Remedial Action Progress Report
Second Quarter, 2018

Seneca Mini Mart
3390 State Route 257,
Seneca, Venango County, Pennsylvania
PADEP Facility ID # 61-18854
USTIF Claim # 2015-120

Prepared for:
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(Owner of the Seneca Mini Mart)

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1.0 Introduction

The Seneca Mini Mart facility (Site or Subject Property) is located at 3390 State Route 257, Seneca, Venango County, Pennsylvania. The Subject Property is located on the east side of State Route 257, approximately two hundred feet south of the intersection of State Route 257 and Bredinsburg Road/East State Road (State Route 2006). Site access is from State Route 257 along the west side of the property. A Site Location Map is provided as **Figure 1**.

The Subject Property was formerly operated as a fuel retail and convenience store facility, recently as an automobile repair facility and is currently vacant. The Seneca Mini Mart occupies the northern half of the 0.78 are parcel (Parcel ID 08-39-13), owned by Daniel Heath. The balance of the parcel was formerly occupied by Seneca Motors, a used car sales lot. Harper Oil and Heath Oil Inc. (Harper Oil's parent company) also owns several of the immediately adjoining properties to the north (Hinzeman), east (Winger) and southeast (Heath) through various subsidiaries.

The Seneca Mini Mart includes a single building of approximately 3,932 square feet and a single 576 square foot canopy with a single dispenser island. Two unleaded gasoline dispensers were formerly located under the canopy. Storm sewer, natural gas, water, and sanitary sewer underground utility lines servicing the Subject Property and the vicinity are indicated on **Figure 2**.

A separate dispenser for diesel fuel and kerosene was formerly located south of the Subject Property structure. The underground storage tanks (USTs) associated with the dispensers were buried to the southeast of the dispensers and included; Tank 001, a 6,000-gallon UST containing premium unleaded gasoline, Tank 003, a 10,000-gallon UST containing unleaded gasoline, Tank 004, a 2,000-gallon UST containing diesel fuel and Tank 005, a 1,000-gallon UST containing kerosene. Former Tank 002, a 4,000-gallon unleaded gasoline UST had been removed from the facility on February 11th, 1999. Also, present at the facility was a 1,000-gallon above ground storage tank containing off-road diesel fuel equipped with a single dispenser.

These four USTs and associated dispensers were recently removed as part of the closure of the retail gasoline facility. The USTs were removed between September 14th and 17th, 2015 by John Koziara of Koziara Trucking and Excavating. It is the former UST system and associated dispensers under the canopy that were removed that are the focus of the Site Characterization.

Obvious contamination was observed during the removal of the product piping and the dispensers. Impacted soil was only detected in the soil confirmation samples collected from under the dispensers and along the product lines leading from the dispensers back towards the USTs. No groundwater was encountered during the removal of the four USTs. The PADEP was notified of the release on September 14, 2015 and a Notification of Reported Release form was submitted on September 16, 2015.

Confirmatory soil samples collected from below the product dispensers and along the product line trenches indicated that naphthalene and 1,2,4-TMB exceeded their respective soil to groundwater residential used aquifer (RU) and non-residential used aquifer (NRU) Statewide Health Standard (SHS) Medium Specific Concentrations (MSCs).

As part of the UST removal, approximately 109.16 tons (Koziara estimated 350 tons) of petroleum-contaminated soil was removed from beneath the USTs, product lines and dispensers and encapsulated in 6-mil plastid pending disposal.

The impacts associated with the removed UST system are being addressed under the Title 25– Environmental Protection (25 PA Code), Chapter 245 (Administration of the Storage Tank and Spill Prevention Program). The eligibility of the funding through the UST Indemnification Fund (USTIF) for the Seneca Mini Mart facility was approved on June 6th, 2016.

The site characterization investigation conducted by Cribbs & Associates included advancing 23 soil borings and installing 15 monitoring wells. Soil borings SB-1 through SB-6 were advanced on April 28th, 2016 along the path of the product line and in the vicinity of the dispenser island. On June 14th, 2016 Cribbs & Associates advanced eleven additional soil borings (SB-7 through SB-17) covering the area between the previous soil borings and State Route 257 at the locations shown on **Figure 2**. Cribbs & Associates installed five monitoring wells, (MW-1 through MW-5) at the locations shown on **Figure 2** on July 8th, 2016. The wells were installed with MW-1 located along the former product line between the former UST basin and the dispenser island. Monitoring wells MW-2 through MW-5 were located in a line running from south to north along the western property boundary. On September 14th, 2016 Cribbs & Associates advanced six additional soil borings (SB-18 through SB-20 and SB-22 through SB-24) stepping out towards the north and south of the previous soil borings along State Route 257. Monitoring wells MW-6, MW-7 and MW-9 through MW-11 were installed on October 17th and 18th, 2016 in an attempt to delineate the northern, eastern and southern boundary of the groundwater impacts previously identified. Monitoring well MW-8 was installed on November 1, 2016.

After negotiating access to the Seneca Lawn & Landscape property on the west side of State Route 257, three off-site monitoring wells (MW-12 through MW-14) were installed on January 24th and 25th, 2017 to delineate the western boundary of the groundwater impacts previously identified and to evaluate if the groundwater impacts are reaching the unnamed tributary to Lower Twomile Run.

Monitoring well MW-15 was installed on May 24th, 2017 to delineate the eastern boundary of the groundwater impacts previously identified following the appearance of MTBE in monitoring well MW-8 in the groundwater samples collected on March 29th and April 25th, 2017.

The soil cuttings generated during the soil sampling and monitoring well installation activities through July 2016 were added to the impacted soil stockpile created during the UST system removal in September 2015. Sampling of the impacted soil stockpile was conducted on June 23rd, 2016 and a Form FC-1 for the disposal of soil impacted with unleaded gasoline was submitted to a Waste Management's Northwest Sanitary Landfill in West Sunbury, Butler County, PA for approval. On August 24th, 2016, 109.16 tons of impacted soil were transported to the Northwest Sanitary Landfill for disposal.

Soil cuttings generated during the installation of monitoring wells MW-6 through MW-15 were placed in 55-gallon DOT drums and stored on the Subject Property. Following the analysis of the soil samples obtained from these wells that documented that none of the contaminants of concern exceeded their respective residential SHS MSCs the soil cuttings were spread on-site.

On October 4, 2016, liquid phase hydrocarbons (LPH) was observed in monitoring well MW-3 and product recovery efforts were initiated. By March 7th, 2017 LPH sheen had been observed in MW-1 through MW-5, although measurable thicknesses of LPH have only been recorded in MW-3 and MW-4. Adsorbent socks were placed in the wells that indicated the presence of LPH and are changed periodically. **Table 5** provides the history of LPH product recovery.

Cribbs & Associates performed multiple groundwater sampling events at the Subject Property as part of the site characterization activities. The first of these sampling events are only partial events because the initial groundwater samples were collected from wells MW-1 through MW-5 after they were installed. Monitoring wells, MW-1, through MW-5 were initially sampled on July 12th, 2016. On October 4th, 2016 monitoring wells MW-1 through MW-5 were each sampled for the second time. Monitoring wells MW-8, MW-9 and MW-10 were sampled for the first time on December 6, 2016. Monitoring wells MW-6, and MW-7 were delayed because a car under repair and a pile of firewood blocked access to these wells. MW-6 and MW-7 were sampled for the first time on January 17th, 2017. Monitoring well MW-11 was slow to make water, as evidently clay material in the well had become smeared across the water bearing zone during the drilling operations and did not allow for a sufficient volume of water to be sampled until February 22nd, 2017. The off-site monitoring wells MW-12 through MW-14 were initially sampled on February 1st, 2017. The first sampling event to include all fourteen monitoring wells in one sampling event was conducted on March 28th and 29th, 2017. Monitoring well MW-15 was initially sampled on June 12th, 2017 and the follow up sampling was conducted on July 31st, 2017.

The early sampling events, July 12th, 2016 and October 4th, 2016, with only the initial five monitoring wells present indicates that shallow groundwater flow direction was generally to the west, influenced primarily by the surface topography with flow generally towards the unnamed tributary to Lower Twomile Run located on the opposite side of State Route 257.

The later groundwater flow maps based on the January 17th/February 1st, 2017, March 28th-29th, 2017 and June 12th, 2017 sampling events, with fourteen and fifteen monitoring wells present indicates that shallow groundwater flow is a radial pattern centered on the dispenser islands and also slopes generally to the west, influenced by the surface topography with flow generally towards the unnamed tributary to Lower Twomile Run.

The groundwater elevations observed in monitoring wells MW-1 through MW-5 in the vicinity of the dispenser islands indicate that the fill material beneath the dispenser islands is likely acting as a "bathtub" holding perched groundwater in the fill material with the less conductive native materials keeping the perched groundwater in place. The removal of the dispensers allowed the precipitation draining from the canopy to infiltrate the "bathtub" creating significant mounding in the area containing fill material.

Benzene, ethylbenzene, toluene, total xylenes, MTBE naphthalene, 1,2,4-TMB and 1,3,5-TMB were observed at concentrations that exceeded their respective RU SHS MSCs in one or more wells. Monitoring wells MW-1 through MW-5 typically indicated the highest concentrations of the contaminants of concern. The highest concentrations of benzene (17,800 µg/l, October 4th, 2016), ethylbenzene (4,410 µg/l, March 29th, 2017), toluene (10,500 µg/l, July 12th, 2016), total xylenes (23,900 µg/l March 29th, 2017), 1,2,4-TMB (4,920 µg/l, March 29th, 2016) and 1,3,5-TMB 1,590 µg/l, March 29th, 2017) were observed in MW-3. The highest concentration naphthalene (4,470 µg/l, June 13th, 2017) was observed in MW-5.

MTBE was observed in MW-8 ranging from <5.0 µg/l (December 6th, 2016) to 520 µg/l (June 12th, 2017) and was the driving factor for the installation of MW-15 in May 2017 to complete the delineation to the east.

Benzene, MTBE and 1,2,4-TMB have also been observed in MW-10 at concentrations exceeding their respective SHS MSCs, with decreasing concentrations of benzene and 1,2,4-TMB observed over four sampling events and a single exceedance for the MTBE in that well.

None of the contaminants of concern have been detected above the laboratory method detection limits in the off-site monitoring wells (MW-12, MW-13 and MW-14) or the stream samples collected from the unnamed tributary to Lower Twomile Run

Two soil vapor points (VP-1 and VP-2) were installed adjoining the Site structure as indicated on **Figure 2**. Each soil vapor point was sampled on October 4th, 2016 and May 3rd, 2017. Analytical results of the soil vapor sampling indicated that minor concentrations of benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB were detected; however, none of the soil vapor samples exhibited concentrations in excess of their respective, most stringent of the screening values (SSS non-residential sub-slab).

Slug tests were conducted on monitoring wells MW-1, MW-2 and MW-4 on September 1st, 2016 to provide hydrogeologic data for contaminant migration evaluation during fate and transport

modeling. Because these initial slug tests were all conducted on monitoring wells located near the dispenser islands and, therefore, in predominantly fill material, additional slug tests were conducted on September 7, 2017 on monitoring wells MW-10 and MW-11 to evaluate the hydraulic conductivity of the wells installed in mostly natural unconsolidated soils. Both falling head and rising head tests were conducted on the selected monitoring wells, although the falling head test for MW-10 was not successful. The geometric mean of the derived hydraulic conductivities for the three wells in the vicinity of the dispenser island (fill material), is 1.1 ft./day or $5.71E^{-4}$ cm/sec. The geometric mean of the hydraulic conductivities derived for the two well installed in native soils is 0.128 ft./day or $4.51E^{-5}$ cm/sec.

Using the calculated hydraulic gradient of 0.079 ft./ft. for the shallow wells, the hydraulic conductivity geometric means listed above, and an estimated effective porosity of 35 percent for unconsolidated soil and fill, a groundwater seepage velocity (average linear velocity) of 0.2492 ft./day has been calculated for the shallow unconsolidated aquifer installed in the fill material surrounding the dispenser island. A groundwater seepage velocity of 0.02886 ft./day was calculated for unconsolidated aquifer installed in the native soil.

Fate and transport modeling (Quick Domenico) was conducted for the contaminants of concern (COC). Quick Domenico modeling predicted that benzene was the only COC that could potentially migrate off-Site with the benzene contaminant plume extending west to the nearest downgradient sensitive receptor, the unnamed tributary to Lower Twomile Run.

In accordance with Title 25 of the Pennsylvania Code, Chapter 245.310, Cribbs & Associates submitted a Site Characterization Report (SCR) on September 13th, 2017 and a Remedial Action Plan (RAP) on November 10th, 2017. The selected cleanup goal for soil at the Site is the non-residential, used aquifer SHS. Due to the mixed classification for properties beyond the Subject Property, the cleanup standard applied to meet the required goal for groundwater cleanup is the residential, used aquifer SHS.

As reported in the SCR, extensive soil and groundwater contamination remains in the vicinity of the dispenser island. Given that the extent of soil impacts under State Route 257 is unknown, the RAP recommends additional soil sampling along the shoulder of the highway and, if needed in the center turning lane. A soil excavation is proposed to address the known soil impacts and will involve removing an estimated 1,250 cubic yards of impacted soil along approximately 140 feet of frontage.

Concurrent with the proposed soil borings an additional monitoring well, MW-16 is to be installed in the turning lane of State Route 257 to better evaluate the extent of groundwater impacts under the highway and to more effectively calibrate the fate and transport models for contaminants of concern migrating towards the unnamed tributary to Lower Twomile Run.

Following the soil excavation activities, if the soil attainment cannot be demonstrated via post excavation confirmation soil samples, random systematic soil sampling will be conducted

following the completion of the remedial activities to document attainment of the NRU SHS MSCs. The proposed soil excavation activities will also remove monitoring wells MW-1 through MW-5 where the LPH and the highest concentrations have been observed in the groundwater for the majority of the contaminants of concern.

Based on the site characterization results, groundwater data obtained from the Site monitoring wells; benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB concentrations have been detected in the groundwater at concentrations that exceed their respective RU/NRU SHS MSCs. Following the removal of the impacted soil and the subsequent replacement of the monitoring wells in the excavated area, a minimum of eight post-remediation groundwater sampling events will be required to statistically demonstrate attainment for these parameters.

The SCR and RAP were approved by the PADEP on January 8th, 2018. Remedial Action Progress Reports (RAPRs) are required to be submitted to the PADEP in accordance with Section 245.312(b-d) by the 30th day of the month following the end of each quarter. This RAPR discusses the results of the First Quarter 2018 groundwater sampling event.

2.0 Remedial Actions

2.1 Product Recovery Actions

Liquid Phase Hydrocarbon Product Recovery efforts have continued since the SCR was submitted (September 13th, 2017) and throughout the Second Quarter of 2018. The product recovery efforts, initially conducted twice a month have decreased in frequency and were conducted on April 11th, 2018 and June 22nd, 2018. Historically, LPH has been observed on the water table in monitoring wells MW-1 through MW-5, typically with a slight to heavy sheen observed in the monitoring wells. Monitoring well MW-3 typically exhibits the heaviest sheen frequently with small globbules of product. Measurable product has been observed in MW-3 several times and only once in MW-4.

During the April 11th, 2018 product recovery event measurable product was observed in monitoring well MW-3 where 0.48 inches of LPH was measured. No sheen was observed in monitoring wells MW-1 and MW-5 and a slight sheen was observed in MW-2 and MW-4 on April 11th, 2018. Fresh socks were installed in all five monitoring wells on April 11th, 2018.

During the June 22nd, 2018 product recovery occurred during the quarterly groundwater sampling event. No sheen was observed in monitoring wells MW-1 and MW-2 and a slight sheen was observed in MW-3 and MW-4 on June 22nd, 2018. A heavy sheen was observed in monitoring well MW-5. Fresh socks were installed in four of the five monitoring wells, MW-1 being the exception.

Adsorbent socks have been maintained in the five monitoring wells where LPH has been observed and have been changed as they become saturated. **Table 1** presents the history of the product recovery efforts and includes the date of the product recovery, measured LPH thickness, if water and/or product was bailed, and if the adsorbent socks were changed. The water bailed during the product recovery efforts is placed in the 55-gallon DOT approved drum used to store purge water from the groundwater sampling events. The spent socks are drummed separately for later disposal. The estimated product recovery through the Second Quarter of 2018 is 9.6 gallons.

2.2 Additional Soil and Groundwater Characterization

As proposed in the approved RAP additional soil and groundwater characterization was conducted in the shoulder and center turning lane of State Route 257. The PennDOT Permit had been executed on March 6th, 2018 as detailed in the First Quarter 2018 RAPR. The soil boring and monitoring well installation and sampling activities were conducted during the Second Quarter of 2018 are described sequentially below. As with all subsurface activities, Pennsylvania One-Call was notified greater than 72-hours prior to the proposed activities to clear the proposed work area for buried utilities. Since these activities were occurring in the ROW of State Route 257, Area Wide Protective was contracted to provide traffic control in accordance with the PennDOT permit. **Figure 3** presents the locations of the additional soil borings and monitoring wells. The soil boring logs and monitoring well installation details are included in **Appendix A**.

- April 19, 2018 – Soil Boring SB-32 was advanced in the center turning lane to a depth of 10.0 feet below ground surface (bgs). One soil sample was collected from 5.0 feet to 6.0 feet bgs.
- April 24, 2018 – Soil Borings SB-27 through SB-30 were advanced along the shoulder of State Route 257, Soil Borings SB-31, SB-33 and SB-34 were advanced in the center turning lane to depths ranging from 8.0 feet bgs to 12.0 feet bgs. Typically, one soil sample was collected from each soil boring, two soil samples were collected from SB-34 and poor recovery from location SB-29 prevented collection of the soil sample.
- April 24, 2018 - Monitoring well MW-16 was installed at the location of SB-32. MW-16 is 2-inches in diameter with a screened interval from 3.0 feet bgs to 10.0 feet bgs. The sand filter pack extended approximately 0.5-foot above the top of the screen. A one-foot seal of bentonite pellets created a seal with bentonite chips filling the annulus to just below the ground surface. A flush-mount protective cover was installed in a concrete pad at the ground surface.
- The soil samples collected on April 19th and 24th, 2018 were submitted to Pace Analytical Laboratories and analyzed for the PADEP post-March 2008 shortlist of unleaded gasoline parameters. The soil analytical results are presented on **Table 2**. Benzene in SB-31 (8.0'-10.0')

was the only parameter detected that exceeded its RU SHS MSC. The presence of benzene in what was then the soil boring farthest north in the center turning lane prompted the conversion of SB-31 to a monitoring well (MW-17) requiring a modification to the PennDOT permit (see below) and adding an additional soil boring (SB-35) to the north of SB-31.

