

REMEDIAL ACTION PLAN

Seneca Mini Mart
3390 State Route 257,
Seneca, Venango County, Pennsylvania

PADEP Facility ID # 61-18854

Prepared for:

Harper Oil Company
(Owner of the Seneca Mini Mart)

Submitted:

November 10, 2017

Prepared by:



P.O Box 44
Delmont, PA 15626
724-454-2310

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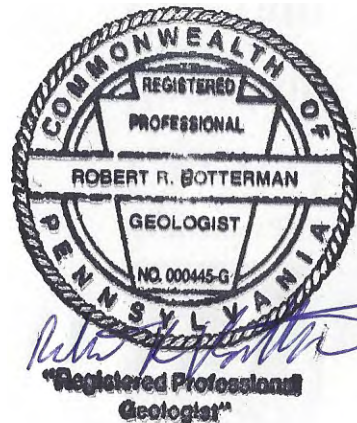
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1.0 INTRODUCTION

Harper Oil Company has contracted Cribbs & Associates, Inc. (Cribbs & Associates) to complete a Remedial Action Plan (RAP) as required under Title 25 of the Pennsylvania Code, Chapter 245.311 following the completion of the Site Characterization Report (SCR) for a reportable release of petroleum hydrocarbons from a regulated underground storage tank system at the Seneca Mini Mart facility (PADEP Facility ID # 61-18854) located at 3390 State Route 257 in Seneca, Pennsylvania (Site or Subject Property). The SCR was submitted to the Pennsylvania Department of Environmental Protection (PADEP) on September 8th, 2017.

1.1 Site Description

The Site is located in Seneca, Pennsylvania at 3390 State Route 257, Venango County, Pennsylvania. A Site Location Map is presented as **Figure 1** and a Site Plan is presented as **Figure 2**. The Seneca Mini Mart facility is situated at the east side of State Route 257, approximately 200 feet south of the intersection with Bredinsburg Road/East State Road. The Subject Property is approximately rectangular in shape. The northern portion of the Subject Property is currently used as a service and repair facility and was formerly a gasoline retail and convenience store. The southern portion of the Subject Property is part of the Seneca Motors used car sales lot.

1.2 Background and Site History

The Seneca Mini Mart occupies the northern portion of the 0.78-acre parcel (Parcel ID 08-39-13), owned by Daniel Heath. The balance of the parcel is occupied by Seneca Motors, a used car sales business. The two areas are divided by a wooden fence. The Site includes a one-story, slab-on-grade building of approximately 3,932 square feet and a 576-square foot canopy with a dispenser island. Two unleaded gasoline dispensers were formerly located under the canopy. Approximately 10,000 square feet of the Subject Property's surface area is asphalt or concrete paved roadways and parking areas. Concrete covers the area surrounding the former dispenser island. The majority of the southern half of the parcel, occupied by Seneca Motors, is paved with gravel with only a twenty-foot wide strip of asphalt adjoining the shoulder of State Route 257. Grass covered areas are located to the north and south of the Seneca Mini Mart building.

The site entrances are located along State Route 257. The United States Geologic Survey (USGS) 7.5-minute topographic map for Oil City Pennsylvania (1963, Photorevised 1972) indicates that the unnamed tributary to Lower Twomile Run flows to the south-southwest approximately 90 feet west of the Site and discharges to Lower Two-Mile Run approximately 2 miles southwest of the Subject Property. Lower Two-Mile Run flows to the west entering the Allegheny River approximately 5.25 miles west of the Subject Property.

A portion of the Site building was built sometime before August 1958 based on historical aerial photographs. The canopy was erected between 1993 and 2005. Review of historical aerial photographs from July 1939 and August 1958 (Penn Pilot) indicate that the Site was agricultural land in 1939 and that State Route 257 was constructed prior to 1958, along with the construction of the current building.

Surrounding properties along State Route 257 to the north and south are commercial/retail properties. The Site is bordered to the north by a former Pennzoil gasoline retail station owned by Frampton Oil (a Heath Oil subsidiary) that was closed in 2006. Seneca Motors occupies the

southern portion of the Subject Property parcel and the adjoining parcel to the southeast. Seneca Lawn and Landscape and the Venango Youth for Christ occupies the opposite side of State Route 257. A mix of residential properties and commercial retail properties are located to the northeast of the Subject Property along East State Road. Mostly residential properties are located to the east along South Main Street (the next road to the east that parallels State Route 257).

UST Closure Activities

Four Underground Storage Tanks (USTs) were historically present at the Site. The tanks were located in separate tank basins to the south of the Site building. Tank 001, a 6,000-gallon gasoline tank, was installed on June 1, 1977. Tanks 003 through 005 were installed at the Site on April 1, 1985 and included a 10,000-gallon unleaded gasoline tank, a 2,000-gallon diesel tank and a 1,000-gallon kerosene tank, respectively. The off-road diesel fuel above ground storage tank (AST) was added on May 17, 2005. The four USTs were listed as temporally out of service (TOS) when UST closure activities were initiated on September 14, 2015.

Tanks 001 and Tanks 003 through 005, along with the associated dispensers and ancillary piping were removed between September 14th, 2015 and September 17th, 2015 by John Koziara, Certified Tank Handler (Certification Number 2099) of Koziara Trucking & Excavating (Koziara) (Company Certification Number 417), conducted the UST closure activities. Stained soil was observed near the 6,000-gallon (Tank 001) and 10,000-gallon unleaded gasoline (Tank 003) as they were being removed. Former Tank 002, a 4,000-gallon unleaded gasoline UST (likely also installed in 1977), had been removed from the Site on February 11th, 1999. Only the off-road diesel AST currently remains at the Site.

Soil confirmation samples collected from beneath the USTs did not exceed the statewide health standards (SHS) medium specific concentrations (MSCs). Obvious contamination was observed during the removal of the product piping and the dispensers. Concentrations of several contaminants detected above SHS MSCs in the soil confirmation samples collected from beneath the dispensers and along the product lines leading from the dispensers back towards the USTs. It appears leakage from the dispensers and the product line fitting adjacent to the dispensers is the likely cause of the observed contamination.

The gasoline impacted soil was temporarily stockpiled by Koziara on the Site. The soil was encapsulated in 6 mil plastic sheeting pending off-Site disposal. The impacted soil cuttings generated during the site characterization drilling activities were added to the soil stockpile. Sampling of the impacted soil stockpile was conducted on June 23rd, 2016. A Form FC-1 for the disposal of soil impacted with unleaded gasoline was submitted to Waste Management's Northwest Sanitary Landfill in West Sunbury, Butler County, PA for approval. On August 24th, 2016, 109.16 tons of impacted soil was transported to the Northwest Sanitary Landfill for disposal. The waste manifests were included in the SCR.

A Notification of Reportable Release (NORR) Form was prepared by Cribbs & Associates and submitted to PADEP on September 16th, 2015.

The impacts associated with the underground storage tank (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). An SCR documenting the site characterization activities was submitted to the PADEP on September 8th, 2017.

1.2.1 Interim Remedial Activities

The release of a stored petroleum substance is a violation of Section 1310 of the Pennsylvania Storage Tank and Spill Prevention Act and the provisions of the Clean Streams Law. Subchapter D of 25 Pa Code Chapter 245 of the corrective action process regulations outlines the steps that owners of facilities must take that have experienced such a release must meet. During the course of the site characterization investigation free product in the form of liquid phase hydrocarbons (LPH) was observed at the Site.

During the October 4th, 2016 gauging event, 0.82 feet of LPH was observed in monitoring well MW-3. Monitoring well MW-3 is located immediately downgradient of the former dispenser islands. Approximately 0.5 gallon of LPH was bailed out of the well and placed into a 55-gallon DOT-approved drum and stored on Site pending off-site disposal. An absorbent sock was placed into monitoring well MW-3 following the bailing of the LPH.

On November 3rd, 2016 the absorbent sock was found to be saturated and replaced, no measurements were made on that date. On November 10th, 2016 the absorbent sock was saturated and removed. The free product thickness on November 10th, 2016 was measured to be 0.3 foot. The LPH was stratified with an approximately one-inch thick dark weathered layer over a yellowish-brown layer that was water cut. Monitoring well MW-3 was bailed again recovering approximately 0.5 gallon of LPH and a fresh absorbent sock was placed into the monitoring well. The LPH thickness in MW-3 has been reduced to less than 0.02feet. LPH recovery by hand bailing and absorbent socks has been conducted weekly through mid-December 2016 and roughly every other week since then.

On February 9th, 2017, a sheen of petroleum hydrocarbons was observed in monitoring wells MW-2 and MW-4 during the LPH recovery efforts from MW-3. Although no measurable LPH thickness was measured in either of these wells, an absorbent sock was inserted in each of the wells. Subsequently a sheen of petroleum hydrocarbons was observed in MW-5 on February 22, 2017 and MW-1 on March 7th, 2017. Absorbent socks were placed in these wells following the observation of the sheens. LPH removal efforts are currently being conducted in monitoring wells MW-1 through MW-5. Other than MW-3, measurable LPH thickness has only been observed once in MW-4 on March 7th, 2017. **Table 1** presents the results of the LPH recovery efforts including measured thicknesses, amount recovered by bailing and estimated amount recovered by absorbent socks. The estimated volume of the LPH recovered through bailing and absorbent socks is approximately 7.13 gallons through September 22nd, 2017.

1.2.2 Site Characterization Report

The Site Characterization investigation was initiated with the advancement and sampling of six soil borings (SB-1 through SB-6), on April 28th, 2016. Based on the initial findings, eleven additional soil borings (SB-7 through SB-17) were advanced and sampled on June 14th, 2016.

Five monitoring wells (MW-1 through MW-5) were installed on July 8th, 2016. Nine additional soil borings (SB-18 through SB-26) were advanced and sampled on September 14th, 2016. Monitoring wells MW-6, MW-7, and MW-9 through MW-11 were installed on October 17th and 18th, 2016. Monitoring well MW-8 was installed on November 1st, 2016. Three off- site monitoring wells (MW-12 through MW-14) were installed on January 24th and 25th, 2017. Monitoring well MW-15 was installed on May 24th, 2017 to delineate the eastern extent of methyl

tert-butyl ether (MTBE) impacts that were observed in MW-8 late in the site characterization activities. **Table 2** presents the Soil Analytical Results of the site characterization sampling. **Table 3** presents the Groundwater Analytical results for all the groundwater sampling events (between two and four events per well/location). **Figure 3** presents the groundwater analytical results from the SCR for the wells that exceeded the residential SHS MSC for one or more of the parameters analyzed.

In order to complete the delineation of identified contamination in soil and groundwater, the soil boring and monitoring well networks were expanded until the contamination in both soil and groundwater were fully delineated in all directions. Soil and groundwater impacts have not been observed on the west side of State Route 257, however, the actual extent of the soil and groundwater impacts beneath the roadway have not been accurately determined. Additional characterization activities to better define the extent of impacts beneath State Route 257 are included later in this RAP.

Two vapor points (VP-1 and VP-2) were installed on August 30th, 2016 to assess the vapor intrusion pathway for the Site building. In January 2017, the PADEP issued a revised document entitled “Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2”. The Non-Residential Vapor Intrusion Screening Values from the guidance document are included in the attached soil and groundwater analytical results tables (**Table 2** and **Table 3**, respectively). The parameters that exceeded these values are highlighted on the respective tables.

VP-1 was installed through the asphalt paving immediately in front of the Site building. VP-2 was installed through the concrete pad abutting the south side of the building. Because the vapor points were installed through non-permeable surfaces that extend completely to the on-Site structure, these vapor points can be utilized under the January 2017 guidance document as sub-slab vapor points.

Cribbs & Associates submitted an SCR on September 8th, 2017. The following conclusions were provided:

- A total of twenty-three subsurface soil borings (SB-1 through SB-20, and SB-22 through SB-24), 15 monitoring wells (MW-1 through MW-15) and two vapor points (VP-1 and VP-2) were used to characterize the subsurface media at the site. The subsurface is comprised of fill material consisting of brown and gray silty clay, and silt with some slag and shale fragments overlaying yellowish-brown silty clay and brown to gray silty clay and silty sand. The depth of the soil borings and monitoring wells ranged from approximately 8 feet below ground surface (bgs) to 16 feet bgs. Bedrock was not encountered in any of the borings at the Site.
- One or more soil samples were collected from the soil borings and monitoring well boreholes based on screening results using a photoionization detector (PID). The soil samples were analyzed for Pennsylvania Shortlist Petroleum Hydrocarbons for Unleaded Gasoline parameters (benzene, cumene, ethylbenzene, MTBE, naphthalene, toluene, total xylenes, 1,2,4-trimethylbenzene (1,2,4-TMB) and 1,3,5-trimethylbenzene (1,3,5-TMB).

- Soil samples SB-3 (2.0'-4.0'), SB-5 (2.0'-4.0'), 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-12 (3.0'-4.0'), SB-13 (3.0'-4.0'), SB-14 (3.0'-4.0'), SB-15 (3.0'-4.0'), SB-16 (3.0'-4.0'), SB-17 (3.0'-4.0'), SB-18 (6.0'-8.0'), and SB-22 (6.0'-8.0') exhibited concentrations above the SHS MSCs for Non-Residential, Soil-to-Groundwater in Used Aquifers ($TDS \leq 2500$) for one or more of the parameters analyzed. **Figure 4** presents the location and depth of the soil samples that exceeded their SHS MSCs for Non-Residential, Soil-to-Groundwater in Used Aquifers ($TDS \leq 2500$).
- Many of the soil samples collected from the vicinity of the dispenser island were collected from saturated soils due to the perched water in that area of the Site. The residential soil-to groundwater SHS MSCs for cumene, 1,2,4-TMB and 1,3,5-TMB are lower than the non-residential soil-to groundwater SHS MSCs. However, the sample results for these select constituents also exceed the higher SHS MSCs.
- The soil samples collected from soil borings SB-1, SB-2, SB-6, and SB-19 and monitoring wells MW-6 through MW-14 indicated no exceedances SHS MSCs for the parameters analyzed, therefore the lateral extent of the soil impacts are shown to be adequately delineated. The deeper samples obtained from impacted samples SB-3 (6.0'-8.0'), SB-4 (6.0'-8.0'), SB-7 (7.0'-8.0'), SB-11 (7.0'-8.0'), and SB-16 (7.0'-8.0') also indicated no exceedances of the SHS MSCs, thereby, delineating the vertical limits of the soil impacts. Therefore, the vertical and horizontal delineation of soil impacts has been determined. Soil impacts have not been observed on the west side of State Route 257, however, the actual extent of the soil impacts beneath the roadway have not been accurately determined. Soil analytical data collected during site characterization activities is presented on **Table 2**, and **Figure 2** identifies the locations of the soil samples.
- The depth to groundwater during the monitoring events ranged from 0.89 feet to 11.60 feet below the top of casing at MW-2 and MW-8, respectively. The highest groundwater elevations are consistently in the vicinity of the former dispenser island (MW-1 through MW-5), where precipitation discharge from the canopy into the shallow fill material has created a mounding effect. The groundwater elevations in the surrounding wells are typically lower creating a radial groundwater flow pattern from the dispenser island outward.
- Several of the surrounding wells (MW-8, MW-9, MW-10 and MW-11) were initially slow to recover to static groundwater levels following well installation. The silty clays have a very low hydraulic conductivity; and therefore, the inflow of groundwater created an artificially low water table measurement in these wells shortly after well installation. While most of the monitoring wells have fully recovered to static conditions, MW-11 remained dry for over three months, from October 17, 2016 until February 22nd, 2017, and the groundwater elevation has been gradually increasing in monitoring wells MW-10 and MW-11 through March 28th, 2017, indicating that the true aquifer static water level in these wells was not reached until approximately four months following the wells installation.
- In general, the Site groundwater flow direction in the shallow unconfined overburden aquifer is to the west, influenced partly by the surface topography with flow toward the unnamed tributary to Lower Twomile Run. A summary of historical groundwater elevations are presented on **Table 4**. **Figures 5 through 9** present groundwater flow maps prepared from the groundwater elevation data presented on **Table 4**.

- LPH was detected in MW-3 at a thickness of 0.84 feet on October 4th, 2016. LPH recovery utilizing bailers and absorbent socks has been implemented to recover the LPH. LPH was subsequently observed in monitoring wells MW-1, MW-2, MW-4, and MW-5, typically as a sheen on the water table. **Table 1** presents the results of the LPH recovery efforts including measured thicknesses, amount recovered by bailing and estimated amount recovered by absorbent socks that are placed in the wells to absorb the LPH.
- Four rounds of groundwater sampling were conducted for monitoring wells MW-1 through MW-5. In addition, MW-6 through MW-14 have been sampled on three occasions. Monitoring well MW-8 was sampled an additional time on April 25th, 2017 to confirm the observation of MTBE detected during that wells second sampling event. Monitoring well MW-15 has been sampled twice.
- Benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and/or 1,3,5-TMB were detected in the groundwater samples in monitoring wells MW-1 through MW-5 one or more times at concentrations above their respective SHS MSCs for residential, used aquifers. Monitoring wells MW-2 through MW-5 are point of compliance wells along the western property boundary. Benzene has been detected in three events in MW-10. 1,2,4-TMB has been detected in two events and MTBE has been detected once at concentrations exceeding their respective residential SHS MSCs. MTBE has been detected three times in MW-8 after having been non-detect during the wells initial sampling event.

Impacts exceeding the SHC MSCs were not detected in any of the other on-site point of compliance wells (MW-6, MW-7, MW-9, MW-11, and MW-15) surrounding the facility perimeter or any of the off-Site monitoring wells (MW-12, MW-13, and MW-14) during any of the sampling events.; therefore, the lateral extent of the groundwater impacts has been adequately delineated for the Site. A summary of historical groundwater analytical results are presented on **Table 3**.

- Surface water samples have been collected from upstream and downstream locations along the unnamed tributary to Lower Twomile Run on three occasions. All samples were analyzed for the Pennsylvania Shortlist Petroleum Hydrocarbons for Unleaded Gasoline parameters. The surface water sample results have been below the laboratory method detection limit for all parameters. The surface water sample analytical results are presented in **Table 3**.
- Hydraulic conductivity data was generated from slug tests conducted on monitoring wells MW-1, MW-2 and MW-4, installed in mostly fill material. The result was a geometric mean of 1.10 ft./day or 5.71×10^{-4} cm/sec. The steepest observed hydraulic gradient of approximately 0.08 ft./ft. was combined with an estimated effective porosity of 35 percent for unconsolidated soil and fill. The result was groundwater seepage velocity (average linear velocity) of approximately 0.25 ft./day. The use of the hydraulic conductivity from monitoring wells in the vicinity of the dispenser island generates a worse-case scenario for the migration of the contaminants of concern (COC).

The slow recharge of several of the wells located further from the dispenser island (MW-8, MW-9, MW-10, MW-11 and MW-15) suggest that lower hydraulic conductivities are prevalent in the native materials in these areas. 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 native soils (i.e., not fill material).

The geometric mean of the hydraulic conductivities for the September 7th, 2017 tests on MW-10 and MW-11, including both the falling head and rising head results, is approximately 0.13 ft./day or 4.51E^{-5} cm/sec. The hydraulic conductivity of the native soil is almost one order of magnitude less than the wells installed in the fill material. A groundwater seepage velocity of approximately 0.03 ft./day was calculated for the wells installed in the native soil.

Table 5 presents a summary of aquifer characteristics. Since there are no wells located between the source area (MW-3) and downgradient monitoring wells MW-12, MW-13 and MW-14, it is not possible to accurately calibrate the Quick Domenico models; therefore, the modeling results presented below represent worst-case scenarios based on the available data and commonly utilized default values. Additional characterization activities to better define the extent of impacts and the modeled plume beneath State Route 257 are included later in this RAP.

- The Quick Domenico modeling utilizing the higher hydraulic conductivity value predicted that the benzene plume would migrate 774 feet downgradient before reaching a point of equilibrium at 15 years, where the benzene concentration degrades to below the SHS MSC. The Quick Domenico modeling utilizing the lower hydraulic conductivity predicted that the benzene plume would migrate 150 feet downgradient before reaching a point of equilibration at 20 years, where the benzene concentration degrades to below the SHS MSC. Both models predicted that the benzene plume will migrate beyond the nearest property boundary to the unnamed tributary to Lower Twomile Run. The other Quick Domenico models for ethylbenzene, toluene, total xylenes, naphthalene, 1,2,4-TMB and 1,3,5-TMB migrating from monitoring wells MW-3 and MW-5 to the west and utilizing the higher hydraulic conductivity value predicted plumes reaching points of equilibrium in the right of way for State Route 257 before reaching the unnamed tributary to Lower Twomile Run.

There is a small watershed area above the Subject Property, and a relatively small volume of water traveling past the Subject Property; therefore, it appears that benzene could adversely impact the surface water in the unnamed tributary to Lower Twomile Run. Quick Domenico modeling of the other COCs (even using the higher hydraulic conductivity) indicate that the plumes of those contaminants will not reach the unnamed tributary to Lower Twomile Run.

- The Quick Domenico model for MTBE in MW-8, using the higher hydraulic conductivity predicts that the MTBE plume will migrate 94 feet downgradient before reaching a point of equilibration after ten years, where the MTBE concentration is below the SHS MSC. The Quick Domenico model using the lower hydraulic conductivity predicts that the MTBE plume will migrate 17 feet downgradient before reaching a point of equilibration after ten years. Given that monitoring well MW-15, located approximately 20 feet downgradient of MW-8 indicates no detection of MTBE the second, lower hydraulic conductivity model appears to be more accurate. MW-8 is located 23 feet from the eastern property boundary; therefore, based on the model results MTBE concentrations could potentially migrate off-Site to the adjoining property to the east, under the worst-case scenario.
- The non-residential vapor intrusion screening values were exceeded in both the soil (**Table 2**) and groundwater (**Table 3**) samples. The exceedance of the non-residential vapor intrusion screening values indicates that the potential for vapor intrusion exists and that vapor sampling

was required. Vapor points VP-1 and VP-2 were sampled on October 4th, 2016 and May 3rd, 2017. **Table 6** presents the analytical results of the soil vapor analysis. The results are compared to the Pennsylvania Act 2 Residential Indoor Air Quality Criteria (MSC_{IAQ}). Because the vapor samples are not collected indoors the MSC_{IAQ}s are corrected to MSC_{SG} using the following equation:

$$MSC_{SG} = \frac{MSC_{IAQ}}{TF}$$

Where: MSC_{SG} = medium specific concentration soil gas
MSC_{IAQ} = Medium specific concentration indoor air quality

TF = Transfer factor = 0.01 (as recommended in the Land Recycling Program Technical Guidance Manual Section IV.A4)

Although minor concentrations of most of the parameters analyzed for were detected, none of the soil vapor samples exhibited concentrations in excess of their respective MSC_{SG}. The Act 2 vapor regulations were modified in January 2017. Because the vapor points were installed immediately adjacent to the onsite structure through non-permeable surfaces (asphalt and concrete) that extend completely to the on-site structure, the existing vapor points could still be utilized under January 2017, Act 2 Technical Guidance Manual for Vapor Intrusion into Buildings regulations as sub-slab vapor points. The Non-Residential Sub-Slab vapor screening values have been added to **Table 6**. The site-specific standards for Non-Residential Sub-Slab vapor screening values are 1/10 of the sub slab screening values and have also been added to **Table 6** to compare the soil vapor results. None of the soil vapor results exceeded the most stringent of the screening values (SSS non-residential sub-slab).

2.0 REMEDIAL ACTION PLAN

A RAP is required for facilities with a confirmed release of a regulated substance as per the guidelines set forth within the PADEP Corrective Action Process Regulations 25 Pa Code Subchapter D, 245.311. The objectives of this RAP are to:

- Establish clean-up target levels;
- Evaluate remedial alternatives;
- Present a rationale for the selection of the most appropriate remedial alternative; and
- Present a monitoring and sampling plan for gauging remedial progress.

2.1 Selection of Cleanup Standards and Rationale

Obtaining relief from liability for the Site will require that the site attain a cleanup standard. Cleanup standards are established in Act 2, which is codified in PA Code Chapter 250. The Act 2 regulations establish the following three potential standards for remediating a site from which an owner/operator is free to select one or a combination of standards to successfully remediate a site and obtain relief from liability:

- Background Standard (BS);
- Statewide Health Standard (SHS); and
- Site-Specific Standard (SSS).

Each standard is associated with a unique set of compliance criteria that establish acceptable procedures for determining the concentrations of regulated substances allowed in various media, identify points of compliance, define attainment criteria, and specify reporting and public involvement requirements. Since there is no indication that the site is being impacted by an off-site source, the background standard is eliminated from further consideration. The remaining standards to be considered are the SHS and SSS.

2.2 Statewide Health Standard

Remediating the Site to the SHS will require attainment of residential or non-residential SHS MSCs. SHS MSCs are the concentrations of regulated substances that must be achieved within each media of concern in order to demonstrate attainment of the SHS and obtain relief of ability for the Subject Property. Selection of the appropriate MSC depends upon the current and future land use of the property, the background groundwater quality of the aquifer for total dissolved solids, depth of soil contamination, and the current use or planned future use of the underlying aquifer.

2.2.1 Subsurface Soil MSCs

The SHS for soils are intended to protect (1) direct contact with the regulated substances in soils and (2) groundwater in the underlying aquifer. In order to accomplish this goal, Act 2 establishes two sets of MSCs for soils. The first group of MSCs for soils is identified as Direct Contact Numeric Values. In this set of values, PADEP formalized MSCs for two potential risk-based scenarios: Residential (R) direct contact and Non-Residential (NR) direct contact. For the residential scenario, only one direct contact MSC is specified which is applicable to the soil column from the surface to a depth of 15 feet bgs. For the non-residential scenario, two MSCs are established: a direct contact MSC for surficial soils (0 to 2 feet); and a direct contact MSC

for subsurface soils (2 to 15 feet). The site is considered non-residential or commercial; therefore, the non-residential MSCs are applicable.

In order to protect groundwater in the underlying aquifer, Act 2 specifies a soil to groundwater (S/GW) pathway numeric value. This value is identified as the concentration of a regulated substance that may remain in soil without adversely affecting groundwater quality. Soils to groundwater pathway numeric values are based upon a determination of an aquifer's current and projected use. Aquifers that are currently Used (U) are further subdivided based upon the current and future land use and the concentration of total dissolved solids (TDS) in the groundwater. Non-Use (NU) aquifers are also subdivided by current and future land use.

There are five potential options for selecting the appropriate S/GW pathway numeric value:

- 100 times the appropriate groundwater MSC expressed as mg/kg of soil (published value);
- A generic published value that was determined not to produce a concentration in groundwater in excess of the appropriate MSC as calculated using equilibrium partitioning methods. (Note that for soils collected in the saturated zone, the generic value that is used is replaced by 1/10th of the published value.);
- The S/GW numeric value may be calculated as a concentration in soil that does not produce a concentration in soil in excess of the MSC for groundwater when subjected to the Synthetic Precipitation Leaching Procedure (SPLP);
- Document the presence of a S/GW buffer zone as specified in PA Chapter 250.308(c); or; and
- Meet the requirements for a S/GW equivalency demonstration as specified in PA Code Chapter 250.308(d).

For this Site, the S/GW buffer option cannot be selected since there is no soil buffer distances specified for several of the COCs identified at the site including benzene. The S/GW equivalency demonstration is also not applicable to this site because its criteria require that site groundwater be below respective MSCs or the background standard before remediation. Also, soil samples were not analyzed by SPLP, eliminating the third option from consideration. The S/GW pathway numeric value was therefore selected as the higher of 100 times the groundwater MSC or the generic value. In order to evaluate the site soils in terms of the SHS contained in Act 2, Section 250.305 states that for a non-residential site, the MSCs for regulated substances contained in surface soils and subsurface soils at a depth of two to 15 feet below ground surface is the lowest of the following:

- Direct contact MSC; or,
- S/GW pathway numeric value.

Alternatively, the direct contact MSC may have been chosen as the appropriate MSC provided either the S/GW buffer zone or the S/GW equivalency demonstration could be made. Since neither of these was applicable, the appropriate soil MSC is the lower of the direct contact value or the S/GW pathway numeric value. Based on this discussion, the selected cleanup goals for soil at this Site are the non-residential, used aquifer SHS.

2.2.2 Groundwater MSCs

For groundwater, Act 2 specifies MSCs for used and non-used aquifers. In order to qualify for the non-use aquifer designation, non-use aquifer demonstration requirements must be met within the property boundaries and 1,000 feet downgradient of the point of compliance, plus any additional areas to which the contaminant has migrated or may be reasonably expected to migrate at concentrations exceeding the specified MSC. In order to obtain a non-use aquifer designation, each of the following requirements must be met:

- No groundwater is derived from wells or springs that is currently used or planned to be used for drinking water or agricultural purposes;
- All downgradient properties are connected to a community water system; and
- The area of concern does not intersect a radius of 0.5 mile from a community water supply well or does not intersect an area designated by the PADEP as a Zone 2 wellhead protection area.

As previously indicated, groundwater concentrations exceed Act 2 residential, used aquifer MSCs for benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB. Due to the location of private residences to the east and west of the Site, a non-use aquifer determination will not be pursued for this Site.

Groundwater MSCs are further subdivided based on the current and future planned use of the site and adjacent properties to which the plume may have migrated. The facility is a commercial establishment, and will remain a commercial establishment in the future; therefore, the non-residential MSCs apply. The surrounding properties are a mix of commercial and residential; with the residential properties located to the east and northeast, upgradient of the Subject Property. The immediately adjoining properties are commercial and are controlled by Heath, often through subsidiaries (Heath, Winger, and Hinzman). Due to the commercial nature of the current downgradient properties, the groundwater MSCs are non-residential. However, downgradient properties could possibly include residential properties in the future.

The majority of the COCs present in groundwater at the Site have identical SHS MSCs for both residential and non-residential land use scenarios. The only COCs with different SHS MSCs are 1,2,4-TMB and 1,3,5-TMB. The potential for the downgradient commercial properties to be reclassified as residential in the foreseeable future, although unlikely, exists. Therefore, the cleanup standard applied to meet the required goals for groundwater cleanup at the Site is the residential, used aquifer SHS MSCs.

2.3 Site-Specific Standard

Remediating the site to a Site-Specific Standard (SSS) would require a detailed evaluation of potential receptors and exposure pathways. Although soil and groundwater contamination has been delineated and it has been proven that impacts have not migrated beyond the adjoining roadway, it has not been determined how far into the right-of-way that contamination has migrated. If complete exposure pathways exist after considering engineering and institutional controls, then a risk assessment would need to be conducted to quantify the risk for all receptors of concern to develop site-specific cleanup levels or pathway eliminations that are protective of human health and the environment.

Based on data acquired during the site characterization activities, an initial assessment of potential receptors and pathways identified potential future risk in the event the property is used for residential purposes. This risk could be mitigated by instituting a deed restriction on the Subject Properties to prohibit the use of groundwater, and the downgradient properties could be monitored to confirm the lack of groundwater use on those properties.

2.4 Summary of the Selection of Cleanup Standards

Based on the information provided above, the following cleanup standard will be pursued for the Site:

- *Statewide Health Standards (SHS), Used Aquifer Soil (Non-Residential) and Groundwater (Residential)*: Attaining the used aquifer SHS in soil and groundwater will require remediating the soils and groundwater to meet the respective SHS MSCs for benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB.

2.4.1 Soil

Soil remediation cleanup criteria have been selected based on numerical values provided by the Administration of the Land Recycling Programs 25 Pa. Code 250 Subchapter C - Medium Specific Concentrations (MSCs) - soil to groundwater pathway, for used aquifers within a non-residential setting with a total dissolved solids value of less than 2,500 mg/L for all COCs. Values for each applicable constituent in soil for the Site are listed below:

Non-Residential Statewide Human Health Standards for Soils -Facilities with Unleaded Gasoline - µg/kg (ppb)

Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
500	100,000	70,000	1,000,000	2,000
Naphthalene	Cumene	1,2,4-TMB	1,3,5-TMB	
25,000	2,500,000	35,000	210,000	

The COCs and specific soil samples which exhibited concentrations that exceeded the non-residential SHS MSCs are provided in the table below:

COCs Exceeding PADEP Non-Residential Used Aquifer MSCs	Soil Samples with Exceedance of PADEP Non-Residential Used Aquifer MSCs
Benzene	SB-3 (2.0' - 4.0'), SB-5 (2.0' - 4.0'), 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-12 (3.0' - 4.0'), SB-13 (3.0' - 4.0'), SB-14 (3.0' - 4.0'), SB-15 (3.0' - 4.0'), SB-16 (3.0' - 4.0'), SB-17 (3.0' - 4.0'), SB-18 (6.0' - 8.0'), and SB-22 (6.0' - 8.0').
Ethylbenzene	SB-3 (2.0' - 4.0'), SB-5 (2.0' - 4.0'), SB-8 (4.0' - 5.0'), SB-11 (3.0' - 4.0'), SB-13 (3.0' - 4.0'), SB-15 (3.0' - 4.0'), SB-16 (3.0' - 4.0'), and SB-17 (3.0' - 4.0').
Toluene	SB-11 (3.0' - 4.0'), and SB-15 (3.0' - 4.0').
Total Xylenes	SB-3 (2.0' - 4.0'), and SB-15 (3.0' - 4.0').
MTBE	SB-3 (2.0' - 4.0'), SB-11 (3.0' - 4.0'), SB-13 (3.0' - 4.0'), and SB-15 (3.0' - 4.0').
Naphthalene	SB-3 (2.0' - 4.0'), SB-5 (2.0' - 4.0'), SB-13 (3.0' - 4.0'), SB-15 (3.0' - 4.0'), and SB-17 (3.0' - 4.0').
1,2,4-TMB	SB-3 (2.0' - 4.0'), SB-8 (4.0' - 5.0'), SB-9 (3.0' - 4.0'), SB-11 (3.0' - 4.0'), SB-13 (3.0' - 4.0'), SB-14 (3.0' - 4.0'), SB-15 (3.0' - 4.0'), SB-16 (3.0' - 4.0'), SB-17 (3.0' - 4.0'), SB-18 (6.0' - 8.0'), and SB-22 (6.0' - 8.0').
1,3,5-TMB	SB-15 (3.0' - 4.0').

