SITE CHARACTERIZATION REPORT

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:

September 13, 2017

Prepared by:



P.O Box 44 Delmont, PA 15626 888-316-0211

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Robert R. Botterman P.G. Project Geologist

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1.0 INTRODUCTION/BACKGROUND

1.1 Introduction

This Site Characterization Report (SCR)) was prepared for Harper Oil Company, owner of the Seneca Mini Mart [Pennsylvania Department of Environmental Protection (PADEP) Facility ID # 61-18854] located at 3390 State Route 257, Seneca, Venango County, Pennsylvania. The Subject Property was formerly operated as a fuel retail and convenience store facility, recently as an automobile repair facility and is currently vacant. Harper Oil and Heath Oil Inc. (Harper Oil's parent company) also owns several of the immediately adjoining properties to the north (Hinzeman), east (Winger) and southeast (Heath) through various subsidiaries. The Subject Property is located along the east side of State Route 257 approximately 200 feet south of the Bredinsburg Road/East State Road cross street in Seneca, Pennsylvania. A Site Location Map is included as **Figure 1**.

The Seneca Mini Mart occupies the northern half of the 0.78 are parcel (Parcel ID 08-39-13), owned by Daniel Heath. The balance of the parcel is occupied by Seneca Motors, a used car sales lot. The Seneca Mini Mart includes a single building of approximately 3,932 square feet and a single 576 square foot canopy with a single dispenser island. Two unleaded gasoline dispensers were formerly located under the canopy.

A separate dispenser for diesel fuel and kerosene was formerly located south of the Subject Property structure. The underground storage tanks (USTs) associated with the dispensers were buried to the southeast of the dispensers and included; Tank 001, a 6,000-gallon UST containing premium unleaded gasoline, Tank 003, a 10,000-gallon UST containing unleaded gasoline, Tank 004, a 2,000-gallon UST containing diesel fuel and Tank 005, a 1,000-gallon UST containing kerosene. Former Tank 002, a 4,000-gallon unleaded gasoline UST had been removed from the facility on February 11th, 1999. Also, present at the facility was a 1,000-gallon above ground storage tank containing off-road diesel fuel equipped with a single dispenser. Access to the property is gained from multiple entrances along State Route 257. **Figure 2** presents the locations of the former USTs and the AST.

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

1.2 Background

The purpose of this SCR is to provide documentation of site characterization activities undertaken in accordance with 25 Pa Code 245.309 following the confirmation of soil and groundwater impacts identified during the removal of the former underground storage tank (UST) system and associated product delivery lines in September 2015.

An aerial photograph taken July 2, 1939 shows the Subject Property as undeveloped agricultural land and that State Route 257 had not been constructed. An aerial photograph dated August 27, 1958 indicates that State Routh 257 had been constructed and the main portion of the current building was present on the Subject Property. The quality and clarity of the 1958 and a later 1968 aerial photograph do not allow the identification of any dispenser islands although the 1958 photograph indicates something in the vicinity of the dispenser south of the existing Subject Property structure. The aerial photographs from 1939, 1958 and 1968 are available from pennpilot.psu.edu.

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Underground Storage Tank 001, a 6,000-gallon gasoline tank was installed on June 1, 1977. Tanks 003 through 005 were installed at the facility on April 1, 1985 and include a 10,000-gallon 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. Former Tank 002, a 4,000-gallon unleaded gasoline UST (likely also installed in 1977) had been removed from the facility on February 11th, 1999. No evidence of earlier, preregistration USTs were encountered on the Subject Property during the site characterization investigation activities, however, the 1958 aerial photograph may indicate an earlier UST system and dispenser island in the same location as the recent UST system.

Google Earth images from April 1993 indicate that the current building was present and suggests that the dispenser island was present in front (west) of the building; however, the image clarity is such that it is not definitive. The canopy over the dispenser island appears to be present in the September 2005 image.

The four USTs were listed as temporally out of service when UST closure activities were initiated on September 14, 2015. John Koziara, certified tank handler (2099) of Koziara Trucking & Excavating (Koziara) (Company Certification Number 417) was conducting the UST closure activities. Discolored (stained) soil was observed near the 6,000-gallon and 10,000-gallon gasoline USTs as they were being removed. No groundwater was encountered during the removal of the four USTs. The PADEP was notified of the release on September 14, 2015 and a Notification of Reported Release form was submitted on September 16, 2015. A copy of the Notification of Reported Release form is included in **Appendix A**.

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. Impacted soil was only detected in the soil confirmation samples collected from under the dispensers and along the product lines leading from the dispensers back towards the USTs. Analytical data from the UST Closure Activities is included along with the UST System Closure Report Form in **Appendix A**. The locations of the former USTs and closure sample locations are also included in **Appendix A**. There are no known potential offsite sources of contamination.

It appears as if leakage from the dispensers and the product line fitting adjacent to the dispensers is the likely cause of the observed soil impacts. According to Koziara, a total of approximately 430 tons of soil was excavated from the vicinity of the dispenser islands and the four USTs during the removal activities. According to Koziara, approximately 350 tons came from the vicinity of the gasoline USTs, and gasoline associated dispenser islands and product lines had notable hydrocarbon odors. The gasoline impacted soil was stockpiled on the property encapsulated in 6 mil plastic pending disposal of the gasoline impacted soil stockpile.

Approximately 50 tons of soil were removed from the vicinity of the diesel fuel and kerosene USTs and associated dispensers and product lines. This material did not exhibit any odors and analytical results of the diesel fuel/kerosene stockpile were below laboratory detection limits for all parameters analyzed. The 50 tons of soil from the diesel fuel/kerosene stockpile were eventually used as fill and spread at the facility.

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Confirmatory soil samples collected from below the product dispensers and along the product line trenches indicated that the only parameters to exceed the residential and non-residential SHS MSCs were naphthalene, 1,2,4-trimethylbenzene (1,2,4-TMB) and 1,3,5-trimethylbenzene (1,3,5-TMB) observed in UST closure soil samples #11 through #14. (The April 19, 2016 modifications to the SHS MSCs raised the values for 1,3,5-TMB, and the 1,3,5-TMB no longer exceeds the residential SHS MSC.) The soil to groundwater, used aquifer with total dissolved solids less than 2,500 milligrams per liter SHS MSC for naphthalene is 25 milligrams per kilogram (mg/kg) for both residential and non-residential settings. Soil Sample #13 was the only sample to exhibit a naphthalene concentration exceeding the residential and non-residential SHS MSC with a concentration of 31.26 mg/kg. The soil to groundwater, used aquifer with total dissolved solids less than 2,500 milligrams per liter SHS MSC for 1,2,4-TMB is 8.4 mg/kg for residential settings and 35 mg/kg for non-residential settings. The 1,2,4-TMB values where impacts were observed exceeding the residential and non-residential SHS MSC ranged from 48.1 mg/kg (Sample # 12) to 144.55 mg/kg (Sample # 13). The soil to groundwater, used aquifer with total dissolved solids less than 2,500 milligrams per liter SHS MSC for 1,3,5-TMB is 2.3 mg/kg (revised to 74 mg/kg) for residential settings and 9.3 mg/kg (revised to 210 mg/kg) for non-residential settings. The 1,3,5-TMB values where impacts were observed exceeding the SHS MSC ranged from 8.644 mg/kg (Sample # 12) to 48.03 mg/kg (Sample #13).

Analysis of the confirmation samples collected beneath the four removed USTs indicated that none of the gasoline or diesel constituents were present at concentrations which exceed their respective Statewide Health Standards.

Obvious soil impacts were observed during the UST closure and the only impacts detected were the presence of naphthalene, and 1,2,4-TMB (and formerly 1,3,5-TMB) exceeding the residential and non-residential SHS MSCs in the conformation soil samples collected from beneath the dispensers and along the product lines leading towards the UST cavity. No impacts were observed in the confirmation soil samples collected from beneath the removed USTs.

It appears that leakage from the dispensers and product lines adjacent to the dispensers is the likely cause of the observed soil impacts. This release was likely a chronic release in a product distribution line or at a dispenser that occurred over many years. This is also evident as the leak detection/tank gauging system never registered a significant release. The exact volume of the release is not known.

A Notification of Reportable Release (NRR) was submitted to the Pennsylvania Department of Environmental Protection (PADEP) on September 16th, 2015, following the observation of impacts beneath the dispensers and product lines.

The impacts associated with the removed UST system are being addressed under the Title 25–Environmental Protection (25 PA Code), Chapter 245 (Administration of the Storage Tank and Spill Prevention Program).

The eligibility of the funding through the UST Indemnification Fund (USTIF) for the Seneca Mini Mart facility is was approved on June 6th, 2016. The Site characterization and corrective actions at the Subject Property are 100 percent funded subject to the \$5,000.00 deductible. The USTIF utilizes ICF Consulting (ICF) as a third-party administrator. PAUSTIF Claim #2015-0120 was assigned to the cleanup of unleaded gasoline at the Seneca Mini Mart.

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2.0 SITE CHARACTERIZTION ACTIVITIES

2.1 Previous Investigations

Previous investigation activities are limited to the soil sampling conducted during the UST Closure activities in September, 2015. The September 2015 soil sampling conducted during the removal of the UST system identified naphthalene, and 1,2,4-TMB at concentrations that exceeded their Statewide Health Standard (SHS) Medium Specific Concentrations (MSCs) in UST closure soil samples #11 through #14. The soil to groundwater, used aquifer with total dissolved solids less than 2,500 milligrams per liter SHS MSC for naphthalene is 25 milligrams per kilogram (mg/kg) for both residential and non-residential settings. Soil Sample #13 was the only sample to exhibit a naphthalene concentration exceeding the residential and non-residential SHS MSC with a concentration of 31.26 mg/kg. The soil to groundwater, used aquifer with total dissolved solids less than 2,500 milligrams per liter SHS MSC for 1,2,4-TMB is 8.4 mg/kg for residential settings and 35 mg/kg for non-residential settings. The 1,2,4-TMB values where impacts were observed exceeding the residential and non-residential SHS MSC ranged from 48.1 mg/kg (Sample # 12) to 144.55 mg/kg (Sample # 13). All four of the samples that exceeded the 1,2,4-TMB SHS MSC exceeded the non-residential value.

Analysis of the confirmation samples collected beneath the four removed USTs indicated that none of the gasoline or diesel constituents were present at concentrations which exceed their respective Statewide Health Standards. The impacted soil stockpile was also observed to contain detectable concentrations of 1,2,4-TMB at concentrations that did not exceed their respective residential and non-residential SHS MSCs.

2.2 Soil Sampling and Monitoring Well Installation

2.2.1 Soil Borings and Soil Sampling - April 28th, 2016

On April 28th, 2016 Cribbs & Associates advanced six soil borings (SB-1 through SB-6) in and around the path of the former product line from the tank cavity to the dispenser islands and to the north of the dispenser island at the locations shown on **Figure 2**. Prior to drilling activities, the Pennsylvania One Call System (PA One Call) was notified of the pending site assessment activities. The soil borings were installed to delineate the horizontal and vertical extent of soil impacts in the shallow unconfined aquifer observed during the UST system removal activities. The borings were continued to depths ranging from 8.0 feet below the ground surface (bgs) (SB-3, SB-4 and SB-6) to 10.0 feet bgs (SB-1, SB-2 and SB-5).

The borings were advanced utilizing soft dig methods for utility clearance to a depth of two feet bgs then a truck mounted, air rotary drilling rig using $2^{1}/_{4}$ -inch inch internal diameter (ID) hollow stem augers were used to advance the borings to their total depths. Split spoon soil samples were collected in advance of the augers and screened using a photo-ionization detector (PID). The soil samples and cuttings were observed for color, lithologic classification, density/consistency, the presence of moisture/water, and plasticity. The materials encountered were documented on the boring logs included in **Appendix B**.

The typical soil profile encountered by soil borings SB-1 and SB-2 included several layers of fill starting with a yellowish-brown mix of clay, sand, silt and gravel ranging from 2 feet to 3 feet below ground surface (bgs). The typical soil profile for these borings included between 1.5 to 5.0 feet of brown rounded gravel with minor amounts of clay, sand and silt and wet fill over gray fine-grained sand fill material. Native soil encountered in the bottom 1.0 feet to 1.5 feet bgs included medium brown silty clay, some

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with gray mottling. These two borings (SB-1 and SB-2) were located in the former tank cavity resulting in the multiple layers of fill encountered.

The typical soil profile encountered by soil borings SB-3 through SB-6 included asphalt paving with gravel subbase extending to one to two feet bgs. Brown clay and gravel fill ranging from 1.5 to 5.5 feet thick overlaid the native soil material. The fill was typically thinner closer to the dispenser islands (SB-5 and SB-6). Native soils included brown and gray mottled silty clay with shale fragments, brown silty clay and sand and yellow brown and gray silty clay. Weathered bedrock was not encountered at the total depth of any of the borings.

Strong hydrocarbon odors and/or elevated PID readings were noted in SB-3 (2.0' to 4.0'), and SB-5 (2.0'-4.0'), and slight petroleum odors were observed in SB-4 (4.0' to 6.0'). The soil samples from SB-1, through SB-6 were collected from the horizons with the highest PID readings in each boring, ranging from 4.8 parts per million (ppm) in SB-1 to greater than 5000 ppm in SB-3. Soil borings SB-1, SB-2, and SB-6 did not have any elevated PID readings or have any observed odors.

Soil samples were selected for laboratory analysis based on field observations (odor, staining, elevated PID readings) and being above any saturated zone. At least one soil sample from each soil boring was selected for laboratory analysis, however multiple samples were collected from soil borings SB-3 and SB-4, for vertical delineation purposes. The soil samples were placed on ice and transported to Pace Analytical Laboratories in Greensburg Pennsylvania under chain of custody protocols. The soil samples were analyzed for the "new" (post March 2008) PADEP Shortlist of Petroleum Products. The soil analytical results are presented on **Table 1**.

2.2.2 Soil Borings and Soil Sampling – June 14th, 2016

On June 14th, 2016 Cribbs & Associates advanced eleven additional soil borings (SB-7 through SB-17) covering the area between the previous soil borings and State Route 257 at the locations shown on **Figure 2**. Prior to drilling activities, the Pennsylvania One Call System (PA One Call) was notified of the pending site assessment activities. The soil borings were installed to delineate the horizontal and vertical extent of soil impacts in the shallow unconfined aquifer observed during the UST system removal activities. The borings were all advanced to a depth of 8.0 feet bgs.

The borings were advanced utilizing a truck-mounted Geoprobe® direct push methods using a macro-sampling tube. A new acetate macro-sampling tube liner was used for each four-foot interval sampled. The macro tubes were opened following their recovery and the soil samples were screened using a photo-ionization detector (PID). The soil samples were observed for color, lithologic classification, density/consistency, the presence of moisture/water, and plasticity. The materials encountered were documented on the boring logs included in **Appendix B**.

The typical soil profile encountered by soil borings SB-7 through SB-17 included a layer of fill consisting of gray/brown/black silty clay with gravel and shale fragments. Some locations (SB-12, SB-13, and SB-14) also included slag and brick fragments. The fill continued to depths ranging from 2.5 feet bgs (SB-11) to 5.5 feet bgs (SB-8). Typically, gray brown silty clay with some shale fragments and occasional sand and gravel would underlie the fill material. The gray brown silty clay was frequently underlain by 0.5 feet to 1.5 feet of yellowish brown silty clay with gray mottling. In soil borings SB-9, SB-10, and SB-16, the gray brown silty clay continued to the borings total depth. Soil borings SB-7 through SB-17 typically became saturated (wet) between three feet bgs and five feet bgs. Weathered bedrock was not encountered at the total depth of any of the borings as the borings were terminated in the silty clay material which appeared to restrict the vertical migration of the contamination. PID readings and visual

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observations indicated that the soils were generally clean below a depth of 7 feet. Therefore, soil borings were not advanced through the entire thickness of this silty clay layer due to the potential of creating a pathway for the contamination from the shallow aquifer into a potential deeper aquifer.

Strong hydrocarbon odors and elevated PID readings were noted in nine of the eleven soil borings with only slight odors and moderate PID readings observed in SB-10 and SB-14. The highest PID readings in the other borings ranged as high as 3970 ppm in SB-13 (2.0'-4.0').

Soil samples were selected for laboratory analysis based on field observations (odor, staining, elevated PID readings) and being above any saturated zone. At least one soil sample from each soil boring was selected for laboratory analysis, however multiple samples were collected from soil borings SB-7, SB-11, and SB-16, for vertical delineation purposes. The soil samples were placed on ice and transported to Pace Analytical Laboratories in Greensburg Pennsylvania under chain of custody protocols. The soil samples were analyzed for the "new" (post March 2008) PADEP Shortlist of Petroleum Products for unleaded gasoline parameters. The soil analytical results are presented on **Table 1**.

2.2.3 Monitoring Well Installation – July 8th, 2016

Cribbs & Associates installed five monitoring wells, (MW-1 through MW-5) at the locations shown on **Figure 2** on July 8th, 2016. The wells were installed with MW-1 located along the former product line between the former UST basin and the dispenser island. Monitoring wells MW-2 through MW-5 were located in a line running from south to north along the western property boundary.

Prior to drilling activities, the Pennsylvania One Call System (PA One Call) was notified of the pending site assessment activities. The monitoring wells were installed to evaluate the extent of groundwater impacts in the shallow unconfined aquifer as a result of the soil impacts observed during the UST closure and soil boring activities. The borings for the monitoring wells (MW-1 through MW-5) were advanced to the total depth of 8 feet bgs.

The monitoring wells were advanced utilizing a truck mounted, hollow stem auger drilling rig using 4-¹/₄-inch internal diameter (ID) hollow stem augers to advance the borings to their total depths. During hollow stem auger drilling activities, no soil sampling activities were conducted and no soil samples were collected because the area had been investigated by the previous soil borings. Monitoring wells MW-3, MW-4 and MW-5 were installed at the same locations used for soil borings SB-12, SB-15 and SB-17, respectively. Nearby soil borings SB-5 and SB-11 were used as the stratigraphic description for MW-1 and MW-2 respectively. The materials encountered were documented on the boring logs included in **Appendix B**.

Following completion of the borings for the monitoring wells, Cribbs & Associates installed permanent monitoring wells (MW-1 through MW-5) at each of the monitoring well boring locations. The monitoring wells were completed as two-inch diameter polyvinyl chloride (PVC) installations with a manufactured slotted (0.010") screen. Six feet of screen were installed in each of the wells. Solid riser was used to continue each well to the ground surface. The annular space surrounding the well screen was filled with medium grained washed silica sand (free of fines) and placed to a depth of approximately one-half foot above the slotted PVC screen section. Following sand placement, bentonite pellets were placed immediately above the sand in the riser section of the well to provide an approximately one-foot thick impermeable seal directly above the screened section. The bentonite pellets were then hydrated. The well installation details are included in **Appendix B**.

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Monitoring wells MW-1 through MW-5 were completed utilizing eight-inch diameter flush mount well protectors set into approximately two feet square formed concrete pads. Each monitoring well was secured with a top mount water tight expandable locking cap assembly.

The five monitoring wells were developed on July 11th and 12th, 2016 and sampled for the first time on July 12th, 2016.

2.2.4 Additional Delineation Soil Borings and Sampling – September 2016

On September 14th, 2016 Cribbs & Associates advanced six additional soil borings (SB-18 through SB-20 and SB-22 through SB-24) stepping out towards the north and south of the previous soil borings along State Route 257 at the locations shown on **Figure 2**. Prior to drilling activities, the Pennsylvania One Call System (PA One Call) was notified of the pending site assessment activities. The soil borings were installed to delineate the horizontal and vertical extent of soil impacts in the shallow unconfined aquifer observed soil boring and monitoring well installation activities. The borings were all advanced to a depth of 8.0 feet bgs.

Three additional soil borings (SB-21, SB-25 and SB-26) 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 approval using Form FC-1 in anticipation of conducting soil excavation as a potential interim remedial activity. Access had been denied for off-site wells on the downgradient property across State Route 257 (Seneca Lawn & Landscape) and the first Quick Domenico modeling using the initial groundwater concentrations from monitoring wells MW-1 through MW-5 indicated that there was a high probability that the benzene plume could reach the unnamed tributary to Lower Twomile Run. However, the decision was made to postpone the soil excavation activities until after the SCR was submitted unless hydrocarbons were documented impacting the waterways of the Commonwealth (Lower Twomile Run). Surface water samples collected on October 4th 2016 did not indicate any impacts, therefore, the proposed soil excavation was put on hold and the disposal samples were not analyzed for all the parameters needed for FC-1 approval.

The borings were advanced utilizing a truck-mounted Geoprobe® direct push methods using a macro-sampling tube. A new acetate macro-sampling tube liner was used for each four-foot interval sampled. The macro tubes were opened following their recovery and the soil samples were screened using a photo-ionization detector (PID). The soil samples were observed for color, lithologic classification, density/consistency, the presence of moisture/water, and plasticity. The materials encountered were documented on the boring logs included in **Appendix B**.

The typical soil profile encountered by soil borings SB-18 through SB-24 included a layer of fill consisting of gray/brown silty clay or sandy silty clay with gravel, sand and shale fragments directly beneath the asphalt at the surface. One location, SB-22, also included a layer of concrete beneath the asphalt but above the fill. The fill continued to depths ranging from 2.5 feet bgs (SB-23) to 7.0 feet bgs (SB-18). Typically, gray silty clay with some shale fragments and occasional sand and gravel would underlie the fill material. The gray brown silty clay was frequently underlain by 1.0 feet to 3.0 feet of light brown silty clay or sandy silty clay often with gray mottling. Soil borings SB-19 and SB-20 typically became saturated (wet) between four feet bgs and seven feet bgs. Weathered bedrock was not encountered at the total depth of any of the borings.

Strong hydrocarbon odors and elevated PID readings were noted in soil borings SB-18, SB-22, SB-23, and SB-24 with only slight odors and moderate PID readings observes in SB-19 and SB-20. The highest PID readings in these borings ranged as high as 952 ppm in SB-18 (6.0'-8.0').

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Soil samples were selected for laboratory analysis based on field observations (odor, staining, elevated PID readings) and being above any saturated zone. One soil sample from soil borings SB-18, SB-19, SB-22 and SB-24 were selected for laboratory analysis. The soil samples were placed on ice and transported to Pace Analytical Laboratories in Greensburg Pennsylvania under chain of custody protocols. The soil samples were analyzed for the "new" (post March 2008) PADEP Shortlist of Petroleum Products for unleaded gasoline parameters. The soil analytical results are presented on **Table 1**.

2.2.5 Monitoring Well Installation – October/November 2016

Monitoring wells MW-6, MW-7 and MW-9 through MW-11 were installed on October 17th and 18th, 2016 in an attempt to delineate the northern, eastern and southern boundary of the groundwater impacts previously identified. Monitoring well MW-8 was installed on November 1, 2016. Monitoring wells MW-6 through MW-11 were advanced and installed in the same manner as the Cribbs wells installed previously. Monitoring wells MW-6, MW-10 and MW-11 were installed without collecting soil samples because they are located directly beneath the overhead powerlines, therefore, the mast used to collect split spoon samples could not be raised. A Geoprobe® was used to collect representative soil samples immediately adjacent to these three monitoring wells (MW-6, MW-10 and MW-11) on November 15th, 2016. Monitoring wells MW-6, MW-7, MW-10 and MW-11 were installed to depths ranging from 9.8 feet bgs, to 10.5 feet bgs. Monitoring well MW-8 was advanced to 16.0 feet bgs, while MW-9 has a total depth of 12.5 feet. Between 7.5 feet and 7.75 feet of screen was installed in monitoring wells MW-6, MW-7, MW-10 and MW-11, while 10.0 feet and 13.5 feet of screen were used in MW-9 and MW-8 respectively. Flush mount protective covers were also installed on these six monitoring wells. The boring logs and well installation details for the six wells installed in October and November 2016 are included in **Appendix B**.

The typical soil profile encountered by monitoring well borings MW-6, MW-10 and MW-11 each started with six inches to eight-inches of asphalt over gravel subbase fill material to a depth of approximately one-foot bgs. Monitoring wells MW-7 and MW-8 started in unpaved areas and MW-9 encountered 0.5 foot of gravel at the ground surface. Fill material consisting of silty clay, clay, gravel, shale fragments and slag was encountered to depths ranging from 3.0 feet bgs to 5.0 feet bgs in these wells. Brown and gray silty clay was encountered below the fill material and is native soil. Monitoring wells MW-6, MW-10 and MW-11, the westernmost of these six wells, encountered yellowish brown silty clay from 6.0 feet bgs to their total depths. Monitoring well MW-8 encountered silty sand from 6.0 feet bgs to 13.0 feet bgs before transitioning to a gray and brown silt from 13.0 feet bgs to 15.0 feet bgs. Monitoring well MW-8 as the deepest of these wells was the only boring to encounter a weathered gray shale at the bottom of the boring at 16.0 feet bgs.

A slight hydrocarbon odor and elevated PID readings were only noted in MW-10 (6.0' to 8.0') during the installation of the monitoring well. No odors or elevated PID readings were observed by the Geoprobe sampling adjacent to the monitoring well on November 15th, 2016. Two soil samples were obtained from each of the wells MW-6, MW-10 and MW-11. No odors or elevated PID readings were observed in MW-7, MW-8 or MW-9. Monitoring wells MW-6 and MW-7 were developed on October 18th, 2016 but their initial sampling event was delayed until January 17th, 2017, because the tenants had blocked access to the locations with an immobile car under repair and a pile of firewood, respectively. Monitoring wells MW-8, MW-9 and MW-10 were developed on November 30th, 2016, and the initial groundwater samples were collected on December 6th, 2016. Monitoring well MW-11 did not produce any water and remained dry through the initial sampling events of the other five wells. MW-11 contained approximately a one-foot column of groundwater and was sampled for the first time on February 22nd, 2017.

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2.2.6 Off-Site Monitoring Well Installation – January 2017

Monitoring wells MW-12 through MW-14 were installed on January 24th and 25th, 2017 to delineate the western boundary of the groundwater impacts previously identified and to evaluate if the groundwater impacts are reaching the unnamed tributary to Lower Twomile Run. Monitoring wells MW-12 through MW-14 were advanced and installed in the same manner as the Cribbs wells installed previously. Monitoring wells MW-12, MW-13, and MW-14 were each installed to a depth of 8.0 feet bgs. Six feet of screen was installed in monitoring wells MW-12 through MW-14. The sand pack extended 0.5 foot above the top of the screened interval and approximately one foot of bentonite pellets was placed above the sand pack and hydrated to create a seal to prevent the vertical migration of surface water into the monitoring wells. Flush mount protective covers were also installed on these three monitoring wells. The boring logs and well installation details for the three off-site wells installed in January 2017 are included in **Appendix B**.

The typical soil profile encountered by off-site monitoring well borings MW-12 through MW-14 was typically gray and brown silt and silty clay transitioning to gray silty clay between 5.0 feet bgs and 6.0 feet bgs. Light brown silty clay or sandy silty clay was encountered near the bottom of each boring. The silty clay in the three borings was typically damp to wet.

No hydrocarbon odors were encountered in the three off-site monitoring wells and the only elevated PID reading was observed at the surface of MW-12. One soil sample was obtained from each of the borings and submitted under chain of custody protocols to Pace Analytical Laboratories. Monitoring wells MW-12 through MW-14 were developed on January 25th, 2017 and the initial groundwater samples were collected on February 1st, 2017.

2.2.7 Monitoring Well Installation – May 2017

Monitoring well MW-15 was installed on May 24th, 2017 to delineate the eastern boundary of the groundwater impacts previously identified following the appearance of MTBE in monitoring well MW-8 in the groundwater samples collected on March 29th and April 25th, 2017. Monitoring well MW-15 was advanced and installed in the same manner as the Cribbs wells installed previously. Monitoring well MW-15 was installed to a depth of 12.5 feet bgs. Ten feet of screen was installed in monitoring well MW-15. The sand pack extended 0.5 foot above the top of the screened interval and 1.5 foot of bentonite pellets was placed above the sand pack and hydrated to create a seal to prevent the vertical migration of surface water into the monitoring well. A flush mount protective cover was installed on this monitoring well. The boring logs and well installation details for MW-15 are included in **Appendix B**.

The soil profile encountered by monitoring well boring MW-15 was a dark brown silty clay to a depth of 2.5 feet bgs. Orange brown clay with traces of silt and fine-grained sand were encountered below the silty clay to a depth of 9.5 feet bgs before transitioning to the same orange brown clay with interbedded layers of weathered sandstone to a total depth. The silty clay in the boring was moist and the clays were damp.

No hydrocarbon odors were encountered in monitoring well MW-15, therefore, no soil samples were obtained from this boring. Monitoring wells MW-15 was developed and the initial groundwater sample collected on June 12th, 2017.

2.3 Disposal of Investigation Derived Wastes

The soil cuttings generated during the soil sampling and monitoring well installation activities through July 2016 were added to the impacted soil stockpile created during the excavation of the impacted soil

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and product lines when the former UST system was removed in September 2015. The impacted soil stockpile was located on the adjoining Winger property located immediately east of the Seneca Mini Mart. Heath Oil, Inc. owns the Winger property through a subsidiary. The impacted soil stockpile was estimated to be approximately 150 cubic yards and was encased in 6-mil thick black plastic.

The impacted soil including the soil cuttings added to the soil stockpile were transported off-site for disposal. Sampling of the impacted soil stockpile was conducted on June 23rd, 2016 and a Form FC-1 for the disposal of soil impacted with unleaded gasoline was submitted to a Waste Management's Northwest Sanitary Landfill in West Sunbury, Butler County, PA for approval. On August 24th, 2016, 109.16 tons of impacted soil were transported to the Northwest Sanitary Landfill for disposal. Soil cuttings generated during the installation of monitoring wells MW-6 through MW-15 were placed in 55-gallon DOT drums and stored on the Subject Property. Following the analysis of the soil samples obtained from these wells that documented that none of the contaminants of concern exceeded their respective residential SHS MSCs the soil cuttings were spread on-site.

The decontamination water generated cleaning the drilling equipment, and the groundwater generated during the development and purging of the monitoring wells prior to sampling events and liquid phase hydrocarbons (LPH) recovery efforts was temporarily stored on-site in approved DOT 55-gallon steel drums. The water generated during the investigation was transported to the water treatment facility associated with the Heath Oil bulk storage facility in Barkeyville and subsequently treated. Copies of the disposal documents and waste manifests for the disposal of the soil stockpile and drilling wastes are provided in **Appendix C**.

2.4 Survey of Monitoring Wells and Evaluation of Groundwater Flow Direction

The elevations of the ground surface and the top of casing for each of the initial five groundwater monitoring wells was surveyed by Morris-Knowles & Associates, Inc. in late July, 2016 to determine groundwater elevations and to evaluate the groundwater flow direction. The newer on-site monitoring wells (MW-6 through MW-11) and the off-site monitoring wells (MW-12 through MW-14) were surveyed on April 11th, 2017. MW-15 was surveyed in to the network on July 31st, 2017. At the start of each groundwater sampling event the depth to groundwater was measured in each well and subtracted from the top of casing elevation for that well. The resulting groundwater elevation can be used to evaluate the groundwater flow direction at the Subject Property. **Table 2** presents the elevations for each of the groundwater sampling events conducted at the Subject Property.

Figure 3 presents a groundwater elevation contour map based on the measured groundwater elevations observed in monitoring wells MW-1 through MW-5 during the July 12th, 2016 sampling event. This map indicates that the groundwater flow pattern is generally to the west, however, monitoring well MW-4, located in the line of monitoring wells located adjacent to State Route 257 has the highest measured groundwater elevation. This creates a "bulge" in the groundwater flow map indicating that localized groundwater flow south of MW-4 is towards the southwest and that localized groundwater flow north of MW-4 is towards the northwest. This is may be the result of perched water accumulating in the vicinity of MW-4. The hydraulic gradient averages 0.181 ft./ft. between the high, upgradient, wells (MW-1 and MW-4) and the low, downgradient, wells (MW-2, MW-3 and MW-5).

Figure 4 presents a groundwater elevation contour map based on the measured groundwater elevations observed in wells MW-1 through MW-5 during the October 4th, 2016 sampling event. This map indicates that the groundwater flow pattern is generally to the west, however, monitoring well MW-4, located in the line of monitoring wells located adjacent to State Route 257 has the lowest measured groundwater

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elevation. The water table elevation rose in four of the five wells compared to the July 12th, 2016 measurement, however the water level in monitoring wells MW-2, MW-3 and MW-5 each rose almost four feet while MW-1 rose 0.06 foot and MW-4 dropped by 0.7 foot. The result of the changes in the water table likely reflect the perched conditions in the fill and results in a much shallower gradient because the difference between the high and low groundwater elevations is only 0.8 foot. The hydraulic gradient is 0.022 ft./ft. between the high, upgradient, well MW-1 and the low, downgradient well MW-2. The hydraulic gradient is 0.038 ft./ft. between the high, upgradient, well MW-5 and the low, downgradient well MW-4.

Figure 5 presents a groundwater contour map based on the measured groundwater elevations observed in monitoring wells MW-1 through MW-11 during the January 17th, 2017 sampling event and also includes the groundwater elevations obtained from MW-12, MW-13 and MW-14 from the February 1st, 2017 initial sampling event.

Figures 6 and **7** present the groundwater contour maps based on measurements obtained on March 28th-29th, 2017 and June 12, 2017 sampling events, respectively. All three figures (**Figures 5, 6** and **7**), indicate a localized high groundwater elevation in the vicinity of the former dispenser island with a radial flow towards the surrounding wells. The measured groundwater elevation for MW-11 on the three figures is very low compared the elevations measured in the other monitoring wells. MW-11 was still dry during the January and early February 2017 water level measurements and the well did contain some water during the March 29th 2017 water level measurements. Because MW-11 remained dry for so long it has likely not recovered to its static water level. Similarly, along with MW-11 the depth to water in monitoring wells MW-8 and MW-10 has been less each time since their initial sampling events through June 12, 2017, indicating that these three monitoring wells have not yet attained a true static water level. Monitoring well MW-15 installed on May 24th, 2017 and gauged for the first time on June 12th, 2017, also appears to be slow to attain a static water level.

Monitoring well MW-3 has consistently indicated the highest concentrations of the parameters detected at concentrations that exceed their respective residential and non-residential SHS MSCs. Monitoring well MW-3 is located immediately downgradient of the former dispenser islands. During the October 4th, 2016 gauging event 0.82 feet of LPH were observed in monitoring well MW-3. The product was bailed out of the well and placed into a 55-gallon DOT approved drum and stored on-site for future use. **Section 2.9** details product recovery efforts at the Subject Property following the discovery of LPH in MW-3.

2.5 Groundwater Sampling

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

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event was conducted on March 28th and 29th, 2017. Monitoring well MW-15 was initially sampled on June 12th, 2017 and the follow up sampling was conducted on July 31st, 2017.

Prior to conducting each of the groundwater sampling activities, static groundwater level measurements were obtained from each monitoring well in order to calculate groundwater elevations, as discussed above. These measurements are recorded on **Table 2**. These groundwater measurements were also used to determine the volume of water in each of the wells, to evaluate the water table elevation and groundwater flow direction.

Prior to sampling, the monitoring wells were purged 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".

Each well was purged using dedicated polyethylene tubing and a dedicated micro-purge low flow stainless steel submersible air lift (bladder) pump. As the wells were purged, the discharge water was pumped through a low-flow analysis chamber with a multi-parameter water quality sensor until all parameters (temperature, specific conductance, dissolved oxygen, pH, and ORP) had stabilized. Once the parameters had stabilized, the low-flow analysis chamber was removed and samples were collected directly into laboratory supplied sample containers with the appropriate preservatives. The samples were immediately placed on ice and delivered to Pace Analytical Laboratories in Greensburg, Pennsylvania under proper chain of custody. The samples were received by Pace laboratories in acceptable condition and ice was present in the cooler at the time of delivery. The samples were subsequently analyzed for the PADEP "new" shortlist of unleaded gasoline volatile organic compounds (VOCs) parameters including benzene, toluene, ethylbenzene, total xylene, MTBE, cumene, naphthalene, 1,2,4-TMB and 1,3,5-TMB. The laboratory analytical results are presented on **Table 3** and discussed further in **Section 4.2**.

All purge water generated during sampling activities was placed in 55-gallon, DOT approved drums. Because low flow sampling techniques were used, typically less than one drum of purge water and equipment decontamination water was generated per sampling event. The water generated during the groundwater sampling events was transported to the Heath Oil bulk fuel facility located in Barkeyville and its associated water treatment facility and subsequently treated. Copies of the waste disposal documentation are provided in **Appendix C**.

2.6 Soil Vapor Monitoring Point Installation

Soil vapor intrusion was evaluated as part of the site characterization activities as residential and non-residential SHSs were exceeded in the groundwater at the Subject Property. Two soil vapor points (VP-1 and VP-2) were installed at locations identified on **Figure 2** on August 30th, 2016. VP-1 was installed through the asphalt paving immediately in front of the Subject Property 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 "new" January 2017, Act 2 Technical Guidance Manual for Vapor Intrusion into Buildings regulations as sub-slab vapor points. Exposure pathways for soil vapor intrusion of chemicals of potential indoor air concern (COPIACs) were identified and the vapor points were installed as per the requirements of the site characterization.

Each of the vapor monitoring points was installed to depths of 2 feet below grade. Each vapor point was installed with a soil gas collection point constructed of 1"-diameter by 1-foot long, slotted PVC screen.

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The vapor monitoring points were dug via soft—dig methods (hand auger) and hand digging to remove the large cobbles and/or boulders. Once the borings were extended to an approximate depth of 2.0 feet, the PVC screen was installed to the base of the excavation. The screen was attached to 3/8" Teflon tube which extended to ground surface. The tubing was fitted with a neoprene sampling valve to allow for the collection of soil vapor samples. Medium coarse silica sand was then placed in the boring to a depth of approximately 0.5 feet (0.5 feet above the top of the soil vapor screen). The surface seal consists of bentonite pellets which were hydrated providing an air-tight surface seal. Steel manhole lids were installed at each location within a concrete surface pad to secure and protect the vapor monitoring points. The vapor point installation details are included in **Appendix B**.