- June 6, 2018 - Soil boring SB-29 was resampled to obtain a soil sample (due to the poor recovery on April 24, 2018), monitoring well (MW-17) was advanced at soil boring location SB-31 and an additional soil boring SB-35 was advanced to the north of SB-31/MW-17. MW-17 is 2-inches in diameter with a screened interval from 3.0 feet bgs to 10.0 feet bgs. The sand filter pack extended approximately 1.0-foot above the top of the screen. A 1.5-foot seal of bentonite pellets created a seal, filling the annulus to just below the ground surface. A flush-mount protective cover was installed in a concrete pad at the ground surface.
- June 6, 2018 – Five soil samples were collected from areas of known impact in the proposed soil excavation area and submitted to Pace to be analyzed for Form FC-1 disposal parameters.
- The soil samples collected from SB-29 and SB-35 in June were submitted to Pace Analytical Laboratories and analyzed for the PADEP post-March 2008 shortlist of unleaded gasoline parameters. The soil analytical results are presented on **Table 2**. The only parameter detected that exceeded its RU SHS MSC was benzene in the soil sample collected from SB-29 (3.0'-4.0'). Benzene and toluene were detected in the soil sample collected from SB-35 (6.0'-8.0') at concentrations that did not exceed their RU SHS MSCs.
- The benzene detected in the groundwater result from MW-17, discussed in **Section 4.0** will require the modification to the PennDOT permit in order to install another monitoring well (MW-18) at the location of SB-35 and an additional soil boring (SB-36) to the north of SB-35/MW-18.
- June 25, 2018 - The FC-1 soil samples indicated that benzene concentrations in three samples and the lead concentration of one sample would have to be tested using toxicity characteristic leaching procedure (TCLP) to pass the FC-1 requirements. The subsequent analysis indicated that leaching of these compounds would not be an issue.

2.3 PennDOT Permit

The Right of Entry agreement to conduct the proposed soil sampling, monitoring well installation, and soil excavation activities in the right of way and roadway of State Route 257 was obtained from the Pennsylvania Department of Transportation (PennDOT) on March 6th, 2018. Based on the benzene exceedance observed in the soil results observed in SB-31, the conversion of SB-31 to monitoring well MW-17 and an additional soil boring SB-35 were added to the existing permit following discussions with Mr. Kyle Riffle Permit Manager for PennDOT

Engineering District 01-0 and the submittal of a revised figure showing the additional soil boring locations. Mr. Riffle approved the modifications on May 8th, 2018.

Given the recent result from the June 6, 2018 soil sampling of SB-35 and the June 22, 2018 groundwater sampling of MW-17 the PennDOT permit will be modified again to add at least one additional soil boring SB-36 farther north of SB-35 and the installation of a monitoring well (MW-18) at the location of SB-35.

3.0 Quarterly Groundwater Monitoring Activities

The groundwater monitoring event for the second quarter of 2018 was conducted on June 22nd, 2018. All sixteen monitoring wells (MW-1 through MW-15, MW-17 plus a duplicate) and two surface water samples (Upstream and Downstream) were sampled during the quarterly groundwater sampling event. Monitoring Well MW-16 did not contain sufficient water to sample on June 22nd, 2018. However, it was possible to collect a groundwater sample from MW-16 on July 10th, 2018. The location of the wells, the stream samples, and other pertinent Site features are presented on **Figure 2**.

3.1 Static Water Level Measurements

Prior to conducting groundwater sampling activities, static groundwater level measurements were obtained from each monitoring well in order to calculate groundwater elevations. These groundwater elevations were used to determine the volume of water in the well, as well as for the construction of groundwater flow maps for the shallow aquifer. **Table 2** presents the depth to groundwater measurements and the calculated groundwater elevations for the quarterly monitoring event.

3.2 Groundwater Sampling Activities

Groundwater samples were collected from all Site monitoring wells using low-flow pumping techniques as prescribed in the technical guidance manual *"Standard Operating Procedure for Low-Stress (Low-Flow)/Minimal Drawdown Ground-Water Sample Collection"* and referenced from the USEPA Groundwater Issue Paper *"Low-Flow (Minimal Drawdown) Groundwater Sampling Procedure"*, by Robert W. Puls and Michael J. Barcelona.

Prior to sampling, the monitoring wells were purged using a micro-purge low-flow stainless steel submersible air lift (bladder) pump. Each well was purged using dedicated, polyethylene tubing and a dedicated pump bladder. As the wells were purged, the discharge water was pumped through a low-flow analysis chamber with a multi-parameter water quality sensor until all parameters (temperature, specific conductance, dissolved oxygen, pH, and ORP) had stabilized in accordance with the USEPA criteria. Once the parameters had stabilized, the low-flow analysis chamber was removed and samples were collected directly into laboratory-supplied, pre-preserved sample containers with the appropriate preservatives. The samples were immediately

placed on ice and delivered to Pace Analytical Laboratories (Pace Laboratories) in Greensburg, Pennsylvania under proper chain-of-custody. The samples were received by Pace Laboratories in acceptable condition, and ice was present in the cooler at the time of delivery. The samples were subsequently analyzed for the PADEP post-March 2008 shortlist of unleaded gasoline parameters including benzene, ethylbenzene, cumene, MTBE, naphthalene, toluene, 1,2,4-TMB, 1,3,5-TMB, and total xylenes.

3.3 Purge Water Disposal

The drum containing LPH recovery water generated since the November 16th, 2017 shipment, Development water from monitoring well MW-17 and the purge water from the First and Second Quarter 2018 sampling events remains on site. The petroleum contaminated groundwater, will be transferred to a vacuum truck and/or transported to the Heath Oil Bulk Terminal in Barkeyville, Pennsylvania and processed through their water treatment system. Several empty drums will remain on-site to be used for containing water generated during future product recovery and groundwater sampling events.

4.0 Monitoring Results

4.1 Groundwater Elevations and Flow Directions

Depth to groundwater field measurements, obtained prior to the quarterly groundwater sampling event, were used to calculate derive groundwater elevations for each monitoring well. The groundwater elevations are presented in **Table 3**. **Figure 3** presents a Groundwater Contour Map that was constructed for the shallow aquifer utilizing data collected from the groundwater monitoring wells (MW-1 through MW-15) on June 22nd, 2018. Newly installed monitoring wells MW-16 and MW-17 were dry or had not recharged fully to static water level, respectively, and therefore, their groundwater elevations were not used to prepare **Figure 3**.

As depicted in **Figure 3**, the groundwater elevations indicate a localized high in the vicinity of the former dispenser island including monitoring wells MW-1 through MW-5 with a radial flow towards the surrounding wells. The groundwater elevations observed in monitoring wells MW-1 through MW-5 which are in the vicinity of the dispenser islands indicate that the fill material beneath the dispenser islands is likely acting as a "bathtub", holding perched groundwater in the fill material with the less conductive native materials keeping the perched groundwater in place. The perched groundwater conditions were likely enhanced by the removal of the former UST system and associated dispensers. The removal of the dispensers and associated concrete islands allowed the precipitation draining from the canopy to infiltrate the "bathtub" creating significant mounding in the area containing fill material. Impacted groundwater formerly retained in the "bathtub" may now be forced out by the elevated and mounded groundwater conditions.

The gradient is relatively flat to the northeast and east towards MW-7, MW-8 and MW-15 but becomes steeper towards the southwest and west towards monitoring wells MW-9 through MW-14 indicating that the majority of the groundwater flow is towards the west and southwest.

4.2 Groundwater Analytical Results

The groundwater monitoring event for the Second Quarter of 2018 was conducted on June 22nd, 2018. This event marks the third sampling event performed simultaneously on monitoring wells MW-1 through MW-15 at the Site and the first event for MW-17. Monitoring well MW-16 contained an insufficient volume of water to sample with the other monitoring wells on June 22nd, 2018 but was sampled on July 10th, 2018. A duplicate sample was collected from monitoring well MW-5 and listed on the chain of custody as MW-18. Stream samples from both the Upstream and Downstream sample locations were also collected.

Each groundwater sample was analyzed for the PADEP March 2008 Shortlist of Unleaded Gasoline Parameters (benzene, ethylbenzene, toluene, total xylenes, cumene, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB). The results of the analysis are summarized on **Table 4**, and the associated laboratory analytical reports are provided in **Appendix B**. A Groundwater Analytical Map for the Second Quarter of 2018 is presented as **Figure 4**.

Benzene was observed at concentrations exceeding the RU SHS MSC of 5 µg/l in the groundwater samples obtained from monitoring wells MW-1 through MW-5 and MW-17 at concentrations ranging from 28.1 µg/l (MW-1) to 26,000 µg/l (MW-3). The benzene concentration observed in MW-17 indicates that the contamination in the groundwater has made it partially across State Route 257. Benzene concentrations were below the laboratory detection limit in the monitoring well MW-10 for the second consecutive time following three consecutive exceedances of the RU SHS MSC.

Ethylbenzene was observed at concentrations exceeding the RU SHS MSC of 700 µg/l in the groundwater samples obtained from monitoring wells MW-3 (5,650 µg/l), MW-4 (884 µg/l) and MW-5 (2,390 µg/l). Detectable concentrations of ethylbenzene were observed in MW-1 (169 µg/l), MW-2 (388 µg/l), MW-10 (8.9 µg/l), and MW-17 (376 µg/l).

Toluene and total xylenes were observed at concentrations exceeding their RU SHS MSCs of 1,000 µg/l and 10,000 µg/l, respectively, in the groundwater sample obtained from monitoring wells MW-3 (5,190 µg/l, and 30,800 µg/l, respectively). Detectable concentrations of toluene and total xylenes were observed in MW-1 (total xylenes only), MW-2, MW-4, MW-5, MW-16 (total xylene only), and MW-17 (total xylenes only), at concentrations below their respective RU SHS MSCs.

MTBE was observed at concentrations exceeding the RU SHS MSC of 20 µg/l in the groundwater samples obtained from monitoring wells MW-3 (<25 µg/l [elevated laboratory

method detection limit]), MW-5 (32.5 µg/l) and MW-8 (247 µg/l). Detectable concentrations of MTBE were observed in MW-2 (15.8 µg/l), MW-4 (5.0 µg/l), MW-10 (15.3 µg/l), MW-11 (15.8 µg/l), and MW-17 (14.7 µg/l).

Naphthalene was observed at concentrations exceeding the RU SHS MSC of 100 µg/l in the groundwater samples obtained from monitoring wells MW-3 (439 µg/l), MW-4 (210 µg/l), and MW-5 (470 µg/l). Detectable concentrations of naphthalene were observed in MW-1 (30.9 µg/l), MW-2 (57.4 µg/l), and MW-17 (69.9 µg/l).

1,2,4-TMB was observed at concentrations exceeding the RU SHS MSC of 15 µg/l and the NRU SHS MSC of 62 µg/l in the groundwater samples obtained from monitoring wells MW-1 through MW-5 and MW-17 at concentrations ranging from 115 µg/l (MW-1) to 5,190 µg/l (MW-3). The 1,2,4-TMB concentration observed in MW-17 (591 µg/l) indicates that the contamination in the groundwater has made it partially across State Route 257. Detectable concentrations of 1,2,4-TMB was observed in MW-6 (1.4 µg/l), MW-10 (1.0 µg/l) and MW-16 (2.0 µg/l).

1,3,5-TMB was observed at concentrations exceeding the RU SHS MSC of 420 µg/l in the groundwater samples obtained from monitoring wells MW-3 (577 µg/l), and MW-5 (646 µg/l). Detectable concentrations of 1,3,5-TMB were observed in MW-1 (19.5 µg/l), MW-2 (80.0 µg/l), MW-4 (36.3 µg/l), MW-16 (2.1 µg/l), and MW-17 (229 µg/l).

Monitoring wells MW-7, MW-9, MW-12, MW-13, MW-14, MW-15 the two stream samples (Upstream and Downstream) had no parameters that exceeded their respective laboratory method detection limits.

Monitoring wells MW-1 through MW-5 continue to indicate the greatest impacts exceeding their respective SHS MSC with the exception of MTBE in MW-8. The impacts in MW-1 through MW-5 are expected because those are the monitoring wells where LPH recovery efforts are currently occurring. The observed concentrations of benzene, ethylbenzene, toluene, total xylenes and 1,2,4-TMB in MW-3 during the second quarter of 2018 reached historic highs, likely as a result of the decreased LPH recovery efforts. The benzene and 1,2,4-TMB concentrations observed in MW-17 indicates that the contamination in the groundwater has made it partially across State Route 257.

With soil excavation remediation activities planned for this summer, the concentrations of the contaminants of concern in the soil and groundwater in the vicinity of the dispenser island will be drastically reduced. Once the soil excavation remediation has occurred and the destroyed wells have been replaced, concentration trend graphs will be assembled.

Monitoring wells MW-6, MW-7, MW-9, MW-11, MW-12, MW-13, MW-14 and MW-15 currently have no parameters that have historically exceeded their respective RU SHS MSCs. As long as the concentrations in these wells remains below their respective RU SHS MSCs, they will demonstrate attainment once a sufficient number of sampling events have occurred.

5.0 Summary

Product recovery efforts continue to collect LPH from monitoring wells MW-1 through MW-5. Product recovery events occurred on April 11th, 2018 and June 22nd, 2018. Approximately 9.6 gallons of LPH have been recovered through the Second Quarter of 2018.

The Right of Entry Permit was obtained from PennDOT on March 6th, 2018 and allowed Cribbs to conduct the soil sampling and monitoring well installation in the shoulder and center turning lane of State Route 257, as called for in the RAP. The PennDOT permit was modified on May 8th, 2018 to convert SB-31 into a monitoring well (MW-17) and to add soil boring SB-35.

Nine soil borings (SB-27 through SB-35) were advanced and sampled during the second quarter of 2018. Soil boring SB-32, as initially planned, was replaced with monitoring well MW-16. Soil boring SB-31 was later replaced with monitoring well MW-17 based on the presence of benzene exceeding the RU SHS MSC in the soil sample (SB-31 (8,0'-10.0')). The findings of these sampling activities indicate that soil and groundwater contamination exist beneath the roadway if State Route 257 at concentrations that are much lower than those observed immediately surrounding the dispenser island on the Subject Property. Soil and groundwater characterization will continue in the center turning lane of State Route 257 with the installation of monitoring well MW-18 at the location of SB-35 and advancing an additional soil boring SB-36 farther to the north in the center turning lane. The additional investigation activities could have an impact on the remediation plan going forward, however, at the present, a soil excavation is planned to remove the impacted soil located in the vicinity of the former dispenser island.

The FC-1 soil samples have been collected to facilitate the disposal of the soil to be excavated as proposed in the RAP. The FC-1 form will be submitted to Waste Management Northwest Sanitary Landfill during the third quarter of 2018.

In general, the groundwater analytical data obtained during the Second Quarter 2018 monitoring event is consistent with the historical groundwater data. The analytical results for the sampled wells has indicated that only seven of the 17 monitoring wells and two stream samples has had concentrations of one or more parameters that exceeded their respective RU SHS MSCs. The greatest impacts to the groundwater were typically observed in monitoring wells MW-1 through MW-5 with the exception of MTBE in MW-8. The observed concentrations of benzene, ethylbenzene, toluene, total xylenes and 1,2,4-TMB in MW-3 reached historic highs, likely as a result of the decreased LPH recovery efforts. The presence of benzene and 1,2,4-TMB in the groundwater sample from MW-17 at concentrations exceeding their respective RU SHS MSCs was the only new discovery and only confirmed the suspected impact beneath the roadway. All the other wells and the two stream samples indicated no exceedances of their RU SHS MSCs.

In the interim, until the proposed soil excavation can be completed, the continuation of quarterly groundwater monitoring events will be conducted. The next events planned for the Third Quarter of 2018 include the submittal of the FC-1 form to have the soil pre-approved for disposal at Waste Management's Northwest Sanitary Landfill, converting SB-35 into a monitoring well (MW-18), advancing an additional soil boring (SB-36) to the north of SB-35/MW-18 and the collection of the Third Quarter 2018 groundwater samples. Depending on the results obtained from the additional soil and groundwater characterization in the center turning lane of State Route 257, the proposed soil excavation activities could occur during the third quarter as well. The Third Quarter RAPR will be submitted by October 30th, 2018 and discuss the activities and findings from that period.

TABLES

Table 1
Product Recovery
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Monitoring Well	Date	Well Diameter (inches)	Measured Product Thickness		Estimated LPH Volume in well and sandpack	Bailed (Yes/No)	Bailed LPH Volume Product / Water	Bailed LPH Volume Product Recovered	Adsorbent Socks Used (1= new 0= not changed)
			(inches)	(feet)	(gallons)		(gallons)	(gallons)	
MW-1	3/7/2017	2	Sheen	Sheen	NA	Y	0.5	0.0	0
MW-1	3/21/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-1	3/29/2017	2	0.00	0.00	NA	Y	1.0	0.0	1
MW-1	4/25/2017	2	0.00	0.00	NA	Y	0.0	0.0	1
MW-1	5/3/2017	2	Sheen	Sheen	NA	N	0.0	0.0	0
MW-1	5/19/2017	2	Sheen	Sheen	NA	Y	0.5	0.0	1
MW-1	6/7/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-1	6/13/2017	2	Slight Sheen	Slight Sheen	NA	Y	1.0	0.0	0
MW-1	7/5/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	1
MW-1	7/17/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-1	7/31/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-1	8/10/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-1	9/7/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-1	9/22/2017	2	0.00	0.00	NA	N	0.0	0.0	1
MW-1	10/30/2017	2	0.00	0.00	NA	N	0.0	0.0	1
MW-1	12/14/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-1	1/10/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-1	2/8/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-1	2/22/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-1	3/8/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-1	4/11/2018	2	0.00	0.00	NA	N	0.0	0.0	1
MW-1									
MW-2	2/9/2017	2	Sheen	Sheen	NA	N	0.0	0.0	0
MW-2	2/22/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-2	3/7/2017	2	Sheen	Sheen	NA	Y	1.0	0.0	1
MW-2	3/21/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-2	3/29/2017	2	0.00	0.00	NA	Y	1.0	0.0	1
MW-2	4/25/2017	2	0.00	0.00	NA	N	0.0	0.0	1
MW-2	5/3/2017	2	Sheen	Sheen	NA	N	0.0	0.0	0
MW-2	5/19/2017	2	Sheen	Sheen	NA	Y	1.0	0.0	1
MW-2	6/7/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	1
MW-2	6/13/2017	2	Mod. Sheen	Mod. Sheen	NA	Y	1.0	0.0	0
MW-2	7/5/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	1
MW-2	7/17/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	7/31/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	8/10/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	9/7/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	1
MW-2	9/22/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	10/30/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	12/14/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	0
MW-2	1/10/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	2/8/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	2/22/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-2	3/8/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2	4/11/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-2									

