dichlorobenzene	0.48	75	**21**
Benzene	0.46	5	***30***
Chlorobenzene	78	100	***650***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-123D MW123D-09-120519 12/5/2019
Volatile Organic Compounds (ug/L)			NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-123S MW123S-09-120619 12/6/2019
Volatile Organic Compounds (ug/L)			
1,4-Dichlorobenzene	0.48	75	**5.1**
Benzene	0.46	5	***19***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-560 MW560-SUN-120319 12/3/2019
Volatile Organic Compounds (ug/L)			
Chloroform	0.22	80	**0.9**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-124S MW124S-09-120419 12/4/2019	MW-124S (DUP) DUP01-09-120419 12/4/2019
Volatile Organic Compounds (ug/L)				
Trichloroethene	0.49	5	**0.6**	**0.8**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-124D MW124D-09-120519 12/5/2019
Volatile Organic Compounds (ug/L)			
Chloroform	0.22	80	**1.7**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-16 MW-16_092915 9/29/2015	MW-16 MW16-09-120519 12/5/2019
Volatile Organic Compounds (ug/L)			NE	NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-17 MW-17_100515 10/5/2015	MW-17 (DUP) DUP18_100515 10/5/2015	MW-17 MW17-09-120619 12/6/2019
Volatile Organic Compounds (ug/L)					
1,2-Dichloroethane	0.17	5	0.1 J	**0.2 J**	0.07 J
Chloroform	0.22	80	0.5 U	0.1 J	**0.6**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-122 MW122-09-120519 12/5/2019	MW-123 (DUP) DUP02-09-120519 12/5/2019
Volatile Organic Compounds (ug/L)				
1,2-Dichloroethane	0.17	5	**0.4 J**	**0.4 J**

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- EXISTING MONITORING WELL
- STAFF GAUGE

NOTES

1. J = RESULT IS LESS THAN THE REPORTING LIMIT (RL), BUT GREATER THAN OR EQUAL TO THE METHOD DETECTION LIMIT (MDL), AND THE CONCENTRATION IS AN APPROXIMATE VALUE.
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PROJECTION / DATUM: DE83F
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REVIEWED BY: JPM

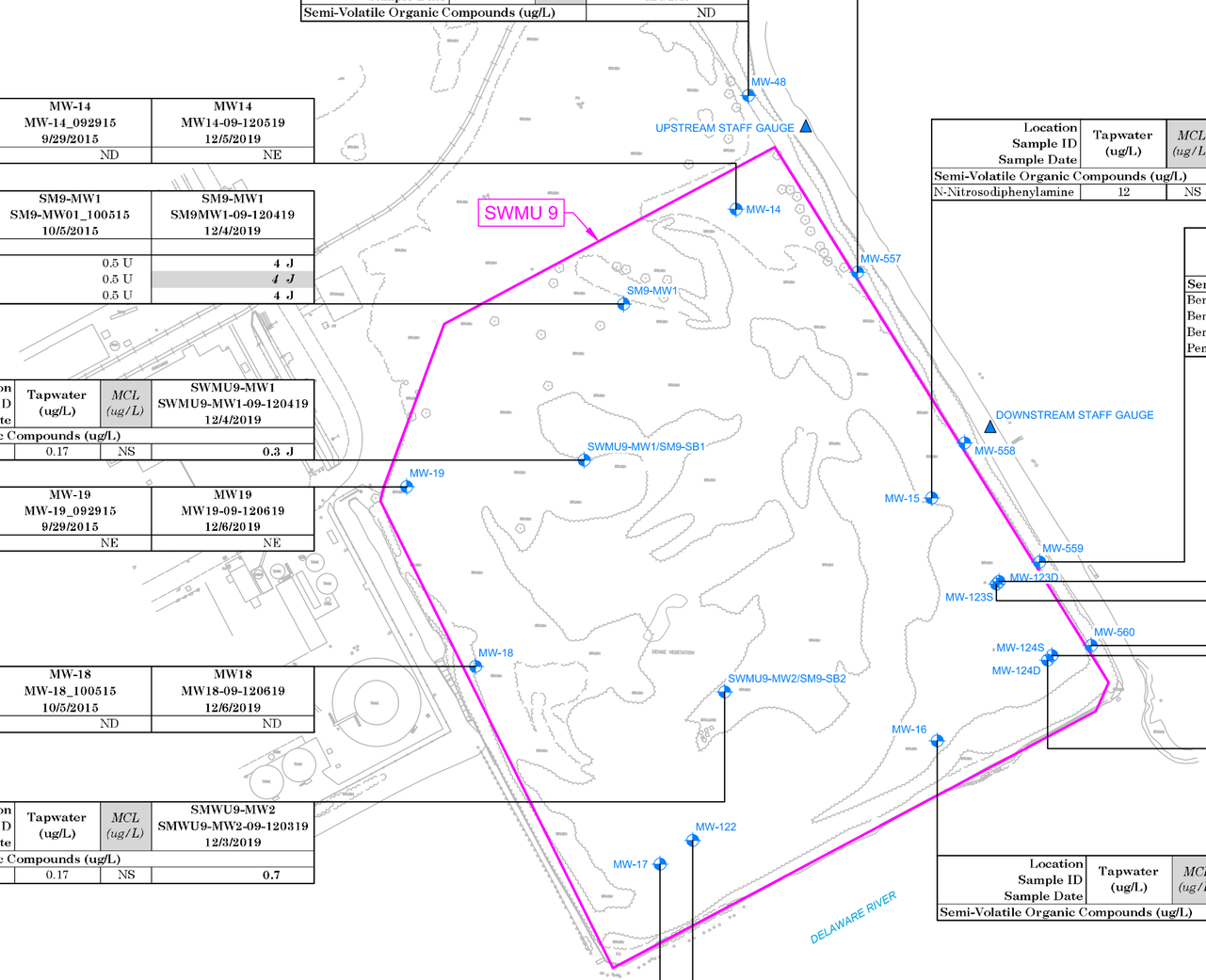
CLIENT: Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU 9
DATA SUMMARY REPORT

TITLE: GROUNDWATER ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS (VOCs)
2015 AND 2019

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020
FIGURE NO.: 9

\\phi-fs1\projects\Honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental \7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 9 GW Analytical Results-VOCs_2015-2019.dwg Wed, 15 Apr 2020 - 12:10pm philip.carney2 Layout: Fig 9 GW Analytical Results-VOCs_2015-2019



Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW557 MW557-SUN-120419 12/4/2019
Semi-Volatile Organic Compounds (ug/L)			
Pentachlorophenol	0.04	1	***2 J***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW48 MW48-SUN-120319 12/3/2019
Semi-Volatile Organic Compounds (ug/L)			ND

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-14 MW-14_092915 9/29/2015	MW14 MW14-09-120519 12/5/2019
Semi-Volatile Organic Compounds (ug/L)			ND	NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SM9-MW1 SM9-MW01_100515 10/5/2015	SM9-MW1 SM9MW1-09-120419 12/4/2019
Semi-Volatile Organic Compounds (ug/L)				
Benzo(a)anthracene	0.03	NS	0.5 U	**4 J**
Benzo(a)pyrene	0.025	0.2	0.5 U	***4 J***
Benzo(b)fluoranthene	0.25	NS	0.5 U	**4 J**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SWMU9-MW1 SWMU9-MW1-09-120419 12/4/2019
Semi-Volatile Organic Compounds (ug/L)			
Naphthalene	0.17	NS	**0.3 J**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-19 MW-19_092915 9/29/2015	MW19 MW19-09-120619 12/6/2019
Semi-Volatile Organic Compounds (ug/L)			NE	NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-18 MW-18_100515 10/5/2015	MW18 MW18-09-120619 12/6/2019
Semi-Volatile Organic Compounds (ug/L)			ND	ND

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	SMWU9-MW2 SMWU9-MW2-09-120319 12/3/2019
Semi-Volatile Organic Compounds (ug/L)			
Naphthalene	0.17	NS	**0.7**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-17 (DUP) DUP18_100515 10/5/2015	MW-17 MW-17_100515 10/5/2015	MW17 MW17-09-120619 12/6/2019
Semi-Volatile Organic Compounds (ug/L)			ND	ND	NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-15 MW-15_092915 9/29/2015	MW15 MW15-09-120619 12/6/2019
Semi-Volatile Organic Compounds (ug/L)				
N-Nitrosodiphenylamine	12	NS	**59**	**54**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW559 MW559-SUN-120419 12/4/2019
Semi-Volatile Organic Compounds (ug/L)			
Benzo(a)anthracene	0.03	NS	**0.3 J**
Benzo(a)pyrene	0.025	0.2	***0.2 J***
Benzo(b)fluoranthene	0.25	NS	**0.3 J**
Pentachlorophenol	0.04	1	***1 J***

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW123D MW123D-09-120519 12/5/2019
Semi-Volatile Organic Compounds (ug/L)			ND

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW123S MW123S-09-120619 12/6/2019
Semi-Volatile Organic Compounds (ug/L)			
Naphthalene	0.17	NS	**0.8**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW560 MW560-SUN-120319 12/3/2019
Semi-Volatile Organic Compounds (ug/L)			NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW124S MW124S-09-120419 12/4/2019	MW124S (DUP) DUP01-09-120419 12/4/2019
Semi-Volatile Organic Compounds (ug/L)			NE	NE

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW124D MW124D-09-120519 12/5/2019
Semi-Volatile Organic Compounds (ug/L)			
Naphthalene	0.17	NS	**0.2 J**

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW-16 MW-16_092915 9/29/2015	MW16 MW16-09-120519 12/5/2019
Semi-Volatile Organic Compounds (ug/L)			ND	ND

Location Sample ID Sample Date	Tapwater (ug/L)	MCL (ug/L)	MW122 MW122-09-120519 12/5/2019	MW122 (DUP) DUP02-09-120519 12/5/2019
Semi-Volatile Organic Compounds (ug/L)			NE	NE

LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- EXISTING MONITORING WELL
- STAFF GAUGE

NOTES

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2. U = THE ANALYTE WAS ANALYZED FOR BUT NOT DETECTED.
3. **BOLD VALUES** INDICATE AN EXCEEDANCE OF TAPWATER SCREENING LEVELS.
4. *ITALICIZED AND SHADED VALUES* INDICATE AN EXCEEDANCE OF THE MAXIMUM CONTAMINANT LEVEL (MCL).
5. ug/L = MICROGRAMS PER LITER.
6. TAPWATER AND MAXIMUM CONTAMINANT LEVELS (MCLs) FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA) 2019 REGIONAL SCREENING LEVELS (RSLs).
7. ND = NO DETECTION.
8. NE = NO EXCEEDANCE.
9. NS = NO STANDARD.
10. MW-558: LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL) OBSERVED IN WELL; NO SAMPLE COLLECTED IN 2019.
11. ID = FIELD SAMPLE IDENTIFICATION.
12. DUP = DUPLICATE SAMPLE.

wood.
751 Arbor Way, Suite 180
Blue Bell, PA 19422
Tel. 610-828-8100
www.woodplc.com

PROJECTION / DATUM: DE83F
0 75' 150'
SCALE: 1" = 150'

PREPARED BY: PJC
CHECKED BY: MJC
REVIEWED BY: JPM

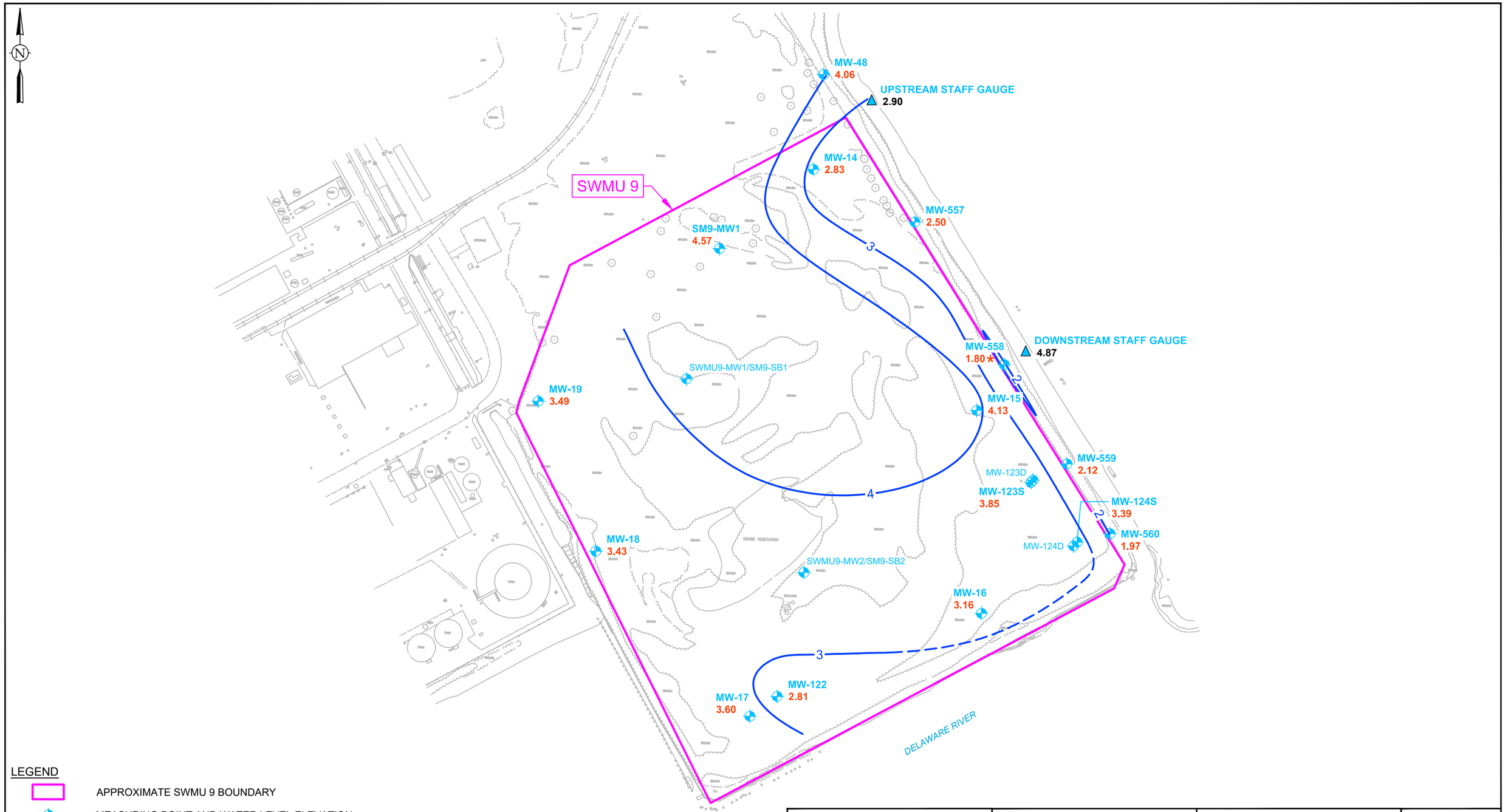
CLIENT: Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU 9
DATA SUMMARY REPORT

TITLE: GROUNDWATER ANALYTICAL RESULTS
SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs)
2015 AND 2019

PROJECT NO.: 7772190022
REVISION NO.: 0
DATE: APRIL 2020
FIGURE NO.: 10

\\phl-fs1\projects\Honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 10 GW Analytical Results-SVOCs_2015-2019.dwg Wed, 15 Apr 2020 - 12:12pm philip.carney2 Layout: Fig 10 GW Analytical Results-SVOCs_2015-2019



LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- MEASURING POINT AND WATER LEVEL ELEVATION
- STAFF GAUGE
- 2 — LINE OF EQUAL ELEVATION (DASHED WHERE INFERRED)
- 2.81 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- 4.87 — STAFF GAUGE MEASUREMENT NOT INCLUDED IN CONTOURS
- * — CORRECTED WATER ELEVATION; WELL CONTAINS LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL)

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PROJECTION / DATUM: DE83F

0 75' 150'

SCALE: 1" = 150'

PREPARED BY: PJC

CHECKED BY: JPM

REVIEWED BY: JPM

CLIENT: Honeywell
DELAWARE VALLEY WORKS
CLAYMONT, DELAWARE

PROJECT: SWMU 9
DATA SUMMARY REPORT

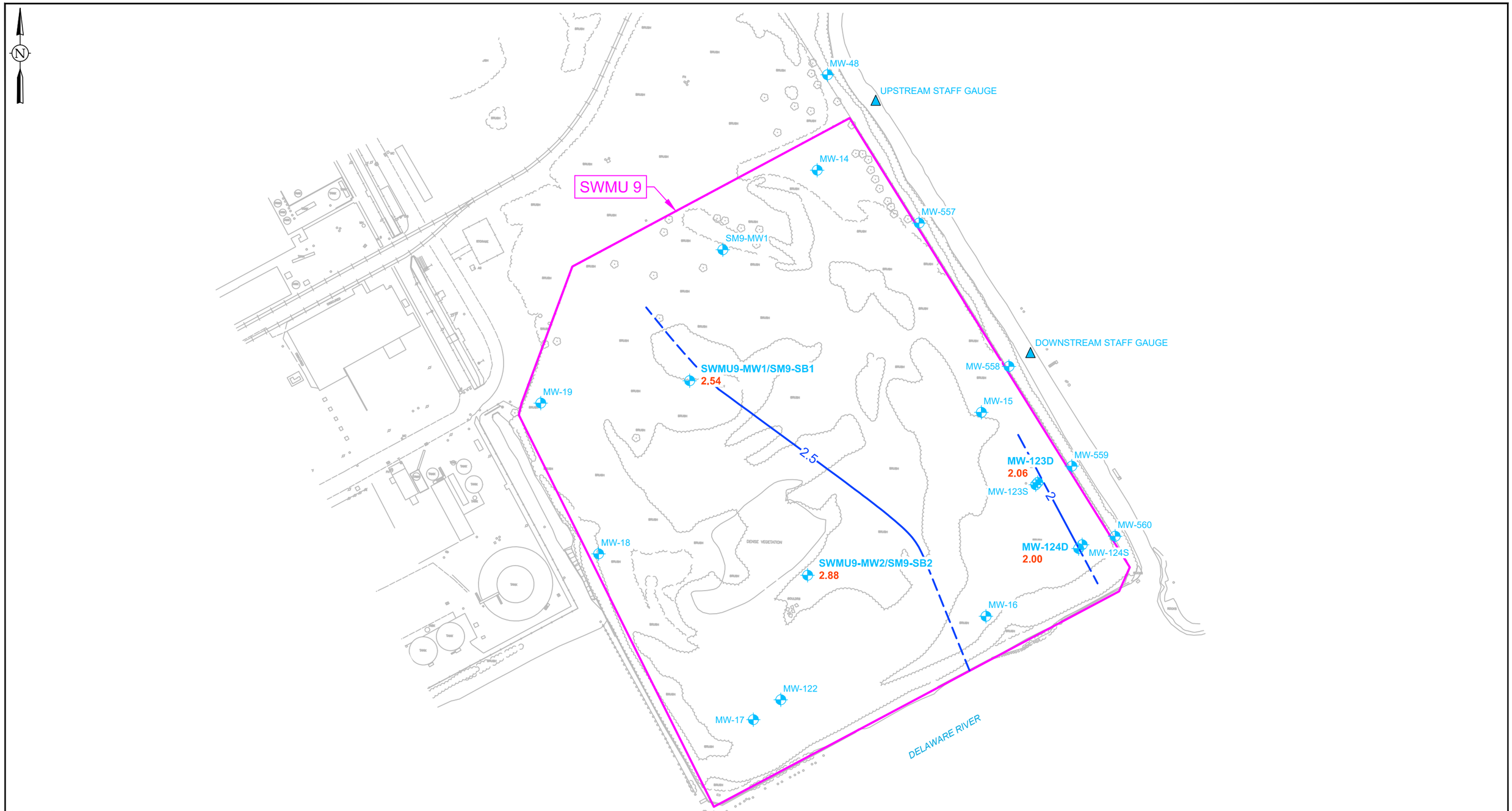
PROJECT NO.: 7772190022

REVISION NO.: 0

DATE: APRIL 2020

TITLE: WATER LEVEL ELEVATIONS - SHALLOW WELLS
DECEMBER 06, 2019

FIGURE NO.: 11



LEGEND

- APPROXIMATE SWMU 9 BOUNDARY
- MEASURING POINT AND WATER LEVEL ELEVATION
- STAFF GAUGE
- 2.5 — LINE OF EQUAL ELEVATION (DASHED WHERE INFERRED)
- 2.88 — GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)

wood. 751 Arbor Way, Suite 180 Blue Bell, PA 19422 Tel. 610-828-8100 www.woodplc.com	CLIENT: Honeywell, DELAWARE VALLEY WORKS, CLAYMONT, DELAWARE	PROJECT: SWMU 9 DATA SUMMARY REPORT	PROJECT NO.: 7772190022
			REVISION NO.: 0
			DATE: APRIL 2020
PROJECTION / DATUM: DE83F	PREPARED BY: PJC	TITLE: WATER LEVEL ELEVATIONS - DEEP WELLS DECEMBER 06, 2019	FIGURE NO.: 12
0 75' 150' SCALE: 1" = 150'	CHECKED BY: JPM		
	REVIEWED BY: JPM		

\\phl-fs1\projects\Honeywell - Claymont, DE\North Plant\2019 SWMU 9 Supplemental 7772190022\DELIVERABLES\4.1 Reports\FIGURES\2020 Data Summary Report\Fig 12 Water Level Elevations-Deep_2019-12-06.dwg Wed, 15 Apr 2020 - 12:16pm philip.carney2 Layout: Fig 12 Water Level Elevations-Deep Wells_2019-12-06

APPENDIX A

SOIL BORING LOGS

BORING NUMBER MW-14

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 11/30/04 **COMPLETED** 11/30/04
GROUND ELEVATION 13.86 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		POORLY GRADED SAND WITH SILT, (SP-SM) brown, moist, firm, some fine to coarse gravel, little coarse sand	SS	46	10-8-5-5 (13)							
			SS	63	8-10-25-40 (35)							
5		Light gray to very light whiteish tan, firm, gypsum-like sludge, trace brick 4 to 6 ft bgs some fine to coarse subrounded to subangular gravel, very firm, moist	SS	63	10-17-15-15 (32)							
			SS	54	15-10-10-30 (20)							
		POORLY GRADED SAND, (SP) orangeish brown, medium grained, moist, firm, some fine to coarse sand, trace mica										
10		WELL GRADED SAND, (SW) black, medium grained, wet, loose, some brick	SS	33	15-50							
		Saturated, loose, fine to coarse angular glass shards	SS	25	5-5-4-2 (9)							
		No recovery	SS		3-3-4-6 (7)							
15		SILT, (ML) brown, moist, firm, trace clay	SS	50	7-5-4-4 (9)							
		LEAN CLAY, (CL) brown, moist, soft, little silt										

Bottom of borehole at 16.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER MW-15

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 11/30/04 **COMPLETED** 11/30/04
GROUND ELEVATION 11.13 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING 9.36 ft / Elev 1.77 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		WELL GRADED SAND WITH SILT AND GRAVEL, (SW-SM) brown, fine to medium grained, moist, dense	SS 01	38	12-50							
		Light gray to pale whiteish brown, dry, dense, gypsum-like sludge, trace brick										
		Red to purple, wet, gypsum-like sludge	SS 02	25	15-50							
5			SS 03	25	25-50							
		Saturated, loose, fine to coarse angular glass shards	SS 04	13	6-5-3-3 (8)							
10		POORLY GRADED SAND WITH GRAVEL, (SP) dark gray, medium to coarse grained, saturated, loose	SS 05	25	5-7-2-1 (9)							
		No recovery, wood fragment in shoe	SS 06	13	2-2-1-50 (3)							
		SILT, (ML) brown, moist, firm, trace clay	SS 07									

Bottom of borehole at 14.0 feet.

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BORING NUMBER MW-16

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 12/1/04 **COMPLETED** 12/1/04
GROUND ELEVATION 10.76 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILTY SAND, (SM) brown, fine to medium grained, moist, fine to coarse gravel, bricks, wood, trace gypsum-like sludge, very compact										
		Light gray to pale brown, gypsum-like sludge										
5		SILT, (ML) brown, some fine to coarse sand, some fine to coarse gravel, trace clay										
		Light gray to pale brown, saturated, very soft, gypsum-like sludge										
10		POORLY GRADED SAND WITH SILT, (SP-SM) black, wet, loose, little fine to medium gravel										
		SILT, (CL-ML) black, wet, very soft, odor										

Bottom of borehole at 13.0 feet.

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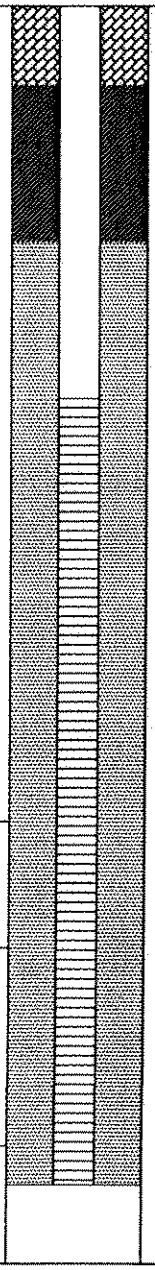
MWH	MWH Americas, Inc. 335 Phoenixville Pike Malvern, Pennsylvania 19355	**Boring ID: MW-17** Page 1 of 1

Project Name:	Honeywell - Claymont Phase II RFI Well Installation	**Boring Location:**	SWMU 9 - SW Corner
Location:	Claymont, Delaware	**Drilling Company:**	Talon Drilling Company (Michael Logan)
Project Number:	2110953	**Ground Elevation (ft/msl):**	10.9
Date Started:	12/1/2004	**Total Depth (ft):**	16.0 '
Date Finished:	12/2/2004	**Boring Diameter (in):**	6.25"
Drilling Method:	Hollow Stem Auger	**Water Level During Drilling (ft/bgs):**	5.0'
Sampling Method:	Split Spoon	**Weather Conditions:**	Cloudy, 50 deg. F.
State Permit Number:	NA	**Logged By:**	S. Bouclier

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
0	1			SLUDGE	0' - 10.4' Light gray to cream colored gypsum SLUDGE, soft, moist to wet at 4.0'.	Stick-up Outer Casing with Concrete Well Pad.
1	1	4	0.0			Grout from 0.0' to 1.0' bgs.
	1					
	1					
2	1		0.0			Bentonite Chips from 1.0' to 3.0' bgs.
3	1	16	0.0			
	1					
	5		0.0			4" Diameter Schedule 40 PVC riser from 0.0' to 5.0' bgs.
4	2		0.0			
5	5	16	0.0		4.5' Color change to deep red to purple. 5' Saturated layer.	
	50/3"		0.0		5.5' Color change to light gray to cream, very compact.	#1 Filter Sandpack from 3.0' to 15.0' bgs.
6	40					
7	50/1"	6	0.0			
8	10					
9	10	4	0.0			4" Diameter Schedule 40 PVC 0.010" slotted screen from 5.0' to 15.0' bgs.
	8					
	5					
10	4					
11	5	5	0.0	SAND	10.4' - 12' Dark brown fine to medium-grained SAND, some silt, trace coarse-grained sand, very soft, saturated.	
	10					
	10					
12	6		0.0	SILT and CLAY	12' - 14.5' Light gray to cream colored gypsum SLUDGE, some fine-grained sand, soft, wet to saturated.	
13	6	19	0.0			
	6					
	10		0.0			
14	27		0.1			
15	12	15		SLUDGE	14.5' - 16' Deep red to purple gypsum SLUDGE, very soft with layers of very compact sludge, saturated.	Total Depth 15.0' bgs.
	7		0.3			
16	15					

Well Diagram



BORING NUMBER MW-18

wood.

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 12/2/04 **COMPLETED** 12/2/04
GROUND ELEVATION 15.05 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING 15.50 ft / Elev -0.45 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Red to purple, moist, medium dense, little fine to coarse gravel, trace organics, gypsum-like sludge, trace yellow sludge material At 1.9 ft bgs very compact layer of white consolidated sludge At 4 ft bgs color changed to pale brown to yellow, moist, soft At 6 ft bgs color changed to dark purple to black, dry	SS 01	58	3-5-6-50 (11)							
			SS 02									
5			SS 03	29	3-5-5-8 (10)							
			SS 04	92	15-15-10-10 (25)							
10		POORLY GRADED GRAVEL WITH SAND, (GP) dark gray to black, fine to coarse grained, wet, soft to loose, some fine to coarse sand, trace brick, lenses of clay At 10.5 ft bgs saturated	SS 05	50	10-12-18-20 (30)							
			SS 06	25	7-7-3-3 (10)							
		POORLY GRADED SAND WITH GRAVEL, (SP) black with red, fine grained, saturated, loose, little silt, trace medium to coarse sand	SS 07	67	3-5-5-25 (10)							
15		SILT, (ML) light gray to white, moist, firm, trace clay, At 15.5 ft bgs saturated	SS 08	83	18-25-30-12 (55)							
			SS 09	63	4-5-6-7 (11)							
		POORLY GRADED SAND WITH SILT, (SP) dark brown, fine to medium grained, moist, some, little fine to medium gravel, very compact	SS 10	88	3-3-3-2 (6)							
20		SILT, (ML) dark brown with light gray, moist, soft, some clay										
		LEAN CLAY, (CL) greenish brown, moist, soft, some, little silt, trace mica, some organic material From 23.5 to 24 ft bgs wood fragments At 24 ft bgs fine to medium sand lense From 24.2 to 26 ft bgs little organic matter, moist	SS 11	83	1-2-2-2 (4)							
			SS 12	75	1-2-5-7 (7)							
25			SS 13	92	1-1-2-4 (3)							
			SS 14	92	7-7-7-7 (14)							
30			SS 15	92	6-4-4-4 (8)							

Bottom of borehole at 30.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER MW-19

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 12/2/04 **COMPLETED** 12/2/18
GROUND ELEVATION 13.5 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Red to purple, moist, gypsum-like sludge, very compact layers	SS 01	33	5-25-50 (75)							
		POORLY GRADED SAND, (SP) orangeish brown, dry, loose, trace silt	SS 02	63	50-10-25-20 (35)							
5		Dark red to purple, moist, firm, gypsum-like sludge At 4.5 ft bgs saturated	SS 03	67	7-5-35-23 (40)							
		Pale brown to light yellow, gypsum-like sludge	SS 04	75	8-30-25-18 (55)							
		Light gray, moist, soft, gypsum-like sludge, lenses of consolidation										
		Dark red to purple, saturated, gypsum-like sludge	SS 05	25	5-2-2-5 (4)							
10		Large piece of wood stuck in shoe	SS 06	25	7-3-3-5 (6)							
		POORLY GRADED SAND WITH GRAVEL, (SP) dark reddish purple to brown, saturated, loose, wood, sheen on spoon	SS 07	50	27-15-16-15 (31)							

Bottom of borehole at 14.0 feet.

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BORING NUMBER MW-122

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 10/26/16 **COMPLETED** 10/26/16
GROUND ELEVATION 10 ft **HOLE SIZE** 2
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jennifer Poole **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from Amec Foster Wheeler
AFTER DRILLING 13.57 ft / Elev -3.57 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILTY CLAY, tan, dry, very soft to soft, fill, with wood fragments	SS	25	0							
			SS	3	1-1							
5		SILTY CLAY, tan purpleish gray, moist, very soft to soft, fill, with wood fragments and gravel	SS	100	2-2-2-2 (4)							
			SS	55	2-8-12-50 (20)							
10			SS	100	22-25-32-31 (57)							
			SS	55	6-5-8-13 (13)							
		SILTY CLAY, tan purpleish gray, saturated, very soft to soft, fill, with wood fragments and gravel	SS	28	24-50							
15			SS	53	5-4-2-2 (6)							
		WELL GRADED SAND WITH SILT, (SW-SM) tan to light tan, coarse grained, wet, very loose	SS	100	1-4-2-3 (6)							
		LEAN CLAY, SILTY, (CL) blueish gray, wet, soft										
20		POORLY GRADED SAND WITH SILT, (SP-SM) black with blackish purple, fine grained, wet, medium dense to dense, lensed	SS	50	7-7-9-6 (16)							
			SS	78	3-6-12-18 (18)							
		LEAN CLAY, SILTY, (CL) dark red, wet, hard	SS	100	20-39-36-47 (75)							

Bottom of borehole at 24.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER MW-558

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 1/6/16 **COMPLETED** 1/6/16
GROUND ELEVATION 12.52 ft **HOLE SIZE**
DRILLING CONTRACTOR Parratt-Wolff
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY A. Weigley, M. Marcus **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from GHD, July 1, 2015
AFTER DRILLING 10.45 ft / Elev 2.07 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILTY SAND, (ML) brown, moist, firm, with gravel										
		SILTY SAND WITH GRAVEL, (SP) light brown, fine grained, moist										
		SILTY SAND WITH GRAVEL, (SP) light brown, fine grained, moist, from 4.67 to 4.8 ft bgs light brown rock fragments										
5		SAND, (SP) black, fine grained, wet, odor										
		NO RECOVERY										
		SAND, (SP) odor, slight sheen										
10												
		SAND, (SP) odor, slight sheen										
		SAND, (SP) light gray, fine grained, wet, odor										
15		LEAN CLAY, SILTY, (CL) dark gray and light gray, moist, firm, stratified, odor										

Bottom of borehole at 16.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER MW-559

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 1/6/16 **COMPLETED** 1/6/16
GROUND ELEVATION 12.08 ft **HOLE SIZE**
DRILLING CONTRACTOR Parratt-Wolff
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY A. Weigley, M. Marcus **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from GHD, July 1, 2015
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0												
5												
10												
15												

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER MW-560

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 1/5/16 **COMPLETED** 1/5/16
GROUND ELEVATION 8.80 ft **HOLE SIZE**
DRILLING CONTRACTOR Parratt-Wolff
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
AT TIME OF DRILLING ---
LOGGED BY A. Weigley, M. Marcus **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from GHD, July 1, 2015
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILTY SAND, (SP) gray, fine grained, moist, firm, trace organics										
		SILT, (ML) dark brown, moist, firm, with fine sand, with gravel, glass, white rocks from 17 to 19 inches bgs , mottled organics from 24 to 28 inches bgs, gravelly from 19 to 24 inches bgs At 4.1 ft bgs rock										
5		SILTY SAND WITH GRAVEL, (SP) dark brown, moist, loose, wet at 16 inches bgs										
		SILT, (ML) dark brown, with fine sand, with gravel Wet										
10												
15												

Bottom of borehole at 16.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM09-GW03

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 6/4/03 **COMPLETED** 6/4/03
GROUND ELEVATION 16.06 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) dark brown, dry, little fine to medium sand, trace fine to medium gravel, some roots										
5		SILT, (ML) light gray, dry, firm, organics, large pieces of wood present	SS 1	25	15-38-10-4 (48)							
10		POORLY GRADED SAND WITH GRAVEL, (SP) light gray, wet, fine to medium sand, some gravel, trace silt, looks like concrete	SS 2	33	5-7-7-8 (14)							
		POORLY GRADED SAND WITH SILT, (SP) light gray, wet, fine to medium sand, little silt										
		Yellow, wet, brick										
15		POORLY GRADED SAND WITH GRAVEL, (SP) brown yellowish black, saturated, medium sand, gravel, some silt, sheen present										
		POORLY GRADED GRAVEL, (GP) dark red, saturated	SS 3	75	5-2-4-7 (6)							

Bottom of borehole at 17.0 feet.