Vapor samples were collected from the soil vapor monitoring points on October 4th, 2016 and confirmatory samples were collected on May 3rd, 2017. Evacuated (under vacuum) stainless steel canisters were connected to the sampling valve using a minimal length of clean polyethylene tubing, and the valves were then opened and the vacuum in the canister was allowed to equilibrate, drawing vapors from the monitoring point into the canister. After nearly equilibrating, the valves were closed prior to disconnecting the tubing. The canisters were 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.

2.7 Aquifer Characteristic Testing

To obtain general aquifer characterization data, slug tests were performed on three of the monitoring wells. Slug tests were conducted on monitoring wells MW-1, MW-2 and MW-4 on September 1st, 2016. 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. Slug testing activities were performed on the monitoring wells to provide hydro-geologic data for contaminant migration evaluation during fate and transport modeling.

Prior to starting the slug tests, static water levels were recorded in each of the monitoring wells. A downhole data logger (Solinst Levellogger) was subsequently lowered into the well and secured approximately 1 foot from the bottom of the well. The relative height of the water column above the data logger was then measures and recorded using the accompanying Levellogger software, manufactured by Solinist, Inc. Using this data collection system, water elevations (data points) were collected at one-second intervals, with a maximum of 7,200 records (2 hour) test duration, throughout the testing procedure.

A 1.0- inch diameter test slugs were placed in the well to provide initial water displacement in the well, (water level increase). Typically, a three-foot long slug was used for the wells. The previously emplaced downhole data logger recorded the change in the height of the water column at an interval of once per second as it returned to the original static water level (SWL) in each well (falling head test). Once the height of the water column returned to near static water level, the slug was then removed, (water level decrease). The data logger collected water level data at an interval of once per second as the water level gradually recovered (rising head test) to near static water level. Falling head tests and rising head tests were performed in each of the wells tested.

2.8 Stream Sampling

Grab samples were collected from the unnamed tributary to Lower Twomile Run on October 4th, 2016. The unnamed tributary is located on the opposite side of State Route 257. The Upstream sample was

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collected from a location approximately 100 feet south of where the stream emerges from the culvert that passes beneath the intersection of State Route 257 and Bredinsburg Road/East State Road. The Downstream sample was collected from the unnamed tributary at a location roughly west-southwest of MW-14. This location is downstream of the shortest distance from the most impacted monitoring well (MW-3) to the unnamed tributary. The stream sample locations are indicated on **Figure 2**. Additional stream samples were collected on March 29th, 2017 and June 12th, 2017 as part of the quarterly sampling events along with groundwater samples from all the existing monitoring wells. The stream samples were delivered under chain of custody protocols 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. The results of the stream samples are presented on **Table 3**. None of the parameters analyzed were detected at any concentration exceeding the laboratory method detection limit in either stream sample, therefore no impacts were observed.

2.9 Free Product Recovery

During the October 4th, 2016 gauging event, 0.82 feet of LPH were observed in monitoring well MW-3. Monitoring well MW-3 is located immediately downgradient of the former dispenser islands. Approximately 0.5 gallon of the product 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 LPH thickness on November 10th, 2016 was measured to be 0.3 foot. The LPH was stratified with an approximately one-inch thick dark weathered product layer over a yellowish-brown layer that was a mix of product and water. 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 0.25-inch and product recovery by hand bailing and absorbent socks has been conducted weekly through mid-December 2016 and roughly every other week since then.

In early February (February 9th, 2017), a sheen of petroleum hydrocarbons was observed in monitoring wells MW-2 and MW-4 during product recovery efforts from MW-3. Although no measurable product thickness was measured an absorbent sock was inserted in each of these wells. Subsequently a sheen of petroleum hydrocarbons has been 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. Product recovery efforts continue in monitoring wells MW-1 through MW-5. Other than MW-3, measurable product thickness has only been observed once in MW-4 on March 7th, 2017. **Table 4** presents the results of the product recovery efforts including measured product thicknesses, product recovered by bailing and estimated product recovered by absorbent socks. The estimated volume of the LPH recovered through bailing and absorbent socks is approximately 6.4794 gallons through August 10th, 2017.

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3.0 GEOLOGIC SETTING

3.1 Topography

The project Site is located on the east side of State Route 257 approximately 200 feet south of the intersection with Bredinsburg/East State Road. In the vicinity of the Subject Property the ground surface slopes gently to the west. As indicated in Figure 1 the ground surface at the Subject Property is approximately 1,450 feet above mean sea level (amsl). The high point on the Subject Property is approximately 1,453 feet amsl along the eastern property line behind the existing building and the low point in in the southwest corner with an approximate elevation of 1,448 feet amsl. Therefore, the Subject Property only has a total topographic relief of approximately five feet. An unnamed tributary to Lower Twomile Run is located approximately 90 feet west of the Subject Property on the opposite side of State Route 257. The unnamed tributary to Lower Twomile Run flows to the south before turning towards the southwest and joining Lower Twomile Run approximately 2 miles southwest of the Subject Property. Lower Twomile Run generally flows to the west entering the Allegheny River approximately 5.25 miles west of the Subject Property. In general, this portion of Seneca, Pennsylvania is located in an area of small, gently rolling hills on top of a plateau. The plateau is bounded with deep steeply sided valleys incised by the major rivers such as the Allegheny River and its major tributaries. The maximum relief in the area is approximately 250 feet, with a high elevation of approximately 1,540 feet amsl on nearby hills to the east of the Subject Property and the Allegheny River at approximately 1,000 feet amsl.

3.2 Regional Geology

The Subject Property is located within the Appalachian Plateaus Physiographic Province. It is located at the boundary between the Glaciated Pittsburgh Plateau Section and the Pittsburgh Low Plateau Section. The Glaciated Pittsburgh Plateau Section is characterized by smooth to irregular, undulating topography with shallow to moderate deranged wandering streams while the Pittsburgh Low Plateau Section is characterized by broad rolling plateaus separated by relatively narrow, steep walled, moderately incised valleys (The Geology of Pennsylvania, Charles H. Shultz, 1999, PA DCNR).

Stratigraphically, the bedrock underlying the Subject Property is located within the Pennsylvanian Aged rocks of the Pottsville Group (Pp). The Pottsville Group (Pp) consists of predominantly gray sandstone and conglomerate with thin beds of shale, claystone, limestone and coal. The base of the Pottsville Group is defined as the unconformity with the underlying Mississippian Age Shenango Formation (Ms). The Shenango Formation is predominantly light gray sandstone and medium gray shale with the upper third of the formation being more shaly. The boundary of the Pleistocene Age glacial till of the Mapledale Till of the Illinoian Stage as indicated on the Geologic Map of Pennsylvania intersects the Subject Property location.

The United States Department of Agriculture, Natural Resources Conservation Service, Soil Survey of Venango County identifies the soil type at the Subject Property as Brinkerton Silt Loam in the northwest corner of the parcel and Cavode Silt Loam over the majority of the Subject Property. The Brinkerton Silt Loam consists of deep, poorly drained soils that developed on uplands along narrow drainage ways in material weathered from shale and sandstones. The Cavode Silt Loam consists of deep, somewhat poorly drained soils that developed on nearly level uplands in material weathered from siltstone and shale.

The bedrock structure typically has moderate to low amplitude folds. Topographic relief is typically caused by glacial features, and fluvial erosion. Based on the elevations of the contacts between the Pennsylvania Age Pottsville Group and the underlying Mississippian Age Shenango Formation in the

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stream valleys observed on the Cranberry PA Map in the Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, the dip of the bedrock and the primary groundwater flow component within the bedrock is assumed to be toward the northwest (approximately N64°W at 0.65°).

3.3 Site Geology

Cribbs & Associates advanced six soil borings (SB-1 through SB-6) and five borings for monitoring wells (MW-1 through MW-5) at the Subject Property utilizing hollow stem auger drilling methods. Soil borings SB-7 through SB-20 and SB-22 through SB-24 were advanced using direct push Geoprobe® methods. Split spoon samplers were driven ahead of the augers in order to obtain undisturbed samples of the materials encountered for SB-1 through SB-6 and macro cores were used to collect undisturbed soil samples during the Geoprobe® investigations. Monitoring wells MW-6, MW-7 and MW-9 through MW-11 were installed on October 17th and 18th, 2016 in an attempt to delineate the northern, eastern and southern boundary of the groundwater impacts previously identified. Monitoring well MW-8 was installed on November 1, 2016. Monitoring wells MW-6 through MW-11 were advanced and installed in the same manner as the Cribbs wells installed previously. Monitoring wells MW-6, MW-10 and MW-11 were installed without collecting soil samples because they are located directly beneath the overhead powerlines, therefore, the mast used to collect split spoon samples could not be raised. A Geoprobe® was used to collect representative soil samples immediately adjacent to these three monitoring wells (MW-6, MW-10 and MW-11) on November 14th, 2016. Monitoring wells MW-12 through MW-14 were advanced using split spoon samplers ahead of hollow stem augers and installed on January 24th and 25th, 2017. The off-site wells were installed in the same manner as the Cribbs wells installed previously.

The soil samples and cuttings were utilized to describe the unconsolidated materials encountered as well as to conduct headspace screening and soil sampling activities as described above in **Section 2.2**. The soil borings and monitoring wells were typically advanced to total depths ranging from 8 feet bgs to 10.0 feet bgs. Only the boring for monitoring well MW-8 was advanced to a depth of 16.0 feet bgs. The materials encountered by the soil borings and the monitoring wells are described on the boring logs presented in **Appendix B**.

The typical soil profile encountered by soil borings SB-1 and SB-2 included several layers of fill starting with a yellowish-brown mix of clay, sand, silt and gravel ranging from 2 feet to 3 feet below ground surface (bgs). The typical soil profile for these borings included between 1.5 to 5.0 feet of brown rounded gravel with minor amounts of clay, sand and silt and wet fill over gray fine-grained sand fill material. Native soil encountered in the bottom 1.0 feet to 1.5 feet bgs included medium brown silty clay, some with gray mottling. These two borings (SB-1 and SB-2) were located in the former tank cavity resulting in the multiple layers of fill encountered.

The typical soil profile encountered by soil borings SB-3 through SB-6 included asphalt paving with gravel subbase extending to one to two feet bgs. Brown clay and gravel fill ranging from 1.5 to 5.5 feet thick overlaid the native soil material. The fill was typically thinner closer to the dispenser islands (SB-5 and SB-6). Native soils included brown and gray mottled silty clay with shale fragments, brown silty clay and sand and yellow brown and gray silty clay. Weathered bedrock was not encountered at the total depth of any of the borings.

The typical soil profile encountered by soil borings SB-7 through SB-17 included a layer of fill consisting of gray/brown/black Silty Clay with gravel and shale fragments. Some locations (SB-12, SB-13, and SB-14) also included slag and brick fragments. The fill continued to depths ranging from 2.5 feet bgs (SB-11) to 5.5 feet bgs (SB-8). Typically, gray brown silty clay with some shale fragments and occasional

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sand and gravel would underlie the fill material. The gray brown silty clay was frequently underlain by 0.5 feet to 1.5 feet of yellowish brown silty clay with gray mottling. In soil borings SB-9, SB-10, and SB-16, the gray brown silty clay continued to the borings total depth. Soil borings SB-7 through SB-17 typically became saturated (wet) between three feet bgs and five feet bgs. Weathered bedrock was not encountered at the total depth of any of the borings.

Monitoring wells MW-3, MW-4 and MW-5 were installed at the same locations used for soil borings SB-12, SB-15 and SB-17, respectively. Nearby soil borings SB-5 and SB-11 were used as the lithologic description for MW-1 and MW-2 respectively.

The typical soil profile encountered by soil borings SB-18 through SB-24 included a layer of fill consisting of gray/brown silty clay or sandy silty clay with gravel, sand and shale fragments directly beneath the asphalt at the surface. One location, SB-22, also included a layer of concrete beneath the asphalt but above the fill. The fill continued to depths ranging from 2.5 feet bgs (SB-23) to 7.0 feet bgs (SB-18). Typically, gray silty clay with some shale fragments and occasional sand and gravel would underlie the fill material. The gray brown silty clay was frequently underlain by 1.0 feet to 3.0 feet of light brown silty clay or sandy silty clay often with gray mottling. Soil borings SB-19 and SB-20 typically became saturated (wet) between four feet bgs and seven feet bgs. Weathered bedrock was not encountered at the total depth of any of the borings.

The typical soil profile encountered by monitoring well borings MW-6, MW-10 and MW-11 each started with six inches to eight-inches of asphalt over gravel subbase fill material to a depth of approximately one-foot bgs. Monitoring wells MW-7 and MW-8 started in unpaved areas and MW-9 encountered 0.5 foot of gravel at the ground surface. Fill material consisting of silty clay, clay, gravel, shale fragments and slag was encountered to depths ranging from 3.0 feet bgs to 5.0 feet bgs in these wells. Brown and gray silty clay was encountered below the fill material and is native soil. Monitoring wells MW-6, MW-10 and MW-11, the westernmost of these six wells, encountered yellowish brown silty clay from 6.0 feet bgs to their total depths. Monitoring well MW-8 encountered silty sand from 6.0 feet bgs to 13.0 feet bgs before transitioning to a gray and brown silt from 13.0 feet bgs to 15.0 feet bgs. Monitoring well MW-8 as the deepest of these wells was the only boring to encounter a weathered gray shale at the bottom of the boring at 16.0 feet bgs.

The typical soil profile encountered by off-site monitoring well borings MW-12 through MW-14 was typically gray and brown silt and silty clay transitioning to gray silty clay between 5.0 feet bgs and 6.0 feet bgs. Light brown silty clay or sandy silty clay was encountered near the bottom of each boring. The silty clay in the three borings was typically damp to wet.

The soil profile encountered by monitoring well boring MW-15 was a dark brown silty clay to a depth of 2.5 feet bgs. Orange brown clay with traces of silt and fine-grained sand were encountered below the silty cay to a depth of 9.5 feet bgs before transitioning to the same orange brown clay with interbedded layers of weathered sandstone to a total depth. The silty clay in the boring was moist and the clays were damp.

Strong hydrocarbon odors and/or elevated PID readings were noted in SB-3 (2.0' to 4.0'), and SB-5 (2.0'-4.0'), and slight petroleum odors were observed in SB-4 (4.0' to 6.0'). The highest PID readings in borings SB-1, through SB-6, ranged from 4.8 parts per million (ppm) in SB-1, to greater than 5,000 ppm in SB-3. Soil borings SB-1, SB-2, and SB-6 did not have any elevated PID readings or hydrocarbon odors.

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Strong hydrocarbon odors and elevated PID readings were noted in nine of soil borings SB-7 through SB-17 with only slight odors and moderate PID readings observed in SB-10 and SB-14. The highest PID readings in the other borings ranged as high as 3,970 ppm in SB-13 (2.0'-4.0').

Strong hydrocarbon odors and elevated PID readings were noted in soil borings SB-18, SB-22, SB-23, and SB-24 with only slight odors and moderate PID readings observes in SB-19 and SB-20. The highest PID readings in these borings ranged as high as 952 ppm in SB-18 (6.0'-8.0').

Of the monitoring wells installed in October and November, only MW-10 (7.0' to 9.0') indicated elevated PID readings and a slight hydrocarbon odor. No hydrocarbon odors were encountered in the three off-site monitoring wells and the only elevated PID reading was observed at the surface of MW-12. These elevated PID readings in the surface soils were most likely not associated with the reported release at the Seneca Mini Mart. No hydrocarbon odors were encountered in monitoring well MW-15, therefore, no soil samples were obtained from this boring.

The subsurface conditions including the areas of petroleum hydrocarbon impacts at the Subject Property and surrounding properties area are better described by a series of cross sections presenting the subsurface geology, soil sample intervals where the analytical results exceed the residential and non-residential SHS MSCs, PID readings corresponding to the soil intervals, and the location of monitoring wells that exceed groundwater residential and non-residential SHS MSCs relative to those wells and borings exhibiting soil impacts. **Figure 8** presents the Site Plan indicating the locations of the Cross Sections A - A' through E - E', respectively.

The cross sections indicate that the majority of the soil and groundwater impacts are most prevalent in the vicinity of the former dispenser islands, between the dispenser islands and State Route 257. The impacted area extends to just north of SB-18 and southward to SB-22. The majority of the impacts appear to be concentrated in the fill material and the brown and gray silty clay. The analytical results and PID headspace readings associated with the underlying yellowish brown silty clay are noticeably lower indicating that the change in lithology appears to coincide with a change in permeability that restricts the vertical migration of the impacts.

3.4 Site Hydrogeology

3.4.1 Surface Water

An unnamed tributary to Lower Twomile Run is located approximately 90 feet west of the Subject Property across State Route 257. The unnamed tributary flows to the south before turning towards the southwest joining Lower Twomile Run approximately 2 miles southwest of the Subject Property. Lower Twomile Run generally flows to the west entering the Allegheny River approximately 5.25 miles west of the Subject Property. The topography and the unnamed tributary to Lower Twomile Run are shown on the Site Location Map included as **Figure 1**. Because much of the Subject Property is relatively flat and covered with poorly drained soils it is not uncommon to have puddles of standing water on the non-paved area of the Subject Property following precipitation events. The nearest surface water to the Subject Property is the unnamed tributary to Lower Twomile Run, almost directly across State Route 257 from the Subject Property.

Shallow perched groundwater frequently exists in the unconsolidated soil above the soil overburden/bedrock interface. Typically, in this region, the surface of the bedrock mimics the ground surface topography. Therefore, the inferred direction of shallow groundwater flow within the

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unconsolidated soil zone across the Subject Property is expected to be toward the west or southwest, since the Site slopes gently from the east to west.

In the vicinity of the former dispenser island, particularly, monitoring wells MW-1 through MW-5 groundwater is very shallow, frequently less than 2.0 feet below the top of casing (btoc). Precipitation from the canopy is discharged to the ground surface where the former dispenser island was removed. This water infiltrates into the fill material creating a shallow bath tub. The yellowish brown silty clay observed in soil borings SB-6, SB-7, SB-8, SB-11, SB-12, SB-13, SB-14, SB-15 and SB-17 and monitoring wells MW-2 through MW-6, MW-10 and MW-11 at depths ranging from 6.0 feet bgs to 7.5 feet bgs appears to be a confining layer preventing the vertical migration of groundwater and the contaminants of concern. The depth to water of the other surrounding monitoring wells (MW-6 through MW-14) is typically 1.5 feet to 2.0 feet deeper than the water elevations observed in the bath tub area.

3.4.2 Groundwater Occurrence

The first five monitoring wells installed at the Subject Property are screened across the shallow unconfined aquifer, with total depths of 8.0 feet bgs. These wells initially had water levels that are between 1.19 feet btoc (MW-4, July 12th, 2016) and 5.72 feet btoc (MW-5, July 12th, 2016). The October 4th, 2016 measurements indicated a narrower range in the depth to groundwater readings ranging from 1.03 feet btoc (MW-5) to 1.89 feet btoc (MW-4). The January 17th, 2017 measurements indicated that the depth to the groundwater surface ranged from 0.89 feet btoc (MW-2) to 1.16 feet btoc (MW-1). The March 29th, 2017 measurements indicated that the depth to the groundwater surface ranged from 0.95 feet btoc (MW-3) to 1.53 feet btoc (MW-1). Monitoring wells MW-1 through MW-5 are used to monitor the perched shallow unconfined aquifer in the unconsolidated material. All the monitoring wells were kept shallow to avoid penetrating a layer of cleaner yellow brown silty clay identified below the most impacted horizons.

The initial depth to groundwater measurements in monitoring wells MW-8 (11.60 feet btoc), MW-9 (10.18 feet btoc), and MW-10 (8.5 feet btoc) indicated that these wells had not yet fully recharged following their installations. Measurements at later dates (January 17th, 2017 and March 29th, 2017 indicated much higher groundwater table elevations in these wells. Monitoring well MW-11 remained dry until February 22nd, 2017 and may still not have reached its true water table elevation as of the March 19th, 2017 reading. The delays in these wells recharge was likely due to the clay materials in the native soils. From their initial measurement through June 13th, 2017 the depth to water observed in monitoring wells MW-8, MW-10 and MW-11 has progressively decreased, indicating that the measured water level has continued to rise. Therefore, it appears that the true static water level in these wells has not been attained. Since monitoring well MW-11 was initially dry for several months it appears that clays in these wells continues to retard groundwater inflow.

The depth to groundwater in the off-site monitoring wells (MW-12, MW-13 and MW-14), located near the unnamed tributary to Lower Twomile Run, ranged from 3.16 feet below top of casing (btoc) to 5.61 feet btoc.

3.4.3 Groundwater Flow

Groundwater elevations have been obtained from the monitoring wells typically during their initial sampling event. Monitoring wells MW-1 through MW-5 were gauged for the first time on July 12th, 2016.

Figure 3 presents a groundwater elevation contour map based on the measured groundwater elevations observed in monitoring wells MW-1 through MW-5 during the July 12th, 2016 sampling event. This map

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indicates that the groundwater flow pattern is generally to the west, however, monitoring well MW-4, located in the line of monitoring wells located adjacent to State Route 257 has the highest measured groundwater elevation. This creates a "bulge" in the groundwater flow map indicating that localized groundwater flow south of MW-4 is towards the southwest and that localized groundwater flow north of MW-4 is towards the northwest. This may be the result of perched water accumulating in the vicinity of MW-4.

Figure 4 presents a groundwater elevation contour map based on the measured groundwater elevations observed in wells MW-1 through MW-5 during the October 4th, 2016 sampling event. This map indicates that the groundwater flow pattern is generally to the west, however, monitoring well MW-4, located in the line of monitoring wells located adjacent to State Route 257 has the lowest measured groundwater elevation. The water table elevation rose in four of the five wells compared to the July 12th, 2016 measurement, however the water level in monitoring wells MW-2, MW-3 and MW-5 each rose almost four feet while MW-1 rose 0.06 foot and MW-4 dropped by 0.7 foot. The result of the changes in the water table likely reflect the perched conditions in the fill and results in a much shallower gradient because the difference between the high and low groundwater elevations is only 0.8 foot. The hydraulic gradient is 0.022 ft./ft. between the high, upgradient, well MW-1 and the low, downgradient well MW-2. The hydraulic gradient is 0.038 ft./ft. between the high, upgradient, well MW-5 and the low, downgradient well MW-4.

Following the installation of monitoring wells MW-6 through MW-11 it appears the MW-6 and MW-7 also are screened in the shallow perched unconsolidated aquifer, but that monitoring wells MW-8 through MW-11 made very little water, initially. This could be the result of significant amount of clay in the native soils. Additionally, these four wells do not appear to show connection to the saturated sand and gravel material in the vicinity of the former dispenser islands in front of the Seneca Mini Mart building.

Figure 5 presents a groundwater contour map based on the measured groundwater elevations observed in monitoring wells MW-1 through MW-11 during the January 17th, 2017 sampling event and also includes the groundwater elevations obtained from MW-12, MW-13 and MW-14 from the February 1st, 2017 initial sampling event. **Figures 6** and **7** present the groundwater contour maps based on measurements obtained on March 28th-29th, 2017 and June 12, 2017, sampling events, respectively. All three figures (**Figures 5, 6** and **7**), indicate a localized high groundwater elevation in the vicinity of the former dispenser island with a radial flow towards the surrounding wells. The measured groundwater elevation for MW-11 on the three figures is very low compared the elevations measured in the other monitoring wells. MW-11 was still dry during the January and early February 2017 water level measurements and the well did contain some water during the March 29th, 2017 water level measurements. Because MW-11 remained dry for so long it has likely not recovered to its static water level. Similarly, along with MW-11 the depth to water in monitoring wells MW-8 and MW-10 has been less each time since their initial sampling events through June 12, 2017, indicating that these three monitoring wells have not yet attained a true static water level. Monitoring well MW-15 installed on May 24th, 2017 and gauged for the first time on June 12th, 2017, also appears to be slow to attain a static water level.

Groundwater impacts, which will be discussed in greater detail in **Section 4.2**, indicate that the groundwater flow direction in the shallow unconfined aquifer must predominantly be to the west as evidenced by impacts observed in MW-3 (highest initial concentrations for most parameters), MW-1, MW-2, MW-4, MW-5, and to a much lesser degree MW-10 with impacts spread across wells from the north to the south of MW-3. High concentrations of benzene, ethylbenzene, toluene, total xylenes, MTBE, 1,2,4-TMB and 1,3,5-TMB exceeding the residential and non-residential SHS MSCs were

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observed in MW-3. Lower concentrations were observed in MW-5 (six exceedances), MW-2 (five exceedances), MW-4 (four exceedances), MW-1 (four exceedances) and MW-10 (two exceedances). The initial sampling event for MW-8, on December 6th, 2016, indicated no exceedances, however, the second-round groundwater sample obtained from MW-8 on March 28th, 2017 indicated an exceedance for MTBE with the highest concentration of MTBE (422 μg/l) observed on-site to that date. A single sample was collected from Monitoring well MW-8 on April 25th, 2017 to confirm the March 28th result. The analysis of the sample indicated an increase in the MTBE concentration to 520 μg/l. MW-8 was sampled for the fourth time on June 12th, 2017. Monitoring well MW-15 was installed to delineate the eastern edge of the plume beyond MW-8. The lack of impacts in monitoring wells MW-6, MW-7, MW-9, MW-11 and MW-15 indicates the limits of the plume in those directions and that impacted groundwater in not traveling to the north, east or south. The lack of impacts in off-site and downgradient monitoring wells MW-12, MW-13 and MW-14 to the west indicated that the leading edge of the plume is under State Route 257 and that the impacts have not made it to the unnamed tributary to Lower Twomile Run yet.

3.4.4 Aquifer Characterization

Slug tests were conducted on monitoring wells MW-1, MW-2, and MW-4 on September 1st, 2016. Because the 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 monitoring wells installed primarily in native soil material. Slug testing activities were performed on the monitoring wells to provide hydro-geologic data for contaminant migration evaluation during fate and transport modeling as described above in **Section 2.4**. Both falling head and rising head tests were conducted in each of the monitoring wells.

The data collected using the Solinst Levellogger was plotted in the field to examine the raw data and corresponding curve for valid test confirmation. The data file was subsequently extracted into a spreadsheet where the data could then be filtered and interpreted using an excel spreadsheet based Hvorslev Method for determination of hydraulic conductivity. **Table 5** presents the Aquifer Characteristics.

Appendix D presents the individual hydraulic conductivity excel worksheet (Hvorslev) for each of the slug testes performed. The geometric mean of the hydraulic conductivities for the three initial monitoring wells slug tested, including both the falling head and rising head results, at the Subject Property is 1.104 ft./day or 5.716E⁻⁴ cm/sec. 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, at the Subject Property is 0.1279 ft./day or 4.510E⁻⁵ cm/sec. The native soils are apparently almost one order of magnitude less conductive that the wells in the fill material.

The groundwater seepage velocity (average linear velocity) for the shallow unconfined aquifer has been calculated using the equation below:

$$V = \frac{-K}{n} \frac{\delta h}{\delta l}$$

Where: V = Average Velocity-K = Hydraulic Conductivity

n = Porosity

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$$\frac{\delta h}{\delta l}$$
 = Hydraulic Gradient

Using the measured hydraulic gradient from monitoring wells MW-3 to MW-13, measured on June 12, 2017 is 0.079 ft./ft., the calculated hydraulic conductivity geometric mean value of 1.104 ft./day (or 5.716E⁻⁴ cm/sec.), and an estimated effective porosity of 35 percent for unconsolidated soil and fill, a groundwater seepage velocity (average linear velocity) of 0.2492 ft./day has been calculated for the shallow unconsolidated aquifer installed in the fill material surrounding the dispenser island. A groundwater seepage velocity of 0.02886 ft./day was calculated for unconsolidated aquifer installed in the native soil.

3.5 Subsurface Utilities

Subsurface utilities in the vicinity of the impacted soil and groundwater at the Subject Property could act as preferential migration pathways for impacted groundwater and or vapors. The structure on the Subject Property is serviced by municipal water, sanitary sewer, and natural gas. **Figure 2** presents the locations of the subsurface utilities in the vicinity of the Subject Property.

The municipal water line enters the Subject Property and the on-site structure from the north side of the building and continues on to the south to service the building on the adjoining Seneca Motors used car lot. The municipal water line is approximately two to four feet below the ground surface and the majority of the line is not located within the area of soil or groundwater impacts. The exception to this is the section of water line located just west of monitoring well MW-8 where the water line could intersect the water table.

Sanitary sewer lines are located along both sides of State Route 257, with the eastern line under the curb line and the western line under the traffic lanes. According to Mr. Mike Erwin of the Cranberry Township Utility Department the sanitary sewer lines are 8-inch diameter terra cotta pipes buried at a depth of eight feet bgs. The service line to the Subject Property building runs from the manhole north of MW-5 to the northeast corner of the Subject Property structure. The sanitary sewer line on the east side of State Route 257 is located in the area with the most heavily impacted soil and groundwater, however, its depth of eight feet bgs puts it below the bulk of the impacts.

Storm sewer lines are present along State Route 257 at locations north and south of the Subject Property. These storm sewer lines run perpendicular to the highway, discharging into the unnamed tributary to Lower Twomile Run. The storm sewers are also located outside the area of known soil and groundwater impacts. The base of the storm drain lines are approximately five feet bgs based on measurements taken at the inlet grates north of MW-6.

A natural gas service line enters the Subject Property between monitoring wells MW-5 and MW-6 and crosses to the gas meter located on the north side of the Subject Property structure near the northwest corner of the building. According to Mike Young of National Fuel, the main National Fuel gas trunk line is located on the opposite side of State Route 257 at a depth of 3 to 4 feet below grade, depending on the amount of post-installation fill material was subsequently placed above the line. Due to the shallow groundwater levels on the subject property, the natural gas service line in the vicinity of MW-5 is likely at a depth that could intersect the water table. However, the main trunk line on the west side of State Route 257 is above the water table, based on water level measurements in the off-site wells.

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4.0 SITE CHARACTERIZATION ANALYTICAL RESULTS

4.1 Soil Analytical Results

The analytical results of the soil samples collected during the soil boring programs on April 27th and 29th, 2016 (SB-1 through SB-6), June 14th, 2016, (SB-7 through SB-17), September 14th, 2016 (SB-18 through SB-20 and SB-22 through SB-24), October and November 2016 (MW-6 through MW-11), and January 24th and 25th, 2017 (MW-12, MW-13 and MW-14) are included on **Table 1**. The locations of these soil samples are shown on **Figure 2**. The soils were screened in the field using a PID to select the samples to be submitted for laboratory analysis. The soil samples were delivered under appropriate chain of custody documentation to Pace Analytical Services, in Greensburg, Pennsylvania and analyzed for the PADEP 'new" Shortlist for unleaded gasoline parameters including benzene, toluene, ethylbenzene, total xylenes, cumene, naphthalene, MTBE, 1,2,4-TMB and 1,3,5-TMB.

Multiple parameters were detected at concentrations that exceeded their respective residential soil to groundwater SHS MSCs. 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') had concentrations of benzene that exceeded the non-residential soil to groundwater SHS MSC of 500 micrograms per kilogram (μ g/kg), ranging from 553 μ g/kg to 101,000 μ g/kg. Two of the soil samples [SB-12 (3.0'-4.0') and SB-15 (3.0'-4.0')] had benzene concentrations that also exceeded the residential direct contact SHS MSCs of 57,000 μ g/kg.

Soil samples 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') had concentrations of ethylbenzene that exceeded the non-residential soil to groundwater SHS MSC of 70,000 μ g/kg, ranging from 87,100 μ g/kg to 397,000 μ g/kg. Two of the soil samples [SB-3 (2.0'-4.0') and SB-15 (3.0'-4.0')] had ethylbenzene concentrations that also exceeded the residential direct contact SHS MSCs of 180,000 μ g/kg.

Soil samples 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'), 4.0') had elevated laboratory detection limits for MTBE that exceeded the non-residential soil to groundwater SHS MSC of 2,000 μ g/kg, ranging from <2,070 μ g/kg to <25,100 μ g/kg. While MTBE was not directly identified, due to the elevated laboratory method detection limits, required due to dilutions needed for other parameters, the gap between the elevated laboratory detection limits and the SHS MSC indicates that MTBE could be present at concentrations that exceed the SHS MSC.

Soil samples 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') had concentrations of naphthalene that exceeded the non-residential soil to groundwater SHS MSC of $25,000 \mu g/kg$, ranging from $30,200 \mu g/kg$ to $119,000 \mu g/kg$.

Toluene was detected at concentrations exceeding its non-residential soil to groundwater SHS MSC of $100,000~\mu g/kg$ in soil samples SB-11 (3.0'-4.0') (115,000 $\mu g/kg$) and SB-15 (3.0'-4.0') (327,000 $\mu g/kg$). Toluene was detected in several other samples but at concentrations that did not exceed the SHS MSC.

Soil samples 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') had concentrations of 1,2,4-TMB that exceeded the non-residential soil to groundwater SHS MSC of 35,000 μ g/kg, ranging from 40,000 μ g/kg to 895,000 μ g/kg. Seven of the above soil samples had 1,2,4-TMB concentrations that also exceeded the residential direct contact SHS MSCs of 130,000 μ g/kg.

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SB-3 (3.0'-4.0') also exceeded the non-residential surface soil (0'-2') SHS MSC for 1,2,4-TMB of 560,000 μ g/kg and SB-15 (3.0'-4.0') exceeded the non-residential surface soil (2'-15') SHS MSC for 1,2,4-TMB of 640,000 μ g/kg. The soil samples obtained from SB-10 (4.0'-5.0'), SB-12 (3.0'-4.0'), and SB-24 (6.0'-8.0') each exceeded the residential soil to groundwater SHS MSC of 8,400 μ g/kg.

1,3,5-TMB was detected at concentrations exceeding its non-residential soil to groundwater SHS MSC of 210,000 μ g/kg in soil sample SB-15 (3.0'-4.0') (291,000 μ g/kg). 1,3,5-TMB was detected in SB-3 (2.0'-4.0'), SB-11 (3.0'-4.0'), SB-13 (3.0'-4.0'), and SB-17 (3.0'-4.0') at concentrations that did exceed the residential soil to groundwater SHS MSC of 74,000 μ g/kg.

Total xylenes were detected at concentrations exceeding its non-residential soil to groundwater SHS MSC of 1,000,000 μ g/kg in soil samples SB-3 (2.0'-4.0') (1,110,000 μ g/kg), and SB-15 (3.0'-4.0') (2,030,000 μ g/kg). Only the sample from SB-15 (3.0'-4.0') also exceeds the residential direct contact (0'-2') SHS MSC of 1,900,000 μ g/kg.

Many of the soil samples in the vicinity of the dispenser islands and canopy were collected from saturated soils because of the perched water in the vicinity. The non-residential saturated soil standards for naphthalene, 1,2,4-TMB and 1,3,5-TMB are typically lower than the non-residential soil to groundwater SHS MSCs, however, in this area these samples typically also exceed the higher values and other parameters in the sample also exceed their SHS MSCs. Potential remedial activities discussed below in **Chapter 8.0** favor the excavation of these impacted soils eliminating the conditions causing the perched water table in the vicinity and removing those samples that exceed their respective residential and non-residential SHS MSCs.

Of the other soil sample parameters that indicated detectable concentrations of the parameter analyzed, none had any parameters that exceeded their respective residential SHS MSCs.

Soil sampling analytical results obtained during the installation of monitoring wells MW-6 through MW-14 had only a few parameters detected and none that exceeded the more stringent residential SHS MSCs, respectively. Only one sample, MW-10 (8.0'-10.0') resulted in a slightly elevated laboratory method detection limits, none of which exceeded their respective residential SHS MSCs. The cross sections (**Figures 9** through **13**) also indicate the horizons where one or more soil parameters exceeded their respective residential and non-residential SHS MSCs.

The soil analytical results presented on **Table 1** were also compared to the non-residential vapor intrusion screening values. Detected concentrations or elevated laboratory method detection limits exceeded the non-residential vapor intrusion screening values for benzene (nineteen samples), ethylbenzene (ten samples), toluene (two samples), total xylenes (two samples), MTBE (five samples), naphthalene (six samples), 1,2,4-TMB (eleven samples), and 1,3,5-TMB (one sample). The exceedance of the non-residential vapor intrusion screening values indicates that the potential for vapor intrusion exists and that vapor sampling is required. The laboratory reports from the analysis of the soil samples are attached in **Appendix E**.

4.2 Groundwater Analytical Results

As mentioned above Cribbs & Associates performed an initial round of groundwater sampling of monitoring wells MW-1 through MW-5 on July 12th, 2016, as part of the characterization activities. Monitoring wells MW-1 through MW-5 were sampled for the second time on October 4th, 2016. The groundwater samples were placed on ice as they were collected and delivered under appropriate chain of custody documentation to Pace Analytical Services, in Greensburg, Pennsylvania and analyzed for the

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PADEP" new" Shortlist for unleaded gasoline parameters including benzene, toluene, ethylbenzene, total xylenes, cumene, naphthalene, MTBE, 1,2,4-TMB and 1,3,5-TMB.

During the initial July 12th, 2016 sampling event, benzene was detected in monitoring wells MW-1 through MW-5 at concentrations exceeding the residential and non-residential SHS MSC of 5 µg/l, ranging from 63.2 µg/l in MW-1 to 15,000 µg/l in MW-3. Ethylbenzene was detected in three monitoring wells, MW-3, MW-4 and MW-5, at concentrations exceeding the residential and non-residential SHS MSC of 700 µg/l, ranging from 1,240 µg/l in MW-4 to 3,070 µg/l in MW-3. MTBE was detected at concentrations exceeding the residential and non-residential SHS MSC of 20 µg/l, in two monitoring wells, MW-3 at 41.7 μg/l, and MW-5 at 51.7 μg/l. Naphthalene was detected at concentrations exceeding the residential and non-residential SHS MSC of 100 µg/l, in four out of five monitoring wells ranging from 150 µg/l in MW-5 to 291 µg/l in MW-4. One of those four wells that exceeded the residential and non-residential SHS MSC was MW-3, where the reported laboratory detection limit for naphthalene was <500 µg/l. Toluene was detected at a concentration exceeding the residential and non-residential SHS MSC of 1,000 µg/l, in MW-3 with a concentration of 10,500 µg/l. 1,2,4-TMB was detected in all five monitoring wells at concentrations exceeding the non-residential SHS MSC of 62 µg/l, ranging from 301 μg/l in MW-1 to 2,300 μg/l in MW-3. 1,3,5-TMB was detected in all five monitoring wells, however, only the samples from MW-3 (595 µg/l) and MW-5 (485 µg/l) exceeded the residential SHS MSC of 420 μg/l. None of the 1,3,5-TMB concentrations exceeded the non-residential SHS MSC of 1,200 μg/l. Total xylenes were detected at a concentration of 15,600 µg/l in MW-3, exceeding the residential and nonresidential SHS MSC of 10,000 µg/l.