Table 1
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Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Monitoring Well	Date	Well Diameter (inches)	Measured Product Thickness		Estimated LPH Volume in well and sandpack	Bailed (Yes/No)	Bailed LPH Volume Product / Water	Bailed LPH Volume Product Recovered	Adsorbent Socks Used (1= new 0= not changed)
			(inches)	(feet)	(gallons)		(gallons)	(gallons)	
MW-3	10/4/2016	2	9.84	0.82	0.5933	Y	1.0	0.5	1
MW-3	11/3/2016	2	NM	NM	NM	N	0.0	0.0	1
MW-3	11/10/2016	2	3.60	0.3	0.2171	Y	1.5	0.5	1
MW-3	11/15/2016	2	1.20	0.1	0.0724	Y	2.5	0.1	1
MW-3	11/22/2016	2	0.25	0.021	0.0152	Y	2.0	0.015	1
MW-3	11/30/2016	2	0.25	0.021	0.0152	Y	3.0	0.015	0
MW-3	12/6/2016	2	0.0625	0.0052	0.0038	Y	1.5	0.003	1
MW-3	12/14/2016	2	0.0312	0.0026	0.0019	Y	2.0	0.002	1
MW-3	1/4/2017	2	0.5000	0.0416	0.0301	Y	3.0	0.03	1
MW-3	1/17/2017	2	0.1250	0.0104	0.0075	Y	3.0	0.007	1
MW-3	2/1/2017	2	0.1250	0.0104	0.0075	Y	2.5	0.007	1
MW-3	2/9/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-3	2/22/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-3	3/7/2017	2	0.1875	0.0156	0.0113	Y	4.0	0.01	1
MW-3	3/21/2017	2	0.0312	0.0026	0.0019	Y	1.5	0.002	1
MW-3	3/29/2017	2	Sheen	Sheen	NA	Y	1.0	0.0	1
MW-3	4/25/2017	2	Sheen	Sheen	NA	Y	3.0	0.0	1
MW-3	5/3/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-3	5/19/2017	2	Heavy Sheen	Heavy Sheen	NA	N	3.0	0.0	1
MW-3	6/7/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-3	6/13/2017	2	Heavy Sheen	Heavy Sheen	NA	Y	1.0	0.0	0
MW-3	7/5/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-3	7/17/2017	2	Heavy Sheen	Heavy Sheen	NA	Y	3.0	0.0	1
MW-3	7/31/2017	2	0.36	0.03	0.0217	Y	1.5	0.022	1
MW-3	8/10/2017	2	0.72	0.06	0.0434	Y	1.5	0.04	1
MW-3	9/7/2017	2	0.0312	0.0026	0.0019	Y	1.5	0.002	1
MW-3	9/22/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-3	10/30/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-3	12/14/2017	2	0.12	0.01	0.0072	N	0.25	0.007	1
MW-3	1/10/2018	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	0
MW-3	2/8/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-3	2/22/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-3	3/8/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.5	0.0	1
MW-3	4/11/2018	2	0.48	0.04	NA	N	0.0	0.0	1
MW-3									

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Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Monitoring Well	Date	Well Diameter (inches)	Measured Product Thickness		Estimated LPH Volume in well and sandpack	Bailed (Yes/No)	Bailed LPH Volume Product / Water	Bailed LPH Volume Product Recovered	Adsorbent Socks Used (1= new 0= not changed)
			(inches)	(feet)	(gallons)		(gallons)	(gallons)	
MW-4	2/9/2017	2	Sheen	Sheen	NA	N	0.0	0.0	0
MW-4	2/22/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-4	3/7/2017	2	0.1875	0.0156	0.0113	Y	2.0	0.01	1
MW-4	3/21/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-4	3/29/2017	2	0.00	0.00	NA	Y	1.0	0.0	1
MW-4	4/25/2017	2	0.00	0.00	NA	N	0.0	0.0	1
MW-4	5/3/2017	2	Sheen	Sheen	NA	N	0.0	0.0	0
MW-4	5/19/2017	2	Slight Sheen	Slight Sheen	NA	Y	1.0	0.0	1
MW-4	6/7/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-4	6/13/2017	2	Mod. Sheen	Mod. Sheen	NA	Y	1.0	0.0	0
MW-4	7/5/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-4	7/17/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	1
MW-4	7/31/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	1
MW-4	8/10/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	0
MW-4	9/7/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	0
MW-4	9/22/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-4	10/30/2017	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-4	12/14/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-4	1/10/2018	2	Mod. Sheen	Mod. Sheen	NA	N	0.0	0.0	1
MW-4	2/8/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-4	2/22/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	0
MW-4	3/8/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-4	4/11/2018	2	Slight Sheen	Slight Sheen	NA	N	0.0	0.0	1
MW-4									
MW-5	2/22/2017	2	Sheen	Sheen	NA	N	0.0	0.0	0
MW-5	3/7/2017	2	Sheen	Sheen	NA	Y	1.0	0.0	1
MW-5	3/21/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
MW-5	3/29/2017	2	0.00	0.00	NA	Y	1.0	0.0	1
MW-5	4/25/2017	2	0.00	0.00	NA	Y	0.0	0.0	0
MW-5	5/3/2017	2	0.00	0.00	NA	N	0.0	0.0	0
MW-5	5/19/2017	2	Sheen	Sheen	NA	Y	0.75	0.0	1
MW-5	6/7/2017	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	1
MW-5	6/13/2017	2	Slight Sheen	Slight Sheen	NA	Y	1.00	0.0	0
MW-5	7/5/2017	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	1
MW-5	7/17/2017	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	1
MW-5	7/31/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.00	0.0	0
MW-5	8/10/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.00	0.0	1
MW-5	9/7/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.00	0.0	1
MW-5	9/22/2017	2	0.00	0.00	NA	N	0.00	0.0	1
MW-5	10/30/2017	2	0.00	0.00	NA	N	0.00	0.0	1
MW-5	12/14/2017	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	0
MW-5	1/10/2018	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	0
MW-5	2/8/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.00	0.0	1
MW-5	2/22/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.00	0.0	0
MW-5	3/8/2018	2	Heavy Sheen	Heavy Sheen	NA	N	0.00	0.0	1
MW-5	4/11/2018	2	0.00	0.00	NA	N	0.00	0.0	1
MW-5									
Cumulative Recovery (gallons) bailed plus socks							52.5	9.2217	62

Table 1
Product Recovery
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Monitoring Well	Date	Well Diameter (inches)	Measured Product Thickness		Estimated LPH Volume in well and sandpack	Bailed (Yes/No)	Bailed LPH Volume Product / Water	Bailed LPH Volume Product Recovered	Adsorbent Socks Used (1= new 0= not changed)
			(inches)	(feet)	(gallons)		(gallons)	(gallons)	
Other Wells Checked for Product			Date		Observations				
MW-2, & MW-4			11/3/2016-1/4/2017		No Sheen Reported				
MW-1, MW-2, MW-4 & MW- 5			1/17/2017		Slight Sheen				
MW-2 & MW-4			2/1/2017		Slight Sheen				
MW-2 & MW-4			2/9/2017		Slight Sheen / Socks Installed				
MW-5			2/22/2017		Slight Sheen / Sock Installed				
MW-5			3/7/2017		Slight Sheen / Sock Installed				
MW-1, MW-2, MW-3, MW-4, and MW-5			3/21/2017		Product in MW-3, moderate sheen in MW-2 & MW-4, slight sheen in MW-1 & MW-5				
MW-1 through MW-14			3/29/2017		Sampling event, heavy sheen in MW-3.				
MW-1 through MW-5			4/25/2017		Sheen/globules in MW-3.				
MW-1 through MW-5			5/3/2017		Sheen/globules in MW-3.				
MW-1 through MW-5			5/19/2017		Slight sheen in MW-1, MW-2, MW-4 and MW-5, heavy sheen in MW-3.				
MW-1 through MW-5			6/7/2017		Strong odor in MW-1, and MW-3, mild odor in MW-4 and slight odor MW-2 and MW-5.				
MW-1 through MW-15			6/13/2017		Sampling event, slight sheen in MW-1 and MW-5, moderate sheen in MW-2 and MW-4, heavy sheen in MW-3.				
MW-1 through MW-5			7/5/2017		Strong odor in MW-1, and MW-2, moderate odor in MW-3, MW-4, and MW-5.				
MW-1 through MW-5			7/17/2017		Strong odor in MW-3, and MW-4, moderate odor in MW-4 and slight odor MW-1 and MW-5.				
MW-1 through MW-5			7/31/2017		Measurable product and very strong odor in MW-3. Sheen only in other MWs. Strong odor in MW-4, and MW-5, moderate odor in MW-2 and slight odor MW-1.				
MW-1 through MW-5			8/10/2017		Measurable product and strong odor in MW-3. Sheen only in other MWs. Moderate odor in MW-4, and MW-5, slight odor in MW-1 and MW-2.				
MW-1 through MW-5			9/7/2017		globbulea and very strong odor in MW-3. Sheen only in other MWs. Very strong odor in MW-4, moderate odor in MW-5, slight odor in MW-1 and MW-2.				
MW-1 through MW-5			9/22/2017		Sheen of product and strong odor in MW-3. Slight sheen only in MW-2 and MW-4. No sheen in MW-1 and MW-5 Slight odor in MW-4, no odor in MW-1, MW-2 and MW-5.				
MW-1 through MW-5			10/30/2017		Sheen of product and strong odor in MW-3. Slight sheen only in MW-2 and MW-4. No sheen in MW-1 and MW-5 No odor in MW-1, MW-2, MW-4, and MW-5.				
MW-1 through MW-5			12/14/2017		Measurable product and very strong odor in MW-3. Slight sheen and moderate odor in MW-1, and MW-5. Moderate sheen and strong odor in MW-2. Heavy sheen and very strong odor in MW-4.				
MW-1 through MW-5			1/10/2018		Slight sheen and slight odor in MW-1. Slight sheen and moderate odor in MW-2, and MW-5. Moderate sheen and very strong odor in MW-3 and MW-4.				
MW-1 through MW-5			2/8/2018		Slight sheen and slight odor in MW-1 and MW-2. Heavy sheen in MW-4, and MW-5. Globbules in MW-3. Strong odor in MW-5 and very strong odor in MW-3 and MW-4.				
MW-1 through MW-5			2/22/2018		Slight sheen and slight odor in MW-1 and MW-2. Heavy sheen in MW-4, and MW-5. Globbules in MW-3. Very strong odor in MW-3, MW-4, and MW-5.				
MW-1 through MW-5			3/8/2018		Slight sheen and slight odor in MW-1 and MW-2. Heavy sheen in MW-4, and MW-5. Globbules in MW-3. Very strong odor in MW-3, MW-4, and MW-5.				
MW-1 through MW-5			4/11/2018		No sheen or odor in MW-1 and MW-5. Slight sheen , no odor MW-2. Slight sheen and odor MW-4. Product and strong odor in MW-3.				

Each adsorbent sock recoveres approximately one pint if fully saturated.
NM = not measured

Table 2
Soil Analytical Results - PA Short List - Unleaded Gasoline
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Parameter	UNITS	Residential Soil to Groundwater	Non-Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non-Residential Surface Soil 0-2'	Non-Residential Surface Soil 2-15'	Non-Residental Vapor Intrusion Screening Value	SB-1 (8.0'-10.0')	SB-2 (2.0'-4.0')	SB-3 (2.0'-4.0')	SB-3 (6.0'-8.0')	SB-4 (4.0'-6.0')	SB-4 (6.0'-8.0')	SB-5 (2.0'-4.0')	SB-6 (2.0'-4.0')	SB-7 (3.0'-4.0')
Date Sampled								4/27/2016	4/27/2016	4/27/2016	4/27/2016	4/27/2016	4/27/2016	4/29/2016	4/29/2016	6/14/2016
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	<5.9	<241	<2,430	<4.1	<255	<4.3	553	<4.1	<206
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	<5.9	<241	316,000	11.6	<255	<4.3	135,000	<4.1	4,060
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<5.9	333	27,700	<4.1	<255	<4.3	15,800	<4.1	487
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<5.9	<241	<2,430	<4.1	<255	<4.3	<291	<4.1	<206
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<5.9	<241	64,900	<4.1	<255	<4.3	33,100	<4.1	1,100
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<5.9	<241	<2,430	<4.1	<255	<4.3	<291	<4.1	<206
1,2,4-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	<5.9	<241	567,000	7.6	<255	<4.3	3,000	<4.1	<206
1,3,5-Trimrthylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	<5.9	<241	194,000	<4.1	<255	<4.3	1,610	<4.1	<206
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	<17.8	<724	1,110,000	27.2	<766	<12.8	<873	<12.2	<617
PID								4.8	30.8	>5000	19.4	121	12.3	443	22.5	230

Parameter	UNITS	Residential Soil to Groundwater	Non-Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non-Residential Surface Soil 0-2'	Non-Residential Surface Soil 2-15'	Non-Residental Vapor Intrusion Screening Value	SB-7 (7.0'-8.0')	SB-8 (4.0'-5.0')	SB-9 (3.0'-4.0')	SB-10 (4.0'-5.0')	SB-11 (3.0'-4.0')	SB-11 (7.0'-8.0')	SB-12 (3.0'-4.0')	SB-13 (3.0'-4.0')	SB-14 (3.0'-4.0')
Date Sampled								6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016	6/14/2016
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	<4.8	1,940	2,370	2,390	35,300	<6.1	76,700	36,300	52,500
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	<4.8	91,200	60,300	5,750	108,000	<6.1	14,700	178,000	57,000
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<4.8	8,880	10,600	634	9,410	<6.1	844	14,700	4,600
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<4.8	<317	<239	10.0	<2,070	<6.1	<277	<2,280	<250
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<4.8	23,200	19,300	1,360	24,400	<6.1	1,870	41,900	16,800
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<4.8	<317	<239	9.8	115,000	<6.1	1,900	6,110	1,490
1,2,4-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	<4.8	207,000	49,800	11,500	190,000	<6.1	8,790	266,000	98,300
1,3,5-Trimrthylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	<4.8	63,800	640	134	89,800	<6.1	1,970	128,000	31,200
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	<14.4	88,100	2,460	2,690	434,000	<18.3	16,600	523,000	87,100
PID								18.0	3,360	3,140	58.6	1,811	4.1	2,274	1,521	349

Table 2
Soil Analytical Results - PA Short List - Unleaded Gasoline
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Parameter	UNITS	Residential Soil to Groundwater	Non-Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non-Residential Surface Soil 0-2'	Non-Residential Surface Soil 2-15'	Non-Residental Vapor Intrusion Screening Value	SB-15 (3.0'-4.0')	SB-16 * (3.0'-4.0')	SB-16 * (7.0'-8.0')	SB-17 (3.0'-4.0')	SB-18 (6.0'-8.0')	SB-19 (0.0'-2.0')	SB-22 (6.0'-8.0')	SB-24 (6.0'-8.0')	MW-7 (2.5'-4.5')
Date Sampled								6/14/2016	6/14/2016	6/14/2016	6/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	10/17/2016
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	101,000	29,300	12.7	50,600	1,170	27.9	963	214	5.2
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	397,000	87,100	28.1	113,000	22,300	<4.3	18,500	8,110	<5.1
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	32,700	7,150	<4.9	12,600	2,840	49.7	1,470	817	<5.1
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<25,100	<181	11.7	<227	<223	<4.3	<198	<195	<5.1
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	119,000	22,600	<4.9	30,200	5,850	10.5	2,920	1,970	<5.1
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	327,000	4,460	<4.9	2,640	<223	<4.3	<198	<195	<5.1
1,2,4-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	895,000	176,000	47.1	191,000	42,900	9.3	40,000	17,500	<5.1
1,3,5-Trimrthylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	291,000	62,400	17.6	77,900	7,810	<4.3	14,600	5,490	<5.1
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	2,030,000	319,000	112	297,000	5,080	18.1	37,000	9,470	<15.3
PID								3,970	3,460	13.8	2,875	952	139	396	824	2.4

Parameter	UNITS	Residential Soil to Groundwater	Non-Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non-Residential Surface Soil 0-2'	Non-Residential Surface Soil 2-15'	Non-Residental Vapor Intrusion Screening Value	MW-9 (0.5'-2.5')	MW-8 / SS-5 (10.0'-12.0')	MW-8 / SS-7 (14.0'-16.0')	MW-6 (4.0'-6.0')	MW-6 (8.0'-10.0')	MW-10 (6.0'-8.0')	MW-10 (8.0'-10.0')	MW-11 (4.0'-6.0')	MW-11 (6.0'-8.0')
Date Sampled								10/18/2016	11/1/2016	11/1/2016	11/15/2016	11/15/2016	11/15/2016	11/15/2016	11/15/2016	11/15/2016
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	<5.0	10.9	<3.6	<5.4	<4.4	<4.8	<230	<5.4	<4.3
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	<5.0	<4.6	<3.6	<5.4	<4.4	<4.8	<230	<5.4	<4.3
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<5.0	<4.6	<3.6	<5.4	<4.4	<4.8	<230	<5.4	<4.3
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<5.0	166	7.2	<5.4	<4.4	<4.8	<230	<5.4	<4.3
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<5.0	<4.6	<3.6	5.5	<4.4	<4.8	<230	<5.4	<4.3
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<5.0	<4.6	<3.6	<5.4	<4.4	<4.8	<230	<5.4	<4.3
1,2,4-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	<5.0	<4.6	<3.6	<5.4	<4.4	<4.8	<230	<5.4	<4.3
1,3,5-Trimrthylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	<5.0	<4.6	<3.6	<5.4	<4.4	<4.8	<230	<5.4	<4.3
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	<14.9	<13.9	<10.9	<16.1	<13.3	<14.3	<691	<16.3	<12.8
PID								9.0	3.7	2.3	1.7	0.0	2.7	0.0	0.0	0.0

Table 2
Soil Analytical Results - PA Short List - Unleaded Gasoline
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Parameter	UNITS	Residential Soil to Groundwater	Non-Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non-Residential Surface Soil 0-2'	Non-Residential Surface Soil 2-15'	Non-Residental Vapor Intrusion Screening Value	MW-12 (4.0'-6.0')	MW-13 (1.0'-2.0')	MW-14 (1.0'-2.0')	SB-32/ MW-16 (5.0'-6.0')	SB-27 (2.0'-4.0')	SB-28 (2.0'-3.0')	SB-29 (3.0'-4.0')	SB-30 (4.0'-5.0')	SB-31 (2.0'-3.0')
Date Sampled								1/24/2017	1/24/2017	1/25/2017	4/19/2018	4/24/2018	4/24/2018	6/6/2018	4/24/2018	4/24/2018
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	<5.9	<5.7	<10.7	5.3	29.0	36.2	1,930	78.2	<4.0
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	<5.9	<5.7	<10.7	<4.1	<4.2	6.4	1,090	35.2	<4.0
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<5.9	<5.7	<10.7	<4.1	<4.2	<4.2	<194	<3.9	<4.0
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<5.9	<5.7	<10.7	<4.1	<4.2	<4.2	<194	4.0	<4.0
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<5.9	<5.7	<10.7	<4.1	<4.2	<4.2	<194	<3.9	<4.0
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<5.9	<5.7	<10.7	<4.1	<4.2	<4.2	<194	5.0	<4.0
1,2,4-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	<5.9	<5.7	<10.7	<4.1	<4.2	<4.2	412	7.6	<4.0
1,3,5-Trimrthylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	<5.9	<5.7	<10.7	<4.1	<4.2	<4.2	<194	5.0	<4.0
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	<17.6	<17.1	<32.1	<12.3	<12.5	20.7	3,980	29.3	<11.9
PID								8.7	1.0	<1.0	275.0	7.4	25.3	148.5	85.7	28.4

Parameter	UNITS	Residential Soil to Groundwater	Non-Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non-Residential Surface Soil 0-2'	Non-Residential Surface Soil 2-15'	Non-Residental Vapor Intrusion Screening Value	SB-31 (8.0'-10.0')	SB-33 (3.0'-4.0')	SB-34 (2.0'-3.0')	SB-34 (4.0'-5.0')	SB-35 (2.0'-4.0')	SB-35 (6.0'-8.0')
Date Sampled								4/24/2018	4/24/2018	4/24/2018	4/24/2018	6/6/2018	6/6/2018
VOCs													
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	769	<3.4	9.2	44.7	<4.1	160
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	366	<3.4	<3.8	<5.2	<4.1	<4.6
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<192	<3.4	<3.8	<5.2	<4.1	<4.6
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<192	<3.4	<3.8	<5.2	<4.1	<4.6
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<192	<3.4	<3.8	<5.2	<4.1	<4.6
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<192	<3.4	<3.8	7.5	<4.1	8.2
1,2,4-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	603	<3.4	<3.8	<5.2	<4.1	<4.6
1,3,5-Trimrthylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	<192	<3.4	<3.8	<5.2	<4.1	<4.6
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	1,630	<10.3	<11.4	<15.5	<12.3	<13.8
PID								445.3	6.5	6.3	79.5	1.4	40.7

Notes:

All organic contaminant constituents reported in ug/kg. Lead reported in mg/kg.