2.4.2 Groundwater

Groundwater remediation cleanup criteria for the Site have been selected based on numerical values provided by the Administration of the Land Recycling Programs 25 Pa. Code 250 Subchapter C – Medium Specific Concentrations (MSCs) – for used aquifers within a residential setting with a total dissolved solids value of less than 2,500 mg/L for all COCs. Values for each applicable constituent in groundwater for the Site are listed below:

Residential Statewide Human Health Standards for Groundwater,
Used Aquifer, TDS <2500
-Facilities with Unleaded Gasoline-
µg/l (ppb)

Benzene 5	Toluene 1,000	Ethylbenzene 700	Total Xylene 10,000	MTBE 20
Naphthalene 100	Cumene 840	1,2,4-TMB 15	1,3,5-TMB 420	

The COCs and monitoring wells with groundwater samples which exhibited concentrations that exceeded the residential SHS MSCs are provided in the table below:

COCs Exceeding PADEP Residential Used Aquifer MSCs	Monitoring Wells with Exceedance of PADEP Residential Used Aquifer MSCs (number exceeded/number sampled)
Benzene	MW-1 (4/4), MW-2 (4/4), MW-3 (4/4), MW-4 (4/4), MW-5 (4/4) and MW-10 (3/3).
Ethylbenzene	MW-1 (1/4), MW-2 (1/4), MW-3 (4/4), MW-4 (2/4), and MW-5(4/4).
Toluene	MW-3 (4/4).
Total Xylenes	MW-3 (4/4).
MTBE	MW-2 (1/4), MW-3 (4/4), MW-5(4/4), MW-8 (3/4), and MW-10 (1/3).
Naphthalene	MW-1 (2/4), MW-2 (2/4), MW-3 (4/4), MW-4 (4/4), and MW-5 (4/4).
1,2,4-TMB	MW-1 (4/4), MW-2 (4/4), MW-3 (4/4), MW-4 (4/4), MW-5 (4/4), and MW-10 (2/3).
1,3,5-TMB	MW-3 (4/4), and MW-5 (4/4).

A sufficient number of groundwater sampling events have not been conducted at the Site in order to obtain a statistically valid sample set, (a minimum of eight sampling events are required) under 25 PA Code Chapter 250, Subchapter G, Section 250.704.

Since concentrations of COCs above residential SHS occur in monitoring wells MW-2 through MW-5 and MW-10 at the western property boundary (along the right-of-way for State Route 257); it appears elevated concentrations of COCs in groundwater may have migrated beyond the property boundary. However, no COC have been found above SHS MSCs in monitoring well MW-12 through MW-14, on the opposite side of State Route 257.

The Quick Domenico models presented in the SCR (Cribbs & Associates, 2017) using the concentrations observed in MW-3 indicate that the only COC that will migrate beyond the right-of-way for State Route 257 is benzene. The Quick Domenico modeling utilizing the higher hydraulic conductivity from MW-1, MW-2 and MW-4 predicted that benzene would migrate 774 feet before reaching a state of equilibrium at 15 years where the benzene concentration degrades to below the residential SHS MSC. The Quick Domenico modeling utilizing the lower hydraulic conductivity derived from MW-10 and MW-11 predicted that benzene would migrate 150 feet before reaching a state of equilibrium at 20 years where the benzene concentration degrades to below the residential SHS MSC. Both models predicted that elevated benzene concentrations will migrate beyond the western property boundary to the unnamed tributary to Lower Twomile Run.

The MTBE Quick Domenico model utilized MW-8 as the source area because it exhibited the highest concentration of MTBE (520 µg/l) and is located approximately 23 feet from the eastern property boundary. Using the higher hydraulic conductivity derived from MW-1, MW-2 and MW-4 predicts that MTBE will migrate 94 feet before reaching a state of equilibrium after 10 years, where the MTBE concentration is below the residential SHS MSC. Using the lower hydraulic conductivity derived from MW-10 and MW-11, the model predicts that MTBE will

migrate 17 feet before reaching a point of equilibration after ten years. Given that monitoring well MW-15, located approximately 20 feet downgradient of MW-8, indicates no detection of MTBE the second, lower hydraulic conductivity model appears to be more accurate. MW-8 is located 23 feet from the eastern property boundary; therefore, based on the model results MTBE concentrations could potentially migrate off-Site to the adjoining property to the east, under the worst-case scenario.

2.4.3 Soil Vapor

The soil vapor intrusion screening values for the Site have been selected based on numerical values provided by the Administration of the Land Recycling Programs 25 Pa. Code 250 Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil Under Act 2 (January 18, 2017), Sub-Slab Soil Gas Statewide Health standard vapor intrusion screening values for a non-residential setting. Discussions with Don Hegberg of the PADEP on June 29th, 2017 concluded that the existing soil gas vapor points could be utilized as sub-slab vapor points. Values for each applicable COC in soil are listed below:

Non-Residential Statewide Human Health Standards for Sub-Slab Soil Gas Screening Values
-Facilities with Unleaded Gasoline -
 $\mu\text{g}/\text{m}^3$

Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
2,000	2,800,000	6,300	56,000	61,000
Naphthalene 460	Cumene 220,000	1,2,4-TMB 3,900	1,3,5-TMB 3,900	

None of the soil vapor samples collected from VP-1 and VP-2 have exceeded their respective non-residential SHS sub-slab vapor screening values (**Table 6**). Therefore, the vapor intrusion pathway is not complete and no further evaluation is required.

2.5 Remedial Alternative Evaluation

The objective of this section is to identify and evaluate remedial technologies that could meet the project remedial goals identified in **Section 2.4**. The contaminated media has been identified as soil and groundwater in the vicinity of the dispenser island.

Cribbs & Associates has identified the following remedial alternatives as potentially viable options to address the soil and groundwater contamination at the Site. Each of the remedial alternatives identified below was evaluated relative to its effectiveness in meeting the project goals outlined in **Section 2.4** and implementability. Cost factors were not considered, since a selection of a favorable technology could be arrived at based on the other considerations.

The design and successful implementation of any groundwater and/or soil remediation system requires that the following criteria be met:

- COC concentration reduction to acceptable regulatory levels;
- Minimization of migratory potential pathways;
- System/technology reliability; and

- Ability to achieve optimal results.

Each of these criteria have been considered while examining the following alternatives, in order to provide the most feasible and efficient approach to restoring both groundwater and soil at the Site:

- No Action;
- Monitored Natural Attenuation;
- Excavation of source Material and Off-Site Disposal
- Groundwater Extraction with On-Site Treatment and Disposal;
- In-Situ Air Sparging with Soil Vapor Extraction;
- Dual Phase Vacuum Extraction with Ex-Situ Treatment;
- Enhanced Bioremediation;
- Groundwater Extraction with Enhanced Bioremediation; and
- Enhanced Bioremediation in Conjunction with Groundwater Withdrawal and Ex-Situ Treatment.

2.5.1 No Action

Under a no-action approach, no physical remediation would be performed, and no additional monitoring would be conducted. However, soil and groundwater samples obtained from the site characterization activities have indicated the presence of the COCs in excess of their respective SHS MSCs.

The no-action alternative can be implemented without affecting the Site. However, the project goals outlined in **Section 2.4** would not be achieved. Soil samples collected in accordance with 25 PA Code Chapter 245 did identify soil impacts in excess of the SHS MSCs. The contaminants of concern have also been observed in the monitoring wells above the SHS MSCs, therefore, attainment of the SHS MSCs has not been demonstrated and concentrations are such that the SHS MSCs will not be demonstrated without some form of remedial action. Therefore, a no-action alternative is not being considered for this site.

2.5.2 Monitored Natural Attenuation

Under this approach, no physical remediation would be performed, but quarterly groundwater monitoring would continue to evaluate the concentrations and potential migration of the COCs in groundwater. Quarterly sampling would continue until the SHS MSCs have been demonstrated. Once attainment of the groundwater SHS MSCs is demonstrated, random systematic soil sampling (RSSS) would be required to document degradation of the COCs in soil and demonstrate attainment of the SHS MSCs. The project goals have a low expectation to be met with this alternative. Without some form of active remediation, it could take years or decades of monitoring to achieve the remediation goals. Therefore, this alternative is not being considered further.

2.5.3 Excavation of Source Material and Off-site Disposal

Excavation of contaminated soils in the vicinity of the former dispenser island to remove the source of the COCs is a viable remedial technology. The contaminated soils are likely contributing to the concentrations of the COCs observed in the groundwater. Given the close

proximity of the property boundary, all the COCs could migrate off-site, including benzene which has the potential to migrate to the unnamed tributary to Lower Twomile Run.

This remedial technology would involve the dismantling of the canopy over the former dispenser island to address the soil impacts observed in the vicinity of the former dispenser island and the removal and eventual replacement of monitoring wells MW-1 through MW-5.

The areas with the observed LPH would also be addressed by the soil excavation activity. A PID would be used during the excavation activities to screen the excavated soil to delineate the extent of the soil impacts and to aid in segregating the impacted soil versus the non-impacted soils for stockpiling and disposal purposes. Excavated materials would be segregated with the impacted material sent to a local landfill permitted to accept gasoline impacted soils. The non-impacted soils will be temporarily stockpiled onsite and used as backfill. Post-excavation soil sampling would be conducted to document that all the impacted soil has been removed. The excavation would then be backfilled with the non-impacted soil and certified clean soil. The surface will be restored with approximately 5-inches of asphalt.

Due to the significant soil and groundwater concentrations present in the area of excavation, soil excavation would be the most efficient and cost-effective method to reduce the concentrations of the COCs in both the soil and groundwater. This remedial technology would reduce the concentrations of the contaminants leaching from the soil into the groundwater. Wells MW-1 through MW-5 would be destroyed by the excavation activities and will have to be replaced following the remedial excavation activities. The soil excavation could potentially limit the off-site migration of the COCs.

2.5.4 Groundwater Extraction with On-Site Treatment and Disposal

This remedial alternative would involve the installation of a submersible pumping system and an on-site treatment system to continuously capture, treat and discharge groundwater to either the local publicly owned treatment works (POTW) or obtaining a national pollution discharge elimination system (NPDES) permit to discharge the treated groundwater to the unnamed tributary to Lower Twomile Run via the existing storm sewer system.

This method would require a series of groundwater extraction wells be installed in order to collect the groundwater. Submersible pumping systems are well known for their reliability, and versatility in collecting groundwater within porous aquifer conditions. Given optimal aquifer conditions and operated in conjunction with simple level controls, these systems can often provide high flow rates of collected groundwater. A sufficient amount of groundwater would have to be recovered in order to create a cone of depression large enough to provide hydraulic control over the entire impacted area. A pilot study would be required to ensure that the system is designed accordingly.

2.5.5 In-Situ Air Sparging with Soil Vapor Extraction

Air sparging involves injecting atmospheric air with oxygen below the groundwater table elevation. The injected oxygen increases the volatilization activity of the petroleum hydrocarbons in groundwater and transports the gas phase hydrocarbons into the vadose zone. The volatilized hydrocarbons are then removed by the influence of a vacuum extraction system, which is used in conjunction with the air sparging injection system. This technology is effective

in removing hydrocarbon contaminants in highly permeable soil conditions. Additionally, the resulting increased oxygen levels have proven to enhance the natural degradation process.

Assessment activity at this facility has indicated the presence of only a thin layer, sometimes less than a foot of silty clay fill material above the groundwater table. Installation of vertical sparging wells and horizontal recovery wells would typically be required in the area to be remediated. With the high water table observed at the Site, there is a significant potential for drowning the soil vapor extraction wells. In addition, with the poor permeability of the silty clay materials beyond the source area, air sparging with soil vapor extraction is not recommended for use at this facility.

2.5.6 Dual Phase Vacuum Extraction with Ex-Situ Treatment

Dual phase vacuum extraction (DPVE) used in combination with ex-situ treatment, such as carbon adsorption, combine the attributes of vacuum extraction of vapor and groundwater and ex-situ treatment. During groundwater extraction, the water table is depressed, which allows for air movement through saturated soils and smear zone that are typically not accessible to hydrocarbon volatilization. The DPVE process is able to recover LPH, vapor-phase and residual petroleum constituents.

DPVE is not proposed as a remedial alternative at this site. The native silty clay materials encountered beyond the fill material in the area of the impacts are not conducive for remediating soil vapor and groundwater. This method would not be effective in remediating groundwater and soil given the low conductivity of the contaminated subsurface soils in the area of concern at the Site.

2.5.7 Enhanced Bioremediation

Bioremediation involves using the indigenous micro-organisms present in the subsurface to digest the contaminants as a food source. The existing biomass would be utilized, and would be supplemented through the introduction of nutrients and/or oxygen releasing compound (ORC) to enhance the microbial growth. Since the soil and groundwater impacts observed are concentrated near the former dispenser island, and the COC concentrations observed are significant, it appears that the existing biomass has not successfully degraded the COCs. Therefore, there is no indication that active groundwater enhanced bioremediation will be able to achieve the SHS MSCs for the project as a standalone option; therefore, it is being eliminated from further evaluation.

2.5.8 Enhanced Bioremediation in Conjunction with Groundwater Withdrawal, Ex-Situ Treatment and Reinjection

In this technology, nutrients and oxygen would be injected into selected monitoring wells, in a similar fashion as described above; however, with the enhancement of extracting, treating, and reinjecting groundwater to create a flow loop to facilitate the dispersion of the nutrients and oxygen, accelerating the enhanced bioremediation approach. Make-up water for this injection will be extracted from the current monitoring well network, and injected on the upgradient side of the Subject Property to create a cross-flow that will further improve dispersment. The extracted water would be treated with activated carbon canisters before the nutrients and oxygen are introduced to the flow.

Given the slow recovery observed in some of the monitoring wells on the Subject Property, combined with the silty clay composition of the unconsolidated material in the subsurface, it is unlikely that sufficient groundwater volumes can be produced or injected to create a cross flow through the impacted materials. With the impacted groundwater potentially extending under State Route 257, it would be cost prohibitive to install the required extraction wells within the roadway. Therefore, an enhanced bioremediation/groundwater extraction system will be not able to achieve the SHS MSCs for the Subject Property; accordingly, it is being eliminated from further evaluation

2.6 Remedial Approach

Heath Oil and Cribbs & Associates have evaluated the implementation feasibility of the remedial technologies discussed above and their ability to obtain the selected cleanup standards (SHS). Of the remedial technologies identified and evaluated, it was determined that the technology which would most effectively meet the project goals is Excavation of Source Material and Off-Site Disposal.

Site characterization activities defined the lateral extent of soil and groundwater contamination in every direction; however, the western limit of the impacts could not be defined due to the presence of State Route 257. Impacts were highest near the dispenser island (MW-2, through MW-5) along the western property edge, but no impacts were identified in off-site wells MW-12 through MW-14, located approximately 65 feet west of the property. Therefore, the limit of the contamination is located somewhere under State Route 257 (S.R. 257). However, that limit has not been defined yet. The additional site characterization activities are described in the section below.

2.7 Proposed Remedial Activities

In order to meet the non-residential SHS MSCs, a remedial soil excavation of approximately 4,300 square feet in area is proposed to be conducted. The excavation will encompass the area of the former dispenser island and approximately 140 feet of frontage along S.R. 257. The volume of impacted soil is estimated at approximately 1,250 cubic yards. **Figure 10** presents the area of the proposed soil excavation.

The soil impacts are predominantly in the fill material and the immediately underlying brown and gray silty clay. The proposed soil excavation area also includes monitoring wells MW-1 through MW-5 where sheen and LPH have been identified along with the elevated concentrations of the COCs.

2.7.1 PennDOT Highway Occupancy Permit and Right of Entry Permit Application

The western boundary of the excavation will be approximately at the concrete curb at the shoulder of S.R. 257. Since a portion of the right-of-way for S.R. 257 is located within the proposed soil remediation excavation area, a Highway Occupancy Permit (HOP) and Right of Entry Permit (ROE) will be obtained from the PennDOT. The appropriate PATA Traffic Control Plan (PATA 101) will be used to designate the work zone and alert traffic. In addition, the HOP and ROE permits will be needed for the additional site characterization activities which are discussed in greater detail in Sections 2.7.3 and 2.7.4.

As part of the site characterization activities, four additional Geoprobe borings will be installed along the shoulder of State Route 257. While installing the borings, traffic in the northbound travel lane will be diverted into the center travel lane, following PATA 121 – Single Lane Closure; Traffic Shifted into Two-Way Left Turn Lane of the PADOT Temporary Traffic Control Guidelines (6-14), Publication 213, 67 PA Code, Chapter 212 (Figure attached for reference **Appendix A**).

A monitoring well and potentially four additional soil borings are also proposed to be installed in the center turning lane. Cribbs & Associates will follow PATA 209 – “Work Space in the Two-Way Left Turn Lane of the PennDOT Temporary Traffic Control Guidelines (6-14), Publication 213, 67 PA Code, Chapter 212” (Figure attached for reference, **Appendix A**). If post remediation random systematic soil sampling (RSSS) is required along the shoulder of the road, PATA 121 will be followed again for this work. A professional traffic control company (e.g., Flagger Force) will be contracted to provide the traffic control for all the activities affecting the shoulder, travel lanes or turning lane of S.R. 257. A copy of the PennDOT HOP and ROE permit application is included as **Appendix A**. Each phase of the remedial activities to be completed in the right-of-way will be completed in a single day and will likely require less than eight hours.

2.7.2 Pennsylvania One Call

Pennsylvania One Call System (PA One Call) will be notified of the pending subsurface investigation, sampling, and or excavation activities as required at least 72 hours prior to conducting the activities. PA One Call will have the local utility companies mark out any subterranean pipelines, and structures that could be encountered by the proposed activities. The proposed monitoring well and soil boring locations, and the excavation outline will be marked at the facility. The PA One Call may have to be repeated or renewed the to accommodate the various activities including; center lane monitoring well installation, soil sampling in the right of way, soil disposal pre-approval sampling, the proposed excavation activities, the reinstallation of the monitoring wells and any post-excavation RSSS soil sampling if needed.

2.7.3 Additional Delineation of Soil Contaminants

Four Geoprobe soil borings will be advanced to the west of monitoring wells MW-3, MW-5, and soil borings SB-10 and SB-22 to delineate the soil impacts west of the property. Soil borings SB-27 through SB-30 will be placed within the shoulder of S.R. 257, between the existing concrete curb and the white line of the north bound lane. The Geoprobe soil sampling activities along the shoulder of S.R. 257 will require the temporary rerouting of northbound traffic into the center turning lane while the soil sampling is being conducted. The approximate locations of these proposed soil samples are presented on **Figure 10**

Each of these borings will be advanced to a depth of approximately eight feet below ground surface (bgs). Continuous soil samples will be collected from each boring and screened using a PID and the samples exhibiting the highest response on the PID will be submitted for laboratory analysis. A groundwater grab sample will be obtained, if readily available, and submitted for laboratory analysis. The soil borings will be backfilled with bentonite pellets and the surface materials replaced with cold-patch asphalt compacted into place. The results of the additional site characterization activities will be utilized to define the exact dimensions of the remedial excavation prior to initiating the remedial process.

If field observations (i.e., visual and PID screening) indicate soil contamination (>75 ppm PID readings), a contingent set of four soil borings (SB-31 through SB-34) will be advanced approximately 20 feet to the west, within the area of the center turning lane. The Geoprobe sampling in the center turning lane will also require modification of the traffic flow pattern.

2.7.4 Groundwater Monitoring Well Installation in Turning Lane

In order to calibrate the Quick Domenico models, Cribbs & Associates proposes to install a monitoring well (MW-16) in the center turning lane of State Route 257. This well will be located approximately thirty feet south of the southern end of the concrete island, roughly half-way between existing monitoring wells MW-3 and MW-13. Monitoring well MW-16 will be installed at the same location as soil boring SB-32. **Figure 10** provides the location of the proposed monitoring well MW-16/SB-32. Having a monitoring well in this location will provide a better evaluation of the migrations of contaminated groundwater from the Subject Property beneath the highway.

A two-foot by two-foot opening will be cut in the asphalt surface to prevent the drilling activities from causing the asphalt to heave. Hand clearing will be conducted to a depth of four feet below ground surface to avoid damaging any unmarked underground utilities at that location. The monitoring well will be installed using a truck mounted drilling rig equipped with 4.25-inch internal diameter hollow stem augers. The boring will be continuously sampled using split spoon samplers to the proposed total depth of ten feet bgs. Seven feet of two-inch diameter factory slotted screen will be installed in the soil boring with solid riser extending to near the ground surface. Clean silica sand will be placed around the screened interval filling the annulus to approximately 0.5 foot above the top of the screened interval. Bentonite pellets will be used to create a 1.0-foot thick seal and a cement bentonite grout will be used to backfill the annulus to the bottom of the road surface. Concrete will be used to secure a heavy-duty flush-mount protective cover flush with the top of the roadway in the turning lane.

The installation of the monitoring well will require approximately four hours or less to complete aside for allowing the concrete pad at the surface to cure. As there are no business entrances on the west (southbound) and the former Seneca Mini-Mart on the east (northbound) side of the highway is closed the impact to traffic will be minimal. Subsequent development and sampling activities at this well will be completed in the same fashion but will likely require less than 60-minutes to complete each event. Cribbs & Associates proposes to install this monitoring well as soon as the permit can be obtained.

2.7.5 FC-1 Soil Disposal Authorization

Prior to initiating the soil excavation activities, six representative soil samples will be collected and submitted to Pace Analytical Laboratories and analyzed for Form FC-1 parameters. Arrangements will be made with Waste Management's Northwest Sanitary Landfill located in West Sunbury, Pennsylvania to have the soil for disposal pre-approved so that it can be direct loaded into triaxle trucks as it is excavated. Waste Management will also be contracted to provide the transportation (4-5 trucks per day, making multiple trips per day). The total number of truckloads is estimated to be between 53 and 65, (depending on the weight of the soil).

Given the anticipated excavation volume of 1,250 cubic yards, six soil samples, targeting the highest impacts identified during the site characterization will be resampled using a Geoprobe.

The soil disposal samples will be analyzed for Form FC-1 parameters including: benzene, toluene, ethylbenzene, total xylenes, total petroleum hydrocarbons, (TPH), total organic halogens (TOX), and total lead. By having the soil pre-approved for disposal, the soil will not be stockpile. Rather, it will direct loaded for offsite disposal.

2.7.6 Canopy Removal

The canopy over the former dispenser island will be removed. Either the canopy will be dismantled and transported to the Heath Oil Bulk fuel facility to be stored for future re-installation at a different facility or it will be demolished and scrapped.

2.7.7 Abandonment of Monitoring Wells

Monitoring wells MW-1 through MW-5 are located inside the footprint of the proposed remedial soil excavation. MW-1 is ten feet deep and MW-2 through MW-5 are each eight feet deep. The boring logs indicate that the areas of highest impact by the petroleum hydrocarbons based on the analytical results and PID readings are from the ground surface down to approximately six feet bgs. Because the monitoring wells extend beyond the depth of the potential excavation they will be sealed with a bentonite grout to eliminate vertical migration pathways remaining following the destruction of the monitoring wells.

2.7.8 Soil Excavation Dewatering

The groundwater elevations in the vicinity of the dispenser island (MW-1 through MW-5) are comparatively high compared to the other monitoring wells at the Subject Property. The elevated water table appears to be the result of precipitation discharging from the canopy roof drains into the fill material observed around the dispenser island. By diverting the inflow of precipitation from the canopy away from the fill material in the months leading up to the excavation activities, and conducting the excavation activities in a dry season such as late summer or fall, the objective is to remove up to eight feet of soil from the excavation area to remove as much impacted soil as feasibly possible.

During monitoring well development activities following their installation, three of the five monitoring wells located in the fill material surrounding the former dispenser island were purged dry. This indicates that the recharge in this area is not instantaneous and that reducing the volume of water in the soil to be excavated is possible. The objective is not to extract and treat a large volume of water but to draw off the easily removable water from the proposed excavation area so that the excavated soils are not fully saturated.

Shortly prior to the initiation of the soil excavation activities and after the canopy has been removed a trench approximately six-foot deep and 20 feet long will be excavated in the vicinity of the former dispenser island and a vacuum truck will be used to extract groundwater from the fill material. A 21,000-gallon portable frac tank will be brought in to temporally store the extracted groundwater. The Heath Oil tankers and/or the vacuum truck will be used transport the recovered groundwater to the Heath Oil Bulk Plant in Barkeyville, PA for treatment and disposal through their treatment system. Dewatering activities will continue through the excavation and backfilling activities.

2.7.9 Impacted Soil Excavation

The soil excavation remedial activities would involve removing impacted soil and associated liquid phase hydrocarbons surrounding the former dispenser islands and right of way for S.R. 257 without extending the excavation beyond the concrete curb located on the east side of the north bound lane.

The proposed remedial actions will include the demolition of the existing dispenser island and canopy on the Subject Property and the excavation and off-site disposal of known soil impacts as identified by the site characterization investigation. **Table 2** presents the analytical results of the soil samples collected as part of the site characterization. **Figure 10** outlines the estimated area where the soil excavation activities are to occur. Approximately 140 feet of the frontage is expected to be included in the remedial actions, as indicated in the Right-of-Entry Agreement.

The asphalt surface covering the area will be saw cut following the proposed outline of the soil excavation to provide a clean edge for repaving efforts. The impacted soil will be excavated to a depth of approximately 6 to 8 feet below current grade. The existing curb demarking the edge of the shoulder will remain in place. The edges of the excavation will have an approximate three to one slope to the base of the excavation. There may be localized areas where the excavation is deeper than 6 feet bgs based on field observations and PID readings. It is anticipated that the soil excavation will be limited to the private property and the existing right of way, beyond the curb line of S.R. 257 to prevent undermining of the existing roadway. Based on the relatively shallow depth of the excavation and the predominance of silty clay soils, shoring and trench boxes should not be required to support the excavation sidewalls.

During the soil remediation excavation activities, even though there will be no roadway encroachment, Cribbs & Associates will follow PATA 121 – Single Lane Closure. This will be done to minimize the loading at the edge of the excavation at the curb line because the six feet to eight feet depth of the proposed excavation. The excavated soil will be screened using a PID to determine if the soil is clean or impacted. To be considered “clean”, soil will have no visual or olfactory impacts and PID screening of less than 75 ppm. Clean soil will be stockpiled on the eastern portion of the site for reuse as backfill material. The impacted soil will be direct loaded into trucks for transportation to the landfill for disposal. The sidewalls and base of the excavation will be screened using a PID to determine if additional material needs to be removed. Post-remediation soil samples will be collected from the excavation as discussed below in **Section 2.8.5**. The volume of impacted soil is estimated at approximately 1,250 cubic yards.

In the interest of safety, the portion of the excavation completed each day will be sampled and backfilled with clean fill stockpiled on site or from a greenfield off-site location (preferably, cut material from new construction). The daily reuse of any “clean” soil encountered during the excavation as backfill material eliminates the need to cover the “clean” soil stockpile. The backfill material will be placed in approximately two-foot lifts and compacted using an excavator-mounted tamper or similar device. The backfill may not completely fill the open excavation at the end of the day, but will help buttress the excavation wall preventing any collapse that could undermine the shoulder of S.R. 257. This will also reduce the potential for a wayward driver from ignoring the barricades and dropping into a six-foot hole by accident. The fill material will be placed to a depth of approximately 1.5-foot below the original ground surface.

Modified 2B limestone gravel will be placed and compacted to a depth of approximately six-inches below the final surface to provide a gravel subbase for the asphalt surface.

2.7.10 Addition of Oxygen Releasing Compound

Oxygen releasing compound (ORC) will be added to the base of the excavation prior to backfilling. The COC concentrations detected in the pre-excavation soil sampling data will be used to design the ORC application program. The amount of ORC needed to effectively reduce COC concentrations will be determined at that time. The purpose of the addition of ORC to the excavation is to enhance bio-remediation activity in the soil and groundwater along the shoulder of S.R. 257 to help reduce the COC concentrations over time.

2.7.11 Pavement Replacement

The surface area of the excavation will be repaved using two layers of asphalt, a coarser base layer approximately 3-inches thick with a 2-inch finer grained finish coat. Because the dispenser islands are not being replaced concrete paving will not be required. A local contractor will be procured to perform the paving activities.

2.7.12 Replacement Monitoring Wells

Monitoring wells MW-1 through MW-5 will be replaced after the excavation is backfilled and compacted. The wells will be designated MW-1R through MW-5R, respectively. Each well will be the same total depth and screened interval as the well it is replacing, although the locations will be offset a couple of feet from the original wells to avoid penetrating the bentonite seal created during the well abandonment procedures. The replacement wells will be constructed of the same materials as the original monitoring wells and the new wells will be developed prior to being sampled. Each monitoring well will be finished with a flush-mount steel protective cover and a locking cap. The top of casing for the replacement monitoring wells will be surveyed to establish elevations. The monitoring wells will be used for the quarterly post-remediation monitoring.

2.8 Quarterly Monitoring

2.8.1 Quarterly Groundwater Monitoring

Following the replacement of monitoring wells MW-1 through MW-5 quarterly groundwater monitoring will resume utilizing monitoring wells MW-1R through MW-5R and MW-6 through MW-16, to evaluate the post-remediation baseline concentrations and also to collect a minimum of eight quarterly groundwater sampling events needed to evaluate concentration trends and to demonstrate attainment of the selected standards. Each quarterly sampling event will include the gauging of groundwater elevations in each well, and purging each well prior to sampling, using low flow pumping techniques as recommended in “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”.

All groundwater monitoring well samples will be analyzed for benzene, toluene, ethylbenzene, total xylenes, cumene, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB by EPA Method 5035/8260B, the COCs. In addition to the laboratory analyses, the following parameters will be obtained via approved field methods including an YSI-556 (or equivalent) field probe with flow cell attachment:

Field Parameter Listing

T (°C)	Temperature
pH	pH
Cond (ms/cm)	Conductivity
ORP (mV)	Oxygen Reduction Potential

The following monitoring wells will be used as part of the monitoring network for collection of field parameter data, laboratory analyses for COCs, as indicated:

Monitoring Well Network

On site wells: MW-1R through MW-5R, MW-6 through MW-11, and MW-15,

Off site wells: MW-12, MW-13, MW-14, and MW-16

All monitoring wells (MW-1R through MW-5R, MW-6 through MW-16) will be sampled on a quarterly basis for the comparison with the established remedial goals (residential, used aquifer SHS MSCs). Field data, including depth to groundwater, pH, temperature, and conductivity, will be monitored to ensure that sampling is conducted only after the low-flow purging indicated stable conditions. A blind duplicate groundwater sample, selected in the field and changing quarterly, will be submitted with the other quarterly groundwater samples as part of a quality assurance/quality control (QA/QC) program.

2.8.2 Quarterly Soil Vapor Monitoring

The soil vapor points installed at part of the site characterization investigation (VP-1 and VP-2) will be sampled on a quarterly basis following the remedial activities and the results will be compared to the non-residential Sub-Slab Vapor Screening Values. A minimum of four quarterly rounds of vapor samples from both vapor points (eight samples - minimum) will be collected and analyzed. Evacuated (under vacuum) stainless steel canisters will be connected to the sampling valve using a minimal length of clean polyethylene tubing, and the valves will then be opened and the vacuum in the canister will be allowed to equilibrate, drawing vapors from the monitoring point into the canister. After nearly equilibrating, the valves will be closed prior to disconnecting the tubing. The canisters will be delivered to Pace in Greensburg, PA and analyzed for the “new shortlist” for unleaded gasoline parameters utilizing U.S.EPA Method TO-15 including the following parameters; benzene, toluene, ethylbenzene, total xylene, MTBE, cumene, naphthalene, 1,2,4-TMB and 1,3,5-TMB.

2.8.3 Remedial Action Progress Reports

Remedial Action Progress Reports will be submitted to PADEP on a quarterly basis detailing the remedial actions undertaken during the quarter and the analytical results of the sampling activities. The RAPR will be submitted to the PADEP within 30-days following the completion of the quarter.

2.8.4 Disposal of Purge Water

The purge water and other liquid investigation generated wastes, (decontamination water and development water from the reinstallation of MW-1R through MW-5R) will be placed in 55-gallon PennDOT approved drums and stored on site. Periodically these drums will be emptied and the liquids transported to the Heath oil Bulk Fuel facility located in Barkeyville, PA and

processed through their water treatment system. The empty drums will remain on/or be returned to the Subject Property for farther use.