During the second sampling event, October 4th, 2016, monitoring wells MW-1 through MW-5 were sampled and upstream and downstream samples were collected from the unnamed tributary to Lower Twomile Run. Benzene was detected in monitoring wells MW-1 through MW-5 at concentrations exceeding the residential and non-residential SHS MSC of 5 µg/l, ranging from 92.1 µg/l in MW-1 to 17,800 µg/l in MW-3. Ethylbenzene was detected in four monitoring wells, MW-1, MW-2, MW-3, and MW-5, at concentrations exceeding the residential and non-residential SHS MSC of 700 µg/l, ranging from 752 µg/l in MW-2 to 3,000 µg/l in MW-3. MTBE was detected at concentrations exceeding the residential and non-residential SHS MSC of 20 µg/l, in three monitoring wells, MW-2 at 21.3 µg/l, MW-3 at 39.7 µg/l, and MW-5 at 75.5 µg/l. Naphthalene was detected at concentrations exceeding the residential and non-residential SHS MSC of 100 µg/l in all five monitoring wells sampled, ranging from 133 µg/l in MW-4 to 411 µg/l in MW-3. Toluene was detected at a concentration exceeding the residential and non-residential SHS MSC of 1,000 µg/l, in MW-3 with a concentration of 10,200 µg/l. 1,2,4-TMB was detected in all five monitoring wells at concentrations exceeding the non-residential SHS MSC of 62 µg/l, ranging from 313 µg/l in MW-4 to 2,020 µg/l in MW-3. 1,3,5-TMB was detected in all five monitoring wells, however, only the samples from MW-3 (557 µg/l) and MW-5 (554 µg/l) exceeded the residential SHS MSC of 420 µg/l. None of the 1,3,5-TMB concentrations exceeded the nonresidential SHS MSC of 1,200 µg/l. Total xylenes were detected at a concentration of 15,600 µg/l in MW-3, exceeding the residential and non-residential SHS MSC of 10,000 µg/l.

The initial groundwater sampling results for monitoring wells MW-6 through MW-10, collected between December 6^{th} , 2016 and January 17^{th} , 2017, only indicated the presence of benzene (16.3 μ g/l) and 1,2,4-TMB (260 μ g/l) in the groundwater collected from MW-10 at concentrations that exceeded their respective non-residential SHS MSCs of 5 μ g/l and 62 μ g/l. The groundwater samples collected from the

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three off-site monitoring wells; MW-12, MW-13 and MW-14 on February 1st, 2017 were below the laboratory method detection limits and residential SHS MSCs for all parameters. Monitoring well MW-11 could not be sampled until February 22nd, 2017 due to insufficient water in the well. This sample was also non-detect for all parameters except MTBE, which was detected at a concentration of 11.6 μ g/l, below the residential and non-residential SHS MSC of 20 μ g/l.

Samples were collected from all fourteen monitoring wells and both stream sample locations on March 28th and 29th, 2017. This was the first event where all fourteen monitoring wells were sampled simultaneously.

Benzene was detected in monitoring wells MW-1 through MW-5 and MW-10 at concentrations exceeding the residential and non-residential SHS MSC of 5 μ g/l, ranging from 8.9 μ g/l in MW-10 to 13,400 μ g/l in MW-3. Ethylbenzene was detected in three monitoring wells, MW-3, MW-4 and MW-5, at concentrations exceeding the residential and non-residential SHS MSC of 700 μ g/l, ranging from 764 μ g/l in MW-4 to 4,410 μ g/l in MW-3. MTBE was detected at concentrations exceeding the residential and non-residential SHS MSC of 20 μ g/l, in three monitoring wells, MW-3 at <25.0 μ g/l (elevated laboratory method detection limit), MW-5 at 40.6 μ g/l and for the first time in MW-8 at 422 μ g/l. Monitoring well MW-8 was resampled on April 25th, 2017, to confirm the recent indication of MTBE and resulted in an MTBE concentration of 520 μ g/l. The sudden appearance of MTBE at such a high concentration in MW-8 appears anomalous compared to the concentrations observed in the more heavily contaminated wells closer to the dispenser island, but could be the result of the more mobile MTBE flushing away from the source location.

Naphthalene was detected at concentrations exceeding the residential and non-residential SHS MSC of $100~\mu g/l$, in four monitoring wells ranging from $145~\mu g/l$ in MW-4 to $880~\mu g/l$ in MW-3. Toluene was detected at a concentration exceeding the residential and non-residential SHS MSC of $1,000~\mu g/l$, in MW-3 with a concentration of $8,810~\mu g/l$. 1,2,4-TMB was detected in monitoring wells MW-1 through MW-5 and MW-10 at concentrations exceeding the non-residential SHS MSC of $62~\mu g/l$, in monitoring wells MW-1 through MW-5, ranging from $118~\mu g/l$ in MW-2 to $4,920~\mu g/l$ in MW-3. The 1,2,4-TMB concentration observed in MW-10, ($22.3~\mu g/l$) exceeded the residential SHS MSC of $15~\mu g/l$ but not the non-residential SHS MSC on $62~\mu g/l$. 1,3,5-TMB was detected in monitoring wells MW-1 through MW-5, however, the sample from MW-3 ($1,590~\mu g/l$) exceeded the non-residential SHS MSC of $1,200~\mu g/l$ and MW-5 ($585~\mu g/l$) exceeded the residential SHS MSC of $420~\mu g/l$. Total xylenes were detected in monitoring wells MW-1 through MW-5 but only MW-3 ($23,900~\mu g/l$) indicated a concentration that exceeded the residential and non-residential SHS MSC of $10,000~\mu g/l$.

Samples were collected from all fifteen monitoring wells (MW-15 installed on May 24th, 2017) and both stream sample locations on June 12th and 13th, 2017. Benzene was detected in monitoring wells MW-1 through MW-5 and MW-10 at concentrations exceeding the residential and non-residential SHS MSC of 5 μ g/l, ranging from 5.3 μ g/l in MW-10 to 17,000 μ g/l in MW-3. Ethylbenzene was detected in two monitoring wells, MW-3, and MW-5, at concentrations exceeding the residential and non-residential SHS MSC of 700 μ g/l, ranging from 2,980 μ g/l in MW-3 to 3,020 μ g/l in MW-5. MTBE was detected at concentrations exceeding the residential and non-residential SHS MSC of 20 μ g/l, in three monitoring wells, MW-3 at <25.0 μ g/l, MW-5 at 61.3 μ g/l and at 421 μ g/l in MW-8. Naphthalene was detected at concentrations exceeding the residential and non-residential SHS MSC of 100 μ g/l, in three monitoring wells ranging from 153 μ g/l in MW-4 to 4,470 μ g/l in MW-5. Toluene was detected at a concentration

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exceeding the residential and non-residential SHS MSC of 1,000 μ g/l, in MW-3 with a concentration of 7,270 μ g/l. 1,2,4-TMB was detected in monitoring wells MW-1 through MW-5 at concentrations exceeding the non-residential SHS MSC of 62 μ g/l, in monitoring wells MW-1 through MW-5, ranging from 179 μ g/l in MW-2 to 3,510 μ g/l in MW-5. The 1,2,4-TMB concentration observed in MW-10, previously recorded as (22.3 μ g/l) exceeding the residential SHS MSC of 15 μ g/l but not the non-residential SHS MSC on 62 μ g/l had decreased to 6.4 μ g/l, below the most stringent SHS MSC. 1,3,5-TMB was detected in monitoring wells MW-1 through MW-5, however, none of the detected concentrations exceeded the non-residential SHS MSC of 1,200 μ g/l although MW-3 (595 μ g/l) and MW-5 (1,040 μ g/l) exceeded the residential SHS MSC of 420 μ g/l. Total xylenes were detected in monitoring wells MW-1 through MW-5 but only MW-3 (16,800 μ g/l) indicated a concentration that exceeded the residential and non-residential SHS MSC of 10,000 μ g/l.

Other than the benzene and 1,2,4-TMB in MW-10 and MTBE in MW-8 all the parameters were below their respective residential and non-residential SHS MSCs in monitoring wells MW-6 through MW-14. The laboratory analytical results for the groundwater are presented on **Table 3**. **Figure 14** presents selected groundwater analytical results for the monitoring wells. Only the monitoring wells that had an exceedance of the residential and non-residential SHS MSCs are included on **Figure 14**, those wells that had detectable quantities of the contaminants of concern that were below the residential and non-residential SHS MSCs are not included on this figure. The cross sections (**Figures 9** through **13**) also indicate the monitoring wells where one or more groundwater parameters exceeded their respective residential and non-residential SHS MSCs.

The groundwater analytical results presented on **Table 3** were also compared to the non-residential vapor intrusion screening values. Detected concentrations exceeded the non-residential vapor intrusion screening values for benzene (sixteen samples, MW-2 through MW-5), ethylbenzene (ten samples, MW-1, MW-3, MW-4 and MW-5), total xylenes (four samples, MW-3), naphthalene (one sample, MW-5), 1,2,4-TMB (eleven samples, MW-2 through MW-5 and MW-10), and 1,3,5-TMB (one sample, MW-3). The exceedance of the non-residential vapor intrusion screening values indicates that the potential for vapor intrusion exists and that vapor sampling is required. The laboratory reports for the site characterization groundwater samples are attached in **Appendix F**.

4.3 Stream Sampling Analytical Results

Grab samples were collected from the unnamed tributary to Lower Twomile Run on located on the opposite side of State Route 257 on October 4th, 2016, March 29th, 2017 and June 12th, 2017. The stream samples were delivered under chain of custody protocols to Pace in Greensburg, PA and analyzed for the "new shortlist" for unleaded gasoline parameters utilizing U.S.EPA Method 8260. This shortlist includes; benzene, toluene, ethylbenzene, total xylene, MTBE, cumene, naphthalene, 1,2,4-TMB and 1,3,5-TMB. The results of the stream samples are presented on **Table 3**. None of the parameters analyzed were detected at any concentration exceeding the laboratory method detection limit in either stream sample, therefore, no impacts were observed. The laboratory reports for the site characterization stream samples are reported with the groundwater samples collected during the same sampling events and are included in **Appendix F**.

4.4 Soil Vapor Analytical Results

The non-residential vapor intrusion screening values were exceeded in both the soil (**Table 1**) and groundwater (**Table 3**) samples analyzed as part of this SCR. The exceedance of the non-residential vapor intrusion screening values indicates that the potential for vapor intrusion exists and that vapor

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sampling is required. **Table 6** presents the analytical results of the soil vapor analysis. Vapor points VP-1 and VP-2 were sampled on October 4^{th} , 2016 and resampled on May 3^{rd} , 2017. The soil vapor results from the initial vapor sampling event 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 benzene, toluene, total xylenes, naphthalene, 1,2,4-TMB and 1,3,5-TMB 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 on-site 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 the "new" 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). Copies of the soil vapor laboratory analytical results are included in **Appendix G**.

4.5 Analytical Results Summary

Based on the analytical results soil impacts include benzene, ethylbenzene, total xylene, naphthalene, MTBE, 1,2,4-TMB and 1,3,5-TMB. Benzene is the most common parameter that exceeds its non-residential soil to groundwater SHS MSC of 500 µg/kg in fourteen soil boring 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') 4.0'), SB-18 (6.0'-8.0'), and SB-22 (6.0'-8.0')]. One or more of the other contaminants of concern were also detected at concentrations exceeding its respective non-residential SHS MSCs in the same soil samples already listed above. Ethylbenzene exceeded its residential and non-residential SHS MSC in eight samples. Naphthalene exceeded its residential and non-residential SHS MSC in five samples. Toluene exceeded its residential and non-residential SHS MSC in two samples. 1,2,4-TMB exceeded its residential and non-residential SHS MSC in eleven samples. 1,3,5-TMB exceeded its non-residential SHS MSC in one sample. MTBE was not detected at concentrations exceeding its residential and nonresidential SHS MSC of 2,000 µg/km, however elevated detection limits were reported in four soil samples. Several concentrations were high enough to exceed the direct contact SHS MSCs for residential and non-residential scenarios; including two each for benzene and ethylbenzene, seven for 1,2,4-TMB, and one for total xylene. The impacted soil is predominantly located along the west side of the Subject Property extending from SB-18 on the north to SB-22 in the south (Figure 2) between the former dispenser island and the edge of State Route 257. To the south of the dispenser island the impacted soil extends farther to the east including SB-3.

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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 of any of the residential and non-residential SHS MSCs for the parameters analyzed delineating the lateral extent of the soil impacts. The deeper samples obtained from 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 residential and non-residential SHS MSCs, while the shallower samples obtained from these same borings had indicated exceedances of the residential and non-residential SHS MSCs, or in the case of SB-4 and SB-7, higher observed concentrations, delineating the vertical limits of the soil impacts. Therefore, the delineation of soil impacts has been determined.

Groundwater impacts that exceed the non-residential SHS MSCs were identified at the Subject Property including; benzene, ethylbenzene, MTBE, naphthalene, toluene, 1,2,4-TMB, 1,3,5-TMB, and total xylenes. The groundwater impacts were observed in samples collected from MW-1, MW-2, MW-3, MW-4, MW-5, and MW-10, during the groundwater sampling events. The highest concentrations observed for each of the parameters exceeding the residential and non-residential SHS MSCs, except MTBE, were detected in the groundwater samples collected from MW-3. The highest MTBE concentrations were observed in MW-8. Monitoring wells situated surrounding the perimeter of the Subject Property, MW-6, MW-7, MW-9, MW-11 and MW-15 and the off-site monitoring wells, MW-12, MW-13 and MW-15 have no observed exceedances of the residential SHS MSCs and therefore have delineated the lateral extent of the groundwater impacts.

9.84 inches of LPH was measured in monitoring well MW-3 on October 4, 2016 and product recovery efforts including bailing and absorbent socks have been conducted on a weekly or bi-monthly basis since that time. The product thickness in MW-3 has been reduced to between 3/16-of an inch to a sheen by these efforts. A sheen of petroleum product has also been observed in monitoring wells MW-2 and MW-4 on February 9th, 2017, MW-5 on February 22, 2017 and MW-1 on March 7th, 2017. Monitoring well MW-4 is the only other well observed with a measurable thickness of LPH with 3/16-of an inch measured on March 7th, 2017. Absorbent socks and occasional bailing has been conducted on these wells following the discovery of the sheen reducing the LPH thickness to a heavy sheen in MW-3.

The non-residential vapor intrusion screening values were exceeded in both the soil (**Table 1**) and groundwater (**Table 3**) samples analyzed as part of this SCR. The exceedance of the non-residential vapor intrusion screening values indicates that the potential for vapor intrusion exists and that vapor sampling is required. Analytical results on the soil vapor samples has not indicated the exceedance of even the most stringent of the applicable screening values (SSS non-residential sub-slab).

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5.0 SENSITIVE RECEPTORS

5.1 Well Search

A one-mile radius search was conducted on the Pennsylvania Groundwater Information System (PAGWIS) and eMapPA database and website for community water supplies utilizing the following parameters: surface water withdrawal, surface water intakes, groundwater wells, water supply wells, and groundwater withdrawal.

According to the PAGWIS database, eleven on-site monitoring wells are listed at the Subject Property and eight (8) groundwater wells are listed as located within approximately one-mile radius of the Subject Property. Of the eight off-site wells; one is listed as an industrial well, two are listed as public water supply wells and five are listed as domestic water supply wells.

The nearest PAGWIS identified well is the 30-foot deep industrial well at the Township building listed as being located approximately 200 feet northwest of the Subject Property based on the latitude and longitude, however, the township building address places this well approximately 4,165 feet north of the Subject Property. A public supply well 357 feet deep is reportedly located approximately 700 feet south of the Subject Property and listed as Cranberry Township. A second public water supply well listed as Cranberry Venango Co. Genl Auth is also 357 feet deep but is listed as being located 2,300 feet southwest of the Subject Property. Given the similarity in ownership and the exact same reported depth this may be the same well. The second more distant location makes more sense because it would be located in a wooded area immediately adjacent to the unnamed tributary to Lower Twomile Run. Of the five domestic water supply wells, four are located greater than 3,400 feet from the Subject Property and are located in different watersheds. Only the Graham well is located approximately 1,400 feet west of the Subject Property, however, it is located on the opposite side of the unnamed tributary to Lower Twomile Run.

Copies of the details from these searches are provided in **Appendix H**. There are no known water supplies of concern as the nearest water supply withdrawal well is located approximately 2,300 feet to the southwest. The Subject Property and the surrounding properties are currently supplied by municipal water supply by the Cranberry Twp. Authority, Seneca System. Public water is available at this location; however, Seneca has no ordinance to prohibit private or public supply wells.

Given the groundwater concentrations observed for the contaminants of concern, the hydraulic conductivity and the hydraulic gradient at the Subject Property, the contamination could potentially migrate beyond the property boundaries. Although, no data currently exists that would indicate off-site migration of contaminants have impacted any supply wells. The off-site monitoring wells (MW-12, MW-13, and MW-14) located across State Route 257 to the west and downgradient of the Subject Property and the stream samples collected from the unnamed tributary to Lower Twomile Run have not indicated the presence of any of the contaminants of concern.

According to eMapPA, the Subject Property, Harper Oil - Seneca Mini Mart (61-18854) is listed as an envirofacts facility because of the registered tanks and use as a petroleum distribution facility. Other envirofacts UST facilities include; Frampton Oil – Seneca Pennzoil (61-13470) indicated on the property immediately to the north, Kwik Fill (61-14854) and Red Express (61-37529), both located approximately 3,300 feet to the north, and Advantage Tank Lines (61-38016) located approximately 3,900 feet to the

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south-southwest of the Subject Property. E-Map indicates that numerous conventional oil and gas wells are located primarily to the north and west of the Subject Property. There were no groundwater withdrawal locations identified within a one-mile radius of the subject property and the entire area is provided public water by the Seneca Municipal Authority. The only sensitive receptor near the Subject Property is the unnamed tributary to Twomile Run, located on the west side of State Route 257. A copy of the eMapPA image is included in **Appendix H**.

The U.S. Fish and Wildlife Service National Wetlands Inventory data was accessed through Google Earth. No wetlands were identified on the Subject Property. The nearest wetland is the riverine wetland associated with the unnamed tributary to Twomile Run located on the west side of State Route 257. This wetland area is only located 107 feet from the Subject Property at its nearest point. Several small freshwater ponds are located to the east and southeast of the Subject Property as are other unnamed tributaries. An image of the Google Earth wetland locations is included in **Appendix H**.

The Subject Property and the surrounding community are supplied with public water through the Cranberry Two Authority, Seneca System, however, no ordinance exists that prohibits private or public water supply wells in the service area. The Borough of Seneca provides sewer service to the community.

5.2 Sensitive Receptor Survey

The following sensitive receptors were identified within 2,500 feet of the facility:

- The on-site building is a slab-on-grade retail facility and automotive service garage located immediately adjacent to the former UST cavity and dispenser inlands, however the Subject Property building is located upgradient of the former dispenser islands.
- The unnamed tributary to Twomile Run is located immediately downgradient of the Subject Property.
- Several hundred residential structures and numerous commercial properties are located within a 2,500-foot radius of the Subject Property. The majority of the residential facilities are located to the east and south of the Subject Property are upgradient or crossgradient to the Subject Property. The residential properties located to the west are on the opposite side of the unnamed tributary to Twomile Run, therefore, the Subject Property is not considered to be a threat. The commercial properties are located to the north and south of the Subject Property along State Route 257, also placing them in crossgradient or upgradient locations. The only facility located to the southwest or downgradient of the Subject Property is the Seneca Lawn and Landscape facility.
- Several underground utilities including a natural gas line, a storm drain, a sanitary sewer line, storm sewer line and a municipal water line run parallel to the surrounding roads within the road right-of-way.
- Numerous site utilities are located on the Subject Property.

The potential for impact to each of these sensitive receptors was evaluated as part of this investigation. The results of these evaluations are described in **Section 6.0**.

5.3 Ecological Receptor Evaluation

A Pennsylvania Natural Diversity Inventory (PNDI) online search was conducted to evaluate if the Subject Property posed any potential impacts to threatened, endangered, special concern species and

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special concern resources in the vicinity. Four government agencies have jurisdiction over the protection of these resources:

• U.S. Fish and Wildlife Service

Federally listed, proposed & candidate species Statute: Endangered Species Act of 1973 16 U.S.C. §§ 1531 et seq.

• Pennsylvania Game Commission

PA state-listed birds and mammals

Statute: Game and Wildlife Code 34 Pa. C.S.A. §§ 101 et seq.

• Pennsylvania Fish and Boat Commission

PA state-listed fish, reptiles, amphibians, and aquatic organisms

Statute: Fish and Boat Code 30 Pa. C.S.A. §§ 101 et seq.

• Pennsylvania Department of Conservation and Natural Resources

PA state-listed plants, natural communities, terrestrial invertebrates and geological features

Statute: Wild Resources Conservation Act 32 P.S. §§ 5301 et seq.

The PNDI search did not identify any known impacts to threatened, endangered, special concern species and special concern resources in the vicinity, therefore, there are no potential conflicts or impacts. A copy of the PNDI Environmental Project Review receipt is included in **Appendix I**.

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6.0 FATE AND TRANSPORT ANALYSIS

As discussed in Section 4.4, the contaminant plume exists primarily in the immediate vicinity of the former dispenser island and extends to the west, north and south. The groundwater plume involves the shallow unconfined aquifer. Benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB, and 1,3,5-TMB are the contaminants of concern that have been identified at concentrations that have exceed their residential and non-residential SHS MSCs at the Subject Property and were observed in one or more of the groundwater samples collected during the site characterization activities. The initial groundwater sampling event (July 12th, 2016) identified benzene, ethylbenzene, total xylenes, MTBE, naphthalene, and 1,2,4-TMB at concentrations exceeding the applicable non-residential SHS MSCs in the sample collected from monitoring well MW-3. Subsequent sampling events have exhibited the highest concentrations for most of these parameters at the Subject Property in MW-3 with the exception of naphthalene in MW-5 and MTBE. The highest concentration of MTBE was observed in MW-8 on April 25th, 2017. Monitoring wells MW-2 through MW-5 are located along the western property boundary. Therefore, it appears that the contaminants of concern have migrated beyond the point of compliance (the property border). In order to determine whether these contaminants have migrated beyond the property boundary and will reach a sensitive receptor, the unnamed tributary to Twomile Run, each of the parameters of concern have been modeled using the Quick Domenico Model.

To date the groundwater samples collected from the monitoring wells located on the western side of State Route 257 (MW-12, MW-13 and MW-14) have not detected any of the contaminants of concern. Because no impacts have been observed in these downgradient monitoring wells. Additional modeling including SWLOAD and PENTOX to evaluate the volume and toxicity of contaminants of concern discharging to the unnamed tributary to Lower Twomile Run is not required.

6.1 Quick Domenico Modeling

Benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB are the contaminants of concern that currently exceed their residential and non-residential SHS MSCs at the Subject Property. Therefore, in order to determine whether these contaminants will migrate beyond the property border (point of compliance) to a sensitive receptor, each of the parameters was modeled using the Quick Domenico Model. Quick Domenico is typically a conservative model and the parameters used for each model are defined for each well. Each model also looks at the plume migration over different time windows (5-years, 10-years, 15-years, 20-years, 25-years and 30-years) to ensure that the plume indicates its maximum extent and where it demonstrates stability.

The highest concentrations observed during the site characterization groundwater sampling events were used at the initial concentration used for the modeling for the contaminants of concern. The distance from the monitoring well with the highest concentrations (MW-3) to the nearest downgradient property boundary (point of compliance) is 0 feet, (MW-2 through MW-5 are located in the right of way for State Route 257), however, the unnamed tributary to Lower Twomile Run and its associated riverine wetland is located approximately 107 feet downgradient on MW-3 in the direction of groundwater flow. Off-site monitoring well MW-12 is located approximately 85 feet downgradient of MW-3 and all of the parameter analyzed have been below the laboratory method detection limits. While the distances from MW-2, MW-4 and MW-5 are similar because they all line up in the right of way for State Route 257, MW-3 and MW-5 are used for the modeling because of the highest concentrations of the various parameters observed during the site characterization groundwater sampling events.

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

Due to the mounding of groundwater observed in the vicinity of the dispenser island and the discovery of MTBE in MW-8 (maximum 520 µg/l) a fate and transport model was also developed for an eastward movement of groundwater contamination from MW-8 towards the eastern property boundary, located approximately 23 feet from MW-8. The Quick Domenico modeling from those locations were done to evaluate if groundwater impacts will migrate to the downgradient sensitive receptors. The hydraulic gradients measured on June 12th, 2017 between MW-3 and MW-13 for the contaminant plumes migrating west (0.079 ft./ft.) and between MW-3 and MW-8 for the MTBE plume traveling east (0.015 ft./ft.) were used in the Quick Domenico Models.

The values for longitudinal dispersivity, transverse dispersivity, and vertical dispersivity were chosen as per the recommendations in the model instructions. Lambda and organic carbon partition coefficient values were obtained directly from Appendix A, Table 5 of the Act 2 regulations. Source width (variable with the orientation of groundwater flow direction), source thickness and hydraulic gradient were calculated from the site characterization data. Fraction organic carbon, soil bulk density, and effective porosity values were also obtained directly from the model instructions and represent conservative estimations, appropriate for the silty clay soil type observed at the Subject Property. The average hydraulic gradient from the monitoring wells (0.035 ft./ft.), in the direction based on the groundwater flow have been utilized for the wells completed in the shallow unconfined aquifer. The geometric mean of the groundwater seepage velocity is 0.249 feet per day.

Slug testing was initially conducted on three near–sources wells on the Subject Property. In order to evaluate the potential for the contaminants of concern to migrate off-Site, the geometric mean hydraulic conductivity of 1.104 ft./day (5.716⁻⁴ cm/sec) of these three wells was used in the Quick Domenico Modeling for the shallow unconfined aquifer. The porosity on the predominantly silty clay encountered at the Subject Property is estimated to be 0.35 percent for the shallow unconfined aquifer. Copies of the Quick Domenico fate and transport models are included in **Appendix J**.

Due to the abundant fill material, 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. However, the slow recharge of several of the wells located away from the dispenser island, (MW-8, MW-9, MW-10, MW-11 and MW-15) suggests that lower hydraulic conductivities are prevalent in the native materials away from the dispenser islands. Because the initial slug tests were conducted on monitoring wells located near the dispenser islands (MW-1, MW-2 and MW4) in predominantly fill material, additional slug tests were conducted on September 7, 2017 on monitoring wells MW-10 and MW-11 to evaluate if the wells penetrating mostly natural unconsolidated soils would result in a lower hydraulic conductivity. The slug tests conducted on monitoring wells MW-10 and MW- 11 indicated hydraulic conductivities that ranged from 0.04667 ft./day (1.646-5 cm/sec.) to 0.2697 ft./day (9.513-5 cm/sec.).

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The lower hydraulic conductivity was used in the Quick Domenico Modeling for benzene and MTBE plumes because the initial models, (using the higher hydraulic conductivity) indicated that benzene and MTBE should already be present in the three wells (MW-12, MW-13 and MW-14) located on the opposite side of the highway. In order to calibrate the models to better represent the actual conditions, including the lack of any detected contaminants in these downgradient wells, the lower hydraulic conductivity was utilized in the models. The selected benzene and MTBE Quick Domenico models suggest that the lower hydraulic conductivity has delayed the migration of the contaminants of concern toward the off-site wells in the case of the benzene plume and towards MW-15 in the case of the MTBE plume observed in MW-8.

Because no intermediate well exists downgradient of the source area (MW-3) that indicates decreased concentrations compared to the source area it is not feasible to accurately calibrate the Quick Domenico models, therefore, the results presented below represent worst-case scenarios based on the available data and commonly utilized default values. As part of the proposed remedial activities discussed in **Section 9.0**. Cribbs will attempt to install a calibration monitoring well in the turning lane of State Route 257 downgradient of the highly impacted wells. A PennDOT roadway occupancy permit will be required to install a monitoring well in the active roadway.

6.1.1 Benzene Model Results

Benzene concentrations in excess of the residential and non-residential SHS MSC have been observed in five of the monitoring wells including maximum recorded concentrations of 17,800 μ g/l in MW-3 (October 4th, 2016). The Quick Domenico model for MW-3, (the highest benzene concentration at 17,800 μ g/L, with the shortest distance to the unnamed tributary to Lower Twomile Run [107 feet]), and using the higher value for the hydraulic conductivity, predicts that the plume of benzene will expand to a length of up to 774 feet before reaching a point of equilibration at 15 years where the benzene concentration degrades to below the residential SHS MSC. This indicates that the benzene plume will extend beyond the nearest property boundary to the unnamed tributary to Lower Twomile Run.

Benzene concentrations in excess of the residential and non-residential SHS MSC have been observed in five of the monitoring wells including maximum recorded concentrations of 17,800 μ g/l in MW-3 (October 4th, 2016). The Quick Domenico model for MW-3, (the highest benzene concentration at 17,800 μ g/L, with the shortest distance to the unnamed tributary to Lower Twomile Run [107 feet]), and using the lower value for the hydraulic conductivity, predicts that the plume of benzene will expand to a length of up 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 also 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 stream until almost five years have passed. This model still indicates that the benzene plume will extend beyond the nearest property boundary to the unnamed tributary to Lower Twomile Run.

The Quick Domenico modeling indicates that groundwater impacted by benzene will likely make it to the unnamed tributary to Lower Twomile Run. There is only a small watershed area above the Subject Property and a relatively small volume of water traveling past the Subject Property, therefore, it appears likely that benzene could adversely impact the surface water in the unnamed tributary to Lower Twomile Run.

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6.1.2 Ethylbenzene Model Results

Ethylbenzene concentrations in excess of the residential and non-residential SHS MSC were observed in three monitoring wells including maximum recorded concentrations of 4,410 μ g/l in MW-3 (March 29th, 2017). MW-1, MW-4 and MW-5 also indicated ethylbenzene concentrations that exceeded the residential and non-residential SHS MSC. The Quick Domenico model for MW-3, the highest concentration observed on the Subject Property (4,410 μ g/l), is located 107 feet from the unnamed tributary to Lower Twomile Run. The model, using the higher value for the hydraulic conductivity, predicts that the ethylbenzene plume will expand to a length of up to 39 feet before reaching a point of equilibration after ten years, where the ethylbenzene concentration is below the residential SHS MSC. Ethylbenzene concentrations in the groundwater should not reach the unnamed tributary or impact the surface water.

6.1.3 Toluene Model Results

Toluene concentrations in excess of the residential and non-residential SHS MSC have been observed in monitoring well MW-3 with a maximum recorded concentration of $10,500~\mu g/l$ (July 12^{th} , 2016). The Quick Domenico model for MW-3, the highest concentration observed on the Subject Property (10,500 $\mu g/l$), is located 107 feet from the feet from the unnamed tributary to Lower Twomile Run. The model, using the higher value for the hydraulic conductivity, predicts that the toluene plume will expand to a length of up to 29 feet before reaching a point of equilibration after five years, where the toluene concentration is below the residential SHS MSC. Toluene concentrations in the groundwater should not reach the unnamed tributary or impact the surface water.

6.1.4 Total Xylene Model Results

Total xylenes concentrations in excess of the residential and non-residential SHS MSC have been observed in monitoring well MW-3 with a maximum recorded concentration of 23,900 μ g/l (March 29th, 2017). The Quick Domenico model for MW-3, the highest concentration observed on the Subject Property (23,900 μ g/l), is located 107 feet from the feet from the unnamed tributary to Lower Twomile Run. The model, using the higher value for the hydraulic conductivity, predicts that the total xylene plume will expand to a length of up to eighteen feet before reaching a point of equilibration after fifteen years, where the total xylene concentration is below the residential SHS MSC. Total xylene concentrations in the groundwater should not reach the unnamed tributary or impact the surface water.

6.1.5 MTBE Model Results

MTBE concentrations in excess of the residential and non-residential SHS MSC have been observed in five monitoring wells including maximum recorded concentrations of 520 μ g/l, in MW-8 (April 25th, 2017). Because of the groundwater mounding in the vicinity of the dispenser island, the groundwater flow direction at MW-8 is to the east and the hydraulic gradient is only 0.016. The Quick Domenico model for MW-8 was run, using the higher value for the hydraulic conductivity and the highest concentration observed on the Subject Property (520 μ g/l), with a distance of 23 feet from the property boundary. The model predicts that the MTBE plume will expand to a length of up to ninety-four feet before reaching a point of equilibration after ten years, where the MTBE concentration is below the residential SHS MSC. MTBE concentrations in the groundwater could reach the adjoining property to the east.

The Quick Domenico model for MW-8 was run, using the lower value for the hydraulic conductivity, and the highest concentration observed on the Subject Property (520 μ g/l), with a distance of 23 feet from the property boundary. The model predicts that the MTBE plume will expand to a length of up to seventeen feet before reaching a point of equilibration after ten years, where the MTBE concentration is below the

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residential SHS MSC. MTBE concentrations in the groundwater would not reach the adjoining property to the east.

MTBE concentrations in excess of the residential and non-residential SHS MSC have been observed in the monitoring wells located adjoining State Route 257, including maximum recorded concentrations of: MW-5 (75.5 μ g/l, October 4th, 2016), MW-3 (41.7 μ g/l, July 12th, 2016), MW-2 (21.3 μ g/l, October 4th, 2016), and MW-10 (21.3 μ g/l, June 12th, 2017). The Quick Domenico model for MW-5, the highest concentration observed on the western portion of Subject Property (75.5 μ g/l), and using the higher value for the hydraulic conductivity, with groundwater flow towards the west and the unnamed tributary to Lower Twomile Run is located approximately 107 feet from the unnamed tributary to Lower Twomile Run. The model predicts that the MTBE plume will expand to a length of up to fifty feet before reaching a point of equilibration after five years, where the MTBE concentration is below the residential SHS MSC. MTBE concentrations in the groundwater should not reach the unnamed tributary or impact the surface water.

6.1.6 Naphthalene Model Results

Naphthalene concentrations in excess of the residential and non-residential SHS MSC have been observed in five monitoring wells with the maximum concentration observed in MW-5 (4,470 μ g/l, June 13th, 2017). The Quick Domenico naphthalene model for MW-5, located 107 feet from the unnamed tributary to Lower Twomile Run, and using the higher value for the hydraulic conductivity, predicts that the naphthalene plume will expand to a length of approximately fifty-seven feet before reaching a point of equilibration where the naphthalene concentration is below the residential SHS MSC. In this model, the naphthalene will reach its maximum extent in approximately ten years. Naphthalene concentrations in the groundwater should not reach the unnamed tributary or impact the surface water.

6.1.7 1.2.4-TMB Model Results

1,2,4-TMB concentrations in excess of the residential and non-residential SHS MSC have been observed in six of the monitoring wells during the SCR sampling events including maximum recorded concentrations of 4,920 μ g/l in MW-3, March 29th, 2017. The 1,2,4-TMB Quick Domenico model for MW-3, which is located 107 feet from the unnamed tributary to Lower Twomile Run, and using the higher value for the hydraulic conductivity, predicts that the 1,2,4-TMB plume will expand to a length of approximately twelve feet before reaching a point of equilibration where the 1,2,4-TMB concentration is below the non-residential SHS MSC (62 μ g/l). The plume will expand to a length of approximately thirty-two feet before reaching a point of equilibration where the 1,2,4-TMB concentration is below the residential SHS MSC (15 μ g/l). In this model, the 1,2,4-TMB will reach its maximum extent in approximately five years. 1,2,4-TMB concentrations in the groundwater should not reach the unnamed tributary or impact the surface water.

6.1.8 1,3,5-TMB Model Results

1,3,5-TMB concentrations in excess of the residential or non-residential SHS MSC have been observed in two of the monitoring wells including maximum recorded concentrations of 1,590 μ g/l in MW-3 (March 29th, 2017). The Quick Domenico model for MW-3, which is located 107 feet from feet from the unnamed tributary to Lower Twomile Run, and using the higher value for the hydraulic conductivity, predicts that the 1,3,5-TMB plume will expand to a length of approximately nine feet before reaching a point of equilibration where the 1,3,5-TMB concentration is below the non-residential SHS MSC (1,200 μ g/l). The plume will expand to a length of approximately thirty-nine feet before reaching a point of

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equilibration where the 1,3,5-TMB concentration is below the residential SHS MSC (420 μ g/l). In this model, the 1,3,5-TMB will reach its maximum extent in approximately thirty years. 1,3,5-TMB concentrations in the groundwater should not reach the unnamed tributary or impact the surface water.

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7.0 CONCEPTUAL SITE MODEL

Based on data acquired during the SCR activities conducted at this Subject Property, residual contamination has been identified within soil and groundwater associated with the release of a petroleum product. Chemicals of concern (i.e., benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB) were identified at concentrations above residential and non-residential SHS MSCs in soil and groundwater following the removal of the former UST system and dispenser islands. In addition, soil gas samples exhibited concentration above the vapor intrusion screening values for both residential and non-residential uses.

The objective of a Conceptual Site Model (CSM) is to identify the contaminant source, migration pathways and receptors (human and environmental) to aid in determining an appropriate remediation technology. The CSM is completed through an exposure assessment in which assumptions are based on the current conditions and current and potential future land use [Pa. Code § 250.602(2)]. The purpose of an exposure assessment is to identify potential exposure pathways, consisting of the following four components:

- A contaminant source and mechanism of chemical release (e.g., accidental spills, tank leakage);
- An exposure retention or transport medium (e.g., contaminated groundwater and/or soil);
- A point of potential receptor contact with the contaminated medium, referred to as the exposure point (e.g., a site worker getting contaminated soils on his/her skin); and
- An exposure route (e.g., inhalation of indoor vapors).