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BORING NUMBER SM09-MW1

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 8/25/15 **COMPLETED** 8/25/15
GROUND ELEVATION 20.91 ft **HOLE SIZE** 2
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jennifer Poole **CHECKED BY** John Mihalich
AT END OF DRILLING ---
NOTES data retrieved from Amec Foster Wheeler
AFTER DRILLING 21.60 ft / Elev -0.69 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		CLAYEY SAND, red, dry, medium dense, fill	SS 1	100	6-9-20-15 (29)							
		SILT, CLAYEY, red, moist, stiff, fill	SS 2	50	17-15-12-12 (27)							
5		SILT, CLAYEY, red, moist, stiff, fill	SS 3	33	7-7-7-7 (14)							
		SILT, black with white, moist, stiff, fill	SS 4	25	18-20-18-16 (38)							
10		No recovery	SS 5	3	12-18-8-6 (26)							
		SILT, tan and reddish black, dry, stiff, fill	SS 6	17	2-2-5-6 (7)							
15		SILTY SAND, black, dry, medium dense, fill	SS 7	9	2-10-5-8 (15)							
		Black, dry, medium dense, topsoil										
20			SS 8	1	6-12-6-1 (18)							
		ELASTIC SILT, CLAYEY, (MH) tan, dry, stiff										
25			SS 9	1	5-3-2-3 (5)							
		ELASTIC SILT, CLAYEY, (MH) tan, moist, stiff, with medium sand										
		LEAN CLAY, (CL-ML) black, moist, stiff										
30			SS 10	0	3-3-3-3 (6)							
35												

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BORING NUMBER SM09-MW1

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SILT WITH SAND, (ML) tan, coarse grained, saturated, medium dense	SS 11	0	5-5-4-4 (9)							
		LEAN CLAY, SILTY, (CL-ML) black, wet, stiff										
		LEAN CLAY, SILTY, (CL-ML) black, wet, dense										
40			SS 12	0	5-4-5-6 (9)							

Bottom of borehole at 42.0 feet.

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BORING NUMBER SM09-SB01-01

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/22/03 **COMPLETED** 5/22/03
GROUND ELEVATION 44.6 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light brown, moist, soft, trace clay, trace fine sand, trace gravel, trace rootlets	SS 1	67	15							
		Gray, dry, very hard, some fine gravel, consolidated sludge										
		POORLY GRADED SAND, (SP) dark light brown, medium grained, moist, some silt, little fine gravel, looks like fine concrete										
5			SS 2	50	3-6-6-6 (12)							
10												
		Gray, dry, very hard, some fine gravel, sludge At 14 ft bgs saturated	SS 3	50	13-30-50 (80)							
15												
		Gray, very hard, some fine gravel, consolidated sludge, saturated lenses, lenses of sandy silt and trace clay	SS 4	4	50							
20												
		Gray, very hard, some fine gravel, consolidated sludge, saturated lenses	SS 5	17	50							
25												
			SS 6	8	50							
30												
			SS 7	13	50							
35												

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BORING NUMBER SM09-SB01-01

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		POORLY GRADED SAND WITH GRAVEL, (SP) light brown, well graded, moist, soft, interbedded with lenses of light gray silt and fine sand, little clay	SS 8	67	10-4-6-6 (10)							
40		SILT, (ML) light brown, moist, soft, trace clay, trace sand, trace gravel	SS 9	17	50							
45		POORLY GRADED SAND, (SP) dark red to black, medium to coarse grained, wet, some fine gravel, little silt	SS 10	29	12-9-15-9 (24)							
50		SILT, CLAYEY, (CL-ML) light tan, moist, soft, trace fine sand	SS 11	67	3-7-10-10 (17)							

Bottom of borehole at 52.0 feet.

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BORING NUMBER SM09-SB01-02

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/22/03 **COMPLETED** 5/22/03
GROUND ELEVATION 44.7 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light tan, moist, firm, trace clay, trace roots	SS 1	63	1-1-1-1 (2)							
5		POORLY GRADED SAND WITH GRAVEL, (SP) light gray, moist, hard, fine to medium sand, fine gravel, some lenses of consolidated sludge	SS 2	67	8-8-8-20 (16)							
10		POORLY GRADED SAND, (SP) dark gray, fine to medium grained, dry, hard, little silt, trace consolidated sludge lenses	SS 3	13	50							
15			SS 4	29	10-50-50 (100)							
20			SS 5	25	2-50							
25			SS 6	6	50							
30			SS 7	8	50							
35												

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BORING NUMBER SM09-SB01-02

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35												
		POORLY GRADED SAND, (SP) dark gray, fine to medium grained, dry, hard, little silt, trace consolidated sludge lenses *(continued)*	SS 8	4	50							
40												
		SILT, (ML) light gray, moist, soft, little clay, trace fine sand, At 40.5 ft bgs, mediuim gray silt. At 41.0 ft bgs lenses of medium to coarse sand. At 45 ft bgs firm.	SS 9	100	1-7-6-7 (13)							
45												
			SS 10	8	50							
50												
			SS 11	13	25							
55												
		SILT, (ML) dark gray, moist, soft, some clay, trace organics	SS 12	100	7-7-7-7 (14)							

Bottom of borehole at 57.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM09-SB01-03

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/23/03 **COMPLETED** 5/23/03
GROUND ELEVATION 45.7 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING 50.00 ft / Elev -4.30 ft
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) very light brown, moist, soft, some clay, trace fine sand	SS 1	79	3-2-1-1 (3)							
5		Gray, dry, hard, trace fine to medium sand, consolidated sludge	SS 2	4	50							
10			SS 3	13	50							
15		POORLY GRADED SAND, (SP) gray, fine to medium grained, dry, hard, little silt, lenses of consolidated sludge	SS 4	25	25-50							
20			SS 5	8	50							
25			SS 6	8	50							
30			SS 7	13	50							
35												

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BORING NUMBER SM09-SB01-03

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SILT, (ML) light gray, moist, trace clay, trace fine sand, lenses of medium to coarse sand and fine gravel	SS 8	50	15-5-3-3 (8)							
40		Gray, dry, hard, trace fine to medium sand, consolidated sludge	SS 9	21	50							
45		POORLY GRADED SAND WITH GRAVEL, (SP) dark brown, medium to coarse grained, odor, iron oxide staining, little to some glass, saturated at 50 ft bgs, product present, sheen present	SS 10	67	2-15-25-25 (40)							
50			SS 11	75	2-6-6-5 (12)							

Bottom of borehole at 52.0 feet.

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BORING NUMBER SM09-SB02-02

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/27/03 **COMPLETED** 5/28/03
GROUND ELEVATION 45.6 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT WITH SAND, (ML) gray, fine grained, dry, hard, little gravel, and little consolidated sludge	SS 1	67	12-8-6-12 (14)							
5			SS 2	46	15-50							
10		SILT WITH SAND, (ML) gray, dry, hard, little gravel, and some consolidated sludge	SS 3	13	50							
15		Dark red, moist, very hard, consolidated sludge	SS 4	8	50							
20		SILT WITH SAND, (ML) gray, moist to wet, hard, little gravel, little consolidated sludge	SS 5	13	50							
25			SS 6	8	50							
30		Gray, saturated, hard, consolidated sludge	SS 7	13	50							
35												

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BORING NUMBER SM09-SB02-02

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		Gray, saturated, hard, consolidated sludge *(continued)*	SS 8	8	50							
40		POORLY GRADED SAND, (SP) brown, medium to coarse grained, dry, mottled, some gravel	SS 9	63	20-20-37-38 (57)							
		POORLY GRADED SAND WITH GRAVEL, (SP) light yellow and white, dry, mottled, coarse sand, fine gravel, looks like degraded brick										
		SILT, (ML) dark red, moist, firm, some fine sand, trace fine grave										

Bottom of borehole at 42.0 feet.

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BORING NUMBER SM09-SB02-03

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/28/03 **COMPLETED** 5/28/03
GROUND ELEVATION 40.3 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		WELL GRADED SAND WITH SILT, (SW-SM) light grayish brown dry, trace medium sand, trace fine gravel	SS 1	25	25-25-30 (55)							
		SILTY SAND, (SM) light gray, dry, trace lenses of consolidated sludge										
5		SILTY SAND, (SM) dark gray, dry, very hard, interbeded layers of consolidated sludge at 10.0 ft bgs moist at 15.0 ft bgs wet	SS 2	6	50							
10			SS 3	25	30-50							
15			SS 4	8	50							
20			SS 5	13	50							
25		SANDY SILT, (ML) gray, moist, trace lenses of consolidated sludge	SS 6	38	50-50							
30			SS 7	8	50							
35												

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BORING NUMBER SM09-SB02-03

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SANDY SILT, (ML) gray, moist, trace lenses of consolidated sludge *(continued)*	SS 8	8	50							
40		POORLY GRADED SAND WITH GRAVEL, (SP) dark red to brown, wet, firm, trace silt, trace fine sand	SS 9	50	25-25-15-15 (40)							
		POORLY GRADED SAND WITH GRAVEL, (SP) yellowish tan, wet, firm, little medium sand, looks like degraded brick										

Bottom of borehole at 42.0 feet.

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BORING NUMBER SM09-SB03-01

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/15/03 **COMPLETED** 5/15/03
GROUND ELEVATION 29.9 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light brown to tan, dry, some fine to medium sand, little gravel, At 5 ft bgs moist	SS 1	4	2-1-2-3 (3)							
5		Light gray, dry, very hard, consolidated sludge	SS 2	25	1-1-1-50 (2)							
10			SS 3	10	50							
15		SILT, (ML) gray, saturated, some fine sand	SS 4	67	26-7-2-47 (9)							
20		Light gray, moist, very hard, consolidated sludge, interbedded layers of sandy silt	SS 5	8	50							
25			SS 6	13	50							
30			SS 7	17	50							
35												

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BORING NUMBER SM09-SB03-01

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SILT, (ML) dark grayish brown with tannish gray, moist, soft, mottled, low plasticity, little clay, trace fine sand, trace organics	SS 8	50	5-3-2-2 (5)							

Bottom of borehole at 37.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM09-SB03-02

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/19/03 **COMPLETED** 5/19/03
GROUND ELEVATION 26.6 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILTY SAND, (SM) brown, fine grained, moist, abundant rootlets										
		SILT, (ML) light brown, moist, firm, trace roots	SS	58	25-25-30 (55)							
		SILT, (ML) light brown with orange, moist, soft, mottled, trace mica										
5			SS	58	50							
		Gray, dry, some mica, consolidated sludge, lenses of silt and fine sand, wet from 10 to 10.5 ft bgs										
10			SS	33	30-50							
15												
		SILTY SAND, (SM) gray, coarse grained, moist, firm	SS	54	50							
20												
		Brown, Wood, slight odor of decaying organics	SS	33	50							
		POORLY GRADED SAND WITH GRAVEL, (SP) greenish brown with dark brown, medium to coarse grained, wet, mottled, trace silt, abundant wood and reeds										
25			SS	33	50-50							
30												
		LEAN CLAY, SILTY, (CL-ML) dark gray, moist, soft, medium plasticity, odor, with black staining	SS	100	50							

Bottom of borehole at 32.0 feet.

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BORING NUMBER SM09-SB03-03

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/19/03 **COMPLETED** 5/19/03
GROUND ELEVATION 28.4 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light brown, moist, firm, trace clay, trace fine gravel	SS 1	38	1-2-3-8 (5)							
		SILT, (ML) purpleish red, wet, firm, some fine sand, and mica, At 6.5 ft bgs lenses of dark brown, silt and fine sand										
5			SS 2	58	9-9-8-9 (17)							
10												
		Gray with purpleish red, dry, hard, mottled, consolidated sludge, from 11.5 to 11.7 ft bgs some silt and fine sand	SS 3	8	50							
15												
		Gray with yellow, dry to wet, firm to hard, mottled, consolidated sludge with alternating 2 inch layers of red silt, some fine sand. silt layers dry, firm and sludge layers wet, hard	SS 4	63	5-13-7-35 (20)							
20												
		SILT, (ML) dark red, wet, firm, trace clay, lenses of dark gray silt	SS 5	21	50							
25												
		Gray with yellowish orange, moist, hard, mottled, consolidated sludge	SS 6	17	50							
30												
			SS 7	63	30-20-35-36 (55)							
35												

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BORING NUMBER SM09-SB03-03

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		Gray with yellowish orange, moist, hard, mottled, consolidated sludge *(continued)*	SS 8	21	50							
40			SS 9	29	49-50							

Bottom of borehole at 42.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM09-SB04-01

wood.

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/20/03 **COMPLETED** 5/20/18
GROUND ELEVATION 26.8 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) very light tan, dry, soft, little fine to medium sand, trace fine gravel	SS 1	13	2-2-2-2 (4)							
5		Gray with yellowish orange, dry to moist, mottled, some silt, some fine to medium sand, little mica, consolidated sludge at 15.4 ft bgs wet	SS 2	25	30-50							
10			SS 3	25	50-50							
15			SS 4	17	50							
20			SS 5	13	50							
25		SANDY SILT, (ML) dark gray, saturated, soft, little fine to medium gravel, trace red mottles	SS 6	33	1-1-1-10 (2)							
30		POORLY GRADED SAND WITH GRAVEL, (SP) dark grayish brown, saturated, trace fine sand	SS 7	25	3-4-3-2 (7)							
35												

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BORING NUMBER SM09-SB04-01

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SILT, (ML) dark grayish brown, saturated, some clay, trace fine sand, trace mica, trace oxidation	SS 8	100	3-2-2-4 (4)							

Bottom of borehole at 37.0 feet.

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BORING NUMBER SM09-SB04-02

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/20/03 **COMPLETED** 5/20/03
GROUND ELEVATION 26.1 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0			SS 1	50	2-3-4-29 (7)							
5		SILT, (ML) very light tan, dry, firm, trace clay, trace fine sand, trace gravel, some roots, some consolidated sludge at 1.5 ft bgs	SS 2	63	1-1-1-1 (2)							
10			SS 3	75	1-1-1-1 (2)							
15		SILT, (ML) purpleish gray to grayish orange, dry, hard, mottled, little fine sand, trace gravel	SS 4	21	50							
20		SANDY SILT, (ML) dark red, mottled, trace lenses of consolidated sludge and lenses of oxidation, wet at 20.5 ft bgs	SS 5	63	5-6-6-20 (12)							
25		POORLY GRADED SAND, (SP) yellowish tan to blueish gray, wet, trace fine gravel, interbedded lenses of silt and fine sand	SS 6	63	15-4-3-3 (7)							
30		POORLY GRADED SAND, (SP) purpleish tan, saturated, some fine gravel, little fine sand										
		SILT, (ML) light gray, moist, soft, little clay, trace fine sand	SS 7	75	6-5-1-1 (6)							

Bottom of borehole at 32.0 feet.

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BORING NUMBER SM09-SB04-03

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/21/03 **COMPLETED** 5/21/03
GROUND ELEVATION 23.9 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light tan, moist, soft, trace clay, trace fine sand, At 6.0 ft bgs lenses of medium to coarse sand and fine gravel	SS	58	2-4-6-8 (10)							
5			SS	75	1-1-1-1 (2)							
10			SS	75	1-1-1-1 (2)							
15			SS	50	1-1-50 (51)							
20		POORLY GRADED SAND WITH GRAVEL, (SP) dark tan, medium grained, moist, little silt										
25		SILT WITH SAND, (ML) dark red to purple, fine grained, moist, firm, trace lenses of dark gray consolidated sludge	SS	25	15-10-10-8 (20)							
30		SILT WITH SAND, (ML) gray, fine to medium grained, moist, firm, trace consolidated sludge At 32 ft bgs firm	SS	21	50							
35			SS	50	25-35-50-28 (85)							
		SILT, (ML) dark gray, moist, soft, some clay, trace fine sand, trace mica, trace organic material										

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BORING NUMBER SM09-SB04-03

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SILT, (ML) dark gray, moist, soft, some clay, trace fine sand, trace mica, trace organic material *(continued)*	SS	100	4-2-3-4 (5)							

Bottom of borehole at 37.0 feet.

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BORING NUMBER SM09-SB05-01

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 6/4/03 **COMPLETED** 6/4/03
GROUND ELEVATION 8.7 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		POORLY GRADED SAND, (SP) brown, medium grained, moist, little fine gravel, trace silt, trace fine sand, abundant rootlets	SS 1	13	7-15-12-8 (27)							
		POORLY GRADED SAND, (SP) light brown, fine to medium grained, dry, loose, little silt, little fine gravel, lenses of consolidated sludge, moist at 5 ft bgs										
5			SS 2	67	35-35-25-34 (60)							
10												
		POORLY GRADED SAND, (SP) dark purple, medium grained, wet, little fine sand, lenses of consolidated sludge	SS 3	63	11-16-16-17 (32)							
15												
		POORLY GRADED SAND, (SP) dark gray, fine to medium grained, saturated, little medium to coarse gravel	SS 4	63	14-28-25-35 (53)							

Bottom of borehole at 17.0 feet.

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BORING NUMBER SM09-SB05-02

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 6/4/03 **COMPLETED** 6/4/03
GROUND ELEVATION 8.2 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) gray, moist, some fine sand, gravel, trace fine gravel										
		SILT, (ML) orange to yellow, moist, some fine sand, trace fine gravel, trace clay, little brick, trace to little oxidation	SS 1	67	4-3-1-1 (4)							
		SILT, (ML) light brown, moist, very soft, little clay, little fine sand, trace to little oxidation										
5		SILT, (ML) light brown to tan, moist, very soft, little clay, little fine sand	SS 2	100	1-1-5-5 (6)							
		POORLY GRADED GRAVEL, (GP) light brown, fine to medium grained, wet, soft, some silt, trace coarse gravel										
		SILT, (ML) light gray, moist, very soft, little clay, little fine sand										
10		POORLY GRADED SAND, (SP) dark brown, fine grained, saturated, little silt, little medium sand	SS 3	50	1-1-13-14 (14)							

Bottom of borehole at 12.0 feet.

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BORING NUMBER SM09-SB06-01

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 6/2/03 **COMPLETED** 6/2/03
GROUND ELEVATION 9.7 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		POORLY GRADED SAND, (SP) brown, medium grained, moist, some fine sand, trace silt, trace coarse sand, abundant brick, medium to coarse gravel and slag, some rootlets	SS	54	50-8-10-10 (18)							
		SILT, (ML) tan to light brown, wet, little coarse sand, little fine gravel, trace clay										
5			SS	38	14-12-10-20 (22)							
		POORLY GRADED SAND WITH GRAVEL, (SP) brown, medium to coarse grained, saturated, some silt, some organics										
		SILT, (ML) tan to light brown, wet, little coarse sand, little fine gravel, trace clay										
10												
		SILT, (ML) black, saturated, little clay, little fine sand, odor	SS	38	28-2-1-3 (3)							

Bottom of borehole at 12.0 feet.

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BORING NUMBER SM09-SB06-02

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/29/03 **COMPLETED** 5/29/03
GROUND ELEVATION 12.3 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light brown, moist, soft, trace clay, trace fine sand, little organics	SS	71	1-1-1-2 (2)							
5			SS		4-1-1-4 (2)							
		SILT, (ML) dark red to purple, saturated, some fine to medium sand, some fine to medium gravel, trace coarse sand										
10			SS	33	1-10-2-2 (12)							
15		SILT, (ML) dark red to purple, saturated, some fine to medium sand, little fine to medium gravel, trace coarse sand, trace coarse gravel	SS	50	3-2-2-3 (4)							
20		SILT, (ML) olive, moist, soft, medium plasticity, little clay, odor	SS	58	5-3-2-2 (5)							

Bottom of borehole at 22.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM09-SB06-03

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 5/29/03 **COMPLETED** 5/29/03
GROUND ELEVATION 12.2 ft **HOLE SIZE** 4
DRILLING CONTRACTOR Talon Drilling
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY S. Bouclier **CHECKED BY**
AT END OF DRILLING ---
NOTES data retrieved from MWH Americas, Inc.
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light brown, moist, soft, trace clay, trace roots	SS	21	1-1-1-3 (2)							
5		SILT, (ML) dark red to purple, moist, some fine to medium sand, trace coarse sand, trace gravel	SS	50	3-4-6-8 (10)							
10		SILT, (ML) dark red to purple, wet, some fine to medium sand, little coarse gravel, trace coarse sand	SS	50	8-6-5-9 (11)							
15		SILT, (ML) light gray, dry, firm, trace gray mottles and oxidation	SS	50	28-4-4-3 (8)							
		SILT, (ML) black, moist, trace clay, trace fine sand, trace organics, moderate decaying organic odor and staining										
20		SILT, (ML) olive, moist, soft, medium plasticity, little clay, odor	SS	83	3-2-1-1 (3)							

Bottom of borehole at 22.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

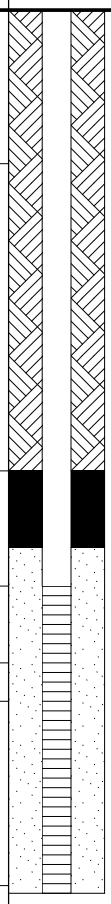
WELL NUMBER MW-122

Amec Foster Wheeler
751 Arbor Way, Suite 180
Blue Bell, PA 19422

CLIENT Honeywell
PROJECT NAME Claymont South Plant
PROJECT NUMBER 7772160017.2100.21002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/26/16 **COMPLETED** 10/26/16
GROUND ELEVATION **HOLE SIZE** 2
DRILLING CONTRACTOR Ameridrill
GROUND WATER LEVELS:
DRILLING METHOD Split spoon and auger
AT TIME OF DRILLING 4.00 ft
LOGGED BY Jennifer Poole
CHECKED BY
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	MATERIAL DESCRIPTION
0	SS	25	0/2"	Very soft to soft, dry, tan silty CLAY with wood fragments; FILL
	SS	3	1-1/0"	
				4.0
	SS	100	2-2-2-2/0"	Very soft to soft, moist, tan/purple/dark gray, silty CLAY with wood fragments and gravel; FILL
5	SS	55	2-8-12-15/0"	
	SS	100	22-25-32-31/0"	
10	SS	55	6-5-8-13/0"	
				12.0
	SS	28	24-50/0"	Very soft to soft, saturated, tan/purple/dark gray, silty CLAY with wood fragments and gravel; FILL
15	SS	53	5-4-2-2/0"	
				15.0
	SS	100	1-4-2-3/0"	Very loose, wet, tan/white tan, coarse SAND and silt; SW-SM
				17.0
				18.0 Soft, wet, blue gray, silty CLAY; CL
	SS	50	7-7-9-6/0"	Med-dense to dense, wet, blue with some black and purple, fine SAND with some silt lenses; SP-SM
20	SS	78	3-6-12-18/0"	
		100	20-39-36-47/0"	
				22.8
				Hard, wet, dark red, silty CLAY; CL
				24.0

WELL DIAGRAM



Bottom of borehole at 24.0 feet.

GENERAL BH / TP / WELL - GINT STD US.GDT - 11/7/16 11:06 - P:\HONEYWELL - CLAYMONT, DE\SOUTH PLANT\2016 WELL INSTALLATION AND SAMPLING\S PLANT WELL INSTALLATION 2016.GPJ

BORING NUMBER SM9-SB1 (SWMU9-MW1)

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 8/17/18 **COMPLETED** 8/20/18
GROUND ELEVATION 47.01 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jessica Witt **CHECKED BY** Eric Eubanks
AT END OF DRILLING ---
NOTES
AFTER DRILLING 48.48 ft / Elev -1.47 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) white, dry, medium stiff to hard, trace roots	SS 01	71	3-3-3-4 (6)	4.5		54				
			SS 02	63	5-9-50 (59)							
5		SILT WITH SAND, (SM) white, moist, very stiff, trace roots fill	SS 03	92	7-11-12-8 (23)	4.5	56	63				
		SILT WITH SAND, (ML) light gray, dry to moist, very stiff to hard fill	SS 04	63	5-5-7-8 (12)			30				
10			SS 05	54	6-8-19-14 (27)	4						
		SILT WITH SAND, (SM) light gray to dark gray, dry to moist, hard fill										
15			SS 06	25	17-50			26				
20			SS 07	33	15-50							
		SILT, (ML) gray, dry, hard fill										
25			SS 08	25	50	4		30				
		SILTY SAND, (SM) gray, dry to moist, hard fill										
30			SS 09	33	15-50							
35			SS									

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GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM9-SB1 (SWMU9-MW1)

wood.

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SILTY SAND, (SM) gray, dry to moist, hard fill *(continued)*	10	17	50	1	81	33				
		SILTY SAND, (SM) gray, saturated to moist, hard, chemical odor with sand lenses, fill										
40			SS 11a, 11b	71	1-10-47 (11)			52 50				
		SILTY SAND, (SM) gray, wet, hard, chemical odor fill										
45			SS 12	58	15-50							
		POORLY GRADED GRAVEL WITH SAND, (SP) red to brown, poorly graded, saturated, very loose to loose, chemical odor, plastic waste material Encountered groundwater at 49.0 ft bgs. Fill										
50			SS 13	67	1-2-2-5 (4)							
55			SS 14	10	2-2-2-2 (4)							
		LEAN CLAY, SILTY, (CL-ML) gray, moist, soft, trace roots 60.0-60.2 ft bgs Waste material-FILL										
60			SS 15	96	2-2-2-2 (4)	1.7		78	73	53	20	
65			ST ST1			2.5		46	54	31	23	
		LEAN CLAY, (CL) dark gray, moist, stiff, trace roots										
70			SS 16	100	3-4-4-6 (8)	1.9	64	65				
		LEAN CLAY, SILTY, (CL-ML) dark gray, moist, very stiff										
75			SS		2-4-11-10							

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BORING NUMBER SM9-SB1 (SWMU9-MW1)

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
75		LEAN CLAY, SILTY, (CL-ML) dark gray, moist, very stiff *(continued)*	17	69	(15)	1.8	91	32				
		POORLY GRADED SAND WITH GRAVEL, (SP) dark gray, poorly graded, wet, dense										
80			SS 18	75	11-22-15-10 (37)							
85												

Bottom of borehole at 87.0 feet.

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BORING NUMBER SM9-SB10

wood.

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 8/13/18 **COMPLETED** 8/14/18
GROUND ELEVATION 10 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jessica Witt **CHECKED BY** Eric Eubanks
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILTY SAND, (SM) gray to light brown, poorly graded, moist, dense to very dense, trace fine gravel, fill	SS 01	78	3-10-28-4 (38)							
			SS 02	75	13-7-50 (57)			26				
5		SILT, (ML) black, moist, soft, trace gravel, fill	SS 03	63	3-3-3-1 (6)							
		LEAN CLAY, (CL) gray to red, saturated, soft, fine gravel, fill	SS 04	75	2-1-2-2 (3)	1.85		35				
10			SS 05	46	5-50							
		LEAN CLAY WITH SAND, (CL) gray, wet to dry, hard	SS 06	69	5-19-50 (69)			32				
		SILT, (ML) gray, moist, hard										
15			SS 07	75	8-50	4.5		40				
20			SS 08	83	2-10-21-20 (31)							
		SILT, (ML) gray to dark gray, wet, soft, some clay										
25			SS 09	88	1-1-1-1 (2)	1.38	58	67				
			SS 10	100	3-1-1-2 (2)							
30		POORLY GRADED SAND WITH GRAVEL, (SP) brown, poorly graded, wet to moist, medium dense, From 30 to 31 ft bgs gray silty clay, wet, lense	ST ST1			0.75		45				
			SS 11	100	5-10-11-16 (21)			43				
35			SS		5-6-11-9							

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BORING NUMBER SM9-SB10

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35			12	100	(17)			18				5

Bottom of borehole at 36.0 feet.

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BORING NUMBER SM9-SB11

wood.

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 8/13/18 **COMPLETED** 8/14/18
GROUND ELEVATION 15 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jessica Witt **CHECKED BY** Eric Eubanks
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Fill	SS 01	0								
		SILTY SAND, (SM) brown to brownish purple, poorly graded, moist, dense to medium dense, trace roots, some gravel, with red staining, fill ~ 4 ft bgs waste material (thin plastic) 6.0 ft bgs gray clay and gravel	SS 02	100	2-8-26 (34)			25				
5			SS 03	50	8-14-8-4 (22)			21 20				
		CLAYEY SAND, (SC) grayish brown to brownish red, moist to saturated, medium dense, fill ~8 ft bgs root	SS 04	54	4-7-10-12 (17)		120	18				
10		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) dark brown, poorly graded, saturated, very loose, odor, fill	SS 05	38	1-1-1-2 (2)	2.10		28				
		SILTY SAND, (SM) brown, saturated, very loose, odor, fill greasy sheen to water										
15			SS 06	17	1-1							
			ST ST1			0		44	40	25	15	
20		LEAN CLAY, (CL) gray, wet, very soft, trace roots										
			SS 07	100								
25												
			SS 08	100		0.25		73	60	31	29	
30		LEAN CLAY, (CL) gray, wet, grades into well graded sand	SS 09	79	2-5-4-3 (9)							
35												

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BORING NUMBER SM9-SB11

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		POORLY GRADED SAND WITH CLAY AND GRAVEL, (SP) gray to light brown, poorly graded, wet, medium dense to loose ~37 ft bgs dry mottled red clay and sand with gravel ~45.5 to 45.8 ft bgs gray clay lense ~45.8 to 47 ft bgs silt ~49.0 ft bgs gravel *(continued)*	SS 10	81	3-4-22-22 (26)	1.8		9				
40			SS 11	27	2-2-3-2 (5)							
45			SS 12a	94	2-3-6 (5)							
			ST ST2									
50		SILT, (ML) brown, wet to saturated, stiff to medium stiff, with clay	SS 12b	100	5-6-5-7 (11)			30 37				
55			SS 13	100	2-2-3-4 (5)							
60			ST ST3			2.5		18	29	19	10	

Bottom of borehole at 61.0 feet.

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BORING NUMBER SM9-SB2 (SWMU9-MW2)

wood.

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 8/22/18 **COMPLETED** 8/22/18
GROUND ELEVATION 30.27 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jessica Witt **CHECKED BY** Eric Eubanks
AT END OF DRILLING ---
NOTES
AFTER DRILLING 29.31 ft / Elev 0.96 ft

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) gray to red, dry, hard to very stiff, trace roots, some sand, At 1.8 ft bgs red dense	SS 01	88	11-13-19-19 (32)							
		SILT WITH GRAVEL, (ML) gray to red, hard, some sand	SS 02	75	6-11-11-11 (22)	2.3	122	30				
5		SILT, (ML) gray, moist, hard, gravel	SS 03	4	7-7-7-50 (14)							
		SILT, (ML) gray, dry, hard	SS 04	0								
10			SS 05	75	8-19-39-23 (58)							
		SILT, (ML) red to gray, moist to wet, soft to hard, organic odor, From 20 to 25.7 ft bgs tree root										
15			SS 06	67	3-3-2-2 (5)	1.7		30				
20			SS 07	63	7-13-42-25 (55)							
25			SS 08	71	7-31-33-37 (64)			33				
		SILT WITH SAND, (ML) red to gray, moist to wet, hard, roots, organic odor										
30			SS 09	42	4-50							
		POORLY GRADED SAND WITH SILT, (SP) gray, moist, dense, roots, organic odor										
35												

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BORING NUMBER SM9-SB2 (SWMU9-MW2)

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		POORLY GRADED SAND WITH SILT, (SP) gray, moist, dense, roots, organic odor *(continued)*	SS 10	54	7-50	4.5	96	28				
40		POORLY GRADED SAND WITH SILT, (SP) gray, moist to wet, medium dense, roots, some sand, organic odor	SS 11	42	1-11-50 (61)							
45			SS 12	44	14-6-6-9 (12)	3.2		36				
		POORLY GRADED SAND WITH GRAVEL, (SP) gray to brown, coarse grained, wet, medium dense to dense, roots	SS 13	100	9-16-15-9 (31)							
50		POORLY GRADED SAND WITH CLAY, (SP-SC) gray to brown, saturated, medium dense	SS 14	38	1-1-6-4 (7)			17				
		POORLY GRADED SAND WITH GRAVEL, (SP) gray to brown, saturated, medium dense to dense	SS 15	100	5-8-11-15 (19)			17				
55			SS 16	63	6-6-7-6 (13)	2.02	107	23				
			SS 17	29	8-9-11-14 (20)							

Bottom of borehole at 57.0 feet.

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BORING NUMBER SM9-SB3

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 7/17/15 **COMPLETED** 7/17/15
GROUND ELEVATION 17.44 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING 11.00 ft / Elev 6.44 ft
LOGGED BY Mike Thomas **CHECKED BY** Jennifer Poole
AT END OF DRILLING ---
NOTES data retrieved from Amec Foster Wheeler
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) gray to orangeish tan, dry, some medium to coarse sand, trace fine gravel, brick at 2 ' bgs	SS 0-2	50	7-7-7-7 (14)							
		SILT, (ML) orangeish tan to grayish brown, dry, little medium to coarse sand, little fine to medium gravel, wood and brick debris	SS 2-4	100	24-19-29-21 (48)							
5		stone in shoe, no recovery	SS	0	10-5-3-2 (8)							
		SILT, (ML) white to light gray, moist, little fine to medium sand, orange mottling at 6-7.5 ft bgs At 10 ft bgs white silt, little medium to coarse sand, trace orange mottling, moist At 11 ft bgs wet	SS 6-8	100	2-1-1-1 (2)			111				
10			SH	0		0.75		94	67	52	15	
	▽		SS 10-12a, b	417								
15			SH	0								
		Gray, wet, alternating layers of cemented/non-cemented sludge	SS 15.5-17a, b	75	12-30-30-23 (60)							
20		LEAN CLAY, (CL) greenish olive, wet, trace fine sand, trace mica, black staining	SS 20-22	63	1-1-1-1 (2)			67	58	36	22	
25		LEAN CLAY, (CL) greenish olive, moist, trace fine sand, trace mica	SS 25-27	79	1-0-1-0 (1)	0.25		72				
30		POORLY GRADED SAND WITH CLAY, (SP) brown, fine to coarse gravel	SS 30-32	13	5-5-5-6 (10)							
35												

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BORING NUMBER SM9-SB3

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35												
		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP) tan and gray, subrounded, fine to coarse grained, wet, trace mica, some silt	SS 35-37	38	10-12-16-17 (28)							
40			SS 40-42	83	14-16-16-16 (32)							

Bottom of borehole at 42.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM9-SB4

wood.