2.8.5 Soil Attainment

As presented in the SCR (Cribbs & Associates, 2017), the analytical data obtained from samples collected during the installation of the shallow groundwater monitoring wells, soil attainment has not been previously demonstrated. The soil analytical results and their respective SHS are presented in **Table 2** of this report.

The elevated concentrations reported for the soil borings and monitoring wells surrounding the former dispenser islands [SB-3 (2.0'-4.0'), SB-5 (2.0'-4.0'), 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-12 (3.0'-4.0'), SB-13 (3.0'-4.0'), SB-14 (3.0'-4.0'), SB-15 (3.0'-4.0'), SB-16 (3.0'-4.0'), SB-17 (3.0'-4.0'), SB-18 (6.0'-8.0'), and SB-22 (6.0'-8.0')] will be removed by the remedial soil excavation activities proposed in this RAP.

The soil impacts on the site have been fully delineated to the north (SB-19, MW-6 and MW-7), to the south (MW-9, MW-10 and MW-11) and to the east (SB-1, SB-2, SB-4 and SB-6). As such, a two-dimensional Random Systematic Soil Sampling (RSSS) evaluation will be utilized to demonstrate soil attainment along the western wall of the excavation within the ROW of S.R. 257. Based upon the proposed maximum dimensions of the western sidewall (140' long x 8' deep) and an arbitrary depth of 1-foot into the sidewall, a soil volume of 41.5 cubic yards will be evaluated during the RSSS. Therefore, eight samples will be required for the evaluation. A blind duplicate soil sample, selected in the field, will be submitted with the other soil samples as part of a quality assurance/quality control (QA/QC) program. The soil samples will be placed on ice and submitted to Pace Analytical Laboratories in Greensburg Pennsylvania under chain-of-custody protocols. The soil samples will be analyzed for the current PADEP Shortlist of Unleaded Gasoline Parameters.

In order to demonstrate attainment of the non-residential SHS MSCs for soils greater than 75 percent of the post-remediation soil sample results will have to meet the non-residential, used aquifer SHS MSCs, and the maximum concentrations of any parameters are not greater than 10 times their SHS MSCs (also known as the 75/10X rule).

If the two-dimensional post-remediation RSSS evaluation of the western wall of the excavation should fail to demonstrate attainment, a three-dimensional RSSS event including twelve random samples will be collected in the shoulder, northbound travel and turning lanes of State Route 257, directly opposite the soil remedial excavation, using a Geoprobe sampling rig. This RSSS, if needed, will also require a PennDOT HOP. The three-dimensional RSSS program would designate x (length), y (width) and z (depth) coordinates for a dozen soil samples covering an area of approximately 140 feet long by 30 feet wide by 8 feet deep. The overall evaluation area for this three-dimensional RSSS program will be determined by the results of the delineation soil samples discussed in **Section 2.7.3**. A blind duplicate soil sample, selected in the field, will also be submitted with the other RSSS soil samples as part of a quality assurance/quality control (QA/QC) program. The collected soil samples, following laboratory analysis, would be used for the statistical evaluation to determine the attainment of the cleanup standard. The soil analytical data collected will be evaluated using the 75%, 10X rule), to document attainment of the cleanup

standard. If this statistical evaluation for attainment fails, other alternatives such as SSS may be considered.

If RSSS in the roadway becomes necessary, sampling in the right-of-way beyond the travel lanes will be conducted following PATA 101, and work in the turning lane will follow PATA 209. Soil sampling to be conducted in the northbound travel lane will require temporary rerouting of traffic into the turning lane following PATA 121 (**Appendix A**). These activities will be conducted sequentially obtaining all the samples requires from each traffic flow pattern set up before moving on to the next traffic flow pattern as needed. The RSSS soil sampling would only require one day to complete. The Geoprobe soil borings created to obtain the RSSS samples would be sealed with bentonite pellets to prevent vertical migration of precipitation and the asphalt surface would be replaced with an equal thickness of asphalt repair epoxy.

2.8.6 Groundwater Attainment

As discussed above, groundwater remediation cleanup criteria for the Site have been selected based on numerical values provided by the Administration of the Land Recycling Programs 25 Pa. Code 250 Subchapter C – Medium Specific Concentrations (MSC's) – for residential, used aquifers with a total dissolved solids value of less than 2,500 mg/L. The proposed remedial actions were designed to meet these specific MSCs in all groundwater monitoring wells. However, at a minimum, the 75%/10X rule, as established in Pa Code Section 250.707(b), may be used to demonstrate attainment for the point-of-compliance wells (MW-2R through MW-5R, MW-10 and MW-11 to the west, MW-6 and MW-7 to the north, and MW-9 and MW-15 to the east). The off-site monitoring wells MW-12 through MW-14, and proposed monitoring well MW-16 will have to demonstrate attainment under the 75%/2X rule.

The groundwater attainment demonstration will typically include a minimum of eight consecutive quarterly groundwater monitoring events which will meet the established residential SHS MSCs or, at a minimum, satisfy the 75%/10X rule at the point of compliance wells. In the event that the groundwater analytical results are favorable for the early demonstration of attainment the PADEP will be petitioned to reduce the number of quarterly groundwater sampling events required.

2.8.7 Soil Vapor Attainment

Following the remedial excavation, a minimum of four quarterly rounds of vapor samples from the two existing vapor points, (VP-1 and VP-2), (eight samples - minimum) will be collected and analyzed for the new Pennsylvania short list of unleaded gasoline parameters following Method TO-15. As discussed above, non-residential sub-slab SHS vapor screening values have been selected for this facility. To date none of the soil vapor samples analyzed have exceeded any of the non-residential sub-slab SHS vapor screening values. However, at a minimum, the 75%/10X rule, as established in Pa Code Section 250.707(b), will be used to demonstrate attainment.

2.8.8 Remedial Action Completion Report

Once the attainment of the selected standards has been achieved a Remedial Action Completion Report (RACR) will be prepared and submitted to the PADEP. Once attainment of soil, groundwater and vapor intrusion Cleanup Standard selected in the RAP has been documented, Harper Oil will request a release of liability under Act 2 for this facility.

2.9 Permitting

Other than the PennDOT HOP and ROE permits to install MW-16, collect soil samples on the shoulder and travel lanes and to excavate the impacted soils from the right-of-way for State Route 257, discussed above, no other permits will be required for the Site.

2.10 Implementation Schedule

The following table provides a detail of the schedule of events that must take place in order to complete the remedial activities at this facility:

Task	Duration (Days)	Estimated Date of Completion
Submit PennDOT HOP & ROE Permits	1	11/10/17
Submittal of RAP to PADEP (November 10, 2017)	1	11/10/17
Receive RAP approval	60	1/10/18
Procurement of PennDOT HOP & ROE permit	60	1/10/18
Initiate drilling activities	3	1/29/18
Soil sample in shoulder and center turning lane	15	2/14/18
Install monitoring well in turning lane	1	2/15/18
FC-1 soil sampling	1	2/16/18
Wait for summer (dry weather and asphalt plants)	130	7/9/18
Canopy removal	3	7/12/18
Abandon monitoring wells MW-1 through MW-5	1	7/13/18
Excavation dewatering	2	7/16/18
Remedial soil excavation and backfill	3-5	7/20/18
Repave area disturbed by remedial soil excavation	14	8/3/18
Installation and development of monitoring wells	3	8/8/18
Well development and first quarterly sampling event	7	8/15/18
Seven additional quarterly sampling events & RAPRs	640	6/30/20
Prepare RACR and submit to DEP	60	8/30/20

3.0 CONCLUSION

This RAP has been prepared by Cribbs & Associates in accordance with Title 25 of the Pennsylvania Code, Chapter 245.311 after a reportable release was observed during UST closure activities, and contains the applicable elements based on the nature and extent of a petroleum hydrocarbon release.

The Site Characterization Report, documenting the site investigation activities since the discovery of the release was submitted to the PADEP on September 13th, 2017.

- A total of twenty-three subsurface soil borings (SB-1 through SB-20, and SB-22 through SB-24), fifteen monitoring wells (MW-1 through MW-15) and two vapor points (VP-1 and VP-2) were used to characterize the subsurface at the site.
- Soil impacts with concentrations above the SHS MSCs for non-residential Soil to Groundwater in Used Aquifers ($TDS \leq 2500$) for benzene, ethylbenzene, toluene, total xylene, naphthalene, 1,2,4-TMB and 1,3,5-TMB were detected in the soil borings and monitoring wells near the former dispenser island.
- The depth to groundwater during the monitoring events ranged from 0.89 feet to 11.60 feet below the top of casing at MW-2 and MW-8, respectively. The highest groundwater elevations are consistently in the vicinity of the former dispenser island (MW-1 through MW-5) where the precipitation discharge from the canopy into the shallow fill material has created a mounding effect.
- The groundwater flow direction in the shallow unconfined aquifer is towards the west, influenced partly by the surface topography with flow generally towards the unnamed tributary to Lower Twomile Run.
- Benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and/or 1,3,5-TMB were detected in groundwater in monitoring wells MW-1 through MW-5 one or more times at concentrations above their respective SHS MSCs for non-residential, used aquifers. Benzene has been detected at three times in MW-10, while 1,2,4-TMB has been detected twice and MTBE has been detected once at concentrations exceeding their respective residential SHS MSCs. MTBE has been detected three times in MW-8 after having been non-detect during the wells initial sampling event.
- Groundwater impacts exceeding the residential SHC MSCs were not detected in any of the other on-site Wells (MW-6, MW-7, MW-9, MW-11, and MW-15, or any of the off-Site monitoring wells MW-12, MW-13, MW-14 or the stream samples during any of the sampling events.
- LPH was observed in MW-3 at a thickness of 0.84 feet on October 4th, 2016. Product recovery utilizing bailing and absorbent socks has been used to recover the LPH since its discovery. LPH was subsequently observed in monitoring wells MW-2, MW-4, MW-5 and MW-1, typically as a sheen on the water table. Absorbent socks and bailing have been used in these wells once the sheen was detected.
- Slug tests were performed on monitoring wells MW-1, MW-2 and MW-4 on September 1st, 2016. The geometric mean of the hydraulic conductivities for the three wells slug tested at

the Site is 1.104 ft./day or 5.7116-4 cm/sec. 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. The geometric mean of the hydraulic conductivities for the September 7th, 2017 tests on MW-10 and MW-11, is 0.1279 ft./day or 4.510E-5 cm/sec.

- The Quick Domenico modeling utilizing both hydraulic conductivity values predicted that the benzene plume would migrate to the west beyond the property boundary to the unnamed tributary to Lower Twomile Run.
- The Quick Domenico model for MTBE in MW-8, using both the hydraulic conductivity values predicts that the MTBE plume will migrate off-Site to the adjoining property to the east, only under the worst-case (higher hydraulic conductivity) scenario.
- Soil vapor points VP-1 and VP-2 were sampled twice as part of the SCR. Although minor concentrations of most of the parameters analyzed for were detected none of the soil vapor samples exhibited concentrations in excess of their applicable non-residential sub-slab MSC_{SG}.
- The historical distribution of detected compounds in the groundwater indicates that contamination in excess of the SHS MSCs is limited to the area around and hydraulically downgradient of the dispenser island. However, because monitoring wells MW-2 through MW-5 are located along the western property boundary, impacts have likely migrated into the right of way for S.R. 257.

The Remedial Action Plan proposes to attain non-residential SHS MSCs for the soil and vapor and residential SHS MSCs for the groundwater at the Subject Property as described in the Pennsylvania Administration of the Land Recycling Programs 25 Pa. Code 250 Subchapter G – Demonstration of Attainment – subsection 702, Attainment Requirements.

- The selected option for remediation includes the excavation of the affected soils to remove the source of the COCs. Preliminary steps to conducting the soil excavation include:
 - Dismantling the canopy over the former dispenser island,
 - Abandonment of monitoring wells MW-1 through MW-5,
 - Obtaining a Pennsylvania Department of Transportation Highway Occupancy Permit and Right of Entry Permit to conduct additional soil sampling and excavation in the right of way of S.R. 257,
 - Additional soil delineation – Four additional Geoprobe soil borings (SB-27 through SB-30) will be advanced to the west of monitoring wells MW-3, MW-5, and soil borings SB-10 and SB-22 in an attempt to determine the western edge of the soil impacts, and
 - Installation of MW-16 in the center turning lane of SR 257 to better calibrate Quick Domenico models of benzene flow to the west.
- The soil remediation excavation includes the removal of an estimated volume of approximately 1,250 cubic yards. The excavation activities will include:
 - Screen excavated soils with a PID and segregate “clean” and impacted,
 - Impacted soil to be direct loaded for disposal at an approved landfill,

- Eight post-excavation RSSSs samples will be collected from the western excavation sidewall to document that the impacted soil has been removed,
 - To demonstrate attainment the soil samples will be evaluated using the 75%, 10X rule.
 - The soil excavation will be broken down into daily stages limiting the area of open excavation so that backfill material can be brought in, placed and compacted at the end of each day, and,
 - Restoration of the asphalt surface following completion of the backfill activities.
- Replacement of the monitoring wells destroyed by the soil excavation activities (MW-1R through MW-5R).
- If the two-dimensional RSSS evaluation of the western sidewall fails to demonstrate soil attainment, a three-dimensional RSSS evaluation will be utilized to demonstrate soil attainment in the shoulder, northbound travel and turning lanes of State Route 257 using a Geoprobe sampling rig.
 - The sampling in the roadway will also require a PennDOT HOP.
 - To demonstrate attainment the soil samples collected from the roadway ROW will be evaluated using the 75%, 10X rule.
- Quarterly groundwater monitoring of the entire monitoring well network will continue for a minimum of eight quarters following the excavation activities. Each well will be gauged, purged and sampled using low flow techniques and the samples analyzed for the Pennsylvania Short List of petroleum hydrocarbons for unleaded gasoline parameters. The groundwater attainment demonstration will include a minimum of eight consecutive quarterly groundwater monitoring events which will meet the established MSCs or, at a minimum, satisfy the 75%/10X rule for onsite wells and the 75%/2X rule for offsite wells following the cessation of active remedial activities.
- A minimum of four quarterly rounds of vapor samples from both vapor points (eight samples - minimum) will be collected and analyzed.
- Remedial Action Progress Reports will be submitted to PADEP on a quarterly basis detailing the remedial actions undertaken during the quarter and the analytical results of the sampling activities.
- Once the attainment of the selected standards has been documented a Remedial Action Completion Report (RACR) will be prepared and submitted to the PADEP. Once attainment of soil, groundwater and vapor intrusion Cleanup Standard selected in the RAP has been documented, Harper Oil will request a release of liability under Act 2 for this facility.

4.0 References

- Cribbs & Associates, 2017. Site Characterization Report, Seneca Mini Mart, 3390 State Route 257, Seneca, Venango County, Pennsylvania, PADEP Facility ID # 61-18854, submitted to PADEP on September 13, 2017.
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- PADEP, 2001b. Pennsylvania Department of Environmental Protection, Pennsylvania Bulletin, Title 25 – Environmental Protection, 25 PA. Code Ch. 250, Land Recycling Program, November 2001, MSCs updated April 2016.
- PADEP, 2002. Pennsylvania Department of Environmental Protection, Land Recycling Program Technical Guidance Manual, June 2002.
- PADEP, 2017. *Land Recycling Programs 25 Pa. Code 250 Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil Under Act 2*, January 2017.
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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									
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									

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 (gallons)	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)	
MW-3	10/4/2016	2	9.84	0.82	0.59327	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	0.21705	Y	1.5	0.5	1
MW-3	11/15/2016	2	1.20	0.1	0.07235	Y	2.5	0.1	1
MW-3	11/22/2016	2	0.25	0.021	0.0151935	Y	2.0	0.015	1
MW-3	11/30/2016	2	0.25	0.021	0.0151935	Y	3.0	0.015	0
MW-3	12/6/2016	2	0.0625	0.0052	0.0037622	Y	1.5	0.003	1
MW-3	12/14/2016	2	0.0312	0.0026	0.0018811	Y	2.0	0.002	1
MW-3	1/4/2017	2	0.5000	0.0416	0.0300976	Y	3.0	0.03	1
MW-3	1/17/2017	2	0.1250	0.0104	0.0075244	Y	3.0	0.007	1
MW-3	2/1/2017	2	0.1250	0.0104	0.0075244	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	0.0112866	Y	4.0	0.01	1
MW-3	3/21/2017	2	0.0312	0.0026	0.0018811	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	0.021705	Y	1.5	0.0217	1
MW-3	8/10/2017	2	0.72	0.06	0.04341	Y	1.5	0.0217	1
MW-3	9/7/2017	2	0.0312	0.0026	0.0018811	Y	1.5	0.0020	1
MW-3	9/22/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.0	0.0	1
MW-3									

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 (gallons)	Bailed (Yes/No)	Bailed LPH Volume Product / Water (gallons)	Bailed LPH Volume Product Recovered (gallons)	Adsorbent Socks Used (1= new 0= not changed)
			(inches)	(feet)					
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	0.0112866	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									
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									
Cumulative Recovery (gallons) bailed plus socks							51.8	7.1264	46

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.				

Each adsorbent sock recovers 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-Residential 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')	SB-7 (7.0'-8.0')
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	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	<4.8
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	<4.8
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	<4.8
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	<4.8
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	<4.8
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	<4.8
1,2,4-Trimethylbenzene	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	<4.8
1,3,5-Trimethylbenzene	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	<4.8
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	<14.4
PID								4.8	30.8	>5000	19.4	121	12.3	443	22.5	230	18.0

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-Residential Vapor Intrusion Screening Value	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')	SB-15 (3.0'-4.0')	SB-16 * (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	6/14/2016
VOCs																	
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	1,940	2,370	2,390	35,300	<6.1	76,700	36,300	52,500	101,000	29,300
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	91,400	60,300	5,750	108,000	<6.1	14,700	178,000	57,000	397,000	87,100
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	8,880	10,600	634	9,410	<6.1	844	14,700	4,600	32,700	7,150
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<317	<239	10.0	<2,070	<6.1	<277	<2,280	<250	<25,100	<181
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	23,200	19,300	1,360	24,400	<6.1	1,870	41,900	16,800	119,000	22,600
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<317	<239	9.8	115,000	<6.1	1,900	6,110	1,490	327,000	4,460
1,2,4-Trimethylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	207,000	49,800	11,500	190,000	<6.1	8,790	266,000	98,300	895,000	176,000
1,3,5-Trimethylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	63,800	640	134	89,800	<6.1	1,970	128,000	31,200	291,000	62,400
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	88,100	2,460	2,690	434,000	<18.3	16,600	523,000	87,100	2,030,000	319,000
PID								3,360	3,140	58.6	1,811	4.1	2,274	1,521	349	3,970	3,460

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-Residential Vapor Intrusion Screening Value	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')	MW-9 (0.5'-2.5')	MW-8 / SS-7 (14.0'-16.0')
Date Sampled								6/14/2016	6/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	10/17/2016	10/18/2016	11/1/2016
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	12.7	50,600	1,170	27.9	963	214	5.2	<5.0	10.9
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	28.1	113,000	22,300	<4.3	18,500	8,110	<5.1	<5.0	<4.6
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<4.9	12,600	2,840	49.7	1,470	817	<5.1	<5.0	<4.6
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	11.7	<227	<223	<4.3	<198	<195	<5.1	<5.0	166
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<4.9	30,210	5,850	10.5	2,920	1,970	<5.1	<5.0	<4.6
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<4.9	2,640	<223	<4.3	<198	<195	<5.1	<5.0	<4.6
1,2,4-Trimethylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	47.1	191,000	42,900	9.3	40,000	17,500	<5.1	<5.0	<4.6
1,3,5-Trimethylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	17.6	77,900	7,810	<4.3	14,600	5,490	<5.1	<5.0	<4.6
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	112	297,000	5,080	18.1	37,000	9,470	<15.3	<14.9	<10.9
PID								13.8	2,875	952	139	396	824	2.4	9.0	3.7

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-Residential Vapor Intrusion Screening Value	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 (6.0'-8.0')	MW-11 (6.0'-8.0')	MW-12 (4.0'-6.0')	MW-13 (1.0'-2.0')	MW-14 (1.0'-2.0')
Date Sampled								11/15/2016	11/15/2016	11/15/2016	11/15/2016	11/15/2016	11/15/2016	1/24/2017	1/24/2017	1/25/2017
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	5.5	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
1,2,4-Trimethylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
1,3,5-Trimethylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	<16.1	<13.3	<14.3	<691	<16.3	<12.8	<17.6	<17.1	<32.1
PID								1.7	0.0	2.7	0.0	0.0	0.0	8.7	1.0	<1.0

Notes:
All organic contaminant constituents reported in ug/kg. Lead reported in mg/kg.
NA Denotes Not Analyzed, Not Available, 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') labies inadvertently reversed to laboratory, this Table presents corrected data.

TABLE 3
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-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-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-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-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-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-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-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-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

TABLE 3
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-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-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-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-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-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-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
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
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

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.

Table 4
Historic Groundwater Elevations
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-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-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-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-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-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-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-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

Table 4
Historic Groundwater Elevations
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 Thickness (feet)	Corrected Static Water Level (feet)	Groundwater Elevation (feet)
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-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	3.53	0.00	3.49	1444.90
MW-10	6/12/2017	1448.39	9.9	3.53	0.00	3.53	1444.86
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-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-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-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-15	6/12/2017	1450.80	12.5	10.76	0.00	10.76	1440.04
MW-15	7/31/2017	1449.53	12.5	1.67	0.00	1.67	1447.86

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.

Table 5

Aquifer Characteristics
Harper Oil Company/Heath Oil Inc. - Seneca Mini-Mart
3390 State Route 257
Seneca, PA
PADEP Facility ID 61-18854

Well ID	Date Tested	Test Type	TOC Elevation (ft)	Top of Well Screen (ft)	Total Depth (ft)	Test Duration (minutes)	Depth to Water (SWL) (ft)	Groundwater Elevation (ft)	Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)	Estimated Porosity (%)	Hydraulic Gradient (ft/ft)	Groundwater Seepage Vel. (ft./day)
<i>Shallow Wells - Dispenser Island (Fill)</i>													
MW-1	9/1/2016	Falling	1,450.44	2.0	8.3	62	2.06	1,448.38	6.588E-01	2.324E-04	35	0.079	1.487E-01
MW-1	9/1/2016	Rising	1,450.44	2.0	8.3	59	2.06	1,448.38	1.807E-01	6.372E-04	35	0.079	4.079E-02
MW-2	9/1/2016	Falling	1,449.80	2.0	8.1	39	2.45	1,447.35	6.122E-01	2.159E-04	35	0.079	1.382E-01
MW-2	9/1/2016	Rising	1,449.80	2.0	8.1	58	2.45	1,447.35	1.844E+00	6.503E-04	35	0.079	4.162E-01
MW-4	9/1/2016	Falling	1,449.99	2.0	8.3	51	1.51	1,448.48	3.666E+00	1.293E-03	35	0.079	8.275E-01
MW-4	9/1/2016	Rising	1,449.99	2.0	8.3	39	1.51	1,448.48	3.680E+00	1.298E-03	35	0.079	8.306E-01
Geo Mean									1.104E+00	5.716E-04	35	0.079	2.492E-01
<i>Shallow Wells - Native Soils</i>													
MW-10	9/7/2017	Rising	1,448.39	2.0	9.9	116	4.18	1,444.21	1.661E-01	5.857E-05	35	0.079	3.748E-02
MW-11	9/7/2017	Falling	1,447.56	2.0	9.9	120	6.12	1,441.44	4.667E-02	1.646E-05	35	0.079	1.053E-02
MW-11	9/7/2017	Rising	1,447.56	2.0	9.9	118	6.12	1,441.44	2.697E-01	9.513E-05	35	0.079	6.087E-02
Geo Mean									1.279E-01	4.510E-05	35	0.079	2.886E-02

Notes:

Top of casing elevations surveyed and provided by Morris Knowles & Associates, Inc.

Hydraulic Gradient based on measurements obtained on June 12th, 2017 between MW-3 and MW-13

TABLE 6
Soil Vapor Analytical Results
Harper Oil Company/Heath Oil, Inc. – Seneca Mini Mart
3390 State Route 257
Seneca Borough, Venango County, Pennsylvania
PADEP Facility ID # 61-18854

Vapor Point	Date	Benzene	Ethylbenzene	Cumene	Total Xylenes	MTBE	Naphthalene	Toluene	1,2,4-TMB	1,3,5-TMB
Non-Residential Sub-Slab Vapor Screening Values		2.0	6.3	220	56	61	0.46	2,800	3.9	3.9
SSS Non-Residential Sub-Slab Vapor Screening Values (1/10th Table 4 values)		0.20	0.63	2.20	5.60	6.10	0.046	280	0.390	0.390
Non-Residential Near Source Vapor Screening Values		16.0	49.0	1,800	440	470	3.60	22,000	31.0	31.0
Residential MSC_{IAQ}^*		0.0027	1.4000	0.5400	0.1400	0.0810	0.0042	0.5600	0.0083	0.0083
MSC_{SG} = Residential $MSC_{IAQ} \times 100^{**}$		0.2700	140.0000	54.0000	14.0000	8.1000	0.4200	56.0000	0.8300	0.8300
VP-1	10/4/2016	0.00098	<0.0018	<0.005	<0.0133	<0.0074	0.0072	0.0045	0.0200	0.0106
VP-1	5/3/2017	0.00051	<0.0014	<0.0039	0.0049	<0.0057	<0.0041	0.0027	0.0043	0.0020
VP-2	10/4/2016	0.00071	<0.0015	<0.0042	0.0111	<0.0062	0.0128	0.0041	0.0020	<0.0018
VP-2	5/3/2017	0.0011	<0.0014	<0.0040	0.0076	<0.0059	0.0045	0.0050	0.0043	0.0020

*Residential MSC_{IAQ}^** = Vapor Intrusion Into Buildings from Groundwater and Soil under PA Act 2 SHS, February 15, 2002

MSC_{SG} = Residential $MSC_{IAQ} \times 100^{**}$ = Soil Vapor results compared to 100 X the residential indoor air quality MSC to account for dilution effects, as per RFP Values in mg/m^3

Bolded values denote exceedences of the respective Statewide Health Standard.

TMB = Trimethylbenzene

FIGURES

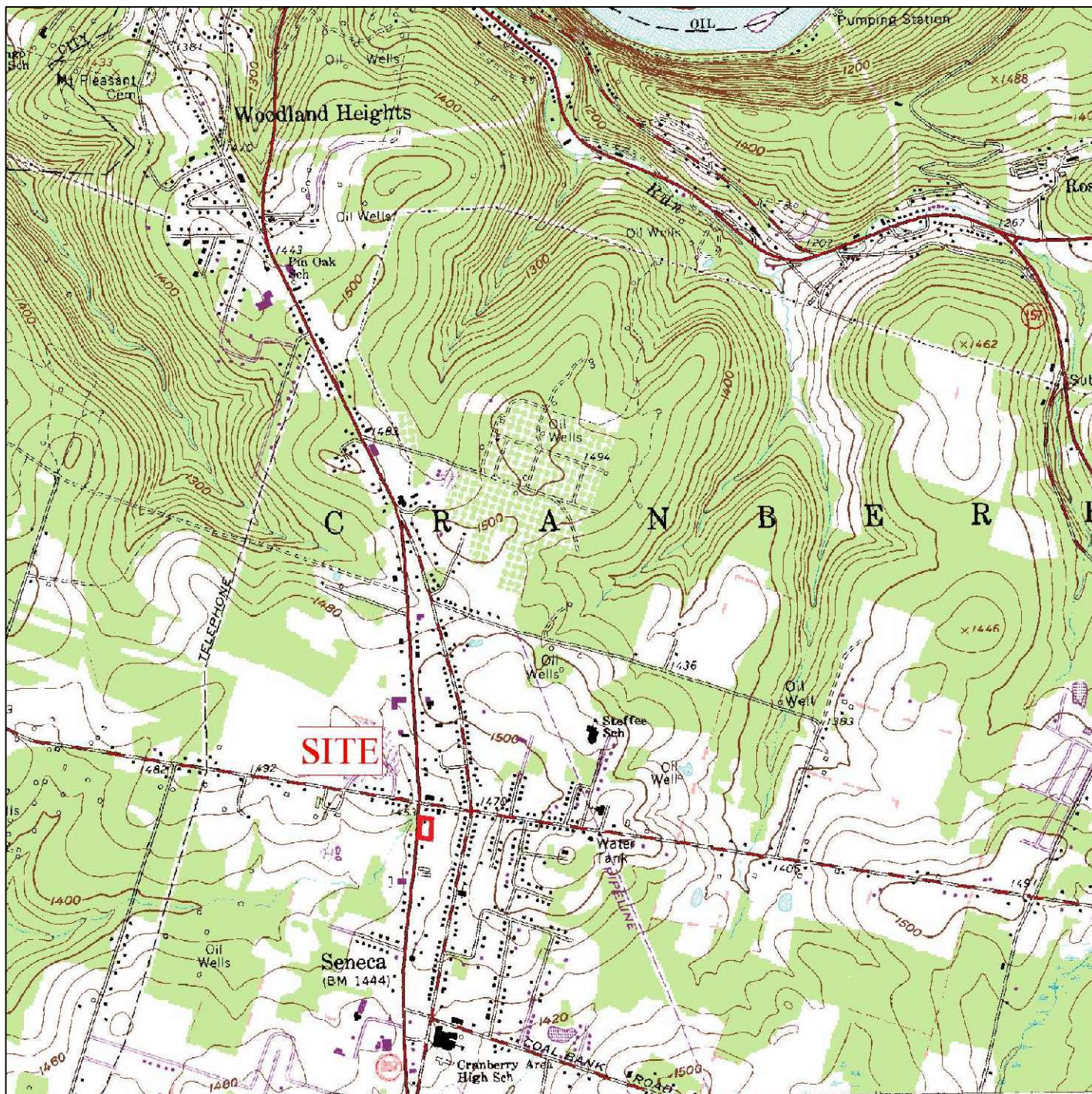


FIGURE 1
SITE LOCATION MAP

Remedial Action Plan

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



P.O. BOX 44
DELMONT, PA 15626
724.454.2310

REFERENCE:

OIL CITY, PENNSYLVANIA
USGS 7.5-Minute Quadrangle

SCALE:

1 inch equals 2000 feet

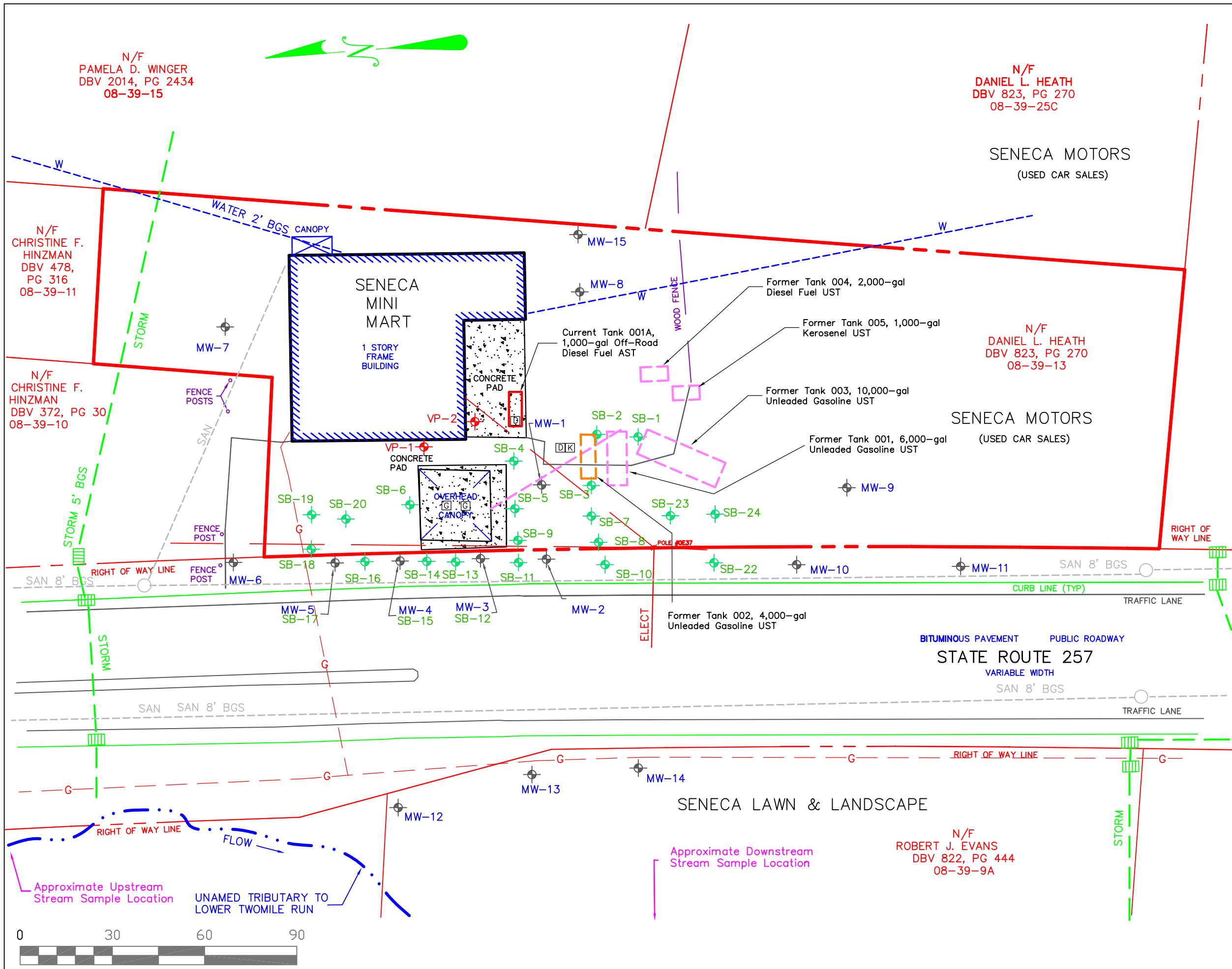


FIGURE 2 SITE PLAN - SOIL BORING AND MONITORING WELL LOCATION MAP		
REMEDIAL ACTION PLAN HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART SENECA, PENNSYLVANIA PADEP FACILITY ID# 65-18854		
SENECA BOROUGH VENANGO COUNTY, PENNSYLVANIA		
DATE: 09/29/17	APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

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 KEROSENE 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 ANALYTICAL RESULTS FOR COMPLETING FORM FC-1 IN ANTICIPATION OF SOIL EXCAVATION ACTIVITY.