If any one of the components is missing, the pathway is considered to be incomplete, and therefore, no risk is associated with that pathway. The risk-based corrective action procedures contained in ASTM's "Standard Guide for Risk Corrective Action Applied at Petroleum Release Sites" (ASTM El739-95) were applied to the Site to obtain a quantitative analysis of potential exposure pathways and sensitive receptors. The following potential exposure pathways were evaluated:

- Ingestion, inhalation, and dermal contact from contaminants present in subsurface soils;
- Ingestion, inhalation, and dermal contact from contaminants present in groundwater;
- Ingestion, inhalation, and dermal contact from contaminants present in sediment;
- Ingestion, inhalation, and dermal contact from contaminants present in surface water;
- Vapor intrusion;
 - -Inhalation of indoor vapors from contaminants present in subsurface soil;
 - -Inhalation of indoor vapors from contaminants present in groundwater;
- Diffuse groundwater discharge to surface water and sediment.

Based on current and possible future use of the Subject Property, it was determined that the CSM would evaluate the following potential receptors:

- Construction Worker/Maintenance Worker;
- Occupational Worker;
- Visitor/Trespasser;
- Future Residential; and
- Ecological sensitive habitat.

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Table 7 presents a chart of the CSM and the various potential exposure pathways that are discussed in greater detail below.

7.1 Soil Exposure Pathways

Thirty-nine soil samples have been analyzed and are considered to be representative of the Subject Property. According to the analytical data (**Table 1**) obtained from the subsequent site characterization activities, all of the soil samples are below the non-residential Direct Contact SHS MSCs, with the exception being SB-15 (3.0'-4.0') with a concentration of 1,2,4-TMB at 895,000 µg/kg that exceeds the non-residential direct contact soil 2'-15' SHS MSC of 640,000 µg/kg.

Fourteen of the soil samples exceed the non-residential soil to groundwater, SHS MSCs for at least one or more of the parameters analyzed. Therefore, soils on the Subject Property, saturated and unsaturated, do not meet their respective residential and non-residential SHS MSCs for the "new" PADEP "shortlist" for unleaded gasoline parameters. The impacted soil is predominantly located along the western Subject Property boundary extending from SB-18 (north) to SB-22 (south) (**Figure 2**) between the former dispenser island and the edge of State Route 257. To the south of the dispenser island the impacted soil extends farther to the east (SB-3). The majority of the Seneca Mini Mart portion of the Subject Property where the impacted soils have been identified is surfaced with asphalt. A gravel surface exists where the former UST system was removed in September 2015 and covering most of the used car sales lot (Seneca Motors) that shares the parcel to the south of the Seneca Mini-Mart. As such, the surface and subsurface soil exposure direct contact pathways do not exist for the occupational site worker, or visitor/trespasser.

Only future construction/maintenance workers have the potential to be exposed to the impacted soil by direct contact and incidental ingestion. Those construction/maintenance workers can minimize their exposure to the known impacts through the use of the proper personal protective equipment and air monitoring during excavation activities.

7.2 Groundwater Exposure Pathways

Site groundwater is impacted with benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1.2.4-TMB and 1.3.5-TMB. Monitoring well MW-3 has typically demonstrated the highest concentrations of the contaminants of concern, with the exception of MTBE. MTBE has the highest observed concentration in MW-5, and MW-8. With only two to four groundwater sampling events at each well, concentration trends cannot be reliably evaluated. Therefore, the concentrations of the contaminants of concern have fluctuated between the first, through fourth sampling events in monitoring wells MW-1, through MW-5. In MW-8, the concentration of MTBE (422 μg/l) appeared during the second sampling event after being below the laboratory method detection limits during the initial sampling event. For the two subsequent sampling events at MW-8, MTBE has remained at elevated concentrations, (520 µg/l and 421 µg/l). The concentrations of the contaminants of concern in MW-10, benzene and 1,2,4-TMB have decreased between the first, second and third sampling events, while MTBE concentrations have increased slightly. The results for the other wells (MW-6, MW-7, MW-9 and MW-11 through MW-15 have typically been below the laboratory method detection limits and/or the respective residential and non-residential SHS MSCs. Additional sampling events are needed to statistically demonstrate trends or attainment of the residential and non-residential SHS MSCs for these parameters.

Potable water is provided to the Subject Property and adjacent properties by the Seneca Municipal Authority. However, the township does not have a restriction on the installation of groundwater supply

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wells. Therefore, because groundwater contaminant concentrations for benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB do not meet the more stringent residential SHS MSCs, the migration of contaminants off-site within groundwater is considered a potential ingestion exposure pathway for occupational workers, visitors/trespassers, and future residents. Dermal contact with, and incidental ingestion of groundwater for on-site construction workers is considered to be a complete exposure pathway. However, groundwater exposure pathways via dermal contact and incidental ingestion by occupational workers and visitors/trespassers are considered to be incomplete, because no mechanism exists by which these receptors would be significantly exposed to groundwater (i.e., no exposure point).

7.3 Surface Water Exposure Pathways

As discussed in **Section 4.2**, several petroleum constituents are present in the groundwater in numerous shallow aquifer monitoring wells that exceed the residential and non-residential SHS MSCs. The nearest surface water is an unnamed tributary to the Lower Twomile Run, which is located approximately 100 feet to the west of the Subject Property.

The Quick Domenico fate and transport models projected that groundwater containing elevated benzene concentrations could potentially migrate beyond the property boundary and discharge to the unnamed tributary to Lower Twomile Run. The Quick Domenico models also predict that the other contaminants of concern (ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB) will likely migrate at elevated concentrations beyond the point of compliance (the monitoring wells are at or beyond the property boundary), but will degrade to below their respective residential SHS MSC before they reach the stream. As such, only the diffuse flow of benzene in the groundwater to surface water and associated sediment exposure pathway is considered complete. The pathway for all other contaminants is considered incomplete.

7.4 Vapor Intrusion Pathways

There are two conditions that must be met for the vapor intrusion pathway to be of potential concern. First, inhabited buildings must be close to a volatile/semi volatile source and, second, the source concentration must be above some threshold or screening concentration. To prevent unacceptable risk as a result of vapor intrusion of contaminants from soil and/or groundwater into indoor structures, the assessment of indoor air quality is required when a release with the potential for the volatilization of organic occurs within 100 feet of an occupied building. Therefore, the assessment techniques provided in the guidance document entitled; "Land Recycling Program Technical Guidance Manual – Section IV.A.4., Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard," were utilized to evaluate the potential risk to indoor air quality caused by the documented release at the Subject Property and adjoining properties.

The non-residential vapor intrusion screening values were exceeded in both the soil (**Table 1**) 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 is required. Analytical results on the soil vapor samples have not indicated the exceedance of even the most stringent of the applicable screening values (SSS non-residential sub-slab) (**Table 6**).

As per the guidance manual, comparison of specific media concentrations were made to conservative default screening values for groundwater and soil to identify chemicals of potential indoor air concern (COPIACs). The default screening values, which are provided in the guidance manual were calculated

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using Pennsylvania-specific parameters and the Johnson and Ettinger Vapor Intrusion model (USEPA, 2001). These values are used when this calculated screening level is lower than an MSC. However, the values can also be used to screen the concentration of COPIACs in a given medium to determine if additional evaluation or mitigation is warranted. A discussion of each potential soil vapor pathway is provided below.

7.4.1 Vapor Intrusion Via Soil

Based on confirmation soil sampling results from the site characterization activities, analytical data from the soil samples collected during monitoring well installation activities, as well as analytical data from the vapor point sampling, there are still soils on the Subject Property which exceed the residential and non-residential vapor intrusion screening values. The COPIACs remaining at the Subject Property include: benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB, as a result of contaminant concentrations in soil. Because of the absence of residential properties downgradient of the Subject Property, a non-residential land use designation was used in the vapor intrusion evaluation.

Two vapor points installed at the locations indicated on **Figure 2** have been sampled twice, October 4th, 2016 and May 3rd, 2017. VP-1 is located to the west of the on-site structure, immediately adjacent to the building and between the building and the former dispenser islands where the majority of the most heavily impacted soils have been observed. VP-2 is located on the concrete slab located on the south side of the building, immediately adjacent to the building between the former UST basin and the on-site structure.

Because the vapor points were installed through non-permeable surfaces (asphalt and concrete) that extend completely to the on-site structure the existing vapor points could still be utilized under the January 2017, Act 2 Technical Guidance Manual for Vapor Intrusion into Buildings regulations as subslab vapor points. The Non-Residential Sub-Slab vapor screening values are presented in **Table 6**. The site-specific standards for Non-Residential Sub-Slab vapor screening values are 1/10 of the sub slab screening values and are presented in **Table 6** to screen the soil vapor results.

Although minor concentrations of most of the parameters analyzed were detected, none of the soil vapor results exceeded the most stringent of the screening values (SSS non-residential sub-slab). However, because the minimum vapor sampling requirements as per the new regulations have not yet been met, vapor intrusion from the soil to groundwater is considered complete for the following receptors:

- Occupational Worker,
- Visitor/Trespasser,
- Future Resident.

7.4.2 Vapor Intrusion Via Groundwater

Because of the absence of residential structures downgradient of the Subject Property, a non-residential land use designation was used in the vapor intrusion evaluation. However, the groundwater vapor intrusion screening values were exceeded for benzene, ethylbenzene, total xylenes, naphthalene, 1,2,4-TMB and 1,3,5-TMB.

Because the vapor points were installed through non-permeable surfaces (asphalt and concrete) that extend completely to the on-site structure the existing vapor points could still be utilized under the January 2017, Act 2 Technical Guidance Manual for Vapor Intrusion into Buildings regulations as subslab vapor points. The Non-Residential Sub-Slab vapor screening values have been added to **Table 6**.

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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. Although minor concentrations of most of the parameters analyzed for were detected, none of the soil vapor results exceeded the most stringent of the screening values (SSS non-residential sub-slab). However, because the minimum vapor sampling requirements as per the new regulations have not yet been met, vapor intrusion from the soil to groundwater is considered complete for the following receptors:

- Occupational Worker,
- Visitor/Trespasser,
- Future Resident.

As long as continued vapor sampling event results are consistent with the first two events no further remedial actions to address vapor in the site building will be required. However, if the vapor contaminant concentrations do exceed the Non-Residential Sub-Slab vapor screening values, a further evaluation regarding vapor intrusion will be required.

Because the depth of groundwater water is typically less than six feet below grade, the potential receptors (the existing site structure and the adjoining residential structures) may be separated vertically from the source by less than five feet of soil-like material. However, as per the indoor air quality decision matrix, further assessment of vapor intrusion into the adjoining residential structures is not required at this time because recent groundwater analysis indicates that although there are potentially contaminants of concern (benzene, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB) above the residential, used aquifer MSCs there are no adjoining residences within 100 feet of the plume. Quick Domenico modeling indicates that the groundwater benzene plume will not transgress on to the adjoining properties to the south or east. The Quick Domenico models of the eight contaminants of concern (benzene, ethylbenzene toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB) indicate that the contaminants will likely reach and migrate beyond the western property boundary before degrading to below their residential SHS MSCs. Only the benzene plume is projected to migrate under State Route 257 and extend to the unnamed tributary to Lower Twomile Run, located on the opposite side of the highway. All the other parameters are projected to degrade to below their respective residential SHS MSCs within 57 feet of the most heavily impacted monitoring wells. Only the MTBE plume based on the findings in MW-8 are projected to migrate to the east extending beyond the point of compliance in that direction.

7.4.3 Preferential Pathways

A preferential pathway is any structure such as a utility line, conduit, trench line, fracture or any other physical feature that would influence the migration of contamination via a path of lesser resistance. Preferential pathways could potentially decrease the amount of time required for a contaminant to migrate to a downgradient location or it could result in the migration of contaminant in a lateral or even an upgradient direction if the porosity of the pathway is great enough. As prescribed in the Johnson and Ettinger Vapor Intrusion model, if a preferential pathway is located within 30 feet of a source and creates a pathway to a receptor such as an occupied building the indoor air quality decision matrix should not be used. Instead, either soil gas or indoor air sampling should be performed or a site-specific evaluation of indoor air should be conducted. As discussed in **Section 3.5** the natural gas service line and the municipal water service line are located within 30 feet of the known impacts to soil and/or groundwater. The two vapor points on the Subject Property have been sampled twice (October 4th, 2016 and May 3rd, 2017), and will continue to be sampled quarterly for four quarters following remedial activities at the Subject

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Property. Although minor concentrations of most of the parameters analyzed for were detected, none of the soil vapor results exceeded the most stringent of the screening values (SSS non-residential sub-slab).

7.4.4 Vapor Intrusion Summary

Based on the information provided in the above sections, it was necessary to perform vapor intrusion monitoring activities for the existing on-site structure. As described in **Section 4.3**, two vapor points were installed adjacent to the existing Subject Property buildings. The results of the vapor sampling are presented in **Table 6**. The initial soil vapor sampling event was compared to a value of 100 X the Residential Indoor Air Quality (IAQ) MSC listed on *Table 3 of the Land Recycling Program Technical Guidance Manual-Section IV.A.4. Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard*, dated January 24, 2004. As shown on the table, none of the constituents were detected at concentrations which exceed the above referenced screening level.

The Act 2 vapor regulations were modified in January 2017. Because the vapor points were installed immediately adjacent to the on-site building, through non-permeable surfaces (asphalt and concrete) that extend completely to the on-site structure the existing vapor points could still be utilized under the "new" 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), therefore, vapor intrusion via any pathway does not appear to be complete. The "new" Act 2 vapor regulations require a minimum of eight samples (two vapor points with four quarterly samples) of vapor monitoring using the appropriate screening values for comparison, therefore, a minimum of four quarters of vapor samples will be collected from the two vapor points, using sub-slab screening values, following the completion of the remedial activities at the Subject Property.

Because of the numerous electrical conduits connecting the existing former USTs to the fuel dispensing and management system inside the on-site building, a preferential pathway from the source area to the building would exist if there were any potential contaminants of concern above their respective threshold values. As such, analysis of the soil and groundwater samples collected from numerous monitoring wells and vapor points indicates that benzene, ethylbenzene, total xylenes, MTBE, and naphthalene are present in the groundwater at concentrations that exceed the respective residential and non-residential SHS MSC. However, the soil vapor sampling conducted at the Subject Property to date indicates that none of the constituents were detected at concentrations which exceed the Non-Residential Sub-Slab vapor screening values.

7.5 Ecological Receptors

PA Code Chapter 250.331 requires that ecological receptors be evaluated unless any of the following conditions are met:

- Jet fuel, gasoline, kerosene, #2 fuel oil or diesel fuel, are the only constituents detected on-site;
- The area of contaminated soil is less than two acres and the area of contaminated sediment are less than 1,000 square feet; or
- The Subject Property has features, such as buildings, parking lots or asphalt paved areas that eliminate potential exposure pathways (e.g. soil exposure).

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As discussed below, facility soil and groundwater are impacted with petroleum constituents typically associated with a release of unleaded gasoline. The area of impacted soil is less than two acres, and the facility is mostly paved. Based on these data, no additional ecological evaluation is required. The PNDI Ecological Receptor Evaluation discussed in **Section 5.3** indicated that there were no known impacts to threatened and endangered species and/or special concern species and resources within the project area.

7.6 CSM Summary

Based upon the information provided in the sections above and presented in **Table 7**, the following is a summary of potentially complete exposure pathways and their respective receptors:

Potentially Complete Exposure Pathway	Potential Receptors
Subsurface Soil	Construction/Maintenance Worker
Groundwater	Construction/Maintenance Worker, Occupational Worker, Visitor/Trespasser, Future Resident
Sediment	Visitor/Trespasser, Future Resident, Ecological
Surface Water	Visitor/Trespasser, Future Resident, Ecological
Vapor Intrusion (Soil & Groundwater)	Occupational Worker, Visitor/Trespasser, Future Resident

Seneca Mini Mart Seneca, Pennsylvania

8.0 POTENTIAL ATTAINMENT OF STANDARDS

To obtain environmental relief of liability, the Subject Property will attainment of a select cleanup standard for soil, groundwater and vapor intrusion. 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. The responsible party/property owner has the ability to select one of the standards or a combination of standards, for attainment purposes. The cleanup standards include:

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 Subject Property is being impacted by an off-site source, the background standard (BS) is eliminated from further consideration. Therefore, the remaining standards considered are the SHS and SSS.

8.1 Statewide Health Standard

Remediating the Subject Property 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 liability for the Subject Property. Selection of the appropriate MSC depends upon the current or 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.

8.2 Site Specific Standard

Remediating the Subject Property to the SSS requires a more detailed evaluation of potential receptors and exposure pathways. If complete exposure pathways exist after considering engineering and/or institutional controls, a human health risk assessment and possibly an ecological assessment are conducted to quantify environmental impacts to sensitive receptors and to develop site specific cleanup levels that are protective of human health and the environment.

8.3 Summary of the Selection and Attainment of Cleanup Standards

Based on the preceding discussion, and the current knowledge of the Subject Property, the property owner has selected the SHS cleanup standards for the Subject Property.

8.3.1 Subsurface Soil

The non-residential SHS soil remediation cleanup criteria are based on numerical values provided by the administration of the Land Recycling Program's 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. The select non-residential SHS MSCs are listed below:

Seneca Mini Mart Seneca, Pennsylvania

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

Benzene	Toluene	Ethylbenzene	Total Xylene	MTBE
500	100,000	70,000	1,000,000	2,000
Naphthalene	Cume	ne	1,2,4-TMB	1,3,5-TMB
25,000	2,500,0	000	35,000	210,000

The COCs and soil samples which exhibited concentrations that exceeded the non-residential SHS MSCs are:

COCs Exceeding PADEP Non-Residential Used Aquifer MSCs	Soil Samples with Exceedance of PADEP Non-Residential Used Aquifer MSCs
Benzene	SB-3 (2.0'to 4.0'), SB-5 (2.0'to 4.0'), SB-8 (4.0' to 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' to 8.0').
Ethylbenzene	SB-3 (2.0'to 4.0'), SB-5 (2.0'to 4.0'), SB-8 (4.0' to 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'to 4.0'), and SB-15 (3.0'-4.0').
MTBE	SB-3 (2.0'to 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'to 4.0'), SB-5 (2.0'to 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'to 4.0'), SB-8 (4.0' to 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' to 8.0').
1,3,5-TMB	SB-15 (3.0'-4.0'),

Given that the area of known soil impacts surrounds the former dispenser island, which is limited to the unsaturated and shallow saturated zones, typically less than eight feet bgs, a remedial soil excavation is likely to be recommended to remove the impacted soil and the source material leaching into the groundwater.

8.3.2 Groundwater

The residential SHS groundwater remediation cleanup criteria are based on numerical values provided by the administration of the Land Recycling Programs 25 Pa Code 250 Subchapter C - MSCs - Organic Regulated Substances in Groundwater, for used aquifers within a residential setting with a total dissolved solids value of less than 2,500 mg/l for all chemicals of concern. The select SHS MSCs are listed below:

Seneca Mini Mart Seneca, Pennsylvania

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

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

The groundwater samples from the facility that exhibited concentrations that exceeded the residential SHS MSCs are:

COCs Exceeding PADEP Non-Residential Used Aquifer MSCs	Monitoring Wells with Exceedance of PADEP Non-Residential Used Aquifer MSCs (times exceeded/times 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).

Not enough groundwater sampling events have been conducted 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.

Measured liquid phase hydrocarbons (LPH) have been recorded in MW-3 and product recovery efforts have been conducted since November 2016. A sheen of LPH has been observed in monitoring wells MW-1, MW-2, MW-4 and MW-5 as well. The remedial soil excavation will also remove existing monitoring wells MW-1 through MW-5 and the LPH that has been observed on the Subject Property.

Following the excavation of the impacted soil, the monitoring wells will be replaced and additional groundwater sampling events will be conducted to statistically demonstrate attainment for the parameters of concern at the point of compliance wells. Additional quarterly groundwater sampling events will have to be completed to obtain a statistically valid data set. The groundwater at the Subject Property will be closed as described in the Pennsylvania Administration of the Land Recycling Programs 25 Pa Code 250 Subchapter G – Demonstration of Attainment – Subsection 704, General Attainment Requirements for Groundwater including:

• Collecting a sufficient number of samples to comply with 25 PA Code 205.707, Statistical Tests.

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8.3.3 Vapor

Not enough vapor sampling events have been conducted to obtain a statistically valid sample set, a minimum of eight samples are required under 25 PA Code Chapter 250, Subchapter G. None of the soil vapor results exceeded the most stringent of the screening values (SSS non-residential sub-slab), therefore, vapor intrusion via any pathway does not appear to be complete. However, the "new" Act 2 vapor regulations require a minimum of eight samples (two vapor points with four quarterly samples) of vapor monitoring using the appropriate screening values for comparison, therefore, a minimum of four quarters of vapor samples will be collected from the two vapor points, using sub slab screening values, following the completion of the remedial activities at the Subject Property. Values for each applicable constituent in soil vapor for this facility are listed below:

Non-Residential Sub-Slab Vapor Screening Values, Site Specific Standards ($1/10^{th}$ Table 4 Sub-Slab Values) mg/m³

Benzene	Toluene	Ethylbenze	ene Total Xyler	ne MTBE
0.20	280	0.63	5.60	6.10
Naphthalene		Cumene	1,2,4-TMB	1,3,5-TMB
0.046		2.20	0.390	0.390

Additional quarterly vapor sampling events will have to be completed to obtain a statistically valid data set. The vapor at the Subject Property will be closed as described in the Pennsylvania Administration of the Land Recycling Programs 25 Pa. Code 250 Subchapter G – Demonstration of Attainment – subsection 704, General Attainment Requirements for Groundwater including:

• Collecting a sufficient number of samples to comply with 25 PA Code 205.707, Statistical Tests.

8.4 Recommended Remedial Actions to Obtain Closure

Concentrations of benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene 1,2,4-TMB and 1,3,5-TMB were observed in the soil samples in the vicinity of the former dispenser islands and along the frontage to State Route 257 at concentrations that exceed the non-residential SHS MSCs. Current groundwater impacts that exceed their non-residential SHS MSCs include benzene, ethylbenzene, toluene, total xylenes, MTBE, naphthalene, 1,2,4-TMB and 1,3,5-TMB. The most highly impacted groundwater is concentrated in monitoring wells MW-1 through MW-5, but also includes MTBE in MW-8 and low concentrations of benzene, MTBE and 1,2,4-TMB in MW-10. Vapor analytical result to date do not exceed the SSS for Non-Residential Sub-Slab vapor screening values that are 1/10 of the sub slab screening values.

Quick Domenico modeling utilizing the historic high concentrations observed at the facility predicts that many of the parameters of concern will migrate beyond the property boundary (point of compliance) as monitoring wells MW-2 through MW-5 are located on the property boundary, however, only the benzene plume is projected to extend to the west across the width of State Route 257, potentially intersecting the unnamed tributary to Lower Twomile Run.

In order to meet the non-residential SHS MSCs, a remedial soil excavation of approximately 4,300 square feet in area covering the vicinity of the former dispenser islands and the frontage along State Route 257 is recommended in order to reduce the concentration of the contaminants of concern in the soil and groundwater at the facility. The volume of impacted soil is estimated at approximately 1,200 to 1,250 cubic yards. **Figure 15** presents the footprint of the proposed soil excavation. The soil impacts are

Seneca Mini Mart Seneca, Pennsylvania

predominantly in the fill material and the immediately underlying brown and gray silty clay inside the 4,300-square foot area. 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 contaminants of concern.

The western edge of the excavation will be the curb at the shoulder of State Route 257. As a portion of the Right of Way for State Route 257 is part of the proposed soil remediation excavation a right of way entry permit will have to be obtained from the Pennsylvania Department of Transportation (PennDOT). The appropriate PATA Traffic Control Plan (likely PATA 101) will be used to designate the work zone and alert traffic. The northern, eastern and southern limits of the excavation are approximated in **Figure 15**; however, the soils will be field screened using a PID to evaluate the limits of impacted soil in those directions. The groundwater elevations in the vicinity of the dispenser island (MW-1 through MW-5) is 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 infiltrating the fill material (the roof drain discharges directly into the location of the former dispenser).

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.

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 to have the impacted soil pre-approved so that it can be direct loaded and transported for disposal 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).

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. This will insure that the portion of the excavation adjoining State Route 257 will not remain open longer than absolutely necessary, preventing collapse of the sidewalls or someone driving into an open excavation. Clean local fill will be placed in one-foot lifts and compacted to within one foot of the existing ground surface. Eight inches of 2B limestone gravel will be compacted in place to provide a gravel subbase for the asphalt surface to replace the former asphalt and concrete of the dispenser islands. The concrete and dispenser islands will not be replaced.

As the soil excavation activities are conducted, a minimum of twelve post-remediation soil samples will be collected from the open excavation and submitted for laboratory analysis. Six samples from the side walls (two from each on the long sides and one for each short side) and six samples from the excavation base will be analyzed to demonstrate attainment of the non-residential SHS MSCs for soils. The twelve post-remediation soil samples will be biased samples collected from the excavation based on PID screening. Each of these twelve samples will need to meet the SHS MSCs to demonstrate attainment. If the biased samples should fail to demonstrate attainment, but conditions appear favorable to utilize random systematic soil sampling (RSSS), twelve random sample will be collected in the shoulder and travel lanes of State Route 257 using a Geoprobe sampling rig. This will require a PennDOT highway occupancy permit. The analytical data will subsequently be evaluated using the 75%, 2X rule (for off-site attainment). If this statistical evaluation for attainment fails, other alternatives such as SSS may be considered.

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The monitoring wells destroyed by the excavation activities will be replaced at the same locations and to the same depth as the original monitoring wells. A minimum of eight rounds of quarterly groundwater sampling events will be conducted to document that the point of compliance wells are below the residential SHS MSCs. If the contaminants are detected at concentrations above the residential SHS MSCs in the point of compliance wells, an additional dowgradient groundwater monitoring well may be installed near the concrete median between the travel lanes of State Route 257. This monitoring well will assist in the evaluation of whether a SHS closure or SSS closure would be more reasonable. This well could also be utilized as a fate and transport calibration well if a SSS closure is necessary.

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 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.

While there is no guarantee that these activities will produce the desired results needed to obtain Site closure under Act 2, Cribbs & Associates believes that this approach provides the best path to closure with the minimal overall expenditure.

Seneca Mini Mart Seneca, Pennsylvania

9.0 REFERENCES

- Burg & Dodge, 1981. Atlas of Preliminary Geologic Quadrangle Maps of Pennsylvania, Thomas M Burg and Christine M. Dodge, editors, Commonwealth of Pennsylvania Department of Environmental Resources, Office of Resource Management, Bureau of Topographic and Geologic Survey.
- Freeze and Cherry, 1979. "Groundwater", R. Allen Freeze and John A. Cherry, Prentice-Hill, Inc. Englewood, N.J., 1979.
- Frampton, Rodney K., 2015. Underground Storage Tank System Closure Report, Seneca Mini Mart, Seneca, PA, submitted to PADEP on August 20, 2015.
- PADEP, 2001a. Pennsylvania Department of Environmental Protection, Pennsylvania Bulletin, Title 25 Environmental Protection, 25 PA. Code Ch. 245, Storage Tank and Spill Prevention Program, December 2001.
- PADEP, 2001b. Pennsylvania Department of Environmental Protection, Pennsylvania Bulletin, Title 25 Environmental Protection, 25 PA. Code Ch. 250, Land Recycling Program, November 2001.
- PADEP, 2002. Pennsylvania Department of Environmental Protection, Land Recycling Program Technical Guidance Manual, June 2002.
- PADEP, 2004. Final Guidance on Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard, Land Recycling Program Technical Guidance Manual Section IV.A4, January 2004.
- Shultz et.al. 1999. "The Geology of Pennsylvania", Charles H. Shultz, Editor, Pennsylvania Geological Survey, Harrisburg, and Pittsburgh Geological Society, Pittsburgh, PA., 1999.

Site Characterization Report Seneca Mini Mart Seneca, Pennsylvania

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

		_	_	_	_	_	_	_	_	_	_	_	_	_	_				_	_	_	_	_	_	_	_	_	_	_	_
	SB-7 (7.0'-8.0')	6/14/2016		<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<4.8	<14.4	18.0				SB-16 *	(3.0' 4.0')	6/14/2016		29,300	87,100	7,150	<181	22,600	4,460	176,000	62,400	319,000	3,460
	SB-7 (3.0'-4.0')	6/14/2016		<206	4,060	487	<206	1,100	<206	<206	<206	<617	230				SB-15	(3.0-4.0)	6/14/2016		101,000	397,000	32,700	<25,100	119,000	327,000	895,000	291,000	2,030,000	3,970
	SB-6 (2.0'-4.0')	4/29/2016		<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<4.1	<12.2	22.5				SB-14	(3.0 -4.0)	6/14/2016		52,500	57,000	4,600	<250	16,800	1,490	98,300	31,200	87,100	349
	SB-5 (2.0'-4.0')	4/29/2016		553	135,000	15,800	<291	33,100	<291	3,000	1,610	<873	443				SB-13	(3.0' 4.0')	6/14/2016		36,300	178,000	14,700	<2,280	41,900	6,110	266,000	128,000	523,000	1,521
	SB-4 (6.0'-8.0')	4/27/2016		<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3	<12.8	12.3				SB-12	(3.0 4.0)	6/14/2016		002'92	14,700	844	<277	1,870	1,900	8,790	1,970	16,600	2,274
	SB 4 (4.0'-6.0')	4/27/2016		<255	<255	<255	<255	<255	<255	<255	<255	99/>	121				SB-11	(7.0-0.1)	6/14/2016		<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<6.1	<18.3	4.1
	SB-3 (6.0'-8.0')	4/27/2016		<4.1	11.6	<4.1	<4.1	<4.1	<4.1	7.6	<4.1	27.2	19.4				SB-11	(5.0 -4.0)	6/14/2016		35,300	108,000	9,410	<2,070	24,400	115,000	190,000	89,800	434,000	1,811
	SB-3 (2.0'-4.0')	4/27/2016		<2,430	316,000	27,700	<2,430	64,900	<2,430	567,000	194,000	1,110,000	>2000				SB-10	(4.0 -5.0)	6/14/2016		2,390	5,750	634	10.0	1,360	8.6	11,500	134	2,690	58.6
	SB-2 (2.0'-4.0')	4/27/2016		<241	<241	333	<241	<241	<241	<241	<241	<724	30.8				SB-9	(5.0' 4.0')	6/14/2016		2,370	60,300	10,600	<239	19,300	<239	49,800	640	2,460	3,140
	SB-1 (8.0'-10.0')	4/27/2016		<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<5.9	<17.8	4.8				SB-8	(4.0 -5.0)	6/14/2016		1,940	91,200	8,880	<317	23,200	<317	207,000	63,800	88,100	3,360
Non- Residental	Vapor Intrusion Screening Value			130	46,000	2,500,000	1,400	25,000	44,000	35,000	210,000	000'066			Non-	Residental	Vapor	Screening Value			130	46,000	2,500,000	1,400	25,000	44,000	35,000	210,000	000'066	
Non-	Residential Surface Soil 2-15'			330,000	1,000,000	10,000,000	000,006,6	190,000,000	10,000,000	640,000	10,000,000	9,100,000				Non-	Residential	2-15'			330,000	1,000,000	10,000,000	000,006,6	190,000,000	10,000,000	640,000	10,000,000	9,100,000	
Non-	Residential Surface Soil 0-2'			290,000	890,000	10,000,000	8,600,000	760,000	10,000,000	560,000	10,000,000	8,000,000				Non-	Residential	Surrace Son 0-2'			290,000	890,000	10,000,000	8,600,000	760,000	10,000,000	560,000	10,000,000	8,000,000	
Residential	Direct Contact 0-15'			57,000	180,000	7,700,000	1,700,000	160,000	10,000,000	130,000	2,200,000	1,900,000				Residential	Direct	Contact 0-15'			57,000	180,000	7,700,000	1,700,000	160,000	10,000,000	130,000	2,200,000	1,900,000	
Non-	Residential Soil to Groundwater			200	70,000	2,500,000	2,000	25,000	100,000	35,000	210,000	1,000,000				Non-	Residential	Sou to Groundwater			200	70,000	2,500,000	2,000	25,000	100,000	35,000	210,000	1,000,000	
Residential	Soil to Groundwater			200	70,000	000,009	2,000	25,000	100,000	8,400	74,000	1,000,000				Residential	Soil to	Groundwater			200	70,000	000,009	2,000	25,000	100,000	8,400	74,000	1,000,000	
	SILINO			ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg					UNITS				ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	
	Parameter	Date Sampled	VOCs	Benzene	Ethylbenzene	Isopropylbenzene (Cumene)	Methyl tert-Butyl Ether (MTBE)	Naphthalene	Foluene	1,2,4-Trimrthylbenzene	1,3,5-Trimrthylbenzene	Xylene (Total)	PID				Parameter		Date Sampled	VOCs	Benzene	Ethylbenzene	Isopropylbenzene (Cumene)	Methyl tert-Butyl Ether (MTBE)	Naphthalene	Foluene	1,2,4-Trimrthylbenzene	1,3,5-Trimrthylbenzene	Xylene (Total)	PID

7/28/2017 Table 1 Seneca PA short list unlead gas.xlsx

Table 1 Seneca PA short list unlead gas.xlsx

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

Parameter	UNITS	Residential Soil to Groundwater	Non- Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non- Residential Surface Soil 0-2'	Non- Residential Surface Soil 2-15'	Non- Residental Vapor Intrusion Screening	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-5 (10.0'-12.0')	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	11/1/2016
VOCs																	
Benzene	ug/kg	200	200	27,000	290,000	330,000	130	12.7	20,600	1,170	27.9	963	214	5.2	<5.0	10.9	<3.6
Ethylbenzene	ug/kg	000,07	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	<3.6
Isopropylbenzene (Cumene)	ug/kg	000,009	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	<3.6
Methyl tert-Butyl Ether (MTBE)	ug/kg	2,000	2,000	1,700,000	8,600,000	000'006'6	1,400	11.7	<227	<223	<4.3	<198	<195	<5.1	<5.0	166	7.2
Naphthalene	ug/kg	25,000	25,000	160,000	760,000	190,000,000	25,000	<4.9	30,200	5,850	10.5	2,920	1,970	<5.1	<5.0	<4.6	<3.6
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	<3.6
1,2,4-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	260,000	640,000	35,000	47.1	191,000	42,900	9.3	40,000	17,500	<5.1	<5.0	<4.6	<3.6
1,3,5-Trimrthylbenzene	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	<3.6
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	000,066	112	297,000	5,080	18.1	37,000	9,470	<15.3	<14.9	<13.9	<10.9
PID								13.8	2,875	952	139	396	824	2.4	0.6	3.7	2.3

Parameter	UNITS	Residential Soil to Groundwater	Non- Residential Soil to Groundwater	Residential Direct Contact 0-15'	Non- Residential Surface Soil 0-2'	Non- Residential Surface Soil 2-15'	Non- Residental Vapor Intrusion Screening	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	200	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	6.5>	<5.7	<10.7
Isopropylbenzene (Cumene)	ug/kg	000,009	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	000,006,6	1,400	<5.4	<4.4	<4.8	<230	<5.4	<4.3	6.5>	<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-Trimrthylbenzene	ug/kg	8,400	35,000	130,000	260,000	640,000	35,000	<5.4	4.4	<4.8	<230	<5.4	<4.3	<5.9	C5.7	<10.7
1,3,5-Trimrthylbenzene	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	C.5>	<10.7
Xylene (Total)	ug/kg	1,000,000	1,000,000	1,900,000	8,000,000	9,100,000	000'066	<16.1	<13.3	<14.3	<691	<16.3	<12.8	<17.6	<17.1	<32.1
PID								1.7	0.0	7.7	0.0	0.0	0.0	8.7	1.0	/10

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

NA Denotes Not Analyzed, Not Avaliable, or Not Applicable

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

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

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

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

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

- Denotes exceeds two or more Statewide Health Standards.

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

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

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

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-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					

1/17/2017 - MW-6 and MW-7 sampled, all other wells gauged.

4/25/2017 - $MW\mbox{-}8$ sampled, $\,MW\mbox{-}10$ and $\,MW\mbox{-}11$ gauged only.

MW-15 PVC cut down by 1.27' between initial sampling event and surveying MW-15.

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 Resid	lential	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 Intrusion Screen	•	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 Resid	ential	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 Intrusion Screen	•	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.