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 7/15/15 **COMPLETED** 7/15/15
GROUND ELEVATION 14.8 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Mike Thomas **CHECKED BY** Jennifer Poole
AT END OF DRILLING ---
NOTES data retrieved from Amec Foster Wheeler
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) brownish gray and purpleish gray, dry, trace medium sand, little medium sand, cemented sludge at 0.6 ft and 2.2 ft bgs	SS 0-2	75	8-21-31-11 (52)			26				
		SILT, (ML) purpleish red to dark gray, wet to moist, trace fine gravel, medium sand, consolidated cemented sludge lenses	SS 2-4	75	6-4-3-3 (7)	0.27						
5			SS 4-6a, b	75	1-2-2-30 (4)	0.25		27				
			SS 6-8	67	9-29-22-10 (51)	0.5 0.75						
		SILT, (ML) grayish white, wet, consolidated cemented sludge lenses	SS 8-10	54	6-9-3-7 (12)			36				
10			SS 10-12a, b	67	2-28-10-8 (38)							
15												
		SILT, (ML) grayish white and dark gray, wet, very soft, medium to coarse sand, coarse gravel	SS 15-17a, b	88	4-4-1-4 (5)			65				
20												
		SANDY ORGANIC SOIL WITH GRAVEL, (OL) black	SS 20-22	38	14-2-3-3 (5)							
25												
		SILT WITH SAND, (ML) gray, coarse grained, wet, some coarse gravel	SS 25-27	17	2-2-2-2 (4)							
30												
		LEAN CLAY, (CL) gray, trace roots	SS 30-32	100	2-2-2-2 (4)	0.14		62	56	33	23	
35												

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BORING NUMBER SM9-SB4

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		LEAN CLAY, (CL) tan, trace fine gravel, mica	SS 35-37	54	4-4-7-0 (11)	0.13						
40		LEAN CLAY, (CL) gray, mica, silt, some fine to medium sand, ~40.01 ft bgs plastic waste material	SS	50	4-4-8-8 (12)			22				

Bottom of borehole at 42.0 feet.

GEOTECH BH COLUMNS - GINT STD US.GDT - 12/14/18 11:49 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SM9-SB5

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 7/15/15 **COMPLETED** 7/15/15
GROUND ELEVATION 18.66 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING 20.00 ft / Elev -1.34 ft
LOGGED BY Mike Thomas **CHECKED BY** Jennifer Poole
AT END OF DRILLING ---
NOTES data retrieved from Amec Foster Wheeler
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) light gray, moist, trace coarse sand, From 2 to 10 ft bgs no recovery, sludge in shoe	SS 0-2	79	4-1-1-1 (2)	2		68				
			SS	0	1-0-0-0 (0)	2.25		100	65	56	9	
5			ST	0								
			SS 6-8	0	1-0-0-0 (0)							
10			SS 8-10	0	1-0-0-1 (0)							
		SILTY LEAN CLAY, (CL-ML) light brown, moist, very soft, trace medium to coarse sand, From 12 to 15.2 ft bgs no recovery	SS 10-12	63	0-0-1-1 (1)	0						
			ST	0								
15												
		SILT WITH SAND, (ML) light brown, At 15.4 ft bgs cemented sludge, dry At 16 ft bgs brown silt and coarse sand, little coarse gravel, trace wood fragments and metal scrap From 17 to 20 ft bgs no recovery	SS 15-16a, b	58	9-5-4-5 (9)			35	62	50	12	
20												
		SILT WITH SAND, (ML) At 20.5 ft bgs light gray and red interbedded silt, trace seams of consolidated material, moist At 21.5 ft bgs brown silt and fine to coarse sand, some fine to coarse gravel, wet From 22 to 25 ft bgs no recovery	SS 20-22a, b	100	5-7-13-13 (20)							
25												
		SILT WITH SAND, (ML) At 25.6 ft bgs light brown and gray silt and fine to coarse sand At 25.9 ft bgs red silt, trace fine to coarse sand, moist From 27 to 30 ft bgs no recovery	SS 25-27a, b	71	7-12-14-13 (26)							
30												
		SILT, (ML) gray, some medium to coarse sand, trace cemented layers At 31.5 ft bgs moist to wet From 32 to 35 ft bgs no recovery	SS 30-32	54	16-30-50 (80)			38				
35												

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BORING NUMBER SM9-SB5

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		SILT WITH SAND, (ML) gray, dry, cemented sand and silt From 37 to 40 ft bgs no recovery	SS 35-37	13	50							
40		SILTY LEAN CLAY, (CL-ML) gray, medium plasticity, trace mica	SS 40-42	100	6-6-11-28 (17)							
45		SILT, (ML) At 46.2 ft bgs brown silty fine to medium sand and gravel, greenish gray cemented sand in shoe At 46.8 ft bgs gray From 47 to 50 ft bgs no recovery	SS 45-47a, b, c	100	7-10-20-31 (30)	0.75 3.25		41				
50			SS 50-52a, b, c	58	8-11-11-16 (22)			20				

Bottom of borehole at 52.0 feet.

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BORING NUMBER SM9-SB7

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 7/16/15 **COMPLETED** 7/16/15
GROUND ELEVATION 11.57 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING 8.00 ft / Elev 3.57 ft
LOGGED BY Mike Thomas **CHECKED BY** Jennifer Poole
AT END OF DRILLING ---
NOTES data retrieved from Amec Foster Wheeler
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILT, (ML) brown with pinkish gray, dry, At 0.8 ft bgs silt and coarse gravel, some fine to medium sand From 0.8 to 6.0 ft bgs sludge From 5.0 to 5.5 ft bgs moist	SS 0-2	50	6-9-28-31 (37)							
			SS 2-4	71	26-30-24-22 (54)			14				
5			SS 4-6	100	8-16-35-37 (51)							
		SANDY SILT, (ML) black and brown, dry, At 6.5 ft bgs trace wood At 7.1 ft bgs black coarse grained material, possible ash, medium to coarse gravel At 8.0 ft bgs wet	SS 6-8a, b	75	33-14-14-12 (28)							
		SILT, (ML) tan, moist, trace medium sand, trace fine gravel	SS 8-10a, b	29	2-3-4-5 (7)							
10		POORLY GRADED SAND, (CL) black, wet SANDY LEAN CLAY, (CL) black, wet, little coarse gravel, trace brick debris, wood and glass	SS 10-12	63	2-2-2-1 (4)							
		SILT, CLAYEY, (CL-ML) black, wet, From 14 to 14.6 ft bgs little medium sand	ST			3.5		22				
15			SS 14-16a, b	33	56-0-0-0 (0)							
		SILT, (ML) gray white, dry, hard, From 16 to 20 ft bgs no recovery	SS									
20		LEAN CLAY, (CL) gray olive, moist, trace mica	SS 20-22	50	5-2-3-2 (5)	0.25						
			ST									
25			SS 24-26	100	2-2-2-3 (4)	0.25		61	61	37	24	
30			SS 30-32	100	3-3-3-3 (6)	0.5						
35												

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BORING NUMBER SM9-SB7

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		LEAN CLAY, (CL) gray olive, moist, trace mica *(continued)*	SS 35-37	100	3-3-5-5 (8)	0.75						
40		POORLY GRADED SAND, (SP) tan, moist to wet, trace mica, little silt, little fine to coarse gravel, From 42 to 45 ft bgs no recovery	SS 40-42a, b	79	9-10-20-33 (30)			14				
45		LEAN CLAY, SILTY, (CL-ML) grayish olive to grayish blue, moist, little coarse sand, trace fine gravel, some mica	SS 45-47a, b, c	100	6-9-12-13 (21)							

Bottom of borehole at 47.0 feet.

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BORING NUMBER SM9-SB8

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 8/16/18 **COMPLETED** 8/17/18
GROUND ELEVATION 15 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jessica Witt **CHECKED BY** Eric Eubanks
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Brown, organics topsoil										
		SILT, (ML) white, dry, hard, organics fill	SS 01	50	4-50							
		SILT, (ML) white with black, dry, hard to very stiff fill	SS 02	50	8-25-50 (75)							
5			SS 03	79	12-17-21-20 (38)	4		20				
			SS 04	71	12-17-19-11 (36)							
10			SS 05	8	9-10-7-6 (17)							
		POORLY GRADED SAND WITH CLAY, (SP) light brown, dry to moist, loose fill										
15			SS 06	25	3-4-4-5 (8)			16				
		LEAN CLAY, (CL) gray to dark gray, moist, soft to medium stiff, trace roots										
20			SS 07	79	2-1-2-2 (3)	1.1	60	65	64	41	23	
			ST ST1			0.5		80	43	34	9	
25			SS 08	100	2-2			91	72	51	21	
			SS 09	100	3-2-4-3 (6)							
30			SS 10	67	4-3-4-5 (7)	0.75	41	107	87	64	23	
			SS 11	100	1-2-1-3 (3)							
			SS 12	100	3-3-3-4 (6)	1	62	62	65	38	27	
35			ST									

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BORING NUMBER SM9-SB8

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35			ST2			1.32		93				
		POORLY GRADED GRAVEL WITH CLAY AND SAND, (GP-GC) gray to dark gray, moist, medium dense to loose	SS 13	50	9-10-10-7 (20)			9				
40			SS 14	25	5-5-5-5 (10)							
		LEAN CLAY, (CL) brown, saturated, very stiff	SS 15a, 15b	83	4-5-8-9 (13)	0.37	103	25	20	16	4	
		POORLY GRADED SAND, (SP) brown, poorly graded, wet, medium dense										
		POORLY GRADED SAND WITH SILT AND GRAVEL, (SP-SM) brown, poorly graded, wet, medium dense to loose, At 46 to 48 ft bgs lean clay with sand										
45			SS 16	54	4-4-3-4 (7)							
			SS 17	100	6-7-9-8 (16)	1.18	107	25	33	23	10	
			SS 18	100	4-5-4-5 (9)							
50		LEAN CLAY, (CL) brown, saturated to wet, medium stiff										

Bottom of borehole at 50.0 feet.

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BORING NUMBER SM9-SB9

wood.

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772180004
PROJECT LOCATION Claymont, DE
DATE STARTED 8/15/18 **COMPLETED** 8/16/18
GROUND ELEVATION 15 ft **HOLE SIZE** 4
DRILLING CONTRACTOR AmeriDrill
GROUND WATER LEVELS:
DRILLING METHOD Auger
AT TIME OF DRILLING ---
LOGGED BY Jessica Witt **CHECKED BY** Eric Eubanks
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		SILTY SAND, (SM) yellow and brown, moist, medium dense, mottled fill	SS 01	98	3-7-13-15 (20)	2.7	125	16				
		SILT, (ML) black to red, moist to wet, very stiff fill	SS 02	98	19-14-9-10 (23)	1.6	129	28				
5		POORLY GRADED SAND WITH SILT, (SP-SM) light brown to reddish black, moist, medium dense, trace rock fragments fill	SS 03	79	3-6-11-16 (17)							
		SILT, (ML) red to black, dry to moist, very stiff, trace rock fragments, From 7 to 7.1 ft bgs gravel lense fil	SS 04	88	18-18-14-14 (32)							
10			SS 05	100	11-11-7-7 (18)							
		SILTY SAND, (SM) white, saturated to wet, very loose to loose, trace roots, trace rock fragments fill										
15			SS 06	42	1-2-1-3 (3)	0.3	82	37				
		LEAN CLAY, SILTY, (CL) white to light gray, wet, stiff										
20			SS 07	100	5-7-9-6 (16)			48				
			ST ST1			2.1		58				
25		LEAN CLAY, (CL) brown, wet, very soft	SS 08	71		0	52	82	60	40	20	
		LEAN CLAY, SILTY, (CL-ML) brown to dark gray, wet to moist, soft, trace gravel, trace roots, organic odor	SS 09	100	1-1-1-1 (2)							
30			SS 10	79	1-1							
			SS 11	100	1-2	1	60	64				
			SS 12	100	1-2-1-2 (3)							
35		LEAN CLAY, (CL) gray to dark gray, moist to wet, soft, trace roots	SS		1-1-1-2							

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BORING NUMBER SM9-SB9

CLIENT Honeywell **PROJECT NAME** DVW Claymont, DE

PROJECT NUMBER 7772180004 **PROJECT LOCATION** Claymont, DE

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
35		LEAN CLAY, (CL) gray to dark gray, moist to wet, soft, trace roots *(continued)*	13	100	(2)	1		60	63	35	28	
			SS 14	100	2-2-2-3 (4)							
40			ST ST2			0.62		60	63	38	25	
			SS 15	100	1-1-1-1 (2)	0.75		61				
			SS 16	100	1-1-1-1 (2)			67	60	36	24	
45		SILT, (ML) gray, moist, stiff to very stiff, trace roots, mica, trace sand	SS 17	75	2-5-6-6 (11)	1.2		22				
			SS 18	100	6-7-8-9 (15)							
50		SILTY SAND, (SM) grayish brown, saturated, medium dense	SS 19	100	9-10-13-12 (23)			24				56

Bottom of borehole at 50.0 feet.

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BORING NUMBER B1

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/1/19 **COMPLETED** 10/1/19
GROUND ELEVATION **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 8.00 ft as seen in split spoon
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING 6.80 ft
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	2-3-8-50 (11)	PID = 0		SILTY SAND WITH GRAVEL, (SM) brown to gray, subangular, dry, loose to medium dense, no odor	
2.0		7-8-22-18 (30)	PID = 0		SILTY SAND, (SM) white to brown, dry, loose, no odor, cement, pieces of metal fragments	
4.0		11-9-5-3 (14)	PID = 0.5		SILTY SAND, (SM) brown, subangular, dry, loose to medium dense, some gravel, no odor	
5	GB 6-8	8-8-9-10 (17)	PID = 0.2		SILTY SAND, (SM) black to dark brown, subangular, dry, medium dense, some gravel, organics, slight odor	
6.0		4-3-4-3 (7)	PID = 0.2		SILTY SAND, (SM) black, saturated, loose, slight odor	
8.0		1-2-1-1 (3)	PID = 0.1		SILTY SAND, (SM) black, subangular, saturated, loose, some gravel, slight odor	
10		1	PID = 2.9		SILTY SAND, (SM) black, saturated, loose, odor	
12.0	GB 14-16	1-1-1 (2)	PID = 11.7		LEAN CLAY, SILTY, (CL-ML) black, saturated, soft, with white waste (i.e., paste material)	
14.0						
15						
16.0						

Bottom of borehole at 16.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 4/7/20 15:37 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER B2

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/1/19 **COMPLETED** 10/1/19
GROUND ELEVATION ____ **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 10.00 ft
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING 9.30 ft
NOTES MS and MSD samples were taken from 14 to 16 ft bgs
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG		MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	50	PID = 0		2.0	Whiteish brown, subangular, dry, loose, with gravel, organics, no odor, refusal due to dense cement WASTE (i.e., CONCRETE) with SILTY SAND	
		8-9-3-1 (12)	PID = 0.4		4.0	SILTY SAND, (SM) brownish white to light brown, subangular, dry, medium dense, gravel, organics, no odor	
5		3-1-1-1 (2)	PID = 0.2		6.0	Grayish orange to dark purple, dry, soft, organics, no odor, mottled WASTE (i.e., gypsum-like material)	
		3-2-1-2 (3)	PID = 0.5		8.0	Dark gray to brown, dry, loose, no odor WASTE (i.e., gypsum-like material) with SILTY SAND and GRAVEL	
10	GB 8-10	2-6-3-2 (9)	PID = 0.2		10.0	SILT WITH GRAVEL, (ML) dark gray to light gray, moist to dry, loose, no odor	
		1	PID = 0.6		12.0	LEAN CLAY, (CL-ML) black to dark brown, wet, loose to soft, odor with CONCRETE	
			PID = 10.4		14.0	Dark gray, wet, soft, odor, yellow oil clump was seen on the outside of the split spoon WASTE	
15	GB 14-16		PID = 31.2		16.0	Black, wet, soft, odor WASTE (i.e., gypsum-like material)	

Bottom of borehole at 16.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 4/7/20 15:37 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER B3

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/3/19 **COMPLETED** 10/3/19
GROUND ELEVATION **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 10.00 ft
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING 6.00 ft
NOTES FD sample was taken from 14 to 16 ft bgs
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	6-12-50 (62)	PID = 0.4		SILTY SAND WITH GRAVEL, (SM) brown, subangular, dry, loose to medium dense, organics, no odor, at bottom of interval is WASTE (i.e., concrete fragment with a thin layer of yellow material/fabric with red broken waste pieces), gravel within the SM is white (2.0)	
					WASTE (i.e., broken whiteish gray concrete fragments at bottom of split spoon), no odor (4.0)	
5		4-27-24-3 (51)	PID = 1.8		Dry, medium dense, no odor, mottled WASTE (i.e., grayish white concrete)-SILT (6.0)	
		1-1-1-1 (2)	PID = 1.7		SILTY SAND, (ML) dry to moist, loose, no odor (8.0)	
10	GB 8-10	26-13-2 (15)	PID = 1.2		SILTY SAND, (SM) gray, moist, medium dense, no odor (10.0)	
		1-2-2-1 (4)	PID = 2.7		SILTY SAND, (SM) dark gray, saturated, loose, waste-like odor (10.5)	
			PID = 8.2		LEAN CLAY, (CL) dark gray, saturated to wet, soft, and waste-like odor (12.0)	
					LEAN CLAY, (CL) whiteish gray to dark gray, wet, soft, odor with sheen (14.0)	
15	GB 14-16		PID = 7.1		LEAN CLAY, (CL) dark gray, wet, odor with sheen (15.6)	
					SILTY SAND, (SM) light brown, wet, odor (16.0)	

Bottom of borehole at 16.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 4/7/20 15:37 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER B4

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/3/19 **COMPLETED** 10/3/19
GROUND ELEVATION ____ **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 8.00 ft
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	8-37-80 (117)	PID = 0	2.0	SILTY SAND, (SM) brown, dry, medium dense, no odor, grass, gray concrete lenses, at the base a little mottled	
			PID = 0.8	4.0	WASTE (i.e., gray concrete), dry, no odor	
5		2-20-38-49 (58)	PID = 5.2	6.0	SILT, (SM) light brownish orange to dark purple, moist, medium dense to dense, mottled, organics, no odor WASTE (i.e., gray concrete)	
	GB 6-8	50	PID = 0.3	8.0	WASTE (i.e., gray concrete with broken red rock-like fragments), dry, no odor	
10		2	PID = 0	10.0	LEAN CLAY, (CL) dark gray, saturated, soft, odor	
		2-1	PID = 0.3	12.0	LEAN CLAY, (CL) dark gray, saturated, soft, waste (i.e., coarse grained concrete overlying the lean clay, odor	
			PID = 16.8	14.0	SILT, LEAN CLAY, (CL-ML) black, moist, soft, odor, sheen	
15	GB 14-16	1	PID = 113	16.0	SILT, LEAN CLAY, (CL-ML) black, moist, soft, odor, sheen	

Bottom of borehole at 16.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 4/7/20 15:37 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SBMW123S

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/1/19 **COMPLETED** 10/1/19
GROUND ELEVATION ____ **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 12.00 ft
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING ---
NOTES FD sample was taken from 14 to 16 ft bgs
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	10-6-10-8 (16)	PID = 0.3	2.0	SILTY SAND, SILTY, (SM) brown to dark purple, dry, medium dense, with organics, no odor, layer of white concrete overlying the silt	
		6-5-44 (49)	PID = 4	4.0	SILTY SAND, SILTY, (SM) brown to dark purple, dry, loose, no odor, red fragment layer of waste overlying the silt	
5		6-3-3-2 (6)	PID = 0.4	6.0	SILTY SAND, SILTY, (SM) brown to dark purple, dry to moist, loose, trace organics, no odor, white concrete layer overlying the silt	
		3-6-6-20 (12)	PID = 0.2	8.0	SILTY SAND, (SM) brown to gray, moist to dry, medium dense, with organics, no odor, concrete at base	
10		6-50	PID = 0.1	10.0	SILT, (ML) gray, dry, dense, organics, no odor, refusal at 8.3 ft bgs	
	GB 10-12	16-40-46 (86)	PID = 0.1	12.0 ▽	SILT, (ML) reddish brown to purpleish gray, dry to wet, dense, no odor	
		8-3-2-2 (5)	PID = 0.5	14.0	POORLY GRADED SAND WITH SILT, (SP-SM) dark brown, wet, loose, (pea sized gravel and sand approximately from 12 to 12.4 ft bgs), odor	
15	GB 14-16	1	PID = 0.2	16.0	SILT, CLAYEY, (CL-ML) dark brown, saturated, loose to soft, odor	

Bottom of borehole at 16.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 4/7/20 15:37 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SBMW123D

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/1/19 **COMPLETED** 10/1/19
GROUND ELEVATION ---- **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 12.00 ft
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING ---
NOTES FD sample was taken from 14 to 16 ft bgs
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	10-6-10-8 (16)	PID = 0.3		SILTY SAND, SILTY, (SM) brown to dark purple, dry, medium dense, with organics, no odor, layer of white concrete overlying the silt (2.0)	
		6-5-44 (49)	PID = 4		SILTY SAND, SILTY, (SM) brown to dark purple, dry, loose, no odor, red fragment layer of waste overlying the silt (4.0)	
5		6-3-3-2 (6)	PID = 0.4		SILTY SAND, SILTY, (SM) brown to dark purple, dry to moist, loose, trace organics, no odor, white concrete layer overlying the silt (6.0)	
		3-6-6-20 (12)	PID = 0.2		SILTY SAND, (SM) brown to gray, moist to dry, medium dense, with organics, no odor, concrete at base (8.0)	
10		6-50	PID = 0.1		SILT, (ML) gray, dry, dense, organics, no odor, refusal at 8.3 ft bgs (10.0)	
	GB 10-12	16-40-46 (86)	PID = 0.1		SILT, (ML) reddish brown to purpleish gray, dry to wet, dense, no odor (12.0) ▽	
		8-3-2-2 (5)	PID = 0.5		POORLY GRADED SAND WITH SILT, (SP-SM) dark brown, wet, loose, (pea sized gravel and sand approximately from 12 to 12.4 ft bgs), hydrocarbon odor (14.0)	
15	GB 14-16	1	PID = 0.2		SILT, CLAYEY, (CL-ML) dark brown, saturated, loose to soft, odor	
20			PID = 0.2			
			PID = 0		SILT, CLAYEY, (CL-ML) dark brown, moist, dense, no odor (23.0)	
25					SILT, CLAYEY, (CL-ML) dark brown gray, moist to wet, odor, bottom 3 inches sand (25.0)	
			PID = 0		POORLY GRADED SAND WITH GRAVEL, (SP) dark brown, wet, loose, pea size gravel (27.0)	

Bottom of borehole at 27.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 5/14/20 15:53 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SBMW124S

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 9/30/19 **COMPLETED** 9/30/19
GROUND ELEVATION **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 12.00 ft
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG		MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	50	PID = 0		2.0	SILTY SAND WITH GRAVEL, (SM) brownish gray, dry, loose, organics, no odor, refusal at 0.5 inch due to hard white gravel	
		9-14-30-21 (44)	PID = 0		4.0	SILTY SAND, (SM) whiteish brown, dry, dense, organics, no odor	
5		4-22-4-2 (26)	PID = 0		6.0	SILTY SAND WITH GRAVEL, (SM) whiteish brown, subangular, dry, medium dense to loose, no odor	
		3-2-1-17 (3)	PID = 0		8.0	SILTY SAND, (SM) reddish brown, dry, no odor, whiteish gray concrete	
10		50	PID = 0		10.0	WASTE (i.e., whiteish gray concrete fragments)dry, dense, organics at 10 ft bgs, no odor	
	GB 10-12	10-29-50-34 (79)	PID = 0		12.0	SILT, (ML) gray, dry, dense to very dense, some gravel, no odor	
		8-7-8-8 (15)	PID = 0.1		14.0	SILTY SAND, (SM) gray, saturated, loose	
15	GB 14-16	1-1	PID = 28.3		16.0	LEAN CLAY, (CL) dark gray to black, soft, odor	

Bottom of borehole at 16.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 4/7/20 15:37 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

BORING NUMBER SBMW124D

CLIENT Honeywell
PROJECT NAME DVW Claymont, DE
PROJECT NUMBER 7772190002
PROJECT LOCATION Claymont, DE
DATE STARTED 9/30/19 **COMPLETED** 9/30/19
GROUND ELEVATION **HOLE SIZE** 2
DRILLING CONTRACTOR Pratt-Wolf
GROUND WATER LEVELS:
DRILLING METHOD Split Spoon (auger) CME-175
AT TIME OF DRILLING 12.00 ft
LOGGED BY Jessica Witt **CHECKED BY** Becky Connolly
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG		MATERIAL DESCRIPTION	WELL DIAGRAM
0	GB 0-1	50	PID = 0		2.0	SILTY SAND WITH GRAVEL, (SM) brownish gray, dry, loose, organics, no odor, refusal at 0.5 inch due to hard white gravel	
		9-14-30-21 (44)	PID = 0		4.0	SILTY SAND, (SM) whiteish brown, dry, dense, organics, no odor	
5		4-22-4-2 (26)	PID = 0		6.0	SILTY SAND WITH GRAVEL, (SM) whiteish brown, subangular, dry, medium dense to loose, no odor	
		3-2-1-17 (3)	PID = 0		8.0	SILTY SAND, (SM) reddish brown, dry, no odor, whiteish gray concrete	
10		50	PID = 0		10.0	WASTE (i.e. whiteish gray concrete fragments)dry, dense, organics at 10 ft bgs, no odor	
	GB 10-12	10-29-50-34 (79)	PID = 0		12.0 ▽	SILT, (ML) gray, dry, dense to very dense, some gravel, no odor	
		8-7-8-8 (15)	PID = 0.1		14.0	SILTY SAND, (SM) gray, saturated, loose	
15	GB 14-16	1-1	PID = 28.3		20.0	LEAN CLAY, (CL) dark gray to black, soft, odor	
20		1-2			22.0	LEAN CLAY, SILTY, (CL) tannish white to black, moist, odor	
					24.0	LEAN CLAY, SILTY, (CL) dark brown gray, moist, odor	
25					26.0	(No Recovery)	
			PID = 0.5		28.0	LEAN CLAY, SILTY, (CL) dark brown gray, moist, odor, bottom 2 inches silt	
30			PID = 0		29.5 / 30.0	POORLY GRADED SAND WITH GRAVEL, (SP) brown, wet, pea size gravel	
						(CL) 1 inch rock Weathered Bedrock (green)	

Bottom of borehole at 30.0 feet.

ENVIRONMENTAL BH - GINT STD US.GDT - 5/14/20 15:53 - P:\HONEYWELL - CLAYMONT, DE\NORTH PLANT\2018 SWMU9 GEOTECH 7772180004\GINT\DVW HONEYWELL SWMU9.GPJ

Job No:	15-53057
Client:	AMEC Foster Wheeler
Project:	Honeywell Claymont, Delaware
Start Date:	13-Jul-2015
End Date:	14-Jul-2015

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Shear Wave Velocity Tests	Northing[2] (m)	Easting (m)
SCPT15-02	15-53057_SP02	13-Jul-2015	436:T1500F15U500	20.0	6.56		4406268	463202
SCPT15-02A	15-53057_SP02A	13-Jul-2015	436:T1500F15U500	20.0	6.07		4406270	463206
CPT15-03	15-53057_CP03	14-Jul-2015	436:T1500F15U500	20.0	18.70		4406335	463215
CPT15-03A	15-53057_CP03A	14-Jul-2015	436:T1500F15U500	20.0	0.98		4406335	463221
CPT15-04	15-53057_CP04	14-Jul-2015	436:T1500F15U500	20.0	3.94		4406338	463271
CPT15-04A	15-53057_CP04A	14-Jul-2015	436:T1500F15U500	20.0	3.94		4406338	463265
CPT15-04B	15-53057_CP04B	14-Jul-2015	436:T1500F15U500	20.0	3.77		4406340	463269
SCPT15-06	15-53057_SP06	13-Jul-2015	436:T1500F15U500	20.0	17.06	3	4406305	463251
SCPT15-07	15-53057_SP07	14-Jul-2015	226:T1500F15U500	20.0	14.11	2	4406161	463247
CPT15-10	15-53057_CP10	14-Jul-2015	436:T1500F15U500	20.0	4.92		4406195	463310
CPT15-10A	15-53057_CP10A	14-Jul-2015	436:T1500F15U500	20.0	0.82		4406197	463314
CPT15-10B	15-53057_CP10B	14-Jul-2015	436:T1500F15U500	20.0	3.61		4406195	463310
CPT15-11	15-53057_CP11	14-Jul-2015	436:T1500F15U500	20.0	1.97		4406260	463313
CPT15-11A	15-53057_CP11A	14-Jul-2015	436:T1500F15U500	20.0	1.80		4406260	463310
CPT15-11B	15-53057_CP11B	14-Jul-2015	436:T1500F15U500	20.0	1.48		4406256	463312
SCPT15-12	15-53057_SP12	13-Jul-2015	436:T1500F15U500	20.0	3.61		4406273	463245
SCPT15-12A	15-53057_SP12A	13-Jul-2015	436:T1500F15U500	20.0	3.12		4406273	463243
SCPT15-12B	15-53057_SP12B	13-Jul-2015	436:T1500F15U500	20.0	9.02	2	4406264	463250
Totals	18 soundings				105.48	7		

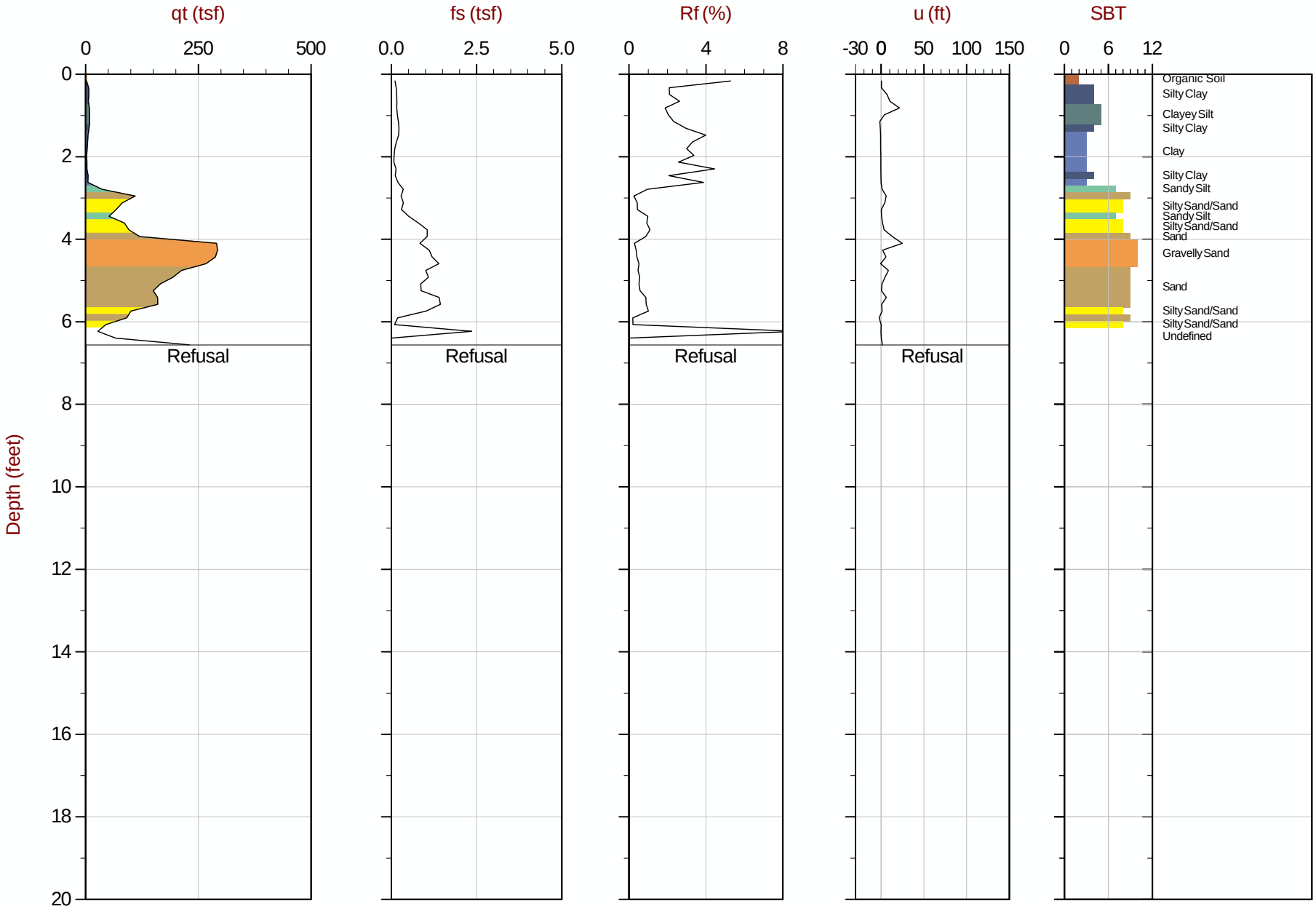
1. Assumed phreatic surface depths were determinined to be deeper than the CPT's. Hydrostatic data were used for calculated parameters.
2. Coordinates are WGS 84 / UTM Zone 18 and were collected using MR350 GlobalSat GPS Receiver.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 08:01
Site: Honeywell Claymont,DE

Sounding: SCPT15-02
Cone: 436:T1500F15U500



Max Depth: 2.000 m / 6.56 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP02.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406268m E: 463202m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