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& Associates, Inc.

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DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS KNOWLES AND ASSOCIATES INC.

FIGURE 3

GROUNDWATER ANALYTICAL MAP

REGIONAL ACTIVITY PLAN
HARPER OIL COMPANY/NEATH OIL INC-SENECA MINI MART
SENECA, PENNSYLVANIA
PADEP FACILITY ID# 65-18854
SENECA BOROUGH
VENANGO COUNTY, PENNSYLVANIA
DATE: 10/12/17
APPROX. SCALE: See Scale Bar
DRAWN BY: RRB

LEGEND



MONITORING WELL LOCATION

SHS MSCs	Residential	Non-Residential
Benzene	5	5
Ethylbenzene	700	700
MTBE	700	700
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

FORMER UST LOCATION
TANKS REMOVED
SEPTEMBER 14-17, 2015

CURRENT AST LOCATION

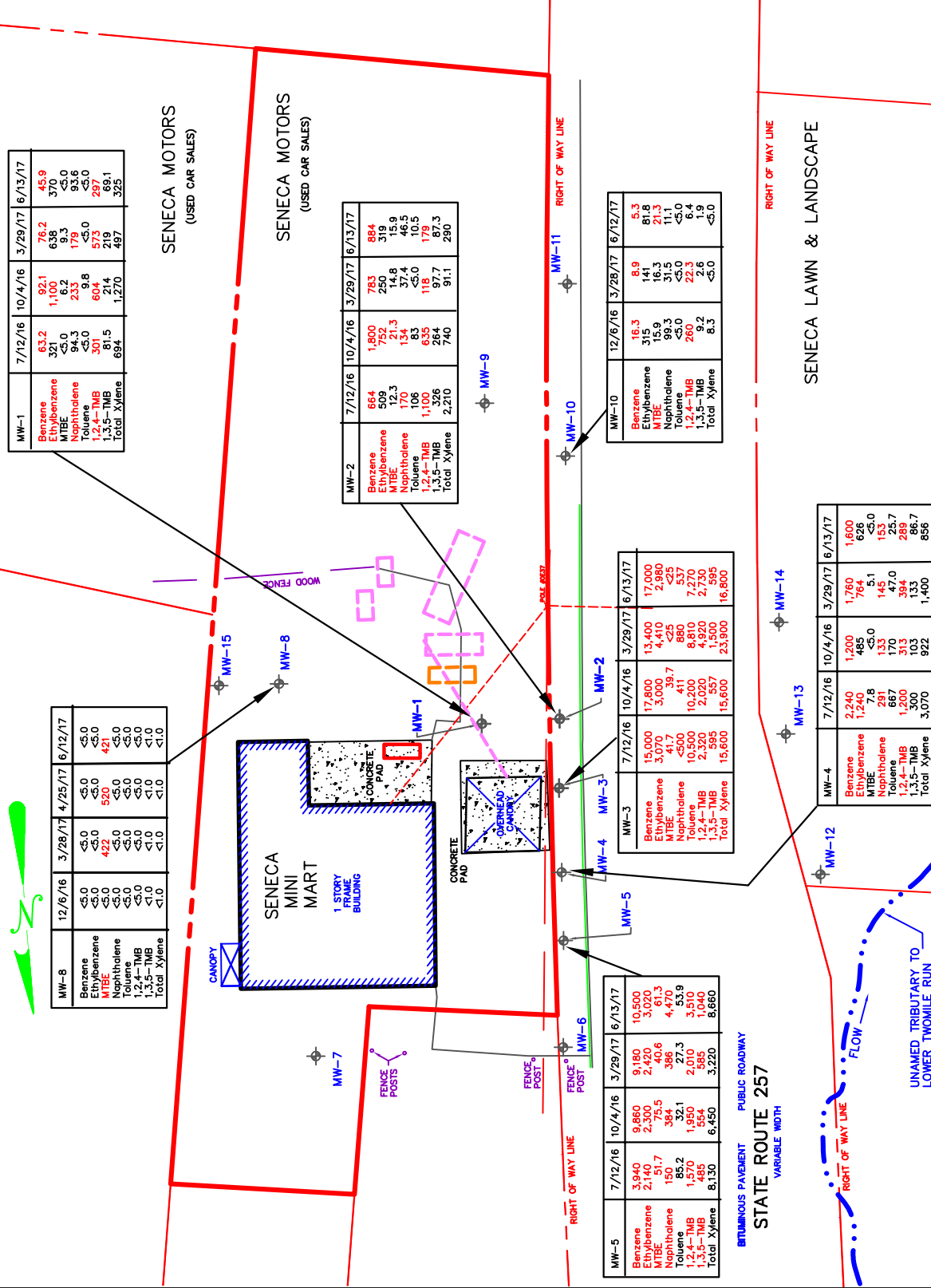
FORMER PRODUCT LINE LOCATION

FORMER UST LOCATION
TANKS REMOVED
FEBRUARY 11, 1989



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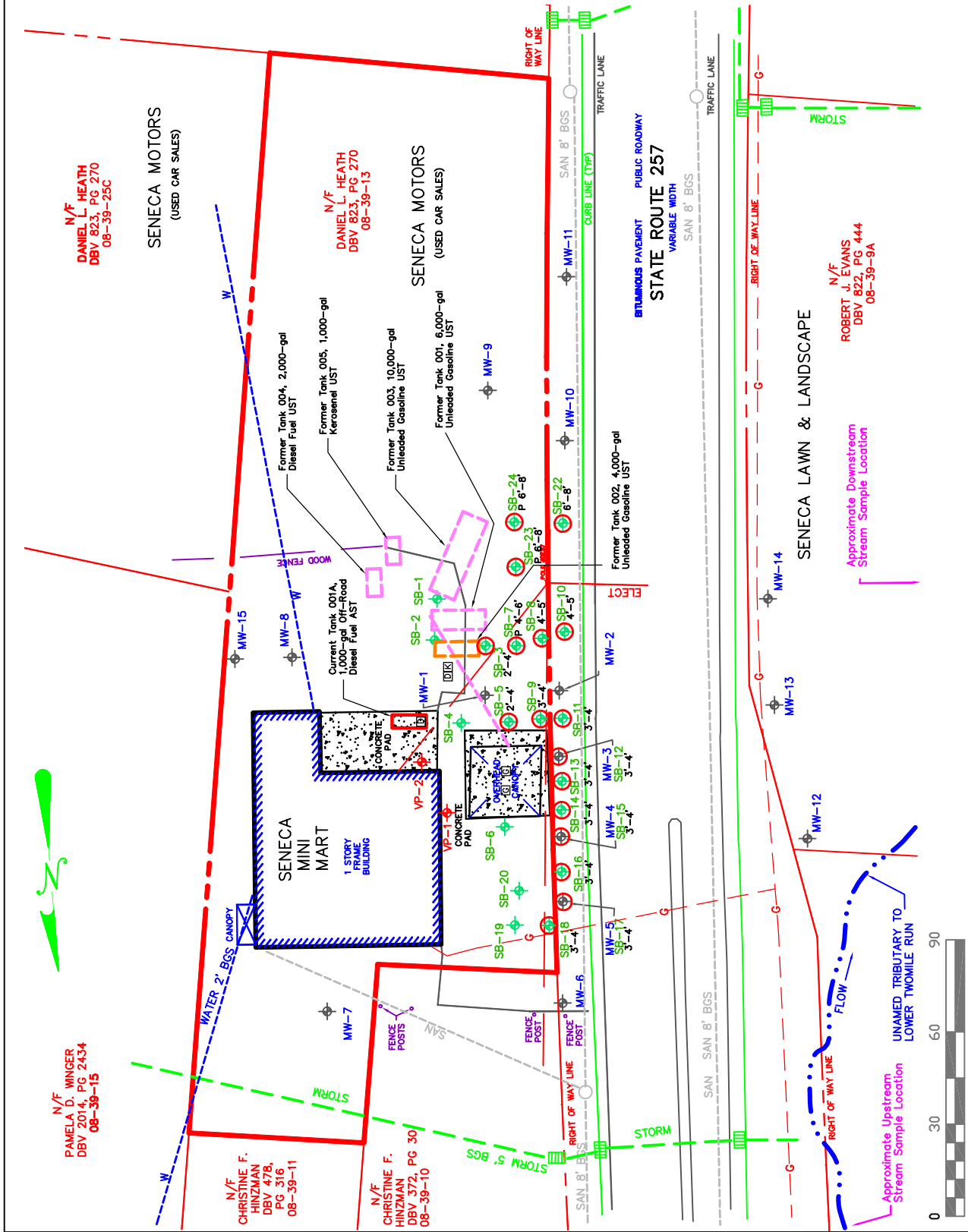
STATE ROUTE 257
PUBLIC ROADWAY
VARIABLE WIDTH

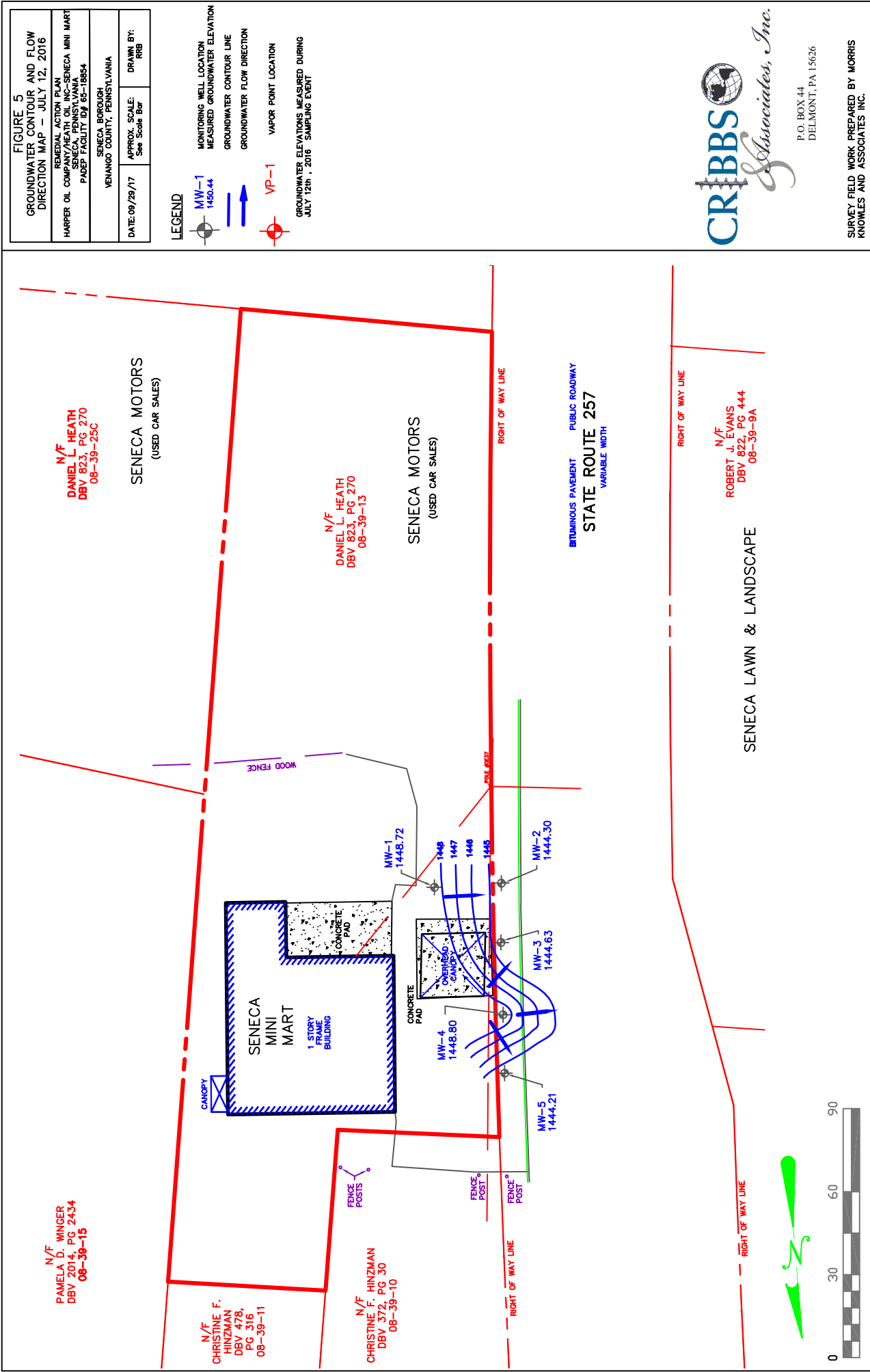
UNNAMED TRIBUTARY TO LOWER TOWHOLE RUN



0/31/17	APPROX. SCALE: See Scale Box	DRAWN BY: PBB
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SURVEY FIELD WORK PREPARED BY MORRIS KNOWLES AND ASSOCIATES INC.





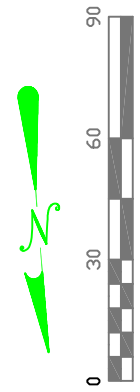
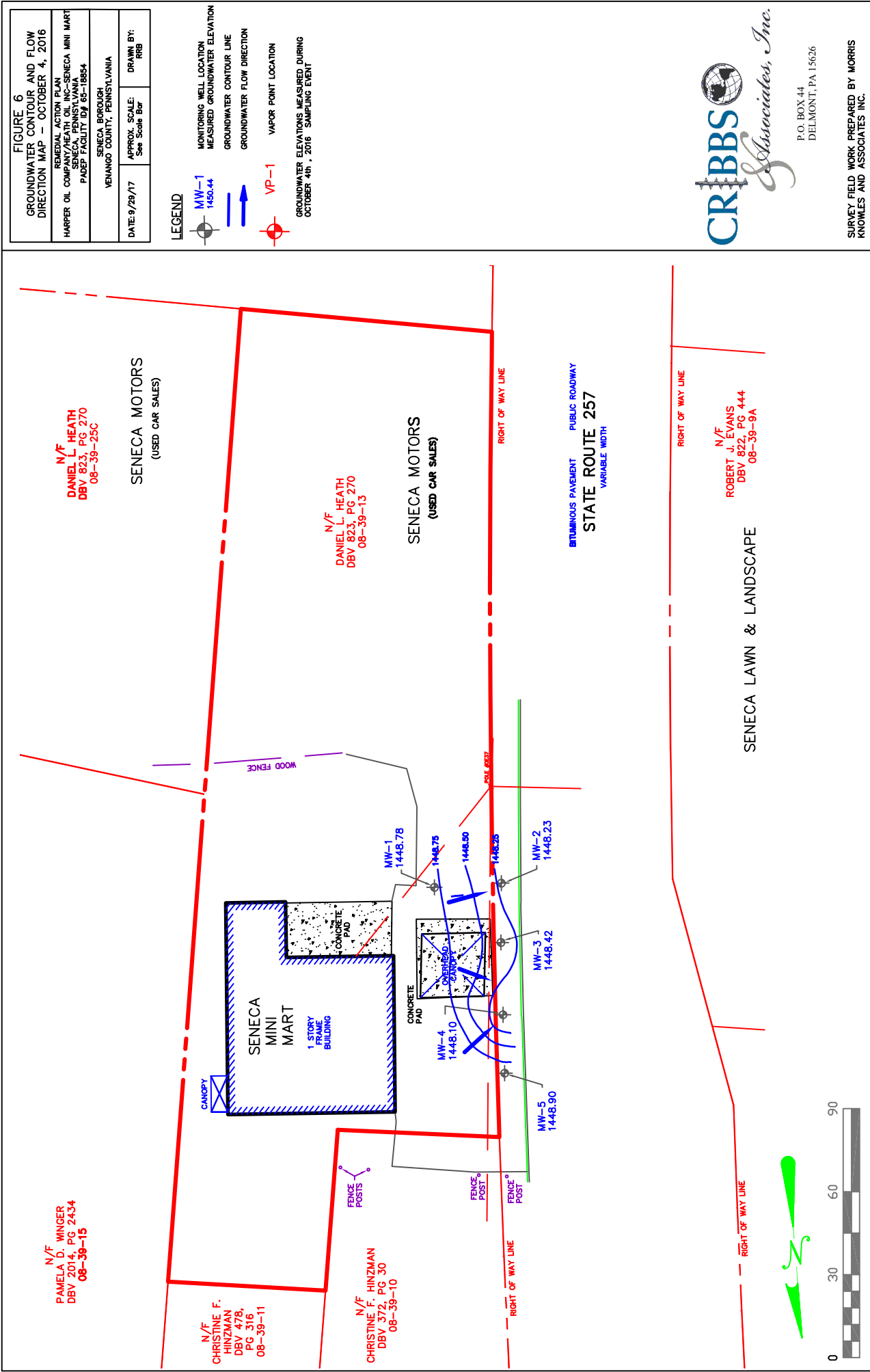
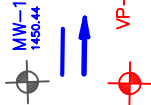


FIGURE 7 GROUNDWATER CONTOUR AND FLOW DIRECTION MAP - JANUARY 17, & FEBRUARY 1, 2017	
FEDERAL ACTION PLAN HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART SENECA, PENNSYLVANIA PADEP FACILITY ID# 65-18854	
SENECA BOROUGH VENANGO COUNTY, PENNSYLVANIA	
DATE: 9/29/2017 APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

LEGEND



GROUNDWATER ELEVATIONS FOR MW-1 THROUGH MW-11 MEASURED DURING JANUARY 17th, 2017
SAMPLING EVENT FOR MW-6 AND MW-7
GROUNDWATER ELEVATIONS FOR MW-12, MW-13
AND MW-14 MEASURED ON FEBRUARY 1, 2017.



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KNOWLES AND ASSOCIATES INC.

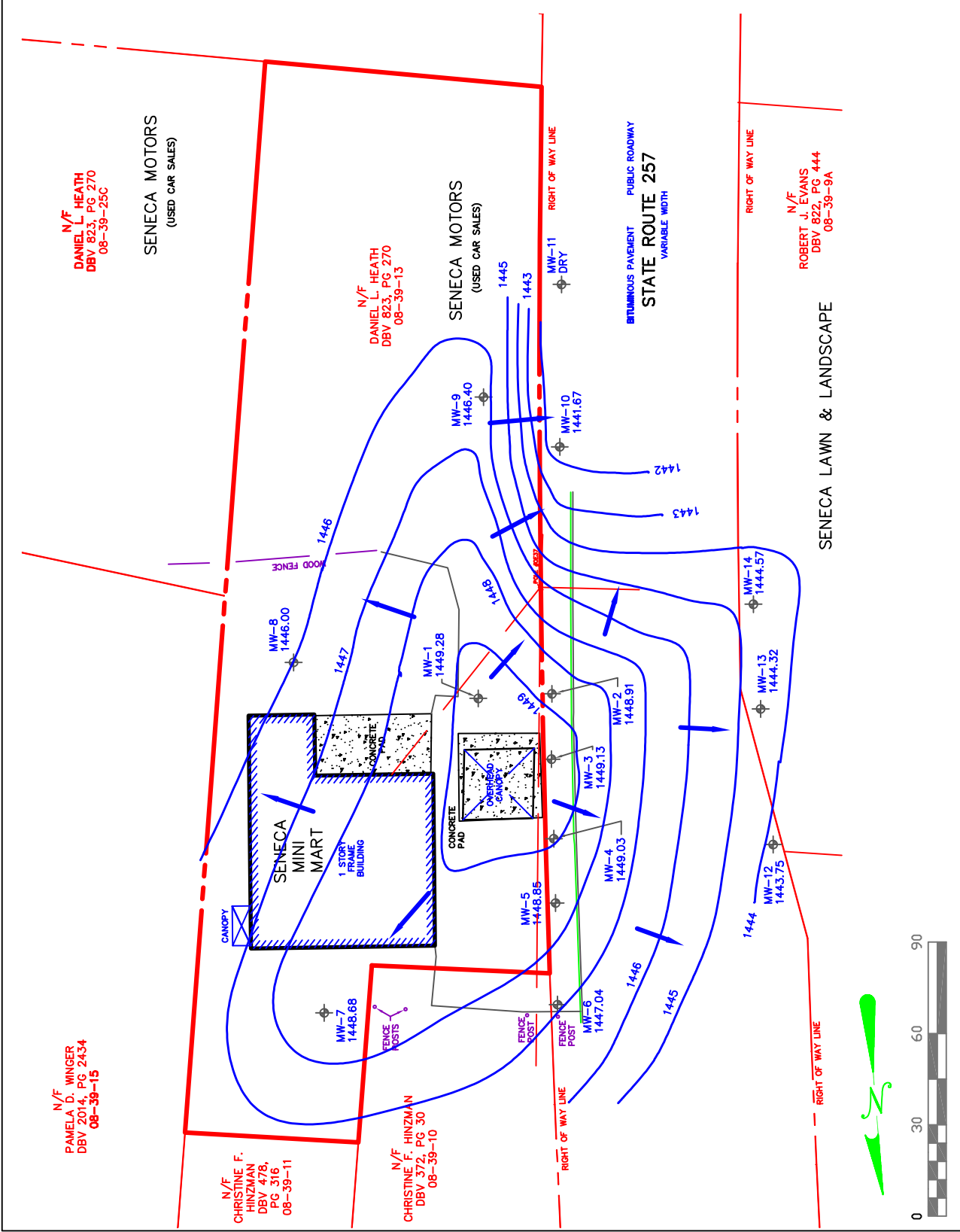


FIGURE 8 GROUNDWATER CONTOUR AND FLOW DIRECTION MAP - MARCH 28-29, 2017	
GENERAL ACTION PLAN HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART SENECA, PENNSYLVANIA PADEP FACILITY ID# 65-18854	
SENECA BOROUGH VENANGO COUNTY, PENNSYLVANIA	
DATE: 9/29/2017 APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

LEGEND



MONITORING WELL LOCATION
MEASURED GROUNDWATER ELEVATION



GROUNDWATER CONTOUR LINE
GROUNDWATER FLOW DIRECTION



VAPOR POINT LOCATION

GROUNDWATER ELEVATIONS FOR ALL WELLS
MEASURED DURING MARCH 28th and 29th, 2017
SAMPLING EVENT.



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DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS
KNOWLES AND ASSOCIATES INC.

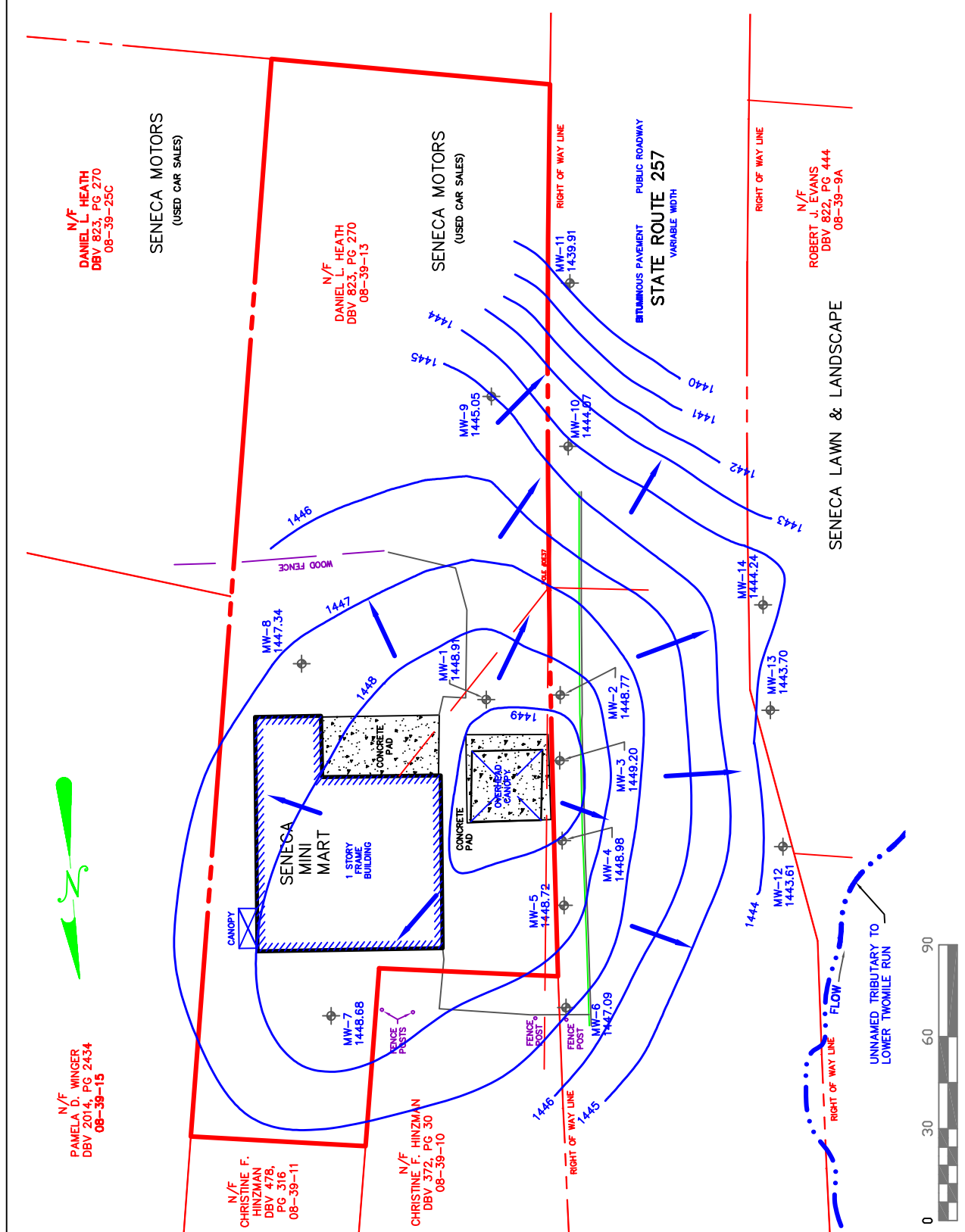


FIGURE 9 GROUNDWATER CONTOUR AND FLOW DIRECTION MAP - JUNE 12, 2017	
GENERAL ACTION PLAN HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART SENECA, PENNSYLVANIA PADEP FACILITY ID# 65-18854	
SENECA BOROUGH VENANGO COUNTY, PENNSYLVANIA	
DATE: 9/29/2017 APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

LEGEND

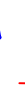


MW-1
1450.44

MONITORING WELL LOCATION
MEASURED GROUNDWATER ELEVATION



GROUNDWATER CONTOUR LINE



GROUNDWATER FLOW DIRECTION



VP-1

VAPOR POINT LOCATION

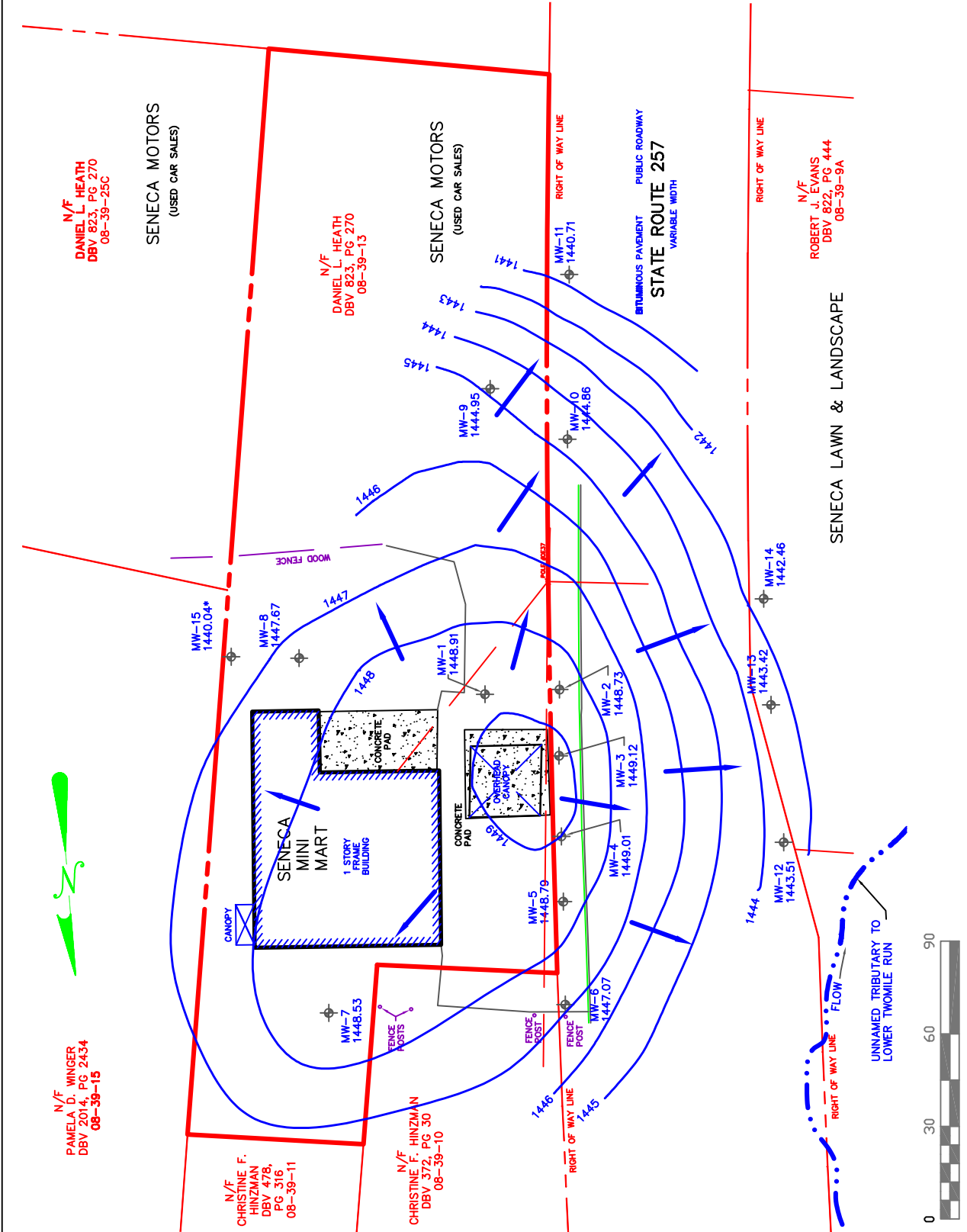
GROUNDWATER ELEVATIONS FOR ALL WELLS
MEASURED DURING JUNE 12th, 2017. SAMPLING
EVENT.

* GROUNDWATER ELEVATIONS FROM MW-15 NOT
USED FOR GROUNDWATER CONTOURING MAP BECAUSE
THE RECENTLY INSTALLED MONITORING WELL HAS
NOT FULLY RECHARGED TO STATIC WATER LEVEL.
(GROUNDWATER ELEVATION IN MW-15 ROSE TO
1447.86 BY JULY 31st, 2017).