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)		d Product kness	Estimated LPH Volume in well and sandpack	Bailed (Yes/No)	Bailed LPH Volune Product / Water	Bailed LPH Volune 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									
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									

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)		d Product kness	Estimated LPH Volume in well and sandpack	Bailed (Yes/No)	Bailed LPH Volune Product / Water	Bailed LPH Volune Product Recovered	Adsorbent Socks Used (1= new 0= not changed)
			(inches)	(feet)	(gallons)		(gallons)	(gallons)	
MW-3	10/4/2016	2	9.84	0.82	0.59327	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									
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									

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

Date	Well Diameter (inches)		d Product kness	Estimated LPH Volume in well and sandpack	Bailed (Yes/No)	Bailed LPH Volune Product / Water	Bailed LPH Volune Product Recovered	Adsorbent Socks Used (1= new 0= not changed)
		(inches)	(feet)	(gallons)		(gallons)	(gallons)	
2/22/2017	2	Sheen	Sheen	NA	N	0.0	0.0	0
3/7/2017	2	Sheen	Sheen	NA	Y	1.0	0.0	1
3/21/2017	2	Sheen	Sheen	NA	N	0.0	0.0	1
3/29/2017	2	0.00	0.00	NA	Y	1.0	0.0	1
4/25/2017	2	0.00	0.00	NA	Y	0.0	0.0	0
5/3/2017	2	0.00	0.00	NA	N	0.0	0.0	0
5/19/2017	2	Sheen	Sheen	NA	Y	0.75	0.0	1
6/7/2017	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	1
6/13/2017	2	Slight Sheen	Slight Sheen	NA	Y	1.00	0.0	0
7/5/2017	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	1
7/17/2017	2	Slight Sheen	Slight Sheen	NA	N	0.00	0.0	1
7/31/2017	2	Heavy Sheen	Heavy Sheen	NA	N	0.00	0.0	0
8/10/2017	2	Mod. Sheen	Mod. Sheen	NA	N	0.00	0.0	1
	مراه ادما دا	no alva				50.2	6 4704	41
	2/22/2017 3/7/2017 3/21/2017 3/29/2017 4/25/2017 5/3/2017 5/19/2017 6/7/2017 7/5/2017 7/17/2017 7/31/2017 8/10/2017	(inches) 2/22/2017 2 3/7/2017 2 3/21/2017 2 3/29/2017 2 4/25/2017 2 5/3/2017 2 5/19/2017 2 6/7/2017 2 6/13/2017 2 7/5/2017 2 7/17/2017 2 7/31/2017 2 8/10/2017 2	(inches) (inches) (inches) 2/22/2017 2 Sheen 3/7/2017 2 Sheen 3/21/2017 2 Sheen 3/29/2017 2 0.00 4/25/2017 2 0.00 5/3/2017 2 0.00 5/19/2017 2 Sheen 6/7/2017 2 Shight Sheen 6/13/2017 2 Slight Sheen 7/5/2017 2 Slight Sheen 7/5/2017 2 Slight Sheen 7/17/2017 2 Slight Sheen 7/17/2017 2 Slight Sheen 7/31/2017 2 Heavy Sheen	(inches) (inches) (feet) 2/22/2017 2 Sheen Sheen 3/7/2017 2 Sheen Sheen 3/21/2017 2 Sheen Sheen 3/29/2017 2 Sheen Sheen 3/29/2017 2 0.00 0.00 4/25/2017 2 0.00 0.00 5/3/2017 2 0.00 0.00 5/19/2017 2 Sheen Sheen 6/7/2017 2 Slight Sheen Slight Sheen 6/13/2017 2 Slight Sheen Slight Sheen 7/5/2017 2 Slight Sheen Slight Sheen 7/5/2017 2 Slight Sheen Slight Sheen 7/17/2017 2 Slight Sheen Slight Sheen 7/31/2017 2 Slight Sheen Slight Sheen Mod. Sheen Mod. Sheen Mod. Sheen	(inches) (inches) (feet) (gallons) 2/22/2017 2 Sheen Sheen NA 3/7/2017 2 Sheen Sheen NA 3/21/2017 2 Sheen Sheen NA 3/29/2017 2 O.00 O.00 NA 4/25/2017 2 O.00 O.00 NA 5/3/2017 2 O.00 O.00 NA 5/3/2017 2 Sheen Sheen NA 5/19/2017 2 Sheen Sheen NA 6/7/2017 2 Sheen Sheen NA 6/7/2017 2 Slight Sheen Slight Sheen NA 6/7/2017 2 Slight Sheen Slight Sheen NA 7/5/2017 2 Slight Sheen Slight Sheen NA 7/5/2017 2 Slight Sheen Slight Sheen NA 7/17/2017 2 Slight Sheen Slight Sheen NA 7/31/2017 2 Mod. Sheen Mod. Sheen NA	(inches) (inches) (feet) (gallons) 2/22/2017 2 Sheen Sheen NA N 3/7/2017 2 Sheen Sheen NA N 3/21/2017 2 Sheen Sheen NA N 3/29/2017 2 O.00 O.00 NA Y 4/25/2017 2 O.00 O.00 NA Y 5/3/2017 2 O.00 O.00 NA NA N 5/19/2017 2 Sheen Sheen NA N 6/7/2017 2 Slight Sheen Slight Sheen NA N 6/13/2017 2 Slight Sheen Slight Sheen NA N 7/5/2017 2 Slight Sheen Slight Sheen NA N 7/17/2017 2 Mod. Sheen Mod. Sheen NA N	(inches) Thickness in well and sandpack (Yes/No) Product / Water 2/22/2017 2 Sheen Sheen NA N 0.0 3/7/2017 2 Sheen Sheen NA Y 1.0 3/21/2017 2 Sheen Sheen NA N 0.0 3/29/2017 2 0.00 0.00 NA Y 1.0 4/25/2017 2 0.00 0.00 NA Y 0.0 5/3/2017 2 0.00 0.00 NA N 0.0 5/19/2017 2 Sheen Sheen NA N 0.00 5/19/2017 2 Slight Sheen Slight Sheen NA N 0.00 6/13/2017 2 Slight Sheen Slight Sheen NA N 0.00 7/17/2017 2 Slight Sheen Slight Sheen NA N 0.00 7/31/2017 2 Slight Sheen NA N	Cinches Cinc

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.

Each adsorbent sock recoveres approximately one pint if fully saturated.

NM = not measured

Table 5

Harper Oil Company/Heath Oil Inc. - Seneca Mini-Mart 3390 State Route 257 Aquifer Characteristics

Seneca, PA PADEP Facility ID 61-18854

Well ID	Date	Test Tyne	TOC Elevation	Top of Well	Total Denth	Test	Depth to Water (SWL)	Groundwater Elevation		Hydraulic Hydraulic Conductivity	Estimated Porosity	Hydraulic Gradient	Groundwater Seenage Vel.
	Tested		(f t)	Screen (ft)	(f t)	(minutes)	(ft)		(ft/day)	(cm/sec)	(%)	(ft/ft)	(ft./day)
Shallow Wells	Ils												
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	3.66E+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

Top of casing elevations surveyed and provided by Morris Knowles & Associates, Inc. Hydraulic Gradient based on measurements obtained on July $28^{\rm th}$, 2016 between MW-3 and MW-14

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	b-Slab Vapor	2.0	6.3	220	99	19	0.46	2,800	3.9	3.9
SSS Non-Residential Sub-Slab Vapor Screening Values (1/10th Table 4 values)	al Sub-Slab Vapor /10th Table 4 values)	0.20	0.63	2.20	2.60	6.10	0.046	280	0.390	0.390
Non-Residential Near Source Vapor Screening Values	ar Source Vapor	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
$MSC_{SG} = Residential MSC_{IAQ} \times 100**$	al MSC_{IAQ} x $100**$	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

 $MSC_{SG} = Residential\ MSC_{IAQ}\ x\ 100^{**} = Soil\ Vapor\ results\ compared\ to\ 100\ X\ the\ residential\ indoor\ air\ quality\ MSC\ to\ account\ for\ dilution\ effets,\ as\ per\ RFP$

Values in mg/m³

Bolded values denote exceedences of the respective Statewide Health Standard.

TMB = Trimethylbenzene

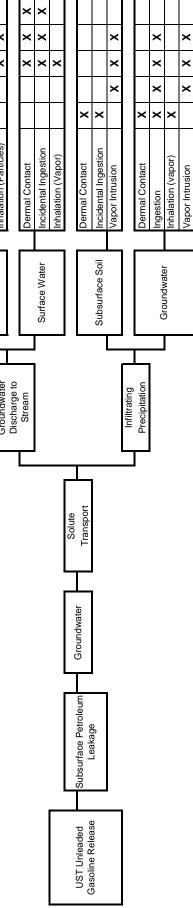
CONCEPTUAL SITE MODEL

Harper Oil Company/ Heath Oil Inc. - Seneca Mini Mart

3390 State Route 257

Seneca Borough, Venango County, Pennsylvania PADEP Facility ID # 61-18854 POTENTIAL RECEPTORS

Ecological Future Resident × Visitor/Trespasser Occupational Worker Maintenance Worker Construction Worker/ Inhalation (Particles) Incidental Ingestion EXPOSURE Inhalation (vapor) ROUTE **Dermal Contact** Vapor Intrusion Dermal Contact Dermal Contact /apor Intrusion ngestion ngestion Subsurface Soil EXPOSURE MEDIUM Groundwater Sediment TRANSPORT MECHANISM Groundwater Discharge to Stream Precipitation Infiltrating SECONDARY RELEASE MECHANISM Leaching Subsurface Soil MEDIUM AFFECTED Subsurface Petroleum PRIMARY RELEASE MECHANISM Leakage PRIMARY SOURCE UST Unleaded Gasoline Release



Blank space indicates incomplete exposure pathway or relatively insignificant, or not applicable potential exposure. $\mathbf{X} = \text{Potentially Complete Exposure Pathway}$

Site Characterization Report Seneca Mini Mart Seneca, Pennsylvania

FIGURES

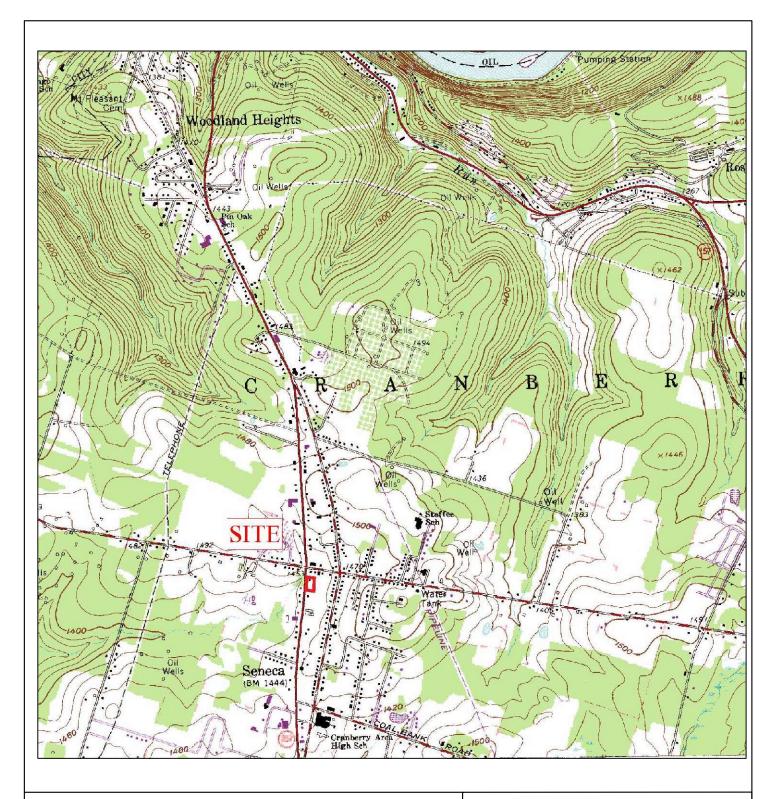




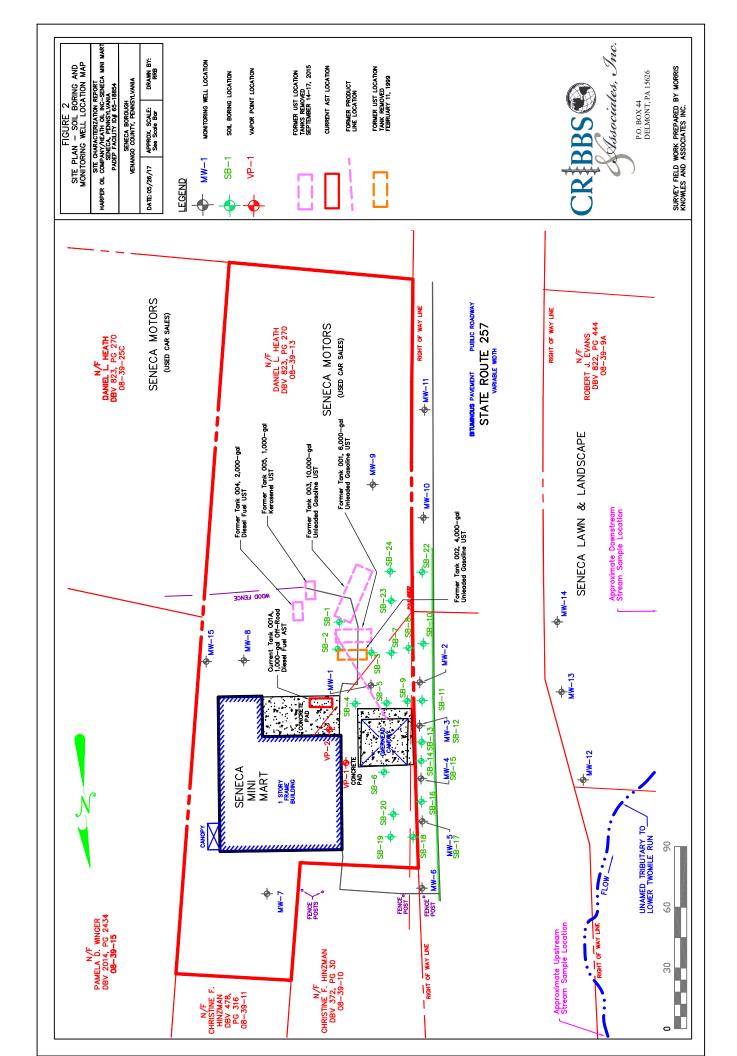
FIGURE 1 SITE LOCATION MAP

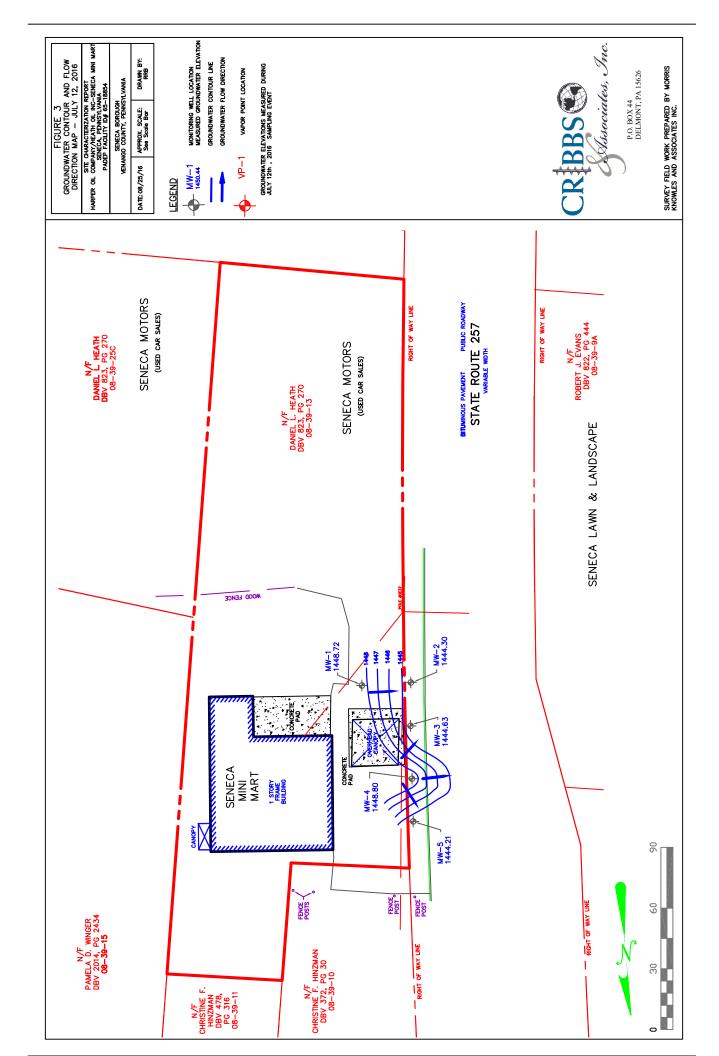
Site Characterization Report

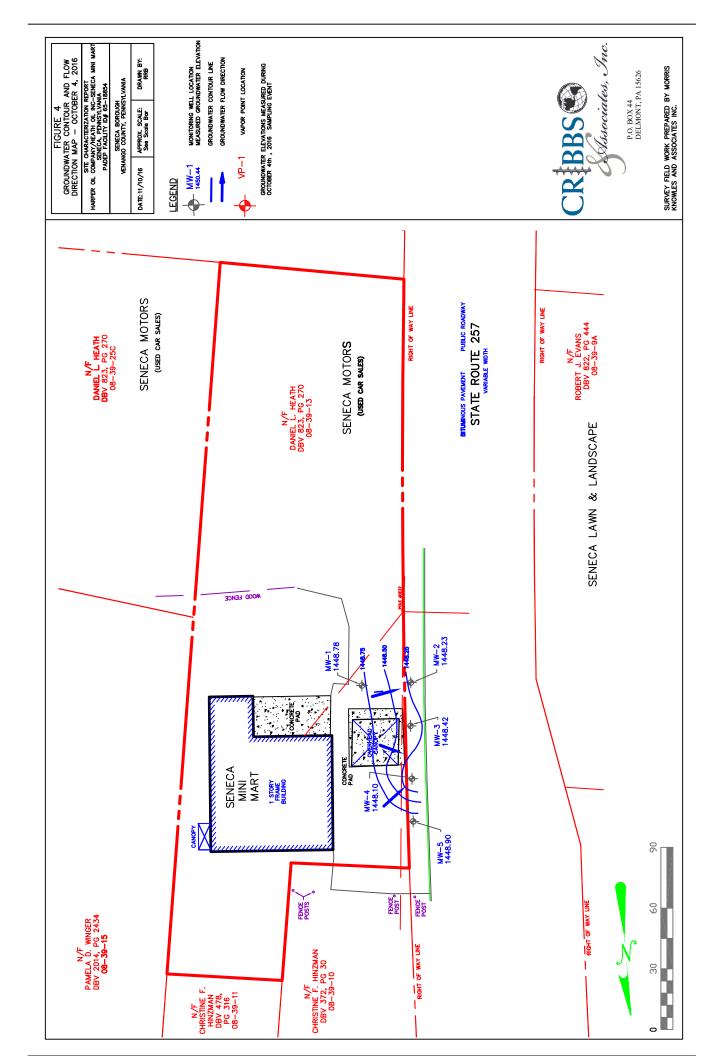
Harper Oil Company/Heath Oil Inc., Seneca Mini Mart 3390 State Route 257 Seneca Borough, Venango Co., Pennsylvania

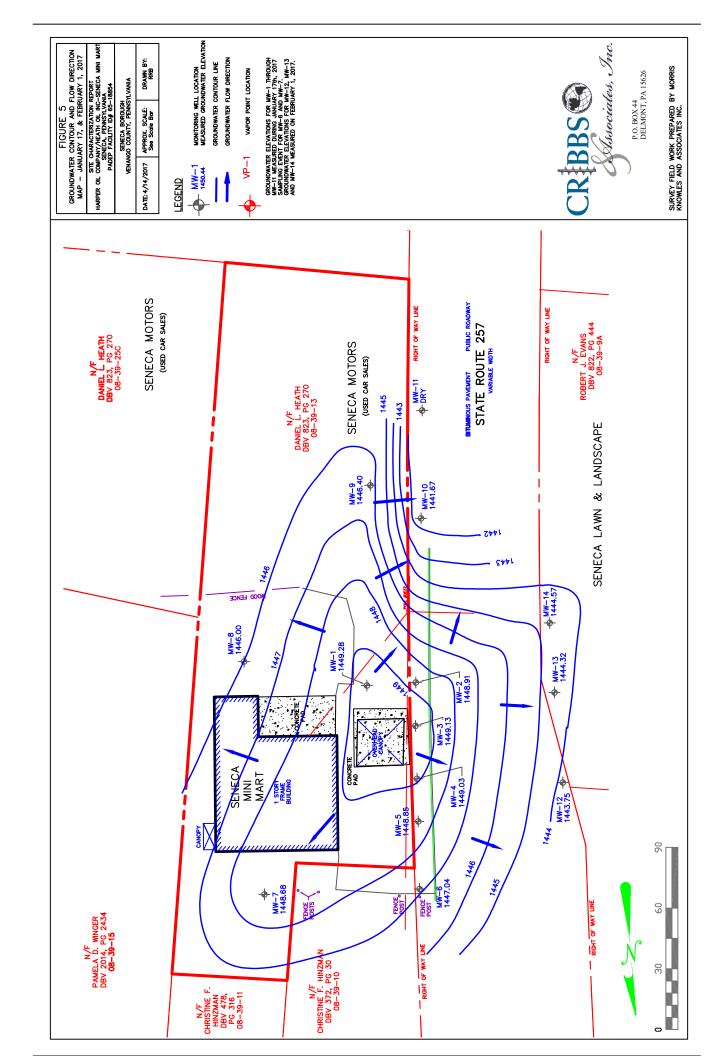


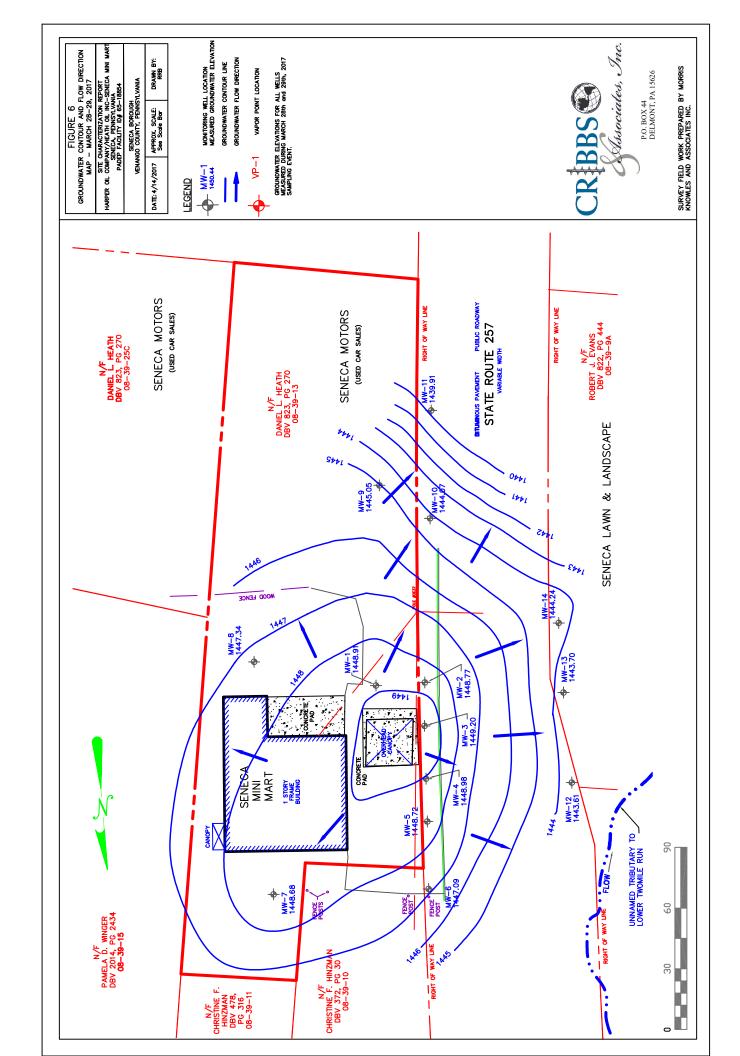
P.O. BOX 44 DELMONT, PA 15626 724.454.2310