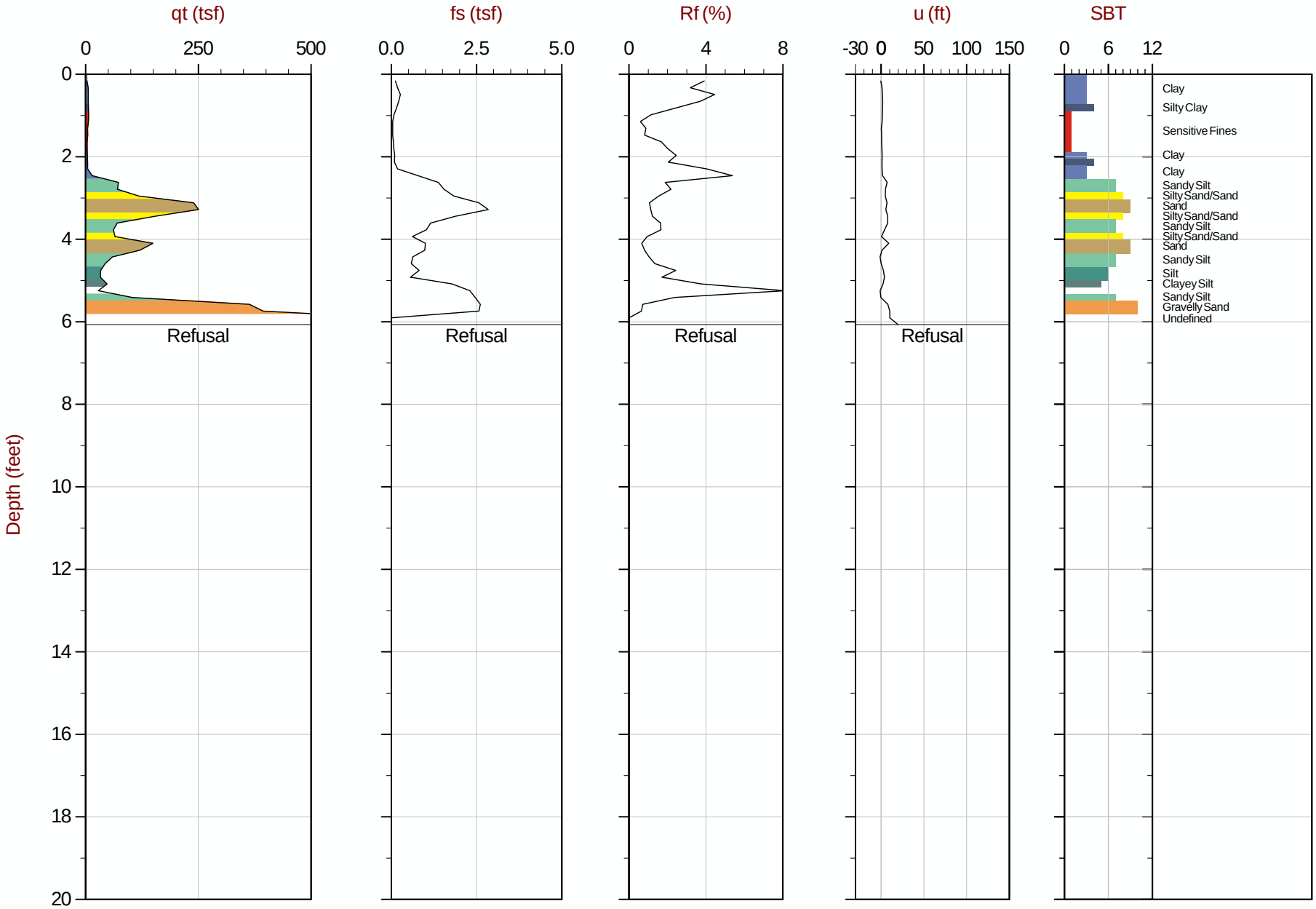
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 08:45
Site: Honeywell Claymont,DE

Sounding: SCPT15-02A
Cone: 436:T1500F15U500



Max Depth: 1.850 m / 6.07 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP02A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406270m E: 463206m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

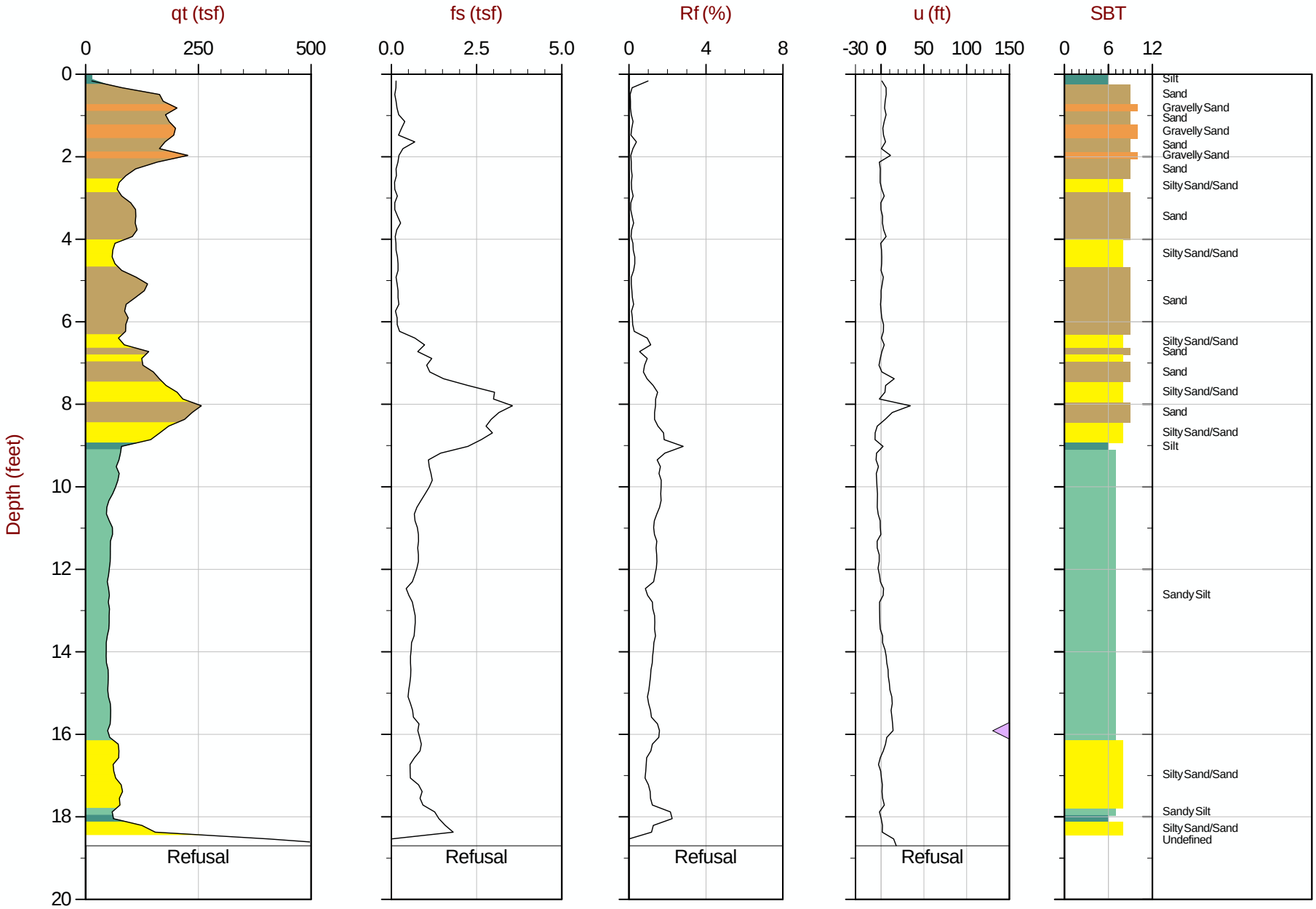
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 05:13
Site: Honeywell Claymont,DE

Sounding: CPT15-03
Cone: 436:T1500F15U500



Max Depth: 5.700 m / 18.70 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP03.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406335m E: 463215m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

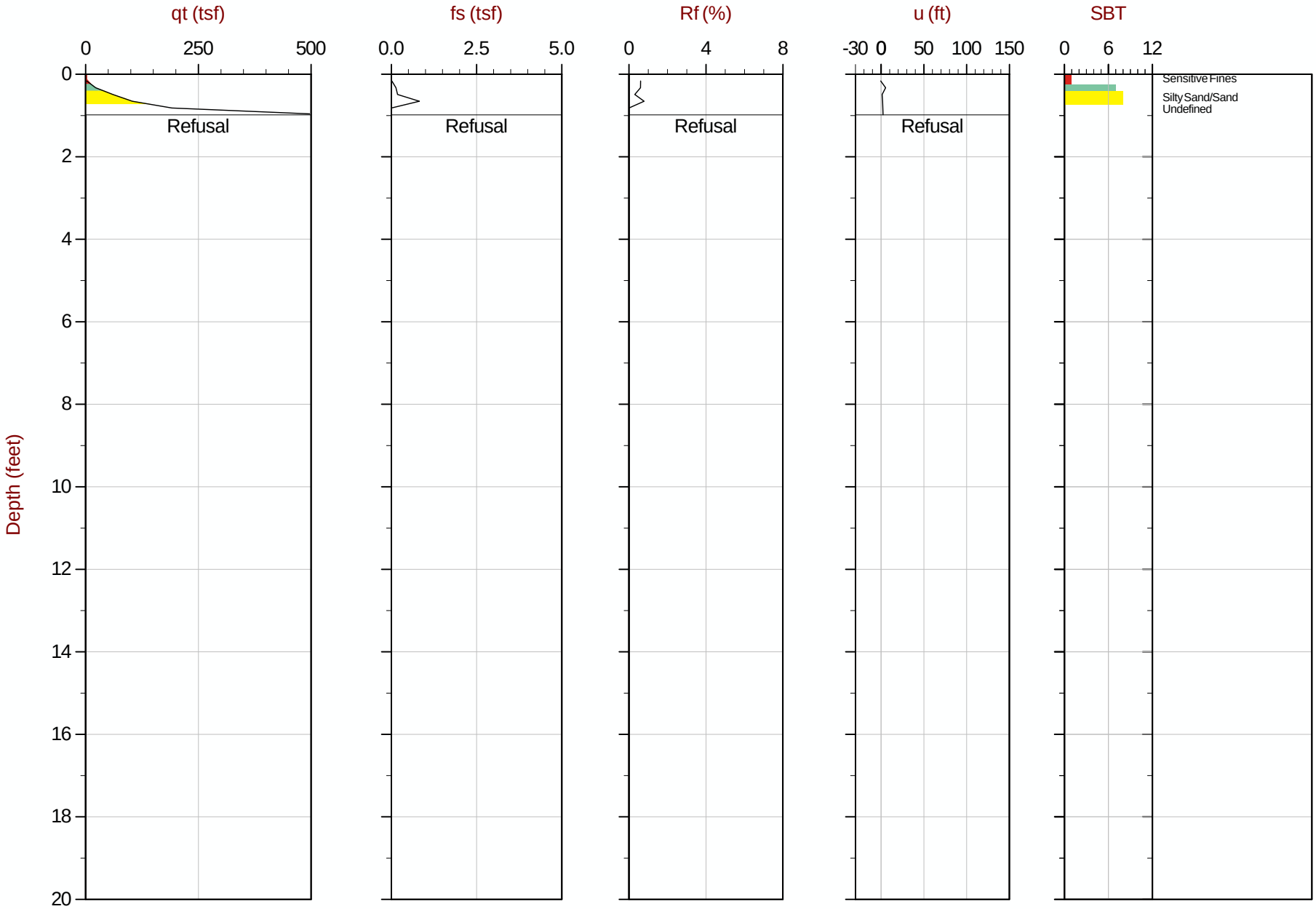
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 05:39
Site: Honeywell Claymont,DE

Sounding: CPT15-03A
Cone: 436:T1500F15U500



Max Depth: 0.300 m / 0.98 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP03A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406335m E: 463221m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

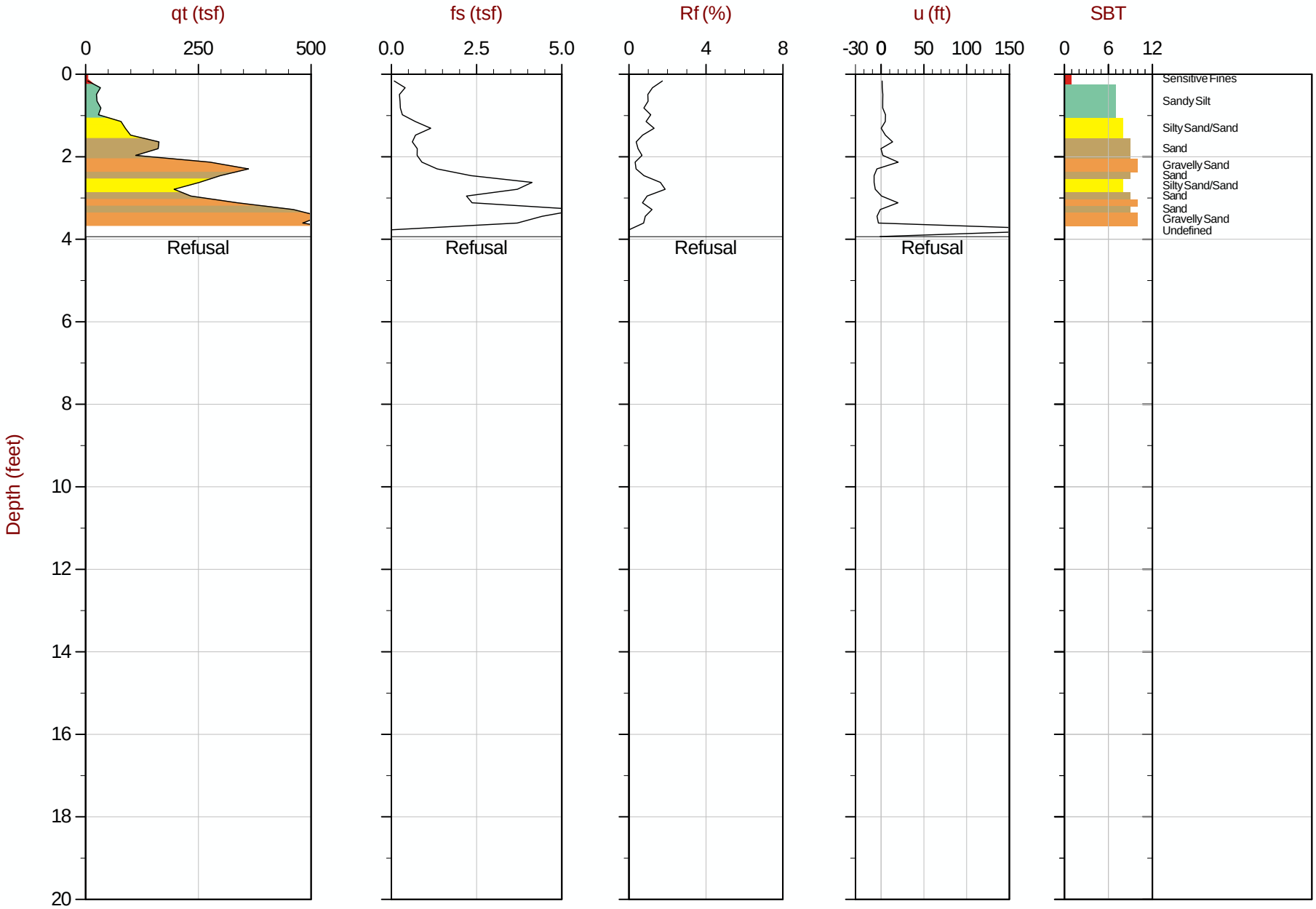
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 05:39
Site: Honeywell Claymont,DE

Sounding: CPT15-04
Cone: 436:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP04.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406338m E: 463271m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

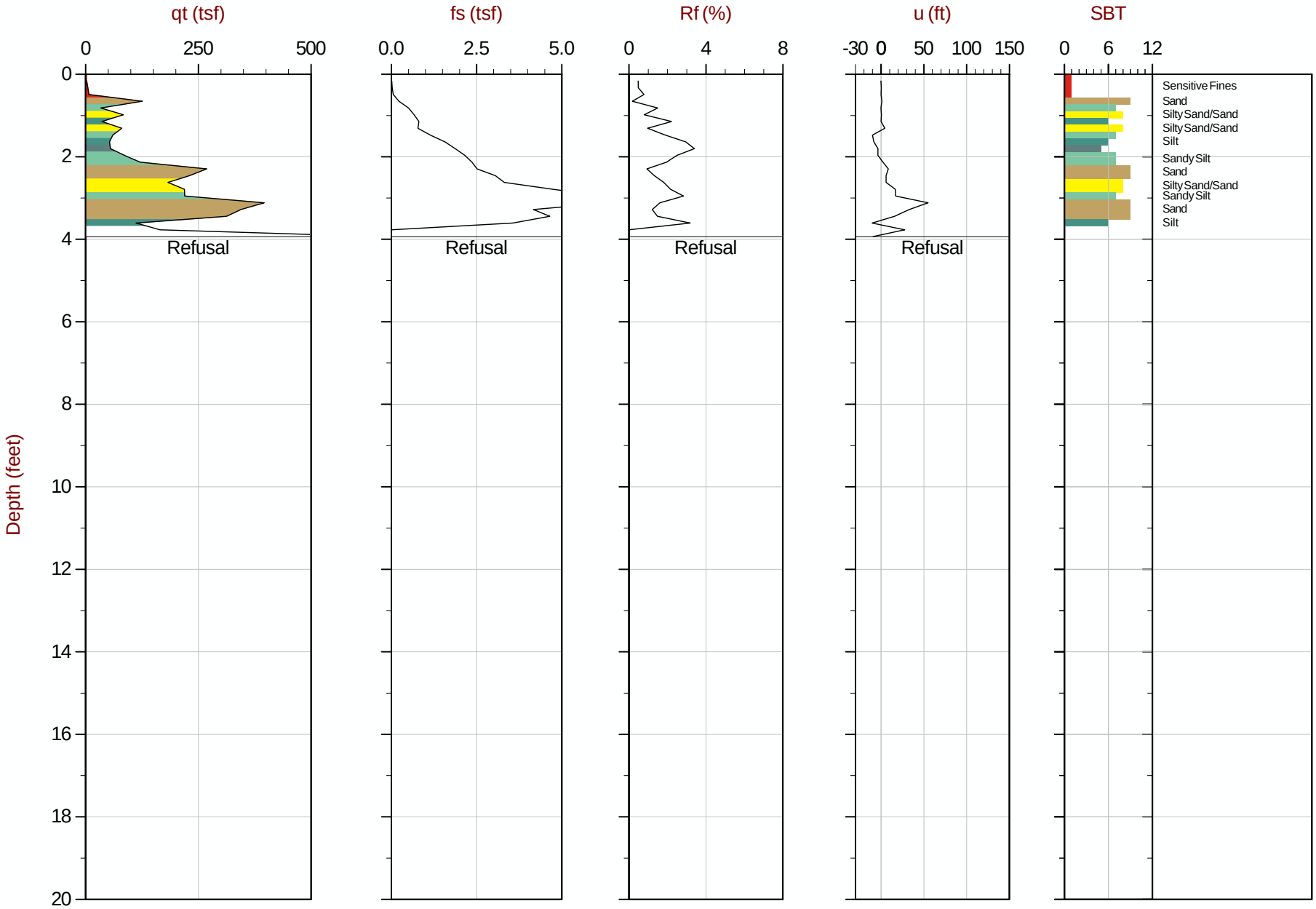
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 06:06
Site: Honeywell Claymont,DE

Sounding: CPT15-04A
Cone: 436:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP04A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406338m E: 463265m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

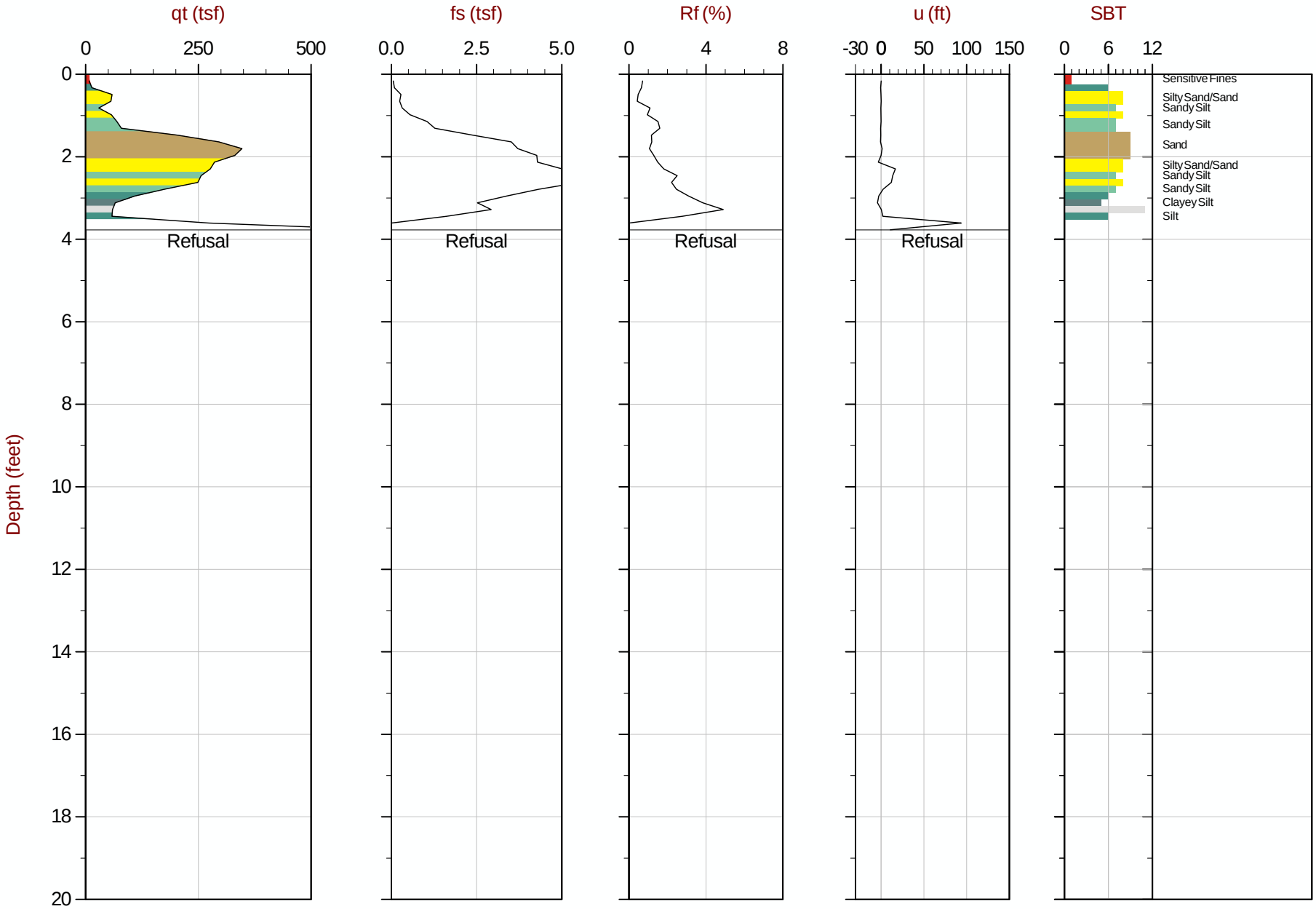
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 06:18
Site: Honeywell Claymont,DE

Sounding: CPT15-04B
Cone: 436:T1500F15U500



Max Depth: 1.150 m / 3.77 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP04B.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406340m E: 463269m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

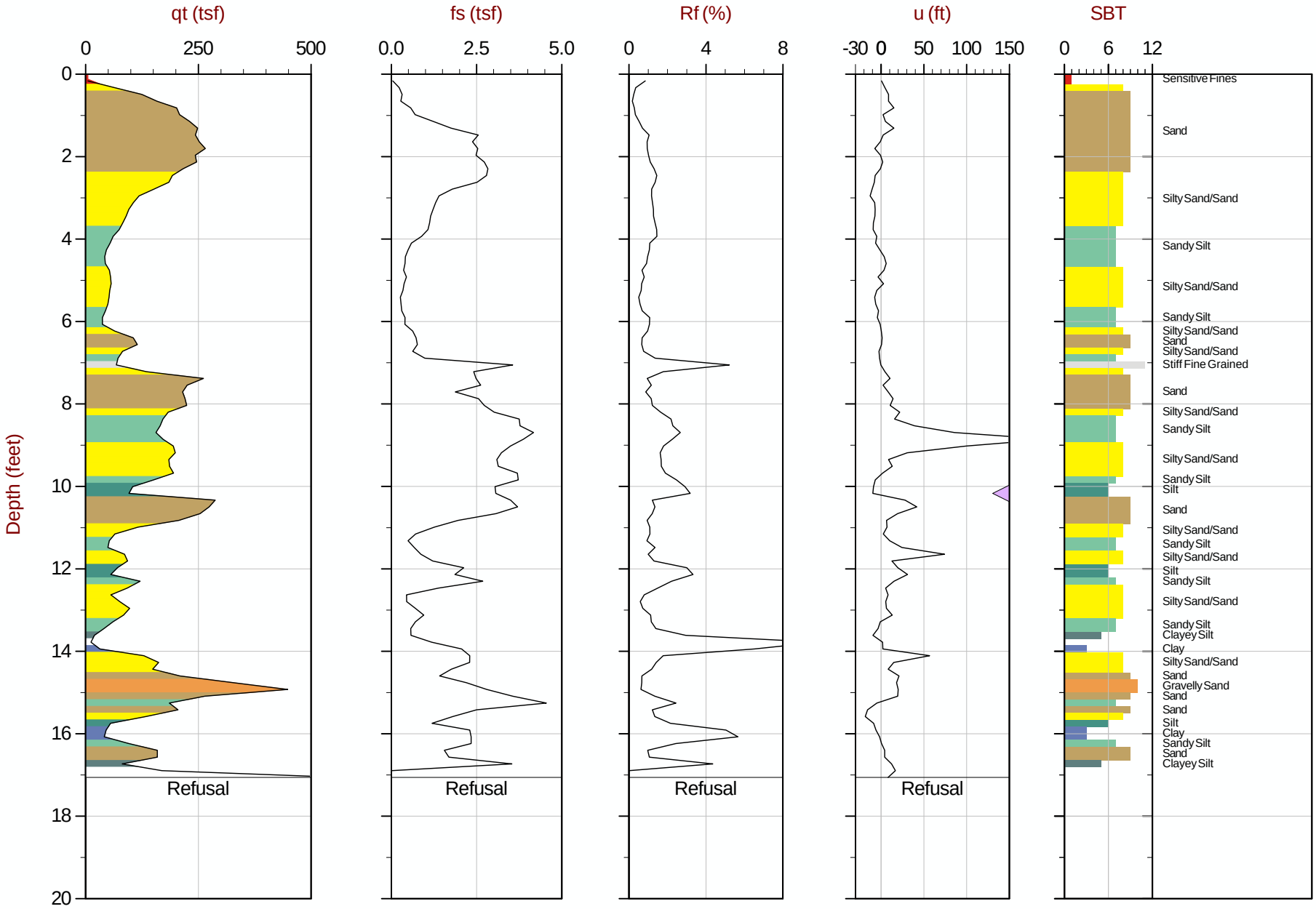
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 10:23
Site: Honeywell Claymont,DE

Sounding: SCPT15-06
Cone: 436:T1500F15U500



Max Depth: 5.200 m / 17.06 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP06.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406305m E: 463251m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

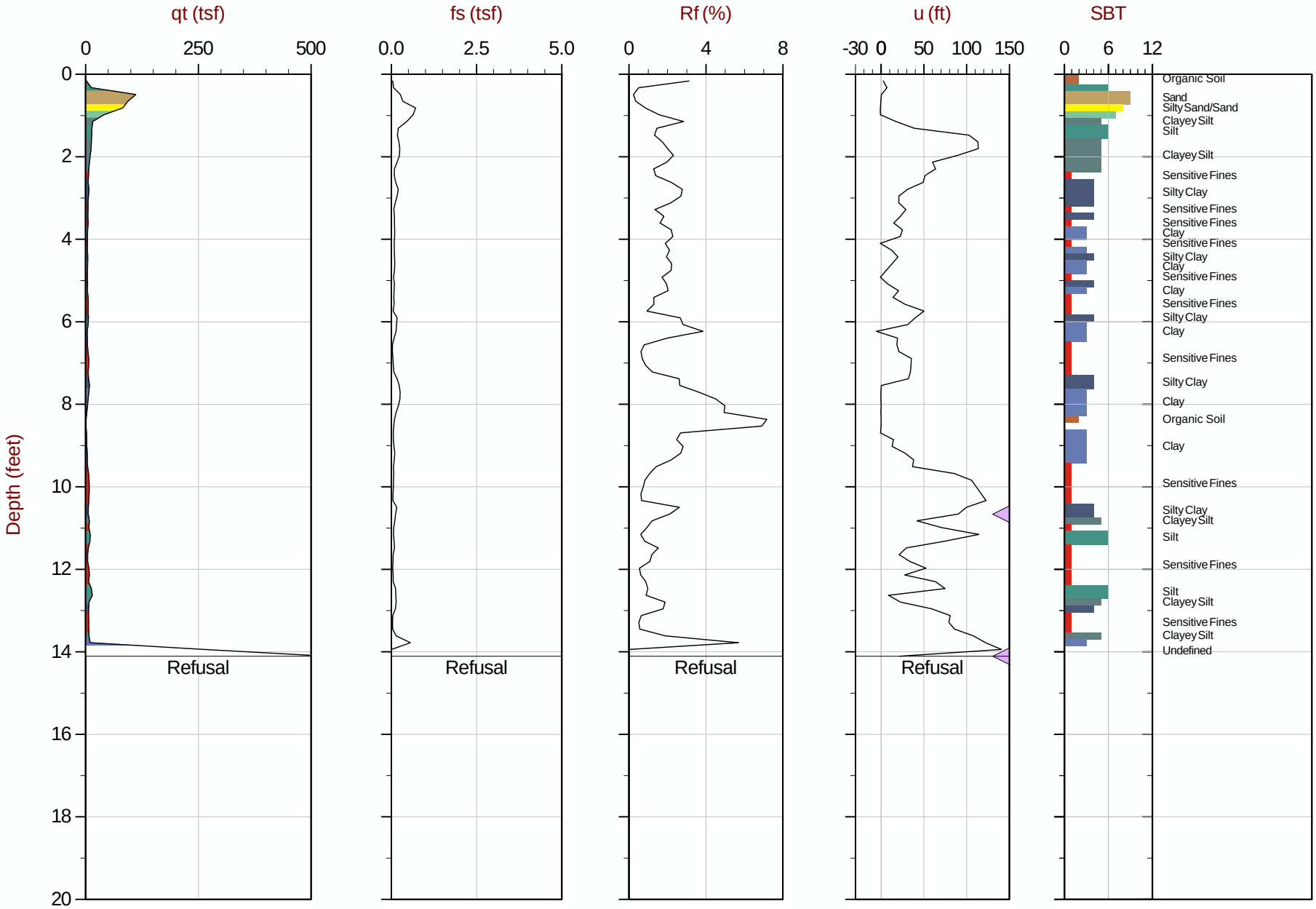
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 09:25
Site: Honeywell Claymont,DE

Sounding: SCPT15-07
Cone: 226:T1500F15U500



Max Depth: 4.300 m / 14.11 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP07.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406161m E: 463247m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

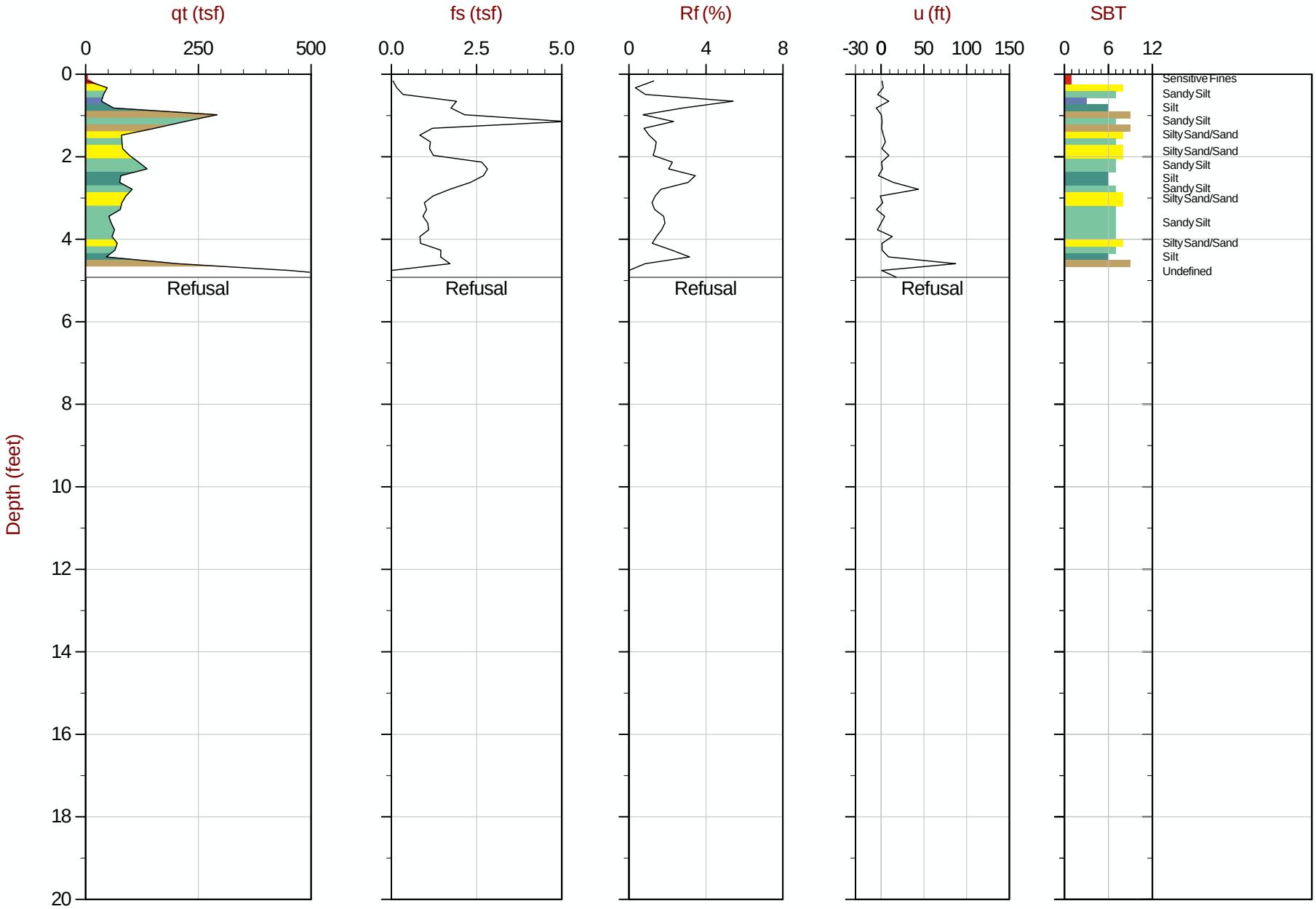
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 08:15
Site: Honeywell Claymont,DE