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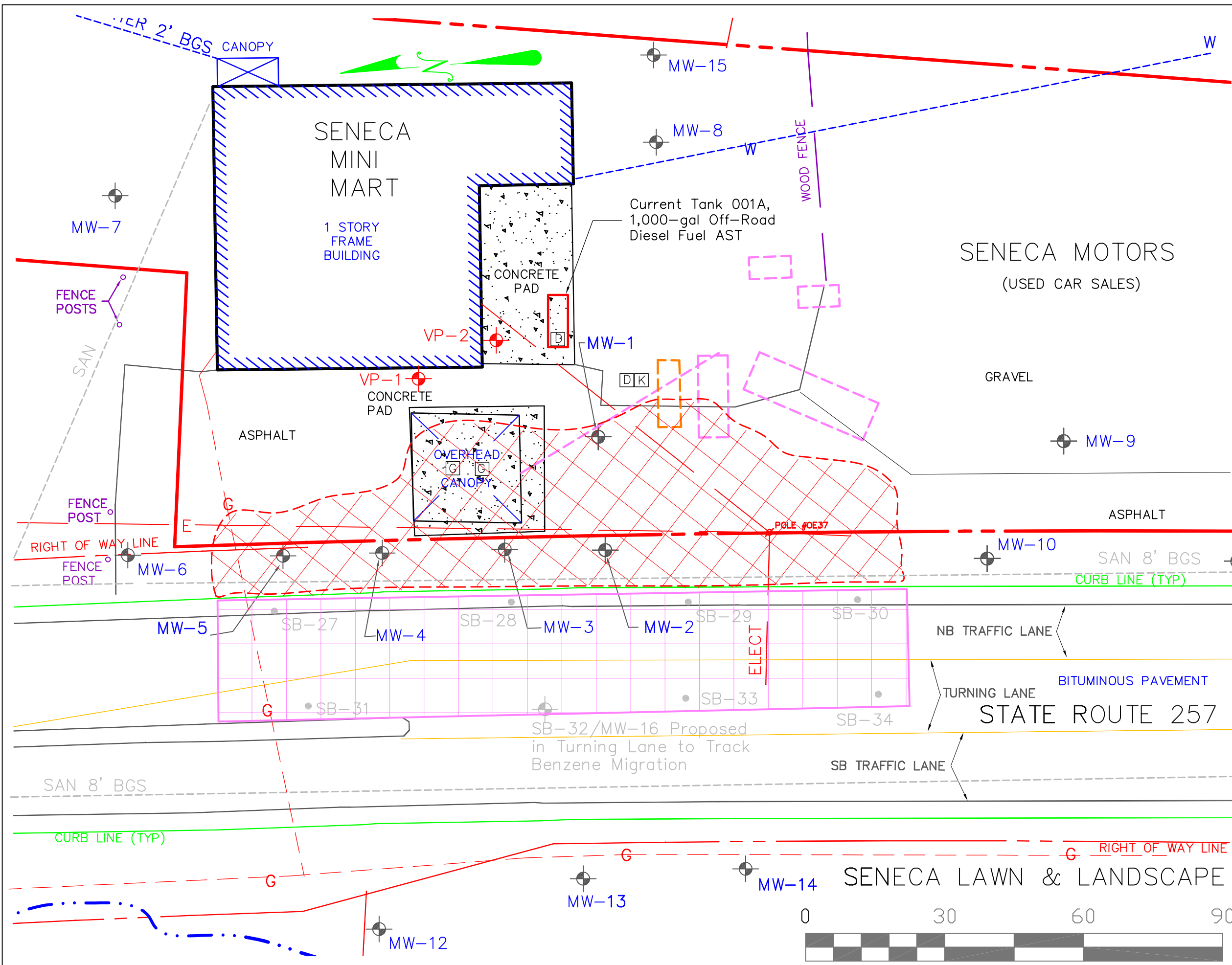


FIGURE 10 REMEDIAL SOIL EXCAVATION (DETAIL)		
REMEDIAL ACTION PLAN HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART SENECA, PENNSYLVANIA PADEP FACILITY ID# 65-18854		
SENECA BOROUGH VENANGO COUNTY, PENNSYLVANIA		
DATE: 09/29/17	APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

- LEGEND**
- MW-1 MONITORING WELL LOCATION
 - MW-16 PROPOSED MONITORING WELL
 - 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
 - AREA OF IMPACTED SOIL TO
BE EXCAVATED ESTIMATED
VOLUME 1200-1250 YD3
 - AREA OF POTENTIAL RANDOM
SYSTEMATIC SOIL SAMPLING
(POST-DIG)
 - G FORMER GASOLINE DISPENSER
 - D FORMER DIESEL DISPENSER
 - K FORMER KEROSENE DISPENSER
 - PROPOSED SOIL BORING
 - 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
ANALYTICAL RESULTS FOR COMPLETING FORM FC-1 IN
ANTICIPATION OF SOIL EXCAVATION ACTIVITY.

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DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS
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APPENDICES

APPENDIX A

**PENNDOT WORKPLAN, HIGHWAY OCCUPANCY PERMIT
AND RIGHT OF ENTRY PERMIT**

September 27th, 2017

Mr. Kyle Riffle
District Permit Manager
PA Department of Transportation
Engineering District 01-0
255 Elm Street
Oil City, PA 16301

RE: Work Plan & Right of Entry Agreement
Seneca Mini Mart, 3390 State Route 257
Venango County, Seneca, PA

Dear Mr. Riffle,

Please find below a Project History and Proposed Work Plan for the property located at 3390 State Route 257, Seneca Borough, Venango County, Pennsylvania. (Subject Property or Site). The Subject Property is located approximately two hundred feet south of the intersection of State Route 257 and Bredinsburg Road/East State Road (State Route 2006). The Subject Property is approximately 0.78 acres in area with a frontage of approximately 323 feet along the east side of State Route 257. A Site Location map is presented as **Figure 1**. A Site plan, which depicts the Subject Property including property boundaries, existing buildings, former dispensers, former underground storage tanks (USTs), existing above ground storage tank (AST), canopy and proposed soil boring and monitoring well locations, is shown as **Figure 2**. In addition, the Highway Occupancy Permit (HOP) and Right of Entry (ROE) Agreement (**Attachment A**) and PATA Temporary Traffic Control Plans (**Attachment B**) are included for your review.

The Site history and attached documentation is provided, as requested by the Department of Transportation, for the review and approval for right of entry for State Route 257 to conduct remedial actions including:

- Geoprobe soil sampling in the shoulder and potentially the center turning lane,
- the installation of a monitoring well in the center turning lane,
- excavation of impacted soil in the right of way, and
- potential soil sampling in the northbound travel lane and center turning lane pending results of soil samples collected following the excavation activities.

Based upon the results of the recent site characterization activities, including subsurface soil and groundwater delineation, remedial activities are required to prevent/limit offsite impacts of petroleum hydrocarbons.

Project Site History

The existing building on the Subject Property is a single-story, slab on grade structure of approximately 3,932 square feet. The building has been used as a gas station, convenience store and

automotive repair shop. Also, there is a single, detached canopy of approximately 576 square feet in area located above the former fuel island, immediately west of the Site building. The ground surface in front of the building consists of concrete and bituminous asphalt. The concrete covers the entire area in the vicinity of the dispenser islands and the bituminous asphalt comprises the parking lot to the north, south and west of the former dispenser island area.

The UST system was removed in September 2015. The UST system removal included the excavation and removal of four USTs: a 10,000-gallon unleaded gasoline UST, a 6,000-gallon unleaded gasoline UST, a 2,000-gallon diesel fuel UST and a 1,000-gallon kerosene UST. Soil confirmation samples collected from beneath the USTs did not exceed the statewide health standards (SHS) medium specific concentrations (MSCs). Obvious soil contamination was visually observed during the removal of the product piping and the dispensers. Elevated concentrations of petroleum contaminants were only detected in the soil confirmation samples collected from beneath the dispensers and below the product lines leading from the dispensers back to the USTs. The four USTs and the associated piping and dispenser islands have been removed; however, a 1,000-gallon AST containing off-road diesel fuel remains in service at the facility. As required, the contamination was reported to the Pennsylvania Department of Environmental Protection (PADEP) in a Notice of Reportable Release, dated September 14th, 2015 (see **Attachment C**).

The properties surrounding the Site are a mixture of commercial and residential. The Subject Property is bordered to the immediate north by a vacant former gasoline retail station, and several former residences, converted to commercial properties. To the east of the Subject Property are residential properties and to the south and southeast, partially on the Subject Property, is Seneca Motors, a used car dealership. To the west, across State Route 257, are the Seneca Lawn and Landscape service and the Venango Youth for Christ. Also located on the west side of State Route 257 is the unnamed tributary to Lower Two-Mile Run. The unnamed tributary parallels the highway along the Venango Youth for Christ Property and diverts to the southwest across the Seneca Lawn & Landscape property.

Cribbs & Associates, Inc. (Cribbs) was subcontracted by Harper Oil Company/Heath Oil Inc. to conduct site characterization activities following the discovery of the release from the former UST system. On April 5th, 2016, a proposed site characterization work plan was submitted to the Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF) for review and comment. A Site Characterization Report (SCR) was submitted to the PADEP on September 13th, 2017, and a Remedial Action Plan (RAP) will be submitted to the PADEP by October 27th, 2017.

Given the known extent of soil contamination and groundwater impacts the RAP will include the excavation and disposal of the impacted soil from under the former dispenser island and the area to the west between the dispenser island and the curb line in the (right-of-way) on the eastern side of State Route 257.

Twenty-three soil borings and 15 groundwater monitoring wells have been advanced/installed and sampled on the Subject Property. **Figure 2** presents the locations of the soil borings and monitoring wells. **Tables 1** and **2** present the soil and groundwater analytical results for the collected samples, respectively. Benzene, ethylbenzene, methyl-tert-butyl ether (MTBE), naphthalene, toluene, total xylenes, 1,2,4 trimethylbenzene (1,2,4-TMB) and 1,3,5-trimethylbenzene (1,3,5-TMB) were present at

concentrations that exceed their respective Statewide Health Standards (SHS) medium-specific concentrations (MSCs).

Interpreted groundwater flow direction at the Subject Property is in a westerly direction, as determined using groundwater measurements collected during the groundwater monitoring events. The identified groundwater flow is generally from the east to the west, toward the unnamed tributary to Lower Two-Mile Run, based on the westward groundwater flow direction and the location of impacted wells MW-1 through MW-5 and the soil impacts observed in the Geoprobe soil borings near State Route 257.

Cribbs has been conducting liquid phase hydrocarbon (LPH) removal from monitoring wells MW-1 through MW-5 since October 4th, 2016. The greatest amount of LPH has been observed in MW-3, located immediately downgradient of the former dispenser island.

Cribbs conducted aquifer testing (i.e., slug tests) on selected monitoring wells MW-1, MW-2, and MW-4, completed in the predominantly fill materials surrounding the dispenser islands on September 1st, 2016 to evaluate the hydraulic conductivity of the water bearing formation in the vicinity of the former dispenser island. Additional slug tests were conducted in September 7th, 2017 on monitoring wells MW-10 and MW-11 to evaluate the hydraulic conductivity of monitoring wells completed in the native soils in the areas further away from the dispenser islands.

The geometric mean of the September 1st, 2016 hydraulic conductivities (1.104 ft./day) was used in the Quick Domenico fate and transport analytical model to estimate the potential extent of impacted groundwater, and to evaluate if the groundwater impacts would reach the unnamed tributary to Lower Two-Mile Run. Based on the model results, the impacted groundwater plume would reach equilibrium (its maximum extent) at approximately 20 years. The model results indicate benzene at a concentration of 382 µg/l will reach the unnamed tributary within approximately five years of the release and the concentration could climb to 435 µg/l approximately 15 years after the release. This initial evaluation predicted that the groundwater impacts would have already been observable in off-site monitoring wells MW-12, MW-13 and MW-14, located on the west side of State Route 257.

To further evaluate the contaminant plume migration potential, another set of slug tests was conducted on September 7th, 2017. Utilizing the lower hydraulic conductivity observed in the native materials (0.04667 ft./day), the model predicts that elevated benzene concentrations in groundwater will extend to 150 feet before reaching a point of equilibration at 20 years where the benzene concentration degrades to below the residential SHS MSC. The use of the lower hydraulic conductivity predicts that the benzene plume will not reach the off-site downgradient wells until almost two years after the release, and will not reach the unnamed tributary until almost five years have after the release. The actual conditions are likely somewhere between the two models, either way the benzene plume will eventually impact the unnamed tributary to Lower Twomile Run. The Quick Domenico model outputs for benzene are presented in **Attachment D**.

The potential for petroleum hydrocarbons to impact the unnamed tributary is the major reason for conducting the proposed remedial activities (i.e., impacted soil excavation) discussed below.

A SCR was submitted to the PADEP on September 13th, 2017, and a RAP is planned to be submitted to the PADEP on or before October 27th, 2017. Given the known extent and conditions of the soil and groundwater impacts in the vicinity of the former dispenser island the RAP will include the excavation and off-Site disposal of the impacted soil from beneath the former dispenser island and the area to the west between the dispenser island and in the right-of-way to the curb line on the eastern side of State Route 257.

Proposed Work Plan

Additional Soil Delineation of Contamination to the West of the Site Property

Because the most significant soil and groundwater impacts have been observed in soil borings SB-11 through SB-18, and monitoring wells MW-2 through MW-5, located at the western property boundary, additional delineation of soil quality to the west is required prior to initiating the remedial activities. Overall, soil impacts have been delineated based on the data from monitoring wells MW-12, MW-13, and MW-14, located on the western side of State Route 257. The data shows that these wells are not impacted; however, the lateral extent of the soil contamination between the wells on the Subject Property and the wells across State Route 257 to the west has not been documented.

In order to fully determine the extent of the contaminants in the soil and groundwater in the right of way and potentially under State Route 257, Cribbs proposes to advance soil borings (SB-27 through SB-34) with the use of a Geoprobe direct push rig at two locations west of onsite wells MW-3, MW-5, soil borings SB-10 and SB-22. The approximate locations of these proposed soil samples are presented on **Figure 3**.

One line of soil borings (SB-27 through SB-30) will be advanced in the shoulder of the roadway between the curb line and the white line of the north bound lane. The second line of borings (SB-31 through SB-34) will be located in the center turning lane. Each of the borings will be advanced to a depth of approximately eight feet below ground surface (bgs). Continuous soil samples will be collected from each boring and screened using a photo-ionization detector (PID). The samples exhibiting the highest PID reading will be submitted for laboratory analysis. If groundwater is encountered in these soil borings a temporary one-inch diameter PVC screen will be installed and a groundwater grab sample will be collected to be submitted for laboratory analysis. The second line of soil borings will only be installed if the PID screenings indicate impacts by petroleum hydrocarbons in the corresponding boring of the first line. The soil borings will be backfilled with bentonite pellets and the surface materials replaced with two-part epoxy suitable for concrete repair.

HOP and ROE permits will need to be obtained from PennDOT in order for access to complete the soil borings in the right of way along the shoulder of the highway and in the center turning lane. While completing the soil borings along the shoulder of State Route 257, traffic in the northbound travel lane will be diverted into the center travel lane following PATA 121 – “Single Lane Closure; Traffic Shifted into Two-Way Left Turn Lane of the PennDOT Temporary Traffic Control Guidelines (6-14), Publication 213, 67 PA Code, Chapter 212” (Figure attached for reference **Attachment B**). If soil sampling in the center turning lane is needed, Cribbs will follow PATA 209 – “Work Space in the Two-Way Left Turn Lane of the PennDOT Temporary Traffic Control Guidelines (6-14), Publication 213, 67 PA Code, Chapter 212” (Figure attached for reference, **Attachment B**).

A professional traffic control company (e.g., Flagger Force) will be contracted to provide the traffic control for all the activities effecting the shoulder, travel lanes or turning lane of State Route 257. The proposed pre-remediation soil sampling will be completed in one day and will likely require less than eight hours. Cribbs proposes to conduct the soil sampling shortly after the permit is obtained from PennDOT.

Groundwater Monitoring Well Installation in Turning Lane

In order to effectively calibrate the Quick Domenico models, Cribbs proposes to install a monitoring well (MW-16) in the center turning lane of State Route 257. This well will be located approximately 30 feet south of the southern end of the concrete island, roughly half-way between existing monitoring wells MW-3 and MW-13. Monitoring well MW-16 will be installed at the same location as soil boring SB-32. **Figure 3** provides the location of MW-16/SB-32. A monitoring well at this location will provide the ability to calibrate the Quick Domenico model to better determine the potential migration of contaminated groundwater from the Subject Property to the unnamed tributary.

A two-foot by two-foot opening will be saw cut in the asphalt surface to prevent the drilling activities from causing the asphalt to heave. Hand clearing will be conducted to a depth of five feet bgs to assure no unidentified subsurface structures (e.g., underground utilities) are disturbed at that location.

The monitoring well will be installed using a truck-mounted drilling rig equipped with 4.25-inch internal diameter hollow stem augers. If not previously sampled by SB-32 the soil within the well boring will be continuously sampled using split spoon samplers to the proposed total depth of 10 feet bgs. Seven feet of two-inch diameter factory-slotted screen will be installed in the boring with solid riser extending to near the ground surface. Clean silica sand will be placed around the screened interval filling the annulus to approximately 0.5-foot above the top of the screened interval. Bentonite pellets will be applied to create a 1.0-foot thick seal, and a cement-bentonite grout will be used to backfill the annulus to the bottom of the road surface. A 2-ft. by 2-ft. wide by 8-inches thick concrete pad will be used to install a heavy-duty flush-mount, protective steel cover flush with the top of the roadway in the turning lane.

During the monitoring well installation activities, a professional traffic control company (e.g., Flagger Force) will be contracted to provide the traffic control for all the activities effecting the travel lanes or State Route 257. Cribbs will follow PATA 209 – “Work Space in the Two-Way Left Turn Lane of the PennDOT Temporary Traffic Control Guidelines (6-14), Publication 213, 67 PA Code, Chapter 212” (Figure attached for reference, **Attachment B**).

The installation of monitoring well MW-16 will require approximately four hours or less to complete, aside for allowing the concrete pad at the surface to cure. As there are no business entrances on the west side of Route 257 (southbound), and the former Seneca Mini-Mart on the east side (northbound) of the highway is closed, the impact to traffic is expected to be minimal.

Subsequent development and sampling activities at this well location will be completed in the same fashion as the other wells at the Subject Property, but will likely require less than 60-minutes to

complete for each event. Cribbs proposes to install this monitoring well shortly after the permit is obtained from PennDOT.

Soil Remediation Excavation Activities

Cribbs will demolish the canopy associated with the former dispenser island in preparation of conducting the remedial actions. The soil excavation remedial activities will involve removing impacted soil and associated LPH in the vicinity of the former dispenser islands. It will include soil being excavated from the eastern State Route 257 right-of-way without extending the excavation beyond the concrete curb located on the east side of the north bound lane (into the parking lane).

Approximately 140 feet of the frontage between the dispenser island and State Route 257 (as shown on **Figure 3**) would be included in the remedial action soil excavation. The work zone will start approximately 220 feet south of the centerline of State Route 2006 and continue in the right of way for the next 140 feet south along the east side of State Route 257. An island of soil approximately 8 feet in diameter will be left in place surrounding the electrical utility pole located southwest of the site building. The likely timeframe for the remedial soil excavation is anticipated to be the Spring or Summer of 2018.

Table 1 presents the analytical results of the soil samples collected as part of the site characterization. **Figure 2** presents the location of the soil borings and monitoring wells completed as part of the site characterization.

The asphalt surface covering the area to be excavated will be saw-cut, utilizing a concrete saw. The saw-cut is proposed to ensure a clean edge along the existing asphalt. After the asphalt covering the proposed excavation is removed, the impacted soil will be removed and either direct loaded on to tri-axle dump trucks for transport to the off-site disposal facility (i.e., landfill) or placed on 6-mil thick plastic sheeting and covered until off-site disposal can be arranged.

The impacted soil will be excavated to a depth of approximately six feet below current grade. The existing curb demarking the edge of the shoulder will remain in place. The edges of the excavation will have a 3:1 slope ratio to the base of the excavation. There may be localized areas where the excavation is deeper than 6 feet bgs based on visual field observations and PID readings. It is anticipated that the soil excavation will be limited to the Subject Property and the existing eastern right of way, beyond the curb line of State Route 257, to prevent undermining of the roadway.

The anticipated duration of the soil excavation activities will be approximately three days and will occur during standard daylight working hours. Following the removal of the impacted soil, post-remediation soil samples will be collected to assess attainment, and clean fill material will be brought in and placed in approximately eight-inch lifts. The fill material will be compacted using a plate compactor mounter on the excavator arm. Filling operations will be conducted concurrently with the excavation activities in order to prevent leaving the excavation open overnight. In keeping with PADEP requirements to document attainment of the cleanup standards, soil samples will be obtained from the open excavation prior to the backfilling.

During the soil remediation excavation activities, even though there will be no roadway encroachment, Cribbs will follow PATA 121 – Single Lane Closure; Traffic Shifted into Two-Way Turn Lane of the PennDOT Temporary Traffic Control Guidelines (6-14), Publication 213, 67 PA Code, Chapter 212 (Figure attached for reference **Attachment B**). This will be done to minimize the soil loading at the edge of the excavation at the curb line due to the anticipated six feet to eight feet depth of the proposed excavation. A professional traffic control company will be contracted to provide the traffic control for all the activities effecting the travel lanes or State Route 257.

Installation of Replacement Monitoring Wells

Following the soil excavation activities, five monitoring wells (MW-1R through MW-5R) will be installed in the right of way to evaluate groundwater conditions following the remedial soil excavation activities, replacing existing wells MW-1 through MW-5. Monitoring wells MW-1 through MW-5 will be destroyed by the excavation activities. These monitoring wells will be installed at the same locations as the wells they are replacing, east of the shoulder and the curb demarking the edge of the shoulder.

These wells will continue to be sampled on a quarterly basis. Once no longer needed, they would be permanently sealed with a cement/bentonite grout and the flush-mount protective well covers removed. The replacement monitoring wells will be located at the boundary between the private property and the right of way for State Route 257 at approximately the same locations as the monitoring wells they will be replacing. These wells can be installed without requiring any traffic control activities.

Post-Remediation Soil Sampling

Depending on the results of the post-excavation soil samples collected from the open excavation, it may become necessary to conduct random systematic soil sampling (RSSS) in the right of way, the northbound travel lane and the center turning lane directly opposite of the area of the planned remedial excavation in order to document attainment of the cleanup standard. This would only be required if the analytical results collected from the open excavation exceeded the non-residential SHS MSCs, indicating that soil impacts were present beyond the area where the remediation excavation was conducted.

A random systematic soil sampling program would designate x (length), y (width) and z (depth) coordinates for a dozen soil samples covering an area of approximately 140 feet long by 30 feet wide by 8 feet deep. The soil sample analytical data would be used for the statistical evaluation to document attainment of the cleanup standard. The RSSS samples would be collected using Geoprobe direct push methods to sample the desired interval.

If RSSS becomes necessary, samples in the right of way beyond the travel lanes will be conducted following PATA 101, work in the turning lane will follow PATA 209. Soil sampling to be conducted in the northbound travel lane will require temporary rerouting of traffic into the turning lane following PATA 121 (**Attachment B**). A professional traffic control company will be contracted to provide the traffic control for all the activities effecting the travel lanes or State Route 257.

These activities will be conducted sequentially, obtaining all the samples required from each traffic flow pattern set up before moving on to the next traffic flow pattern (as needed). The RSSS soil sampling would only require one day to complete. The Geoprobe soil borings would be backfilled with the soil cuttings, sealed with bentonite pellets to prevent vertical migration of precipitation. The asphalt surface would be replaced with a two-part epoxy suitable for concrete repair.

Insurance Requirements Documentation

As required in the Highway Occupancy Permit and Right of Entry Agreement, copies of the Certificates of Insurance from Cribbs and Heath Oil Inc./Harper Oil Company covering the liability, environmental and pollution damage and naming the Pennsylvania Department of Transportation and Commonwealth of Pennsylvania as additionally insured are included in **Attachment E**.

The Pennsylvania Underground Storage Tank Indemnification Fund (PAUSTIF) was requested to provide documentation that the activities at the Subject Property are 100% covered by USTIF. A copy of the coverage letter is included in **Attachment F**.

Your cooperation is appreciated in this matter. If you have any questions or concerns, please feel free to contact Robert Botterman, Professional Geologist/Sr. Hydrogeologist at 412-780-3094 or Gary Cribbs, Professional Geologist/Owner at 724-454-2310.

Sincerely,



Robert. R. Botterman, P.G.
Sr. Hydrogeologist
Cribbs & Associates, Inc.

Gary Cribbs, P.G.
Principal/Owner
Cribbs & Associates, Inc

Cc: Andy Restauri
Cc: Gary Cribbs

Attachments:	Figure 1	Site Location Map
	Figure 2	Site Plan
	Figure 3	Remedial Soil Excavation Detail
	Table 1	Soil Analytical Results
	Table 2	Groundwater Analytical Results
	Attachment A	Highway Occupancy Permit and Right of Entry Agreement
	Attachment B	Traffic Control Measures PATA 101, PATA 121, and PATA 209
	Attachment C	Notice of Reportable Release
	Attachment D	Quick Domenico Models – Benzene
	Attachment E	Certificates of Insurance
	Attachment F	USTIF Coverage Documentation

FIGURES

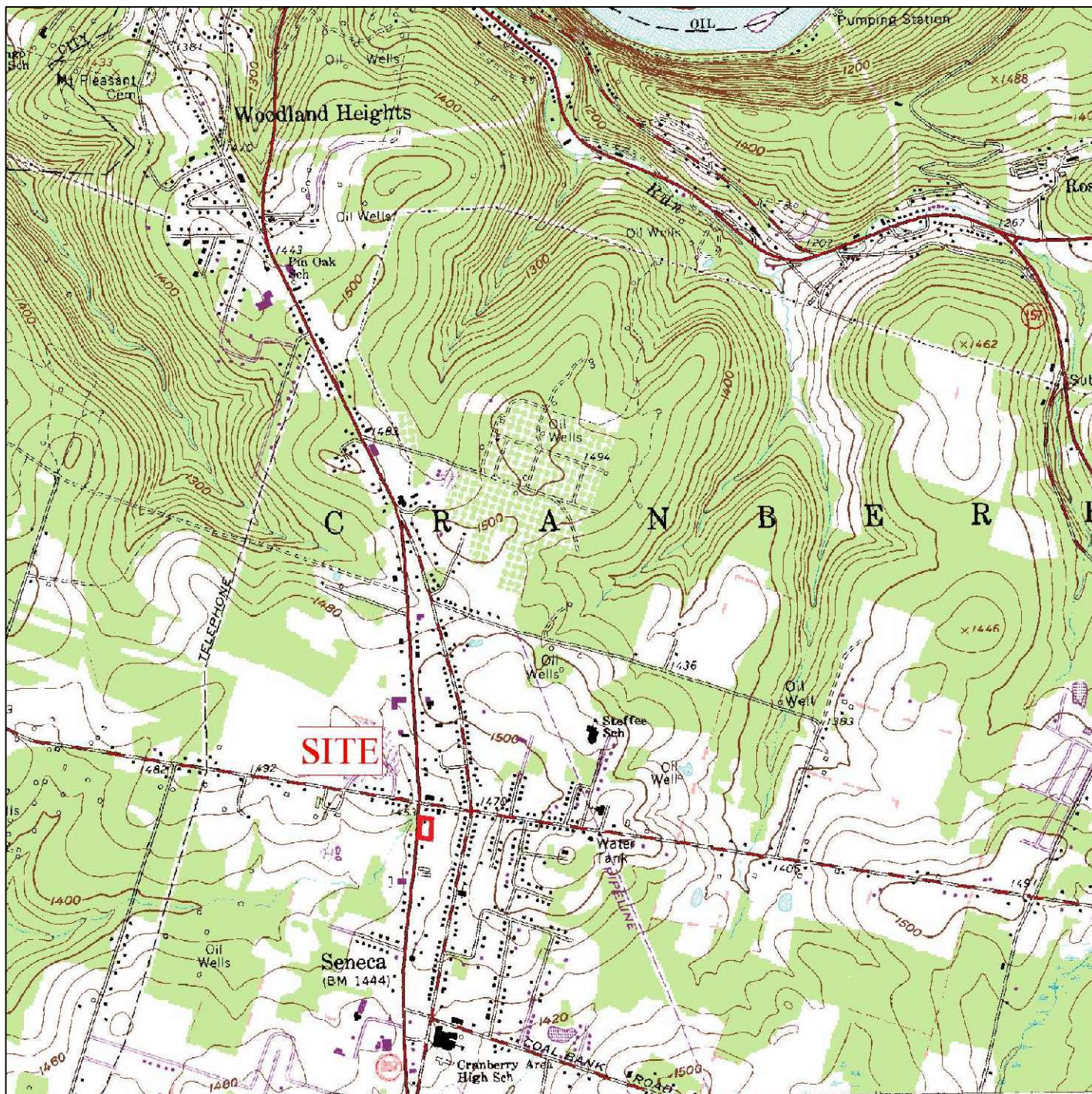


FIGURE 1
SITE LOCATION MAP

Site Characterization Report

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



P.O. BOX 44
DELMONT, PA 15626
724.454.2310

REFERENCE:

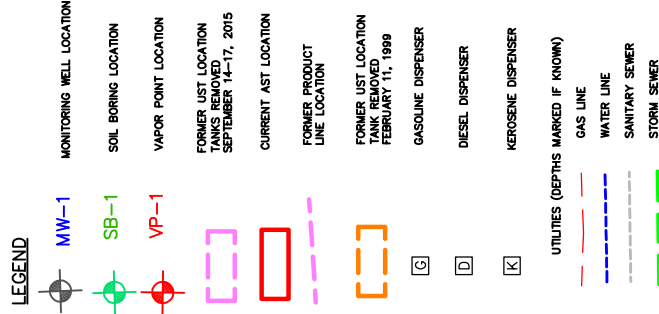
OIL CITY, PENNSYLVANIA
USGS 7.5-Minute Quadrangle

SCALE:

1 inch equals 2000 feet



FIGURE 2 SITE PLAN - SOIL BORING AND MONITORING WELL LOCATION MAP	
SITE CHARACTERIZATION REPORT HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART SENECA, PENNSYLVANIA PADEP FACILITY ID# 65-18854	
SENECA BOROUGH VENANGO COUNTY, PENNSYLVANIA	
DATE: 05/26/17	APPROX. SCALE: See Scale Bar
DRAWN BY: RRB	

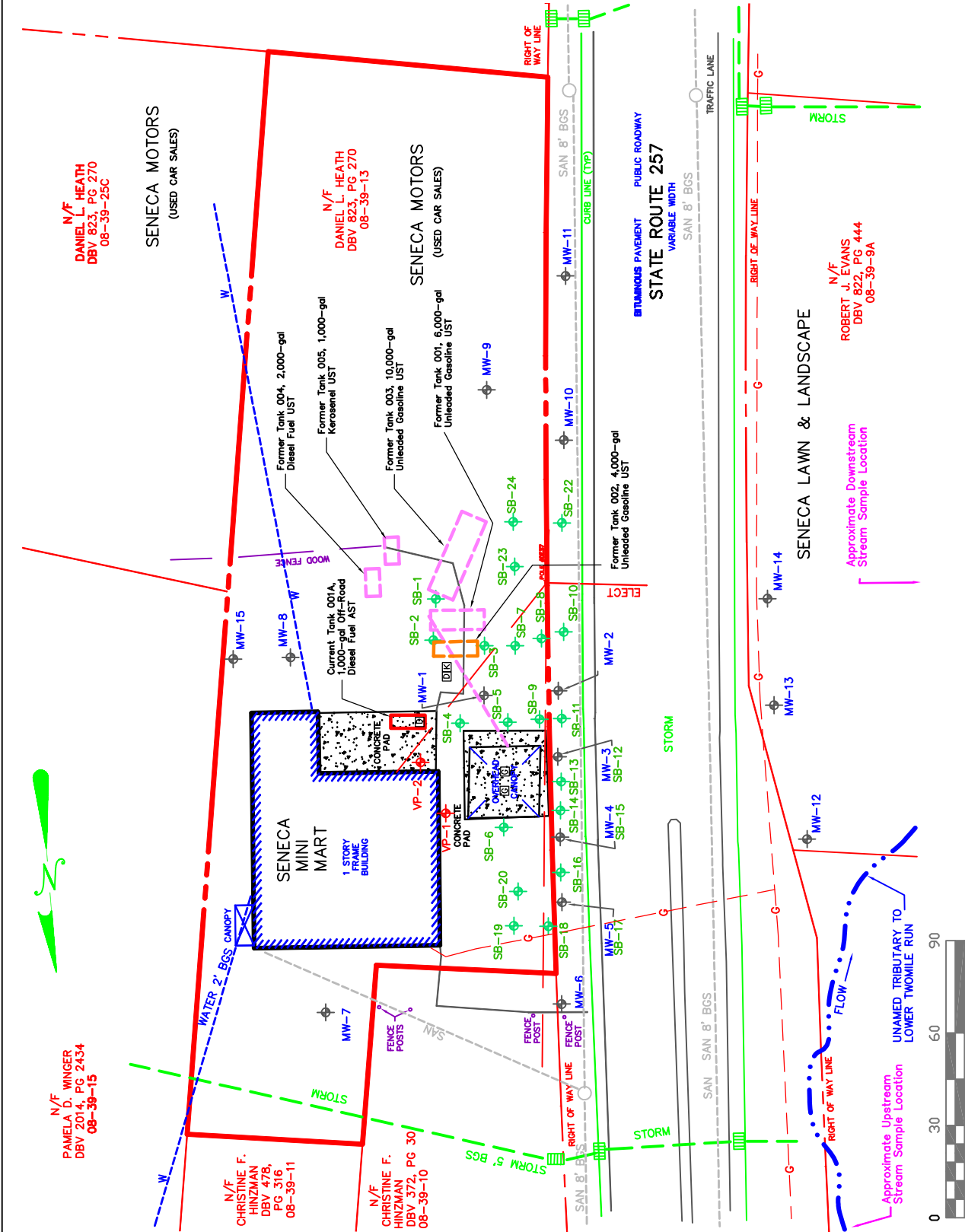


THREE ADDITIONAL SOIL BORINGS, SB-21, SB-25 AND SB-26, (NOT SHOWN) WERE ADVANCED IMMEDIATELY ADJACENT TO PREVIOUSLY SAMPLED LOCATIONS, SB-15, SB-3 AND SB-11, TO OBTAIN ADDITIONAL INFORMATION REGARDING THE EXTENT OF KNOWN IMPACT IN ORDER TO OBTAIN DISPOSAL ANALYTICAL RESULTS FOR COMPLETING FORM FC-1 IN ANTICIPATION OF SOIL EXCAVATION ACTIVITY.