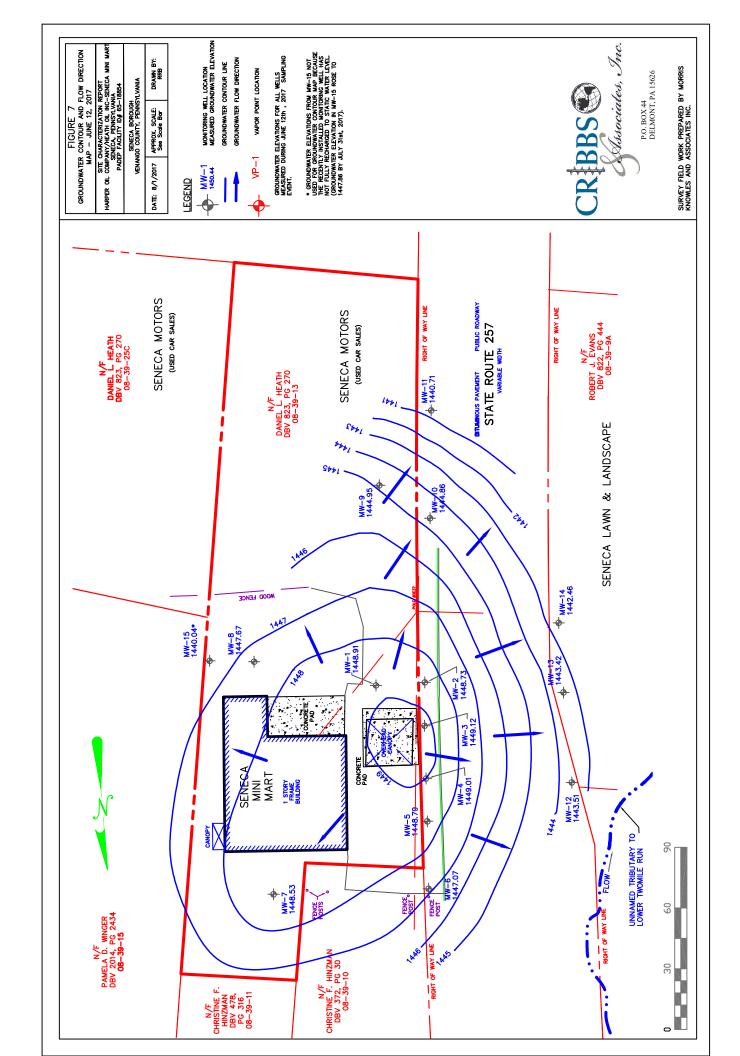


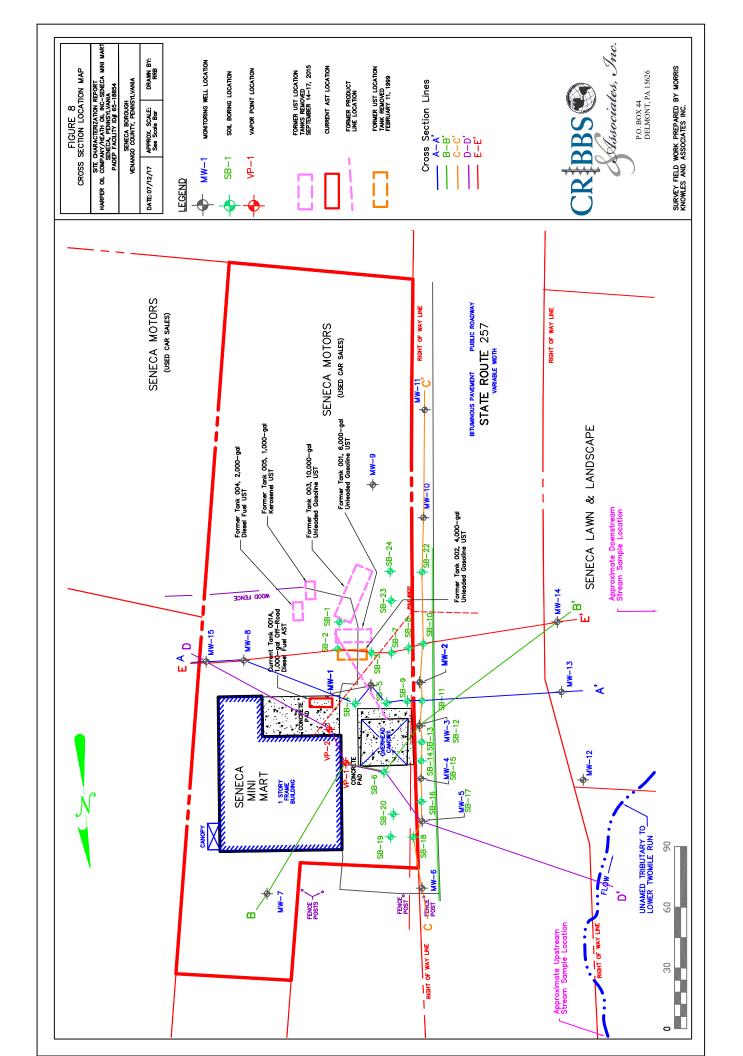


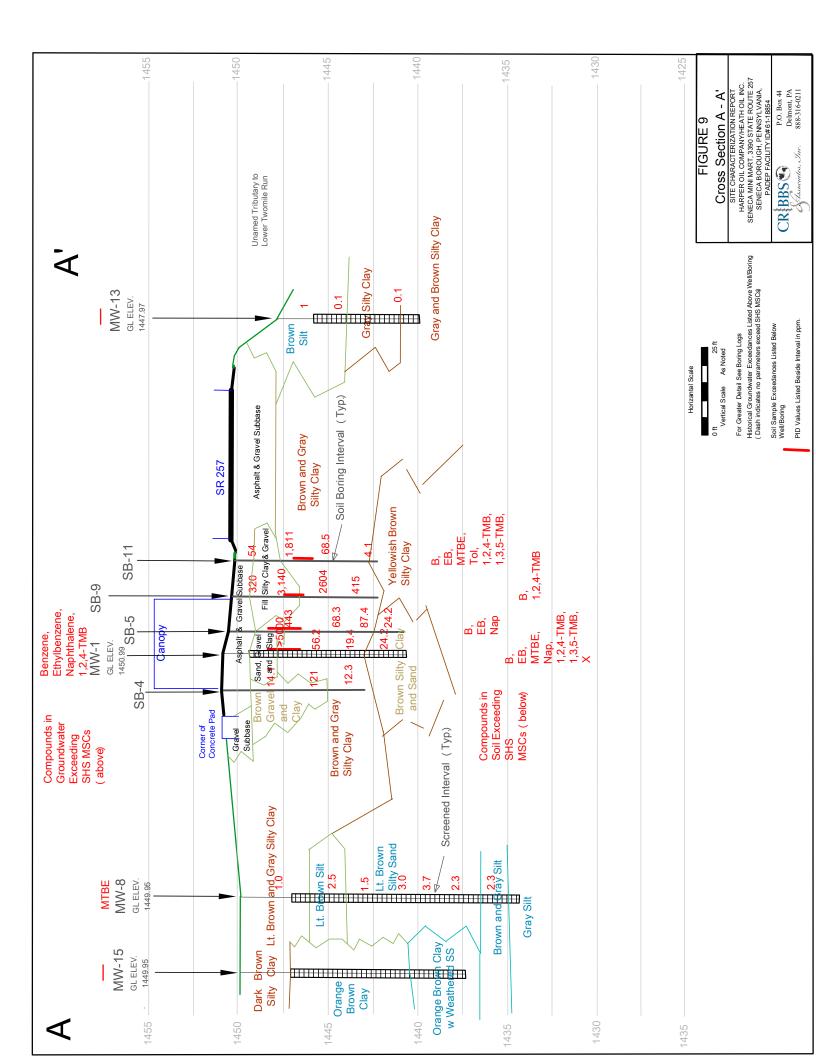


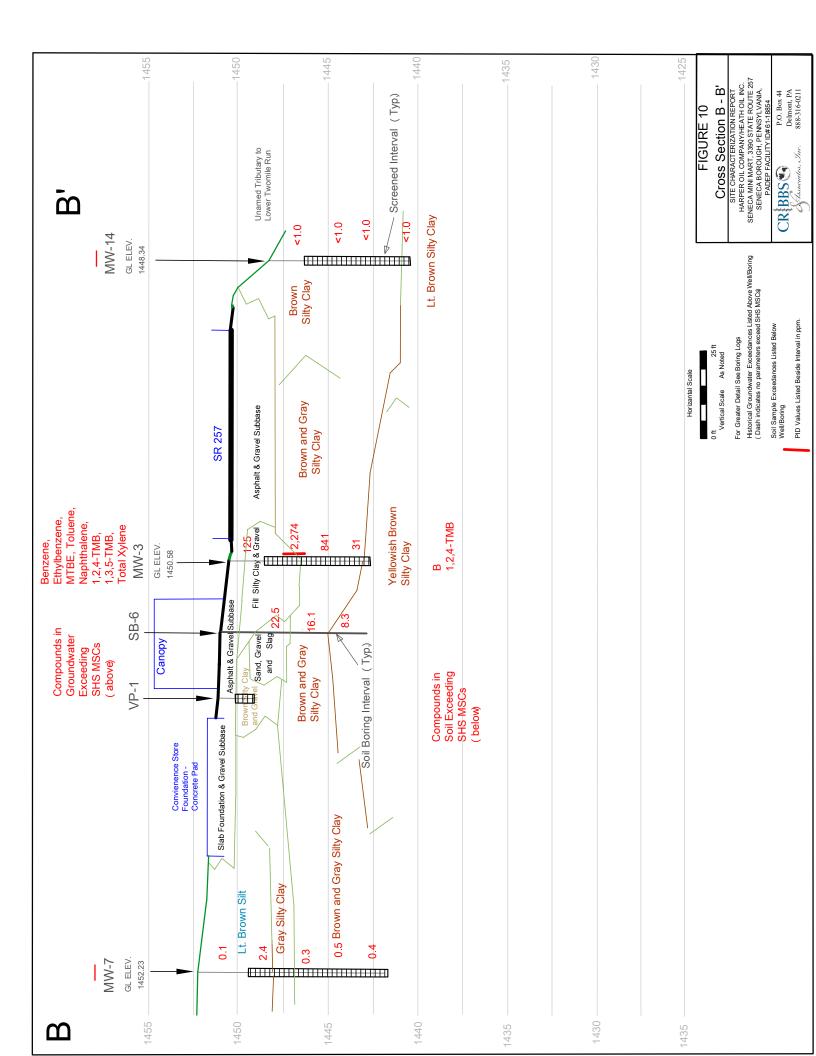


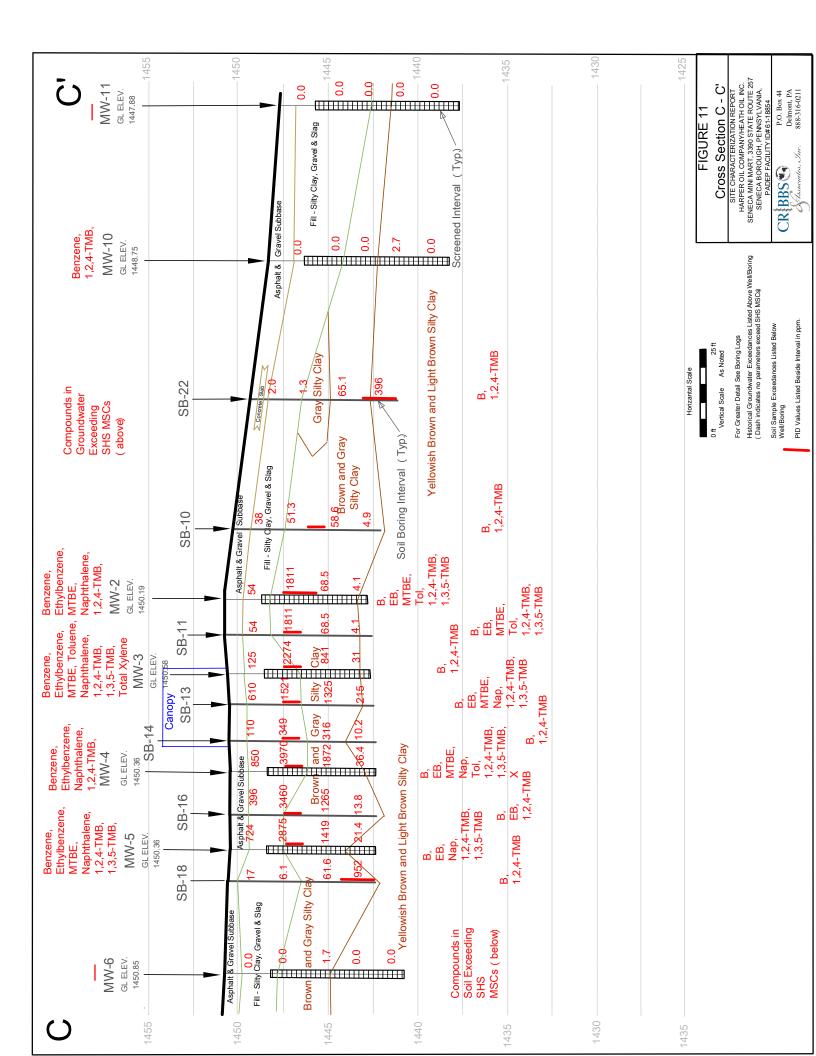


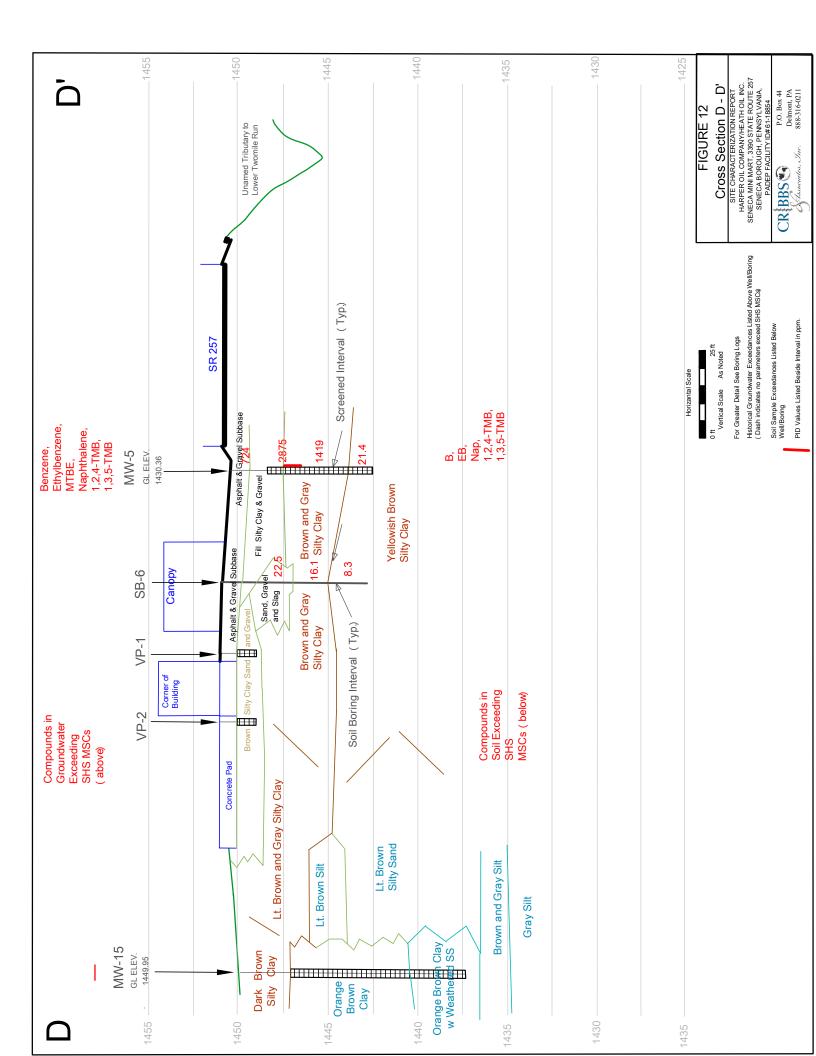


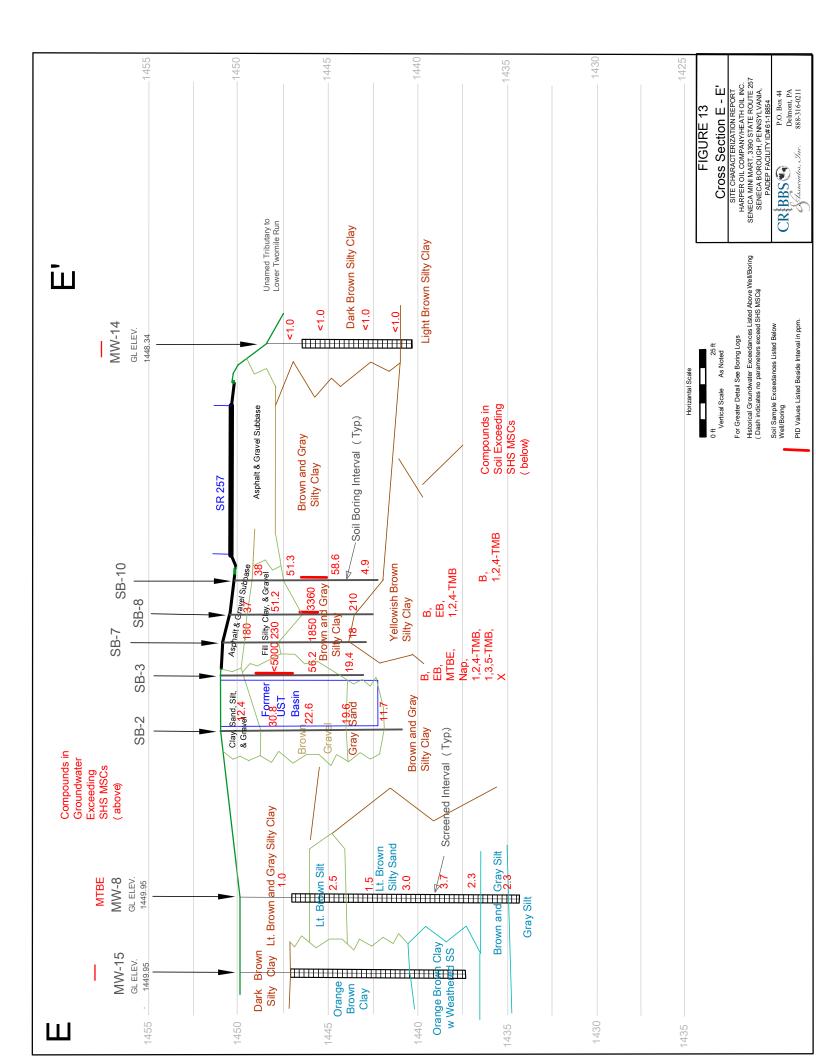


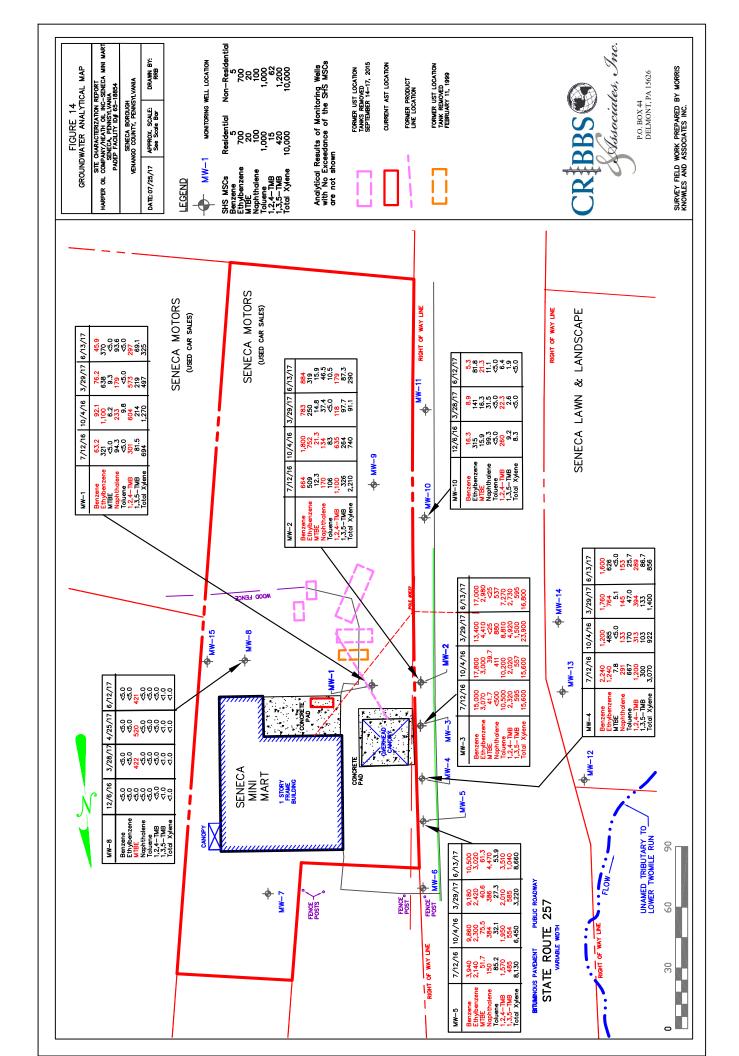


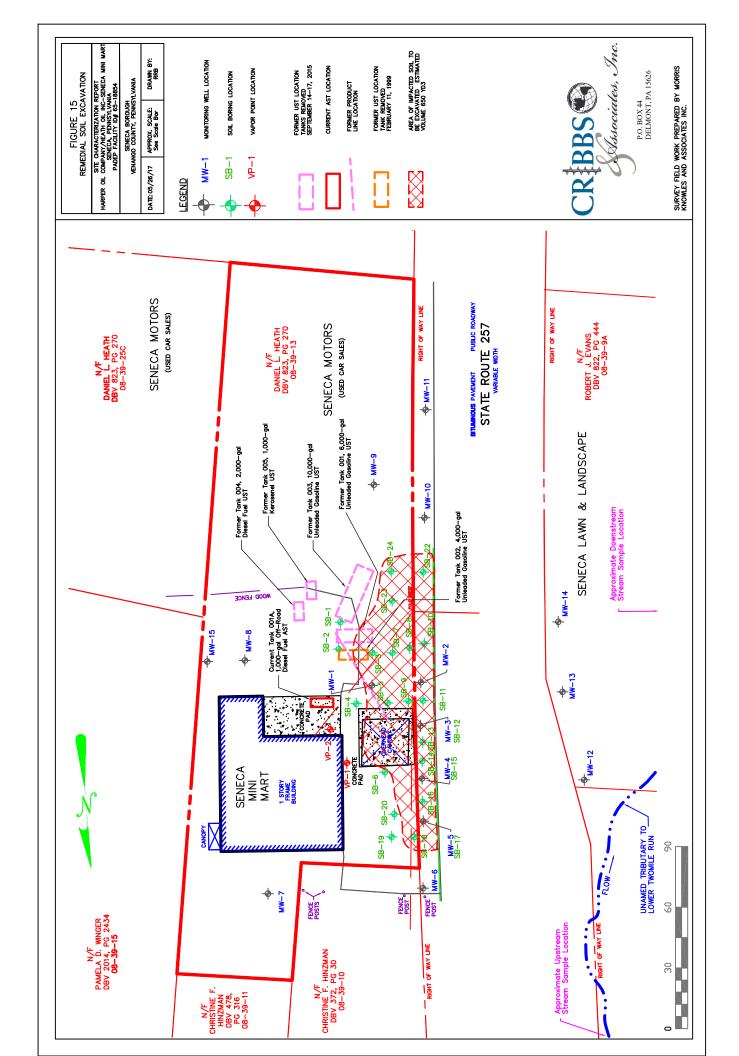












Site Characterization Report Seneca Mini Mart Seneca, Pennsylvania

APPENDICES

Site Characterization Report Seneca Mini Mart

Seneca Mini Mart Seneca, Pennsylvania

APPENDIX A

Underground Storage Tank Closure Report and Reportable Release Form



APPENDIX D

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

UNDERGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

		61 -		4
		Facility	y I.D.	
		Seneca M	Iini Ma	art
		Facilit	y Nam	ne
		Cranberry Township		Venango
		Municipality		County
		February 2	9, 2016	6
		Date Pre		
		John Ko	ziara	
		Name of Person S		ting Report
		(Please		
		Koziara Trucking	and Ex	cavating
		Company		
		(If Appli	cable)	
		Owr Titl		
		1111	ie	
Clos	ure Method (Check	all that apply):	Site	Assessment Results (Check all that apply):
X	Removal			No Obvious Contamination - Sample Results Meet Standards/Levels
	Closure-In-Place			No Obvious Contamination - Sample Results Do Not Meet Standards/Levels
	Change-In-Service	е		Obvious, Localized Contamination - Sample Results Meet Standards/Levels
				Obvious, Localized Contamination - Sample Results Do Not Meet Standards/Levels
			X	Obvious, Extensive Contamination

DATE RECEIVED:	

Owners who are permanently closing underground storage tanks may use this form to demonstrate that an underground storage tank closure was performed in accordance with the "Closure Requirements for Underground Storage Tank Systems" document. PLEASE PRINT OR TYPE. COMPLETE ALL QUESTIONS.

SECTION I. Owner/Facility/Tank/Waste Management and Disposal Information

1.	Facility ID Number 61 - 18854	2.	Facility Name Seneca Mini Mart
3.	Facility County Venango	4.	Facility Municipality Cranberry Township
5.	Facility Address 3390 State Route 257		
6.	Facility Contact Person Mr. Andrew A. Restauri	7.	Facility Telephone Number (814)437 - 7802
8.	Owner Name Harper Oil Company		
9.	Owner Mailing Address P.O. Box 1128, Oil City, PA 16	5301	
	D ::: (11.1		

10. Description of Underground Storage Tanks (Complete for each tank closed)

					-	
DATE OF TANK CLOSUR		Month/Day/Year)	09 - 16 - 15	09 - 17 - 15	09 -14 -15	09-14 - 15
Tank Registration Number			001	003	004	005
Estimated Total Capacity ((Gall	ons)	6,000	10,000	2,000	1,000
Substance(s) Stored Throughout Operating Life of Tank (Check All That Apply)	a.	Petroleum Unleaded Gasoline Leaded Gasoline Aviation Gasoline Kerosene Jet Fuel Diesel Fuel Fuel Oil No. 1 Fuel Oil No. 2 Fuel Oil No. 2 Fuel Oil No. 5 Fuel Oil No. 5 Fuel Oil No. 6 New Motor Oil Used Motor Oil Other, Please Specify				
NOTE: If Hazardous Substance Block is Checked, Attach Material Safety Data Sheets (MSDS)	b. c.	Hazardous Substance Name of Principal CERCLA Substance AND Chemical Abstract Service (CAS) No. Unknown				
Closure Method	a.		X	X	X	x
(Check Only One)	b.		l H	ΙÄ	lä	ΙÄ
(Cricoit City Cric)	C.		l H	ΙH	l H	ΙH
Partial System Closure (Ye			No	No	No	No
, , , , , , , , , , , , , , , , , , , ,						

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DATE OF TANK CLOSURE (Month/Day/Year)		-				i	
Estimated Total Capacity (Gallons) Substance(s) Stored Throughout Operating Life of Tank (Check All That Apply)			Month/Day/Year)				
Substance(s) Stored Throughout Operating Life of Tank (Check All That Apply)							
Throughout Operating Life of Tank (Check All That Apply) Aviation Gasoline Kerosene Jet Fuel Diesel Fuel Fuel Oil No. 1 Fuel Oil No. 2 Fuel Oil No. 5 Fuel Oil No. 6 New Motor Oil Used Motor Oil Used Motor Oil Other, Please Specify NOTE: If Hazardous Substance Block is Checked, Attach Material Safety Data Sheets (MSDS) Closure Method (Check Only One) Leaded Gasoline Leaded Fuel Leaded Gasoline Leaded Gasol	Estimated Total Capacity	(Gall	ons)				
Substance Block is Checked, Attach Material Safety Data Sheets (MSDS) AND Chemical Abstract Service (CAS) No. c. Unknown Closure Method (Check Only One) b. Closure-in-Place c. Change-In-Service	Throughout Óperating Life of Tank (Check All That Apply)		Unleaded Gasoline Leaded Gasoline Aviation Gasoline Kerosene Jet Fuel Diesel Fuel Fuel Oil No. 1 Fuel Oil No. 2 Fuel Oil No. 2 Fuel Oil No. 5 Fuel Oil No. 6 New Motor Oil Used Motor Oil Other, Please Specify				
Closure Method a. Removal (Check Only One) b. Closure-in-Place c. Change-In-Service	Substance Block is Checked, Attach Material Safety Data	b.	Name of Principal CERCLA Substance AND Chemical Abstract Service (CAS) No.				
(Check Only One) b. Closure-in-Place	Clasura Mathad	_	_ :	 	\vdash	$\vdash\vdash\vdash$	$\vdash\vdash\vdash$
c. Change-In-Service				l H	l H	l H	l H
	(Check Only One)			l H	l H	l	l H
Partial System Closure (Yes or No)	D :: 10 : 01 : 21	_			Ш		Ш
	Partial System Closure (Y	es o	r No)				

Yes	N/A

163	INA		
		11.	Briefly describe the storage tank facility and the nature of the operations which were conducted at the facility (both historical and present) including use of tanks :
			This site was a gasoline and service station
X		12.	A site location and sampling map of the site, drawn to scale, is attached. See page 11 of 11.
X		13.	Original, color photographs of the closure process are attached (i.e., inside of excavation/piping runs, pit water, tanks showing condition).
X		14.	An amended "Storage Tanks Registration/Permitting Application Form" was submitted to the DEP, Bureau of Environmental Cleanup and Brownfields, Division of Storage Tanks, P.O. Box 8762, Harrisburg, PA 17105-8762.
			Date: January 5, 2016
X		15.	If a reportable release was confirmed, the appropriate regional office of DEP was notified by the owner or operator.
			Date: September 14, 2015 Office: Northwest - Meadville

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res	N/A	16	If tanks were cleaned on-site:
		10.	a. Briefly describe the disposition of usable product: Barkeyville Bulk Plant to be recycled and resold. The usable product was taken to the Heath Oil,
			b. Briefly describe the disposal of unusable product, sludges, sediments, and wastewater generated during cleaning. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal): There was no unusable pruduct, sludges, sediment or wastewater generated during the cleaning, the tanks
			were vacuumed dry and all contents were transported to the Heath Oil Barkeyville Bulk Plant to be recycyled and re-used.
			c. If tank contents were determined/deemed to be hazardous waste, provide: (1) Generator ID Number: $\frac{N/A}{}$
			(2) Licensed Hazardous Waste Transporter Name and ID Number:
	X	17.	If tanks were removed from the site for cleaning:
_			a. Provide the name and permit number of the processing, treatment, storage or disposal facility performing the tank cleaning:
			b. If tank contents were d determined/deemed to be hazardous waste, provide: (1) Generator ID Number:
			(2) Licensed Hazardous Waste Transporter Name and ID Number:
		18.	Briefly describe the disposition of tanks/piping (Attach documentation of proper disposal): The tanks and piping were cleaned on site and transported to the Heath Oil warehouse in Seneca where they were staged. These tank may be sent to the Heath Oil Barkeyville Bulk Plant for potential re-use on that facility.
П	П	40	If contaminated soil is excavated:
		19.	 a. Briefly describe the disposition and amount <u>430</u> (tons) of contaminated soil. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):
			Two piles were generated. The soil pile generated from the removal of the diesel and kerosene tanks contain
			approximately 80 tons, the gasoline pile contains approximately 350 tons. Analytical results indicate that be piles meet the re-use onsite standard, so they remain onsite encapsulated in 6-mil plastic.
			b. If contaminated soil is determined/deemed to be hazardous waste, provide:
			(1) Generator ID Number:
			(2) Licensed Hazardous Waste Transporter Name and ID Number:

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Yes	N/A	20.	Briefly describe the disposition of and amount _50 _ (tons) of uncontaminated soil was all clean soil and concrete cover. It was use		
		nswo	ew A. Restauri, hereby certify, under penalty of law a (Print Name) In falsification to authorities) that I am the owner of the above refered by me in this closure report (Section I) is true, accurate and con	renced stora	ge tank(s) and that th
and b		2	Mw 0 Partami 3	, i 7	16
			Harper Oil Company		
			Company Name (If Applicable)		
			Vice President	_	
			Title		

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

UNDERGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION II. Tank Handling Information

Yes	N/A		
		1.	Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil:
			The concrete and clean soil above the tanks were separated from the soils surrounding and below the tanks.
			The soil removed from the tank excavations was placed on 6-mil plastic and covered with 6-mil plastic.
		2.	Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:
			All piping was drained into the tank and the tank was then emptied by vac truck before vapor freeing the tank.
			talik.
		3.	Briefly describe the condition of the tanks and any problems encountered during tank removal:
			All tanks and piping were in fair to good condition except tank 001 had a few small holes in the line and there was a leak at the fitting on Tank 003 near the pressure pump.
			was a leak at the fitting on Talik 003 fical the pressure pump.
		4.	Briefly describe the method used to purge the tanks of and monitor for explosive vapors:
			The tanks were vented using and air eductor (venturi)
X		5.	If tanks were cleaned on-site:
			a. Briefly describe the tank cleaning process: <u>Tanks were pumped out and there was no signs of any</u>
			sludge in the bottom.
			b. If subcontracted, name and address of company that performed the tank cleaning:
П	X	6.	If tanks were closed-in-place, briefly describe the tank fill material:
ш	ت	0.	Traine word diddd in place, briefly accombe are taller ill flatellal.
x		7.	If contamination was suspected or observed, the "Notification of Contamination" form was submitted.
Δ	ш	١.	in contamination was suspected of observed, the invalidation of contamination form was subfilted.

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SECTION II. (continued)

Ke .	John Koziara	, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904
associated	with the closure of the above refe	es) that I am the certified installer who performed the tank handling activities erenced storage tank(s) and that the information provided by me in this closural lete to the best of my knowledge and belief.
<u>2</u>	Signature of Certified Inst	3 ,17, 16 Date
	2099	417
-	Installer Certification Nur	nber Company Certification Number
		Koziara Trucking and Excavating Company Name
		SCHOOL PROPERTY.
		2073 U.S. #62 Street
		Oil City, PA 16301
		City/Town, State, Zip
		814 - 676 - 5176
		Phone

SECTION III. Site Assessment Information Tank Registration # 001 (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

	Facility ID Number 51 - 18854	
A.	Provide depth of $BEDROCK$ and $WATER \ \underline{\mathbb{F}}$ encountered during excavation or soil boring (write "N/A: if NO encountered).	TC
	${\sf Bedrock} $	
В.	Provide Length of $PIPING \sqsubseteq piping$ was closed-in-place (write "N/A" if NOT closed-in-place). Length of piping $\underline{N/A}$ feet	
C.	TANK SYSTEM REMOVED FROM THE GROUND 1). Was <u>obvious contamination</u> observed while excavating? ☐ NO	on
	submission and maintenance of closure records→ Do not complete item C.2. below. X YES	
	 Was contamination <u>localized</u> (within three feet of the tank system in every direction with no obvious wat contamination)? \[\text{YES}\] Remove or remediate contaminated soil	
	contamination)?	all
D.	contamination)? ☐ YES→ Remove or remediate contaminated soil→ Conduct confirmatory sampling→ See end of this section for options on submission and maintenance of closure records→ Conduct confirmatory sampling→ Conduct confirmatory sampling	all
D.	contamination)? ☐ YES→ Remove or remediate contaminated soil→ Conduct confirmatory sampling→ See end of this section for options on submission and maintenance of closure records→ C Indemnification Fund (717-787-0763). ☐ NO→ Continue interim remedial actions→ See end of this section for options of submission and maintenance of closure records→ Call Indemnification Fund (717-787-0763).	all
D.	contamination)? ☐ YES→ Remove or remediate contaminated soil→ Conduct confirmatory sampling→ See end of this section for options on submission and maintenance of closure records→ Conduct confirmatory sampling→ Conduct confirmatory sampling	all on
D.	contamination)? ☐ YES→ Remove or remediate contaminated soil→ Conduct confirmatory sampling→ See end of this section for options on submission and maintenance of closure records→ Conduct confirmatory sampling→ See end of this section for options on submission and maintenance of closure records→ Call Indemnification Fund (717-787-0763). TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE Was obvious contamination observed during sampling, boring or assessing water depths? ☐ NO→ Conduct confirmatory sampling	call on
D.	contamination)? ☐ YES	call on

SECTION III. Site Assessment Information

Tank Registration # 003 (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

		Facility ID Number 61 - 18854											
A.		de depth of $BEDROCK$ and $WATER$ \underline{IF} encountered during excavation or soil boring (write "N/A: if NOT untered).											
	Bedr	pck N/A feet below land surface Water N/A feet below land surface											
В.		de Length of $PIPING \ \underline{IF}$ piping was closed-in-place (write "N/A" if NOT closed-in-place). th of piping $\underline{N/A}$ feet											
C.	TAN	K SYSTEM REMOVED FROM THE GROUND											
	1).												
		\square NO											
		∑YES Report release to DEP within 2 hours Describe contamination observed and likely source(s) tank, piping, dispenser, spills, overfills): Leak in a fitting near the pressure pump											
		Leak in a fitting near the pressure pump											
	2).	Was contamination <u>localized</u> (within three feet of the tank system in every direction with no obvious water contamination)?											
		☐ YES											
		See end of this section for options on submission and maintenance of closure records→ Cal Indemnification Fund (717-787-0763).											
		NO→ Continue interim remedial actions→ See end of this section for options or submission and maintenance of closure records→ Call Indemnification Fund (717-787-0763).											
D.	TAN	SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE											
	Was	obvious contamination observed during sampling, boring or assessing water depths?											
		NO→ Conduct confirmatory sampling> See end of this section for options on submission and maintenance of closure records.											
		YES→ Report release to DEP within 2 hours											

Continue with corrective action ------> See end of this section for options on submission and maintenance

		Facility ID Number 61 - 18854
A.		ide depth of $BEDROCK$ and $WATER$ \underline{IF} encountered during excavation or soil boring (write "N/A: if NOT ountered).
	Bedr	N/A feet below land surface Water N/A feet below land surface
B.		ide Length of $PIPING \ \underline{IF}$ piping was closed-in-place (write "N/A" if NOT closed-in-place). $\underline{N/A}$ feet
C.	TAN	K SYSTEM REMOVED FROM THE GROUND
	1).	Was obvious contamination observed while excavating?
		▼ NO See end of this section for options on submission and maintenance of closure records> Do not complete item C.2. below.
		☐YES
	2).	Was contamination <u>localized</u> (within three feet of the tank system in every direction with no obvious water contamination)?
		☐ YES→ Remove or remediate contaminated soil→ Conduct confirmatory sampling
		See end of this section for options on submission and maintenance of closure records→ Call Indemnification Fund (717-787-0763).
		NO→ Continue interim remedial actions→ See end of this section for options on submission and maintenance of closure records→ Call Indemnification Fund (717-787-0763).
D.	TAN	K SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE
	Was	obvious contamination observed during sampling, boring or assessing water depths?
		NO
		YES→ Report release to DEP within 2 hours

of closure records -----------→ Call Indemnification Fund (717-787-0763).

Continue with corrective action ------> See end of this section for options on submission and maintenance

SECTION III. Site Assessment Information

Tank Registration # 005 (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

		Facility ID Number 61 - 18854
A.		ide depth of $BEDROCK$ and $WATER$ \underline{IF} encountered during excavation or soil boring (write "N/A: if NOT unitered).
	Bedr	ock $\underline{\hspace{1cm}}^{N/A}$ feet below land surface Water $\underline{\hspace{1cm}}^{N/A}$ feet below land surface
B.		ide Length of $PIPING \ \underline{IF}$ piping was closed-in-place (write "N/A" if NOT closed-in-place). Ith of piping $\underline{N/A}$ feet
C.	TAN	K SYSTEM REMOVED FROM THE GROUND
	1).	Was <u>obvious contamination</u> observed while excavating? INO
	2).	Was contamination <u>localized</u> (within three feet of the tank system in every direction with no obvious water contamination)?
		YES→ Remove or remediate contaminated soil→ Conduct confirmatory sampling→ See end of this section for options on submission and maintenance of closure records→ Call Indemnification Fund (717-787-0763).
		NO→ Continue interim remedial actions→ See end of this section for options on submission and maintenance of closure records
D.	TAN	K SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE
	Was	obvious contamination observed during sampling, boring or assessing water depths?
		NO→ Conduct confirmatory sampling> See end of this section for options on submission and maintenance of closure records.
		YES→ Report release to DEP within 2 hours

of closure records -----------→ Call Indemnification Fund (717-787-0763).

Continue with corrective action ------> See end of this section for options on submission and maintenance

COMMONWEALTH OF PENNSYLVANIA DEPARTMENT F ENVIRONMENTAL PROTECTION BUREAU OF WASTE MANAGEMENT

UNDERGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Sample I.D. (See diagram)	Parameter	Analytica Method		Media	Result (units)	Statewide Health Standard	Reuse Onsite	Date Sample Taken	Date Sample Analyzed
Sample #1	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #1	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #1	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #1	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #1	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #1	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #1	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #1	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #1	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/29/2015
Sample #2	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #2	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #2	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #2	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #2	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #2	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #2	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #2	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015

Sample I.D.						Statewide		Date	Date
(See		Analytica	_		Result	Health	Reuse Onsite	Sample	Sample
diagram)	Parameter	Method		Media	(units)	Standard		Taken	Analyzed
Sample #3	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #3	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #3	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #3	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #3	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #3	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #3	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #3	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #4	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #4	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #4	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #4	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #4	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #4	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #4	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #4	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #4	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/29/2015
Sample #5	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #5	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #5	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #5	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #5	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #5	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #5	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #5	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #5	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/29/2015

Sample I.D. (See diagram)	Parameter	Analytica Method		Media	Result (units)	Statewide Health Standard	Reuse Onsite	Date Sample Taken	Date Sample Analyzed
Sample #6	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #6	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #6	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #6	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #6	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #6	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #6	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #6	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #6	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/29/2015
Sample #7	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #7	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #7	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #7	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #7	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #7	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #7	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #7	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #7	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/29/2015
Sample #8	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #8	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #8	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #8	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #8	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #8	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #8	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #8	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #8	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/29/2015

					ID Halliber	01 10004			
Sample I.D. (See diagram)	Parameter	Analytica Method		Media	Result (units)	Statewide Health Standard	Reuse Onsite	Date Sample Taken	Date Sample Analyzed
Sample #9	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/29/2015
Sample #9	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/29/2015
Sample #9	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/29/2015
Sample #9	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/29/2015
Sample #9	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/29/2015
Sample #9	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/29/2015
Sample #9	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/29/2015
Sample #9	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/29/2015
Sample #9	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/29/2015
Sample #10	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/30/2015
Sample #10	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/30/2015
Sample #10	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/30/2015
Sample #10	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/30/2015
Sample #10	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/30/2015
Sample #10	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/30/2015
Sample #10	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/30/2015
Sample #10	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/30/2015
Sample #10	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/30/2015
Sample #11	Benzene	8260	Р	Soil	<300 ug/kg	500 ug/kg	500 ug/kg	9/14/2015	9/30/2015
Sample #11	Ethyl Benzene	8260	Р	Soil	10,390 ug/kg	70,000 ug/kg	70,000 ug/kg	9/14/2015	9/30/2015
Sample #11	Cumene	8260	Р	Soil	4933 ug/kg	600,000 ug/kg	84,000 ug/kg	9/14/2015	9/30/2015
Sample #11	MTBE	8260	Р	Soil	<300 ug/kg	2000 ug/kg	2000 ug/kg	9/14/2015	9/30/2015
Sample #11	Naphthalene	8260	Р	Soil	15,300 ug/kg	25,000 ug/kg	10,000 ug/kg	9/14/2015	9/30/2015
Sample #11	Toluene	8260	Р	Soil	<300 ug/kg	100,000 ug/kg	100,000 ug/kg	9/14/2015	9/30/2015
Sample #11	1,2,4-TMB	8260	Р	Soil	67,040 ug/kg	8400 ug/kg	1500 ug/kg	9/14/2015	9/30/2015
Sample #11	1,3,5-TMB	8260	Р	Soil	23,790 ug/kg	2300 ug/kg	1300 ug/kg	9/14/2015	9/30/2015
Sample #11	Xylenes (total)	8260	Р	Soil	25,910 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/14/2015	9/30/2015

Sample I.D.		Analytica			Result	Statewide	Dougs Orreit	Date	Date
(See diagram)	Parameter	Method		Media	(units)	Health Standard	Reuse Onsite	Sample Taken	Sample Analyzed
Sample #12	Benzene	8260	Р	Soil	<300 ug/kg	500 ug/kg	500 ug/kg	9/17/2015	9/30/2015
Sample #12	Ethyl Benzene	8260	Р	Soil	5346 ug/kg	70,000 ug/kg	70,000 ug/kg	9/17/2015	9/30/2015
Sample #12	Cumene	8260	Р	Soil	2342 ug/kg	600,000 ug/kg	84,000 ug/kg	9/17/2015	9/30/2015
Sample #12	MTBE	8260	Р	Soil	<300 ug/kg	2000 ug/kg	2000 ug/kg	9/17/2015	9/30/2015
Sample #12	Naphthalene	8260	Р	Soil	16,650 ug/kg	25,000 ug/kg	10,000 ug/kg	9/17/2015	9/30/2015
Sample #12	Toluene	8260	Р	Soil	<300 ug/kg	100,000 ug/kg	100,000 ug/kg	9/17/2015	9/30/2015
Sample #12	1,2,4-TMB	8260	Р	Soil	48,100 ug/kg	8400 ug/kg	1500 ug/kg	9/17/2015	9/30/2015
Sample #12	1,3,5-TMB	8260	Р	Soil	8644 ug/kg	2300 ug/kg	1300 ug/kg	9/17/2015	9/30/2015
Sample #12	Xylenes (total)	8260	Р	Soil	6580 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	9/17/2015	9/30/2015
Sample #13	Benzene	8260	Р	Soil	<400 ug/kg	500 ug/kg	500 ug/kg	10/22/2015	10/23/2015
Sample #13	Ethyl Benzene	8260	Р	Soil	<400 ug/kg	70,000 ug/kg	70,000 ug/kg	10/22/2015	10/23/2015
Sample #13	Cumene	8260	Р	Soil	1726 ug/kg	600,000 ug/kg	84,000 ug/kg	10/22/2015	10/23/2015
Sample #13	MTBE	8260	Р	Soil	<5.6 ug/kg	2000 ug/kg	2000 ug/kg	10/22/2015	10/23/2015
Sample #13	Naphthalene	8260	Р	Soil	31,260 ug/kg	25,000 ug/kg	10,000 ug/kg	10/22/2015	10/23/2015
Sample #13	Toluene	8260	Р	Soil	<400 ug/kg	100,000 ug/kg	100,000 ug/kg	10/22/2015	10/23/2015
Sample #13	1,2,4-TMB	8260	Р	Soil	144,500 ug/kg	8400 ug/kg	1500 ug/kg	10/22/2015	10/23/2015
Sample #13	1,3,5-TMB	8260	Р	Soil	48,030 ug/kg	2300 ug/kg	1300 ug/kg	10/22/2015	10/23/2015
Sample #13	Xylenes (total)	8260	Р	Soil	38,840 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	10/22/2015	10/23/2015
Sample #14	Benzene	8260	Р	Soil	<400 ug/kg	500 ug/kg	500 ug/kg	10/22/2015	10/23/2015
Sample #14	Ethyl Benzene	8260	Р	Soil	<400 ug/kg	70,000 ug/kg	70,000 ug/kg	10/22/2015	10/23/2015
Sample #14	Cumene	8260	Р	Soil	766 ug/kg	600,000 ug/kg	84,000 ug/kg	10/22/2015	10/23/2015
Sample #14	MTBE	8260	Р	Soil	<400 ug/kg	2000 ug/kg	2000 ug/kg	10/22/2015	10/23/2015
Sample #14	Naphthalene	8260	Р	Soil	11,790 ug/kg	25,000 ug/kg	10,000 ug/kg	10/22/2015	10/23/2015
Sample #14	Toluene	8260	Р	Soil	<400 ug/kg	100,000 ug/kg	100,000 ug/kg	10/22/2015	10/23/2015
Sample #14	1,2,4-TMB	8260	Р	Soil	61,210 ug/kg	8400 ug/kg	1500 ug/kg	10/22/2015	10/23/2015
Sample #14	1,3,5-TMB	8260	Р	Soil	31,350 ug/kg	2300 ug/kg	1300 ug/kg	10/22/2015	10/23/2015
Sample #14	Xylenes (total)	8260	Р	Soil	24,080 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	10/22/2015	10/23/2015

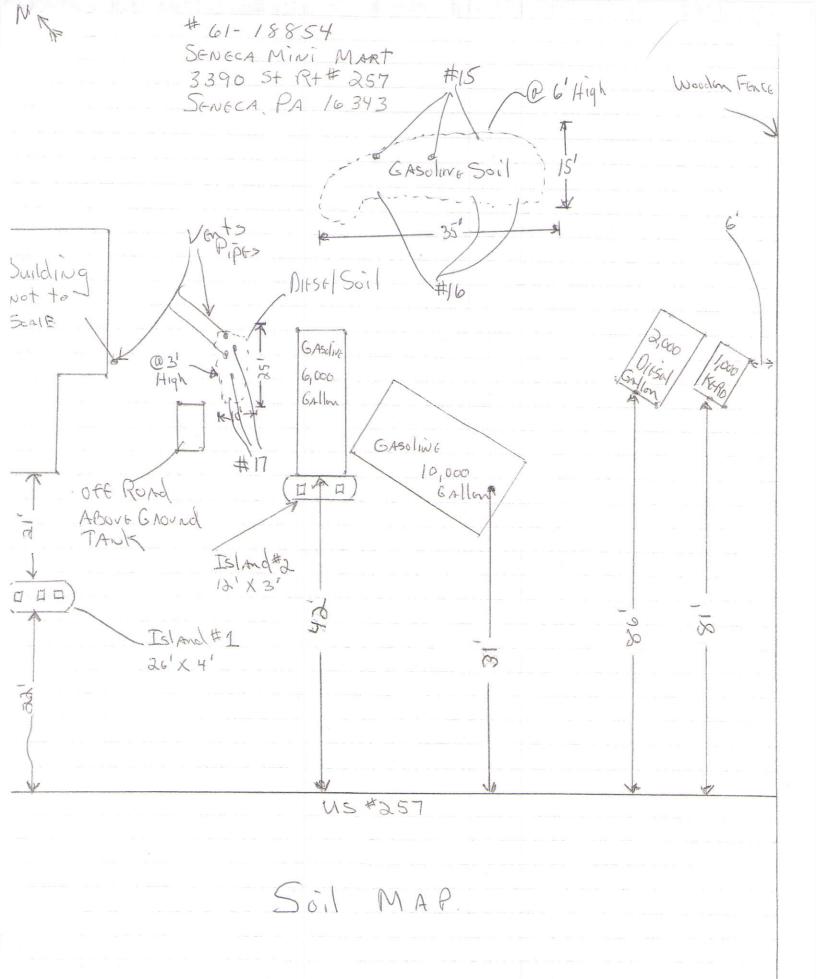
Sample I.D. (See diagram)	Parameter	Analytica Method		Media	Result (units)	Statewide Health Standard	Reuse Onsite	Date Sample Taken	Date Sample Analyzed
Sample #15	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	10/22/2015	10/23/2015
Sample #15	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	10/22/2015	10/23/2015
Sample #15	Cumene	8260	Ρ	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	10/22/2015	10/23/2015
Sample #15	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	10/22/2015	10/23/2015
Sample #15	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	10/22/2015	10/23/2015
Sample #15	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	10/22/2015	10/23/2015
Sample #15	1,2,4-TMB	8260	Р	Soil	207 ug/kg	8400 ug/kg	1500 ug/kg	10/22/2015	10/23/2015
Sample #15	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	10/22/2015	10/23/2015
Sample #15	Xylenes (total)	8260	Р	Soil	<100 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	10/22/2015	10/23/2015
Sample #16	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	10/22/2015	10/23/2015
Sample #16	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	10/22/2015	10/23/2015
Sample #16	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	10/22/2015	10/23/2015
Sample #16	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	10/22/2015	10/23/2015
Sample #16	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	10/22/2015	10/23/2015
Sample #16	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	10/22/2015	10/23/2015
Sample #16	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	10/22/2015	10/23/2015
Sample #16	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	10/22/2015	10/23/2015
Sample #16	Xylenes (total)	8260	Р	Soil	<300 ug/kg	1,000,000 ug/kg	1,000,000 ug/kg	10/22/2015	10/23/2015
Sample #17	Benzene	8260	Р	Soil	<100 ug/kg	500 ug/kg	500 ug/kg	10/22/2015	10/23/2015
Sample #17	Ethyl Benzene	8260	Р	Soil	<100 ug/kg	70,000 ug/kg	70,000 ug/kg	10/22/2015	10/23/2015
Sample #17	Cumene	8260	Р	Soil	<100 ug/kg	600,000 ug/kg	84,000 ug/kg	10/22/2015	10/23/2015
Sample #17	MTBE	8260	Р	Soil	<100 ug/kg	2000 ug/kg	2000 ug/kg	10/22/2015	10/23/2015
Sample #17	Naphthalene	8260	Р	Soil	<100 ug/kg	25,000 ug/kg	10,000 ug/kg	10/22/2015	10/23/2015
Sample #17	Toluene	8260	Р	Soil	<100 ug/kg	100,000 ug/kg	100,000 ug/kg	10/22/2015	10/23/2015
Sample #17	1,2,4-TMB	8260	Р	Soil	<100 ug/kg	8400 ug/kg	1500 ug/kg	10/22/2015	10/23/2015
Sample #17	1,3,5-TMB	8260	Р	Soil	<100 ug/kg	2300 ug/kg	1300 ug/kg	10/22/2015	10/23/2015

¹ Where EPA Method 5035 is required, indicate sample collection option in the right hand box of this column using the floowing codes:

P - Samples plac ed in a soil sample vial with a preservative present.