Sounding: CPT15-10
Cone: 436:T1500F15U500



Max Depth: 1.500 m / 4.92 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP10.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406195m E: 463310m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

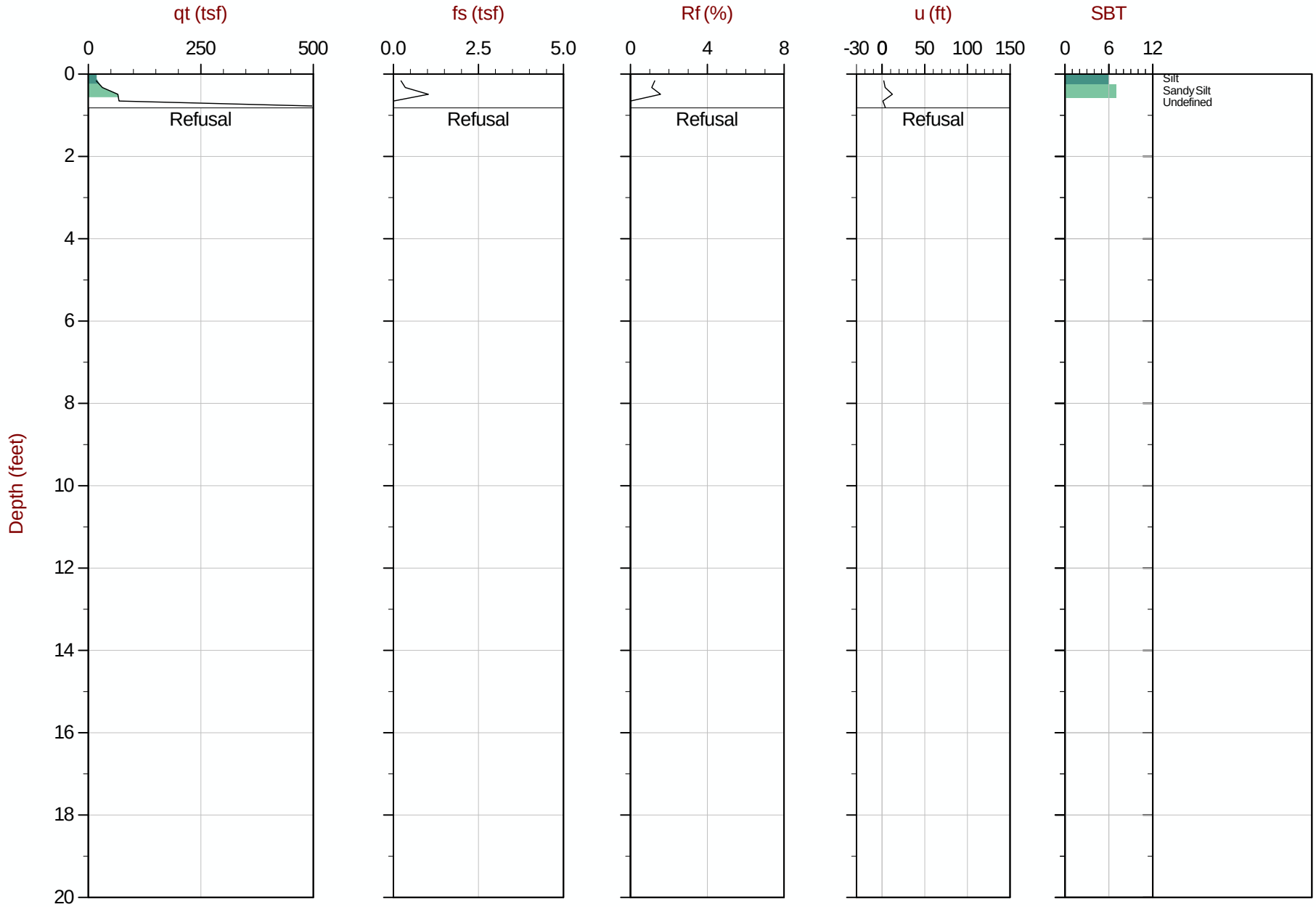
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 08:15
Site: Honeywell Claymont,DE

Sounding: CPT15-10A
Cone: 436:T1500F15U500



Max Depth: 0.250 m / 0.82 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP10A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406197m E: 463314m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

Job No:	15-53057
Client:	AMEC Foster Wheeler
Project:	Honeywell Claymont, Delaware
Start Date:	13-Jul-2015
End Date:	14-Jul-2015

CONE PENETRATION TEST SUMMARY

Sounding ID	File Name	Date	Cone	Assumed Phreatic Surface[1] (ft)	Final Depth (ft)	Shear Wave Velocity Tests	Northing[2] (m)	Easting (m)
SCPT15-02	15-53057_SP02	13-Jul-2015	436:T1500F15U500	20.0	6.56		4406268	463202
SCPT15-02A	15-53057_SP02A	13-Jul-2015	436:T1500F15U500	20.0	6.07		4406270	463206
CPT15-03	15-53057_CP03	14-Jul-2015	436:T1500F15U500	20.0	18.70		4406335	463215
CPT15-03A	15-53057_CP03A	14-Jul-2015	436:T1500F15U500	20.0	0.98		4406335	463221
CPT15-04	15-53057_CP04	14-Jul-2015	436:T1500F15U500	20.0	3.94		4406338	463271
CPT15-04A	15-53057_CP04A	14-Jul-2015	436:T1500F15U500	20.0	3.94		4406338	463265
CPT15-04B	15-53057_CP04B	14-Jul-2015	436:T1500F15U500	20.0	3.77		4406340	463269
SCPT15-06	15-53057_SP06	13-Jul-2015	436:T1500F15U500	20.0	17.06	3	4406305	463251
SCPT15-07	15-53057_SP07	14-Jul-2015	226:T1500F15U500	20.0	14.11	2	4406161	463247
CPT15-10	15-53057_CP10	14-Jul-2015	436:T1500F15U500	20.0	4.92		4406195	463310
CPT15-10A	15-53057_CP10A	14-Jul-2015	436:T1500F15U500	20.0	0.82		4406197	463314
CPT15-10B	15-53057_CP10B	14-Jul-2015	436:T1500F15U500	20.0	3.61		4406195	463310
CPT15-11	15-53057_CP11	14-Jul-2015	436:T1500F15U500	20.0	1.97		4406260	463313
CPT15-11A	15-53057_CP11A	14-Jul-2015	436:T1500F15U500	20.0	1.80		4406260	463310
CPT15-11B	15-53057_CP11B	14-Jul-2015	436:T1500F15U500	20.0	1.48		4406256	463312
SCPT15-12	15-53057_SP12	13-Jul-2015	436:T1500F15U500	20.0	3.61		4406273	463245
SCPT15-12A	15-53057_SP12A	13-Jul-2015	436:T1500F15U500	20.0	3.12		4406273	463243
SCPT15-12B	15-53057_SP12B	13-Jul-2015	436:T1500F15U500	20.0	9.02	2	4406264	463250
Totals	18 soundings				105.48	7		

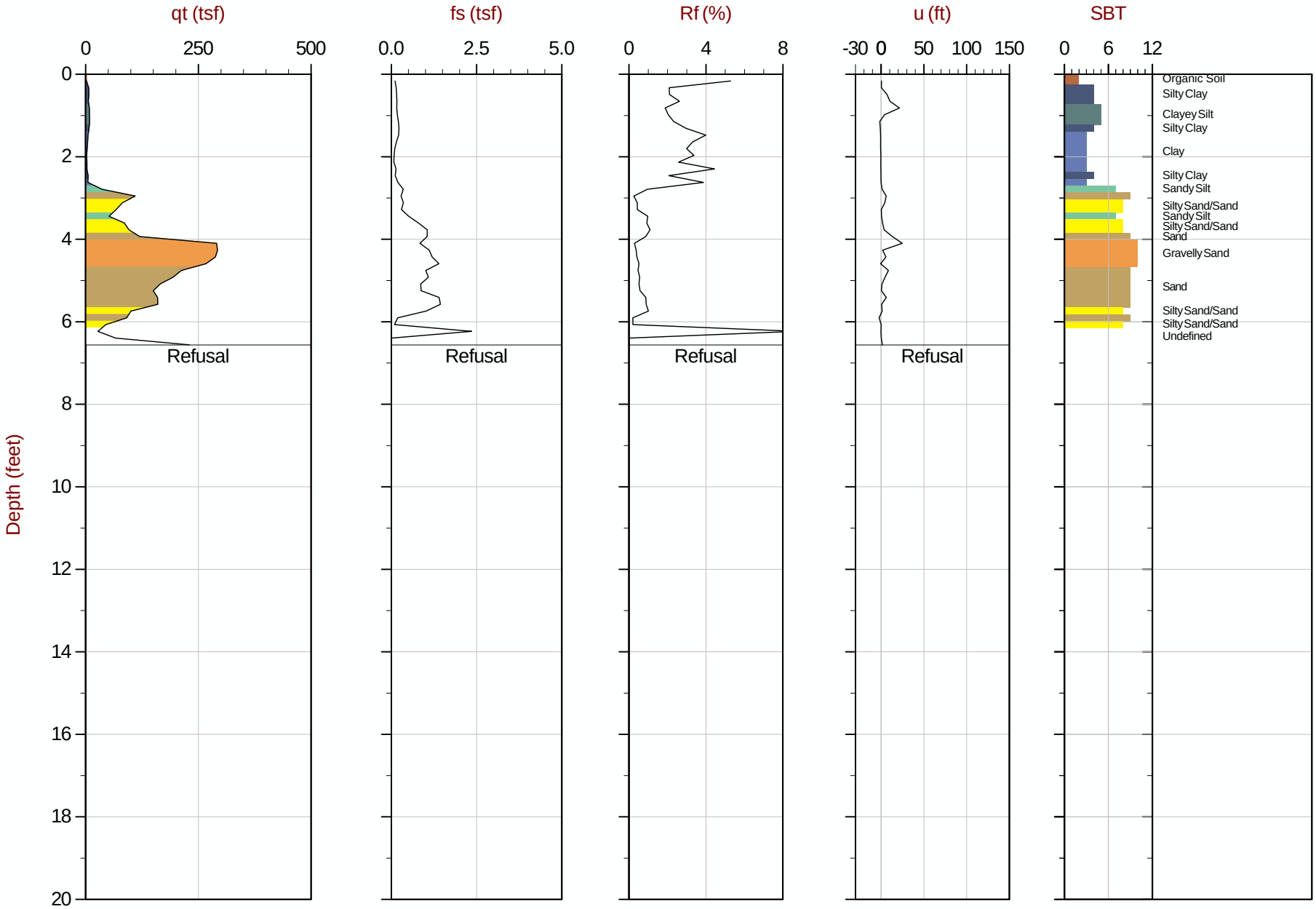
1. Assumed phreatic surface depths were determinined to be deeper than the CPT's. Hydrostatic data were used for calculated parameters.
2. Coordinates are WGS 84 / UTM Zone 18 and were collected using MR350 GlobalSat GPS Receiver.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 08:01
Site: Honeywell Claymont,DE

Sounding: SCPT15-02
Cone: 436:T1500F15U500



Max Depth: 2.000 m / 6.56 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP02.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406268m E: 463202m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

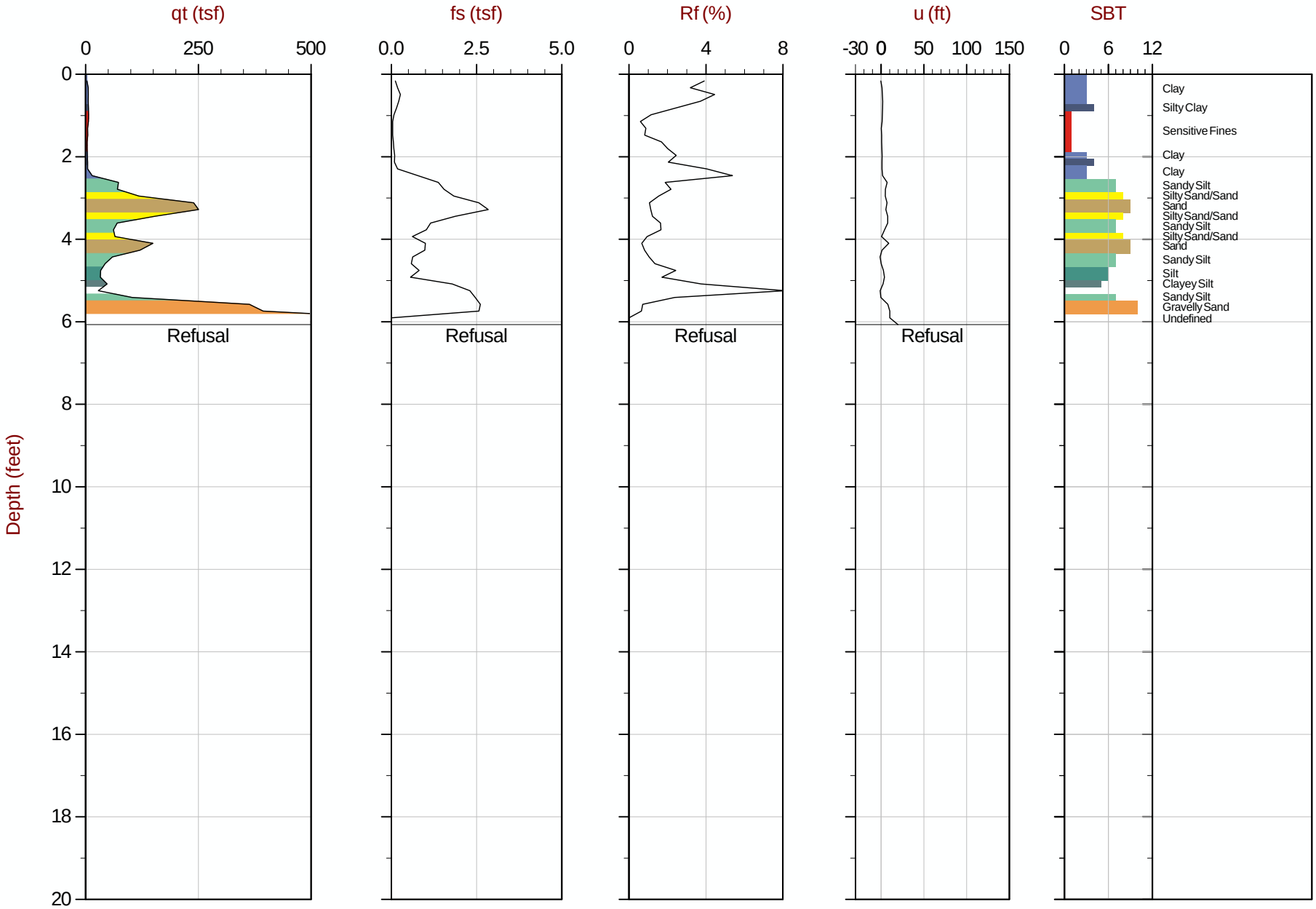
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 08:45
Site: Honeywell Claymont,DE

Sounding: SCPT15-02A
Cone: 436:T1500F15U500



Max Depth: 1.850 m / 6.07 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP02A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406270m E: 463206m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

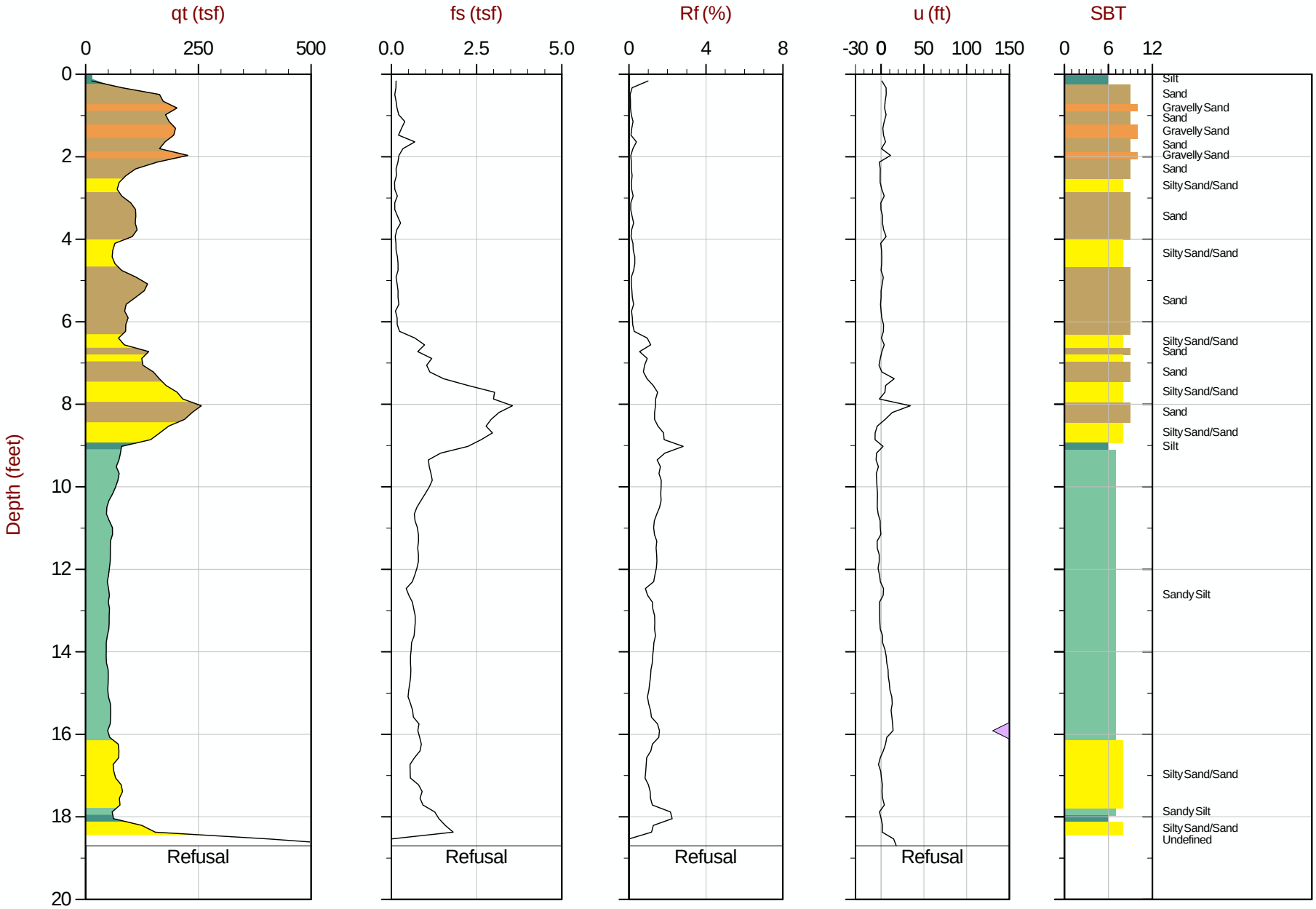
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 05:13
Site: Honeywell Claymont,DE

Sounding: CPT15-03
Cone: 436:T1500F15U500



Max Depth: 5.700 m / 18.70 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP03.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406335m E: 463215m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

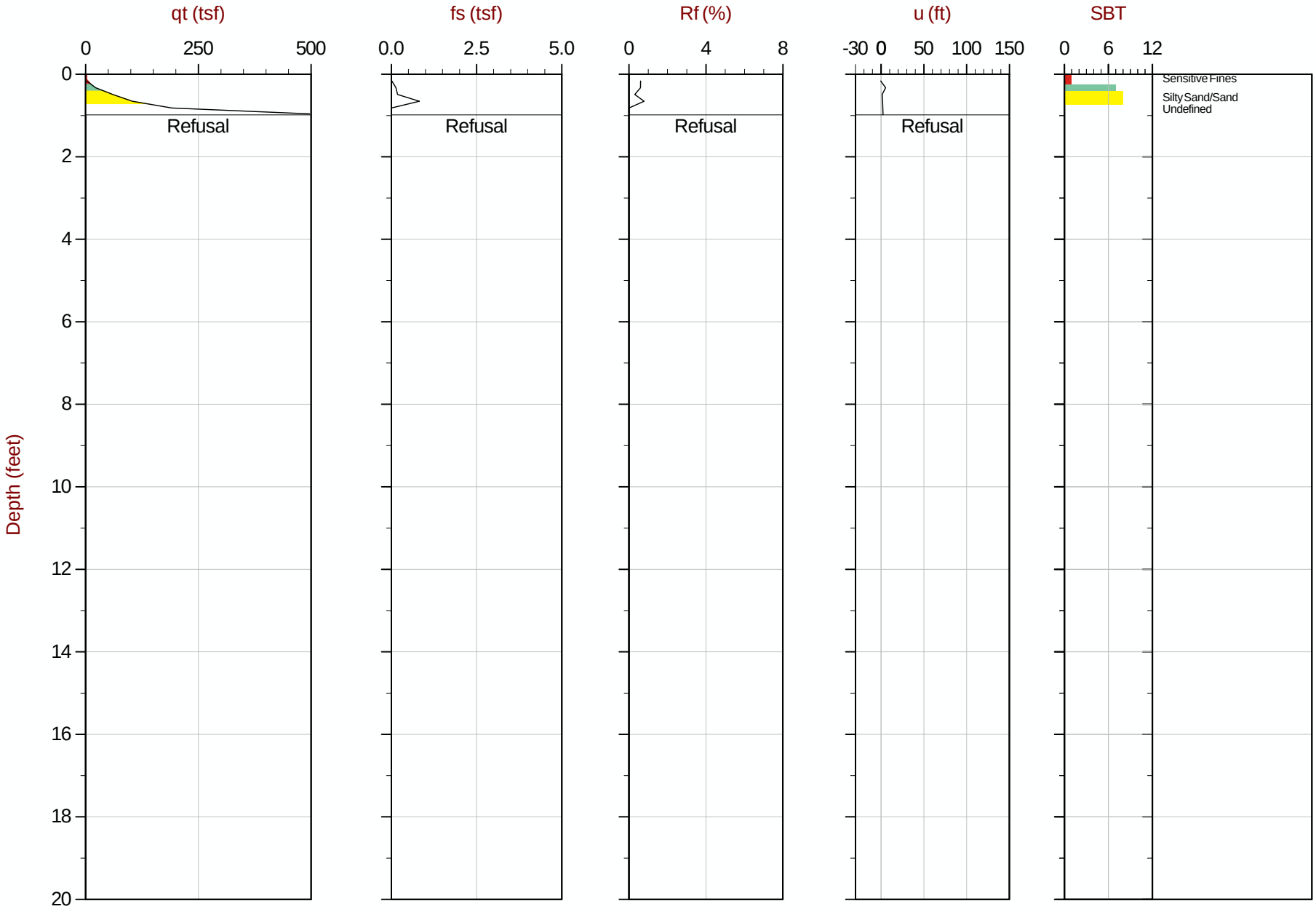
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 05:39
Site: Honeywell Claymont,DE

Sounding: CPT15-03A
Cone: 436:T1500F15U500



Max Depth: 0.300 m / 0.98 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP03A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406335m E: 463221m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

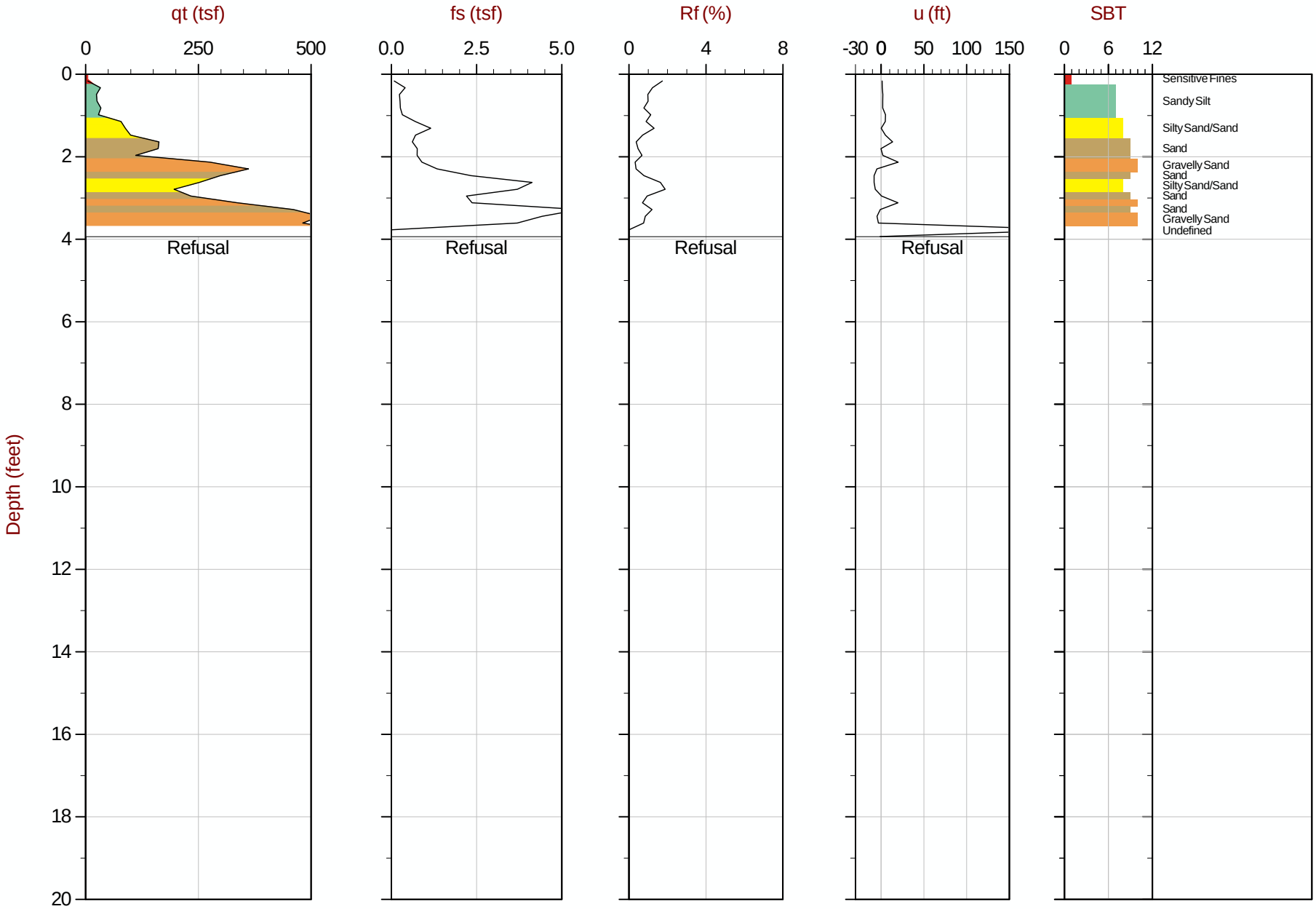
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 05:39
Site: Honeywell Claymont,DE

Sounding: CPT15-04
Cone: 436:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP04.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406338m E: 463271m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

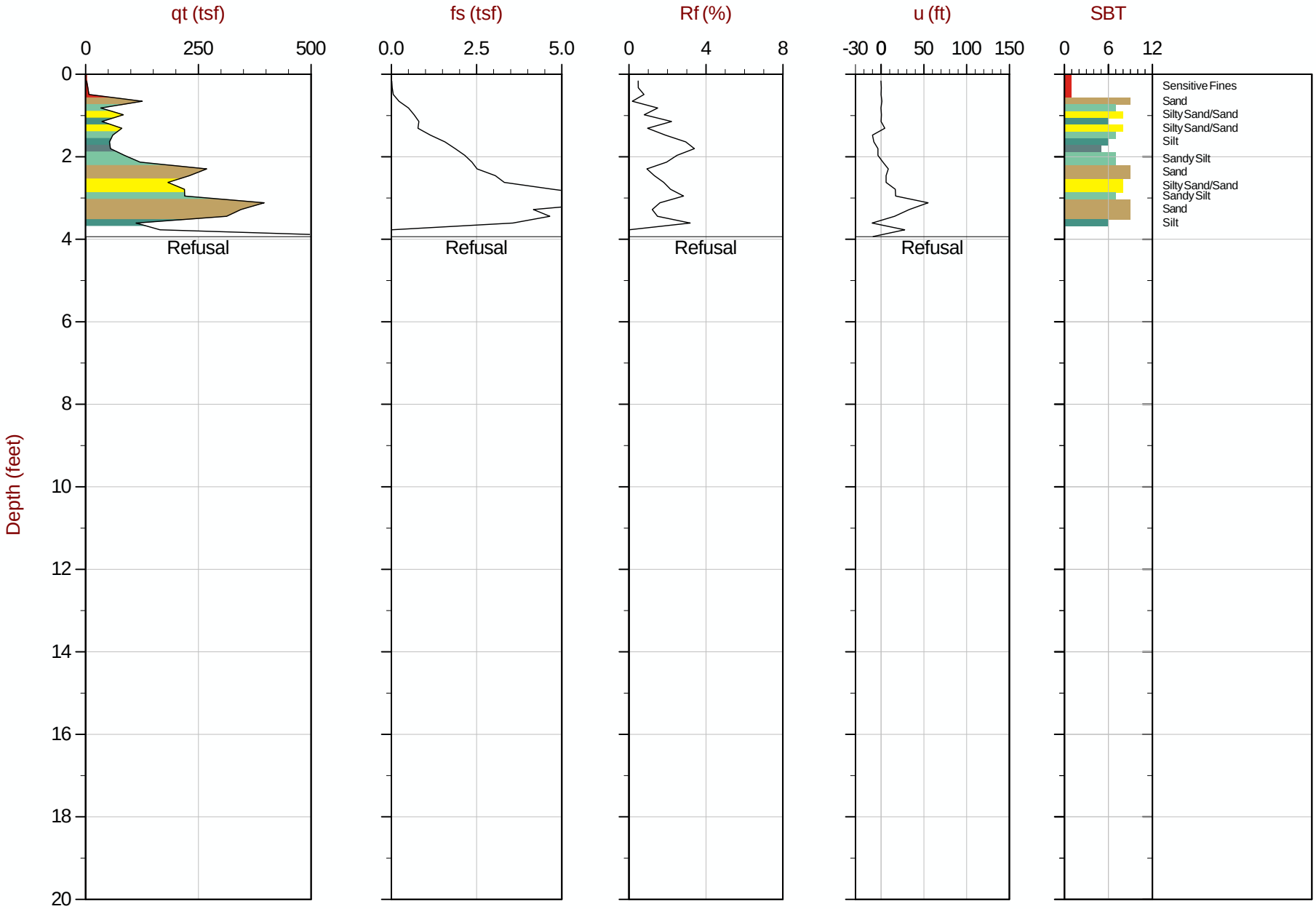
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 06:06
Site: Honeywell Claymont,DE

Sounding: CPT15-04A
Cone: 436:T1500F15U500



Max Depth: 1.200 m / 3.94 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP04A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406338m E: 463265m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

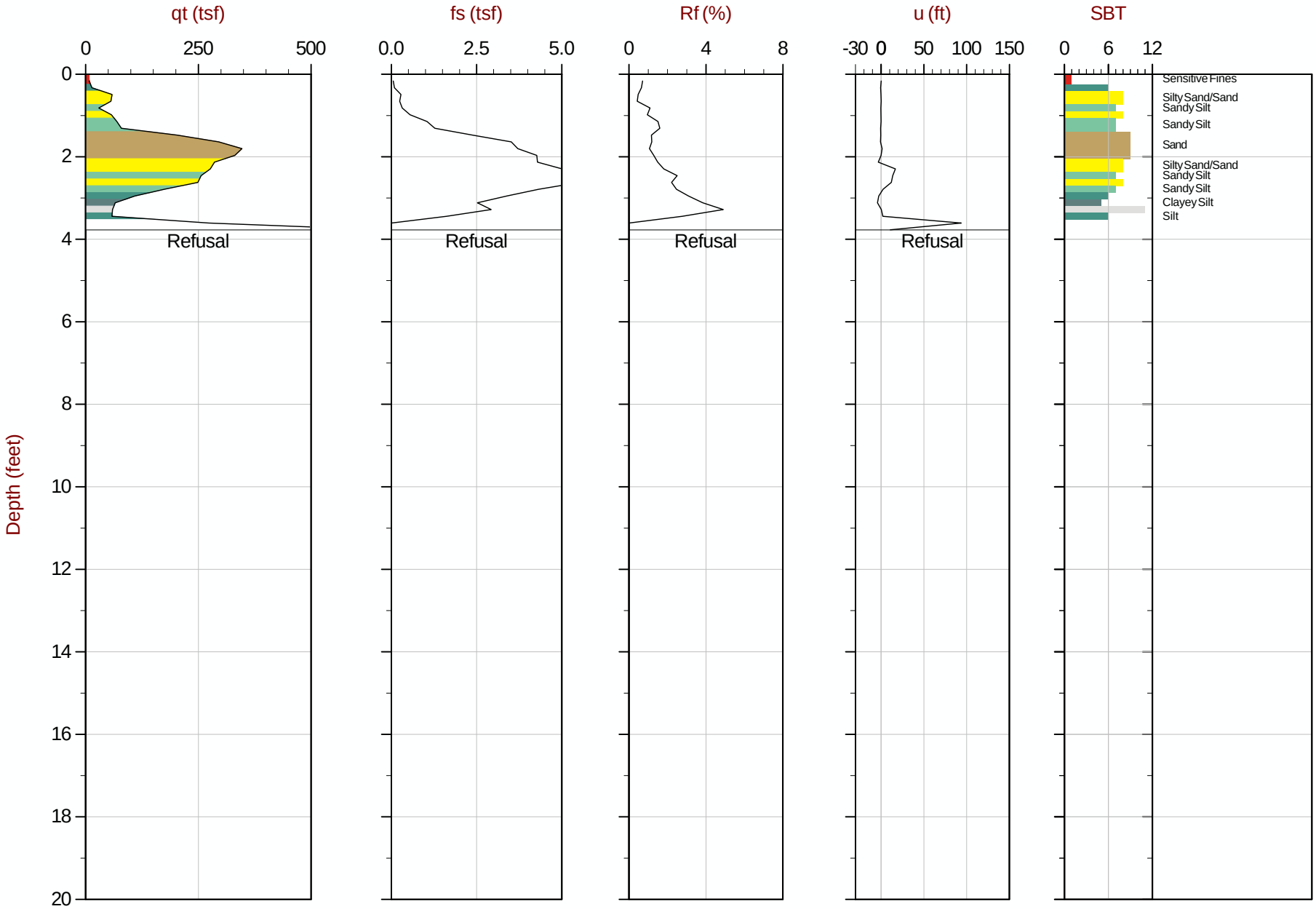
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 06:18
Site: Honeywell Claymont,DE