P.O. BOX 44
DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS KNOWLES AND ASSOCIATES INC.



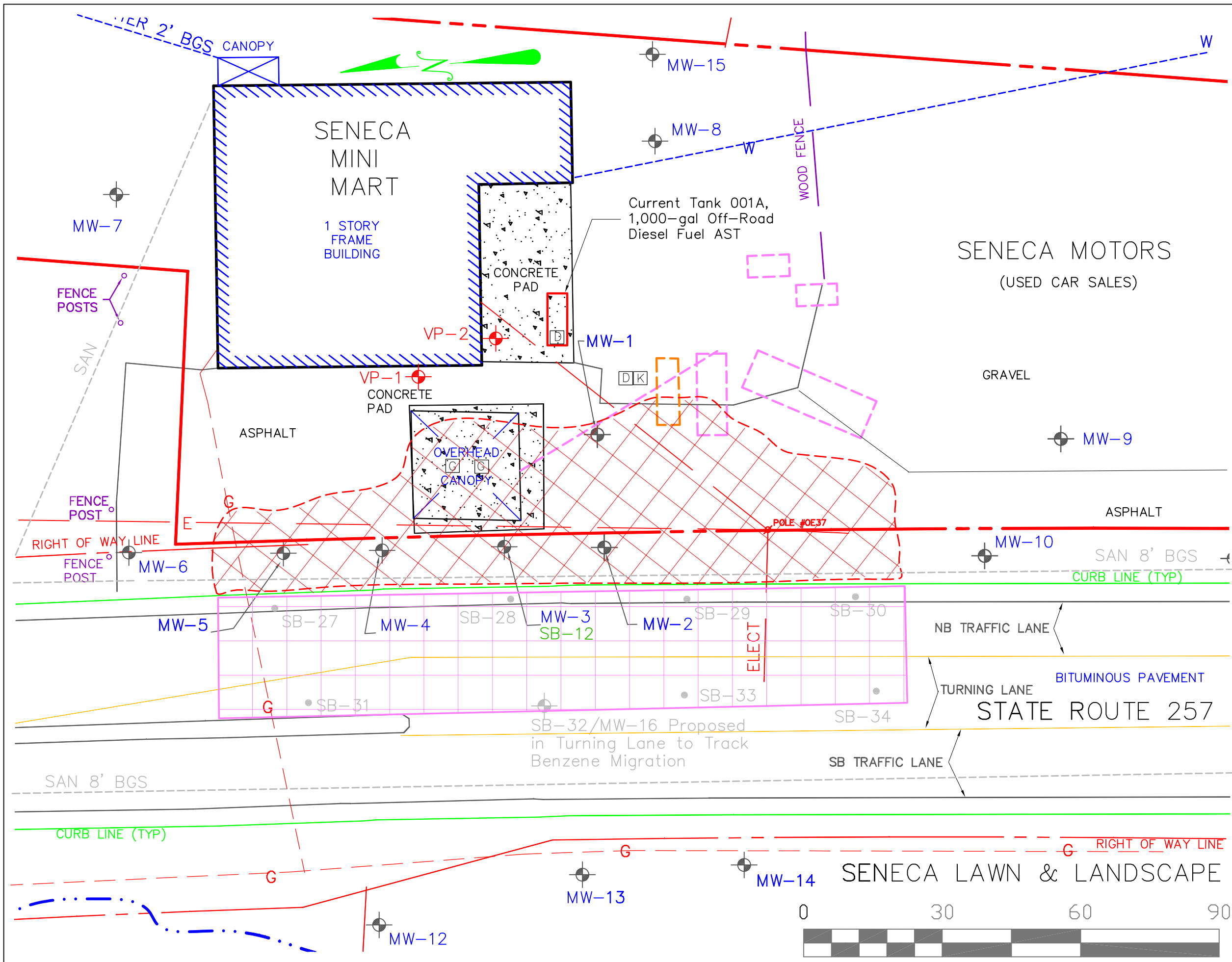


FIGURE 3 REMEDIAL SOIL EXCAVATION (DETAIL)		
PENNDOT WORKPLAN HARPER OIL COMPANY/HEATH OIL INC-SENECA MINI MART SENECA, PENNSYLVANIA PADEP FACILITY ID# 65-18854		
SENECA BOROUGH VENANGO COUNTY, PENNSYLVANIA		
DATE: 09/18/17	APPROX. SCALE: See Scale Bar	DRAWN BY: RRB

LEGEND	
	MW-1 MONITORING WELL LOCATION
	MW-16 PROPOSED MONITORING WELL
	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
	AREA OF IMPACTED SOIL TO BE EXCAVATED ESTIMATED VOLUME 1200-1250 YD3
	AREA OF POTENTIAL RANDOM SYSTEMATIC SOIL SAMPLING (POST-DIG)
	FORMER GASOLINE DISPENSER
	FORMER DIESEL DISPENSER
	FORMER KEROSENE DISPENSER
	PROPOSED SOIL BORING
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 ANALYTICAL RESULTS FOR COMPLETING FORM FC-1 IN ANTICIPATION OF SOIL EXCAVATION ACTIVITY.	

CRBBS & Associates, Inc.

P.O. BOX 44
DELMONT, PA 15626

SURVEY FIELD WORK PREPARED BY MORRIS
KNOWLES AND ASSOCIATES INC.

TABLES

Table 1
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-Residential 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')	SB-7 (7.0'-8.0')
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	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	<4.8
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	<4.8
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	<4.8
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	<4.8
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	<4.8
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	<4.8
1,2,4-Trimethylbenzene	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	<4.8
1,3,5-Trimethylbenzene	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	<4.8
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	<14.4
PID								4.8	30.8	>5000	19.4	121	12.3	443	22.5	230	18.0

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-Residential Vapor Intrusion Screening Value	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')	SB-15 (3.0'-4.0')	SB-16 * (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	6/14/2016
VOCs																	
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	1,940	2,370	2,390	35,300	<6.1	76,700	36,300	52,500	101,000	29,300
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	91,400	60,300	5,750	108,000	<6.1	14,700	178,000	57,000	397,000	87,100
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	8,880	10,600	634	9,410	<6.1	844	14,700	4,600	32,700	7,150
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<317	<239	10.0	<2,070	<6.1	<277	<2,280	<250	<25,100	<181
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	23,200	19,300	1,360	24,400	<6.1	1,870	41,900	16,800	119,000	22,600
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<317	<239	9.8	115,000	<6.1	1,900	6,110	1,490	327,000	4,460
1,2,4-Trimethylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	207,000	49,800	11,500	190,000	<6.1	8,790	266,000	98,300	895,000	62,400
1,3,5-Trimethylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	63,800	640	134	89,800	<6.1	1,970	128,000	31,200	291,000	319,000
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	88,100	2,460	2,690	434,000	<18.3	16,600	523,000	87,100	2,030,000	3,460
PID								3,360	3,140	58.6	1,811	4.1	2,274	1,521	349	3,970	

Table 1
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-Residential Vapor Intrusion Screening Value	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')	MW-9 (0.5'-2.5')	MW-8 / SS-7 (14.0'-16.0')
Date Sampled								6/14/2016	6/14/2016	9/14/2016	9/14/2016	9/14/2016	9/14/2016	10/17/2016	10/18/2016	11/1/2016
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	12.7	50,600	1,170	27.9	963	214	5.2	<5.0	10.9
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	28.1	113,000	22,300	<4.3	18,500	8,110	<5.1	<5.0	<4.6
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<4.9	12,600	2,840	49.7	1,470	817	<5.1	<5.0	<4.6
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	11.7	<227	<223	<4.3	<198	<195	<5.1	<5.0	166
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<4.9	30,210	5,850	10.5	2,920	1,970	<5.1	<5.0	<4.6
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<4.9	2,640	<223	<4.3	<198	<195	<5.1	<5.0	<4.6
1,2,4-Trimethylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	47.1	191,000	42,900	9.3	40,000	17,500	<5.1	<5.0	<4.6
1,3,5-Trimethylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	17.6	77,900	7,810	<4.3	14,600	5,490	<5.1	<5.0	<4.6
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	112	297,000	5,080	18.1	37,000	9,470	<15.3	<14.9	<10.9
PID								13.8	2,875	952	139	396	824	2.4	9.0	3.7

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-Residential Vapor Intrusion Screening Value	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')	MW-12 (4.0'-6.0')	MW-13 (1.0'-2.0')	MW-14 (1.0'-2.0')
Date Sampled								11/15/2016	11/15/2016	11/15/2016	11/15/2016	11/15/2016	11/15/2016	1/24/2017	1/24/2017	1/25/2017
VOCs																
Benzene	ug/kg	500	500	57,000	290,000	330,000	130	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Ethylbenzene	ug/kg	70,000	70,000	180,000	890,000	1,000,000	46,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Isopropylbenzene (Cumene)	ug/kg	600,000	2,500,000	7,700,000	10,000,000	10,000,000	2,500,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	9,900,000	1,400	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	5.5	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Toluene	ug/kg	100,000	100,000	10,000,000	10,000,000	10,000,000	44,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
1,2,4-Trimethylbenzene	ug/kg	8,400	35,000	130,000	560,000	640,000	35,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
1,3,5-Trimethylbenzene	ug/kg	74,000	210,000	2,200,000	10,000,000	10,000,000	210,000	<5.4	<4.4	<4.8	<230	<5.4	<4.3	<5.9	<5.7	<10.7
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	990,000	<16.1	<13.3	<14.3	<691	<16.3	<12.8	<17.6	<17.1	<32.1
PID								1.7	0.0	2.7	0.0	0.0	0.0	8.7	1.0	<1.0

Notes:
All organic contaminant constituents reported in ug/kg. Lead reported in mg/kg.
NA Denotes Not Analyzed, Not Available, 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') labiles inadvertently reversed to laboratory, this Table presents corrected data.

TABLE 2
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-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-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-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-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-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-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-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-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

TABLE 2
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-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-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-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-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-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-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
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
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

All concentrations provided in micrograms per liter(ug/L).

TMB = Trimethylbenzene

NA indicates parameter not analyzed.

Red values denote exceedences of the Residential Statewide Health Standard.

Red Bolded values denote exceedences of the Residential Statewide Health Standard.

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

TABLE 3
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-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-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-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-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-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-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-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-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

TABLE 3
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-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-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-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-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-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-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
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
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

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.

Attachment A
Highway Occupancy Permit and Right of Entry Agreement



APPLICANT'S AUTHORIZATION FOR AGENT TO APPLY FOR HIGHWAY OCCUPANCY PERMIT

If granting BLANKET Authorization to submit applications on Applicant's behalf, check this box: ☐

If BLANKET Authorization, mark N/A.	PERMIT APPLICATION NO.	
	COUNTY	
	CITY-BORO-TWP.	
	S.R.-SEG.-OFF.	
APPLICANT	Name: Address:	
AGENT	Name: Address:	

THIS AUTHORIZATION, made this ____ day of _____, 20____, by

_____,
APPLICANT for a highway occupancy permit under 67 Pa. Code Chapter 441 or 459.

WHEREAS, the APPLICANT is required to obtain a highway occupancy permit from the Commonwealth of Pennsylvania, Department of Transportation, called the Department, in order to occupy the State highway; and

WHEREAS, the APPLICANT wishes to authorize the agent listed above (AGENT) to apply for the permit and any associated supplements on behalf of the APPLICANT; and

WHEREAS, the APPLICANT has agreed to grant a release to the Department to allow the AGENT to apply for the permit and any associated supplements on behalf of the APPLICANT; and

WHEREAS, as a condition of this authorization, APPLICANT agrees that AGENT will be required to provide APPLICANT with copies of all correspondence and other documents issued, mailed, emailed or otherwise directed or provided to APPLICANT or AGENT by the Department; and

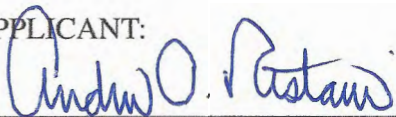
WHEREAS, the APPLICANT may elect to be provided contemporaneous email updates on the review status of the permit application and any associated supplements.

NOW, THEREFORE:

1. The APPLICANT does hereby authorize AGENT to act as APPLICANT's agent with respect to the permit application and associated supplements and to do all things necessary to obtain the permit and/or associated supplements on behalf of the APPLICANT.
2. The APPLICANT does hereby remise, release, quitclaim and forever discharge the Department, its agents, employees and representatives of and from all suits, damages, claims and demands of any type whatsoever arising against it as a result of granting the permit and its supplements to APPLICANT.
3. The APPLICANT ☒ has ☐ has not (check one) elected to be provided contemporaneous updates on the status of the permit application. If the APPLICANT elects to be provided contemporaneous updates on the status of the permit application, provide contact information here (email): gcribbs@cribbsandassociates.com.
4. The APPLICANT understands that this AUTHORIZATION is effective until revoked in writing by the APPLICANT or AGENT, with contemporaneous written notice thereof to the Department.

IN WITNESS WHEREOF, the APPLICANT has executed or caused to be executed these presents, intending to be legally bound thereby.

by APPLICANT:



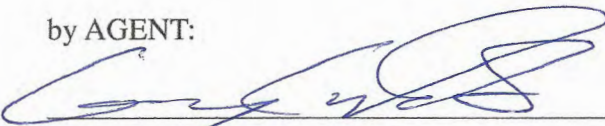
(authorized representative signature)

Name: Mr. Andy Restauri - Heath Oil / Seneca Mini Mart

Title (if other than individual applicant): Manager - Heath Oil Co.

Date: _____

by AGENT:



(authorized representative signature)

Name: Gary Cribbs

Title (if other than individual agent): Principal - Cribbs & Associates, Inc.

Date: _____



RIGHT OF ENTRY AGREEMENT

Executed Date: _____

(Department will enter date)

Seneca Boro., Cranberry Twp. Township

Venango County

S.R. 257

Agreement No.: _____

Federal ID No: 25-1495150

THIS RIGHT OF ENTRY AGREEMENT is made by and between the Commonwealth of Pennsylvania, acting through the Department of Transportation (hereinafter "Department")

and

Harper Oil Company. (hereinafter "Applicant"),
a corporation doing business in Pennsylvania with its office at:

P.O. Box 1128

Oil City, PA 16301

WITNESSETH:

WHEREAS, Applicant owns, or owned, or is otherwise responsible for property located along State Route (S.R.) 257 in Cranberry Township, Venango County, where liquids, materials or other substances may have been released that may have impacted soil or groundwater.

WHEREAS, Applicant wishes to conduct an environmental investigation or remediation, which may include the installation of groundwater monitoring wells and/or other devices, to determine the nature and extent of any impacts to soil or groundwater and conduct periodic monitoring and sampling of the well(s); and,

WHEREAS, Applicant has provided the Department with a work plan for the activities planned to investigate or remediate the possible impacts to soil or groundwater; and

WHEREAS, Applicant has requested that the Department permit Applicant, its employees, agents, representatives and contractors to enter the State highway right-of-

way for the purpose of performing the environmental investigation and sampling activities; and,

WHEREAS, the Department requires that such use of the State highway right-of-way be subject to a written right of entry; and,

WHEREAS, the parties agree that, to the best of their current knowledge, the Department has done nothing to cause the possible impacts to soil or groundwater, has no liability for any damages caused by the possible impacts, and is allowing the use of the State highway right-of-way by Applicant because Applicant has no other reasonable means of access to investigate the possible impacts.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties, intending to be legally bound, agree as follows:

1. Recitals. The above recitals are incorporated into and made an integral part of this Agreement.
2. Right of Entry. The Department shall grant Applicant, its employees, agents, representatives, and contractors a right of entry to the State highway right-of-way consistent with the terms and conditions of this Agreement. The Department shall be notified at least forty-eight (48) hours before Applicant begins any work within the right-of-way, and Applicant, its employees, agents, representatives, or contractors shall not interfere with Department operations.
3. Work Plan. All work within the State highway right-of-way shall be performed in accordance with the work plan provided to the Department. The work plan may be amended only upon written consent of the Department. For purposes of this paragraph written consent of the Department may be provided by the District Executive or such other Department employee as designated by the District Executive.
4. Traffic. Applicant shall develop a maintenance and protection of traffic plan in accordance with 67 Pa. Code Chapter 212 and shall take all appropriate measures to protect traffic while working within the State highway right-of-way.
5. Device Maintenance. Applicant shall, at its sole cost and expense, design and maintain all monitoring wells or other devices installed in the State highway right-of-way so that they are not a traffic hazard, to the satisfaction of the Department.
6. Term. The right of entry granted by the Department pursuant to this Agreement shall run for an initial term of one (1) year, commencing upon the date Applicant begins using the State highway right-of-way, with two automatic renewals for an additional year each upon Applicant's written notice. This term may be extended further only by written consent of the Department upon Applicant's written request. For purposes of this paragraph written consent of the Department may be provided by the District Executive or such other Department employee as designated by the District Executive.

7. Compliance with Law. Applicant shall comply with all federal, state, and local laws, regulations, and ordinances in the conduct of its operations within the State highway right-of-way.

8. Documentation. Applicant shall provide any and all non-privileged documentation requested by the Department regarding the construction, operation or maintenance of any part of its environmental investigation, including but not limited to all documentation related to compliance with federal, state, and local laws, regulations, and ordinances within seven (7) days of the request by the Department. Applicant shall permit the Department representatives to oversee the environmental investigation within the State highway right-of-way.

9. Notices of Violation. If Applicant is notified by any federal, state, or local agency that it is not in full compliance with any federal, state, or local law, regulation, or ordinance, associated with the construction, operation or maintenance of any part of its environmental investigation, Applicant shall immediately correct any such violation or deficiency and shall cease all operations until Applicant is in full compliance. Applicant shall provide the Department with written notice of any such notification.

10. Laboratory Results. Applicant, at no cost to the Department, shall promptly provide the Department with copies of all laboratory results and reports compiled by its employees, agents, representatives, or contractors relating to the environmental investigation that show the condition of the soil and the groundwater beneath the State highway right-of-way, the extent of any impacts to the soil or groundwater, or that detail any activity performed by Applicant under this Agreement.

11. Costs. All costs incurred with regard to any activities conducted by Applicant, its employees, agents, representatives, and contractors pursuant to this Agreement shall be borne solely by Applicant without contribution by the Department.

12. Insurance and Indemnification. A. Applicant and its contractor shall provide the Department with a certificate of insurance evidencing coverage of injury, death, or property damage from any or all causes which may arise out of its presence on the State highway right-of-way in the minimum amounts of two-hundred-fifty-thousand dollars (\$250,000.00) per person and one-million dollars (\$1,000,000.00) per occurrence. The Commonwealth of Pennsylvania and the Department shall be named as additional insureds on these policies.

B. Applicant or its contractor shall provide the Department with a certificate of insurance evidencing coverage for any environmental and pollution damage which may arise out of its presence on the State highway right-of-way in the minimum amount of one million dollars (\$1,000,000.00). The Commonwealth of Pennsylvania and the Department shall be named as additional insureds on this policy.

C. Applicant shall fully indemnify the Commonwealth from any and all liability, loss, or damage that the Commonwealth, its officers, agents and employees may suffer as a result of any and all claims, demands, costs, or judgments of any type

made against the Commonwealth as a result of granting this Agreement, including, but not limited to, fines, penalties, claims, demands, costs, or judgments arising from the presence of Applicant, its contractor(s) and/or their officers, agents, and employees or others on the State highway right-of-way or any work or other actions taken by any of them pursuant to or in violation of this Agreement, or as a result of any failure of any of them to conform to all pertinent statutes, ordinances, regulations, or other requirements of any governmental authority in connection with this Agreement. This provision is intended to include claims, demands, costs or judgments resulting from a negligent act or omission of the Commonwealth, its officers, agents, and employees with respect to this Agreement or the subject thereof unless such negligent act or omission is solely attributable to the Commonwealth. Applicant waives any immunity from liability to the Commonwealth from damages, contribution or indemnity provided by Section 303 of the Worker's Compensation Act, Act of June 2, 1915, P.L. 736, as amended, 77 P.S. §481. This indemnification is not limited by, but is in addition to, the security and insurance obligations contained in this Agreement. IT IS THE INTENT OF THIS PROVISION TO ABSOLUTELY ABSOLVE AND PROTECT THE COMMONWEALTH, ITS OFFICERS, AGENTS, AND EMPLOYEES FROM ANY AND ALL LOSS BY REASON OF THIS AGREEMENT EXCEPT FOR THOSE ACTS OR OMISSIONS SOLELY ATTRIBUTABLE TO THE COMMONWEALTH.

D. Applicant agrees to defend (if requested) the Commonwealth, its officers, agents and employees, against any and all claims brought or actions filed against the Commonwealth, either as an original or an additional defendant, with respect to the subject of the indemnity contained herein, whether such fines, penalties, claims or actions are rightfully or wrongfully brought or filed. Applicant hereby waives any and all rights to join the Commonwealth as an additional defendant in any actions arising as a result of the grant of this Agreement.

E. Notwithstanding the foregoing provisions, Applicant agrees that the Department may, at its own expense, employ attorneys of its own selection to appear and defend any claims or actions on behalf of the Department.

F. Any insurance requirement imposed by this paragraph 12 may be satisfied by evidence of alternative coverage in a form acceptable to the Department. Applicant shall maintain, and cause its contractor to maintain, the insurance or alternative coverage required by this paragraph 12 until Applicant restores the State highway right-of-way pursuant to paragraph 15. Applicant and its contractor shall provide the Department with certificates of insurance evidencing continued coverage upon request.

13. Utilities. Applicant shall assume full responsibility for involved utility facilities as provided by Act of December 10, 1974 (P.L. 852, No. 287) (73 P.S. 176-182), as amended, concerning protection of the public health and safety by preventing excavation or demolition from damaging underground utility facilities.

14. Vehicles. Applicant shall be solely responsible for any vehicles left on the State highway right-of-way by Applicant, its employees, agents, representatives or contractors for any period of time during the term of this Agreement and shall be solely responsible for protecting said vehicles from any type of damage or theft.

15. Restoration of Right-of-Way. A. Upon termination of the right of entry granted by the Department pursuant to this Agreement and any extension thereof, Applicant shall restore the State highway right-of-way to its condition prior to entry, and shall ensure that any contamination and pollution is cleaned up in a manner satisfactory to the Pennsylvania Department of Environmental Protection.

B. If Applicant, its employees, agents, representatives, or contractors damage the State highway right-of-way (where damage means any change to the State highway right-of-way including but not limited to leaving any items on or in the State highway right-of-way, changing any contour of the State highway right-of-way, adding any material, pollutant, or contaminant to the State highway right-of-way by spillage, leaking or by any method), Applicant shall restore any affected portion of the State highway right-of-way to the condition in which Applicant found it at the commencement of Applicant's use of the State highway right-of-way within one (1) month after the termination of the right of entry granted by the Department pursuant to this Agreement. This requirement shall include closing, capping or otherwise removing any monitoring wells or other devices installed by Applicant from the State highway right-of-way in accordance with Pennsylvania Department of Environmental Protection regulations and guidance.

C. Applicant shall provide the Department with security in the amount of See attached USTIF Claim Eligibility Letter dollars (\$) in the form of a money order from the United States Postal Service, a certified check with no expiration date, an irrevocable letter of credit, or other security in a form acceptable to the Department, to guarantee compliance with this Agreement and proper restoration of the State highway right-of-way. This security shall remain in force for two (2) years after the Department's acknowledgement of restoration of the State highway right-of-way. Other security acceptable to the Department may include a written statement from the Underground Storage Tank Indemnification Fund that Applicant has a claim for the site that is eligible for reimbursement at 100% of eligible expenses.

16. Enforcement Expense. Applicant agrees to reimburse the Department for any necessary expenses, attorneys' fees, or costs incurred in the enforcement of any part of this Agreement within ninety (90) days after receiving written notice that the Department has incurred them.

17. Property of Others. This Agreement shall not be considered to be authorization to Applicant or its contractors to encroach on the property of others. If Applicant must enter upon land situated outside the Department's right-of-way that is owned by a third party, Applicant shall, at its own expense, secure any necessary

authorization, release, or right of entry. Applicant shall be required to provide evidence of permission to enter upon an abutting or adjoining property owner's land, if requested by the Department.

18. Right to Know Law. The Pennsylvania Right-to-Know Law, 65 P.S. §§ 67.101 – 3104, applies to this Agreement. Therefore, this Agreement is subject to, and the Applicant shall comply with, the clause entitled Contract Provisions – Right to Know Law 8-K-1532, attached as Exhibit "A" and made a part of this Agreement. As used in this Agreement, the term "Contractor" refers to the Applicant.

19. Amendments and Modifications. This Agreement constitutes the entire Agreement between the parties and may not be modified or amended except in writing, and the rights and obligations hereunder may not be transferred or assigned without the prior written consent of the parties hereto.

20. Titles Not Controlling. Titles of paragraphs are for reference only, and shall not be used to construe the language in this Agreement.

21. Assignment. This Agreement may not be assigned by the Applicant, either in whole or in part, without written consent of the Commonwealth.

22. Severability. The provisions of this Agreement shall be severable. If any phrase, clause, sentence or provision of this Agreement is declared to be contrary to the Constitution of Pennsylvania or of the United States or of the laws of the Commonwealth the applicability thereof to any government, agency, person or circumstance is held invalid, the validity of the remainder of this Agreement and the applicability thereof to any government, agency, person or circumstance shall not be affected thereby.

23. Applicable Law. This Agreement shall be interpreted and construed under the laws of the Commonwealth of Pennsylvania.

24. No Waiver. Any party may elect not to enforce its rights and remedies under this Agreement in the event of a breach by the other party or parties of any term or condition of this Agreement. In any event, the failure by any party to enforce its rights and remedies under this Agreement shall not be construed as a waiver of any subsequent breach of the same or any other term or condition of this Agreement.

25. Independence of the Parties. It is understood by and between the parties that nothing contained herein is intended or shall be construed to, in any respect, create or establish the relationship of partners between the Applicant and the Department, or as constituting the Department as the representative or general agent of the Applicant for any purpose whatsoever.

26. Third Party Beneficiary Rights. The parties to this Agreement understand that this Agreement does not create or intend to confer any rights in or on persons or entities not a party to this Agreement.

27. Notices. All notices and reports to the Department arising out of, or from, the provisions of this Agreement shall be in writing and given to the District Executive, or such other Department employee as designated by the District Executive, either by

regular mail, facsimile, e-mail or delivery in person at the address available on the Department website for the Engineering District in which the work is located. Notices and reports arising out of, or from, the provisions of this Agreement may be provided to Applicant through the Applicant's consultants or contractors, and receipt by such consultants or contractors shall be receipt by Applicant, unless Applicant notifies the Department otherwise.

28. Force Majeure. Neither party shall be liable for failure to perform under this Agreement if such failure to perform arises out of causes beyond the control and without the fault or negligence of the nonperforming party. Such causes may include, but are not limited to, acts of God or the public enemy, fires, floods, epidemics, quarantine restrictions, freight embargoes and unusually severe weather. This provision shall become effective only if the party failing to perform immediately notifies the other party of the extent and nature of the problem, limits delay in performance to that required by the event, and takes all reasonable steps to minimize delays. This provision shall not be effective unless the failure to perform is beyond the control and without the fault or negligence of the nonperforming party.

29. Integration and Merger. This Agreement, when executed, approved and delivered, shall constitute the final, complete and exclusive Agreement between the parties containing all the terms and conditions agreed on by the parties. All representations, understandings, promises and agreements pertaining to the subject matter of this Agreement made prior to or at the time this Agreement is executed are superseded by this Agreement unless specifically accepted by any other term or provision of this Agreement. There are no conditions precedent to the performance of this Agreement except as expressly set forth herein,

30. Effective Date. This Agreement shall not be valid, and no work shall commence, until it is fully executed and approved by both parties, the Office of General Counsel and the Office of Attorney General.

[THE REMAINDER OF THIS PAGE INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the parties have executed this Agreement the date first above written.

ATTEST
COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Pamela D Winger, Notary Public
BY Cranberry Twp., Venango County
Name: My Commission Expires Sept. 13, 2019 DATE 10-12-17
Title: Secretary

APPLICANT

BY Andrew A. Restaino
Name: Andrew A. Restaino DATE 10-12-17
Title: V.P.

If a Corporation, the President or Vice-president must sign and the Secretary, Treasurer, Assistant Secretary or Assistant Treasurer must attest; if a sole proprietorship, only the owner must sign; if a partnership, only one partner need sign; if a limited partnership, only the general partner must sign. If a Municipality, Authority or other entity, please attach a resolution.

DO NOT WRITE BELOW THIS LINE – FOR COMMONWEALTH USE ONLY

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

BY _____
Name: _____ DATE _____
Title: _____

APPROVED AS TO LEGALITY AND FORM

BY _____
for Chief Counsel Date _____
BY _____
Deputy General Counsel Date _____
BY _____
Deputy Attorney General Date _____

FUNDS COMM'NT DOC. NO. _____
CERTIFIED FUNDS AVAILABLE
UNDER SAP NO. _____
SAP COST CENTER _____
ACCOUNT _____

BY _____
for Comptroller Date _____

Exhibit A

Contract Provisions – Right to Know Law 8-K-1532

- a. The Pennsylvania Right-to-Know Law, 65 P.S. §§ 67.101-3104, ("RTKL") applies to this Contract. For the purpose of these provisions, the term "the Commonwealth" shall refer to the contracting Commonwealth agency.
- b. If the Commonwealth needs the Contractor's assistance in any matter arising out of the RTKL related to this Contract, it shall notify the Contractor using the legal contact information provided in this Contract. The Contractor, at any time, may designate a different contact for such purpose upon reasonable prior written notice to the Commonwealth.
- c. Upon written notification from the Commonwealth that it requires the Contractor's assistance in responding to a request under the RTKL for information related to this Contract that may be in the Contractor's possession, constituting, or alleged to constitute, a public record in accordance with the RTKL ("Requested Information"), the Contractor shall:
 - 1. Provide the Commonwealth, within ten (10) calendar days after receipt of written notification, access to, and copies of, any document or information in the Contractor's possession arising out of this Contract that the Commonwealth reasonably believes is Requested Information and may be a public record under the RTKL; and
 - 2. Provide such other assistance as the Commonwealth may reasonably request, in order to comply with the RTKL with respect to this Contract.
- d. If the Contractor considers the Requested Information to include a request for a Trade Secret or Confidential Proprietary Information, as those terms are defined by the RTKL, or other information that the Contractor considers exempt from production under the RTKL, the Contractor must notify the Commonwealth and provide, within seven (7) calendar days of receiving the written notification, a written statement signed by a representative of the Contractor explaining why the requested material is exempt from public disclosure under the RTKL.
- e. The Commonwealth will rely upon the written statement from the Contractor in denying a RTKL request for the Requested Information unless the Commonwealth determines that the Requested Information is clearly not protected from disclosure under the RTKL. Should the Commonwealth determine that the Requested Information is clearly not exempt from disclosure, the Contractor shall provide the Requested Information within five (5) business days of receipt of written notification of the Commonwealth's determination.

f. If the Contractor fails to provide the Requested Information within the time period required by these provisions, the Contractor shall indemnify and hold the Commonwealth harmless for any damages, penalties, costs, detriment or harm that the Commonwealth may incur as a result of the Contractor's failure, including any statutory damages assessed against the Commonwealth.

g. The Commonwealth will reimburse the Contractor for any costs associated with complying with these provisions only to the extent allowed under the fee schedule established by the Office of Open Records or as otherwise provided by the RTKL if the fee schedule is inapplicable.

h. The Contractor may file a legal challenge to any Commonwealth decision to release a record to the public with the Office of Open Records, or in the Pennsylvania Courts, however, the Contractor shall indemnify the Commonwealth for any legal expenses incurred by the Commonwealth as a result of such a challenge and shall hold the Commonwealth harmless for any damages, penalties, costs, detriment or harm that the Commonwealth may incur as a result of the Contractor's failure, including any statutory damages assessed against the Commonwealth, regardless of the outcome of such legal challenge. As between the parties, the Contractor agrees to waive all rights or remedies that may be available to it as a result of the Commonwealth's disclosure of Requested Information pursuant to the RTKL.

i. The Contractor's duties relating to the RTKL are continuing duties that survive the expiration of this Contract and shall continue as long as the Contractor has Requested Information in its possession.



APPLICATION FOR HIGHWAY OCCUPANCY PERMIT

Appl. No.