NA Denotes Not Analyzed, Not Avaliable, or Not Applicable

Blue - Denotes exceedence of Residential Soil to Groundwater Statewide Health Standard.

Blue & Bold - Denotes exceedence of Non-Residential Soil to Groundwater Statewide Health Standard.

Green - Denotes exceedence of Residential Direct-Contact, 0-15' Statewide Health Standard.

Red - Denotes exceedence of Non-Residential Direct-Contact, 0-2' Statewide Health Standard.

Red & Bold - Denotes exceedence of Non-Residential Direct-Contact, 2'-15' Statewide Health Standard.

- Denotes exceeds two or more Statewide Health Standards.

Highlighted value exceeds Non-Residential Vapor Intrusion screening value Statewide Health Standard.

* Soil samples SB-16 (3.0'-4.0') and SB-16 (7.0'-8.0') lables inadvertantly reversed to laboratory, this Table presents corrected data.

Table 3
Historic Groundwater Elevation Data
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Monitoring Well	Date	TOC Elevation (feet)	Total Depth of Well (feet)	Depth to Top of Water (feet)	Product Thickless (feet)	Corrected Static Water Level (feet)	Groundwater Elevation (feet)
MW-1	7/12/2016	1450.44	8.0	1.72	0.00	1.72	1448.72
MW-1	10/4/2016	1450.44	8.0	1.66	0.00	1.66	1448.78
MW-1	1/17/2017	1450.44	8.0	1.16	0.00	1.16	1449.28
MW-1	3/29/2017	1450.44	8.0	1.53	0.00	1.53	1448.91
MW-1	6/12/2017	1450.44	8.0	1.53	Sheen	1.53	1448.91
MW-1	2/22/2018	1450.44	8.0	0.81	Sheen	0.81	1449.63
MW-1	6/22/2018	1450.44	8.0	1.00	0.00	1.00	1449.44
MW-2*	7/12/2016	1449.80	8.0	5.50	0.00	5.50	1444.30
MW-2	10/4/2016	1449.80	8.0	1.57	0.00	1.57	1448.23
MW-2	1/17/2017	1449.80	8.0	0.89	0.00	0.89	1448.91
MW-2	3/29/2017	1449.80	8.0	1.03	0.00	1.03	1448.77
MW-2	6/12/2017	1449.80	8.0	1.07	Sheen	1.07	1448.73
MW-2	2/22/2018	1449.80	8.0	0.79	Sheen	0.79	1449.01
MW-2	6/22/2018	1449.80	8.0	0.77	0.00	0.77	1449.03
MW-3*	7/12/2016	1450.14	8.0	5.51	0.00	5.51	1444.63
MW-3	10/4/2016	1450.14	8.0	2.32	0.82	1.72	1448.42
MW-3	1/17/2017	1450.14	8.0	1.02	0.01	1.01	1449.13
MW-3	3/29/2017	1450.14	8.0	0.95	0.01	0.94	1449.20
MW-3	6/12/2017	1450.14	8.0	1.02	Sheen	1.02	1449.12
MW-3	2/22/2018	1450.14	8.0	0.36	Sheen	0.36	1449.78
MW-3	6/22/2018	1450.14	8.0	0.36	Sheen	0.36	1449.78
MW-4	7/12/2016	1449.99	8.0	1.19	0.00	1.19	1448.80
MW-4	10/4/2016	1449.99	8.0	1.89	0.00	1.89	1448.10
MW-4	1/17/2017	1449.99	8.0	0.96	0.00	0.96	1449.03
MW-4	3/29/2017	1449.99	8.0	1.01	0.00	1.01	1448.98
MW-4	6/12/2017	1449.99	8.0	0.98	Sheen	0.98	1449.01
MW-4	2/22/2018	1449.99	8.0	0.28	Sheen	0.28	1449.71
MW-4	6/22/2018	1449.99	8.0	0.45	Sheen	0.45	1449.54
MW-5*	7/12/2016	1449.93	8.0	5.72	0.00	5.72	1444.21
MW-5	10/4/2016	1449.93	8.0	1.03	0.00	1.03	1448.90
MW-5	1/17/2017	1449.93	8.0	1.08	0.00	1.08	1448.85
MW-5	3/29/2017	1449.93	8.0	1.21	0.00	1.21	1448.72
MW-5	6/12/2017	1449.93	8.0	1.14	Sheen	1.14	1448.79
MW-5	2/22/2018	1449.93	8.0	0.83	Sheen	0.83	1449.10
MW-5	6/22/2018	1449.93	8.0	1.04	Sheen	1.04	1448.89
MW-6	1/17/2017	1450.52	9.8	3.48	0.00	3.48	1447.04
MW-6	3/28/2017	1450.52	9.8	3.43	0.00	3.43	1447.09
MW-6	6/12/2017	1450.52	9.8	3.45	0.00	3.45	1447.07
MW-6	2/22/2018	1450.52	9.8	3.36	0.00	3.36	1447.16
MW-6	6/22/2018	1450.52	9.8	3.33	0.00	3.33	1447.19

Table 3
Historic Groundwater Elevation Data
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Monitoring Well	Date	TOC Elevation (feet)	Total Depth of Well (feet)	Depth to Top of Water (feet)	Product Thickless (feet)	Corrected Static Water Level (feet)	Groundwater Elevation (feet)
MW-7	1/17/2017	1451.98	10.0	3.30	0.00	3.30	1448.68
MW-7	3/29/2017	1451.98	10.0	3.30	0.00	3.30	1448.68
MW-7	6/12/2017	1451.98	10.0	3.45	0.00	3.45	1448.53
MW-7	2/21/2018	1451.98	10.0	3.07	0.00	3.07	1448.91
MW-7	6/22/2018	1451.98	10.0	3.32	0.00	3.32	1448.66
MW-8*	12/6/2016	1449.95	16.0	11.60	0.00	11.60	1438.35
MW-8	1/17/2017	1449.95	16.0	3.95	0.00	3.95	1446.00
MW-8	3/28/2017	1449.95	16.0	2.61	0.00	2.61	1447.34
MW-8	4/25/2017	1449.95	16.0	2.42	0.00	2.42	1447.53
MW-8	6/12/2017	1449.95	16.0	2.28	0.00	2.28	1447.67
MW-8	2/22/2018	1449.95	16.0	1.14	0.00	1.14	1448.81
MW-8	6/22/2018	1449.95	16.0	1.70	0.00	1.70	1448.25
MW-9*	12/6/2016	1448.91	12.5	10.18	0.00	10.18	1438.73
MW-9	1/17/2017	1448.91	12.5	2.51	0.00	2.51	1446.40
MW-9	3/28/2017	1448.91	12.5	3.86	0.00	3.86	1445.05
MW-9	6/12/2017	1448.91	12.5	3.96	0.00	3.96	1444.95
MW-9	2/21/2018	1448.91	12.5	5.31	0.00	5.31	1443.60
MW-9	6/22/2018	1448.91	12.5	3.62	0.00	3.62	1445.29
MW-10*	12/6/2016	1448.39	9.9	8.15	0.00	8.15	1440.24
MW-10	1/17/2017	1448.39	9.9	6.72	0.00	6.72	1441.67
MW-10	3/28/2017	1448.39	9.9	4.32	0.00	4.32	1444.07
MW-10	4/25/2017	1448.39	9.9	3.49	0.00	3.49	1444.90
MW-10	6/12/2017	1448.39	9.9	3.53	0.00	3.53	1444.86
MW-10	2/22/2018	1448.39	9.9	5.42	0.00	5.42	1442.97
MW-10	6/22/2018	1448.39	9.9	4.04	0.00	4.04	1444.35
MW-11*	12/6/2016	1447.56	9.9	9.90	0.00	DRY	DRY
MW-11*	1/17/2017	1447.56	9.9	9.90	0.00	DRY	DRY
MW-11*	2/22/2017	1447.56	9.9	8.90	0.00	8.90	1438.66
MW-11	3/28/2017	1447.56	9.9	7.65	0.00	7.65	1439.91
MW-11	4/25/2017	1447.56	9.9	7.65	0.00	7.65	1439.91
MW-11	6/12/2017	1447.56	9.9	6.85	0.00	6.85	1440.71
MW-11	2/21/2018	1447.56	9.9	7.01	0.00	7.01	1440.55
MW-11	6/22/2018	1447.56	9.9	6.19	0.00	6.19	1441.37
MW-12	2/1/2017	1447.76	8.0	4.01	0.00	4.01	1443.75
MW-12	3/28/2017	1447.76	8.0	4.15	0.00	4.15	1443.61
MW-12	6/12/2017	1447.76	8.0	4.25	0.00	4.25	1443.51
MW-12	2/21/2018	1447.76	8.0	3.99	0.00	3.99	1443.77
MW-12	6/22/2018	1447.76	8.0	4.10	0.00	4.10	1443.66

Table 3
Historic Groundwater Elevation Data
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Monitoring Well	Date	TOC Elevation (feet)	Total Depth of Well (feet)	Depth to Top of Water (feet)	Product Thickless (feet)	Corrected Static Water Level (feet)	Groundwater Elevation (feet)
MW-13	2/1/2017	1447.48	8.0	3.16	0.00	3.16	1444.32
MW-13	3/28/2017	1447.48	8.0	3.78	0.00	3.78	1443.70
MW-13	6/12/2017	1447.48	8.0	4.06	0.00	4.06	1443.42
MW-13	2/21/2018	1447.48	8.0	3.12	0.00	3.12	1444.36
MW-13	6/22/2018	1447.48	8.0	3.75	0.00	3.75	1443.73
MW-14	2/1/2017	1448.07	8.0	3.50	0.00	3.50	1444.57
MW-14	3/28/2017	1448.07	8.0	3.83	0.00	3.83	1444.24
MW-14	6/12/2017	1448.07	8.0	5.61	0.00	5.61	1442.46
MW-14	2/21/2018	1448.07	8.0	4.10	0.00	4.10	1443.97
MW-14	6/22/2018	1448.07	8.0	4.35	0.00	4.35	1443.72
MW-15*	6/12/2017	1451.80	12.5	10.76	0.00	10.76	1441.04
MW-15	7/31/2017	1449.53	12.5	1.67	0.00	1.67	1447.86
MW-15	2/22/2018	1449.53	12.5	1.72	0.00	1.72	1447.81
MW-15	6/22/2018	1449.53	12.5	1.66	0.00	1.66	1447.87
MW-16*	6/22/2018	1449.56	10.0	10.00	0.00	DRY	DRY
MW-16*	7/10/2018	1449.56	10.0	9.77	0.00	9.77	1439.79
MW-17*	6/22/2018	1450.10	9.8	8.92	0.00	8.92	1441.18

1/17/2017 - MW-6 and MW-7 sampled, all other wells gauged.
4/25/2017 - MW-8 sampled, MW-10 and MW-11 gauged only.
MW-15 PVC cut down by 1.27' between initial sampling event and surveying MW-15.
MW-X * Groundwater Elevation measured before water level reaches static equlibrium.
Monitoring Wells MW-16 and MW-17 Surveyed by Cribbs & Associates July 10, 2018.

TABLE 4
Historical Groundwater Analytical Results
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango Co., PA
PADEP Facility ID # 61-18854

Monitoring Well	Date	Benzene	Ethylbenzene	Cumene	MTBE	Naphthalene	Toluene	1,2,4-TMB	1,3,5-TMB	Total Xylenes
SHS MSC Residential		5	700	840	20	100	1,000	15	420	10,000
SHS MSC Non-Residential		5	700	3,500	20	100	1,000	62	1,200	10,000
Non-Residential Vapor Intrusion Screening Values		350	860	24,000	96,000	1,300	430,000	750	1,200	12,000
MW-1	7/12/2016	63.2	321	17.5	<5.0	94.3	<5.0	301	81.5	694
MW-1	10/4/2016	92.1	1,100	53.7	6.2	233	9.8	604	214	1,270
MW-1	3/29/2017	76.2	638	43.2	9.3	179	<5.0	573	219	497
MW-1	6/13/2017	45.9	370	30.1	<5.0	93.6	<5.0	297	69.1	325
MW-1	2/22/2018	36.7	269	19.7	<5.0	49.0	<5.0	200	35.1	296
MW-1	6/22/2018	28.1	169	18.9	<5.0	30.9	<5.0	115	19.5	98.0
MW-2	7/12/2016	664	509	39.5	12.3	170	106	1,100	328	2,210
MW-2	10/4/2016	1,800	752	66.5	21.3	134	83	635	264	740
MW-2	3/29/2017	783	250	18.8	14.8	37.4	<5.0	118	97.7	91.1
MW-2	6/13/2017	884	319	23.6	15.9	46.5	10.5	179	87.3	290
MW-2	2/22/2018	750	345	28.6	13.0	37.0	<5.0	222	87.3	281
MW-2	6/22/2018	1,030	388	30.1	15.8	57.4	5.3	277	80.0	407
MW-3	7/12/2016	15,000	3,070	85.0	41.7	<500	10,500	2,320	595	15,600
MW-3	10/4/2016	17,800	3,000	88.2	39.7	411	10,200	2,020	557	15,600
MW-3	3/29/2017	13,400	4,410	191	<25	880	8,810	4,920	1,590	23,900
MW-3	6/13/2017	17,000	2,980	73.4	<25	537	7,270	2,730	595	16,800
MW-3	2/22/2018	7,480	1,660	58.8	<25	300	2,390	1,810	526	12,200
MW-3	6/22/2018	26,000	5,650	74.4	<25	439	6,950	5,190	577	30,800
MW-4	7/12/2016	2,240	1,240	81.3	7.8	291	667	1,200	300	3,070
MW-4	10/4/2016	1,200	485	55.1	<5.0	133	170	313	103	922
MW-4	3/29/2017	1,760	764	71.9	5.1	145	47.0	394	133	1,400
MW-4	6/13/2017	1,600	626	66.5	<5.0	153	25.7	289	86.7	856
MW-4	2/22/2018	2,010	796	72.8	5.0	130	72.3	440	104.0	1,220
MW-4	6/22/2018	1,800	884	88.4	5.0	210	29.7	358	36.3	325
MW-5	7/12/2016	3,940	2,140	96.3	51.7	150	85.2	1,570	485	8,130
MW-5	10/4/2016	9,860	2,300	99.2	75.5	384	32.1	1,950	554	6,450
MW-5	3/29/2017	9,180	2,420	100	40.6	386	27.3	2,010	585	3,220
MW-5	6/13/2017	10,500	3,020	109	61.3	4,470	53.9	3,510	1,040	8,660
MW-5	2/22/2018	7,350	1,880	72	41.1	236	<25	1,570	471	5,430
MW-5	6/22/2018	10,100	2,390	102	32.9	470	21.5	2,210	646	5,710
MW-6	1/17/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-6	3/29/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-6	6/13/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-6	2/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-6	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1.4	<1.0	<5.0

TABLE 4
Historical Groundwater Analytical Results
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango Co., PA
PADEP Facility ID # 61-18854

Monitoring Well	Date	Benzene	Ethylbenzene	Cumene	MTBE	Naphthalene	Toluene	1,2,4-TMB	1,3,5-TMB	Total Xylenes
SHS MSC Residential		5	700	840	20	100	1,000	15	420	10,000
SHS MSC Non-Residential		5	700	3,500	20	100	1,000	62	1,200	10,000
Non-Residential Vapor Intrusion Screening Values		350	860	24,000	96,000	1,300	430,000	750	1,200	12,000
MW-7	1/17/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-7	3/29/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-7	6/13/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-7	2/21/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-7	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-8	12/6/2016	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-8	3/28/2017	<5.0	<5.0	<5.0	**422**	<5.0	<5.0	<1.0	<1.0	<5.0
MW-8	4/25/2017	<5.0	<5.0	<5.0	**520**	<5.0	<5.0	<1.0	<1.0	<5.0
MW-8	6/12/2017	<5.0	<5.0	<5.0	**421**	<5.0	<5.0	<1.0	<1.0	<5.0
MW-8	2/22/2018	<5.0	<5.0	<5.0	**157**	<5.0	<5.0	<1.0	<1.0	<5.0
MW-8	6/22/2018	<5.0	<5.0	<5.0	**247**	<5.0	<5.0	<1.0	<1.0	<5.0
MW-9	12/6/2016	<5.0	<5.0	<5.0	10.4	<5.0	<5.0	<1.0	<1.0	<5.0
MW-9	3/28/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-9	6/12/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-9	2/21/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-9	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-10	12/6/2016	**16.3**	315	59.4	15.9	99.3	<5.0	**260**	9.2	8.3
MW-10	3/28/2017	**8.9**	141	23.1	16.3	31.5	<5.0	22.3	2.6	<5.0
MW-10	6/12/2017	**5.3**	81.8	14.4	**21.3**	11.1	<5.0	6.4	1.9	<5.0
MW-10	2/22/2018	<5.0	53.4	17.7	16.4	<5.0	<5.0	1.6	1.6	<5.0
MW-10	6/22/2018	<5.0	8.9	6.4	15.3	<5.0	<5.0	1.0	<1.0	<5.0
MW-11	12/6/2016	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-11	2/22/2017	<5.0	<5.0	<5.0	11.6	<5.0	<5.0	<1.0	<1.0	<5.0
MW-11	3/28/2017	<5.0	<5.0	<5.0	11.2	<5.0	<5.0	<1.0	<1.0	<5.0
MW-11	6/12/2017	<5.0	<5.0	<5.0	13.2	<5.0	<5.0	<1.0	<1.0	<5.0
MW-11	2/21/2018	<5.0	<5.0	<5.0	12.2	<5.0	<5.0	<1.0	<1.0	<5.0
MW-11	6/22/2018	<5.0	<5.0	<5.0	15.8	<5.0	<5.0	<1.0	<1.0	<5.0
MW-12	2/1/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-12	3/28/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-12	6/12/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-12	2/21/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-12	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0

TABLE 4
Historical Groundwater Analytical Results
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango Co., PA
PADEP Facility ID # 61-18854

Monitoring Well	Date	Benzene	Ethylbenzene	Cumene	MTBE	Naphthalene	Toluene	1,2,4-TMB	1,3,5-TMB	Total Xylenes
SHS MSC Residential		5	700	840	20	100	1,000	15	420	10,000
SHS MSC Non-Residential		5	700	3,500	20	100	1,000	62	1,200	10,000
Non-Residential Vapor Intrusion Screening Values		350	860	24,000	96,000	1,300	430,000	750	1,200	12,000
MW-13	2/1/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-13	3/28/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-13	6/12/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-13	2/21/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-13	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-14	2/1/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-14	3/28/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-14	6/12/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-14	2/21/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-14	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-15	6/12/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-15	7/31/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-15	2/21/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-15	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
MW-16	6/22/2018	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
MW-16	7/10/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	2.0	2.1	19.4
MW-17	6/22/2018	**1,070**	376	15.5	14.7	69.9	<5.0	**591**	229	2,000
Upstream	10/4/2016	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Upstream	3/29/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Upstream	6/12/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Upstream	2/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Upstream	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Downstream	10/4/2016	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Downstream	3/29/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Downstream	6/12/2017	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Downstream	2/21/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Downstream	6/22/2018	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0	<5.0
Duplacates										
MW-10	2/22/2018	<5.0	52.4	18.1	16.6	<5.0	<5.0	1.6	1.6	<5.0
MW-5	6/22/2018	**9,350**	**2,230**	110	**39.3**	**455**	25.7	**2,130**	617	5,420

All concentrations provided in micrograms per liter(ug/L).
MTBE = Methyl Tert Butyl Ether
TMB = Trimethylbenzene
NA indicates parameter not analyzed.
Red values *denote exceedences of the Residential Statewide Health Standard.*
Red Bolded values *denote exceedences of the Non-Residential Statewide Health Standard.*
Highlighted value exceeds the Non-Residential Vapor Intrusion Screening Statewide Health Standard.