Sounding: CPT15-04B
Cone: 436:T1500F15U500



Max Depth: 1.150 m / 3.77 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP04B.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406340m E: 463269m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

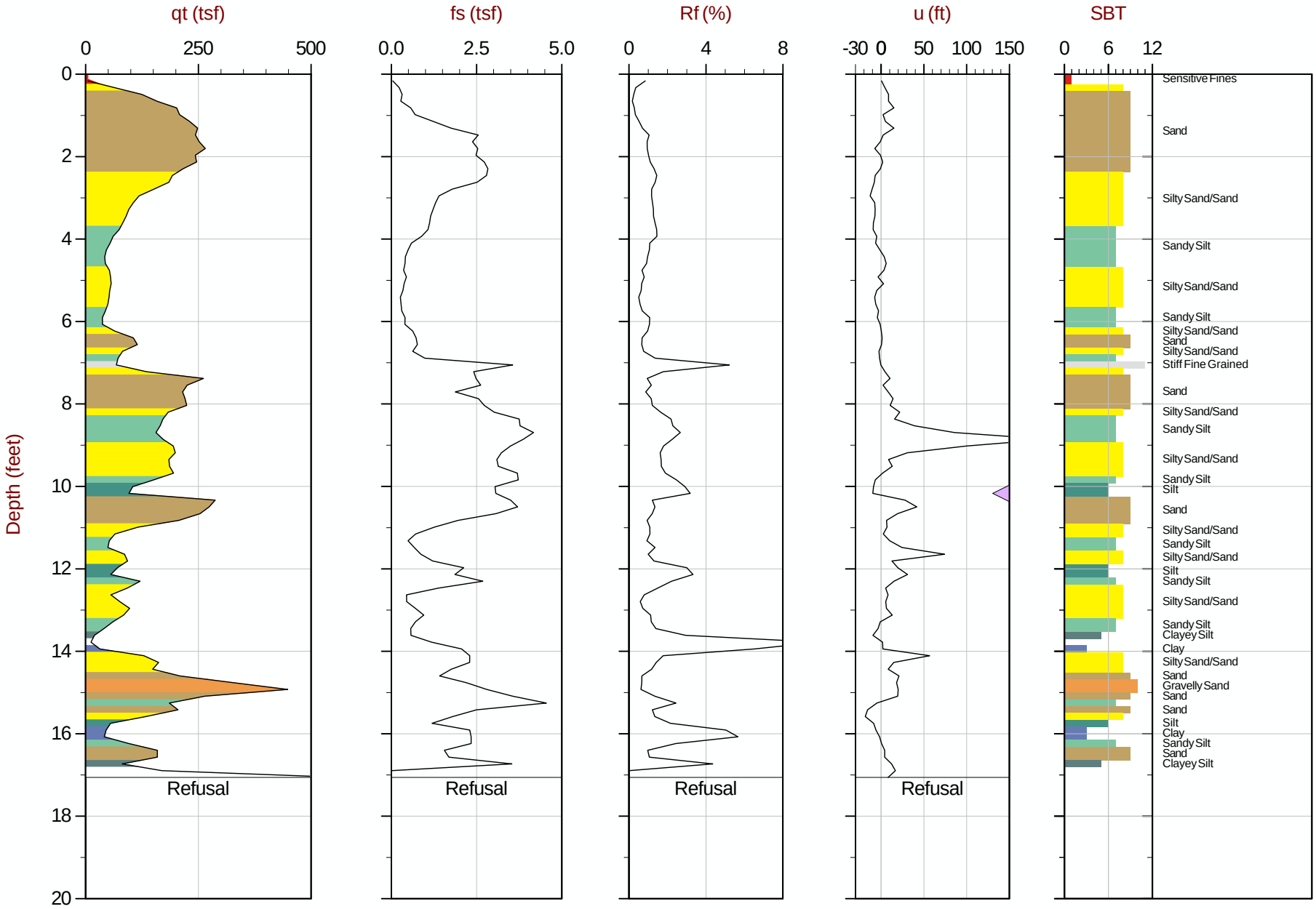
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 10:23
Site: Honeywell Claymont,DE

Sounding: SCPT15-06
Cone: 436:T1500F15U500



Max Depth: 5.200 m / 17.06 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP06.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406305m E: 463251m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

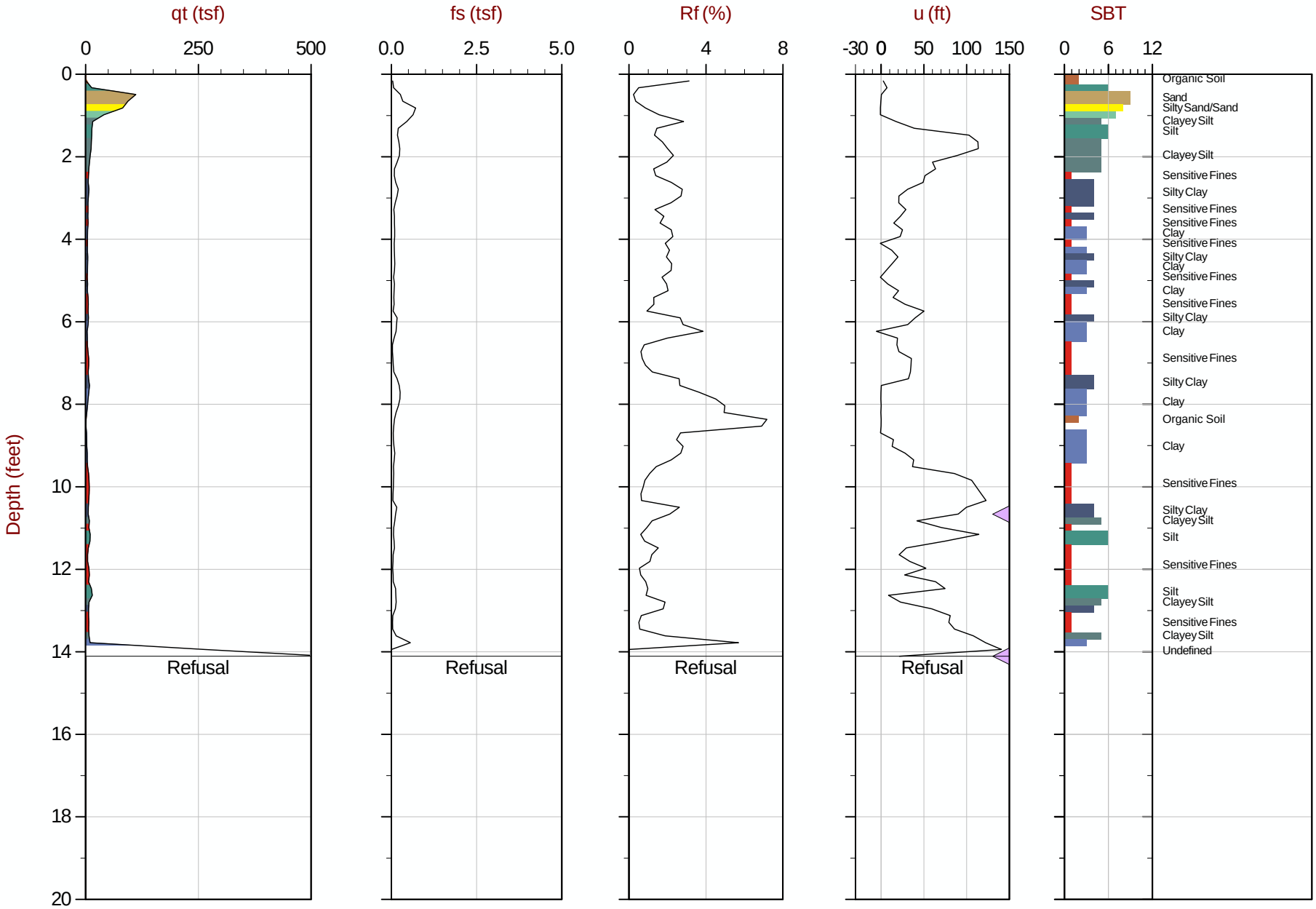
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 09:25
Site: Honeywell Claymont,DE

Sounding: SCPT15-07
Cone: 226:T1500F15U500



Max Depth: 4.300 m / 14.11 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP07.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406161m E: 463247m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

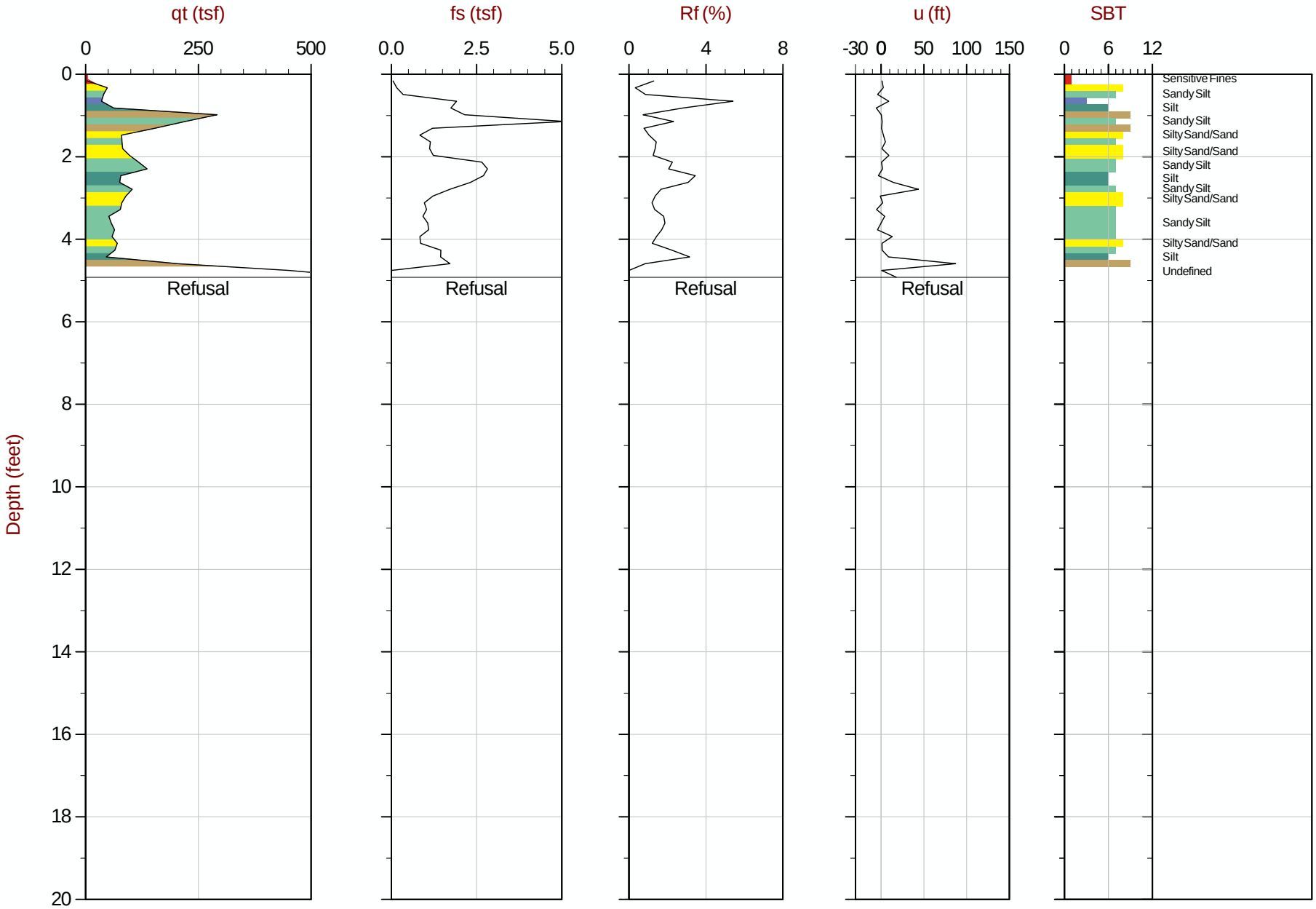
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 08:15
Site: Honeywell Claymont,DE

Sounding: CPT15-10
Cone: 436:T1500F15U500



Max Depth: 1.500 m / 4.92 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP10.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406195m E: 463310m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

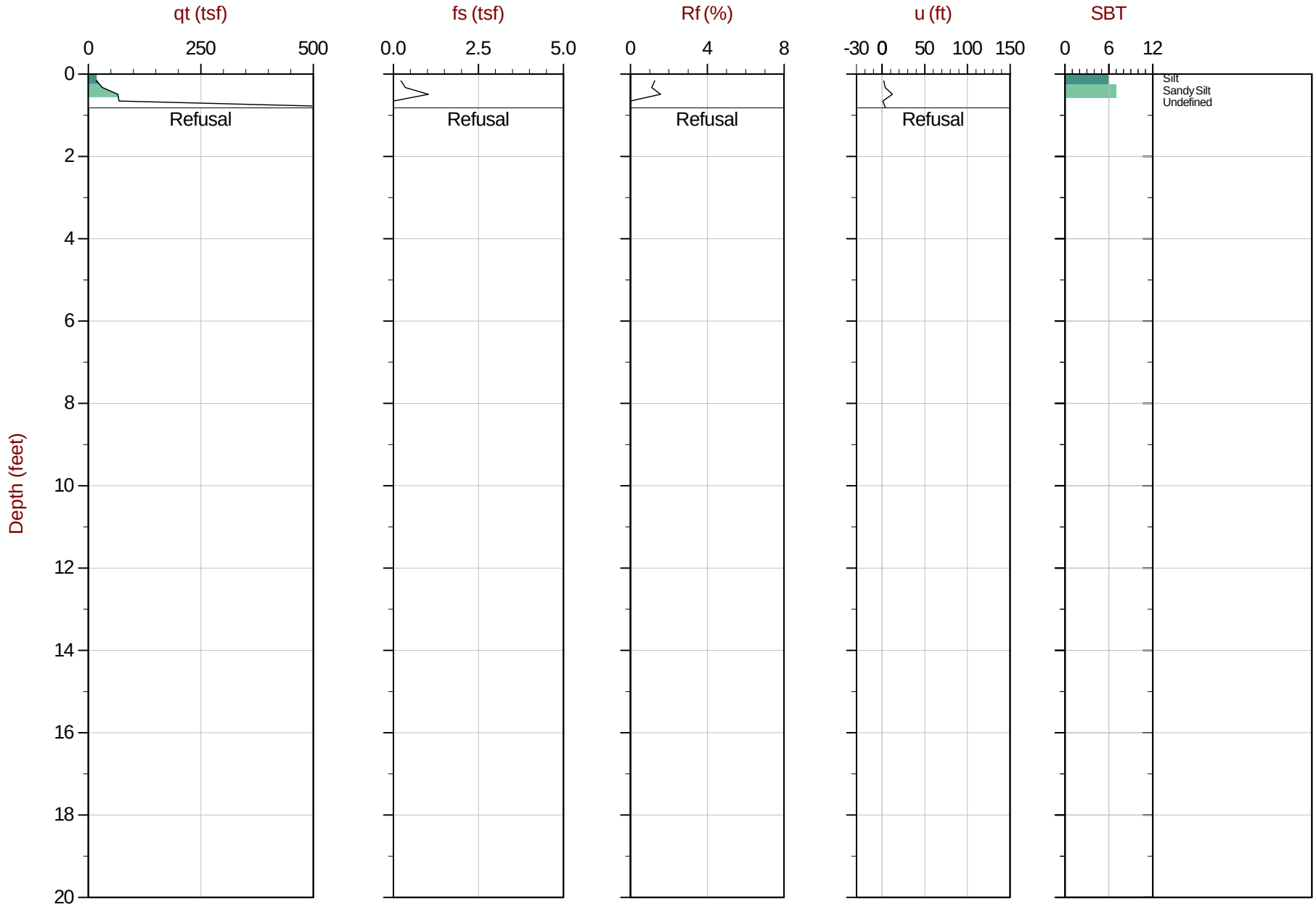
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 08:15
Site: Honeywell Claymont,DE

Sounding: CPT15-10A
Cone: 436:T1500F15U500



Max Depth: 0.250 m / 0.82 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP10A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406197m E: 463314m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

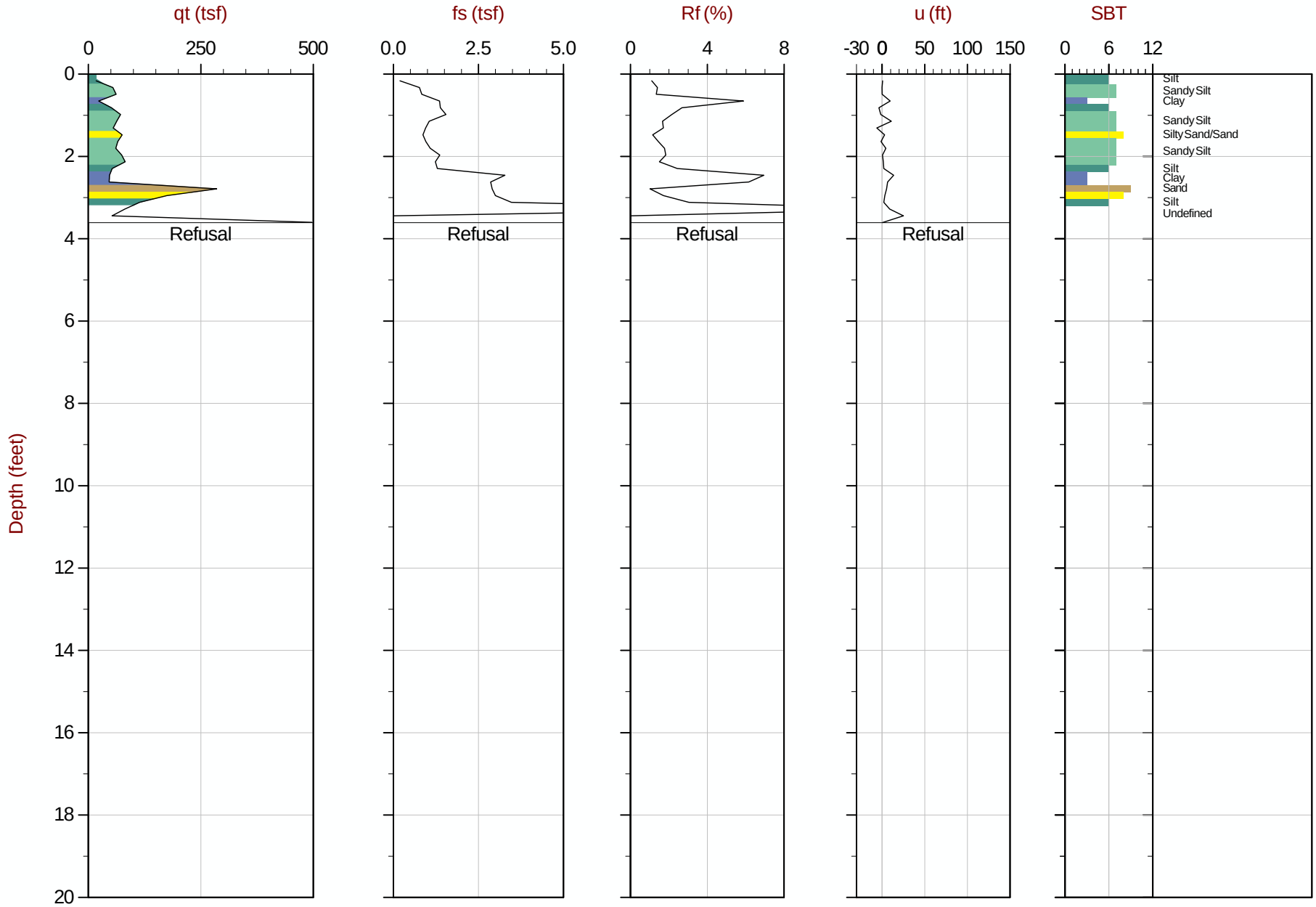
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 08:33
Site: Honeywell Claymont,DE

Sounding: CPT15-10B
Cone: 436:T1500F15U500



Max Depth: 1.100 m / 3.61 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP10B.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406195m E: 463310m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

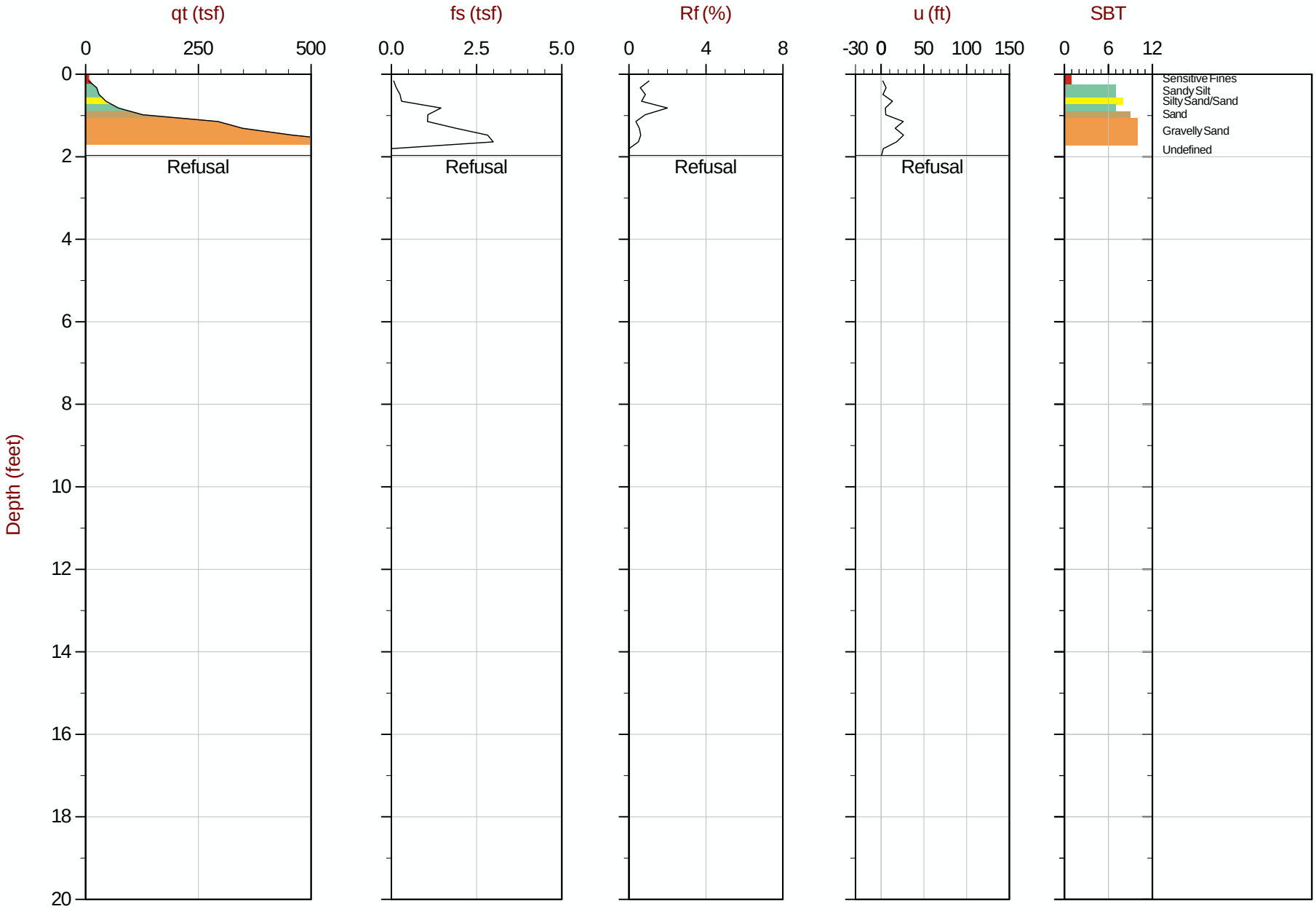
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 07:01
Site: Honeywell Claymont,DE

Sounding: CPT15-11
Cone: 436:T1500F15U500



Max Depth: 0.600 m / 1.97 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP11.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406260m E: 463313m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

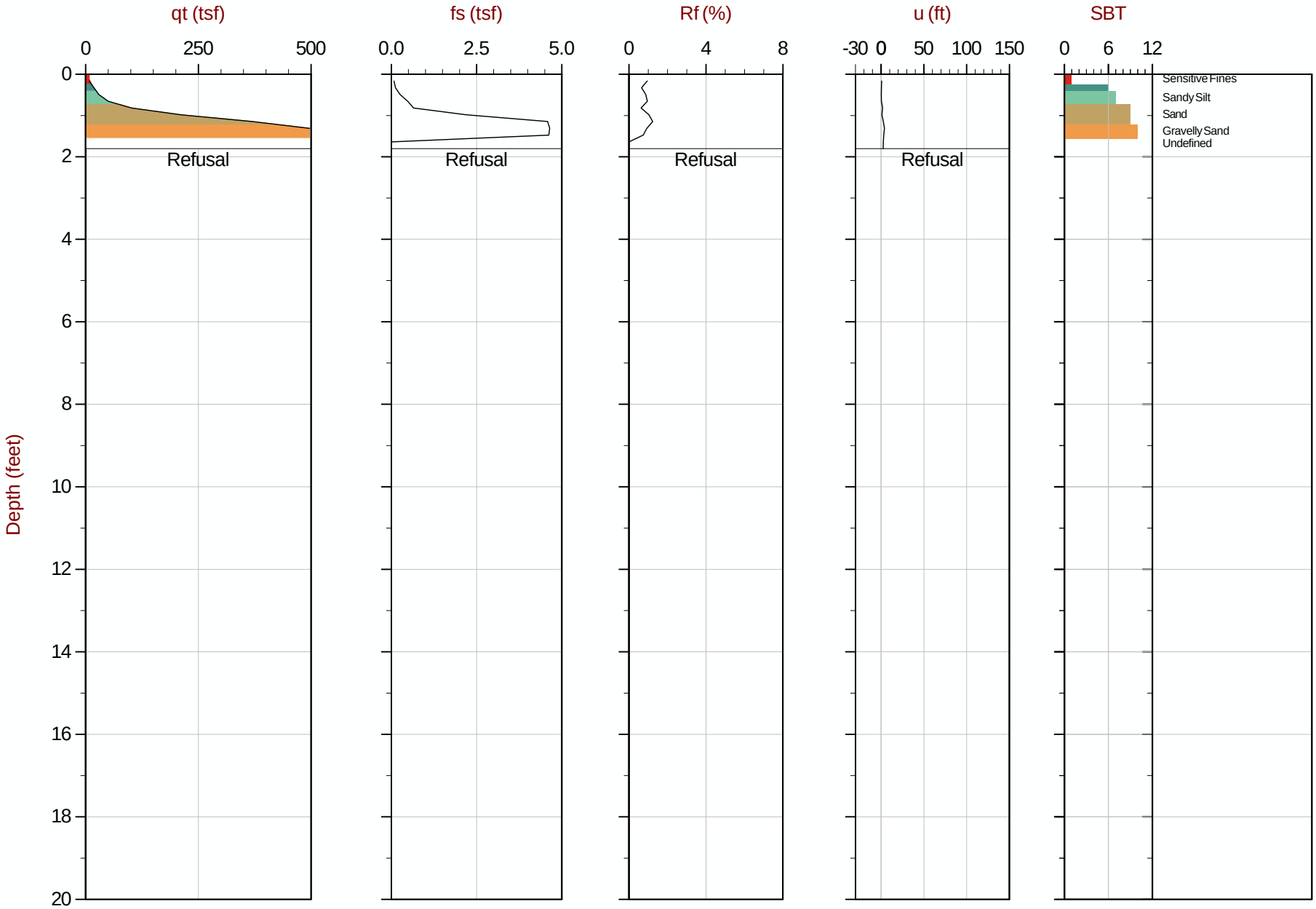
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 07:19
Site: Honeywell Claymont,DE

Sounding: CPT15-11A
Cone: 436:T1500F15U500



Max Depth: 0.550 m / 1.80 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP11A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406260m E: 463310m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

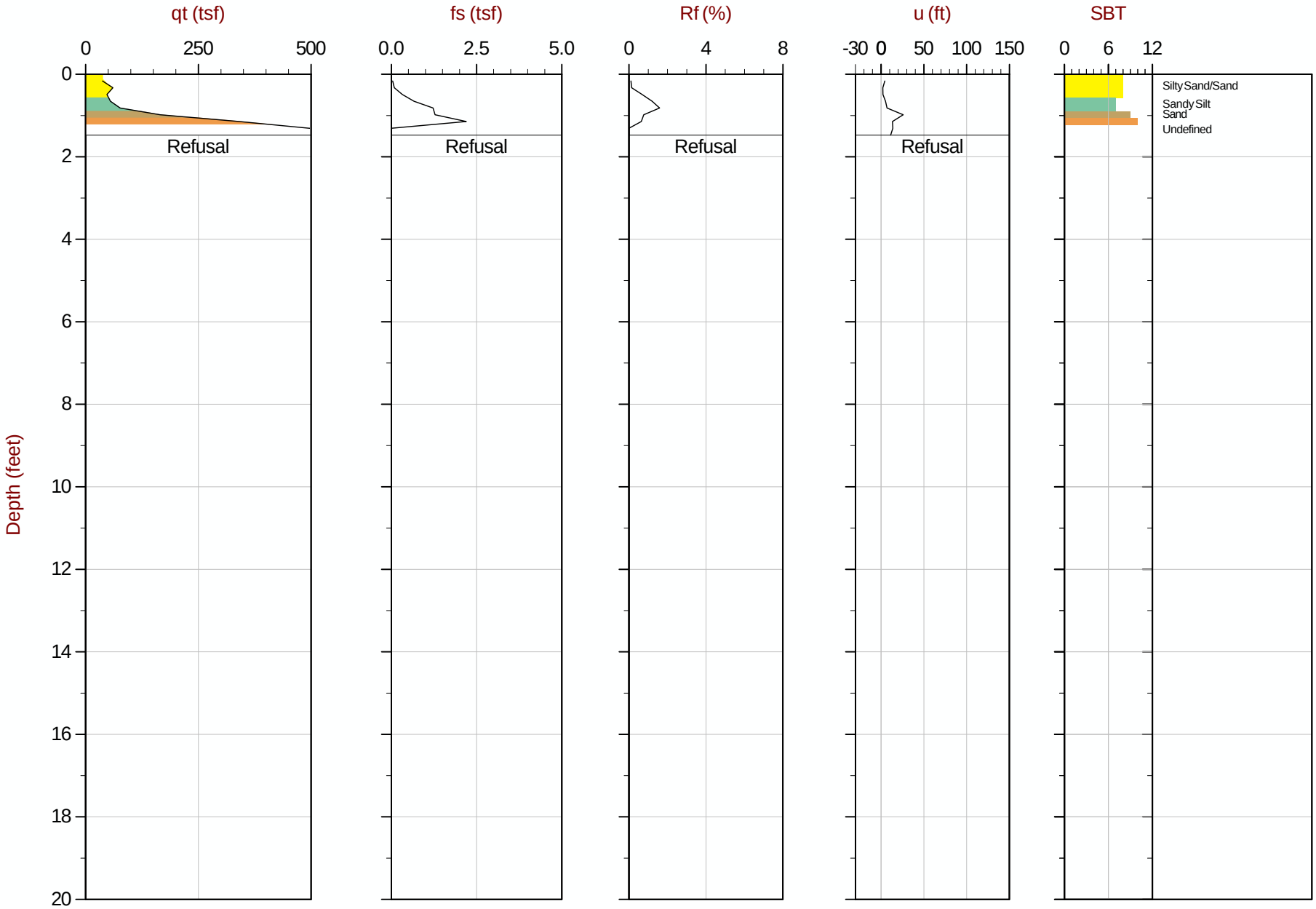
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 07:43
Site: Honeywell Claymont,DE

Sounding: CPT15-11B
Cone: 436:T1500F15U500



Max Depth: 0.450 m / 1.48 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_CP11B.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406256m E: 463312m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

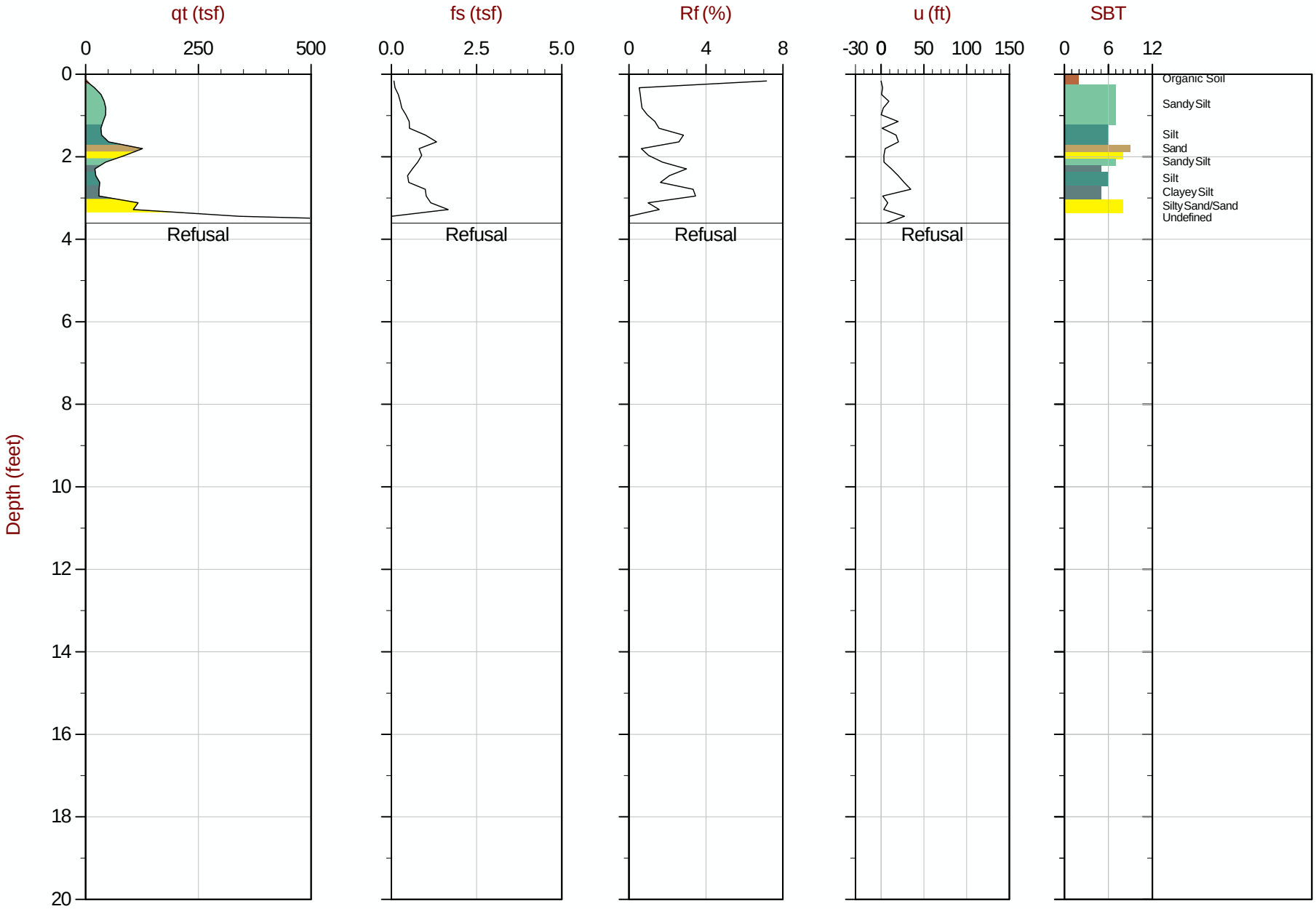
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 09:35
Site: Honeywell Claymont,DE