E - Samples collected and stored in a soil collection devise shich is airtight and afords lottle to no headspace.

N - Samples placed in soil sample vial without a preservative present present.



WE # 61-18854 SENECA MINI MART 3390 St R+# 257 Wooden Fonce SENECA PA 16343 Soil SAMPLES #OL Sulding F63 SAIR #06 GASolivi 6,000 F09 GAllen GASOLIWER 10,000 GALLON off Rond ABOVE Ground TANK #12 26' X 4' US *257

NE # 61-18854 SENECA MINI MART 3390 St R+# 257 Wooden Force SENECA PA 16343 Site MAP SAIR GASOLIVE 6,000 Gallon GASOLIWE 10,000 6 Allen 口个口 off Rond ABOVE Ground
TANK Island#2 Island#1 26'X4' US #257

SAMPLE NUMBER: SS-252900 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

ID: 61-18854-01 @ 9' Harper Oil Inc.

Seneca Mini Mart

Heath Oil PO Box 1128 O|| City, PA 16301

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample

Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 14, 2015; Time: 1355 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

		_ CE	RTIF	'ICATE	OF	ANALYSIS _		
ANALYSIS I	ARAMETER	QU	AN LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture		ICT Nove	1.00	11.00	8	SM 2540 G	Sep 23	SMC
VOC Benzene Toluene		JST New	0.100 0.100	<0.100jy <0.100jy	mg/kg	SW-846 8260B	Sep ₂₉	CMH "
Ethylbenze	ene		0.100	<0.100jÿ	tt	II	n	ti ,
Isopropyll Naphthale	enzene		0.100 0.100	<0.100 y <0.100 y	n n	u u	n ti	n 11
Methyl-te	t-butylethe	er (MTBE	0.100	<0.100]y	n	11	n	ti ti
	ethylbenzer ethylbenzer		0.100 0.100	<0.100jy <0.100jy	n	n	n	u

Result Flags For This Report

j - Result less than calibrationy - Sample expired before analysis

2 Parameters; 15 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookmyer QA/QC Director



SAMPLE NUMBER: SS-252901 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PO Box 1128 011 City, PA 16301 ID: 61-18854-02 @ 9' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample

Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 14, 2015; Time: 1400 Matrix: Scil/Oil/Solid; Preservation: Cool 4 Degrees C Sampler Notes: (None) Analyst Notes: Results are dry weight basis.

Report Type: Standard; Extractions: Methanol Extraction

-	<	ERTIF	ICATE	OF	ANALYSIS _		
ANALYSIS PARAMETER	. (TIMII NAUÇ	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	[UST Ne	1.00	13.30	%	SM 2540 G	Sep 23	SMC
Benzene Toluene	foot w	0.100 0.100	<0.100jy <0.100jy	mg/kg	SW-846 8260B	Sep 29	CMH
Ethylbenzene		0.100	<0.100 jy	11	ŧı	n	11
Isopropylhenzene		0.100	<0.100jy	er er	u n	n	ti 17
Naphthalene Methyl-tent-butyle	ther (MT	0.100 BE) 0.100	<0.100jy <0.100jy	n	et e	n	#
1,2,4-Trimethylben		0.100	<0.100 jy	tı	n	n	12
1,3,5-Trimethylben		0.100	<0.100jy	u	n	tt	Ħ

Result Flags For This Report

j - Result less than calibrationy - Sample expired before analysis

2 Parameters; 15 Lines; j - Result less than calibration Page 1 of 1 DEP Certification: 16-00328 Paul Bookmyer QA/QC Director



SAMPLE NUMBER: SS-252902 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PO Box 1128 011 City, PA 16301

ID: 61-18854-03 @ 9' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 14, 2015; Time: 1515 Matrix: Soil/Oil/Sould; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

	CE	RTIF	CATE	OF	ANALYSIS _		
ANALYSIS PARAMETER	AUQ 1	N LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	[UST New]	1.00	13.40	ક	SM 2540 G	Sep 23	SMC
Benzene	[ODT MEM]	0.100	<0.100jy	mg/kg	SW-846 8260B	Sep 29	CMH
Toluene		0.100	<0.100 jy <0.100 jy	n 0	ti	n	11
Ethylbenzene Isopropylbenzene		0.100 0.100	<0.100 jy	17	π	tt	n
Naphthalene		0.100	<0.100 jy	17	п	n	n
Methyl-tert-butyle		0.100	<0.100jy	ta	n	ti	e
1,2,4-Trimethylber	zene	0.100	<0.100]y	tr	π	ti	tt
1,3,5-Trimethylber		0.100	<0.100jy	ti .	n	tt	II

Result Flags For This Report

j - Result less than calibrationy - Sample expired before analysis

2 Parameters; 15 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1



SAMPLE NUMBER: SS-252903 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PØ Box 1128 011 City, PA 16301 ID: 61-18854-04 @ 9' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample
Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass
Sampled By: John Koziara; Date Sampled: Sep 14, 2015; Time: 1520
Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C
Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

			CE	RTIF	'ICATE	OF	ANALYSIS _		· · · · · · · · · · · · · · · · · · ·
ANALYSIS	PARAMETER		QUAI	I LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	analyst
Moisture VOC	F	UST	Newl	1.00	13.10	%	SM 2540 G	Sep 23	SMC
Benzene Toluene	,	, usi	wew l	0.100 0.100	<0.100jy <0.100jy	mg/kg	SW-846 8260B	Sep ₂ 29	CMH
Ethylbenz	ene			0.100	<0.100 jy	π	11	n	n
Isopropyl				0.100	<0.100 y	Ħ	11	Ħ	17
Naphthale	nhe nhe			0.100	<0.100 jy	ti	u	n	77
	t-butyleth	er(M	TRE)	0.100	<0.100 jy	11	n	Ħ	41
1.2.4-Tri	methylbenze	ne `	,	0.100	$< 0.100 \hat{j}$	ti	u	n	Tt.
	nethylbenze			0.100	<0.100jy	ti	n	п	tr

Result Flags For This Report

j - Result less than calibrationy - Sample expired before analysis

2 Parameters; 15 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookmyer QA/QC Director



SAMPLE NUMBER: SS-252904 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PØ Box 1128 011 City, PA 16301 ID: 61-18854-05 @ 9.5' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 16, 2015; Time: 1200 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C Sampler Notes: (None) Analyst Notes: Results are dry weight basis. Report Type: Standard; Extractions: Methanol Extraction

	CE	RTIF	'ICATE	OF	ANALYSIS _		
ANALYSIS PARAMETE	er qui	N LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	analyst
Moisture VOC	[UST New]	1.00	11.10	%	SM 2540 G	Sep 23	SMC
Benzene Toluene	[ODI NOW]	0.100 0.100	<0.100j <0.100j	mg/kg	SW-846 8260B	Sep 29	CMH
Ethylbenzene		0.100	<0.100	u	a a	n	11
Xylenes (Total)		0.300	<0.3001	n	tr	Ħ	Ħ
Isopropylhenzene		0.100	<0.100j	ti	n	n	n
Naphthalene		0.100	<0.1001	ti	n	n	Ħ
Methyl-tert-buty	lether (MTBE)		<0.100	tt	n	ti	Ħ
1,2,4-Trimethylbe		0.100	<0.1001	п	Ħ	ti	Ħ
1,3,5-Trimethylbe		0.100	<0.100	tı	n	u	n

2 Parameters; 11 Lines; j - Result less than calibration Page 1 of 1 DEP Certification: 16-00328 Paul Bookmyer OA/OC Director



SAMPLE NUMBER: SS-252905 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PØ Box 1128 011 City, PA 16301 ID: 61-18854-06 @ 9.5' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample

Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 16, 2015; Time: 1210 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

	CE	RTIF	'ICATE	OF	ANALYSIS _		
ANALYSIS PARAMETE	r quai	N LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	IIIST Novi	1.00	14.50	8	SM 2540 G	Sep 23	SMC
Benzene Toluene	[UST New]	0.100 0.100	<0.100j <0.100j	mg/kg	SW-846 8260B	Sep 29	СМН
Ethylbenzene Xylenes(Total)		0.100 0.100 0.300	<0.100 <0.100 <0.300	17 17	n u	π #	r)
Isopropylhenzene		0.100	<0.100}	tt #1	ti ti	tt	TP
Naphthalene Methyl-tert-butyl		0.100 0.100	<0.100j <0.100j	ti Ii	17 H	n n	17
1,2,4-Trimethylbe		0.100 0.100	<0.100j <0.100j	n	u	π	u

2 Parameters; 11 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookmyer OA/OC Director



SAMPLE NUMBER: SS-252906 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PO Box 1128 011 City, PA 16301 ID: 61-18854-07 @ 9.5' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample

Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 16, 2015; Time: 1220 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C Sampler Notes: (None) Analyst Notes: Results are dry weight basis.

Report Type: Standard; Extractions: Methanol Extraction

		_ CEI	RTIF	'ICATE	OF	ANALYSIS _		
ANALYSIS	PARAMETER	QUAI	I LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	rr	UST New]	1.00	12.50	%	SM 2540 G	Sep 28	SMC
Benzene Toluene		JDI NCW]	0.100 0.100	<0.100j <0.100j	mg/kg	SW-846 8260B	Sep 29	CMH "
Ethylbenz			0.100	<0.100]	tr m	11	n	n n
Xylenes(T Isopropyl	benzene		0.300 0.100	<0.300j <0.100j	11	ท	n	11
Naphthale Methyl-te	ne #t-butylethe	er (MTBE)	0.100 0.100	<0.100j <0.100j	n	n	n tr	71
	nethylbenzer nethylbenzer		0.100 0.100	<0.100j <0.100j	11	n ti	n u	11

2 Parameters; 11 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookinyer



SAMPLE NUMBER: SS-252907 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PØ Box 1128 Oil City, PA 16301 ID: 61-18854-08 @ 13.5' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample
Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass
Sampled By: John Koziara; Date Sampled: Sep 17, 2015; Time: 1200
Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C
Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

		CERTIF	ICATE	OF	ANALYSIS _	···	
ANALYSIS	PARAMETER	QUAN LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	[UST	1.00 New 1	12.90	%	SM 2540 G	Sep 28	SMC
Benzene Toluene		0.100 0.100	<0.100j <0.100j	mg/kg	SW-846 8260B	Sep 29	CMH
Ethylbenz		0.100	<0.100]	n	ti 17	11 11	11
Xylenes(T Isopropyl	benzene	0.300 0.100	<0.300j <0.100j	er er	n		11
Naphthale Methyl-te	he rt-butylether(M	0.100 (TBE) 0.100	<0.100j <0.100j	u	tt tt	n n	n
1,2,4-Tri	methylbenzene methylbenzene	0.100 0.100	<0.100j <0.100j	et ti	ti	n u	tt 11

Paul Bookmyer QA/QC Director



SAMPLE NUMBER: SS-252908 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PØ Box 1128 011 City, PA 16301

ID: 61-18854-09 @ 14' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 17, 2015; Time: 1210 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.Naphthalene CCV high.
Report Type: Standard; Extractions: Methanol Extraction

	CE	RTIF	ICATE	OF	ANALYSIS _		
ANALYSIS PARAME	MER QUA	N LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	[UST New]	1.00	13.10	8	SM 2540 G	Sep 28	SMC
Benzene	[ODI NOW]	0.100	<0.100j	mg/kg	SW-846 8260B	Sep 30	CMH
Toluene Ethylbenzene		0.100 0.100	<0.100j <0.100j	n	11	n	u
Xylenes(Total) Isopropylbenzen	1	0.300 0.100	<0.300j <0.100j	ti	n	n n	n
Naphthaleme		0.100	<0.100j	n n	n	n	a
Methyl-tert-but 1,2,4-Trimethyl	:ylether(MTBE) :benzene	0.100 0.100	<0.100† <0.100†	**	n n	u	11
1,3,5-Trimethyl		0.100	<0.100j	n	tt	π	11

2 Parameters; 11 Lines; j - Result less than calibration Page 1 of 1 DEP Certification: 16-00328 Paul Bookmyer QA/QC Director



SAMPLE NUMBER: SS-252909 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PØ Box 1128 Oll City, PA 16301

ID: 61-18854-010 @ 14' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample

Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 17, 2015; Time: 1215 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.Naphthalene CCV high.
Report Type: Standard; Extractions: Methanol Extraction

	CE	RTIF	'ICATE	OF	ANALYSIS _		
ANALYSIS PARAMETER	QUA	N LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	[UST New]	1.00	11.70	8	SM 2540 G	Sep 28	SMC
Benzene Toluene	,	0.100 0.100	<0.100j <0.100j	mg/kg	SW-846 8260B	Sep ₂ 30	CMH "
Ethylbenzene		0.100	<0.100	11	Ħ	n	π
Xylenes(Total)		0.300	<0.300	er	n	n	tt
Isopropylbenzene		0.100	<0.1001	n	n	π	t7
Naphthalene		0.100	<0.100	n	n	n	n
Methyl-tert-butylet	ther (MTBE)	0.100	<0.100j	Ħ	Ħ	Ħ	tf
1,2,4-Trimethylbenz	zene	0.100	<0.1001	n	п	n	11
1,3,5-Trimethylbenz	zene	0.100	<0.100	n	n	11	n

2 Parameters; 11 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookmyer OA/OC Director



SAMPLE NUMBER: SS-252910 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PO Box 1128 011 City, PA 16301

ID: 61-18854-011 @ 4' Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 17, 2015; Time: 1320 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.Naphthalene CCV high.
Report Type: Standard; Extractions: Methanol Extraction

	c	ERTIF	ICATE	OF	ANALYSIS _		
ANALYSIS I	PARAMETER Q	CUAN LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	[UST Ne	1.00	15.80	%	SM 2540 G	Sep 28	SMC
Benzene	эй 100)	0.300	<0.3001	mg/kg	SW-846 8260B	Sep ₂ 30	CMH
Toluene Ethylbenze		0.300 0.300	<0.300j 10.39	it .	11	n	11
Xylenes(To Isopropyl	otal) Denzene	0.900 0.300	25.91 4.933	11	11 11	n	ti ti
Naphthaler	ne	0.300	15.30	ti 11	ti ti	n	n
Methyl-ter	rt-butylether(MTE methylbenzene	E) 0.300 0.300	<0.300j 67.04	11	ti	n	11
	nethylbenzene	0.300	23.79	n	n	n	n

2 Parameters; 11 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookmyer QA/QC Director



SAMPLE NUMBER: SS-252911 DATE RECEIVED: Sep 23, 2015 DATE REPORTED: Oct 06, 2015

Heath Oil PØ Box 1128 Oil City, PA 16301 ID: 61-18854-012 @ 9' Harper 011 Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample

Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: John Koziara; Date Sampled: Sep 17, 2015; Time: 1400 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.Naphthalene CCV high.
Report Type: Standard; Extractions: Methanol Extraction

	CERTI	FICATE	OF	ANALYSIS _		
ANALYSIS PARAMETER	QUAN LIMI	results	UNITS	METHOD	DATE/TIME	ANALYST
Moisture VOC	1.00 [UST New]	11.80	8	SM 2540 G	Sep 28	SMC
Benzene Toluene	0.300 0.300	<0.300j <0.300j	mg/kg	SW-846 8260B	Sep ₃₀	CMH
Ethylbenzene	0.300	5.346	n	n	11	n
Xylenes(Total) Isopropylhenzene	0.900 0.300	6.580 2.342	11	11 11	# 17	n n
Naphthalerie	0.300	16.65	11	n	tt	11
Methyl-tert-butylet	her(MTBE) 0.300	<0.300j	11	t1	n	\$1
1,2,4-Trimethylbenzon,3,5-Trimethylbenzon	ene 0.300 ene 0.300	48.10 8.644	n	11	21	t1 f1

Paul Bookenyer QA/QC Director



SAMPLE NUMBER: SS-253955 DATE RECEIVED: Oct 22, 2015 DATE REPORTED: Nov 03, 2015

Heath Oil PO Box 1128 011 City, PA 16301 ID: 61-18854-13 Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass Sampled By: J. Koziara; Date Sampled: Oct 22, 2015; Time: 0830 Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C

Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

	CE	RTII	TICATE	OF A	analysi	.s	
ANALYSIS PARAMETER	gu	AN LIMIT	RESULTS	UNITS	METHOL	DATE/TIME	ANALYST
Moisture		1.00	14.00	ક	SM 2540	G 0ct 27	SMC
VOC Benzene	[UST New	0.400	<0.400j	mg/kg	SW-846 8	3260B Oct 23	CMH
Toluene Ethylbenzene		0.400 0.400	<0.400} <0.400}	t) 11	17	n n	ti ti
Xylenes (Total) Isopropylbenzene		1.200 0.400 0.400	38.84 1.726 31.26	n u	n	a a	n si
Naphthalene Methyl-tert-butyle 1,2,4-Trimethylben	ther (MIBE		₹0.400j 144.5	11 15	n n	11 11	n n
1,3,5-Trimethylben	zene	0.400	48.03	n	'n	п	Ħ

2 Parameters; 11 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookenver QA/QC Director



SAMPLE NUMBER: SS-253956 DATE RECEIVED: Oct 22, 2015 DATE REPORTED: Nov 03, 2015

Heath Oil PO Box 1128 011 City, PA 16301 ID: 61-18854-14 Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample
Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass
Sampled By: J. Koziara; Date Sampled: Oct 22, 2015; Time: 0840
Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C
Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

	CEI	RTIF	ICATE	OF A	NALYSIS _		
ANALYSIS PARAMETER	QUAL	LIMIT	RESULTS	UNITS	METHOD	DATE/TIME	analyst
Moisture	T New]	1.00	12.70	%	SM 2540 G	Oct 27	SMC
VOC [US	T MEM1	0.400	40.4001	mg/kg	SW-846 8260B	Oct 23	CMH
Toluene		0.400	40.400 40.400	n n	เก	n n	**
Ethylbenzene Kylenes(Total)		1.200	24.08	n	11	gr -	n 0
Isopropylbenzene		0.400	0.766	tr 	17	n n	77
Naphthalene		0.400	11.79	ti El	7	n	Ħ
Methyl-tert-butylether	(MIBE)	0.400 0.400	≮0.400 j 61.21	77	tt	**	ts
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene)	0.400	31.35	17	η	π	u

2 Parameters; 11 Lines; j - Result less than calibration DEP Certification: 16-00328 Page 1 of 1

Paul Bookmyer QA/QC Director



SAMPLE NUMBER: SS-253957 DATE RECEIVED: Oct 22, 2015 DATE REPORTED: Nov 03, 2015

Heath Oil PO Box 1128 Oil City, PA 16301

ID: 61-18854-15 Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample
Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass
Sampled By: J. Koziara; Date Sampled: Oct 22, 2015; Time: 0850
Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C
Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

	CE	RTIF	CATE	OF	ANA	LYSIS _		
ANALYSIS PARAMETER	QUAL	LIMIT	RESULTS	UNITS		METHOD	DATE/TIME	analyst
Moisture		1.00	19.20	8		SM 2540 G	Oct 27	SMC
VOC Benzene	[UST New]	0.100	<0.100j	mg/kg		SW-846 8260B	Oct 23	CMH
Toluene Ethylbenzene		0.100 0.100	<0.100j <0.100j	19		t) n	17 11	11 11
Xylenes(Total) Isopropylbenzene		0.300 0.100	<0.300j <0.100j <0.100j	n n		n n	n	ts ts
Naphthalene Methyl-tert-butylet	ther (MTBE)	0.100 0.100 0.100	40.100j 40.100j 0.207	n		n n	11	fi er
1,2,4-Trimethylbenz 1,3,5-Trimethylbenz	zene zene	0.100	<0.100j	ti		п	Ħ	17

2 Parameters; 11 Lines; j - Result less than calibration Page 1 of 1 DEP Certification: 16-00328 Page 1 of 1

Paul Bookmyer QA/QC Director

RATORIES, INC.

21639 ROUTE 322 • STRATTANVILLE, PENNSYLVANIA 16258 • PHONE (814) 379-3663 • FAX (814) 379-3601

SAMPLE NUMBER: SS-253958 DATE RECEIVED: Oct 22, 2015 DATE REPORTED: Nov 03, 2015

Heath Oil PO Box 1128 Oil City, PA 16301

ID: 61-18854-16 Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample
Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass
Sampled By: J. Koziara; Date Sampled: Oct 22, 2015; Time: 0900
Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C
Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

	_ CE	RTIF:	CATE	OF	ANA	LYSIS _		
ANALYSIS PARAMETER	QUAI	N LIMIT	RESULTS	UNITS		METHOD	DATE/TIME	ANALYST
Moisture	rom .V3	1.00	18.00	8		SM 2540 G	Oct 27	SMC
VOC Eenzene	JST New]	0.100	<0.100j	mg/kg		SW-846 8260B	Oct 23	CMH
Toluene Ethylbenzene		0.100 0.100	<0.100j <0.100j	n		u u	n	ti st
Xylenes(Total) Isopropylbenzene		0.300 0.100	<0.300} <0.1001	11		n	n	n
Naphthalene	···· / METROLET \	0.100 0.100	(0.100) (0.100)	n T	į	ti n	n	n
Methyl-tert-butylethe 1,2,4-Trimethylbenzer	ne	0.100 0.100	<0.100j <0.100j	तः श		a a	n	17
1,3,5-Trimethylbenzer	16	0.100	[6.100]		***************************************			

2 Parameters; 11 Lines; j - Result less than calibration Page 1 of 1 DEP Certification: 16-00328 Page 1 of 1

Paul Bookinger QA/QC Director



SAMPLE NUMBER: SS-253959 DATE RECEIVED: Oct 22, 2015 DATE REPORTED: Nov 03, 2015

Heath Oil PO Box 1128 Oil City, PA 16301 ID: 61-18854-17 Harper Oil Inc. Seneca Mini Mart

SAMPLE DATA

Source: (Not Entered); Type: Grab Sample
Container(s): 40 mL Glass Vial(s), Half Pint (8 oz) Glass
Sampled By: J. Koziara; Date Sampled: Oct 22, 2015; Time: 0915
Matrix: Soil/Oil/Solid; Preservation: Cool 4 Degrees C
Sampler Notes: (None)
Analyst Notes: Results are dry weight basis.
Report Type: Standard; Extractions: Methanol Extraction

	CE	RTIF	'ICATE	OF	ANA	LYSIS _		
ANALYSIS PARAMETER	AUQ	N LIMIT	RESULTS	UNITS		METHOD	DATE/TIME	analyst
Moisture	CICON Mana	1.00	19.10	8		SM 2540 G	Oct 27	SMC
VOC Benzene	[UST New]	0.100 0.100	<0.100j	mg/kg		SW-846 8260B	Oct ₂₃	CMH "
Toluene Ethylbenzene Isopropylbenzene		0.100 0.100	<0.100 <0.100	ti Ci		21 11	11 11	11 11
Naphthalene Methyl-tert-butylet	ther (MTBE)	0.100 0.100	<0.100 <0.100	n		13 14	स n	et et
1,2,4-Trimethylbenz 1,3,5-Trimethylbenz	zene	0.100 0.100	<0.100} <0.100j	n tt		tr N	FT 11	# #

2 Parameters; 10 Lines; j - Result less than calibration Page 1 of 1 DEP Certification: 16-00328 Page 1 of 1

Paul Bookener OA/OC Director



Photograph #1 – Removal of product from tanks



Photograph #2 – Removal product from lines



Photograph #3 – Removal of Tank #005 (1000 gallon kerosene)



Photograph #4 – Removal of Tank #004 (2,000 gallon diesel)



Photograph #5 – Impacted soil near pressure pump on Tank #001



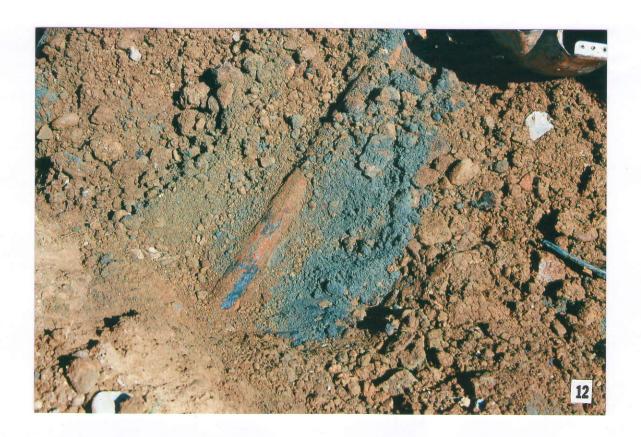
Photograph #6 – Vapor removal from tanks



Photograph #7 – Removal of Tank #001 (6000 gallon gasoline)



Photograph #8 – Removal of Tank #003 (10,000 gallon gasoline)



Photograph #9 – Contaminated soil around supply line from Tank #004



Photograph #10 – Holes in supply line from Tank #004



Photograph #11 – Leaking fitting on Tank #003



Photograph #12 – Contaminated soil pile

NOTIFICATION OF REPORTABLE RELEASE (Owners and Operators)

\boxtimes	Initial
\Box	Follow-Un

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 <u>new</u> 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 <u>new</u> impact.

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

OWNERS AND OPERATORS (0/0)

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 <u>ALL</u> 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, Schuyikill, 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

Countles Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango, Warren

I. FACILITY INFORMATION (Both O/	O and I/I)	II. OWNER/OPERATOR	R INFORMATION (Both O/O and I/I)
Facility Name	Facility I.D. Number	Owner Name	
Seneca Mini Mart	61-18854	Harper Oil Company	
Street Address (P.O. Box not acceptable)		Address	
3390 State Route 257 City State	Zip Code	P.O. Box 1128	20-1-
Seneca PA	16346 -	City Oil City	State Zip Code PA 16301 -
County Munici		Telephone Number	PA 16301 -
•	nberry Township	(814) 437 - 7802	
Contact Person Teleph	one Number	Operator Name	Telephone Number
Andrew A. Restauri, Agent (814)	437 - 7802	Christine Hinzman	(814) 437 - 7802
	. REGULATED SUBS	STANCE INFORMATION	N
A. Type of Product(s) Involved (Mark All That Apply 図): Both O/O and I/I	B. Quantity (Gallons) of I O/O Only	Product(s) Released:	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply 图): //i Only
Leaded Gasoline			
Unleaded Gasoline	<u>U</u> N, K	O. W N	
Aviation Gasoline			
Kerosene			
Jet Fuel			
Diesel Fuel	<u>U N, K N</u>	<u>o, w n</u>	
New Motor Oil			
Used Motor Oil			
Fuel Oil No. 1			
Fuel Oil No. 2		·	
Fuel Oil No. 4			
Fuel Oil No. 5	········ — — — — —		
Fuel Oil No. 6			
Other (Specify) □			
Unknown	······· — — — —		
IV. RE	PORTABLE RELEAS	E INFORMATION (O/O	Only)
Date Reportable Release was Confirmed:	9 / 14 / 2015 m d y	Date Owner/Operator S Municipality(ies) and Na	ent Copy of this Written Notification to Local ame of Municipality(ies) Notified:
Date Owner/Operator Verbally Notified Approp Reportable Release and Office Notified:	riate Regional Office of	Date: 9 / 16 /	2015 Municipality Cranberry Township
Date: 9 / 14 / 2015 Office Mean	dville Regional Office	_ Date: / /	Municipality
Source (Mark All That Apply 図):	How Discovered (M	Mark All That Apply 区):	Environmental Media Affected and Impacts
Tank (DEP Assigned Nos. <u>001/003/004</u>) ⊠	1		(Mark All That Apply 図):
Piping System (Aboveground Regulated)	1 During Closure	🗵	Soil
Piping System (Underground Regulated)			Sediment
Piping System (Non-Regulated)	Routine Leak Detection		Surface Water
Dispenser/Dispensing Equipment			Ground Water
Spill Catchment Basin		rities 🔲	Bedrock
Accident/Natural Disaster	J	Reports	Water Supplies
Containment/Sump Failure	1		Vapors/Product in Buildings
Other (Specify)	1		
Unknown	1 Construction	_	Vapors/Product in Sewer/Utility Lines
1			Ecological Receptors
Cause (Mark All That Apply 区):		esults	
Faulty Installation	Monitoring Well Sample	e Results	
Corrosion			
Physical/Mechanical Failure	Other (Specify)		
Spill During Delivery] Unknown		
Overfill at Delivery	J		
Vehicle Gas Tank Overfill			
Other (Specify)	ត់		
Unknown	i l		

V. INTERIM REMEDIAL ACTIONS (O/O Only)												
(Mark All That Apply 図):	Namad	1-141-4-4	Commissed	Nat Applicable								
Regulated Substance Removed from Storage Tanks	Planned 🏻	Initiated	•	Not Applicable								
Fire, Explosion and Safety Hazards Mitigated												
Contaminated Soil Excavated												
Free Product Recovered												
Water Supplies Identified and Sampled												
Temporary Water Supplies Provided	🗆	🗆		🛛 -								
Other (Specify)	_ 🗆		🗆	🖾								
VI. SUSPECTED / CONFIRMED CONTAMINATION INFORMATION (I/I Only)												
Date of Observation of Suspected/Confirmed Contamination:	9 / 14	·-		· · · · · · · · · · · · · · · · · · ·								
m d y Indication of Suspected Contamination (Mark All That Apply 区): Extent of Confirmed Contamination (Mark All That Apply 区):												
Unusual Level of Vapors	Produc	Stained or Product	Saturated Soil o	or Backfill 🖂								
Erratic Behavior of Product Dispensing Equipment	Ponded	Product										
Release Detection Results Indicate a Release	Free Pr	oduct or Sheen on	Ponded Water									
Discovery of Holes in the Storage Tank	Free Pr	oduct or Sheen on t	the Ground Wate	er Surface 🗌								
Other (Specify) Tank Closure Activities	Free Pr	oduct or Sheen on	Surface Water									
	Other (Specify)										
VII. ADDITIONAL INFOR	MATION (Both O/O and I/I)									
Provide any additional, relevant, available information co- contamination. Include specific details or problems about the release and the cause was corrosion of a metal connector or for Provide DEP-assigned and owner/operator-assigned tank number, if necessary. Tank Closure Activities commenced on September 14, 2015. John Koziara verbally notified Susan Frey of the DEP regional contamination on September 14, 2015. All potentially contaminately segregated. The diesel soil is located near the side of the build building.	he release flexible cor mber(s), v Contamina office in N inated soil	e. For example, nnector, it is impor where applicable. ated soil was detended the management of the excavated is continuous.	if the piping wattant to include Use additionated near tank the suspected/cotained on 6 miles.	as the source of the that information here. I 8½" x 11" sheets of 001 and 003. Mr. onfirmed plastic and								

VIII. CERTIFICATION (Bo	th O/O and I/I)
I, Andrew A. Restauri (Print Name) C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the cand that the information provided by me in this notification is true, accurate a Signature of Owner or Operator	, hereby certify, under penalty of law as provided in 18 Pa. bwner or operator of the above referenced storage tank facility and complete to the best of my knowledge and belief. 9 / 16 / 2015 Date
I, John Koziara/Koziara Trucking and Excavating (Print Name) C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the above referenced storage tank facility and that the information provided by rof my knowledge and belief Signature of Certified Installer 2099 Installer Certification Number	, hereby certify, under penalty of law as provided in 18 Pa. certified installer who performed tank handling activities at the ne in this notification is true, accurate and complete to the best
I,	, hereby certify, under penalty of law as provided in 18 Pa. e certified inspector who performed inspection activities at the me in this notification is true, accurate and complete to the best
Inspector Certification Number	Company Certification Number

Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX B

Boring Logs and Monitoring Well Installation Details

Soil Boring SB-1

PAGE 1 OF 1

Heath Oil Seneca Mini Mart CLIENT: PROJECT # DATE DRILLED: 4/27/2016 LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 6" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Hollow Stem Auger WATER LEVEL: 3.0' bgs 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 10 Feet

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

FILTER PACK:			Silica	<u> </u>	NA	
	Ē.	ACE	DESCRIPTION West of 6,000-gallon gasoline UST under dispenser	STNU	H.)	κ Υ
Monitoring Well Construction Details	DEРТН (FT.)	HEADSPACE		BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_		(0.0' - 3.0') Yellowish Brown, Clay, Sand, Silt and Gravel (Fill), cohesive,		_	
	1		damp, no odor, no staining.	Auger		
	2				2_	
	_		4511)	2	_	
	3	1.2	becomes wet at 3.0 ' (Fill) (3.0' - 4.5') Brown rounded Gravel , with minor clay, sand and silt, wet, no	1 1	_3_	10
	4		odor, no staining.	2	_ 4 _	
	_		(Fill)	2] -	
	5	1.6	(4.5' - 8.5') Gray fine grained Sand , wet, no odor, no staining.	3	_5_	2
	6			4	_ _6_	
	_			2	_	
	7	2.7		3 2	_7_	16
	8			1	8_	
	_		(Fill)	2	_	
	9	4.8	(8.5' - 10.0') Medium brown/gray, mottled, Silty Clay , damp, no odor, no Soil Sample SB-1 (8.0'-10.0') collected at 12:15. staining.	12	_9_	19
	_ _ 10 _		(Native soil)	19	_ _ 10 _	
	_		Bottom of Boring at 10.0'		-	
	_ 11 _				_ 11 _	
	_ _ 12 _				_ _ 12 _	
	_				_	
	_ 13 _				_ 13 _	
	_ _ 14 _				_ _ 14 _	.
	_				_	
	_ 15 _ _				_ 15 _ _	
	_ _ 16 _				_ 16 _	.
	_ _ 17 _				_ _ 17 _	
	_				_	
	_ 18 _				_ 18 _	
	_ _ 19 _				_ _ 19 _]
	_				_	
	20				_20_	

Soil Boring SB-2

PAGE 1 OF 1

Heath Oil Seneca Mini Mart PROJECT# DATE DRILLED: 4/27/2016 LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 6" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Hollow Stem Auger WATER LEVEL: 3.0' bgs 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 10 Feet

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

FILTER PACK:			Silica		NA	
Monitoring Well Construction	DЕРТН (FT.)	HEADSPACE	DESCRIPTION North of dispenser for the 6,000-gallon gasoline UST	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
Details		12.4	(0.0' - 2.0') Yellowish Brown, Clay, Sand, Silt and Gravel (Fill), cohesive, damp, no odor, no staining.	<u>™</u> Auger	_ _ _1_	<u>R</u> (5)
	2	1	(Fill)		_2_	
	_ _3_ _	30.8	(3.0' - 7.0') Brown rounded Gravel , with clay, non-cohesive, wet, no odor, no staining. Soil Sample SB-2 (2.0'-4.0') collected at 13:30.	1 2 1	_ _3_ _	19
	_ 4 _ _ _ 5 _	22.6		1 2 1 1	_4_ _ _5_	23
	_ _ 6 _ _		4-110	3	_ _6_ _	
	7 _ _8_	19.6	(Fill) (7.0' - 9.0') Light gray Sand , fine grained with some silt and clay, non-cohesive, wet, no odor, no staining.	4 4 2	_7_ _ _8_	17
	_ _ 9 _ _	11.7	(Native soil) (9.0' - 10.0') Medium brown, Silty Clay , few shale fragments, damp, no odor,	6 8 10	_ _ 9 _ _	19
	_ 10 _		no staining. (Native soil) Bottom of Boring at 10.0'	14	_ 10 _	
	_ _ 11 _ _	_	Bottom of Boning at 10.0		_ _ 11 _ _	-
	_ 12 __ _ _ 13 __				_ 12 _ _ _ 13 _	
	_ _ 14 _				_ _ 14 _	-
	_ _ 15 _ _				_ _ 15 _ _	
	_ 16 __ _ _ 17 __	-			_ 16 _ _ _ 17 _	
	_ _ 18 ₋	_			_ _ 18 _ _	
	_ _ 19 __ _ _20_				_ _ 19 _ _ _20_	

Soil Boring SB-3

PAGE 1 OF 1

Heath Oil PROJECT# DATE DRILLED: 4/27/2016 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 6" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Hollow Stem Auger WATER LEVEL: 3.6' bgs 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:				Silica			NA	
Monitoring Well Construction Details	БЕРТН (FT.)	HEADSPACE	DESCRIPTION of	dispenser line	west	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _		(0.0' - 1.0') Asphalt and gravel sub (1.0' - 6.5') Brown Clay and Grave sheen.		rong odor, slight	Auger	_ _1_ _ 	
	_ _ 3 _ _ 4 _	>5000	Soil Sample SB-3 (2.0'-4.0') collec	cted at 14:45.		12 8 4 2	_ _3_ _ _4_	19
	_ _5_ _ _6_	56.2	Odor decreases, becomes w			1 3 3	_ _5_ _ _6_	20
	_ _ 7 _ _ 8 _	19.4	Soil Sample SB-3 (6.0'-8.0') collec	cted at 15:20. (Native soil)	o odor, no staining.	7 8 14 13	7 7 8	24
	_ _ 9 _ _ _ 10 _	-	Botto	m of Boring at 8.0'			_ _9_ _ _10_	-
	_ _ 11 _ _ _ 12 _	-					_ _ 11 _ _ _ 12 _	
	_ _ 13 __ _ _ 14 _	-					_ _ 13 _ _ _ 14 _	
	_ _ 15 __ _ _ 16 __	-					_ _ 15 _ _ _ 16 _	
	_ _ 17 _ _ _ 18 _	-					_ _ 17 _ _ _ 18 _	
	_ _ 19 __ _20_	-					_ _ 19 _ _ _20_	