FIGURES

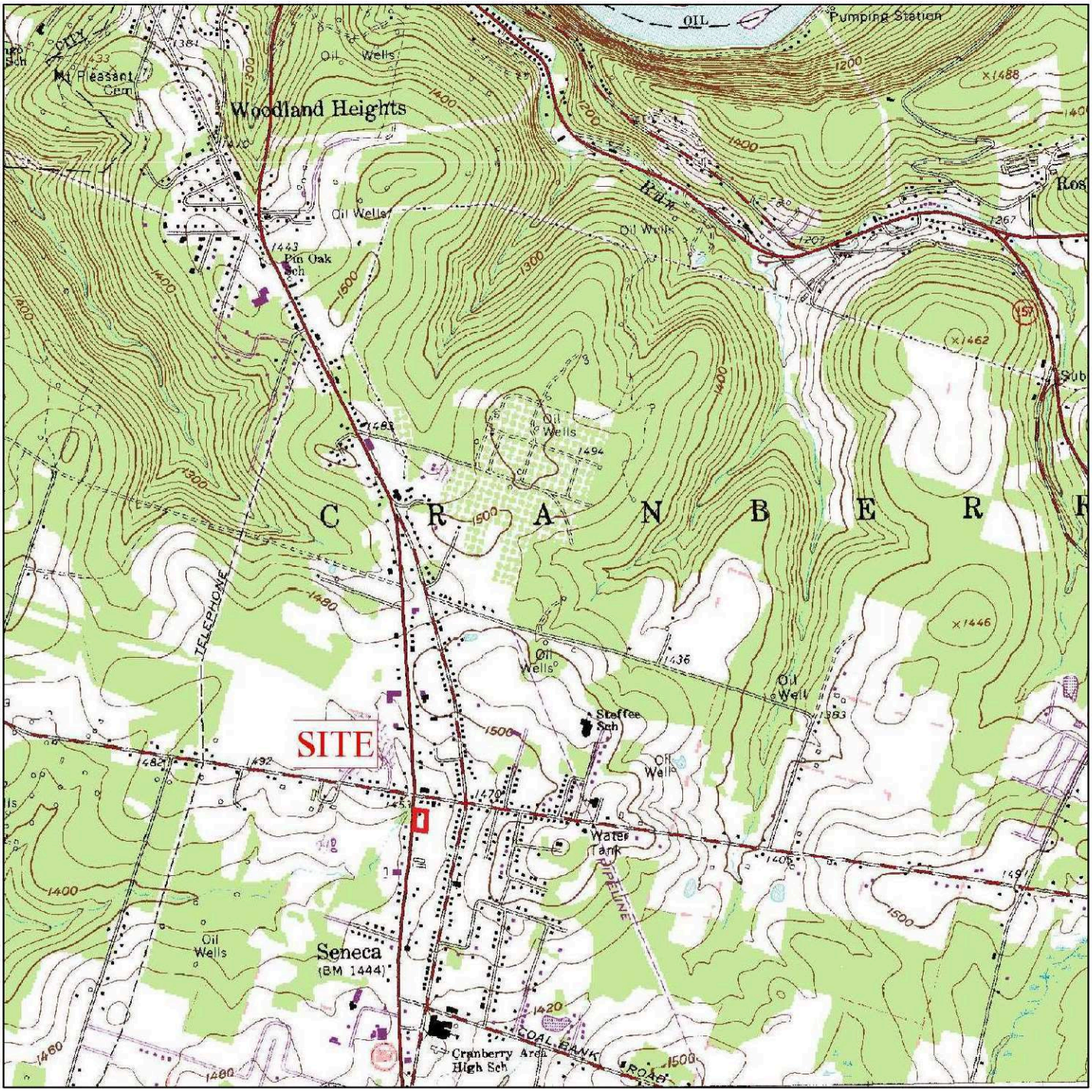


FIGURE 1
SITE LOCATION MAP

Remedial Action Progress Report
Harper Oil Company/Heath Oil Inc., Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango Co., Pennsylvania

REFERENCE:
OIL CITY, PENNSYLVANIA
USGS 7.5-Minute Quadrangle

SCALE:
1 inch equals 2000 feet

CRIBBS & Associates, Jr
P.O. BOX 44
DELMONT, PA 15626
724.454.2310

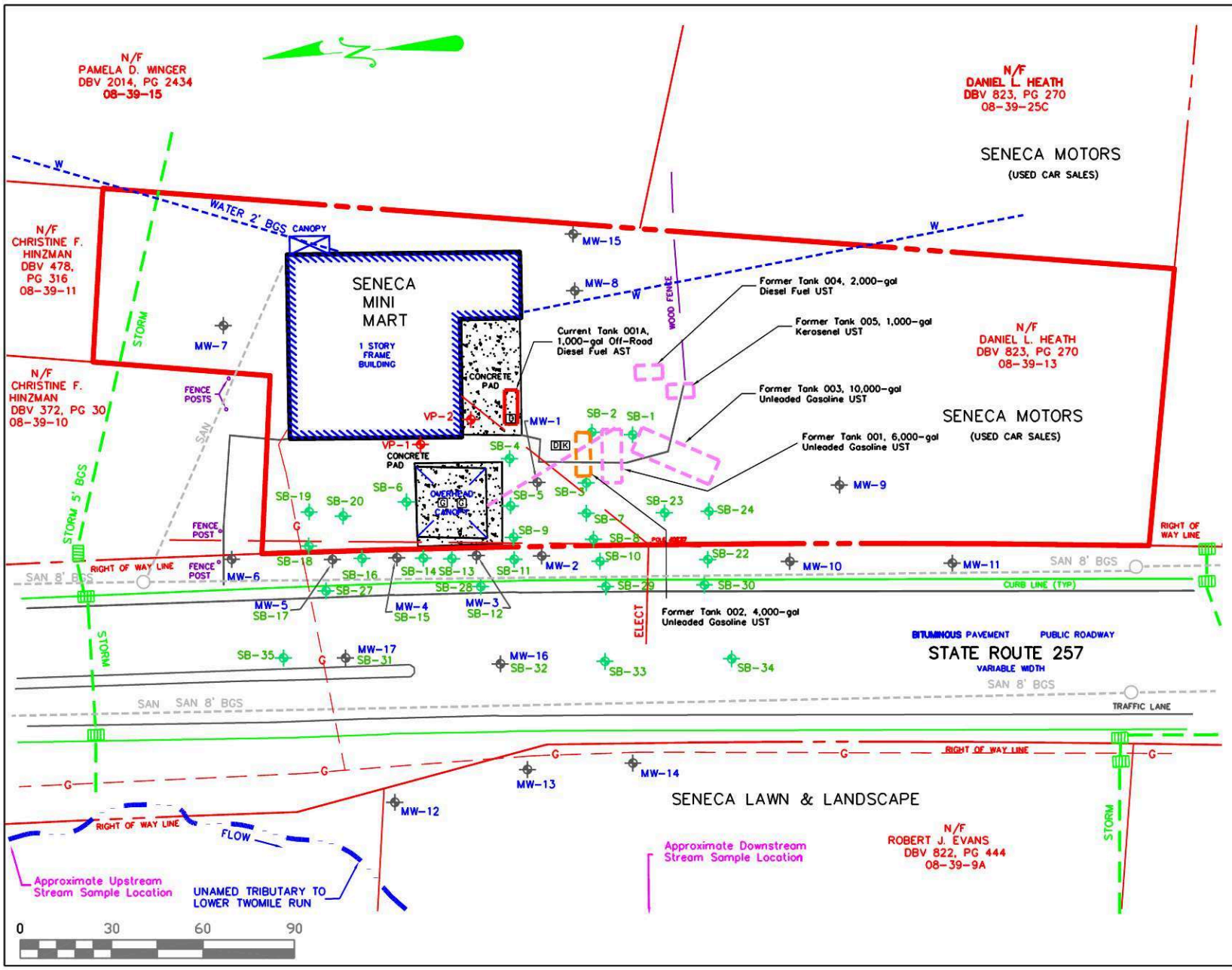


FIGURE 2
SITE PLAN – SOIL BORING AND MONITORING WELL LOCATION MAP

REMEDIAL ACTION PROGRESS REPORT
HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART
SENECA, PENNSYLVANIA
PADEP FACILITY ID# 65-18854

SENECA BOROUGH
VENANGO COUNTY, PENNSYLVANIA

DATE: 07/10/18	APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

LEGEND

- MW-1 — MONITORING WELL LOCATION
- SB-1 — SOIL BORING LOCATION
- VP-1 — VAPOR POINT LOCATION
- FORMER UST LOCATION TANKS REMOVED SEPTEMBER 14-17, 2015
- CURRENT AST LOCATION
- FORMER PRODUCT LINE LOCATION
- FORMER UST LOCATION TANK REMOVED FEBRUARY 11, 1999
- G — GASOLINE DISPENSER
- D — DIESEL DISPENSER
- K — KEROSINE DISPENSER

UTILITIES (DEPTHS MARKED IF KNOWN)

- GAS LINE
- WATER LINE
- SANITARY SEWER
- STORM SEWER

THREE ADDITIONAL SOIL BORINGS, SB-21, SB-25 AND SB-26, (NOT SHOWN) WERE ADVANCED IMMEDIATELY ADJACENT TO PREVIOUSLY SAMPLED LOCATIONS, SB-15, SB-3 AND SB-11, RESPECTIVELY, TO COLLECT SOIL SAMPLES FROM AREAS OF KNOWN IMPACT IN ORDER TO OBTAIN DISPOSAL ANNALYTICAL RESULTS FOR COMPLETING FORM FC-1 IN ANTICIPATION OF SOIL EXCAVATION ACTIVITY.

CRIBBS & Associates, Inc.
P.O. BOX 44
DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS KNOWLES AND ASSOCIATES INC.

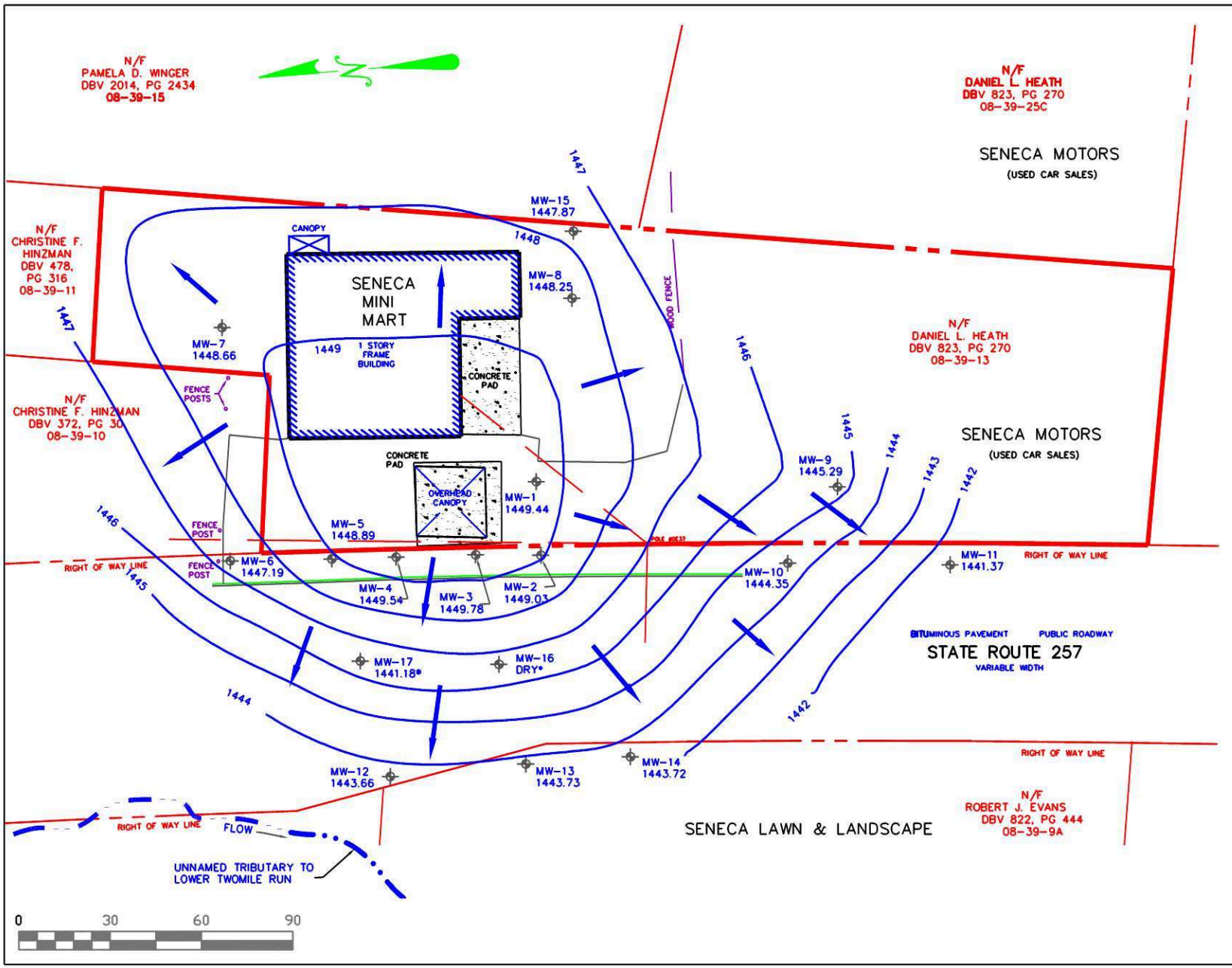


FIGURE 3
GROUNDWATER CONTOUR AND FLOW DIRECTION MAP – JUNE 22, 2018

REMEDIAL ACTION PROGRESS REPORT
HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART
SENECA, PENNSYLVANIA
PADEP FACILITY ID# 65-18854

SENECA BOROUGH
VENANGO COUNTY, PENNSYLVANIA

DATE: 7/10/2018	APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

LEGEND

- MW-1 (1449.44) — MONITORING WELL LOCATION MEASURED GROUNDWATER ELEVATION
- GROUNDWATER CONTOUR LINE
- GROUNDWATER FLOW DIRECTION
- VP-1 — VAPOR POINT LOCATION

GROUNDWATER ELEVATIONS FOR ALL WELLS MEASURED DURING JUNE 22nd , 2018 SAMPLING EVENT.

* GROUNDWATER ELEVATIONS FOR WELLS MW-16 AND MW-17 HAD NOT REACHED STATIC LEVELS BY THE JUNE 22nd, 2018 SAMPLING EVENT AND WERE NOT USED TO PREPARE THIS FIGURE.

CRIBBS & Associates, Inc.
P.O. BOX 44
DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS KNOWLES AND ASSOCIATES INC.

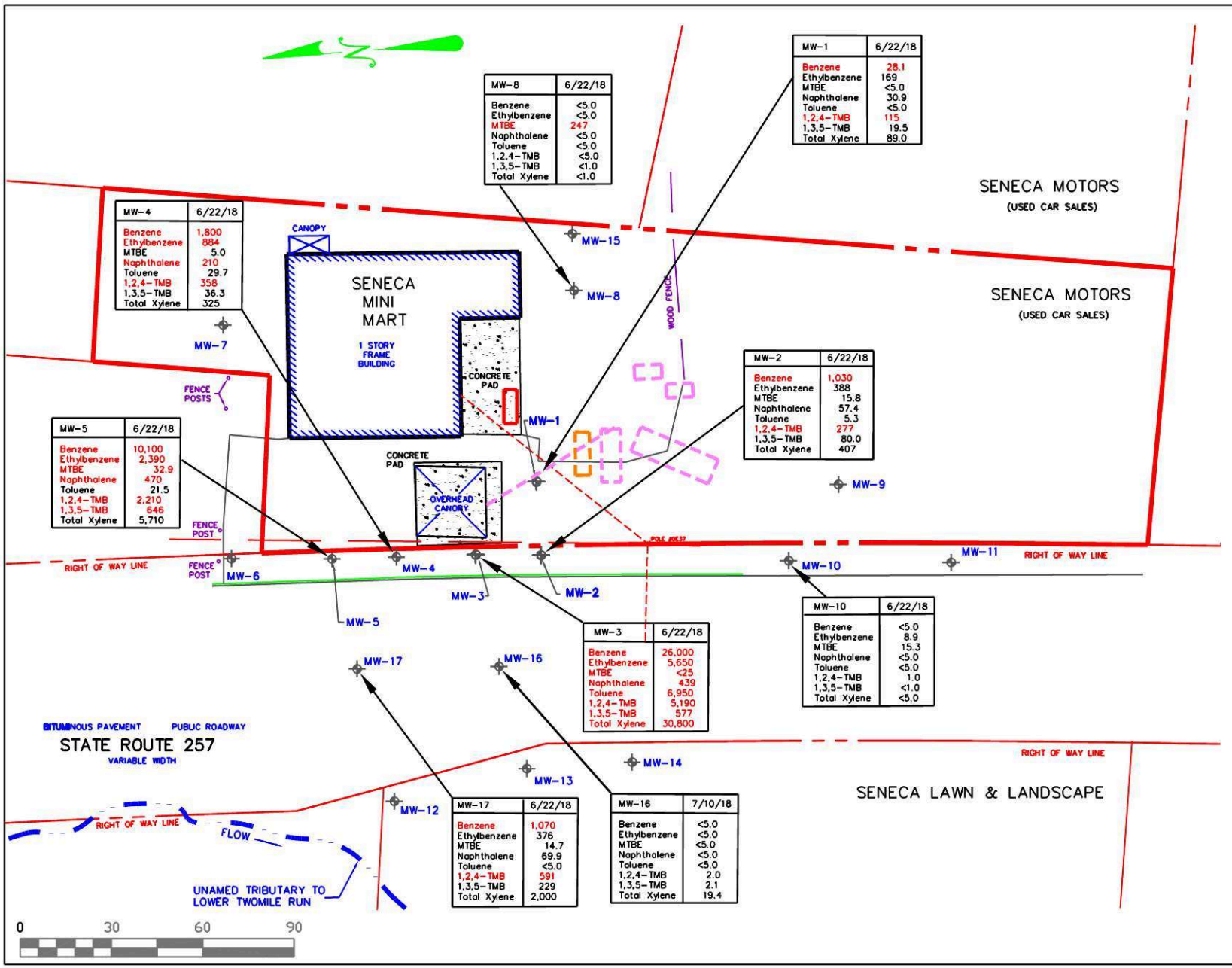


FIGURE 4
GROUNDWATER ANALYTICAL MAP

REMEDIAL ACTION PROGRESS REPORT
HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART
SENECA, PENNSYLVANIA
PADEP FACILITY ID# 65-18854

SENECA BOROUGH
VENANGO COUNTY, PENNSYLVANIA

DATE: 07/23/18	APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

LEGEND

MW-1 MONITORING WELL LOCATION

SHS MSCs	Residential	Non-Residential
Benzene	5	5
Ethylbenzene	700	700
MTBE	20	20
Naphthalene	100	100
Toluene	1,000	1,000
1,2,4-TMB	15	62
1,3,5-TMB	420	1,200
Total Xylene	10,000	10,000

Analytical Results of Monitoring Wells with No Exceedance of the SHS MSCs are not shown

Groundwater samples collected on June 22nd, 2018.