Sounding: SCPT15-12
Cone: 436:T1500F15U500



Max Depth: 1.100 m / 3.61 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP12.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406273m E: 463245m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

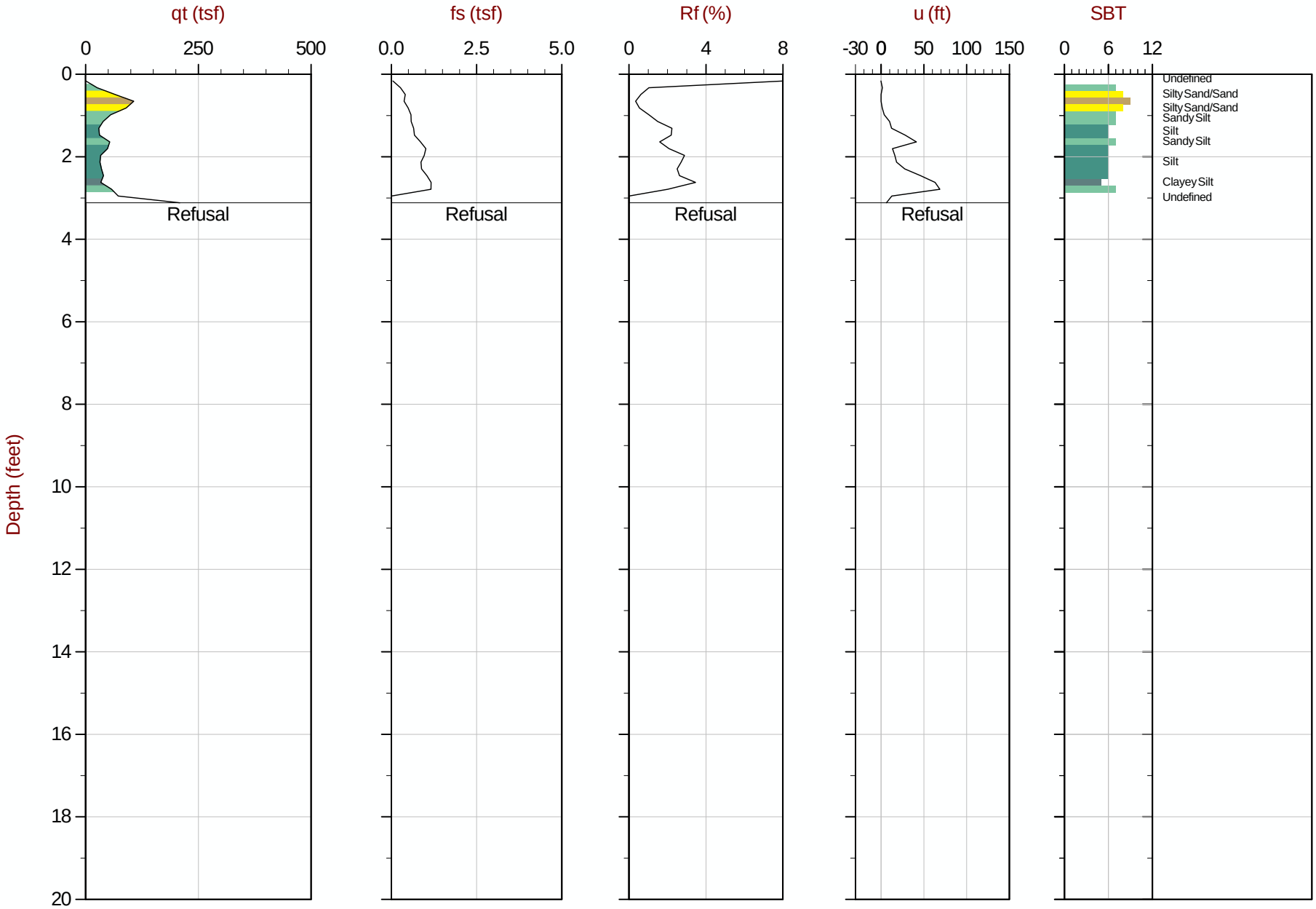
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 09:35
Site: Honeywell Claymont,DE

Sounding: SCPT15-12A
Cone: 436:T1500F15U500



Max Depth: 0.950 m / 3.12 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP12A.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406273m E: 463243m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

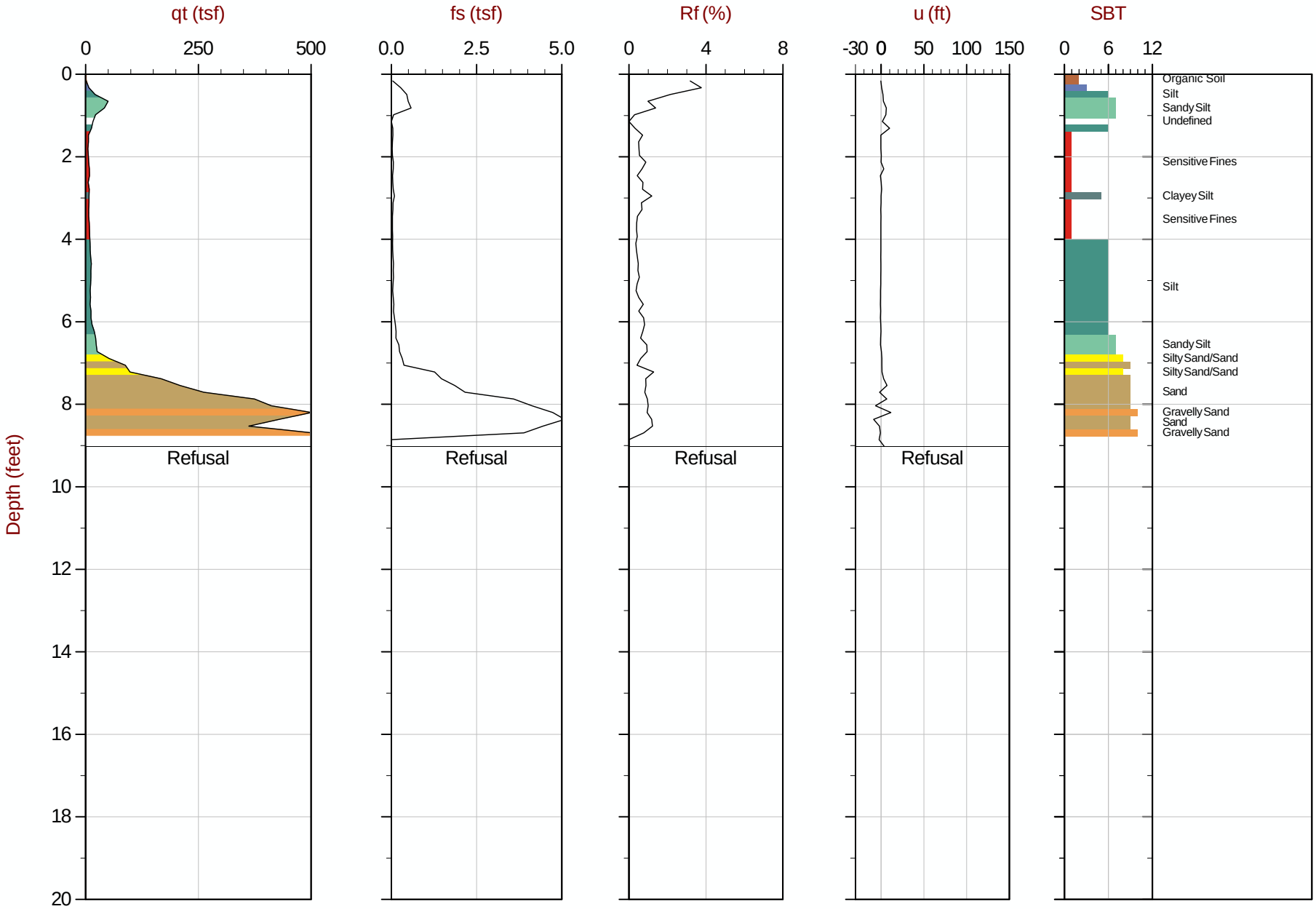
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 12:03
Site: Honeywell Claymont,DE

Sounding: SCPT15-12B
Cone: 436:T1500F15U500



Max Depth: 2.750 m / 9.02 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP12B.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406264m E: 463250m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

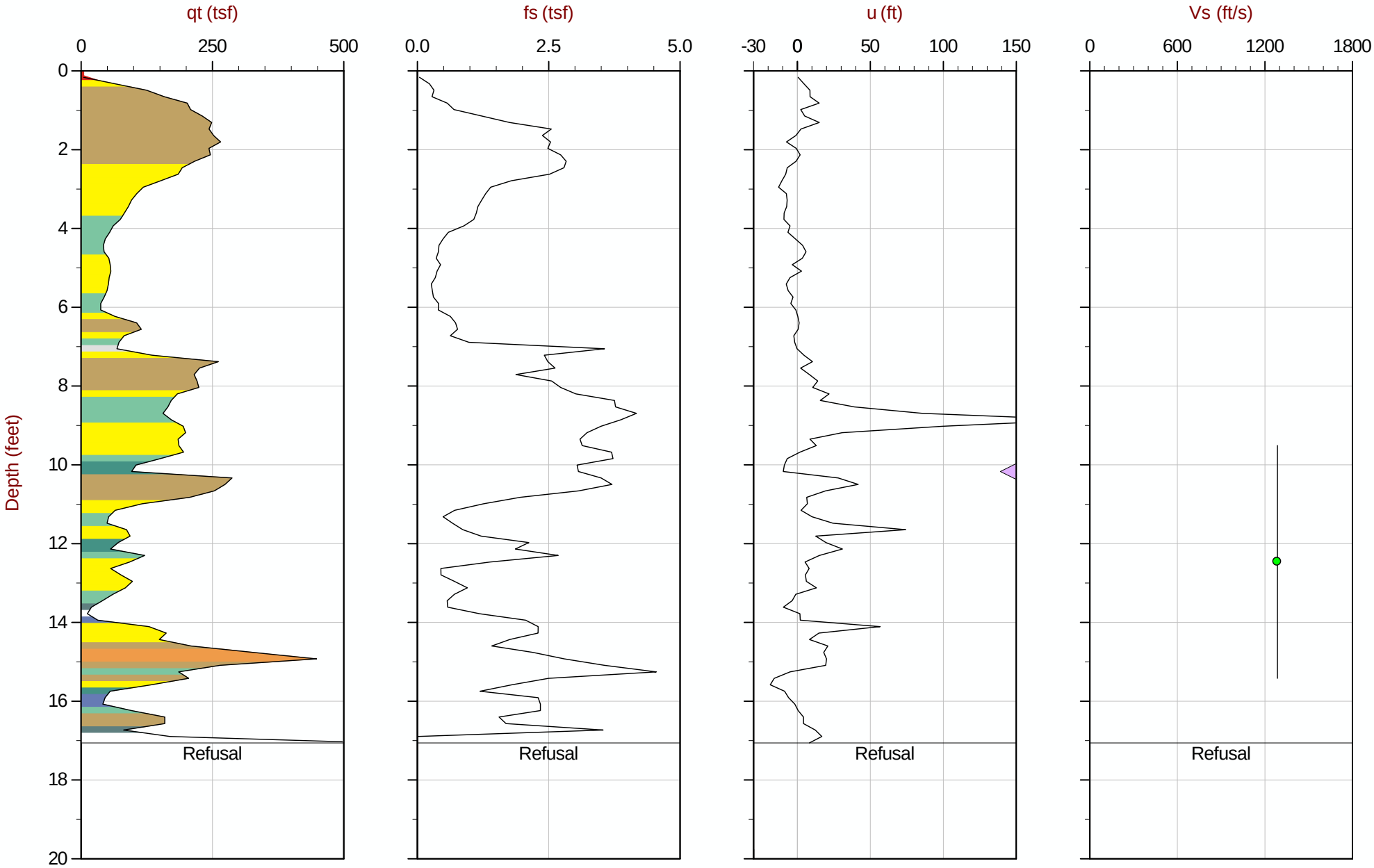
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 10:23
Site: Honeywell Claymont,DE

Sounding: SCPT15-06
Cone: 436:T1500F15U500



Max Depth: 5.200 m / 17.06 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP06.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406305m E: 463251m

Hydrostatic Line Ueq Assumed Ueq PPD, Ueq achieved PPD, Ueq not achieved

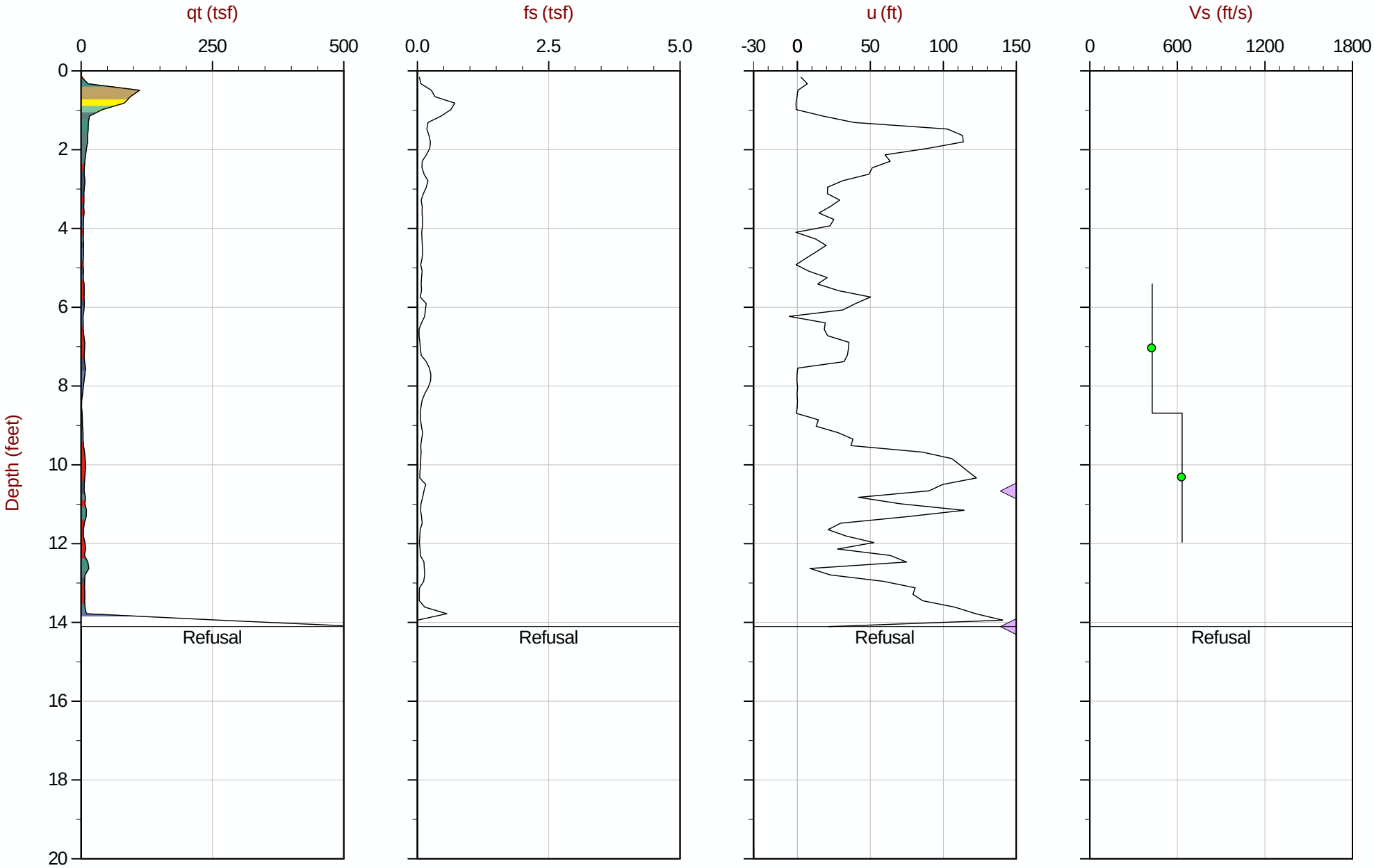
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:14:15 09:25
Site: Honeywell Claymont,DE

Sounding: SCPT15-07
Cone: 226:T1500F15U500



Max Depth: 4.300 m / 14.11 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP07.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406161m E: 463247m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

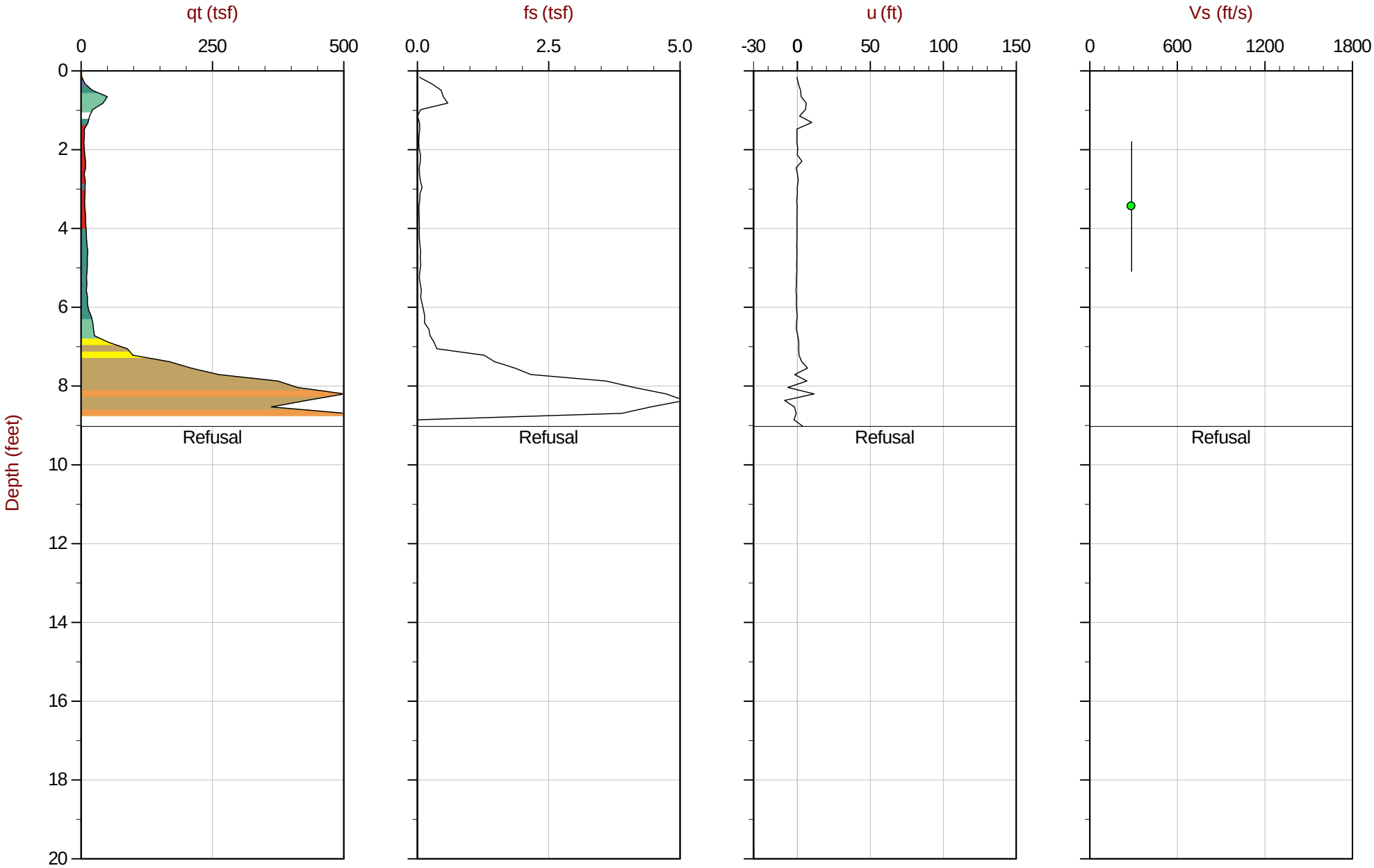
The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

CONETEC

AMEC Foster Wheeler

Job No: 15-53057
Date: 07:13:15 12:03
Site: Honeywell Claymont,DE

Sounding: SCPT15-12B
Cone: 436:T1500F15U500



Max Depth: 2.750 m / 9.02 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point

File: 15-53057_SP12B.COR

SBT: Lunne, Robertson and Powell, 1997
Coords: UTM Zone 18 N: 4406264m E: 463250m

Hydrostatic Line ○ Ueq ● Assumed Ueq ◁ PPD, Ueq achieved ◁ PPD, Ueq not achieved

The reported coordinates were acquired from consumer-grade GPS equipment and are only approximate locations. The coordinates should not be used for design purposes.

APPENDIX B

WELL CONSTRUCTION DIAGRAMS

MWH	MWH Americas, Inc. 335 Phoenixville Pike Malvern, Pennsylvania 19355	**Boring ID: MW-14** Page 1 of 2	
Project Name:	Honeywell - Claymont Phase II RFI Well Installation	**Boring Location:**	SWMU 9 - NE Corner
Location:	Claymont, Delaware	**Drilling Company:**	Talon Drilling Company (Michael Logan)
Project Number:	2110953	**Ground Elevation (ft/msl):**	13.86'
Date Started:	11/30/2004	**Total Depth (ft):**	16.0 '
Date Finished:	11/30/2004	**Boring Diameter (in):**	6.25"
Drilling Method:	Hollow Stem Auger	**Water Level During Drilling (ft/bgs):**	8.0'
Sampling Method:	Split Spoon	**Weather Conditions:**	Clear, 50 deg. F.
State Permit Number:	NA	**Logged By:**	S. Bouclier

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
0	10, 8, 5, 5	11	0.0, 0.0	SAND and SILT	0' - 3.5' Medium brown fine to medium-grained SAND and SILT, some fine to coarse-grained subrounded gravel, little coarse-grained sand, firm, moist.	Stick-up Outer Casing and Concrete Well Pad.
1						Grout from 0.0' to 1.0' bgs.
2	8, 10, 25, 40	15	0.0, 0.0, 0.0			Bentonite Chips from 1.0' to 3.0' bgs.
3						
4	10, 17, 15, 15	15	0.0, 0.0, 0.0	SLUDGE	3.5' - 7.5' Light gray to cream colored gypsum SLUDGE, trace brick, firm. 4' - 6.0' Some fine to coarse-grained subrounded to subangular gravel, very firm, damp.	4" Diameter Schedule 40 PVC riser from 0.0' to 5.0' bgs.
5						
6	15, 10, 10, 30	13	0.0, 0.0, 0.0			#1 Filter Sandpack 3.0' to 15.0' bgs.
7						
8	15, 50/5"	8	0.0, 0.0	SAND SAND	7.5' - 8' Medium orangish brown medium grained SAND, some to little fine and coarse-grained sand, trace mica, firm, moist. 8' - 10' Black medium-grained SAND, some brick, loose, wet.	
9						4" Diameter Schedule 40 PVC 0.010" slotted screen from 5.0' to 15.0' bgs.
10	5, 5, 4, 2	6	0.0, 0.0	GLASS SHARDS	10' - 12' Fine to coarse angular GLASS SHARDS, loose, saturated.	
11						
12						

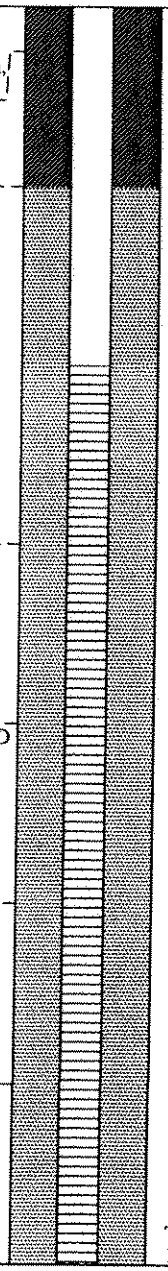
Boring ID: MW-14

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Well Diagram	Remarks
12	3				12' - 14' No Recovery.		
	3						
13	4	NR	NR				
	6						
14	7			SILT	14' - 15.5' Medium brown SILT, trace clay, firm, moist.		
	5		0.0				Total Depth 15.0' bgs.
15	4	12					
	4		0.0	SILT	15.5' - 16' Medium brown CLAY, little silt, soft, moist.		
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

MWH	MWH Americas, Inc. 335 Phoenixville Pike Malvern, Pennsylvania 19355	**Boring ID: MW-15** Page 1 of 1

Project Name:	Honeywell - Claymont Phase II RFI Well Installation	**Boring Location:**	SWMU 9 - Eastern Perimeter
Location:	Claymont, Delaware	**Drilling Company:**	Talon Drilling Company (Michael Logan)
Project Number:	2110953	**Ground Elevation (ft/msl):**	11.13'
Date Started:	11/30/2004	**Total Depth (ft):**	14.0 '
Date Finished:	11/30/2004	**Boring Diameter (in):**	6.25"
Drilling Method:	Hollow Stem Auger	**Water Level During Drilling (ft/bgs):**	6.0'
Sampling Method:	Split Spoon	**Weather Conditions:**	Clear, 50 deg. F.
State Permit Number:	NA	**Logged By:**	S. Bouclier

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
0–1	12 50/5"	9	0.0 0.0	SAND and SILT SLUDGE	0' - 0.5' Medium brown fine to medium-grained SAND and SILT, some fine to coarse-grained subrounded gravel, little coarse-grained sand, firm, moist. 0.5' - 2' Light gray to cream colored gypsum SLUDGE, trace brick, very compact, dry.	Stick-up Outer Casing and Concrete Well Pad. Bentonite Chips from 0.0' to 2.0' bgs.
2–4	15 50/3"	6	0.0 0.0	SLUDGE	2' - 6' Deep red to purple gypsum SLUDGE, wet.	4" Diameter Schedule 40 PVC riser from 0.0' to 4.0' bgs.
4–6	25 50/3"	6	0.0 0.0			#1 Filter Sandpack from 2.0' to 14.0' bgs.
6–8	6 5 3 3	3	0.0	GLASS SHARDS	6' - 8' Fine to coarse angular GLASS SHARDS, loose, saturated.	
8–10	5 7 2 1	6	0.0 0.0	SAND and GRAVEL	8' - 10' Dark gray medium to coarse-grained SAND and GRAVEL, loose, saturated.	4" Diameter Schedule 40 PVC 0.010" slotted screen from 4.0' to 14.0' bgs.
10–12	2 2 1 50/3"	3	0.0		10' - 12' No Recovery - wood fragment in shoe.	
12–14	NA	NR	NR	SILT	12' - 14' Medium brown SILT, trace clay, firm, moist.	Total Depth 14.0' bgs.

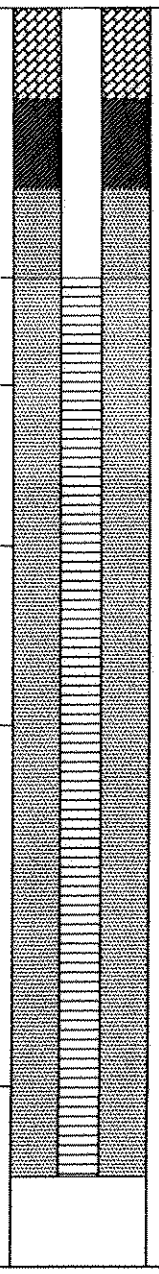


MWH	MWH Americas, Inc. 335 Phoenixville Pike Malvern, Pennsylvania 19355	**Boring ID: MW-16** Page 1 of 1

Project Name:	Honeywell - Claymont Phase II RFI Well Installation	**Boring Location:**	SWMU 9 - SE Perimeter
Location:	Claymont, Delaware	**Drilling Company:**	Talon Drilling Company (Michael Logan)
Project Number:	2110953	**Ground Elevation (ft/msl):**	8.3
Date Started:	12/1/2004	**Total Depth (ft):**	14.0 '
Date Finished:	12/1/2004	**Boring Diameter (in):**	6.25"
Drilling Method:	Hollow Stem Auger	**Water Level During Drilling (ft/bgs):**	6.0'
Sampling Method:	Split Spoon	**Weather Conditions:**	Rain, 50 deg. F.
State Permit Number:	NA	**Logged By:**	S. Bouclier

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
0	9, 15, 27, 50/4	12	NA	SILT and SAND	0' - 3' Medium brown SILT and fine to medium-grained SAND, bricks, wood, fine to coarse-grained subgangular gravel, trace gypsum sludge, very compact, moist.	Stick-up Outer Casing and Concrete Well Pad. Grout from 0.0' to 1.0' bgs. Bentonite Chips from 1.0' to 2.0' bgs.
2	NA, NA, NA, NA	NA	NA	SLUDGE	3' - 4.2' Light gray to cream colored gypsum SLUDGE.	4" Diameter Schedule 40 PVC riser to 3.0' bgs.
4	15, 15, 3, 3	6	0.2	SILT	4.2' - 6' Medium brown SILT, some fine to coarse-grained sand and gravel, trace clay.	#1 Filter Sandpack from 2.0' to 13.0' bgs.
6	1, 1, 2, 3	18	0.0, 0.0, 0.0	SLUDGE	6' - 8' Light gray to cream colored gypsum SLUDGE, very soft, saturated.	4" Diameter Schedule 40 PVC 0.010" slotted screen from 3.0' to 13.0' bgs.
8	1, 3, 2, 3	4	20.1	SAND and SILT	8' - 12' Black fine to medium-grained SAND and SILT, little fine to medium-grained subangular gravel, loose, wet.	
10	3, 3, 2, 1	18	5.6, 5.3, 5.2, 5.9			
12	1, 2, 1, 2	12	NA	SILT and CLAY	12' - 14' Black SILT and CLAY, strong hydrocarbon odor, very soft, wet.	Total Depth 13.0' bgs.
14						

Well Diagram

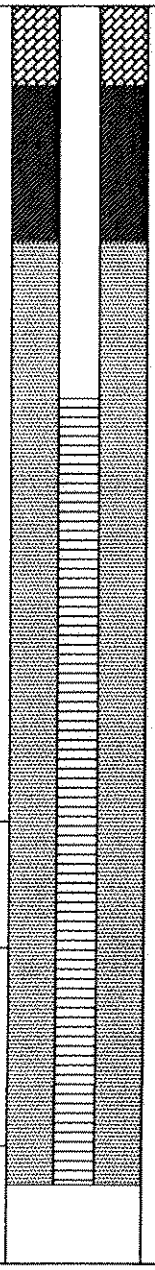


MWH	MWH Americas, Inc. 335 Phoenixville Pike Malvern, Pennsylvania 19355	**Boring ID: MW-17** Page 1 of 1

Project Name:	Honeywell - Claymont Phase II RFI Well Installation	**Boring Location:**	SWMU 9 - SW Corner
Location:	Claymont, Delaware	**Drilling Company:**	Talon Drilling Company (Michael Logan)
Project Number:	2110953	**Ground Elevation (ft/msl):**	10.9
Date Started:	12/1/2004	**Total Depth (ft):**	16.0 '
Date Finished:	12/2/2004	**Boring Diameter (in):**	6.25"
Drilling Method:	Hollow Stem Auger	**Water Level During Drilling (ft/bgs):**	5.0'
Sampling Method:	Split Spoon	**Weather Conditions:**	Cloudy, 50 deg. F.
State Permit Number:	NA	**Logged By:**	S. Bouclier

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
0	1			SLUDGE	0' - 10.4' Light gray to cream colored gypsum SLUDGE, soft, moist to wet at 4.0'.	Stick-up Outer Casing with Concrete Well Pad.
1	1	4	0.0			Grout from 0.0' to 1.0' bgs.
	1					
	1					
2	1		0.0			Bentonite Chips from 1.0' to 3.0' bgs.
3	1	16	0.0			
	1					
	5		0.0			4" Diameter Schedule 40 PVC riser from 0.0' to 5.0' bgs.
4	2		0.0			
5	5	16	0.0		4.5' Color change to deep red to purple. 5' Saturated layer.	
	50/3"		0.0		5.5' Color change to light gray to cream, very compact.	#1 Filter Sandpack from 3.0' to 15.0' bgs.
6	40					
7	50/1"	6	0.0			
8	10					
9	10	4	0.0			4" Diameter Schedule 40 PVC 0.010" slotted screen from 5.0' to 15.0' bgs.
	8					
	5					
10	4					
11	5	5	0.0	SAND	10.4' - 12' Dark brown fine to medium-grained SAND, some silt, trace coarse-grained sand, very soft, saturated.	
	10					
	10					
12	6		0.0	SILT and CLAY	12' - 14.5' Light gray to cream colored gypsum SLUDGE, some fine-grained sand, soft, wet to saturated.	
13	6	19	0.0			
	6					
	10		0.0			
14	27		0.1			
15	12	15		SLUDGE	14.5' - 16' Deep red to purple gypsum SLUDGE, very soft with layers of very compact sludge, saturated.	Total Depth 15.0' bgs.
	7		0.3			
16	15					