FOR DEPT. USE

INSTRUCTIONS ON REVERSE

ENGINEERING DISTRICT 01-0

Applicant/Owner Mr. Andy Restauri - Heath Oil / Seneca Mini Mart	
Address 5821 US ROUTE 322, VICTORY HEIGHTS,	
Post Office FRANKLIN,	Zip Code 16323
Phone (814) 432-3197	*Permit will be sent via e-mail if a valid e-mail address is provided.
Email* arestauri@heathoilinc.com	

	Application	Inspection 1	Inspection 2	Inspection 3
441/459 Ref. No.				
Unit Fee	X			
Number of Units	1			
Item Fee				
Permit Fee \$ _____				
Account No. _____				
Check or Money Order No. _____				

County VenangoMunicipality Seneca, Cranberry Twp.Date work is scheduled to begin 10/31/2017Approximate date when work will be completed 09/30/2018If utility: Opening over 36 sq. ft. along and/or across highway _____ FT. _____ FT. 2,100 sq. FT.
(IN PAVEMENT) (IN SHOULDER) (OUTSIDE SHOULDER)If utility: ☐ Installation ☐ Emergency Repair - E.P.C. No. _____ Entry No. _____ ☐ Repair ☐ Replace ☐ Service Connection or Disconnection ☐ RemovalIf driveway: Anticipated average daily traffic: ADT cars _____ ADT trucks _____ ADT buses _____ TOTAL ADT 0Is any portion of the property reserved for a person with a disability or a severely disabled veteran? ☐ Yes ☐ No

STATE ROUTE LOCATION

DESCRIPTION OF PROPOSED WORK

S.R.	257	Install 1 flush-mount monitoring well in center left turn lane, opening less than 4 sq. ft. (duration = 1/2 day); Install eight 2-inch in diameter Geoprobe soil borings in shoulder and ROW beyond shoulder (duration = 1 day), drilling/sampling to be done once permit is obtained, fall 2017 (see attached work summary).	DEPARTMENT USE ONLY
Segment	0050		
Offset(s)	1600'-1800'		
S.R.	257	Soil remediation excavation 4,200 sq. ft. total, approx. 2,100 sq. ft. in ROW the rest is on private property. (duration = 3-5 days) Soil remediation excavation to be conducted during the summer of 2018, (see attached work summary).	
Segment	0050		
Offset(s)	1600'-1800'		
S.R.	257	Random systematic soil sampling-if needed Collect 12 Geoprobe soil samples from an area of approximately 4,200 sq. ft. in shoulder, northbound, and center turning lanes, sequentially not simultaneously, 2-3 weeks after soil remediation excavation completed. (duration = 1-2 days) (see attached work summary).	
Segment	0050		
Offset(s)	1600'-1800'		
S.R.			
Segment			
Offset(s)			

The Applicant is (an individual) (a corporation) (a partnership) (a limited liability corporation) (a governmental organization)

DATE SIGNED: 09/22/2017 PRINT APPLICANT'S NAME Mr. Andy Restauri - Heath Oil / Seneca Mini MartWITNESS OR ATTEST [Signature] SIGNED BY Andy RestauriTITLE OF SIGNATOR Consultant TITLE OF SIGNATORY V.P.

Under and subject to all the conditions, restrictions and regulations prescribed by the Pennsylvania Department of Transportation (see in particular 67 PA Code, Chapters 212, 441 and 459, and Publications 212 and 213) and on the issued Permit, Form M-945P, and attachments thereto. The applicant certifies that this application, information and documentation therein or required by the Department is accurate, pursuant to 18 PA C.S. §4904 relating to false swearing to authorities, and that it has or will have all insurance and other security required by the Department prior to performing any work authorized by the Permit.

PRINT NAME OF APPLICANT'S CONSULTANT(s) Cribbs & Associates, Inc. PHONE (888) 316-0211 EMAIL gcribbs@cribbsandassociates.comPRINT CONTACT PERSON'S NAME Gary Cribbs PHONE (724) 454-2310 EMAIL gcribbs@cribbsandassociates.com

Application Received By _____ (SIGNATURE) _____ (DATE)

DEPARTMENT USE ONLY

Attachment B
Traffic Control Measures PATA 101, PATA 121, and PATA 209

PATA 101 (Old PATA 5) - Notes

1. The shadow vehicle and traffic control devices are not required if the work space is outside the highway right-of-way, behind barrier, more than 2' behind curb, or 15' or more from the edge of any roadway.
2. For operations of 60 minutes or less, all traffic control devices may be eliminated if a shadow vehicle is present.
3. For divided highways and one-way highways where it is physically possible, advance warning signs should also be placed on the left-hand side of the roadway.
4. When a shadow vehicle is not used, distance A is measured from the Road Work (W20-1) sign location to beginning of work space.

Signs



W20-1

Sign Spacing Chart

Condition	Distance			
	A	B	C	F
	Feet	Feet	Feet	Feet
Urban 35 MPH or less	100	100	100	100
Urban Greater than 35 MPH	350	350	350	350
Rural	500	500	500	500

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.

Example: either all "AHEAD" or XXX FEET.

Taper Length Formulas

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

S = Regulatory Speed Limit

W = Width of Offset

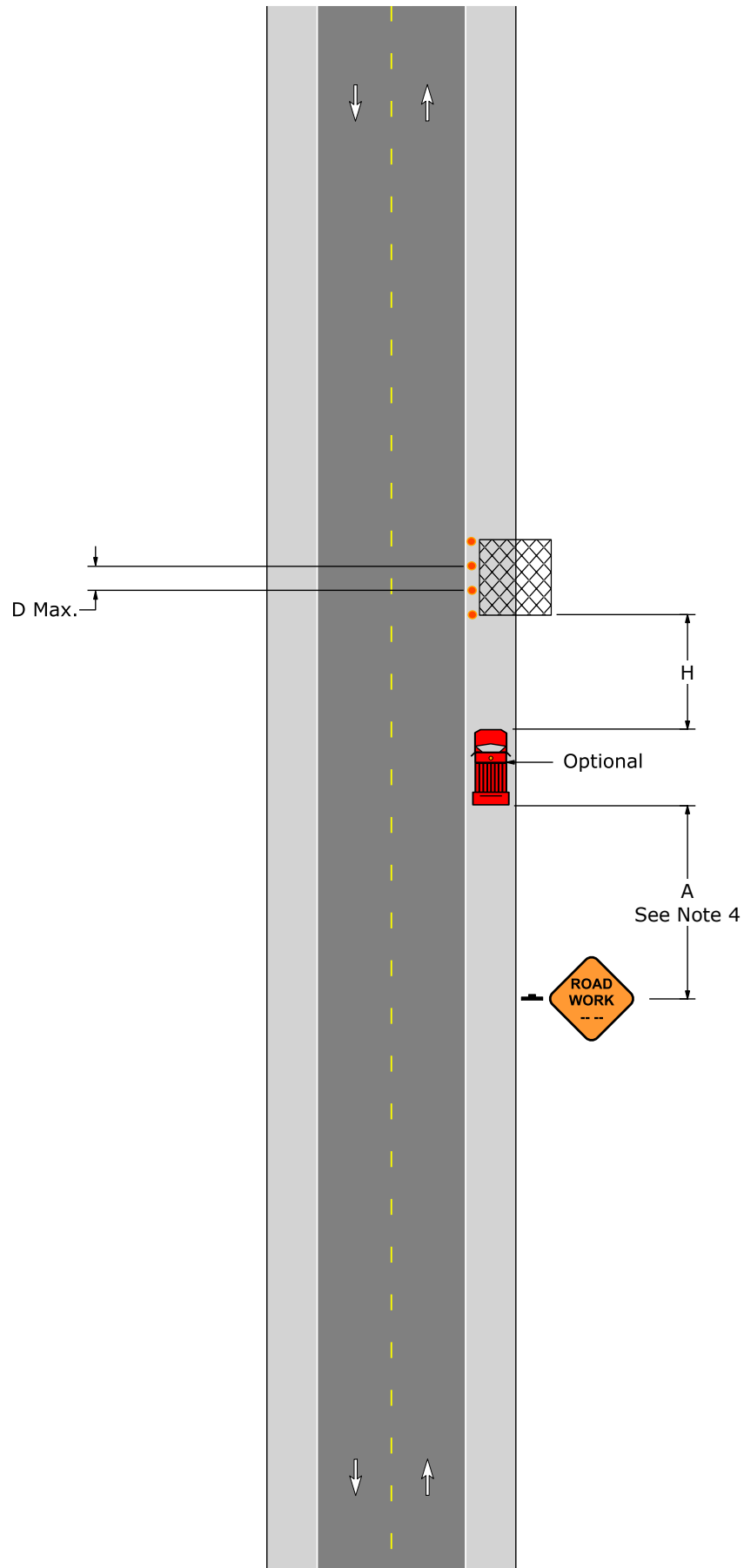
L = Length

Distance and Spacing Quick Reference Chart

Speed	W	L	1/2L	1/3L	Min. Channelizing Devices Per Taper Type (Length)				D	E	H
					L	1/2L	1/3L	50'			
MPH	Feet	Feet	Feet	Feet					Feet	Feet	Feet
25	10	105	55	35	6	6	6	6	50	155	150
	11	115	60	40							
	12	125	65	45							
30	10	150	75	50	6	6	6	6	60	200	150
	11	165	85	55							
	12	180	90	60							
35	10	205	105	70	8	6	6	6	70	250	150
	11	225	115	75							
	12	245	125	85							
40	10	270	135	90	9	6	6	6	80	305	150
	11	295	150	100							
	12	320	160	110							
45	10	450	225	150	13	6	6	6	90	360	150
	11	495	250	165							
	12	540	270	180							
50	10	500	250	170	13	6	6	6	100	425	250
	11	550	275	185							
	12	600	300	200							
55	10	550	275	185	13	6	6	6	110	495	250
	11	605	305	205							
	12	660	330	220							

Note: Channelizing devices used in taper shall be equally spaced at ½ D Max.

PATA 101 (Old PATA 5)
Work Space On Or Beyond The Shoulder (No Roadway Encroachment)



PATA 121 (Old PATA 14) - Notes

1. When a shadow vehicle is not used, distance E is measured from end of taper to beginning of work space.
2. Refer to PATA 008 for reverse curve/turn signing.

Signs



W20-1



W1-4L



W1-4R



W9-3

Sign Spacing Chart

Condition	Distance			
	A Feet	B Feet	C Feet	F Feet
Urban 35 MPH or less	100	100	100	100
Urban Greater than 35 MPH	350	350	350	350
Rural	500	500	500	500

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.

Example: either all "AHEAD" or XXX FEET.

Taper Length Formulas

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

S = Regulatory Speed Limit

W = Width of Offset

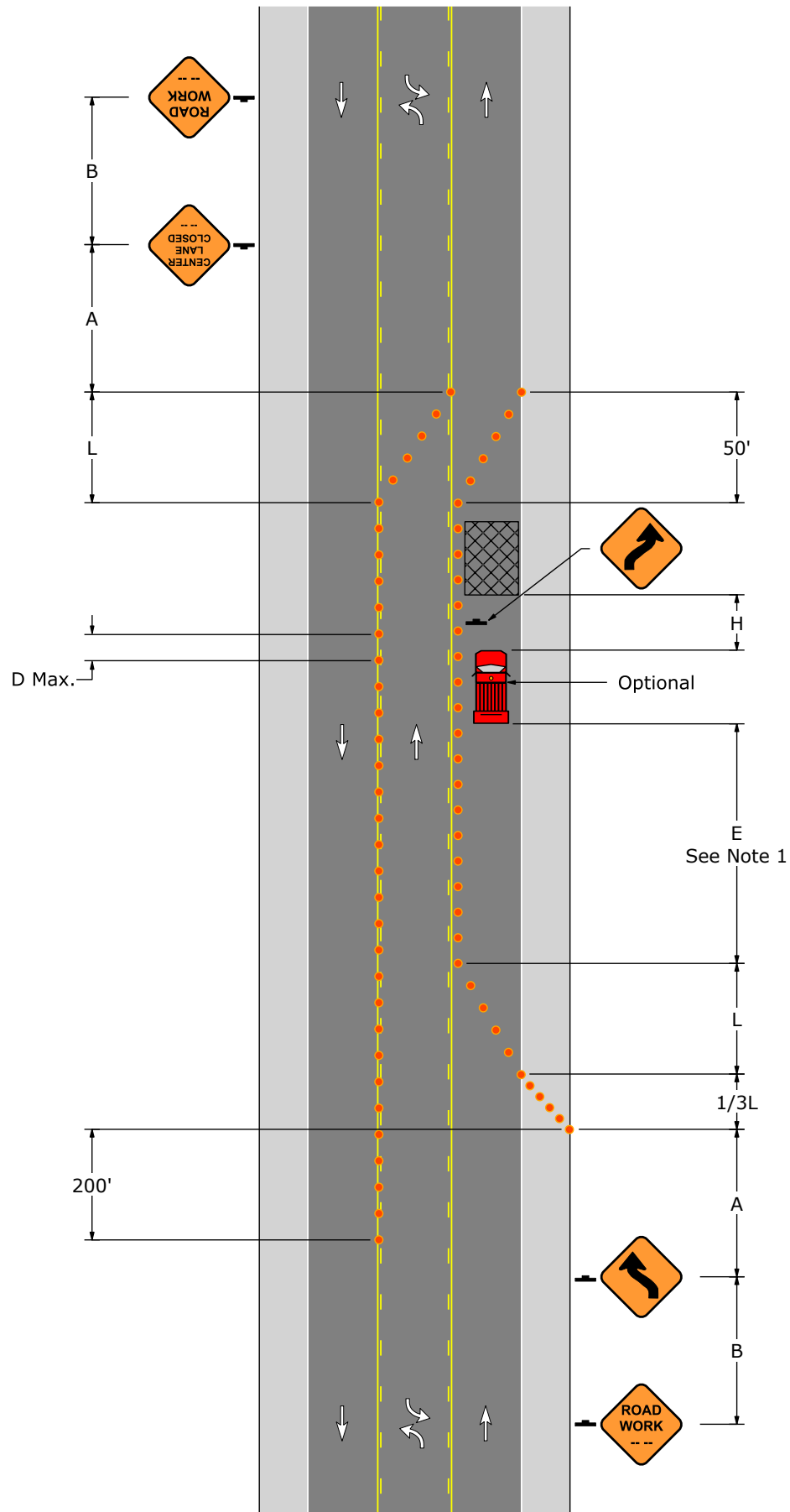
L = Length

Distance and Spacing Quick Reference Chart

Speed MPH	W Feet	L Feet	1/2L Feet	1/3L Feet	Min. Channelizing Devices Per Taper Type (Length)				D Feet	E Feet	H Feet
					L	1/2L	1/3L	50'			
25	10	105	55	35	6	6	6	6	50	155	150
	11	115	60	40							
	12	125	65	45							
30	10	150	75	50	6	6	6	6	60	200	150
	11	165	85	55							
	12	180	90	60							
35	10	205	105	70	6	6	6	6	70	250	150
	11	225	115	75							
	12	245	125	85							
40	10	270	135	90	6	6	6	6	80	305	150
	11	295	150	100							
	12	320	160	110							
45	10	450	225	150	6	6	6	6	90	360	150
	11	495	250	165							
	12	540	270	180							
50	10	500	250	170	6	6	6	6	100	425	250
	11	550	275	185							
	12	600	300	200							
55	10	550	275	185	6	6	6	6	110	495	250
	11	605	305	205							
	12	660	330	220							

Note: Channelizing devices used in taper shall be equally spaced at 1/2 D Max.

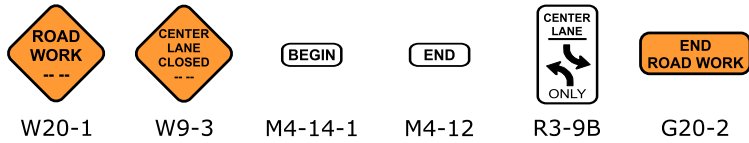
PATA 121 (Old PATA 14)
Single Lane Closure; Traffic Shifted Into Two-Way Left Turn Lane



PATA 209 (Old PATA 30) - Notes

- When a shadow vehicle is not used, distance E is measured from end of taper to beginning of work space.

Signs



Sign Spacing Chart

Condition	Distance			
	A	B	C	F
	Feet	Feet	Feet	Feet
Urban 35 MPH or less	100	100	100	100
Urban Greater than 35 MPH	350	350	350	350
Rural	500	500	500	500

When multiple distance plaques are used on advance warning signs, they shall all be of the same series type.

Example: either all "AHEAD" or XXX FEET.

Taper Length Formulas

S	L
40 MPH or less	$L = \frac{WS^2}{60}$
45 MPH or more	$L = WS$

S = Regulatory Speed Limit

W = Width of Offset

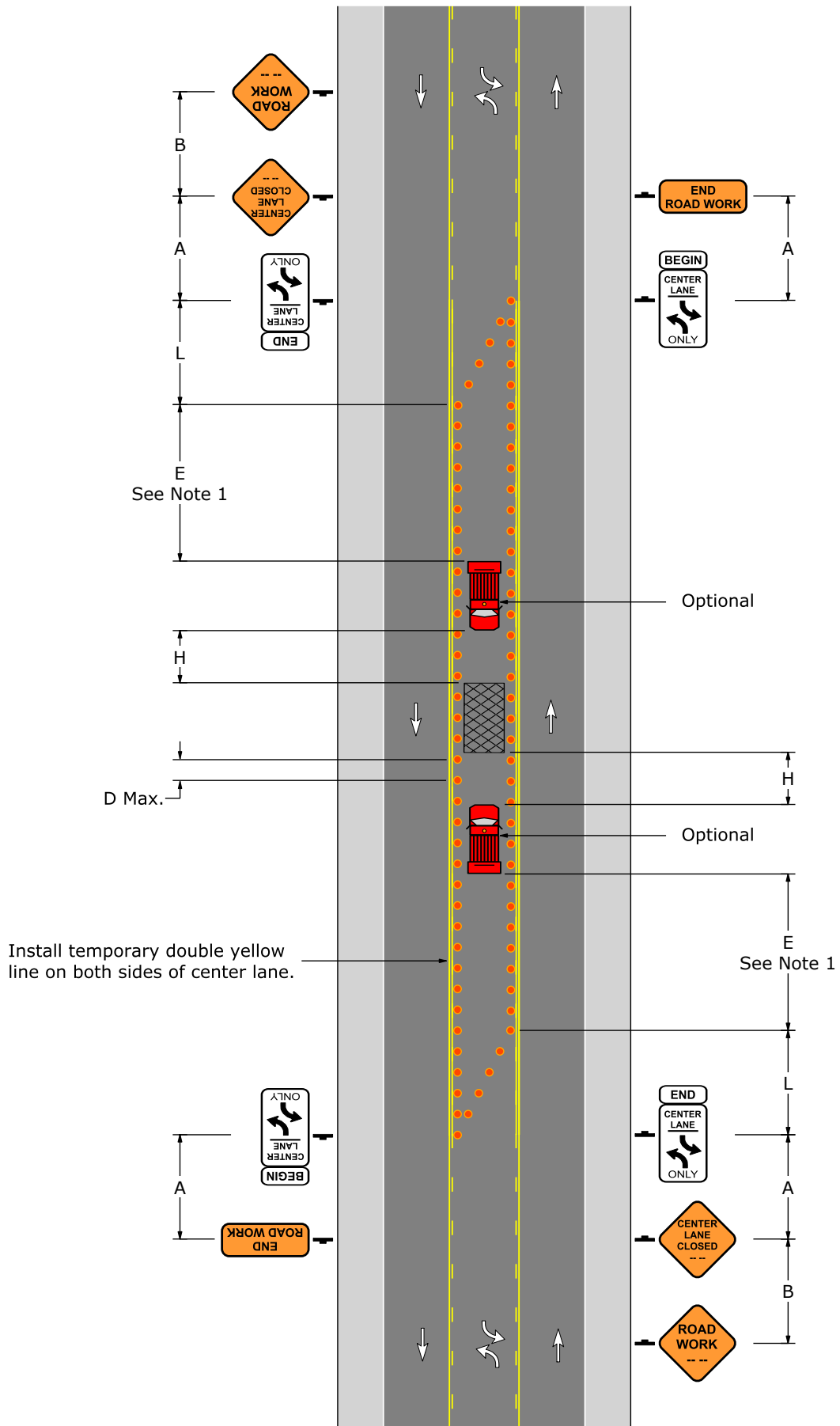
L = Length

Distance and Spacing Quick Reference Chart

Speed	W	L	1/2L	1/3L	Min. Channelizing Devices Per Taper Type (Length)				D	E	H
					L	1/2L	1/3L	50'			
MPH	Feet	Feet	Feet	Feet	L	1/2L	1/3L	50'	Feet	Feet	Feet
25	10	105	55	35	6	6	6	6	50	155	150
	11	115	60	40							
	12	125	65	45							
30	10	150	75	50	6	6	6	6	60	200	150
	11	165	85	55							
	12	180	90	60							
35	10	205	105	70	6	6	6	6	70	250	150
	11	225	115	75							
	12	245	125	85							
40	10	270	135	90	6	6	6	6	80	305	150
	11	295	150	100							
	12	320	160	110							
45	10	450	225	150	6	6	6	6	90	360	150
	11	495	250	165							
	12	540	270	180							
50	10	500	250	170	6	6	6	6	100	425	250
	11	550	275	185							
	12	600	300	200							
55	10	550	275	185	6	6	6	6	110	495	250
	11	605	305	205							
	12	660	330	220							

Note: Channelizing devices used in taper shall be equally spaced at 1/2 D Max.

PATA 209 (Old PATA 30) Work Space In The Two-Way Left Turn Lane



Attachment C
Notice of Reportable Release

NOTIFICATION OF REPORTABLE RELEASE (Owners and Operators)

☒ Initial
☐ Follow-Up

NOTIFICATION OF CONTAMINATION (Certified Installers and Inspectors)

NOTIFICATION OF REPORTABLE RELEASE (Owners and Operators)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish release reporting requirements for owners and operators of storage tanks and storage tank facilities.

Subsection 245.305(a) of the regulations requires owners or operators to notify the appropriate regional office of the Department as soon as practicable, but no later than 24 hours after the confirmation of a reportable release.

Subsection 245.305(d) requires owners or operators to provide an initial written notification to the Department, each municipality in which the reportable release occurred, and each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines, within 15 days of the notice required by subsection 245.305(a).

Subsection 245.305(e) requires owners or operators to provide follow-up written notification to the Department and to each impacted municipality of new impacts to environmental media or water supplies, buildings, or sewer or other utility lines discovered after the initial written notification required by subsection 245.305(d). Written notification is to be made within 15 days of the discovery of the new impact.

This form may be used to comply with subsections 245.305(d) and (e).

OWNERS AND OPERATORS (O/O)

INDICATE IF THIS IS AN INITIAL OR FOLLOW-UP NOTIFICATION BY MARKING THE APPROPRIATE BOX FOUND IN THE TOP RIGHT-HAND CORNER OF THIS FORM. PLEASE COMPLETE ALL INFORMATION IN SECTIONS I, II, IIIA, IIIB, IV, V, VII and VIII.

NOTIFICATION OF CONTAMINATION (Certified Installers and Inspectors)

The Storage Tank Program's Certification regulations establish standards of performance for certified installers and inspectors of storage tanks and storage tank facilities.

Subsection 245.132(a)(4) of the regulations requires certified installers and inspectors to report to the Department a release of a regulated substance or confirmed or suspected contamination of soil, surface or groundwater from regulated substances observed while performing services as a certified installer or inspector.

This form may be used to comply with subsection 245.132(a)(4). Subsection 245.132(a)(4) requires submission of the form within 48 hours of observing suspected or confirmed contamination. Where there is a reportable release, the form may be submitted jointly by the owner, operator, certified installer and certified inspector. In this instance, the form must be received by the appropriate regional office within 15 days of the notice required by subsection 245.305(a).

CERTIFIED INSTALLERS AND INSPECTORS (I/I)
PLEASE COMPLETE ALL INFORMATION IN SECTIONS I, II, IIIA, IIIC, VI, VII and VIII.

INSTRUCTIONS

- I. **FACILITY INFORMATION** - Record the name, I.D. number and physical location (not P.O. Box) of the facility at which a reportable release has been confirmed or at which suspected or confirmed contamination has been observed. Include the name and phone number of a person to contact at the facility.
- II. **OWNER/OPERATOR INFORMATION** - Record the name, business address and telephone number of the owner of the facility identified in Section I. Also, record the name and telephone number of the operator of the facility.
- III. **REGULATED SUBSTANCE INFORMATION** - Indicate to the best of your knowledge: A) the type of product or products involved; B) the quantity of product or products released; and C) whether the contamination is suspected or confirmed.
- IV. **REPORTABLE RELEASE INFORMATION** - Record the date of confirmation of the reportable release, e.g., "9/18/01"; the date and regional office notified; and the date the local municipality(ies) [provide name of municipality(ies)] was/were sent a copy of this form. Indicate to the best of your knowledge the source/cause of the release, how the release was discovered and the environmental media affected and impacts.
- V. **INTERIM REMEDIAL ACTIONS** - Indicate the interim remedial actions planned, initiated or completed.
- VI. **SUSPECTED/CONFIRMED CONTAMINATION INFORMATION** - Record the date of observation of the suspected or confirmed contamination, e.g., "11/24/01". Indicate to the best of your knowledge the indications of a suspected release or extent of confirmed contamination resulting from the release of the regulated substance.
- VII. **ADDITIONAL INFORMATION** - Provide any additional, relevant, available information concerning the reportable release or suspected or confirmed contamination. Include in this section specific details or problems about the release. For example, if the piping was the source of the release and the cause was corrosion of a metal connector or flexible connector, it is important to include that information here. Use additional 8½" x 11" sheets of paper, if necessary.
- VIII. **CERTIFICATION** - Please print your name, and provide your signature and date of signature. If a certified installer/inspector, provide certification number and company certification number.
- IX. **ATTACHMENT** - If a certified installer/inspector, provide a copy of failed valid tightness test(s), if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:

PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below,
depending on where the FACILITY is located)

Southeast Region
2 East Main Street
Norristown, PA 19401
PHONE: 484-250-5900
FAX: 484-250-5961
Counties
Bucks, Chester, Delaware, Montgomery, Philadelphia

Northeast Region
2 Public Square
Wilkes-Barre, PA 18711-1915
PHONE: 570-826-2511
FAX: 570-820-4907
Counties
Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne, Wyoming

South-central Region
909 Elmerton Avenue
Harrisburg, PA 17110
PHONE: 866-825-0208
FAX: 717-705-4830
Counties
Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York

North-central Region
208 W. Third Street, Suite 101
Williamsport, PA 17701
PHONE: 570-321-6525/327-3636
FAX: 570-327-3420
Counties
Bradford, Cameron, Centre, Clinton, Clearfield, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union

Southwest Region
400 Waterfront Drive
Pittsburgh, PA 15222
PHONE: 412-442-4091/4000
FAX: 412-442-4328
Counties
Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington, Westmoreland

Northwest Region
230 Chestnut Street
Meadville, PA 16335-3481
PHONE: 814-332-6945
800-373-3398
FAX: 814-332-6121
Counties
Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, Warren

I. FACILITY INFORMATION (Both O/O and I/I)		II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)	
Facility Name <u>Seneca Mini Mart</u> Facility I.D. Number <u>61-18854</u> Street Address (P.O. Box not acceptable) <u>3390 State Route 257</u> City <u>Seneca</u> State <u>PA</u> Zip Code <u>16346 -</u> County <u>Venango</u> Municipality <u>Cranberry Township</u> Contact Person <u>Andrew A. Restauri, Agent</u> Telephone Number <u>(814) 437 - 7802</u>		Owner Name <u>Harper Oil Company</u> Address <u>P.O. Box 1128</u> City <u>Oil City</u> State <u>PA</u> Zip Code <u>16301 -</u> Telephone Number <u>(814) 437 - 7802</u> Operator Name <u>Christine Hinzman</u> Telephone Number <u>(814) 437 - 7802</u>	
III. REGULATED SUBSTANCE INFORMATION			
A. Type of Product(s) Involved (Mark All That Apply <input checked="" type="checkbox"/>): Both O/O and I/I	B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply <input checked="" type="checkbox"/>): I/I Only	
Leaded Gasoline <input type="checkbox"/> Unleaded Gasoline <input checked="" type="checkbox"/> Aviation Gasoline <input type="checkbox"/> Kerosene <input type="checkbox"/> Jet Fuel <input type="checkbox"/> Diesel Fuel <input checked="" type="checkbox"/> New Motor Oil <input type="checkbox"/> Used Motor Oil <input type="checkbox"/> Fuel Oil No. 1 <input type="checkbox"/> Fuel Oil No. 2 <input type="checkbox"/> Fuel Oil No. 4 <input type="checkbox"/> Fuel Oil No. 5 <input type="checkbox"/> Fuel Oil No. 6 <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Unknown <input type="checkbox"/> <u>U</u> <u>N</u> <u>K</u> <u>N</u> <u>O</u> <u>W</u> <u>N</u> <u>U</u> <u>N</u> <u>K</u> <u>N</u> <u>O</u> <u>W</u> <u>N</u> <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input checked="" type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input checked="" type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C] <input type="checkbox"/> [S] <input type="checkbox"/> [C]	
IV. REPORTABLE RELEASE INFORMATION (O/O Only)			
Date Reportable Release was Confirmed: <u>9</u> / <u>14</u> / <u>2015</u> m d y		Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified: Date: <u>9</u> / <u>16</u> / <u>2015</u> Municipality <u>Cranberry Township</u> m d y	
Date Owner/Operator Verbally Notified Appropriate Regional Office of Reportable Release and Office Notified: Date: <u>9</u> / <u>14</u> / <u>2015</u> Office <u>Meadville Regional Office</u> m d y		Date: _____ Municipality _____ m d y	
Source (Mark All That Apply <input checked="" type="checkbox"/>):	How Discovered (Mark All That Apply <input checked="" type="checkbox"/>):	Environmental Media Affected and Impacts (Mark All That Apply <input checked="" type="checkbox"/>):	
Tank (DEP Assigned Nos. <u>001/003/004</u>) <input checked="" type="checkbox"/> Piping System (Aboveground Regulated) <input type="checkbox"/> Piping System (Underground Regulated) <input checked="" type="checkbox"/> Piping System (Non-Regulated) <input type="checkbox"/> Dispenser/Dispensing Equipment <input type="checkbox"/> Spill Catchment Basin <input type="checkbox"/> Accident/Natural Disaster <input type="checkbox"/> Submersible Turbine Pump Head/Fittings <input type="checkbox"/> Containment/Sump Failure <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Unknown <input type="checkbox"/>	During Closure <input checked="" type="checkbox"/> Lining Installation <input type="checkbox"/> Routine Leak Detection <input type="checkbox"/> Third Party Inspection <input type="checkbox"/> Tightness Testing Activities <input type="checkbox"/> Visible Product or Odor Reports <input type="checkbox"/> Water in Tank <input type="checkbox"/> Construction <input type="checkbox"/> Upgrade/Repair <input type="checkbox"/> Supply Well Sample Results <input type="checkbox"/> Monitoring Well Sample Results <input type="checkbox"/> Property Transfer <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Unknown <input type="checkbox"/>	Soil <input checked="" type="checkbox"/> Sediment <input type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Bedrock <input type="checkbox"/> Water Supplies <input type="checkbox"/> Vapors/Product in Buildings <input type="checkbox"/> Vapors/Product in Sewer/Utility Lines <input type="checkbox"/> Ecological Receptors <input type="checkbox"/>	
Cause (Mark All That Apply <input checked="" type="checkbox"/>):			
Faulty Installation <input type="checkbox"/> Corrosion <input checked="" type="checkbox"/> Physical/Mechanical Failure <input type="checkbox"/> Spill During Delivery <input type="checkbox"/> Overfill at Delivery <input type="checkbox"/> Vehicle Gas Tank Overfill <input type="checkbox"/> Product Delivery Hose Rupture <input type="checkbox"/> Other (Specify) <input type="checkbox"/> Unknown <input checked="" type="checkbox"/>			

V. INTERIM REMEDIAL ACTIONS (O/O Only)

(Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fire, Explosion and Safety Hazards Mitigated	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Contaminated Soil Excavated	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Free Product Recovered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Supplies Identified and Sampled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Temporary Water Supplies Provided	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

VI. SUSPECTED / CONFIRMED CONTAMINATION INFORMATION (I/I Only)Date of Observation of Suspected/Confirmed Contamination: 9 / 14 / 2015
m d y

Indication of Suspected Contamination (Mark All That Apply ☒):

- Unusual Level of Vapors ☒
- Erratic Behavior of Product Dispensing Equipment ☐
- Release Detection Results Indicate a Release ☐
- Discovery of Holes in the Storage Tank ☐
- Other (Specify) Tank Closure Activities ☒

Extent of Confirmed Contamination (Mark All That Apply ☒):

- Product Stained or Product Saturated Soil or Backfill ☒
- Ponded Product ☐
- Free Product or Sheen on Ponded Water ☐
- Free Product or Sheen on the Ground Water Surface ☐
- Free Product or Sheen on Surface Water ☐
- Other (Specify) ☐

VII. ADDITIONAL INFORMATION (Both O/O and I/I)

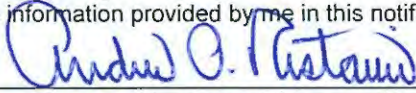
Provide any additional, relevant, available information concerning the reportable release or suspected or confirmed contamination. Include specific details or problems about the release. For example, if the piping was the source of the release and the cause was corrosion of a metal connector or flexible connector, it is important to include that information here. Provide DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½" x 11" sheets of paper, if necessary.