Monitoring Well MW-16 was DRY on June 22, 2018, Sampled on July 10, 2018.

FORMER UST LOCATION
TANKS REMOVED
SEPTEMBER 14-17, 2015

CURRENT AST LOCATION

FORMER PRODUCT LINE LOCATION

FORMER UST LOCATION
TANK REMOVED
FEBRUARY 11, 1999

CRIBBS & Associates, Inc.
P.O. BOX 44
DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS KNOWLES AND ASSOCIATES INC.

APPENDICES

APPENDIX A

Soil Boring Logs and Well Installation Details

Cribbs & Associates, Inc.

Soil Boring SB-27

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/24/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 12.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid		PVC sched. 40		2"
SCREEN:	Slotted - 0.01"		PVC sched. 40		2"
GROUT:					NA
SEAL:	1/8" Pellets		Bentonite		NA
FILTER PACK:			Silica		NA

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1		(0.0' - 1.2') **Asphalt**		1	
	2	7.4	(1.2' - 2.0') Gray **Gravel**, limestone. (Fill)	NA	2	10
	3		(2.0' - 6.0') Gray **Silt**, little clay, traces of fine-grained sand and gravel, moderate plasticity, no odor, damp. *Soil Sample SB-27 (2.0'-4.0') collected at 10:30.*		3	
	4				4	
	5	52.8			5	
	6		(Fill)	NA	6	46
	7	26.8	(6.0'-8.0') Yellow Brown **Silt**, little sand and gravel, trace clay, gravel is sandstone, gray shale and coal fragments, low plasticity, no odor, dry to damp. (Native soil)		7	
	8				8	
	9	19.2	(8.0' - 12.0') Yellow Brown **Silty Clay**, trace gravel, gravel is gray and yellow fine grained sandstone, trace light gray motteling, moderate plasticity, no odor, dry to damp.		9	
	10			NA	10	37
	11	6.7			11	
	12				12	
	13		Bottom of Boring at 12.0'		13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

Cribbs & Associates, Inc.

Soil Boring SB-28

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/24/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 12.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid		PVC sched. 40		2"
SCREEN:	Slotted - 0.01"		PVC sched. 40		2"
GROUT:					NA
SEAL:	1/8" Pellets		Bentonite		NA
FILTER PACK:			Silica		NA

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1	3.6	(0.0' - 1.2') **Asphalt**	NA	1	26
	2		(1.2' - 2.0') Gray **Gravel**, limestone. (Fill)		2	
	3	25.3	(2.0' - 5.0') Dark Gray **Silty Clay**, traces of fine grained sand, gravel, and roots, gravel is gray fine-grained sandstone, moderate plasticity, no odor, damp. *Soil Sample SB-28 (2.0'-3.0') collected at 10:00.*		3	
	4				4	
	5	19.3		NA	5	47
	6		(5.0' - 6.0') Yellow Brown **Silty Clay**, traces of fine grained sand, gravel, and roots, gravel is gray fine-grained sandstone, moderate plasticity, no odor, damp.		6	
	7	55.6	(6.0'-8.0') Gray **Silt**, little fine sand and gravel, trace clay, gravel is yellow brown and gray fine-grained sandstone, trace of charcoal fragments, low plasticity, no odor, damp. Becomes wet 7.0' to 7.5 ' (Native soil)		7	
	8				8	
	9	55.2	(8.0' - 10.0') Yellow Brown **Silty Clay**, trace gravel, gravel is gray and yellow fine-grained sandstone, no odor, wet.	NA	9	34
	10				10	
	11	31.1	(10.0' - 12.0') Gray and Brown **Silty Clay**, trace gravel, gravel is gray, fine-grained sandstone, no odor, damp to moist with wet pockets.		11	
	12				12	
	13		Bottom of Boring at 12.0'		13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

Cribbs & Associates, Inc.

Soil Boring SB-29

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/24/2018 & 6/6/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 8.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid		PVC sched. 40		2"
SCREEN:	Slotted - 0.01"		PVC sched. 40		2"
GROUT:					NA
SEAL:	1/8" Pellets		Bentonite		NA
FILTER PACK:			Silica		NA

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION No Sample recovery April 24, 2018. Resampled on June 6, 2018.	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1	2.1	(0.0' - 1.3') **Asphalt**	NA	1	34
	2		(1.3' - 2.0') **Gravel** Subbase.		2	
	3	148.5	(2.0' - 4.0') Gray **Silt**, Little Caly, trace gravel, gravel is highly weathered gray shale and yellow brown fine-grained sandstone, moderate plasticity, dry to damp.		3	
	4		*Soil Sample SB-29 (3.0'-4.0') collected at 13:30.*		4	
	5	1.9	(4.0' - 8.0') Gray **Silty Clay**, traces of sand and gravel, moderate plasticity, no odor, moist.	NA	5	2
	6				6	
	7				7	
	8				8	
	9		Bottom of Boring at 8.0'		9	
	10				10	
	11				11	
	12				12	
	13				13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

Cribbs & Associates, Inc.

Soil Boring SB-30

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/24/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 12.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid		PVC sched. 40		2"
SCREEN:	Slotted - 0.01"		PVC sched. 40		2"
GROUT:					NA
SEAL:	1/8" Pellets		Bentonite		NA
FILTER PACK:			Silica		NA

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1		(0.0' - 1.2') **Asphalt**		1	
	2	2.2	(1.2' - 2.0') Olive Gray **Silt**, little clay, traces of fine-grained sand and, gravel, gravel is highly weathered, gray, fine-grained sandstone, moderate plasticity, no odor, moist.	NA	2	6
	3		(2.0' - 10.0') Yellow Brown **Silt**, little sand and gravel, trace clay, gravel is yellow brown, fine-grained sandstone, no odor, dry to damp.		3	
	4				4	
	5	85.7	*Soil Sample SB-30 (4.0'-5.0') collected at 9:15.*	NA	5	46
	6				6	
	7	79.4			7	
	8				8	
	9	94.9		NA	9	47
	10		(Native Soil)		10	
	11	31.4	(10.0' - 12.0') Yellow Brown **Silty Clay**, trace gravel, gravel is rounded, yellow brown, sandstone pebbles, moderate plasticity, no odor, damp.		11	
	12				12	
	13		Bottom of Boring at 12.0'		13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

Cribbs & Associates, Inc.

MW-17 / SB-31

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/24/2018 & 6/6/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe/B-57 | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe / 2 1/4" HSA | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 10.0 Feet

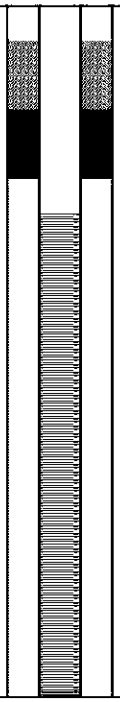
	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0' - 3.0'	PVC sched. 40	3.0'	2"
SCREEN:	Slotted - 0.01"	3.0' - 10.0'	PVC sched. 40	7.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5' - 2.0'	Bentonite	1.5'	6"
FILTER PACK:	Sand	2.0' - 10.0'	Silica	8.0'	6"

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION Soil Boring SB-31 Advanced and sampled on April 24, 2018 Monitoring Well MW-17 Installed at the location of SB-31 on June 6, 2018.	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1	NA	(0.0' - 2.0') **Asphalt, Concrete** and **Limestone gravel** sub-base, wet at 2.0'.		1	Hand Clear
	2				2	
	3	28.4	(2.0' - 7.0') Dark Gray **Silt**, little clay, traces of fine-grained sand and gravel, *Soil Sample SB-31 (2.0'-3.0') collected at 10:40.* gravel is gray, highly weathered, fine-grained sandstone, moderate plasticity, no odor, damp.		3	
	4				4	44
	5	98.9			5	
	6				6	
	7	275	(Native Soil)		7	
	8		(7.0' - 8.5') Gray **Silty Clay**, trace gravel, gravel is highly weathered, gray, fine-grained sandstone, moderate plasticity, slight hydrocarbon odor, damp.		8	37
	9	445.3	(8.5' - 10.0') Yellow Brown **Silty Clay**, trace of light gray motteling, moderate plasticity, slight to moderate hydrocarbon odor, damp.		9	
	10		*Soil Sample SB-31 (8.0'-10.0') collected at 10:45.*		10	
	11		Bottom of Boring at 10.0'		11	
	12				12	
	13				13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

Cribbs & Associates, Inc. **Soil Boring SB-32/MW-16**

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/19/2018 & 4/24/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe / B-57 | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe / 2 1/4" HSA | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 10.0 Feet

		TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:		Solid	0.25' - 3.0'	PVC sched. 40	2.75'	2"
SCREEN:		Slotted - 0.01"	3.0' - 10.0'	PVC sched. 40	7.0'	2"
GROUT:		Chips	1.5 ' - 0.5'	Bentonite	1.0'	6"
SEAL:		1/8" Pellets	1.5' - 2.5'	Bentonite	1.0'	6"
FILTER PACK:		quartz sand	2.5' -10.0'	Silica	7.5'	6"

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1	NA	(0.0' - 1.5) **Asphalt, Concrete** and **Limestone gravel** sub-base.		1	
	2		(1.5' - 4.0') Gray **Silt**, traces of clay, fine-grained sand and gravel, gravel is gray and yellow brown, weathered, fine grained sandstone, low plasticity, no odor, dry to damp.		2	
	3	28.4			3	
	4				4	48"
	5	98.9	(4.0' - 6.5') Gray **Silt**, little clay, moderate plasticity, no odor, damp. *Soil Sample SB-32 (5.0'-6.0') collected at 11:30.*		5	
	6				6	
	7	275	(6.5' - 7.0') Yellow Brown **Silt and Gravel**, little sand, cohesive , nonplastic, no odor, damp.		7	
	8		(7.0' - 10.0') Yellow Brown **Silt**, traces of clay, fine-grained sand and gravel, no odor, damp.		8	48"
	9	445.3			9	
	10				10	
	11		Bottom of Boring at 10.0'		11	
	12				12	
	13				13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

Cribbs & Associates, Inc.

Soil Boring SB-33

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/24/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 10.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid		PVC sched. 40		2"
SCREEN:	Slotted - 0.01"		PVC sched. 40		2"
GROUT:					NA
SEAL:	1/8" Pellets		Bentonite		NA
FILTER PACK:			Silica		NA

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1	NA	(0.0' - 2.0') **Asphalt, Concrete** and **Limestone gravel** sub-base, dry.		1	NA
	3	6.5	(2.0' - 5.0') Gray **Silty Clay**, traces of fine-grained sand and gravel, gravel is gray and brown, highly weathered, fine-grained sandstone, moderate plasticity, no odor, dry. *Soil Sample SB-33 (3.0'-4.0') collected at 11:00.*		3	48
	5	10.2	(5.0' - 6.0') Gray **Silt**, traces of clay, fine-grained sand and gravel and roots, gravel is highly weathered gray and yellow brown fine-grained sandstone, low plasticity, dry to damp.		5	
	7	10.2	(6.0' - 8.0') Gray **Silt**, little sand and gravel, gravel is yellow brown, gray and white, highly weathered, sandstone, no odor, damp. (Native Soil)		7	48
	9	7.1	(8.0' - 10.0') Yellow Brown **Silty Clay**, trace gravel, gravel is highly weathered, yellow brown, fine-grained, sandstone, no odor, damp.		9	
	11		Bottom of Boring at 10.0'		11	
	13				13	
	15				15	
	17				17	
	19				19	

Cribbs & Associates, Inc.

Soil Boring SB-34

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 4/24/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 12.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid		PVC sched. 40		2"
SCREEN:	Slotted - 0.01"		PVC sched. 40		2"
GROUT:					NA
SEAL:	1/8" Pellets		Bentonite		NA
FILTER PACK:			Silica		NA

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1	NA	(0.0' - 2.0') **Asphalt, Concrete** and **Limestone gravel** sub-base, dry.		1	NA
	3	6.3	(2.0' - 4.5') Gray **Silty Clay**, trace of gravel, gravel is rounded gray, fine-grained sandstone, moderate plasticity, no odor, dry to damp. *Soil Sample SB-34 (2.0'-3.0') collected at 11:30.*		3	48
	5	79.5	*Soil Sample SB-34 (4.0'-5.0') collected at 11:40.* (4.5' - 6.0') Gray **Silt**, little clay, traces of fine-grained sand and gravel and roots, moderate plasticity, no odor, dry to damp. (Native Soil)		5	
	7	49.4	(6.0' - 8.0') Gray and Brown **Silt**, trace clay, low plasticity, no odor, damp. (Native Soil)		7	35
	9	19.2	(8.0' - 10.0') Gray **Silt**, little gravel, gravel is highly weathered, yellow brown, red and gray sandstone, gray shale, trace of gray motteling, no odor, damp. Trace of coal fregments from 9.0' to 10.0'.		9	
	11		Bottom of Boring at 10.0'		11	
	12				12	
	13				13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

Cribbs & Associates, Inc.

Soil Boring SB-35

CLIENT: Heath Oil | PROJECT # | DATE DRILLED: 6/6/2018
SITE: Seneca Mini Mart | LOCATION: Seneca, PA
DRILLING COMPANY: Cribbs & Associates | RIG: Geoprobe | BOREHOLE: 3" Diameter
LOGGED BY: Jared Thorn | DRILLING METHOD: Geoprobe | WATER LEVEL:
SAMPLING PROCEDURE: 4' Macro Core | SAMPLING INTERVAL: Continuous | TOTAL DEPTH: 10.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid		PVC sched. 40		
SCREEN:	Slotted - 0.01"		PVC sched. 40		
GROUT:	Chips		Bentonite		
SEAL:	1/8" Pellets		Bentonite		
FILTER PACK:	quartz sand		Silica		

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	1	NA	(0.0' - 2.0) **Asphalt** (16"), and **Concrete** (8").		1	24"
	2		(2.0' - 6.0') Medium Brown and Gray **Silt**, little clay, trace gravel, gravel is a mix of rounded gray fine-grained sandstone and gray limestone, moderate plasticity, no odor, dry.		2	
	3	1.4	*Soil Sample SB-35 (2.0'-4.0') collected at 11:10.*		3	
	4		becomes gray and dry at 3.5'.		4	48"
	5	8.3	4.0' - 4.2' thin gravel rich layer		5	
	6				6	
	7	40.7	(6.0' - 9.0') Gray **Silty Clay**, moderate to high plasticity, no odor, damp. *Soil Sample SB-35 (6.0'-8.0') collected at 11:20.*		7	
	8				8	38"
	9	15.5			9	
	10		(9.0' - 10.0') Yellow Brown **Silt**, traces of clay, fine sand and gravel, gravel is highly weathered gray and yellow brown shale and yellow brown fine-grained sandstone, moderate plasticity, dry to damp. Bottom of Boring at 10.0'		10	
	11				11	
	12				12	
	13				13	
	14				14	
	15				15	
	16				16	
	17				17	
	18				18	
	19				19	
	20				20	

APPENDIX B

Laboratory Analytical Reports

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

July 06, 2018

Mr. Gary Cribbs
Cribbs and Associates
P.O. Box 44
Delmont, PA 15626

RE: Project: HO: Seneca
Pace Project No.: 30257163

Dear Mr. Cribbs:
Enclosed are the analytical results for sample(s) received by the laboratory on June 25, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Samantha Bayura

Samantha Bayura
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(724)850-5622
Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates
John A. Ducar, Cribbs & Associates, Inc.
Jared Thorn, Cribbs & Associates, Inc.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: HO: Seneca
Pace Project No.: 30257163

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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SAMPLE ANALYTE COUNT

Project: HO: Seneca
Pace Project No.: 30257163

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30257163001	MW-1	EPA 8260B	MAK	13	PASI-PA
30257163002	MW-2	EPA 8260B	MAK	13	PASI-PA
30257163003	MW-3	EPA 8260B	MAK	13	PASI-PA
30257163004	MW-4	EPA 8260B	MAK	13	PASI-PA
30257163005	MW-5	EPA 8260B	MAK	13	PASI-PA
30257163006	MW-6	EPA 8260B	MAK	13	PASI-PA
30257163007	MW-7	EPA 8260B	MAK	13	PASI-PA
30257163008	MW-8	EPA 8260B	MAK	13	PASI-PA
30257163009	MW-9	EPA 8260B	MAK	13	PASI-PA
30257163010	MW-10	EPA 8260B	MAK	13	PASI-PA
30257163011	MW-11	EPA 8260B	MAK	13	PASI-PA
30257163012	MW-12	EPA 8260B	MAK	13	PASI-PA
30257163013	MW-13	EPA 8260B	MAK	13	PASI-PA
30257163014	MW-14	EPA 8260B	MAK	13	PASI-PA
30257163015	MW-15	EPA 8260B	MAK	13	PASI-PA
30257163016	Downstream	EPA 8260B	MAK	13	PASI-PA
30257163017	Upstream	EPA 8260B	MAK	13	PASI-PA
30257163018	MW-17	EPA 8260B	MAK	13	PASI-PA
30257163019	MW-18	EPA 8260B	MAK	13	PASI-PA

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PROJECT NARRATIVE

Project: HO: Seneca
Pace Project No.: 30257163

Method: **EPA 8260B**
Description: 8260B MSV
Client: Cribbs and Associates
Date: July 06, 2018

General Information:
19 samples were analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: 304147

A matrix spike and/or matrix spike duplicate (MS/MSD) were performed on the following sample(s): 30257163001

ML: Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

- MS (Lab ID: 1489360)
  - 1,2,4-Trimethylbenzene
  - Ethylbenzene
- MSD (Lab ID: 1489361)
  - Ethylbenzene