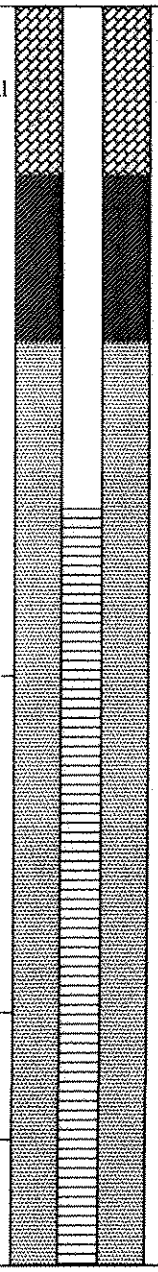
Well Diagram



MWH	MWH Americas, Inc. 335 Phoenixville Pike Malvern, Pennsylvania 19355	**Boring ID: MW-18** Page 1 of 2	
Project Name:	Honeywell - Claymont Phase II RFI Well Installation	**Boring Location:**	SWMU 9 - Western Perimeter
Location:	Claymont, Delaware	**Drilling Company:**	Talon Drilling Company (Michael Logan)
Project Number:	2110953	**Ground Elevation (ft/msl):**	15.1
Date Started:	12/2/2004	**Total Depth (ft):**	30.0 '
Date Finished:	12/2/2004	**Boring Diameter (in):**	6.25"
Drilling Method:	Hollow Stem Auger	**Water Level During Drilling (ft/bgs):**	10.5'
Sampling Method:	Split Spoon	**Weather Conditions:**	Clear, 40 deg. F.
State Permit Number:	NA	**Logged By:**	S. Bouclier

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
0	3	14	0.0	SLUDGE	0' - 8' Deep red to purple gypsum SLUDGE, little fine to coarse grained gravel, trace layers of yellow sludge material, trace organic material, moist. Very compact layer of white consolidated sludge material at 1.9'.	Stick-up Outer Casing and Concrete Well Pad.
1	5		0.0			Grout from 0.0' to 2.0' bgs.
	6		0.0			
	50/4"		0.0			
2	NA	NR	NR			
3	NA					Bentonite Chips from 2.0' to 4.0' bgs.
	NA					
	NA					
4	3	7	0.5		4' Color change to cream to light yellow, moist, soft.	
5	5					4" Diameter Schedule 40 PVC riser from 0.0' to 6.0' bgs.
	5					
	8					
6	15	22	0.0		6' Color change deep purple to black, dry.	
7	15		0.0			
	10		0.0			
	10		0.0			#1 Filter Sandpack from 0.0' to 18.0' bgs.
8	10	12	0.0	GRAVEL	8' - 12' Dark gray to black fine to coarse-grained GRAVEL, some silty fine to coarse-grained sand, trace brick, lenses of clay, loose, soft, wet.	
9	12		0.0			
	18					
	20		0.0			4" Diameter Schedule 40 PVC 0.010" slotted screen from 6.0' to 18.0' bgs.
10	7	6	0.0			
11	7				10.5' Saturated.	
	3		0.0			
	3					
12	3	16	0.0	SAND	12' - 13.5' Black with red lenses fine-grained SAND, little silt, trace medium to coarse-grained sand, loose, saturated.	
13	5					
	5		0.0			
	25			SILT	13.5' - 17.8' Light gray to white SILT, trace clay, firm, damp.	
14	18		0.0			
	25					
15						

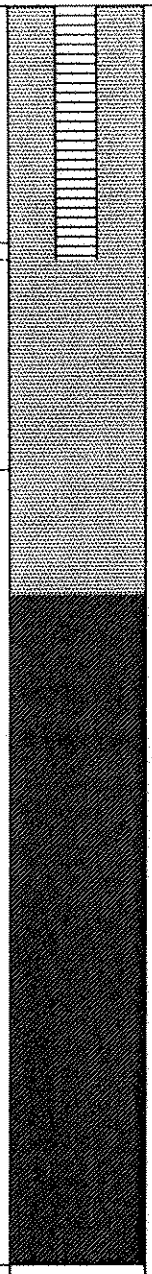
Well Diagram



Boring ID: MW-18

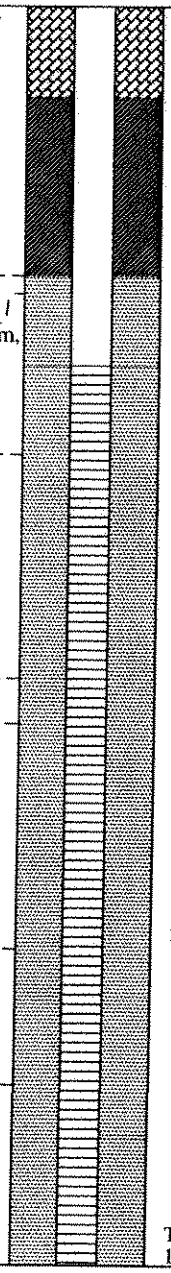
Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
15	30	20	0.0			
	12		0.0		15.5' Saturated.	
16	4		0.0			
	5					
17	6	15	0.0			
	7		0.0			
18	3		4.9	SAND SILT	17.8' - 18' Dark brown fine to medium-grained SAND, some to little fine to medium-grained subangular gravel, very compact, moist.	
	3				18' - 20.5' Dark brown with light gray laminations SILT, some clay, soft, moist.	
19	3	21	26.0			
	2		14.7			
20	1		3.0			Sand infilled from 18.0' to 22.0' bgs.
	2		2.0	CLAY	20.5' - 30' Olive brown CLAY, some to little silt, trace mica and organic material, soft, damp.	
21	2	20	0.5			
	2		1.0			
22	1		0.9			
	2		2.1			
23	5	18	12.4			
	7		0.7		23.5' - 24.0' Wood fragments.	
24	1		0.0		24' Fine to medium-grained sand lense. 24.2' - 26' Little organic material, moist.	
	1		0.0			
25	2	22	0.0			
	4		0.0			
26	7		0.0			
	7		0.0			
27	7	22	0.0			
	7		0.0			
28	6		0.0			
	4		0.0			
29	4	22	0.0			Bentonite infilled from 22.0' to 30.0' bgs.
	4		0.0			
30						
31						
32						
33						

Well Diagram



MWH	MWH Americas, Inc. 335 Phoenixville Pike Malvern, Pennsylvania 19355	**Boring ID: MW-19** Page 1 of 1	
Project Name:	Honeywell - Claymont Phase II RFI Well Installation	**Boring Location:**	SWMU 9 - NW Corner
Location:	Claymont, Delaware	**Drilling Company:**	Talon Drilling Company (Michael Logan)
Project Number:	2110953	**Ground Elevation (ft/msl):**	13.5
Date Started:	12/2/2004	**Total Depth (ft):**	14.0 '
Date Finished:	12/2/2004	**Boring Diameter (in):**	6.25"
Drilling Method:	Hollow Stem Auger	**Water Level During Drilling (ft/bgs):**	8.0'
Sampling Method:	Split Spoon	**Weather Conditions:**	Clear, 40 deg. F.
State Permit Number:	NA	**Logged By:**	S. Bouclier

Depth (feet)	Blow Counts	Recovery (inches)	PID (ppm)	Lithology	Lithologic Description	Remarks
0	5, 25, 50/1"	8	0.0, 0.0	SLUDGE	0' - 3' Deep red to purple gypsum SLUDGE, very compact layers, moist.	Stick-up Outer Casing and Concrete Well Pad. Grout from 0.0' to 1.0' bgs. Bentonite Chips from 1.0' to 3.0' bgs.
1						
2	50, 10, 25, 20	15	0.0, 0.0, 0.0			
3				SAND SLUDGE	3' - 3.2' Medium orangish brown fine-grained SAND, trace silt, loose, dry. 3.2' - 5' Deep red to purple gypsum SLUDGE, firm, moist.	4" Diameter Schedule 40 PVC riser from 0.0' to 4.0' bgs.
4	7, 5, 35, 23	16	0.0, 0.0, 0.0		4.5' Saturated.	
5				SLUDGE	5' - 7.5' Cream to light yellow gypsum SLUDGE.	
6	8, 30, 25, 18	18	0.0, 0.0, 0.0			#1 Filter Sandpack from 3.0' to 14.0' bgs.
7				SLUDGE	7.5' - 8' Light gray gypsum SLUDGE, soft, lenses of consolidation, moist.	
8	5, 2, 2, 5	6	0.0	SLUDGE	8' - 10.5' Deep red to purple gypsum SLUDGE, saturated.	
9						4" Diameter Schedule 40 PVC 0.010" slotted screen for 4.0' to 14.0' bgs.
10	7, 3, 3, 5	6	NR		10.5' - 12' No Recovery. Large piece of wood stuck in shoe.	
11						
12	27, 15, 16, 15	12	0.2, 0.0, 0.0	SAND AND GRAVEL	12' - 14' Deep red to purple to medium brown fine to coarse-grained SAND, GRAVEL, and WOOD, sheen on spoon, loose, saturated.	
13						
14						Total Depth 14.0' bgs.



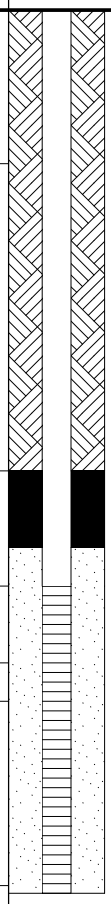
WELL NUMBER MW-122

Amec Foster Wheeler
751 Arbor Way, Suite 180
Blue Bell, PA 19422

CLIENT Honeywell
PROJECT NAME Claymont South Plant
PROJECT NUMBER 7772160017.2100.21002
PROJECT LOCATION Claymont, DE
DATE STARTED 10/26/16 **COMPLETED** 10/26/16
GROUND ELEVATION **HOLE SIZE** 2
DRILLING CONTRACTOR Ameridrill
GROUND WATER LEVELS:
DRILLING METHOD Split spoon and auger
AT TIME OF DRILLING 4.00 ft
LOGGED BY Jennifer Poole
CHECKED BY
NOTES

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	MATERIAL DESCRIPTION
0	SS	25	0/2"	Very soft to soft, dry, tan silty CLAY with wood fragments; FILL
	SS	3	1-1/0"	
				4.0
	SS	100	2-2-2-2/0"	Very soft to soft, moist, tan/purple/dark gray, silty CLAY with wood fragments and gravel; FILL
5	SS	55	2-8-12-15/0"	
	SS	100	22-25-32-31/0"	
10	SS	55	6-5-8-13/0"	
				12.0
	SS	28	24-50/0"	Very soft to soft, saturated, tan/purple/dark gray, silty CLAY with wood fragments and gravel; FILL
15	SS	53	5-4-2-2/0"	
				15.0
	SS	100	1-4-2-3/0"	Very loose, wet, tan/white tan, coarse SAND and silt; SW-SM
				17.0
				18.0 Soft, wet, blue gray, silty CLAY; CL
	SS	50	7-7-9-6/0"	Med-dense to dense, wet, blue with some black and purple, fine SAND with some silt lenses; SP-SM
20	SS	78	3-6-12-18/0"	
		100	20-39-36-47/0"	
				22.8
				Hard, wet, dark red, silty CLAY; CL
				24.0

WELL DIAGRAM



Bottom of borehole at 24.0 feet.

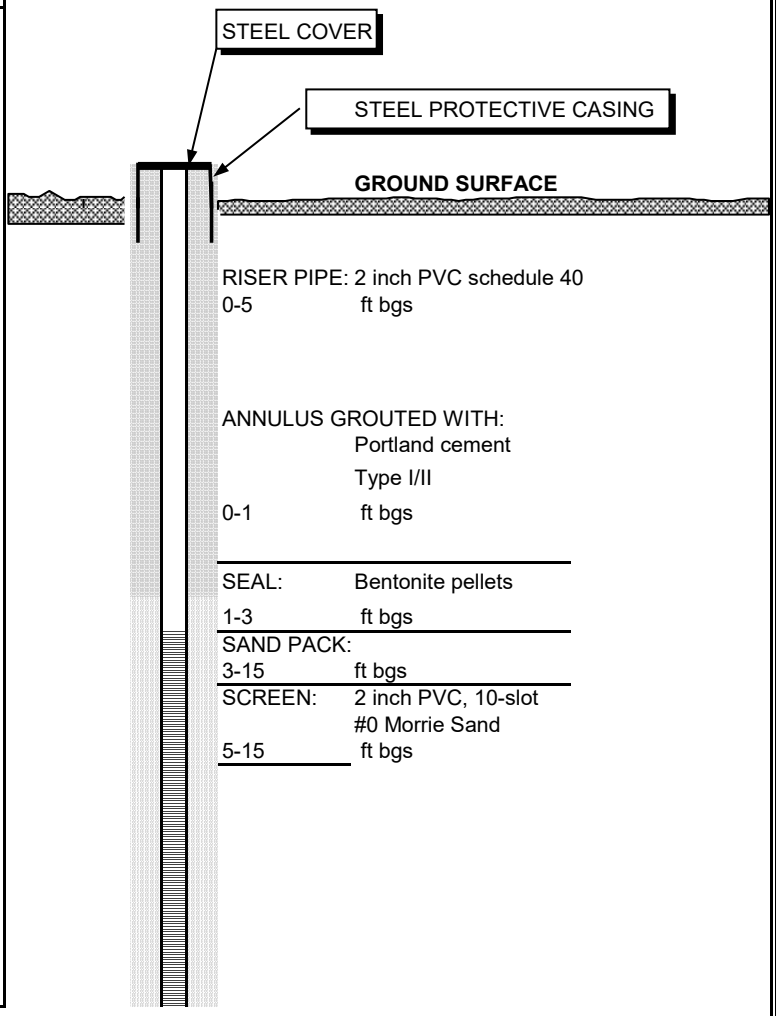
GENERAL BH / TP / WELL - GINT STD US.GDT - 11/7/16 11:06 - P:\HONEYWELL - CLAYMONT, DE\SOUTH PLANT\2016 WELL INSTALLATION AND SAMPLING\S PLANT WELL INSTALLATION 2016.GPJ

Wood Evironment & Infrastructure Solutions, Inc.
Construction Well Diagram
MW-123S
SWMU-9, Honeywell, Claymont, DE

Project location/number Claymont, DE/7772190022		***Well Permit No.*** 267252DE	***Elevation datum*** NAVD88
Drilling Company Parratt-Wolffe, Inc. (CME-175) (HSA)	***Driller*** NA	***Surveyor*** Maser Consulting	***Ground elevation*** 10.43 feet
Date of completion 10/4/2019		***Northing*** 657547.71	***Top of casing elevation*** 13.17 feet
Wood Representative Jessica Witt		***Easting*** 652850.9	***Diameter of borehole*** 6 inches

A = Top of Casing
B = Ground Surface
C = Top of Riser
D = Top of Sand Pack
E = Top of Screen
F = Bottom of Screen
G = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION (ft. bgs)	KEY	ELEVATIONS (ft above Mean Sea Level)	DEPTHS (ft below ground, not to scale)
	A,C	13.17	+2.15
	B	10.43	0
0-5: silty sand with waste material and concrete, white to dark purple grading to brown, dry to moist, loose			
5-10: silty sand grading to silt, with concrete, gray, moist to dry, medium dense to dense			
	D	7.43	3.00
	E	5.43	5.00
10-15: at 10ft bgs silt, reddish brown to purple gray to black, dry to wet, dense; at 12 ft bgs sand and gravel, grading to silt, brown, loose; at 14 ft bgs lean clay with silt, dark brown, loose, saturated			
	F,G	-4.57	15.00



REMARKS

ft bgs = feet below ground surface

HSA = Hollow Stem Auger

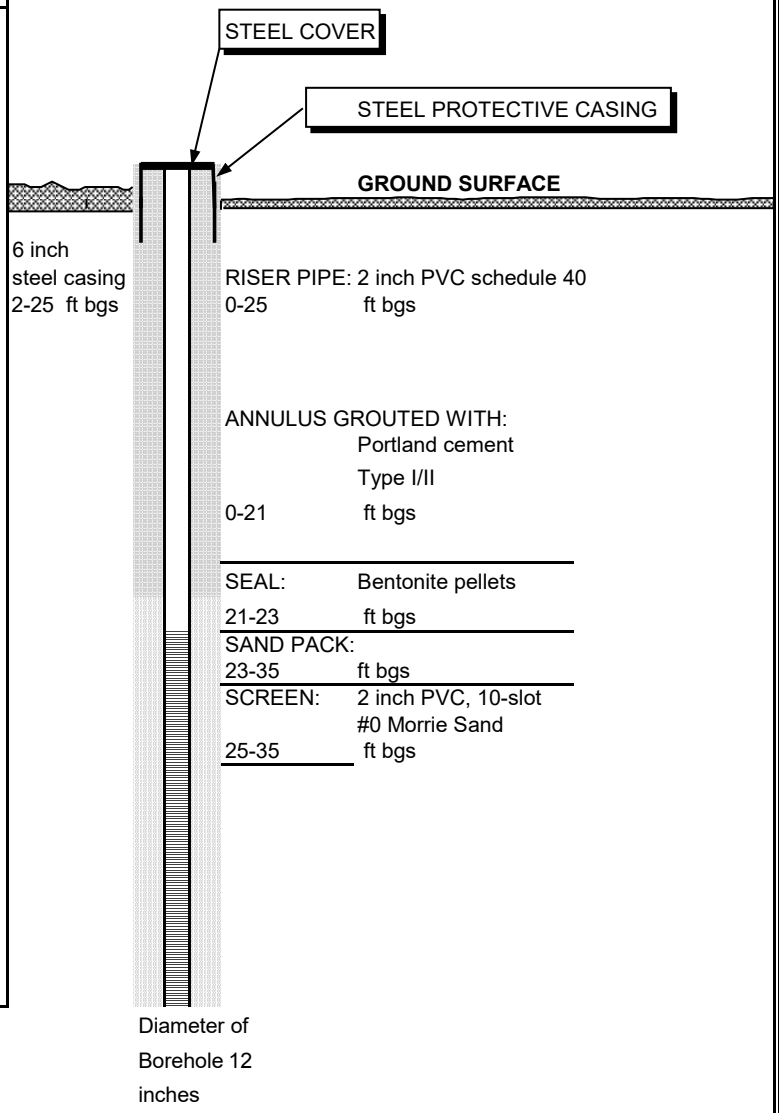
Depth to ground water 6 ft bgs measured after drilling.

Wood Evironment & Infrastructure Solutions, Inc.
Construction Well Diagram
MW-123D
SWMU-9, Honeywell, Claymont, DE

Project location/number Claymont, DE/7772190022		***Well Permit No.*** 267254DE	***Elevation datum*** NAVD88
Drilling Company Parratt-Wolffe, Inc. (CME-175) (HSA)	***Driller*** NA	***Surveyor*** Maser Consulting	***Ground elevation*** 10.35 feet
Date of completion 10/1/20198		***Northing*** 657551.18	***Top of casing elevation*** 12.89 feet
Wood Representative Jessica Witt		***Easting*** 652854.5	***Diameter of borehole*** 12 inches

A = Top of Casing
B = Ground Surface
C = Top of Riser
D = Top of Sand Pack
E = Top of Screen
F = Bottom of Screen
G = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION (ft. bgs)	KEY	ELEVATIONS (ft above Mean Sea Level)	DEPTHS (ft below ground, not to scale)
	A,C	12.89	+2.15
	B	10.35	0
0-5: gravel grading to silty sand, white to brown-gray, dry, loose			
5-15: silty sand, white-gray to reddish brown, dry, dense, fragments of concrete			
	D	-12.65	23.00
	E	-14.65	25.00
20-35: lean clay with silt, grading to silty sand and gravel at approximately 28 ft bgs, black to green			
	F,G	-24.65	35.00



REMARKS

ft bgs = feet below ground surface

HSA = Hollow Stem Auger

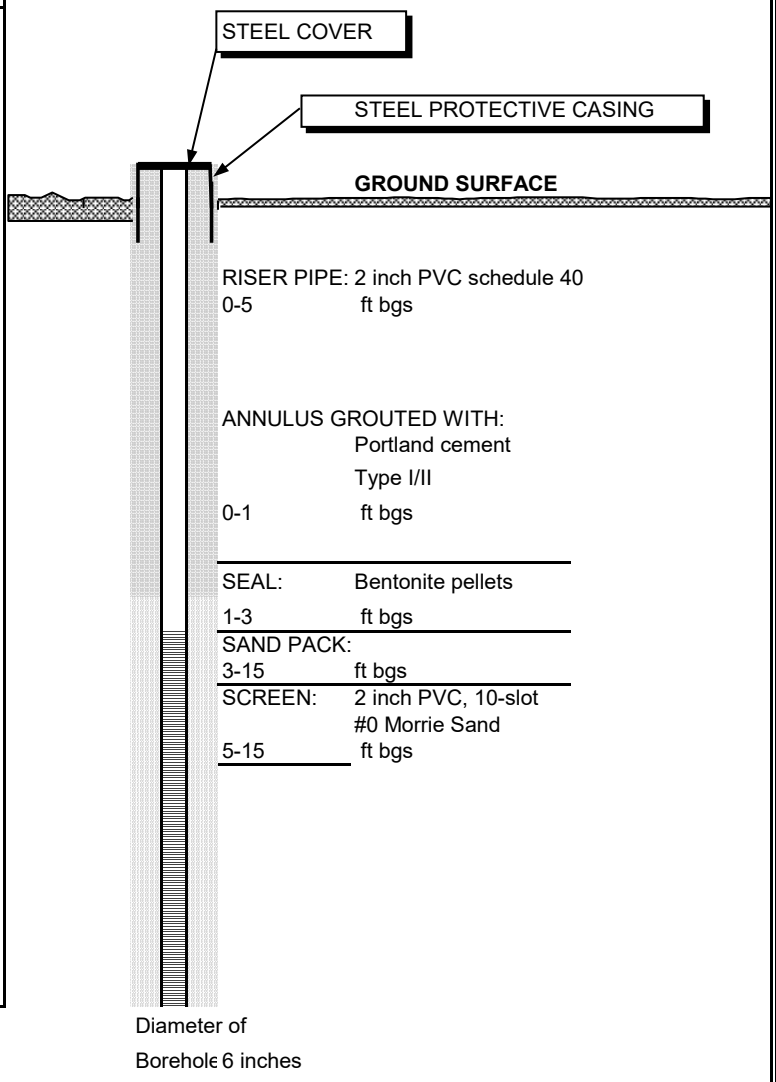
Depth to ground water 6.0 ft bgs measured after drilling.

Wood Evironment & Infrastructure Solutions, Inc.
Construction Well Diagram
MW-124S
SWMU-9, Honeywell, Claymont, DE

Project location/number Claymont, DE/7772190022		***Well Permit No.*** 267251DE	***Elevation datum*** NAVD88
Drilling Company Parratt-Wolffe, Inc. (CME-175) (HSA)	***Driller*** NA	***Surveyor*** Maser Consulting	***Ground elevation*** 9.00 feet
Date of completion 10/1/2019		***Northing*** 657450.66	***Top of casing elevation*** 11.53 feet
Wood Representative Jessica Witt		***Easting*** 652926.33	***Diameter of borehole*** 6 inches

A = Top of Casing
B = Ground Surface
C = Top of Riser
D = Top of Sand Pack
E = Top of Screen
F = Bottom of Screen
G = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION (ft. bgs)	KEY	ELEVATIONS (ft above Mean Sea Level)	DEPTHS (ft below ground, not to scale)
	A,C	11.53	+2.53
	B	9	0
0-5: gravel grading to silty sand, white to brown-gray, dry, loose			
5-15: silty sand, white-gray to reddish brown, dry, dense to loose, fragments of concrete saturated at 12 ft bgs			
	D	6.00	3.00
	E	4.00	5.00
10-15: lean clay, gray, soft			
	F,G	-6.00	15.00



REMARKS

ft bgs = feet below ground surface

HSA = Hollow Stem Auger

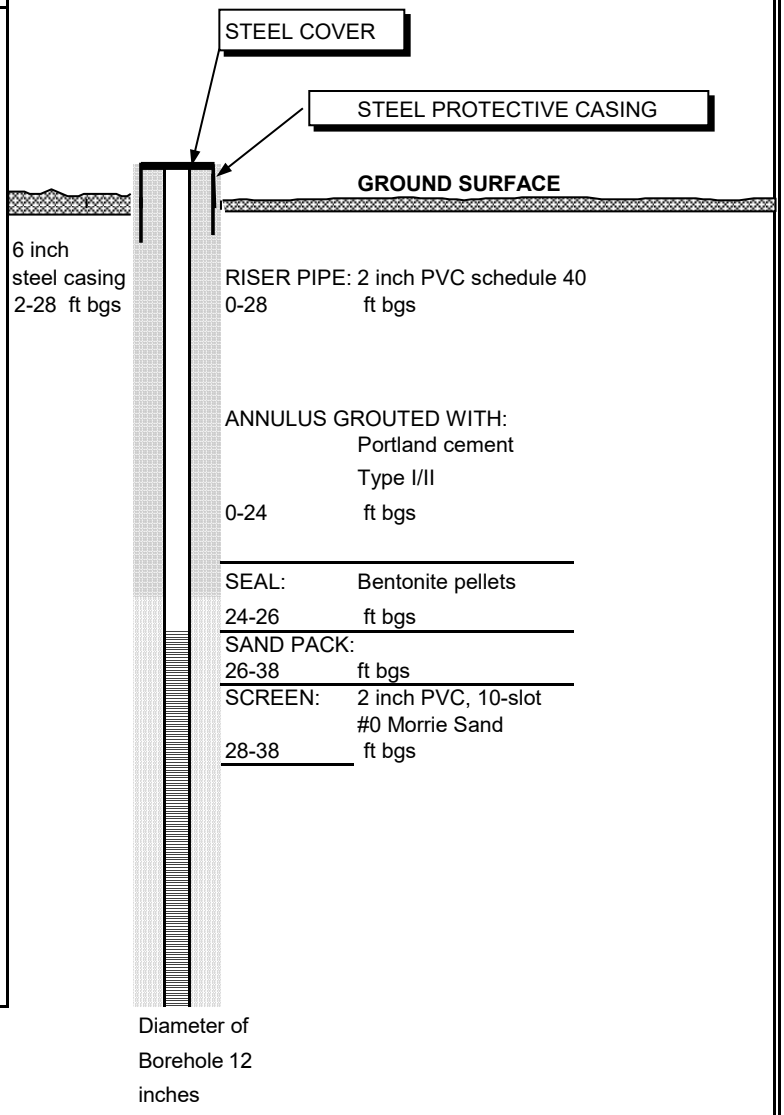
Depth to ground water 6 ft bgs measured after drilling.

Wood Evironment & Infrastructure Solutions, Inc.
Construction Well Diagram
MW-124D
SWMU-9, Honeywell, Claymont, DE

Project location/number Claymont, DE/7772190022		***Well Permit No.*** 267253DE	***Elevation datum*** NAVD88
Drilling Company Parratt-Wolffe, Inc. (CME-175) (HSA)	***Driller*** NA	***Surveyor*** Maser Consulting	***Ground elevation*** 9.17 feet
Date of completion 10/2/2019		***Northing*** 657444.78	***Top of casing elevation*** 11.32 feet
Wood Representative Jessica Witt		***Easting*** 652920.8	***Diameter of borehole*** 12 inches

A = Top of Casing
B = Ground Surface
C = Top of Riser
D = Top of Sand Pack
E = Top of Screen
F = Bottom of Screen
G = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION (ft. bgs)	KEY	ELEVATIONS (ft above Mean Sea Level)	DEPTHS (ft below ground, not to scale)
	A,C	11.32	+2.15
	B	9.17	0
0-5: gravel grading to silty sand, white to brown-gray, dry, loose			
5-15: silty sand, white-gray to reddish brown, dry, dense, fragments of concrete			
	D	-16.83	26.00
	E	-18.83	28.00
20-38: lean clay with silt, grading to silty sand and gravel at approximately 28 ft bgs, black to green			
	F,G	-28.83	38.00



REMARKS

ft bgs = feet below ground surface

HSA = Hollow Stem Auger

Depth to ground water 8.4 ft bgs measured after drilling.

Wood Evironment & Infrastructure Solutions, Inc.
Construction Well Diagram
SWMU9-MW1-2018
SWMU-9, Honeywell, Claymont, DE

Project location/number 7772180004		***Well Permit No.*** 262867	***Elevation datum*** NAVD88
Drilling company AmeriDrill	***Driller*** Mike Graham	***Surveyor*** Maser Consulting P.A.	***Ground elevation*** 45.17 feet
Date of completion 8/20/2018		***Northing*** 657716.64	***Top of casing elevation*** 47.01 feet
Wood Representative Jessica Witt		***Easting*** 652290.12	***Diameter of borehole*** 2 inches

A = Top of Casing
B = Ground Surface
C = Top of Riser
D = Top of Sand Pack
E = Top of Screen
F = Bottom of Screen
G = Bottom of Borehole

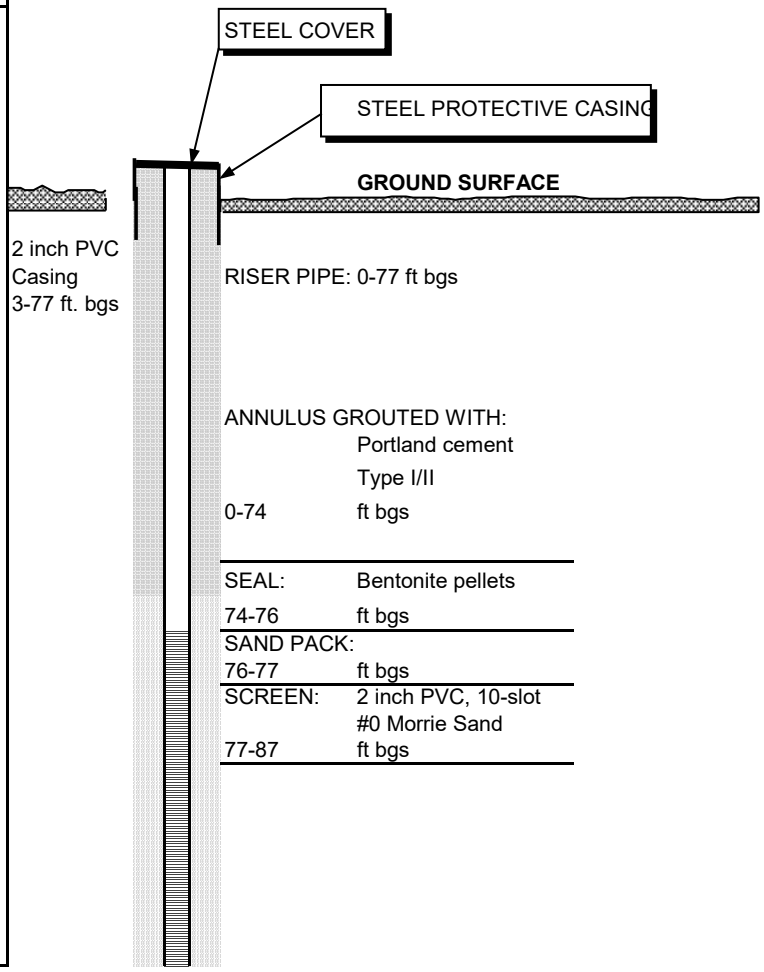
GENERALIZED SOIL DESCRIPTION

0-57 ft. bgs:
Fill material consisting of Silt, silty sand

57-76 ft. bgs:
Silt and Clay

76-87 ft. bgs:
Poorly graded sand with gravel

KEY	ELEVATIONS (ft above Mean Sea Level)	DEPTHS (ft below ground, not to scale)
A	47.84	2.7
B, C	45.17	0
D	-28.16	76.00
E	-29.16	77.00
F, G	-39.16	87.00



REMARKS :

NA

NA = Not applicable
TBD = To be determined

Wood Evironment & Infrastructure Solutions, Inc.
Construction Well Diagram
SWMU9-MW2-2018
SWMU-9, Honeywell, Claymont, DE

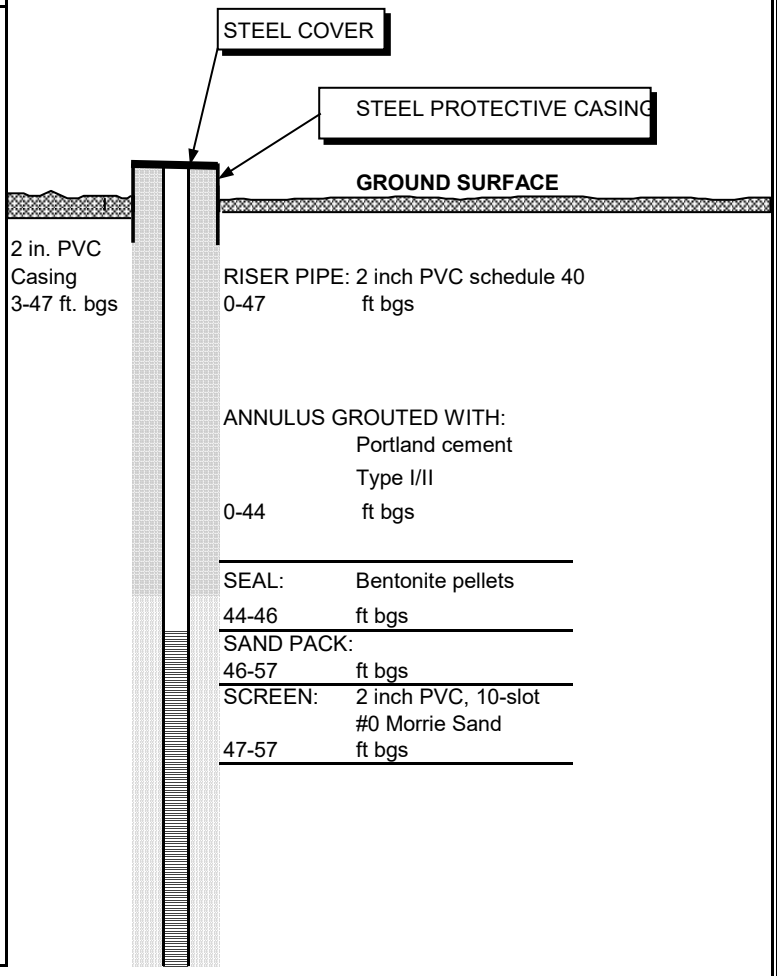
Project location/number 7772180004		***Well Permit No.*** 262866	***Elevation datum*** NAVD88
Drilling company AmeriDrill	***Driller*** Mike Graham	***Surveyor*** Maser Consulting P.A.	***Ground elevation*** 45.17 feet
Date of completion 8/23/2018		***Northing*** 657401.21	***Top of casing elevation*** 30.27 feet
Wood Representative Jessica Witt		***Easting*** 652481.39	***Diameter of borehole*** 2 inches

A = Top of Casing
B = Ground Surface
C = Top of Riser
D = Top of Sand Pack
E = Top of Screen
F = Bottom of Screen
G = Bottom of Borehole

GENERALIZED SOIL DESCRIPTION

0-57 ft. bgs:
Fill material consisting of
Silt, silty sand

KEY	ELEVATIONS (ft above Mean Sea Level)	DEPTHS (ft below ground, not to scale)
A	30.98	3
B, C	27.99	0
D	-15.02	46.00
E	-16.02	47.00
F, G	-26.02	57.00



REMARKS :

NA

NA = Not applicable
TBD = To be determined