Tank Closure Activities commenced on September 14, 2015. Contaminated soil was detected near tank 001 and 003. Mr. John Koziara verbally notified Susan Frey of the DEP regional office in Meadville, PA of the suspected/confirmed contamination on September 14, 2015. All potentially contaminated soil excavated is contained on 6 mil plastic and segregated. The diesel soil is located near the side of the building and the gasoline soil is located near the rear of the building.

VIII. CERTIFICATION (Both O/O and I/I)

I, Andrew A. Restauri, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.



Signature of Owner or Operator

9 / 16 / 2015

Date

I, John Koziara/Koziara Trucking and Excavating, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.



Signature of Certified Installer

9 / 16 / 2015

Date

2099

Installer Certification Number

417

Company Certification Number

I, _____, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

/ /
Date

Inspector Certification Number

Company Certification Number

Attachment D
Quick Domenico Models – Benzene

Appendix J
Quick Domenico Fate and Transport Modeling
Seneca Mini-Mart
3390 State Route 257
Seneca, Pennsylvania

Project			Seneca Mini Mart
Contaminant and Well ID			Benzene, MW-3
Date	7/26/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	17.8	Highest concentration of Benzene observed in MW-3 during SCR sampling events.
Ax (ft)	Longitudinal dispersivity in the x direction	107	Distance from monitoring well to the unnamed tributary in the direction of groundwater flow.
Ay (ft)	Transverse dispersivity in the y direction	10.7	$Ay = Ax/10$
Az (ft)	Vertical dispersivity in the z direction	1.07	$Az = Ax/100$
Lambda	First order decay constant	0.000959	See Appendix A , Table 5 of the Act 2 Regulations
Source Width (ft)	Width of contaminated soil.	70	Width of contaminated soils under dispenser islands perpendicular to groundwater flow direction.
Source Thickness (ft)	Thickness of contaminated soil.	6	Thickness of contaminated soils under dispenser islands.
Time (Days)	Time since release in days.	See sheet	Time since release in days, presented in five year increments (5, 10, 15, 20, 25 and 30 years).
Hydraulic Cond. (ft/day)	Hydraulic Conductivity	1.104	Shallow hydraulic conductivity equals the geometric mean of the slug tests (Rising Head and Falling Head) conducted on selected monitoring wells (MW-1, MW-2, and MW-4) at the Site.
Hydraulic Gradient (ft/ft)	Hydraulic Gradient	0.079	Maximum gradient measured between high groundwater elevation MW-3 and MW-12 June 12, 2017.
Effective Porosity (decimal fraction)	Estimated Effective Porosity θ	0.35	Estimated range of silt from Groundwater (Freeze & Cherry)
Soil Bulk Density (g/cm ³)	Soil Bulk Density	1.7225	2.65 - (2.65 X Effective porosity)
KOC	Organic Carbon Partition Coefficient	58	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

Appendix J

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart

3390 State Route 257

Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY AND RETARDATION - WITH CALIBRATION TOOL									
Project:		Seneca Mini Mart		Benzene, MW-3		Benzene, MW-3			
Date:		7/26/2017		Prepared by: RRB		Contaminant: Benzene, MW-3			
SOURCE		Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	THICKNESS	Time (days)
CONC		(ft)	(ft)	(ft)	day-1	(ft)	(ft)	(ft)	(days)
(MG/L)				>=.001					
17.8		1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	1825	
Hydraulic		Hydraulic		Soil Bulk		Frac.		Retard-	
Cond		Gradient		Density		KOC		ation	
(ft/day)		(ft/ft)		(g/cm ³)		(dec. frac.)		(R)	
1.10E+00		0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.10266443	
<p>NEW QUICK_DOMENICO.XLS</p> <p>SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES"</p> <p>P.A. Domenico (1987)</p> <p>Modified to Include Retardation</p>									
Point Concentration		x(ft)		y(ft)		z(ft)			
107		10.7		1.07					
Conc. At		x(ft)		y(ft)		z(ft)			
at		107		10.7		0			
		1825 days =				1.455		mg/l	
AREAL CALCULATION		MODEL DOMAIN		Length (ft)		Width (ft)			
250		0.000		0.000		0.001		0.001	
125		0.056		0.095		0.069		0.008	
0		2.273		0.728		0.283		0.017	
-125		0.056		0.095		0.069		0.008	
-250		0.000		0.000		0.001		0.001	
Field Data:		Centerline C Concentration		17.8		0.0025		0.001	
Distance from Source		0		85					
Centerline Plot (linear)		Centerline Plot (log)							

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart

3390 State Route 257

Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY AND RETARDATION - WITH CALIBRATION TOOL									
Project: Seneca Mini Mart		RRB Benzene, MW-3							
Date:	7/26/2017	Prepared by: Contaminant:		Benzene, MW-3					
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft)	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days)		
17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	5475		
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Density (g/cm ³)	KOC	Frac. Org. Carb.	Retardation (R)	V (=K*/ln*R) (ft/day)		
1.10E+00	0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.10266443		
<div>NEW QUICK_DOMENICO.XLS</div> <div>SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES"</div> <div>P.A. Domenico (1987)</div> <div>Modified to Include Retardation</div>									
Point Concentration									
x(ft)	y(ft)	z(ft)							
107	10.7	1.07							
Conc. At	x(ft)	y(ft)	z(ft)						
at	107	10.7	0						
	5475 days =	1.547 mg/l							
AREAL CALCULATION									
MODEL Length (ft)	Width (ft)	DOMAIN							
250	0.000	0.001							
125	0.058	0.106							
0	2.380	0.807							
-125	0.058	0.106							
-250	0.000	0.001							
Field Data: Centerline C Concentration									
Distance from Source									
Centerline Plot (linear)									
Centerline Plot (log)									

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart

3390 State Route 257

Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL												
Project: Seneca Mini Mart		RRB Benzene, MW-3			Benzene, MW-3			NEW QUICK_DOMENICO.XLS				
Date: 7/26/2017		Prepared by: RRB			Benzene, MW-3			SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation				
		Contaminant:										
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft)	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days)					
17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	9125					
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Density (g/cm ³)	KOC	Frac. Org. Carb. (R)	Retard-ation (R)	V (=K*/ln*R) (ft/day)					
1.10E+00	0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.10266443					
Point Concentration												
x(ft)	y(ft)	z(ft)										
107	10.7	1.07										
Conc. At	x(ft)	y(ft)	z(ft)									
at	107	10.7	0									
	9125	days =	1.548									
			mg/l									
AREAL CALCULATION												
MODEL	DOMAIN											
Length (ft)	800											
Width (ft)	250											
	80	240	160									
250	0.000	0.001	0.001	0.002	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001
125	0.058	0.106	0.085	0.057	0.035	0.021	0.021	0.021	0.008	0.005	0.003	0.003
0	2.380	0.808	0.348	0.167	0.085	0.045	0.024	0.024	0.013	0.008	0.004	0.004
-125	0.058	0.106	0.085	0.057	0.035	0.021	0.021	0.021	0.008	0.005	0.003	0.003
-250	0.000	0.000	0.001	0.002	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001
Field Data:	Centerline C Concentration			17.8	0.0025	0	0	0	0	0	0	0
	Distance from Source			0	85	0	0	0	0	0	0	0

Appendix J

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart

3390 State Route 257

Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY AND RETARDATION - WITH CALIBRATION TOOL									
Project:		Seneca Mini Mart		Benzene, MW-3		Benzene, MW-3			
Date:		7/26/2017		Prepared by: RRB		Contaminant: Benzene, MW-3			
SOURCE		Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	THICKNESS	Time (days)
CONC		(ft)	(ft)	(ft)	day-1	(ft)	(ft)	(ft)	(days)
(MG/L)				>=.001					
17.8		1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	10950	
Hydraulic		Hydraulic		Soil Bulk		Frac.		Retard-	
Cond		Gradient		Density		KOC		ation	
(ft/day)		(ft/ft)		(g/cm ³)		(dec. frac.)		(R)	
1.10E+00		0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.10266443	
<p>NEW QUICK_DOMENICO.XLS</p> <p>SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES"</p> <p>P.A. Domenico (1987)</p> <p>Modified to Include Retardation</p>									
Point Concentration		x(ft)		y(ft)		z(ft)			
107		10.7		10.7		1.07			
Conc. At		x(ft)		y(ft)		z(ft)			
at		10950		days =		1.548		mg/l	
AREAL CALCULATION		MODEL DOMAIN		Length (ft)		Width (ft)			
250		0.000		0.000		0.001		240	
125		0.058		0.106		0.085		0.002	
0		2.380		0.808		0.348		0.057	
-125		0.058		0.106		0.085		0.002	
-250		0.000		0.000		0.001		0.002	
Field Data:		Centerline C Concentration		17.8		0.0025		0	
Distance from Source		0		85		0		0	
Centerline Plot (linear)		Centerline Plot (log)		560		720		800	
20.00		100.000		0.002		0.001		0.001	
15.00		10.000		0.013		0.005		0.003	
10.00		1.000		0.024		0.008		0.004	
5.00		0.100		0.013		0.005		0.003	
0.00		0.010		0.002		0.001		0.001	
0.00		0.001		0		0		0	
0.00		0.000		0		0		0	

Appendix J
Quick Domenico Fate and Transport Modeling
Seneca Mini-Mart
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Project			Seneca Mini Mart
Contaminant and Well ID			Benzene, MW-3
Date	9/6/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	17.8	Highest concentration of Benzene observed in MW-3 during SCR sampling events.
Ax (ft)	Longitudinal dispersivity in the x direction	107	Distance from monitoring well to the unnamed tributary in the direction of groundwater flow.
Ay (ft)	Transverse dispersivity in the y direction	10.7	$Ay = Ax/10$
Az (ft)	Vertical dispersivity in the z direction	1.07	$Az = Ax/100$
Lambda	First order decay constant	0.000959	See Appendix A , Table 5 of the Act 2 Regulations
Source Width (ft)	Width of contaminated soil.	70	Width of contaminated soils under dispenser islands perpendicular to groundwater flow direction.
Source Thickness (ft)	Thickness of contaminated soil.	6	Thickness of contaminated soils under dispenser islands.
Time (Days)	Time since release in days.	See sheet	Time since release in days, presented in five year increments (1, 2, 3 ,4, 5, 10, 20, and 30 years).
Hydraulic Cond. (ft/day)	Hydraulic Conductivity	0.04677	Shallow hydraulic conductivity equal to the Falling Head measured at monitoring well MW-11 at the Site to explain delay in results at off site wells.
Hydraulic Gradient (ft/ft)	Hydraulic Gradient	0.079	Maximum gradient measured between high groundwater elevation MW-3 and MW-12 June 12, 2017.
Effective Porosity (decimal fraction)	Estimated Effective Porosity θ	0.35	Estimated range of silt from Groundwater (Freeze & Cherry)
Soil Bulk Density (g/cm ³)	Soil Bulk Density	1.7225	2.65 - (2.65 X Effective porosity)
KOC	Organic Carbon Partition Coefficient	58	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart

3390 State Route 257

Seneca, Pennsylvania

[illegible]

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart

3390 State Route 257

Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL											
Project: Seneca Mini Mart		RRB		Benzene, MW-3							
Date: 9/6/2017		Prepared by: RRB		Benzene, MW-3							
		Contaminant:									
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	THICKNESS	Time (days)			
CONC	(ft)	(ft)	(ft)		WIDTH		(ft)	(days)			
(MG/L)			>= .001	day-1							
17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	1095				
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	V				
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*/ln*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm³)		(R)	(R)	(ft/day)				
4.68E-02	0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.004349289				
Point Concentration											
x(ft)	y(ft)	z(ft)									
107	10.7	1.07									
Conc. At	x(ft)	y(ft)	z(ft)								
at	107	10.7	0								
	1095	days =	0.001								
			mg/l								
AREAL		CALCULATION									
MODEL		DOMAIN									
Length (ft)		180									
Width (ft)		125									
	18	54	72	90	108	126	144	162	180		
125	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000		
62.5	0.368	0.207	0.069	0.003	0.000	0.000	0.000	0.000	0.000		
0	4.229	1.021	0.046	0.007	0.001	0.000	0.000	0.000	0.000		
-62.5	0.368	0.207	0.069	0.003	0.000	0.000	0.000	0.000	0.000		
-125	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000		
Field Data:		Centerline C Concentration									
		Distance from Source									

NEW QUICK_DOMENICO.XLS

SPREADSHEET APPLICATION OF
"AN ANALYTICAL MODEL FOR
MULTIDIMENSIONAL TRANSPORT OF A
DECAYING CONTAMINANT SPECIES"

P.A. Domenico (1987)
Modified to Include Retardation

Centerline Plot (linear)

Model Output

Field Data

conc

distance

Centerline Plot (log)

Model Output

Field Data

conc

distance

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart

3390 State Route 257

Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY AND RETARDATION - WITH CALIBRATION TOOL									
Project: Seneca Mini Mart		RRB Benzene, MW-3							
Date:	9/6/2017	Prepared by: Contaminant:		Benzene, MW-3					
SOURCE CONC (MG/L)	Ax (ft)	Ay (ft)	Az (ft)	LAMBDA day-1	SOURCE WIDTH (ft)	SOURCE THICKNESS (ft)	Time (days)		
17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	1460		
Hydraulic Cond (ft/day)	Hydraulic Gradient (ft/ft)	Porosity (dec. frac.)	Density (g/cm ³)	KOC	Frac. Org. Carb.	Retardation (R)	V (=K*/ln*R) (ft/day)		
4.68E-02	0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.004349289		
Point Concentration									
x(ft)	y(ft)	z(ft)							
107	10.7	1.07							
Conc. At	x(ft)	y(ft)	z(ft)						
at	107	10.7	0						
	1460 days =	0.004							
		mg/l							
AREAL CALCULATION									
MODEL Length (ft)	DOMAIN								
Width (ft)									
125	0.000	0.001	0.002	54	72	90	108	126	144
62.5	0.400	0.250	0.100	0.002	0.032	0.008	0.002	0.000	0.000
0	4.591	1.233	0.335	0.085	0.019	0.004	0.002	0.001	0.000
-62.5	0.400	0.250	0.100	0.032	0.008	0.002	0.002	0.000	0.000
-125	0.000	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.000
Field Data: Centerline C Concentration									
Distance from Source									
				0	85	0	0	0	0

Appendix J

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart
3390 State Route 257
Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL														
Project:		Seneca Mini Mart												
Date:	9/6/2017	Prepared by:	RRB Benzene, MW-3											
Contaminant:		Benzene, MW-3												
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	SOURCE	THICKNESS	Time (days)					
CONC	(ft)	(ft)	(ft)	day-1	(ft)	(ft)	(ft)	(ft)	(days)					
(MG/L)	17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	7300						
Hydraulic	Hydraulic	Porosity	Soil Bulk	Density	KOC	Frac.	Retard-	ation	V					
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³)	(g/cm ³)	(R)	(R)	(ft/day)	(ft/day)						
4.68E-02	0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.004349289							
<div style="display: flex; justify-content: space-between;"> <div> <p>NEW QUICK_DOMENICO.XLS</p> <p>SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES"</p> <p>P. A. Domenico (1987)</p> <p>Modified to Include Retardation</p> </div> <div> <p>Centerline Plot (log)</p> </div> </div>														
<div style="display: flex; justify-content: space-between;"> <div> <p>Centerline Plot (linear)</p> </div> </div>														
<p>Point Concentration</p> <p>x(ft) y(ft) z(ft)</p> <p>107 10.7 1.07</p> <p>Conc. At 107 7300 days = 0.036 mg/l</p>														
<p>AREAL CALCULATION</p> <p>MODEL DOMAIN</p> <p>Length (ft) 180</p> <p>Width (ft) 125</p>														
125	0.000	0.001	0.003	0.004	0.003	0.003	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000
62.5	0.452	0.329	0.170	0.081	0.037	0.037	0.017	0.008	0.003	0.001	0.000	0.000	0.000	0.000
0	5.194	1.622	0.572	0.216	0.085	0.037	0.017	0.008	0.003	0.001	0.000	0.000	0.000	0.000
-62.5	0.452	0.329	0.170	0.081	0.037	0.037	0.017	0.008	0.003	0.001	0.000	0.000	0.000	0.000
-125	0.000	0.001	0.003	0.004	0.003	0.003	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000
<p>Field Data: Centerline C Concentration</p> <p>Distance from Source</p>														

Appendix J

Quick Domenico Fate and Transport Modeling

Seneca Mini-Mart
3390 State Route 257
Seneca, Pennsylvania

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL													
Project:		Seneca Mini Mart											
Date:		9/6/2017	Prepared by:		RRB Benzene, MW-3								
			Contaminant:		Benzene, MW-3								
SOURCE		Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	THICKNESS	<div>NEW QUICK_DOMENICO.XLS SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation</div>				
CONC		(ft)	(ft)	(ft)	day-1	(ft)	(ft)	(days)					
(MG/L)													
17.8		1.07E+02	1.07E+01	1.07E+00	0.000959	70	6	3650					
Hydraulic		Hydraulic				Frac.	Retard-		<div>Centerline Plot (linear) Centerline Plot (log) </div>				
Cond		Gradient	Porosity	Soil Bulk		KOC	Org. Carb.						
(ft/day)		(ft/ft)	(dec. frac.)	Density		(g/cm³)		(R)					
4.68E-02		0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.004349289					
Point Concentration													
x(ft)	y(ft)	z(ft)											
107	10.7	1.07											
x(ft)	y(ft)												
Conc. At	107	10.7											
at	3650 days =												
	0												
	0.029												
	mg/l												
AREAL		CALCULATION											
MODEL		DOMAIN											
Length (ft)		180											
Width (ft)		125											
	18	36	54	72	90	108	126	144	162	180			
125	0.000	0.001	0.003	0.003	0.003	0.002	0.001	0.000	0.000	0.000			
62.5	0.448	0.322	0.163	0.075	0.033	0.014	0.005	0.002	0.001	0.000			
0	5.146	1.590	0.548	0.200	0.074	0.028	0.010	0.004	0.001	0.000			
-62.5	0.448	0.322	0.163	0.075	0.033	0.014	0.005	0.002	0.001	0.000			
-125	0.000	0.001	0.003	0.003	0.003	0.002	0.001	0.000	0.000	0.000			
Field Data:		Centerline C Concentration											
		Distance from Source											
		0											
		85											

Attachment E
Certificates of Insurance



CRIB&AS-01

D1PTHOMPSON

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

06/06/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Leonard Insurance Services 4244 Mt. Pleasant St. NW, Suite 200 North Canton, OH 44720	CONTACT NAME:	
	PHONE (A/C, No, Ext): (800) 451-1904	FAX (A/C, No): (330) 498-9946
INSURED Cribbs & Associates Inc P.O. Box 44 Delmont, PA 15626	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	
	INSURER A: Admiral Insurance Company	NAIC # 24856
	INSURER B: Westfield Insurance Company	NAIC # 24112
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	X	X	FEIECC11288	11/18/2016	11/18/2017	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000
	<input checked="" type="checkbox"/> Pollution Liab						MED EXP (Any one person) \$ 5,000
	<input checked="" type="checkbox"/> Blanket AI & Waiv						PERSONAL & ADV INJURY \$ 1,000,000
GEN'L AGGREGATE LIMIT APPLIES PER:							GENERAL AGGREGATE \$ 2,000,000
<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC							PRODUCTS - COMP/OP AGG \$ 2,000,000
OTHER:							Pollution Liab \$ 1,000,000
B	AUTOMOBILE LIABILITY			CWP3647958	02/05/2017	02/05/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS						BODILY INJURY (Per person) \$
	<input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY						BODILY INJURY (Per accident) \$
							PROPERTY DAMAGE (Per accident) \$
							\$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR						EACH OCCURRENCE \$
	EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						AGGREGATE \$
	DED <input type="checkbox"/> RETENTION \$						\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/>
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y / N		N / A				E.L. EACH ACCIDENT \$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
A	Professional Liab			FEIECC11288	11/18/2016	11/18/2017	Professional Liab. 1,000,000
B	Equipment Floater			CWP3647958	02/05/2017	02/05/2018	Limit 150,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Commonwealth of Pennsylvania and the Department are included as Additional Insured under Blanket additional insured (CG2010 Per form ECC-319-0712),
Waiver of Subrogation (ECC-320-0712) in regard to work performed or services provided by the named insured. When required in Written Contract

CERTIFICATE HOLDER

CANCELLATION

Commonwealth of Pennsylvania Main Capital Building Harrisburg, PA 17120	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE <i>Douglas R. M...</i>



Cribbs & Associates, Inc.
Endorsement Number: 5

Automatic Additional Insured – Owners, Lessees or Contractors

This endorsement, effective 11/18/2015 attaches to and forms a part of Policy Number FEI-ECC-11288-03. This endorsement changes the Policy. Please read it carefully.

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART CONTRACTORS POLLUTION LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

Any person(s) or organization(s) whom the *Named Insured* agrees, in a written contract, to name as an additional insured. However, this status exists only for the project specified in that contract.

The person or organization shown in this Schedule is included as an insured, but only with respect to that person's or organization's vicarious liability arising out of your ongoing operations performed for that insured.



Cribbs & Associates, Inc.
Endorsement Number: 6

Automatic Waiver of Subrogation Endorsement

This endorsement, effective 11/18/2015 attaches to and forms a part of Policy Number FEI-ECC-11288-03. This endorsement changes the Policy. Please read it carefully.

This endorsement modifies insurance provided under the following:

**COMMERCIAL GENERAL LIABILITY COVERAGE PART
CONTRACTORS POLLUTION LIABILITY COVERAGE PART**

SCHEDULE

Name of Person or Organization:

Any person(s) or organization(s) to whom the *Named Insured* agrees, in a written contract, to provide a waiver of subrogation. However, this status exists only for the project specified in that contract.

The Company waives any right of recovery it may have against the person or organization shown in the above Schedule because of payments the Company makes for injury or damage arising out of the *insured's* work done under a contract with that person or organization. The waiver applies only to the person or organization in the above Schedule.

Under no circumstances shall this endorsement act to extend the policy period, change the scope of coverage or increase the Aggregate Limits of Insurance shown in the Declarations.



Cribbs & Associates, Inc.
Endorsement Number: 20

Additional Insured – Owners, Lessees or Contractors – Completed Operations

This endorsement, effective 11/18/2015 attaches to and forms a part of Policy Number
FEI-ECC-11288-03. This endorsement changes the Policy. Please read it carefully.

In consideration of an additional premium of \$Applied, this endorsement modifies insurance provided
under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location And Description Of Completed Operations
Any person(s) or organization(s) whom the Named Insured agrees, in a written contract, to name as an additional insured. However, this status exists only for the project specified in that contract.	Those project locations where this endorsement is required by contract.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

Section II – Who Is An Insured is amended to include as an additional insured
the person(s) or organization(s) shown in the Schedule, but only with respect to
liability for "bodily injury" or "property damage" caused, in whole or in part, by
"your work" at the location designated and described in the schedule of this
endorsement performed for that additional insured and included in the "products-
completed operations hazard".



CRIB&AS-01

D1PTHOMPSON

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

06/06/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Leonard Insurance Services 4244 Mt. Pleasant St. NW, Suite 200 North Canton, OH 44720	CONTACT NAME:	
	PHONE (A/C, No, Ext): (800) 451-1904	FAX (A/C, No): (330) 498-9946
INSURED Cribbs & Associates Inc P.O. Box 44 Delmont, PA 15626	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	
	INSURER A: Admiral Insurance Company	NAIC # 24856
	INSURER B: Westfield Insurance Company	NAIC # 24112
	INSURER C:	
	INSURER D:	
	INSURER E:	
	INSURER F:	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:


THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY	X	X	FEIECC11288	11/18/2016	11/18/2017	EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 50,000
	<input checked="" type="checkbox"/> Pollution Liab						MED EXP (Any one person) \$ 5,000
	<input checked="" type="checkbox"/> Blanket AI & Waiv						PERSONAL & ADV INJURY \$ 1,000,000
GEN'L AGGREGATE LIMIT APPLIES PER:							GENERAL AGGREGATE \$ 2,000,000
	<input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC						PRODUCTS - COMP/OP AGG \$ 2,000,000
	OTHER:						Pollution Liab \$ 1,000,000
B	AUTOMOBILE LIABILITY			CWP3647958	02/05/2017	02/05/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input checked="" type="checkbox"/> SCHEDULED AUTOS						BODILY INJURY (Per person) \$
	<input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY						BODILY INJURY (Per accident) \$
							PROPERTY DAMAGE (Per accident) \$
							\$
	UMBRELLA LIAB <input type="checkbox"/> OCCUR						EACH OCCURRENCE \$
	EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE						AGGREGATE \$
	DED <input type="checkbox"/> RETENTION \$						\$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/>
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y / N		N / A				E.L. EACH ACCIDENT \$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE \$
							E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
PA Department of Transportation is Additional Insured in regard to work performed or services provided by the named insured - Per form ECC-319-0712, Waiver of Subrogation ECC-320-0712. When required in Written Contract ADDITIONAL INSURED (This endorsement does not apply to the Professional Liability coverage part)

CERTIFICATE HOLDER

CANCELLATION

PA Department of Transportation 400 North St Harrisburg, PA 17120	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE 



Cribbs & Associates, Inc.
Endorsement Number: 5

Automatic Additional Insured – Owners, Lessees or Contractors

This endorsement, effective 11/18/2015 attaches to and forms a part of Policy Number FEI-ECC-11288-03. This endorsement changes the Policy. Please read it carefully.

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART CONTRACTORS POLLUTION LIABILITY COVERAGE PART

SCHEDULE

Name of Person or Organization:

Any person(s) or organization(s) whom the *Named Insured* agrees, in a written contract, to name as an additional insured. However, this status exists only for the project specified in that contract.

The person or organization shown in this Schedule is included as an insured, but only with respect to that person's or organization's vicarious liability arising out of your ongoing operations performed for that insured.



Cribbs & Associates, Inc.
Endorsement Number: 6

Automatic Waiver of Subrogation Endorsement

This endorsement, effective 11/18/2015 attaches to and forms a part of Policy Number FEI-ECC-11288-03. This endorsement changes the Policy. Please read it carefully.

This endorsement modifies insurance provided under the following:

**COMMERCIAL GENERAL LIABILITY COVERAGE PART
CONTRACTORS POLLUTION LIABILITY COVERAGE PART**

SCHEDULE

Name of Person or Organization:

Any person(s) or organization(s) to whom the *Named Insured* agrees, in a written contract, to provide a waiver of subrogation. However, this status exists only for the project specified in that contract.

The Company waives any right of recovery it may have against the person or organization shown in the above Schedule because of payments the Company makes for injury or damage arising out of the *insured's* work done under a contract with that person or organization. The waiver applies only to the person or organization in the above Schedule.

Under no circumstances shall this endorsement act to extend the policy period, change the scope of coverage or increase the Aggregate Limits of Insurance shown in the Declarations.



Cribbs & Associates, Inc.
Endorsement Number: 20

Additional Insured – Owners, Lessees or Contractors – Completed Operations

This endorsement, effective 11/18/2015 attaches to and forms a part of Policy Number
FEI-ECC-11288-03. This endorsement changes the Policy. Please read it carefully.

In consideration of an additional premium of \$Applied, this endorsement modifies insurance provided
under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):	Location And Description Of Completed Operations
Any person(s) or organization(s) whom the Named Insured agrees, in a written contract, to name as an additional insured. However, this status exists only for the project specified in that contract.	Those project locations where this endorsement is required by contract.
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

Section II – Who Is An Insured is amended to include as an additional insured
the person(s) or organization(s) shown in the Schedule, but only with respect to
liability for "bodily injury" or "property damage" caused, in whole or in part, by
"your work" at the location designated and described in the schedule of this
endorsement performed for that additional insured and included in the "products-
completed operations hazard".



Additional Insured – Owners, Lessees or Contractors – Scheduled Person or Organization

This endorsement, effective 3/7/2017 attaches to and forms a part of Policy Number
FEI-ECC-11288-04. This endorsement changes the Policy. Please read it carefully.

In consideration of an additional premium of \$150, this endorsement modifies insurance provided
under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART SCHEDULE

Name and Address Of Additional Insured Person(s) Or Organization(s)	Location(s) Of Covered Operations
Clintonville - Venango County is in PA Department of Transportation Engineering District 01-0 255 Elm Street Oil City, PA 16301	Those project locations where this additional insured coverage is required by written contract
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.	

- A. Section II – Who Is An Insured is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:
1. Your acts or omissions; or
 2. The acts or omissions of those acting on your behalf;
in the performance of your ongoing operations for the additional insured(s) at the location(s) designated above.
- B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:
- This insurance does not apply to "bodily injury" or "property damage" occurring after:
1. All work, including materials, parts or equipment furnished in connection with such work, on the project (other than service, maintenance or repairs) to be performed by or on behalf of the additional insured(s) at the location of the covered operations has been completed; or
 2. That portion of "your work" out of which the injury or damage arises has been put to its intended use by any person or organization other than another contractor or subcontractor engaged in performing operations for a principal as a part of the same project.



HEATH-1

OP ID: TK

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
05/25/2017

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Caputo Insurance Agency, Inc. P.O. Box 350 Beaver Falls, PA 15010-0350		724-843-3020		CONTACT NAME: CAPUTO INS	
				PHONE (A/C, No, Ext): 724-843-3020	FAX (A/C, No): 724-843-9475
				E-MAIL ADDRESS:	
				INSURER(S) AFFORDING COVERAGE	
				INSURER A: Plaza Insurance Company	
				NAIC # 30945	
INSURED HARPER OIL COMPANY P.O. Box 1128 Oil City, PA 16301				INSURER B:	
				INSURER C:	
				INSURER D:	
				INSURER E:	
				INSURER F:	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> Blanket AI & Waiv GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input type="checkbox"/> LOC OTHER:			PFHRU006639-02	04/02/2017	04/02/2018	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY <input checked="" type="checkbox"/> MCS-90 <input checked="" type="checkbox"/> CA9948			PFHRU006639-02	04/02/2017	04/02/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y / N If yes, describe under DESCRIPTION OF OPERATIONS below		N / A				PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
PA DEPARTMENT OF TRANSPORTATION, COMMONWEALTH OF PENNSYLVANIA IS NAMED
ADDITIONAL INSURED (CG2010) IN REGARD TO WORK PERFORMED OR SERVICES PROVIDED
BY THE NAMED INSURED AT CLINTONVILLE, VENANGO COUNTY WHEN REQUIRED IN A
WRITTEN CONTRACT ADDITIONAL INSURED APPLIES TO GENERAL LIABILITY ONLY.

CERTIFICATE HOLDER

CANCELLATION

CERTIFICATE HOLDER PA DEPARTMENT OF TRANSPORTATION KEYSTONE BUILDING 400 NORTH STREET HARRISBURG, PA 17120	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE



HEATH-1

OP ID: TK

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
05/25/2017

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		INSURER(S) AFFORDING COVERAGE	
		INSURER A: Plaza Insurance Company	NAIC # 30945
INSURED HARPER OIL COMPANY P.O. Box 1128 Oil City, PA 16301		INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:	

COVERAGES

CERTIFICATE NUMBER:

REVISION NUMBER:

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A	<input type="checkbox"/> AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input checked="" type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input checked="" type="checkbox"/> HIRED AUTOS ONLY <input checked="" type="checkbox"/> NON-OWNED AUTOS ONLY <input checked="" type="checkbox"/> MCS-90 <input checked="" type="checkbox"/> CA9948			PFHRU006639-02	04/02/2017	04/02/2018	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DED <input type="checkbox"/> RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) <input type="checkbox"/> Y/N If yes, describe under DESCRIPTION OF OPERATIONS below		N/A				PER STATUTE <input type="checkbox"/> OTH-ER <input type="checkbox"/> E.L. EACH ACCIDENT \$ E.L. DISEASE - EA EMPLOYEE \$ E.L. DISEASE - POLICY LIMIT \$

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PA DEPARTMENT OF TRANSPORTATION, COMMONWEALTH OF PENNSYLVANIA IS NAMED ADDITIONAL INSURED (CG2010) WITH REGARD TO WORK PERFORMED OR SERVICES PROVIDED BY THE NAMED INSURED AT CLINTOVILLE, VENANGO COUNTY WHEN REQUIRED IN A WRITTEIN CONTRACT. ADDITIONAL INSURED APPIES TO GENERAL LIABILITY ONLY.

CERTIFICATE HOLDER

CANCELLATION

COMMONW COMMONWEALTH OF PENNSYLVANIA MAIN CAPITAL BUILDING HARRISBURG, PA 17120	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
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Attachment F
USTIF Coverage Documentation



September 20, 2017

Mr. Kyle Riffle
District Permit Manager
PA Department of Transportation
Engineering District 01-0
255 Elm Street
Oil City, PA 16301

RE: USTIF Claim #: 2015-0120

Location: Harper Oil Co Seneca Mini-Mart

State Route 257 Pennsylvania

Dear: Mr. Riffle,

The Underground Storage Tank Indemnification Fund (Fund) reimburses eligible tank owners for eligible remediation expenses caused by a release of a regulated substance from an underground storage tank. The above site is eligible for reimbursement at 100% of eligible expenses.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Teresa Isabella", written over a light blue rectangular background.

Teresa Isabella, Claims Evaluator, II
Underground Storage Tank Indemnification Fund

Cc

Bob Botterman , Cribbs
Bonnie Mackewitz , ICFI