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-1 **Lab ID: 30257163001** Collected: 06/22/18 16:25 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**28.1**	ug/L	5.0	1		06/29/18 22:19	71-43-2	
Ethylbenzene	**169**	ug/L	5.0	1		06/29/18 22:19	100-41-4	ML
Isopropylbenzene (Cumene)	**18.9**	ug/L	5.0	1		06/29/18 22:19	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/29/18 22:19	1634-04-4	
Naphthalene	**30.9**	ug/L	5.0	1		06/29/18 22:19	91-20-3	
Toluene	ND	ug/L	5.0	1		06/29/18 22:19	108-88-3	
1,2,4-Trimethylbenzene	**115**	ug/L	5.0	1		06/29/18 22:19	95-63-6	ML
1,3,5-Trimethylbenzene	**19.5**	ug/L	5.0	1		06/29/18 22:19	108-67-8	
Xylene (Total)	**98.0**	ug/L	5.0	1		06/29/18 22:19	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		06/29/18 22:19	2037-26-5	
4-Bromofluorobenzene (S)	97	%	79-129	1		06/29/18 22:19	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-120	1		06/29/18 22:19	17060-07-0	
Dibromofluoromethane (S)	100	%	80-120	1		06/29/18 22:19	1868-53-7	

Sample: MW-2 **Lab ID: 30257163002** Collected: 06/22/18 17:15 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**1030**	ug/L	100	20		06/29/18 23:07	71-43-2	
Ethylbenzene	**388**	ug/L	100	20		06/29/18 23:07	100-41-4	
Isopropylbenzene (Cumene)	**30.1**	ug/L	5.0	1		06/29/18 22:43	98-82-8	
Methyl-tert-butyl ether	**15.8**	ug/L	5.0	1		06/29/18 22:43	1634-04-4	
Naphthalene	**57.4**	ug/L	5.0	1		06/29/18 22:43	91-20-3	
Toluene	**5.3**	ug/L	5.0	1		06/29/18 22:43	108-88-3	
1,2,4-Trimethylbenzene	**277**	ug/L	1.0	1		06/29/18 22:43	95-63-6	
1,3,5-Trimethylbenzene	**80.0**	ug/L	1.0	1		06/29/18 22:43	108-67-8	
Xylene (Total)	**407**	ug/L	5.0	1		06/29/18 22:43	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	80-120	1		06/29/18 22:43	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	1		06/29/18 22:43	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-120	1		06/29/18 22:43	17060-07-0	
Dibromofluoromethane (S)	98	%	80-120	1		06/29/18 22:43	1868-53-7	

Sample: MW-3 **Lab ID: 30257163003** Collected: 06/22/18 18:00 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**26000**	ug/L	500	100		06/29/18 23:55	71-43-2	
Ethylbenzene	**5650**	ug/L	500	100		06/29/18 23:55	100-41-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-3 **Lab ID: 30257163003** Collected: 06/22/18 18:00 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Isopropylbenzene (Cumene)	**74.4**	ug/L	25.0	5		06/29/18 23:31	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	25.0	5		06/29/18 23:31	1634-04-4	
Naphthalene	**439**	ug/L	25.0	5		06/29/18 23:31	91-20-3	
Toluene	**6950**	ug/L	500	100		06/29/18 23:55	108-88-3	
1,2,4-Trimethylbenzene	**5190**	ug/L	100	100		06/29/18 23:55	95-63-6	
1,3,5-Trimethylbenzene	**577**	ug/L	5.0	5		06/29/18 23:31	108-67-8	
Xylene (Total)	**30800**	ug/L	500	100		06/29/18 23:55	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	80-120	5		06/29/18 23:31	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	5		06/29/18 23:31	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	80-120	5		06/29/18 23:31	17060-07-0	
Dibromofluoromethane (S)	97	%	80-120	5		06/29/18 23:31	1868-53-7	

Sample: MW-4 **Lab ID: 30257163004** Collected: 06/22/18 16:35 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**1800**	ug/L	250	50		07/03/18 14:29	71-43-2	
Ethylbenzene	**884**	ug/L	250	50		07/03/18 14:29	100-41-4	
Isopropylbenzene (Cumene)	**88.4**	ug/L	5.0	1		06/30/18 00:19	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 00:19	1634-04-4	
Naphthalene	**210**	ug/L	5.0	1		06/30/18 00:19	91-20-3	
Toluene	**29.7**	ug/L	5.0	1		06/30/18 00:19	108-88-3	
1,2,4-Trimethylbenzene	**358**	ug/L	1.0	1		06/30/18 00:19	95-63-6	
1,3,5-Trimethylbenzene	**36.3**	ug/L	1.0	1		06/30/18 00:19	108-67-8	
Xylene (Total)	**325**	ug/L	5.0	1		06/30/18 00:19	1330-20-7	
Surrogates								
Toluene-d8 (S)	91	%	80-120	1		06/30/18 00:19	2037-26-5	
4-Bromofluorobenzene (S)	96	%	79-129	1		06/30/18 00:19	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	80-120	1		06/30/18 00:19	17060-07-0	
Dibromofluoromethane (S)	94	%	80-120	1		06/30/18 00:19	1868-53-7	

Sample: MW-5 **Lab ID: 30257163005** Collected: 06/22/18 17:45 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**10100**	ug/L	250	50		07/03/18 14:53	71-43-2	
Ethylbenzene	**2390**	ug/L	250	50		07/03/18 14:53	100-41-4	
Isopropylbenzene (Cumene)	**102**	ug/L	5.0	1		06/30/18 00:43	98-82-8	
Methyl-tert-butyl ether	**32.9**	ug/L	5.0	1		06/30/18 00:43	1634-04-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
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ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-5 **Lab ID: 30257163005** Collected: 06/22/18 17:45 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Naphthalene	**470**	ug/L	250	50		07/03/18 14:53	91-20-3	
Toluene	**21.5**	ug/L	5.0	1		06/30/18 00:43	108-88-3	
1,2,4-Trimethylbenzene	**2210**	ug/L	250	50		07/03/18 14:53	95-63-6	
1,3,5-Trimethylbenzene	**646**	ug/L	250	50		07/03/18 14:53	108-67-8	
Xylene (Total)	**5710**	ug/L	250	50		07/03/18 14:53	1330-20-7	
Surrogates								
Toluene-d8 (S)	93	%	80-120	1		06/30/18 00:43	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	1		06/30/18 00:43	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-120	1		06/30/18 00:43	17060-07-0	
Dibromofluoromethane (S)	89	%	80-120	1		06/30/18 00:43	1868-53-7	

Sample: MW-6 **Lab ID: 30257163006** Collected: 06/22/18 12:45 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		07/02/18 12:59	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		07/02/18 12:59	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		07/02/18 12:59	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		07/02/18 12:59	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		07/02/18 12:59	91-20-3	
Toluene	ND	ug/L	5.0	1		07/02/18 12:59	108-88-3	
1,2,4-Trimethylbenzene	**1.4**	ug/L	1.0	1		07/02/18 12:59	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		07/02/18 12:59	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		07/02/18 12:59	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		07/02/18 12:59	2037-26-5	
4-Bromofluorobenzene (S)	100	%	79-129	1		07/02/18 12:59	460-00-4	
1,2-Dichloroethane-d4 (S)	97	%	80-120	1		07/02/18 12:59	17060-07-0	
Dibromofluoromethane (S)	107	%	80-120	1		07/02/18 12:59	1868-53-7	

Sample: MW-7 **Lab ID: 30257163007** Collected: 06/22/18 11:55 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		07/02/18 13:23	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		07/02/18 13:23	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		07/02/18 13:23	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		07/02/18 13:23	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		07/02/18 13:23	91-20-3	
Toluene	ND	ug/L	5.0	1		07/02/18 13:23	108-88-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-7 **Lab ID: 30257163007** Collected: 06/22/18 11:55 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		07/02/18 13:23	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		07/02/18 13:23	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		07/02/18 13:23	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		07/02/18 13:23	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	1		07/02/18 13:23	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	80-120	1		07/02/18 13:23	17060-07-0	
Dibromofluoromethane (S)	101	%	80-120	1		07/02/18 13:23	1868-53-7	

Sample: MW-8 **Lab ID: 30257163008** Collected: 06/22/18 15:05 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 01:54	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 01:54	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 01:54	98-82-8	
Methyl-tert-butyl ether	**247**	ug/L	5.0	1		06/30/18 01:54	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 01:54	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 01:54	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 01:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 01:54	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 01:54	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		06/30/18 01:54	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	1		06/30/18 01:54	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	80-120	1		06/30/18 01:54	17060-07-0	
Dibromofluoromethane (S)	104	%	80-120	1		06/30/18 01:54	1868-53-7	

Sample: MW-9 **Lab ID: 30257163009** Collected: 06/22/18 15:10 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 02:18	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 02:18	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 02:18	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 02:18	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 02:18	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 02:18	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 02:18	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 02:18	108-67-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-9 **Lab ID: 30257163009** Collected: 06/22/18 15:10 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 02:18	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	80-120	1		06/30/18 02:18	2037-26-5	
4-Bromofluorobenzene (S)	95	%	79-129	1		06/30/18 02:18	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-120	1		06/30/18 02:18	17060-07-0	
Dibromofluoromethane (S)	106	%	80-120	1		06/30/18 02:18	1868-53-7	

Sample: MW-10 **Lab ID: 30257163010** Collected: 06/22/18 13:40 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 02:42	71-43-2	
Ethylbenzene	**8.9**	ug/L	5.0	1		06/30/18 02:42	100-41-4	
Isopropylbenzene (Cumene)	**6.4**	ug/L	5.0	1		06/30/18 02:42	98-82-8	
Methyl-tert-butyl ether	**15.3**	ug/L	5.0	1		06/30/18 02:42	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 02:42	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 02:42	108-88-3	
1,2,4-Trimethylbenzene	**1.0**	ug/L	1.0	1		06/30/18 02:42	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 02:42	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 02:42	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		06/30/18 02:42	2037-26-5	
4-Bromofluorobenzene (S)	96	%	79-129	1		06/30/18 02:42	460-00-4	
1,2-Dichloroethane-d4 (S)	96	%	80-120	1		06/30/18 02:42	17060-07-0	
Dibromofluoromethane (S)	103	%	80-120	1		06/30/18 02:42	1868-53-7	

Sample: MW-11 **Lab ID: 30257163011** Collected: 06/22/18 12:40 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 03:06	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 03:06	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 03:06	98-82-8	
Methyl-tert-butyl ether	**15.8**	ug/L	5.0	1		06/30/18 03:06	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 03:06	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 03:06	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 03:06	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 03:06	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 03:06	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-11 **Lab ID: 30257163011** Collected: 06/22/18 12:40 Received: 06/25/18 11:40 Matrix: Water

Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Surrogates								
Toluene-d8 (S)	94	%	80-120	1		06/30/18 03:06	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	1		06/30/18 03:06	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-120	1		06/30/18 03:06	17060-07-0	
Dibromofluoromethane (S)	106	%	80-120	1		06/30/18 03:06	1868-53-7	

Sample: MW-12 **Lab ID: 30257163012** Collected: 06/22/18 10:45 Received: 06/25/18 11:40 Matrix: Water

Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 03:30	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 03:30	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 03:30	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 03:30	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 03:30	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 03:30	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 03:30	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 03:30	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 03:30	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	80-120	1		06/30/18 03:30	2037-26-5	
4-Bromofluorobenzene (S)	95	%	79-129	1		06/30/18 03:30	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	80-120	1		06/30/18 03:30	17060-07-0	
Dibromofluoromethane (S)	108	%	80-120	1		06/30/18 03:30	1868-53-7	

Sample: MW-13 **Lab ID: 30257163013** Collected: 06/22/18 10:40 Received: 06/25/18 11:40 Matrix: Water

Comments: • Headspace in one vial.
• Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 03:54	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 03:54	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 03:54	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 03:54	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 03:54	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 03:54	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 03:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 03:54	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 03:54	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-13 **Lab ID: 30257163013** Collected: 06/22/18 10:40 Received: 06/25/18 11:40 Matrix: Water

Comments: • Headspace in one vial.
• Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Surrogates								
Toluene-d8 (S)	97	%	80-120	1		06/30/18 03:54	2037-26-5	
4-Bromofluorobenzene (S)	97	%	79-129	1		06/30/18 03:54	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	80-120	1		06/30/18 03:54	17060-07-0	
Dibromofluoromethane (S)	105	%	80-120	1		06/30/18 03:54	1868-53-7	

Sample: MW-14 **Lab ID: 30257163014** Collected: 06/22/18 11:30 Received: 06/25/18 11:40 Matrix: Water

Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 04:17	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 04:17	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 04:17	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 04:17	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 04:17	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 04:17	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 04:17	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 04:17	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 04:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	80-120	1		06/30/18 04:17	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	1		06/30/18 04:17	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	80-120	1		06/30/18 04:17	17060-07-0	
Dibromofluoromethane (S)	104	%	80-120	1		06/30/18 04:17	1868-53-7	

Sample: MW-15 **Lab ID: 30257163015** Collected: 06/22/18 13:45 Received: 06/25/18 11:40 Matrix: Water

Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 04:41	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 04:41	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 04:41	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 04:41	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 04:41	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 04:41	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 04:41	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 04:41	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 04:41	1330-20-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
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ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-15 **Lab ID: 30257163015** Collected: 06/22/18 13:45 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		06/30/18 04:41	2037-26-5	
4-Bromofluorobenzene (S)	98	%	79-129	1		06/30/18 04:41	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-120	1		06/30/18 04:41	17060-07-0	
Dibromofluoromethane (S)	101	%	80-120	1		06/30/18 04:41	1868-53-7	

Sample: Downstream **Lab ID: 30257163016** Collected: 06/22/18 11:40 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 05:05	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 05:05	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 05:05	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 05:05	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 05:05	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 05:05	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 05:05	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 05:05	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 05:05	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	80-120	1		06/30/18 05:05	2037-26-5	
4-Bromofluorobenzene (S)	97	%	79-129	1		06/30/18 05:05	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-120	1		06/30/18 05:05	17060-07-0	
Dibromofluoromethane (S)	106	%	80-120	1		06/30/18 05:05	1868-53-7	

Sample: Upstream **Lab ID: 30257163017** Collected: 06/22/18 13:30 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		06/30/18 05:29	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/30/18 05:29	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/30/18 05:29	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/30/18 05:29	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/30/18 05:29	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 05:29	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 05:29	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/30/18 05:29	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/30/18 05:29	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	80-120	1		06/30/18 05:29	2037-26-5	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: Upstream **Lab ID: 30257163017** Collected: 06/22/18 13:30 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Surrogates								
4-Bromofluorobenzene (S)	97	%	79-129	1		06/30/18 05:29	460-00-4	
1,2-Dichloroethane-d4 (S)	99	%	80-120	1		06/30/18 05:29	17060-07-0	
Dibromofluoromethane (S)	101	%	80-120	1		06/30/18 05:29	1868-53-7	

Sample: MW-17 **Lab ID: 30257163018** Collected: 06/22/18 15:30 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**1070**	ug/L	250	50		07/03/18 09:41	71-43-2	
Ethylbenzene	**376**	ug/L	5.0	1		06/30/18 05:53	100-41-4	
Isopropylbenzene (Cumene)	**15.5**	ug/L	5.0	1		06/30/18 05:53	98-82-8	
Methyl-tert-butyl ether	**14.7**	ug/L	5.0	1		06/30/18 05:53	1634-04-4	
Naphthalene	**69.9**	ug/L	5.0	1		06/30/18 05:53	91-20-3	
Toluene	ND	ug/L	5.0	1		06/30/18 05:53	108-88-3	
1,2,4-Trimethylbenzene	**591**	ug/L	50.0	50		07/03/18 09:41	95-63-6	
1,3,5-Trimethylbenzene	**229**	ug/L	1.0	1		06/30/18 05:53	108-67-8	
Xylene (Total)	**2000**	ug/L	250	50		07/03/18 09:41	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	80-120	1		06/30/18 05:53	2037-26-5	
4-Bromofluorobenzene (S)	97	%	79-129	1		06/30/18 05:53	460-00-4	
1,2-Dichloroethane-d4 (S)	94	%	80-120	1		06/30/18 05:53	17060-07-0	
Dibromofluoromethane (S)	96	%	80-120	1		06/30/18 05:53	1868-53-7	

Sample: MW-18 **Lab ID: 30257163019** Collected: 06/22/18 18:00 Received: 06/25/18 11:40 Matrix: Water
Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	**9350**	ug/L	250	50		07/03/18 14:05	71-43-2	
Ethylbenzene	**2230**	ug/L	250	50		07/03/18 14:05	100-41-4	
Isopropylbenzene (Cumene)	**110**	ug/L	5.0	1		06/30/18 06:17	98-82-8	
Methyl-tert-butyl ether	**39.3**	ug/L	5.0	1		06/30/18 06:17	1634-04-4	
Naphthalene	**455**	ug/L	250	50		07/03/18 14:05	91-20-3	
Toluene	**25.7**	ug/L	5.0	1		06/30/18 06:17	108-88-3	
1,2,4-Trimethylbenzene	**2130**	ug/L	50.0	50		07/03/18 14:05	95-63-6	
1,3,5-Trimethylbenzene	**617**	ug/L	50.0	50		07/03/18 14:05	108-67-8	
Xylene (Total)	**5420**	ug/L	250	50		07/03/18 14:05	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	80-120	1		06/30/18 06:17	2037-26-5	
4-Bromofluorobenzene (S)	96	%	79-129	1		06/30/18 06:17	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: HO: Seneca
Pace Project No.: 30257163

Sample: MW-18 **Lab ID: 30257163019** Collected: 06/22/18 18:00 Received: 06/25/18 11:40 Matrix: Water

Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Surrogates								
1,2-Dichloroethane-d4 (S)	94	%	80-120	1		06/30/18 06:17	17060-07-0	
Dibromofluoromethane (S)	88	%	80-120	1		06/30/18 06:17	1868-53-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
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QUALITY CONTROL DATA

Project: HO: Seneca
Pace Project No.: 30257163

QC Batch: 304147 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 30257163001, 30257163002, 30257163003, 30257163004, 30257163005, 30257163008, 30257163009, 30257163010, 30257163011, 30257163012, 30257163013, 30257163014, 30257163015, 30257163016, 30257163017, 30257163018, 30257163019

METHOD BLANK: 1488072 Matrix: Water
Associated Lab Samples: 30257163001, 30257163002, 30257163003, 30257163004, 30257163005, 30257163008, 30257163009, 30257163010, 30257163011, 30257163012, 30257163013, 30257163014, 30257163015, 30257163016, 30257163017, 30257163018, 30257163019

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	06/29/18 21:55	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	06/29/18 21:55	
Benzene	ug/L	ND	1.0	06/29/18 21:55	
Ethylbenzene	ug/L	ND	1.0	06/29/18 21:55	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/29/18 21:55	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/29/18 21:55	
Naphthalene	ug/L	ND	2.0	06/29/18 21:55	
Toluene	ug/L	ND	1.0	06/29/18 21:55	
Xylene (Total)	ug/L	ND	3.0	06/29/18 21:55	
1,2-Dichloroethane-d4 (S)	%	97	80-120	06/29/18 21:55	
4-Bromofluorobenzene (S)	%	102	79-129	06/29/18 21:55	
Dibromofluoromethane (S)	%	102	80-120	06/29/18 21:55	
Toluene-d8 (S)	%	102	80-120	06/29/18 21:55	

LABORATORY CONTROL SAMPLE: 1488074

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.8	104	70-130	
1,3,5-Trimethylbenzene	ug/L	20	20.8	104	70-130	
Benzene	ug/L	20	21.3	106	70-130	
Ethylbenzene	ug/L	20	20.0	100	70-130	
Isopropylbenzene (Cumene)	ug/L	20	20.8	104	70-130	
Methyl-tert-butyl ether	ug/L	20	21.7	109	70-130	
Naphthalene	ug/L	20	25.2	126	70-130	
Toluene	ug/L	20	19.7	99	70-130	
Xylene (Total)	ug/L	60	60.6	101	70-130	
1,2-Dichloroethane-d4 (S)	%			94	80-120	
4-Bromofluorobenzene (S)	%			99	79-129	
Dibromofluoromethane (S)	%			105	80-120	
Toluene-d8 (S)	%			99	80-120	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: HO: Seneca
Pace Project No.: 30257163

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489360 1489361

Parameter	Units	30257163001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	115	20	20	127	132	59	84	75-125	4	ML
1,3,5-Trimethylbenzene	ug/L	19.5	20	20	36.9	39.3	87	99	76-121	6	
Benzene	ug/L	28.1	20	20	45.1	49.8	85	108	67-121	10	
Ethylbenzene	ug/L	169	20	20	170	180	5	52	70-127	5	ML
Isopropylbenzene (Cumene)	ug/L	18.9	20	20	36.5	39.8	88	105	80-122	9	
Methyl-tert-butyl ether	ug/L	ND	20	20	19.0	22.6	87	105	79-135	17	
Naphthalene	ug/L	30.9	20	20	52.6	55.7	109	124	62-131	6	
Toluene	ug/L	ND	20	20	19.4	22.6	84	101	77-125	15	
Xylene (Total)	ug/L	98.0	60	60	141	151	72	88	69-128	7	
1,2-Dichloroethane-d4 (S)	%						98	93	80-120		
4-Bromofluorobenzene (S)	%						101	98	79-129		
Dibromofluoromethane (S)	%						104	104	80-120		
Toluene-d8 (S)	%						95	95	80-120		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: HO: Seneca
Pace Project No.: 30257163

QC Batch: 304347 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 30257163006, 30257163007

METHOD BLANK: 1489343 Matrix: Water
Associated Lab Samples: 30257163006, 30257163007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	07/02/18 11:47	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	07/02/18 11:47	
Benzene	ug/L	ND	1.0	07/02/18 11:47	
Ethylbenzene	ug/L	ND	1.0	07/02/18 11:47	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/02/18 11:47	
Methyl-tert-butyl ether	ug/L	ND	1.0	07/02/18 11:47	
Naphthalene	ug/L	ND	2.0	07/02/18 11:47	
Toluene	ug/L	ND	1.0	07/02/18 11:47	
Xylene (Total)	ug/L	ND	3.0	07/02/18 11:47	
1,2-Dichloroethane-d4 (S)	%	97	80-120	07/02/18 11:47	
4-Bromofluorobenzene (S)	%	100	79-129	07/02/18 11:47	
Dibromofluoromethane (S)	%	107	80-120	07/02/18 11:47	
Toluene-d8 (S)	%	99	80-120	07/02/18 11:47	

LABORATORY CONTROL SAMPLE: 1489344

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.5	103	70-130	
1,3,5-Trimethylbenzene	ug/L	20	20.1	100	70-130	
Benzene	ug/L	20	22.1	110	70-130	
Ethylbenzene	ug/L	20	19.9	100	70-130	
Isopropylbenzene (Cumene)	ug/L	20	20.8	104	70-130	
Methyl-tert-butyl ether	ug/L	20	23.0	115	70-130	
Naphthalene	ug/L	20	23.9	119	70-130	
Toluene	ug/L	20	20.0	100	70-130	
Xylene (Total)	ug/L	60	60.4	101	70-130	
1,2-Dichloroethane-d4 (S)	%			88	80-120	
4-Bromofluorobenzene (S)	%			101	79-129	
Dibromofluoromethane (S)	%			106	80-120	
Toluene-d8 (S)	%			96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489553 1489554

Parameter	Units	30257218001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.1	20.0	95	100	75-125	4	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	18.9	19.7	94	98	76-121	4	
Benzene	ug/L	ND	20	20	21.5	21.4	107	107	67-121	0	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: HO: Seneca
Pace Project No.: 30257163

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489553 1489554

Parameter	Units	30257218001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	19.1	20.1	95	101	70-127	5	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	20.0	20.4	100	102	80-122	2	
Methyl-tert-butyl ether	ug/L	ND	20	20	20.3	20.5	102	103	79-135	1	
Naphthalene	ug/L	ND	20	20	19.9	22.7	100	114	62-131	13	
Toluene	ug/L	ND	20	20	19.6	19.8	98	99	77-125	1	
Xylene (Total)	ug/L	ND	60	60	58.8	59.8	98	100	69-128	2	
1,2-Dichloroethane-d4 (S)	%						99	93	80-120		
4-Bromofluorobenzene (S)	%						98	100	79-129		
Dibromofluoromethane (S)	%						104	103	80-120		
Toluene-d8 (S)	%						96	95	80-120		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: HO: Seneca
Pace Project No.: 30257163

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

ML	Matrix spike recovery and/or matrix spike duplicate recovery was below laboratory control limits. Result may be biased low.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO: Seneca
Pace Project No.: 30257163

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30257163001	**MW-1**	EPA 8260B	304147		
30257163002	**MW-2**	EPA 8260B	304147		
30257163003	**MW-3**	EPA 8260B	304147		
30257163004	**MW-4**	EPA 8260B	304147		
30257163005	**MW-5**	EPA 8260B	304147		
30257163006	**MW-6**	EPA 8260B	304347		
30257163007	**MW-7**	EPA 8260B	304347		
30257163008	**MW-8**	EPA 8260B	304147		
30257163009	**MW-9**	EPA 8260B	304147		
30257163010	**MW-10**	EPA 8260B	304147		
30257163011	**MW-11**	EPA 8260B	304147		
30257163012	**MW-12**	EPA 8260B	304147		
30257163013	**MW-13**	EPA 8260B	304147		
30257163014	**MW-14**	EPA 8260B	304147		
30257163015	**MW-15**	EPA 8260B	304147		
30257163016	**Downstream**	EPA 8260B	304147		
30257163017	**Upstream**	EPA 8260B	304147		
30257163018	**MW-17**	EPA 8260B	304147		
30257163019	**MW-18**	EPA 8260B	304147		

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2251490

Section A Required Client Information:

Company: Cribbs and Associates, Inc.
Address: PO Box 44
Delmont PA 15626
Email To: GCribbs@CribbsandAssociates.com
Phone: 724-454-2310 Fax:
Requested Due Date/TAT: STandard

Section B Required Project Information:

Report To: Gary Cribbs
Copy To: Robert Botternan
Purchase Order No.:
Project Name: HO: Seneca
Project Number:

Section C Invoice Information:

Attention: Gary Cribbs
Company Name: Cribbs and Associates, Inc
Address: PO Box 44 Delmont PA 15625
Pace Quote Reference:
Pace Project Manager: Samantha Bayura
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☒ UST ☐ RCRA ☐ OTHER

Site Location STATE: PA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

WO#: 30257163

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: SEE BELOW	Residual	Pace Project No./ Lab I.D.
1	MW-1	WT	G			6/22/18	16:25		3				3					X		001
2	MW-2	WT	G			6/22/18	17:15		3				3					X		002
3	MW-3	WT	G			6/22/18	18:40		3				3					X		003
4	MW-4	WT	G			6/22/18	1635		3				3					X		004
5	MW-5	WT	G			6/22/18	17:45		3				3					X		005
6	MW-6	WT	G			6/22/18	12:45		3				3					X		006
7	MW-7	WT	G			6/22/18	11:55		3				3					X		007
8	MW-8	WT	G			6/22/18	1530		3				3					X		008
9	MW-9	WT	G			6/22/18	15:10		3				3					X		009
10	MW-10	WT	G			6/22/18	13:40		3				3					X		010
11	MW-11	WT	G			6/22/18	12:40		3				3					X		011
12	MW-12	WT	G			6/22/18	1045		3				3					X		012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
Analyze all samples for PADEP NEW SHORTLIST for Unleaded Gasoline	Jared Thorn Cribbs+Assoc	6/22/18	2100	Ben Mumtaw	6/22/18	2100				
	Ben Mumtaw CA	6/25/18	11:40	Ben Mumtaw	6-25-18	1140	5.6	Y	N	Y
					25					
					BM 6-25-18					

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Jared Thorn
SIGNATURE of SAMPLER: Jared Thorn DATE Signed (MM/DD/YY): 6/22/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 2

2251491

Section A Required Client Information:

Company: Cribbs and Associates, Inc
Address: PO Box 44
Delmont PA 15626
Email To: GCribbs@Cribbsandassociates.com
Phone: 724-454-2310 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: Gary Cribbs
Copy To: ~~Cribbs and Associates~~ Robert Patterson
Purchase Order No.:
Project Name: 40: Seneca
Project Number:

Section C Invoice Information:

Attention: Gary Cribbs
Company Name: Cribbs and Associates, Inc
Address: PO Box 44 Delmont PA 15626
Pace Quote Reference:
Pace Project Manager: Samantha Beyura
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☒ UST ☐ RCRA ☐ OTHER

Site Location STATE: PA

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	Analysis Test (see Below)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-13	WT	G			6/22/18	1040		3				3						X		013
2	MW-14	WT	G			6/22/18	11:30		3				3						X		014
3	MW-15	WT	G			6/22/18	12:45		3				3						X		015
4	Down Stream	WT	G			6/22/18	11:40		3				3						X		016
5	UP Stream	WT	G			6/22/18	12:30		3				3						X		017
6	MW-17	WT	G			6/22/18	15:30		3				3						X		018
7	MW-18	WT	G			6/22/18	18:00		3				3						X		019
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Analyze all samples for PADEP NEW SHORTLIST for Unleaded Gasoline	Jared Thorn Cribbs Assoc	6/22/18	2100	Dalton Cribbs	6/22/18	2100	
	Brian Mountain	6/25/18	11:40	Brian Mountain	6/25/18	1140	5.6 Y N Y
					25		
					BM 6-25-18		

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jared Thorn

SIGNATURE of SAMPLER: Jared Thorn DATE Signed (MM/DD/YY): 6/22/18

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: Cribbs + Assoc. Project # _____

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace Other _____

Label BJH
LIMS Login BJH

Tracking #: _____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used 9 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 5.5 °C Correction Factor: +0.1 °C Final Temp: 5.6 °C

Temp should be above freezing to 6°C

pH paper Lot# N/A

Date and Initials of person examining contents: 6/25/18 BJH

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation. exceptions: (VOA) coliform, TOC, O&G, Phenolics			✓	16. Initial when completed: Date/time of preservation: Lot # of added preservative:
Headspace in VOA Vials (>6mm):	✓			17. 1 VOA for sample MW-13
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr			✓	Initial when completed: Date:

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

July 20, 2018

Mr. Gary Cribbs
Cribbs and Associates
P.O. Box 44
Delmont, PA 15626

RE: Project: HO:Senaca
Pace Project No.: 30259123

Dear Mr. Cribbs:
Enclosed are the analytical results for sample(s) received by the laboratory on July 13, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Samantha Bayura

Samantha Bayura
samantha.bayura@pacelabs.com
(724)850-5622
Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates
John A. Ducar, Cribbs & Associates, Inc.
Jared Thorn, Cribbs & Associates, Inc.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: HO:Senaca
Pace Project No.: 30259123

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: HO:Senaca
Pace Project No.: 30259123

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30259123001	**MW-16**	EPA 8260B	JAS	13	PASI-PA

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: HO:Senaca
Pace Project No.: 30259123

Method: **EPA 8260B**
Description: 8260B MSV
Client: Cribbs and Associates
Date: July 20, 2018

General Information:
1 sample was analyzed for EPA 8260B. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: HO:Senaca
Pace Project No.: 30259123

Sample: MW-16 **Lab ID: 30259123001** Collected: 07/10/18 11:45 Received: 07/13/18 12:15 Matrix: Water

Comments: • Trip blank not received for VOC analysis.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		07/18/18 16:17	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		07/18/18 16:17	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		07/18/18 16:17	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		07/18/18 16:17	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		07/18/18 16:17	91-20-3	
Toluene	ND	ug/L	5.0	1		07/18/18 16:17	108-88-3	
1,2,4-Trimethylbenzene	**2.0**	ug/L	1.0	1		07/18/18 16:17	95-63-6	
1,3,5-Trimethylbenzene	**2.1**	ug/L	1.0	1		07/18/18 16:17	108-67-8	
Xylene (Total)	**19.4**	ug/L	5.0	1		07/18/18 16:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	94	%	80-120	1		07/18/18 16:17	2037-26-5	
4-Bromofluorobenzene (S)	102	%	79-129	1		07/18/18 16:17	460-00-4	
1,2-Dichloroethane-d4 (S)	93	%	80-120	1		07/18/18 16:17	17060-07-0	
Dibromofluoromethane (S)	97	%	80-120	1		07/18/18 16:17	1868-53-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: HO:Senaca
Pace Project No.: 30259123

QC Batch: 306237
QC Batch Method: EPA 8260B
Analysis Method: EPA 8260B
Analysis Description: 8260B MSV UST-WATER
Associated Lab Samples: 30259123001

METHOD BLANK: 1497364
Matrix: Water
Associated Lab Samples: 30259123001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	07/18/18 10:23	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	07/18/18 10:23	
Benzene	ug/L	ND	1.0	07/18/18 10:23	
Ethylbenzene	ug/L	ND	1.0	07/18/18 10:23	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/18/18 10:23	
Methyl-tert-butyl ether	ug/L	ND	1.0	07/18/18 10:23	
Naphthalene	ug/L	ND	2.0	07/18/18 10:23	
Toluene	ug/L	ND	1.0	07/18/18 10:23	
Xylene (Total)	ug/L	ND	3.0	07/18/18 10:23	
1,2-Dichloroethane-d4 (S)	%	95	80-120	07/18/18 10:23	
4-Bromofluorobenzene (S)	%	102	79-129	07/18/18 10:23	
Dibromofluoromethane (S)	%	96	80-120	07/18/18 10:23	
Toluene-d8 (S)	%	95	80-120	07/18/18 10:23	

LABORATORY CONTROL SAMPLE: 1497365

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.4	107	70-130	
1,3,5-Trimethylbenzene	ug/L	20	21.1	105	70-130	
Benzene	ug/L	20	19.6	98	70-130	
Ethylbenzene	ug/L	20	20.7	104	70-130	
Isopropylbenzene (Cumene)	ug/L	20	21.4	107	70-130	
Methyl-tert-butyl ether	ug/L	20	22.4	112	70-130	
Naphthalene	ug/L	20	23.6	118	70-130	
Toluene	ug/L	20	20.0	100	70-130	
Xylene (Total)	ug/L	60	61.5	103	70-130	
1,2-Dichloroethane-d4 (S)	%			94	80-120	
4-Bromofluorobenzene (S)	%			101	79-129	
Dibromofluoromethane (S)	%			96	80-120	
Toluene-d8 (S)	%			100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497388 1497389

Parameter	Units	30259111003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	21.7	22.1	108	110	75-125	2	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	21.6	21.6	108	108	76-121	0	
Benzene	ug/L	ND	20	20	20.4	20.9	102	104	67-121	2	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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Greensburg, PA 15601
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QUALITY CONTROL DATA

Project: HO:Senaca
Pace Project No.: 30259123

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1497388 1497389

Parameter	Units	30259111003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	20.9	21.8	104	109	70-127	5	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	22.0	22.2	110	111	80-122	1	
Methyl-tert-butyl ether	ug/L	ND	20	20	21.7	21.4	109	107	79-135	1	
Naphthalene	ug/L	ND	20	20	23.5	23.5	118	118	62-131	0	
Toluene	ug/L	ND	20	20	20.7	21.2	104	106	77-125	2	
Xylene (Total)	ug/L	ND	60	60	62.2	64.0	104	107	69-128	3	
1,2-Dichloroethane-d4 (S)	%						88	96	80-120		
4-Bromofluorobenzene (S)	%						102	100	79-129		
Dibromofluoromethane (S)	%						96	97	80-120		
Toluene-d8 (S)	%						99	99	80-120		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: HO:Senaca
Pace Project No.: 30259123

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO:Senaca
Pace Project No.: 30259123

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30259123001	**MW-16**	EPA 8260B	306237		

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUST

The Chain-of-Custody is a LEG

WO#: 30259123

30259123

Page: 1 of 1

2261320

Section A
Required Client Information:

Company: Cribbs and Associates Inc
Address: PO Box 44
DeLMONT PA 15626
Email To: CribbsC@Cribbsandassociates.com
Phone: 724-694-2310 Fax:
Requested Due Date/TAT: Standard

Section B
Required Project Information:

Report To: Gary Cribbs
Copy To: Robert Bottenner
Purchase Order No.:
Project Name: HO: Seneca
Project Number:

Sec
Invoice Information:

Attention: Gary Cribbs
Company Name: Cribbs and Associates Inc
Address: PO Box 44 DeLmont PA 15626
Pace Quote Reference:
Pace Project Manager: Samantha Bayura
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☒ UST ☐ RCRA ☐ OTHER

Site Location STATE: PA

Section D
Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes
MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: SEE BELOW	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	WT	G			7/10/18	1143		3				3					X		001
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Analyze for PADEP	Jared Thorn Cribbs&Assoc	7/12/18	1700		7/13	12:5	
NEW SHORTLIST for		7/12/18	1215		7/13/18	1215	4.8 Y N Y
Unleaded Gasoline.							

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Jared Thorn
SIGNATURE of SAMPLER: Jared Thorn
DATE Signed (MM/DD/YY): 07/0/18

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pittsburgh Lab Sample Condition Upon Receipt

Face Analytical

Client Name: Cribbs + Assoc Project # 30259123

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace Other _____

Label _____

LIMS Login BJM

Tracking #: NA

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used 7 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 4.9 °C Correction Factor: -0.1 °C Final Temp: 4.8 °C

Temp should be above freezing to 6°C

pH paper Lot# NA

Date and Initials of person examining contents: 7/13/18 BJB

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:	✓			4.
Sample Labels match COC: -Includes date/time/ID Matrix: WT	✓			5.
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used: -Pace Containers Used:	✓ ✓			10.
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous Compliance/NPDES sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. All containers needing preservation are found to be in compliance with EPA recommendation.			✓	16.
exceptions: (VOA) coliform, TOC, O&G, Phenolics				Initial when completed JJB; Date/time of preservation; Lot # of added preservative
Headspace in VOA Vials (>6mm):		✓		17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Aqueous Samples Screened > 0.5 mrem/hr			✓	Initial when completed: Date:

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____ Contacted By: _____

Comments/ Resolution: _____

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

ICF-USTIF

From: Jessica Boyer <jboyer@meaincpa.com>
Sent: Friday, August 31, 2018 11:07 AM
To: ICF-USTIF
Cc: tandresen@meaincpa.com; 'Andrew Dinkelacker'
Subject: 2017-0008_Jaflo-RACR 0818_SM

Dear Shane,

Please follow the link below to the Jaflo, Inc. remedial action completion report (RACR) for August 2018. Please contact me if you have any issues opening the file.

To open the shared files, click or copy the link below:
https://login.filesanywhere.com/fs/v.aspx?v=8c69648f59657576a1

Regards,

Jessica Boyer
Administrative Assistant
Mobile Environmental Analytical, Inc.
1365 Ackermanville Road | Bangor, PA 18013
TEL: (610) 599-5127 | FAX: (610) 599-5128
www.meaincpa.com