Soil Boring SB-4

PAGE 1 OF 1

Heath Oil Seneca Mini Mart PROJECT# DATE DRILLED: 4/27/2016 LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 6" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Hollow Stem Auger WATER LEVEL: 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:			Silica	1	NA	
	÷	بب	DESCRIPTION east of dispenser line near canopy	SEZ	÷	
Monitoring Well	БЕРТН (FT.)	HEADSPACE		BLOWCOUNTS	DЕРТН (FT.)	VERY IES)
Construction Details	DEPT	HEAD		BLOW	DEPT	RECOVERY (INCHES)
	_ 1		(0.0' - 1.5') Asphalt and gravel sub-base.		_	
	- ' - -			Auger	_1_	
	2		(1.5' - 6.0') Brown Gravel, Clay with brick fragments, non-cohesive, damp,	8	_2_	
	 _ 3 _	14.1	no odor , no staining.	6	_ _ 3 _	9
	_	14.1		4	_	9
	4			2	_4_	
	5	121	Soil Sample SB-4 (4.0'-6.0') collected at 16:15.	1	_5_	19
	_ _ 6 _		becomes wet-saturated, slight petroleum odor. (Fill)	6	_ _6_	
	_		(6.0' - 8.0') Brown and gray mottled Silty Clay , damp, no odor, no staining.	8	_	
	7	12.3	Soil Sample SB-4 (6.0'-8.0') collected at 16:30.	9 .	_7_ _	22
	8		(Native soil)	16	_8_	
	_ _ 9 _		Bottom of Boring at 8.0'		_ _ 9 _	
	_				_	
	_ 10 _	_			_ 10 _	
	_ 11 _	_			_ 11 _	
	_ _ 12 _				_ _12 _	
	_				_	
	_ 13 _				_ 13 _	
	_ 14 _			_	_ _ 14 _	
	_ _ 15 _				_ _ 15 _	
	_				_	
	_ 16 _				_ 16 _	
	_ _ 17 _	-			_ _ 17 _	
	_ _ 18 _				_ _ 18 _	
	_				_	
	_ 19 _	-			_ 19 _	
	_ _20_				_20_	

Soil Boring SB-5

PAGE 1 OF 1

Heath Oil PROJECT# DATE DRILLED: 4/28/2016 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 6" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Hollow Stem Auger WATER LEVEL: 7.0' bgs 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:		Silica		NA		
Monitoring Well Construction Details	DЕРТН (FT.)	HEADSPACE	DESCRIPTION west of dispenser line near canopy	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _	-	(0.0' - 1.5') Asphalt and gravel sub-base.	Auger	_ _1_	
	_ 2 _ _ _ 3 _ _	443	(1.5' - 3.0') Gray and brown Sand, Gravel and Slag , non-cohesive, dry to damp, no odor, no staining. Soil Sample SB-5 (2.0'-4.0') collected at 11:00. (Fill) (3.0' - 8.0') Brown and gray, Silty Clay , with some shale fragments, moist to	12 13 10	_2_ _3_ 	16
	_ 4 _ _ 5 _ _ 6 _	68.3	wet, strong odor.	8 4 2 2 2	_ 4 _ _ 5 _ _ 6 _	12
	_	87.4	becomes mottled, wet-saturated at 7.0'. (Native soil)	12 11 11 11		19
	_ _ 9 _ _ _ 10 _	24.2	(8.0' - 10.0') Brown Silty Clay and Sand , few black shale fragments, stiff, damp to dry, no odor. (Native soil)	18 16 14 19	_ _9_ _ _10_	21
	_ _ 11 _ _ _ 12 _	-	Bottom of Boring at 10.0'		_ _ 11 _ _ _ 12 _	
	_ _ 13 __ _ 14 _	-			_ _ 13 _ _ _ 14 _	
	_ _ 15 __ _ 16 _	-			_ _ 15 _ _ _ 16 _	
	_ _ 17 _ _ _ 18 _				_ _ 17 _ _ _ 18 _	
	_ _ 19 __ _ _20_				_ _ 19 _ _ _ _20_	

Soil Boring SB-6

PAGE 1 OF 1

Heath Oil Seneca Mini Mart PROJECT# DATE DRILLED: 4/28/2016 LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 6" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Hollow Stem Auger WATER LEVEL: 4.0' bgs 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:			Silica	<u> </u>	NA	
Monitoring Well Construction	БЕРТН (FT.)	HEADSPACE	DESCRIPTION north of dispenser canopy	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
Details	DEP	HEAI		BLO	DEP	REC (INC
	_		(0.0' - 2.0') Asphalt and gravel sub-base.		_	
	_ 1 _			Auger	_1_	
	2				_2_	
	-		(2.0' - 4.0') Brown Sand, Gravel, and Slag , non-cohesive, dry to damp, soft.	2	_	
	3	22.5	Soil Sample SB-6 (2.0'-4.0') collected at 13:30.	4 1	_3_	17
	_ 4		(Fill)	2	_ 4	
			(4.0' - 7.0') Brown and gray Silty Clay , with few shale fragments, soft, wet.	2	_	
	5	16.1		1	_5_	18
	_ _ 6 _		(Native soil)	1 2	_ _6_	
			(7.0' - 8.0') Yellow brown and gray Silty Clay , with shale and sandstone	2		
	7	8.3	fagments, damp to dry, no odor, no staining.	12	_7_	14
	_ _ 8 _		(Native soil)	18 21	_ _8_	
			Bottom of Boring at 8.0'			
	9				_9_	
	_ _ 10 _				_ _ 10 _	
	_ 10 _				_ 10 _	
	_ 11 _				_ 11 _	.
	_ _ 12 _				_ _ 12 _	
	_ 14 _				_ 12 _	
	_ 13 _				_ 13 _	
	_ _ 14 _				_ _ 14 _	
	_ 14 _				14	
	_ _ 15 _				_ _ 15 _	
	_				_	
	_ 16 _				_ 16 _	.
	_ _ 17 _				_ _ 17 _	
	_				-	
	_ 18 _				_ 18 _	
	_ _ 19 _				_ _ 19 _	
	_				_	
	20				_20_	

Cribbs & Associates, Inc. Soil Boring SB-7

PAGE 1 OF 1

CLIENT:	Heath Oil			PROJ	ECT #	DATE DRILLED:	6/14/2016
SITE:	Seneca Mini Mart			LOCA	TION: Seneca, PA	<u> </u>	
DRILLING	COMPANY: Cribbs & A	Associates		RIG_	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Gary Cribbs		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL	:	Continuous	TOTAL DEPTH:	8.0 Feet

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

FILTER PACK:			Silica	<u> </u>	NA	
Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	_ 1 _ _ 2 _ _ 3 _ _ 4 _	180	(0.0' - 1.0') Asphalt and Gravel subbase. (1.0' - 3.0') Gray/Brown Fill Silty Clay and gravel, damp, strong product odor. (Fill) (3.0'-7.0') Gray Brown Silty Clay , some shale fragments, wet, strong odor. Soil Sample SB-7 (3.0'-4.0') collected at 8:00.	NA		48
	_ 5 _ _ 6 _ _ 7 _ _ 8 _	1850		NA		48
			Soil Sample SB-7 (7.0'-8.0') collected at 8:15. Bottom of Boring at 8.0'		_ 9 10 11 12 13 14 15 16 17 18 18	
	_ 19 _ _20_				_ _ 19 _ _ _ _20_	_

Soil Boring SB-8

PAGE 1 OF 1

Heath Oil 6/14/2016 PROJECT# DATE DRILLED: Seneca Mini Mart SITE: LOCATION: Seneca, PA DRILLING COMPANY: Cribbs & Associates RIG_ Geoprobe BOREHOLE: 3" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe WATER LEVEL: 4' Macro Core SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:			Silica		NA	
Monitoring Well	(FT.)	PACE	DESCRIPTION	BLOWCOUNTS	(FT.)	ERY S)
Construction Details	DEPTH (FT.)	HEADSPACE	(0.0' - 1.0') Asphalt and Gravel subbase.	BLOWC	DEPTH (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _	37	(1.0' - 4.5') Gray/Brown Fill Silty Clay and gravel, damp, slight product		_ _1_ _	
	_ 2 _ _ _ 3 _	51.2	odor.	NA	_2_ _ _3_	44.4
	_ _ 4 _	01.2	Soil Sample SB-8 (4.0'-6.0') collected at 9:05. (Fill)		_4_	
	_ _5_ _ _6_	3360	(4.5'-7.0') Gray Brown Silty Clay, some shale fragments			
	_ 0 _ _ 7 _ 7 _	210	(Native soil) (7.0' - 8.0') Yellow/brown with gray motteling, Silty Clay , with shale	NA	_	48
	_ _ 8 _ _		fragments, damp, no odor. (Native soil) Bottom of Boring at 8.0'		_ _8_ _	
	9 _ _10_				_9_ _ _10_	-
	_ _ 11 _ _	:			_ _ 11 _ _	
	_ 12				_ 12 _ _ _ 13 _	
	 _ _ 14 _				_ 14 _	
	_ _ 15 _ _	:			_ _ 15 _ _	
	_ 16				_ 16 _ _ _ 17 _	
	_ _ 18 _ _				_ _ 18 _ _	
	_ _ 19 _ _ _20_				_ _ 19 _ _ _ _20_	

Soil Boring SB-9

PAGE 1 OF 1

Heath Oil 6/14/2016 PROJECT# DATE DRILLED: Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG_ Geoprobe BOREHOLE: 3" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe WATER LEVEL: 4' Macro Core SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:			Silica	Ь	NA	
Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE		BLOWCOUNTS	DЕРТН (FT.)	RECOVERY (INCHES)
	_ 1 _ _ 1 _ _ 2 _ _ 3 _	320	Soil Sample SB-9 (3.0'-4.0') collected at 9:40.	NA	1	42
	_ 4 _ _ 5 _ _ 6 _ _ 6 _	2604	(Fill) (4.0'-7.0') Gray Brown Silty Clay , some sand and shale fragments, wet, product odor	NA	_ 4 _ _ 5 _ _ 6 _	43.2
	_ 7 _ _ 8 _ _ 9 _	415	Sand content decreases. (Native soil) Bottom of Boring at 8.0'		_ 7 _ _ 8 _ _ 9 _	
	_ _ 10 _. _ 11 _. _ 12 _.	-			_ 10 _ _ 10 _ _ 11 _ _ 12 _	
	_ _ 13 _. _ 14 _. _ 15 _.	-			_ 13 _ _ 13 _ _ 14 _ _ 15 _	
	_ _ 16	-			_ _ 16 _ _ _ 17 _ 	
	_ 18 _. _ 19 _. _20_	-			_ 18 _ _ _ 19 _ _ _20_	

CLIENT:	Heath Oil			PROJE	CT #	DATE DRILLED:	6/14/2016
SITE:	Seneca Mini Mart			LOCAT	ION: Seneca, PA	<u>\</u>	
DRILLING	COMPANY: Cribbs & /	Associates		RIG	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Gary Cribbs		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL	:	Continuous	TOTAL DEPTH:	8.0 Feet

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

Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	38	(0.0' - 1.0') Asphalt and Gravel subbase. (0.0' - 3.0') Black/Gray/ Fill gravel, damp, no odor.		_ _1_ _ _2_	
	_ 2 _	51.3	(Fill) (4.0'-8.0') Gray/Brown mottled Silty Clay , some gravel, moist, slight odor.	NA	_3_	42
	_ 4 _ _ _ 5 _	58.6	Soil Sample SB-10 (4.0'-5.0') collected at 10:30.		_ 4 _ _ _ 5 _	
	_ 6 _ 6 _ 7	4.9		NA		43.2
	_ _ 8 _ _ 9 _	1.0	(Native soil) Bottom of Boring at 8.0'		_ _ 8 _ _ _ 9 _	
	_ 9 _ _ _ 10 _ 				 _ _ 10 _	
	_ 11 __ _ _ 12 __				_ 11 _ _ _ 12 _	
	_ _ 13 __ _ _ 14 _				 _ 13 _ _ _ 14 _	
	_ _ 15 _ _				_ _ 15 _ _	
	_ 16				_ 16 _ _ _ 17 _	
	_ 18 __ _ _ 19 __				_	
	_ _20_				_ _20_	

Soil Boring SB-11

PAGE 1 OF 1

Heath Oil Seneca Mini Mart PROJECT# DATE DRILLED: 6/14/2016 LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG_ Geoprobe BOREHOLE: 3" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe WATER LEVEL: SAMPLING PROCEDURE: 4' Macro Core 8.0 Feet SAMPLING INTERVAL: Continuous TOTAL DEPTH:

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

FILTER PACK:			Silica		INA	
			DESCRIPTION	ပ		
Monitoring Well	ОЕРТН (FT.)	HEADSPACE		BLOWCOUNTS	DEPTH (FT.)	.se ≺
Construction	PTH	ADSF) MC	H H	RECOVERY (INCHES)
Details	DEI	뷔		BLC	DEI	RE(
	_		(0.0' - 1.0') Asphalt and Gravel subbase.		_	
	_ 1 _	54	(1.0' - 2.5') Black/Gray/ Fill Clay and Gravel , damp, no odor.	ŀ	_1_	
	_ 2 _		(1.6 2.6) Black Gray/i iii Glay and Gravor, damp, no odon	l	2_	
			(Fill)	NA		45.6
	_ 3 _	1811	(2.5'-7.5') Gray/Brown Silty Clay , some shale fragments, few sandstone		_3_	
	_		cobbles, damp, hydrocarbon odor and staining.		_	
	_ 4 _		Soil Sample SB-11 (3.0'-4.0') collected at 10:55.		_4_	
	_ _ 5 _				_ _5_	
		68.5				
	6			NA	_6_	46.8
	_				_	
	7	4.1	Soil Sample SB-11 (7.0'-8.0') collected at 11:05. (Native soil)		_7_	
	 _ 8 _		(Native soil) (7.5'-8.0') Yellowish Brown Silty Clay, damp, no staining.		_ _8_	
			Bottom of Boring at 8.0'			
	9				_9_	
	-				_	
	_ 10 _				_ 10 _	
	_ _ 11 _				_ _ 11 _	
	_				_	
	_ 12 _				_ 12 _	
	_ _ 13 _				_ _ 13 _	
	_ 13 .					
	_ 14 _				_ _ 14 _	
	_				_	
	_ 15 _				_ 15 _	
	_ _ 16 _				_ _ 16 _	
	_ 17 _	-			_ 17 _	.
	_				_	
	_ 18 _	1			_ 18 _	
	_ _ 19 _				_ _ 19 _	
					_	
	20				_20_	

Soil Boring MW-3/SB-12

PAGE 1 OF 1

Heath Oil 6/14/2016 & PROJECT# DATE DRILLED: Seneca Mini Mart LOCATION: Seneca, PA SITE: 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Geoprobe BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe & 4 1/4" H S A WATER LEVEL: 4' Macro Core SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-8.0'	Silica	6.5'	NA

FILTER PACK:				1.5'-8.0'	Silica	6.5'		NA	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE			ESCRIPTION V-3 installed at location of SB	12	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	125		sphalt and Gravel so	ubbase. , Gravel Sand and S	lag , dry.	NA	_ _1_ _ 	48
	_ _ 3 _ _ _ 4 _	2274	Soil Sample Gray sta	SB-12 (3.0'-4.0') colleaning and hydrocarbo		(Fill)		3 	
	_ 5 _ 5 _ _ 6 _	841		rbon odor and stainir		is, damp, siigni	NA	_ 5 _ _ 6 _	48
		31	(7.5'-8.0') Yel		(Native soil) d Silty Clay , damp, no	o staining or odor.			
	_ 9 _ 9 _ 10 _	-						_ 9 _ _ 10 _	
	_ 11 __ _ 12 __	-						_	
	_ 13 __ _ 13 __ _ 14 __	-						_ 13 _ _ 14 _	
	_ 15 __ _ 15 __ _ 16 __	-						 _ 15 _ _ _ 16 _	
	_ 17 __ _ 17 __ _ 18 __	-						 _ 17 _ _ _ 18 _	
	_							 _ 19 _ _ _20_	

CLIENT:	Heath Oil			PROJ	ECT#	DATE DRILLED:	6/14/2016
SITE:	Seneca Mini Mart			LOCA	TION: Seneca, PA		
DRILLING	COMPANY: Cribbs & A	Associates		RIG	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Gary Cribbs		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL	:	Continuous	TOTAL DEPTH:	8.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:	Quartz Sand	1.5'-8.0'	Silica	6.5'	NA

			DESCRIPTION		1	
Monitoring Well Construction	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
Details	DEP.	HEAI		BLOV	DEP.	REC(INC)
	_		(0.0' - 1.0') Asphalt and Gravel subbase.		_	
	_ 1 _	610	(1.0' - 4.0') Gray/Brown Fill - Clay, Gravel Sand and Slag, dry.		_1_	
	_ _ 2 _		(1.6 4.6) Gray/Brown I iii Gray, Graver Garia and Gray, dry.		2_	40
	_			NA		48
	3	1521	0.110		_3_	
	_ 4		Soil Sample SB-13 (3.0'-4.0') collected at 12:30. Gray staining and hydrocarbon odor at 3.5'. (Fill)		_ 4	
	- ¬ -		(4.0'-7.5') Black/Gray/Brown Silty Clay , some shale fragments, damp,		 _	
	5	1325	slight hydrocarbon odor and staining.		_5_	
	_		Becomes wet ay 5.0'.		_	
	6			NA	_6_	48
	_ _ 7 _	215			_ _ 7 _	
	_	213	(Native soil)		_	
	8		(7.5'-8.0') Yellowish Brown mottled Silty Clay , damp, no staining or odor.		_8_	
	_ _ 9 _		Bottom of Boring at 8.0'		_ _9_	
	_ 10 _				_ 10 _	
	_ 11				_ _ 11 _	
	- ' ' -				''' -	•
	_ 12 _				_ 12 _	
	_				_	
	_ 13 _				_ 13 _	
	_ _ 14 _				_ _ 14 _	
	_				_	
	_ 15 _				_ 15 _	.
	_ _ 16 _				_ _ 16 _	
	_ 17 _				_ 17 _	
	_ _ 18 _				_ _ 18 _	
	_ _ 19 _				_ _ 19 _	
	_				_	
	20				_20_	

CLIENT:	Heath Oil			PROJE	CT#	DATE DRILLED:	6/14/2016
SITE:	Seneca Mini Mart			LOCAT	TION: Seneca, PA	\	
DRILLING	COMPANY: Cribbs & A	Associates		RIG	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Gary Cribbs		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL	:	Continuous	TOTAL DEPTH:	8.0 Feet

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

	1		DESCRIPTION		T	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE		BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	110	(0.0' - 1.0') Asphalt and Gravel subbase. (1.0' - 4.5') Gray/Brown Fill - Clay, Gravel, Brick Fragments and Shale , dry.	NA	_ 1 _ _ 1 _ _ 2 _	48
	3 4	349	Soil Sample SB-14 (3.0'-4.0') collected at 13:05. Gray staining and hydrocarbon odor at 3.5'. Becomes moist. (Fill)		3 	
	5_ 6	316	(4.5'-6.5') Gray/Brown Silty Clay , some shale fragments, moist to wet, slight hydrocarbon odor and staining. (Native soil)	NA	_5_ _ _6_	48
	_ 7 _ _ _ 8 _ _	10.2	(6.5'-8.0') Yellowish Brown mottled Silty Clay , damp, no staining or odor. (Native soil) Bottom of Boring at 8.0'		_7_ _8_ _8_	
	_ 9 _ _ 10 _ _ 11				_ 9 _ _ 10 _ _ 11 _	
	_ ' ' ' _ _ 12 _ _ 13 _				_	
	_ 16				_	
	_ _ 16 _ _ _ 17 _				 16 _ _ 17 _	
	_ _ 18 _ _ _ 19 _				 _ 18 _ _ _ 19 _	
					_ _ _20_	

Soil Boring MW-4/SB-15

PAGE 1 OF 1

Heath Oil PROJECT# DATE DRILLED: 6/14/2016 & Seneca Mini Mart LOCATION: Seneca, PA SITE: 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Geoprobe/B-57 BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe & 4 1/4" H S A WATER LEVEL: 4' Macro Core SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:	Quartz Sand	1.5'-8.0'	Silica	6.5'	NA

SEAL:	1/8" Pellets 0.5'-1.5' Bentonite 1.0'				1.0'		NA		
FILTER PACK:		Qu	artz Sand	1.5'-8.0'	Silica	6.5'		NA	
Monitoring Well Construction Details	DЕРТН (FT.)	HEADSPACE		Monitoring Well MW-4 installed at location of SB-15					
	_ 1 _ - 2 _	850	(0.0' - 1.0') A (1.0' - 4.5') G	NA	_ _1_ _ _2_	RECOVERY (INCHES)			
_	3 _ - 4 _		Soil Sample strong h		3_ 				
_	5 _ - 6 _ - 7 _	1072		ay/Brown Silty Clay , ydrocarbon odor and	some shale fragmen I staining.	ts, wet, free product,	NA	_ 5 _ _ 6 _ _ 7 _	48
	- 8_	36.4	(7.5'-8.0') Ye		(Native soil) d Silty Clay , damp, norm of Boring at 8.0'	o staining or odor.		_ _8_ _	
	9 _ - 10 _ -							_ 9 _ _ _ 10 _ 	
	11 ₋ 12 ₋							_ 11 12	-
	13 ₋ 14 ₋ 15 ₋							_ 13 _ _ 14 _ _ 15 _	-
	16 ₋ 16 ₋ 17 ₋							_ 13 _ _ 16 _ _ 17 _	
	- 18 _ - 19 _							_	
	_ 20_							_ _20_	

CLIENT:	Heath Oil			PROJE	CT#	DATE DRILLED:	6/14/2016
SITE:	Seneca Mini Mart			LOCAT	ION: Seneca, PA	4	
DRILLING	COMPANY: Cribbs & A	Associates		RIG	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Gary Cribbs		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL	:	Continuous	TOTAL DEPTH:	8.0 Feet

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

	1		DESCRIPTION		1	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE		BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	396	(0.0' - 1.0') Asphalt and Gravel subbase. (1.0' - 3.0') Gray/Brown Fill - Clay, Gravel and Shale , dry. no hydrocarbon odor or staining.	NA	_ _1_ _ _2_	48
	_ _ 3 _ _ _ 4 _	3460	(Fill) (3.0'-8.0') Gray/Brown Silty Clay , some shale fragments, damp, slight hydrocarbon odor and staining.		_ _3_ _ _4_	10
	_ _ 5 _ _ _ 6 _	1265	Soil Sample SB-16 (3.0'-4.0') collected at 13:30. Becomes wet at 5.0 ' with free product.	NA	_ _5_ _ _6_	48
	_ _ 7 _ _ _ 8 _	13.8	Soil Sample SB-16 (7.0'-8.0') collected at 14:10. (Native soil)	NA		48
	_		Bottom of Boring at 8.0'		 9 _ _ 10 _	
	_ _ 11 _				_ _ 11 _ _	
	_ 12 __ _ _ 13 __				_ 12 _ _ _ 13 _ 	
	_ 14 __ _ _ 15 __				_ 14 _ _ _ 15 _ 	
	_ 16 __ _ _ 17 _				_ 16 _ _ _ 17 _	
	_ 18 __ _ 18 __ _ 19 __				 _ 18 _ _ _ 19 _	
	_ _20_				_ _20_	

Soil Boring MW-5/SB-17

PAGE 1 OF 1

Heath Oil 6/14/2016 & PROJECT# DATE DRILLED: Seneca Mini Mart LOCATION: Seneca, PA SITE: 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Geoprobe BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe & 4 1/4" H S A WATER LEVEL: 4' Macro Core 8.0 Feet SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:	Quartz Sand	1.5'-8.0'	Silica	6.5'	NA

SEAL.	_	1/0	o reliets	0.5-1.5	Denionite	1.0		INA	
FILTER PACK:		Qι	artz Sand	1.5'-8.0'	Silica	6.5'	NA		
Monitoring Well Construction Details	DEРТН (FT.)	HEADSPACE			DESCRIPTION V-4 installed at location of SE	3-15	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	724		sphalt and Gravel s ray/Brown Fill - Clay		e, dry.	NA	_ _ 1 _ _ _ 2 _	48
	_ _ 3 _ _ _ 4 _	2875	(4.5°-6.5°) Gr strong h	ay/Brown Silty Clay ,	d staining.	nts, moist to wet,		3 	
	_ _ 5 _ _ _ 6 _	1419		SB-17 (3.0'-4.0') coll			NA	5_ _5_ _6_	48
		21.4	(6.5'-8.0') Ye	llowish Brown mottle	(Native soil)	no staining or odor.			
	_ _ 9 _ _ _ 10 _	-		Botto	om of Boring at 8.0'			_ _9_ _ _10_	
	_ _ 11 _ _ _ 12 _	-						_ _ 11 _ _ _ 12 _	
	_ _ 13 _ _ _ 14 _	-						_ _ 13 _ _ _ _ 14 _	
	_ _ 15 _ _ _ 16 _	-						_ _ 15 _ _ _ 16 _	
	_ _ 17 _ _	-						_ _ 17 _ _	
	_ 18 __ _ 19 __	-						_ 18 _ _ _ 19 _ 	
	20							_20_	

Soil Boring SB-18

PAGE 1 OF 1

CLIENT: Heath Oil PROJECT# DATE DRILLED: 9/14/2016 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates Geoprobe BOREHOLE: RIG 3" Diameter LOGGED BY: Jared Thorn DRILLING METHOD: Geoprobe WATER LEVEL: SAMPLING PROCEDURE: 4' Macro Core SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:			Silica		NA	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	_ 1 _ _ 1 _ _ 2 _ _ 3 _	6.1	(0.0' - 0.4') Asphalt (0.4' - 4.0') Gray/Light Brown Fill - Sand and Silty Clay , micaceous sandstone fragments, brick fragments, dry, no hydrocarbon odor or staining.	NA	_ 1 _ _ 1 _ _ 2 _ _ 3 _	36
	_ 4 _ _ 5 _ _ 6 _ _ 7 _	61.6	rounded pebbles at 4.0'. (Fill) (4.0'-7.0') Gray Silty Clay , some wood fragments, damp, slight hydrocarbon odor. Soil Sample SB-18 (6.0'-8.0') collected at 11:15. (Fill)	NA	- -4- -5- -6- -7-	34
	_ _ 8 _ _ 9 _ _ 10 _	952	(7.0'-8.0') Brown/Gray Silty Clay , trace sand, moist, plastic, hydrocarbon odor. some micaceous sandstone and gray shale fragments (Native soil) Bottom of Boring at 8.0'		_ _ 8 _ _ 9 _ _ 10 _	
	 _ 11 _ _ 12 _ _ 13 _				_ _ 11 _ _ 12 _ _ 13 _	
	_ 14 _ _ 15 _ _ 15 _ _ 16 _				_ 14 _ _ 15 _ _ 15 _ _ 16 _	
	_ 17				_ 17 _ _ 18 _ _ 19 _ _ 20_	

Soil Boring SB-19

PAGE 1 OF 1

CLIENT: Heath Oil PROJECT# DATE DRILLED: 9/14/2016 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates Geoprobe BOREHOLE: RIG 3" Diameter LOGGED BY: Jared Thorn DRILLING METHOD: Geoprobe WATER LEVEL: SAMPLING PROCEDURE: 4' Macro Core SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:			Silica		NA	
Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	139	(0.0' - 0.4') Asphalt (0.4' - 4.5') Gray/Light Brown Fill - Sand and Silty Clay , some micaceous sandstone fragments, brick fragments, and slag, dry, slight hydrocarbon Soil Sample SB-19 (0.0'-2.0') collected at 10:50.	NA	_ 1 _ _ 1 _ _ 2 _	30
	_ _ 3 _ _ _ 4 _	15.5	wet, saturated at 3.5' to 4.2' wood fragments at 4.0' (Fill)		3_ 4_	
	_ _5_ _ _6_	26.2	(4.5'-5.5') Gray Silty Clay , trace sand, some dark gray shale fragments, moist. (Native soil) (5.5'-6.5') Brown/Gray Sandy Silty Clay , some micaceous sandstone fragments, moist. (Native soil)	NA	_5_ _6_	48
	_ 7 _ _ 8 _ 	0.8	(6.5'-8.0') Gray/Brown mottled Sandy Silty Clay , some gravel, moist to wet . (Native soil) Bottom of Boring at 8.0'		_7_ _ _8_	
	_ 9 _ _ _ 10 _ _				_9_ _ _10_	
	_ 11 _ _ _ 12 _ _				_ 11 _ _ _ 12 _ 	
	_ 13 _ _ _ 14 _ _				_ 13 _ _ _ 14 _ 	
	_ 15 _ _ _ 16 _ _				_ 15 _ _ _ 16 _ 	
	_ 17 _ _ _ 18 _ _				_ 17 _ _ _ 18 _ _	
	_ 19 _ _20_				_ 19 _ _ _20_	

Soil Boring SB-20

PAGE 1 OF 1

CLIENT: Heath Oil PROJECT# DATE DRILLED: 9/14/2016 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates Geoprobe BOREHOLE: RIG 3" Diameter LOGGED BY: Jared Thorn DRILLING METHOD: Geoprobe WATER LEVEL: SAMPLING PROCEDURE: 4' Macro Core SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

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

FILTER PACK:			Silica		NA	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _ _	1.0	(0.0' - 0.4') Asphalt (0.4' - 4.0') Gray Fill - Sandy Silt , some sand and gravel, moist.	NA	_ _1_ _ _2_ _	34
	3 _ _4_ _ _5_	0.9	brick fragments at 4.0' (Fill) (4.0'-6.0') Gray Sandy Silt , some clay, plastic, wet, slight hydrocarbon odor. sand content increases, some gray shale fragments.		_ 3 _ 4 _ 5 _	
	 _ 6 _ _ 7 _	156	(Native soil) (6.0'-8.0') Light Brown mottled Silty Clay , some gravel, moist to wet. some light gray/black shale fragments and light brown micaceous sandstone fragments.	NA	_ _6_ _ _7_	48
			(Native soil) Bottom of Boring at 8.0'		8_ 9_ 10	
	_ 10 _ _ _ 11 _ _ _ 12 _				_ 10 _ _ 11 _ _ 12 _	-
	_ _ 13 _ _ _ 14 _				_ _ 13 _ _ _ 14 _	
	_ 15 _ _ 16 _ _ 16 _				_ 15 _ _ 16 _ _ 16 _	
	_ 17 _ _ _ 18 _ _ _ 19 _				_ 17 _ _ 18 _ _ 19 _	-
	_ _20_				_ _20_	

CLIENT:	Heath Oil			PROJ	ECT#	DATE DRILLED:	9/14/2016
SITE:	Seneca Mini Mart		_	LOCA	TION: Seneca, PA		
DRILLING	GCOMPANY: Cribbs & A	Associates		RIG_	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Jared Thorn		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL		Continuous	TOTAL DEPTH:	8.0 Feet

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

FILTER PACK.			Silica		INA	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	 _ 1 _ _ 2 _	2.0	(0.0' - 0.3') Asphalt (0.3' - 0.9') Concrete. (0.9' - 3.0') Light Brown/Gray Fill - Silty Clay , trace sand, some weathered light brown micaceous sandstone fragments, moist, no odor.	NA	_ _1_ _ _2_	40
	_ _ 3 _ _ _ 4 _	1.3	(3.0'-3.1') thin stringer of black organic shale fragments (Fill) (3.1'-4.5') Dark Gray Silty Clay , moist , no odor. (Native soil)		3_ 	
	_ _5_ _ _6_	65.1	(4.5'-6.5') Light Gray/Brown Silty Clay , with rounded pebbles, trace sand, sand content increases, some sandstone fragments, damp. Strong hydrocarbon odor at 6.0' (Native soil)	NA	_ 5 _ _ 6 _	48
	_ _ 7 _ _ 8 _	396	(6.5'-8.0') Light Brown Silty Clay , some rounded micaceous sandstone pebbles, plastic, moist, hydrocarbon odor. Soil Sample SB-22 (6.0'-8.0') collected at 12:45. (Native soil) Bottom of Boring at 8.0'			
	_ _ 9 _ _ _ 10 _		Bottom of Boning at 6.6		_ 9 _ 9 _ _ 10 _	
	_ 11 _ _ 12 _				_ _ 11 _ _ _ 12 _	
	_ 13 __ _ 13 __ _ 14 __				_ 13 _ _ 13 _ _ _ 14 _	
	_ _ 15 _ _ _ 16 _				_ _ 15 _ _ _ 16 _	
	_ _ 17 _ _ _ 18 _				_ _ 17 _ _ _ 18 _	
	_ _ 19 _ _ _20_				_ _ 19 _ _ _20_	

CLIENT:	Heath Oil			PROJ	IECT#	DATE DRILLED:	9/14/2016
SITE:	Seneca Mini Mart			LOCA	TION: Seneca, PA	<u> </u>	
DRILLING	COMPANY: Cribbs & A	Associates		RIG_	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Jared Thorn		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL	:	Continuous	TOTAL DEPTH:	8.0 Feet

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

TILTER FACIN.	_		Silica		INA	
	·T.)	Ś	DESCRIPTION	UNTS	 	٧٨
Monitoring Well Construction	БЕРТН (FT.)	HEADSPACE		BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
Details	DE	뽀	(0.0', 0.2') Applied	BĽ	DE	RE (N
	_ _ 1		(0.0' - 0.3') Asphalt (0.3' - 2.5') Brown/Gray Fill - Silty Clay , many limestone and sandstone		_ _ 1 _	
		0.5	fragments, some weathered gray shale fragments, dry, no odor.			
	2		,—	NA	_2_	41
	_ _ 3 _		(Fill) (2.5'-5.0') Gray Silty Clay , some rounded gray sandstone pebbles, moist,	-	_3_	
		12.2	no odor.			
	4				_4_	
	_		Alog and the		_	
	5	324	(Native soil) (5.0'-8.0') Light Brown Sandy Silty Clay , some gray motteling, with rounded		_5_	
	 6		pebbles, plastic, moist, strong hydrocarbon odor.	NA	_ _6_	48
	_			INA	_	40
	7	810			_7_	
	 _ 8 _		(Native soil)		_ _8_	
	_		Bottom of Boring at 8.0'			
	9				_9_	
	_ _ 10 _				_ _ 10 _	
	_ 10 _	-			_ 10 _	1
	_ 11 _				_ 11 _	
	_ _ 12 _				_ _ 12 _	
	_ 12 _					
	_ _ 13 _				_ _ 13 _	
	_				_	
	_ 14 _	-			_ 14 _	
	_ _ 15 _				_ _ 15 _	
	_				_	
	_ 16 _				_ 16 _	
	_ _ 17 _				_ _ 17 _	
					_	
	_ 18 _				_ 18 _	
	_ _ 19 _				_ _ 19 _	
	_ 19_				_ 18 _	1
	20				_20_	

CLIENT:	Heath Oil			PROJE	ECT#	DATE DRILLED:	9/14/2016
SITE:	Seneca Mini Mart			LOCA	TION: Seneca, PA	\	
DRILLING	COMPANY: Cribbs & /	Associates		RIG	Geoprobe	BOREHOLE:	3" Diameter
LOGGED	BY: Jared Thorn		DRILLING METHOD:		Geoprobe	WATER LEVEL:	
SAMPLIN	G PROCEDURE:	4' Macro Core	SAMPLING INTERVAL	:	Continuous	TOTAL DEPTH:	8.0 Feet

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

	T	1		ı	1	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	0.2	(0.0' - 0.4') Asphalt (0.4' - 4.0') Brown/Gray Fill - Silty Clay , many limestone and sandstone fragments, some weathered gray shale fragments, dry, no odor.	NA	_ _1_ _ _2_	30
	_ 3 _ _ 3 _ _ 4 _	25.9	Concrete fragments at 4.0' (Fill)		_ 3 _ _ 3 _ _ 4 _	
	_ 5 _ _ 5 _ _ 6 _	65.2	(5.0'-6.0') Gray Silty Clay , some rounded pebbles, trace sand, moist, plastic. (Native soil)	NA NA	_ 5 _ 5 _ 6 _ 6	41
	_ _ 7 _ _ 8 _	824	(6.0'-8.0') Light Brown Sandy Silty Clay , some gray motteling, with rounded pebbles and sandstone fragments, plastic, dry to moist, strong hydrocarbon odor. Soil Sample SB-24 (6.0'-8.0') collected at 13:45. (Native soil)		_ _7_ _ _8_	
	_ _ 9 _ _ _ 10 _	:	Bottom of Boring at 8.0'		_ 9 _ _ 9 _ _ _ 10 _	
	_ _ 11 _ _ _ 12 _				_ _ 11 _ _ _ 12 _	
	_ _ 13 _ _ _ _ 14				_ _ 13 _ _ _ _ 14 _	
	_ _ 15 _ _ _ 16 _				_ _ 15 _ _ _ 16 _	
	_ _ 17 _ _				_ _ 17 _ _	
	_ 18 _ _ _ 19 _ _ _20_				_ 18 _ _ _ 19 _ _ _20_	

Soil Boring MW-1

PAGE 1 OF 1

Heath Oil Seneca Mini Mart PROJECT # DATE DRILLED: 4/28/2016 & LOCATION: Seneca, PA SITE: 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Hollow Stem Auger WATER LEVEL: 7.0' bgs 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-8.0'	Silica	6.5'	NA

FILTER PACK:			y i diidto	1.5'-8.0'	Silica	6.5'	NA NA		
FILTER FACE.					•	0.3		INA	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE		Descripti	DESCRIPTION on from Soil Boring SB-5 MW-1 installed on July 8, 2	2016	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _	_	(0.0' - 1.5') A	sphalt and gravel su	ub-base.		Auger	_ 1 _	
	2_		(1.5' - 3.0') G	ray and brown San	d, Gravel and Slag	, non-cohesive, dry to		_2_	
	_ _ 3 _ _	443	Soil Sample	io odor, no staining. SB-5 (2.0'-4.0') colle rown and gray, Silt y	ected at 11:00.	(Fill) nale fragments, moist to	12 13 10	_ _3_ _	16
	_ 4 _			ong odor.	,	,	8	_4_	
	_ _ 5 _ _ _ 6 _	68.3					4 2 2 2	_ _5_ _	12
	_ _ 7 _ _ –	87.4	become	es mottled, wet-satu			12 11 11	_ 6 _ _ 7 _ _ 7 _	19
	_ 8 _		/0 0' 10 0'\ I	Drougo Ciltu Clay an	(Native soil)	abole frommente etiff	14	_8_	
	_ _ 9 _	24.2		odry, no odor.	id Sand, lew black s	shale fragments, stiff,	18 16 14	_ _9_ _	21
	_ _ 10 _				(Native soil)		19	_ _ 10 _	
	_			Botto	om of Boring at 10.0)'		_	
	_ 11 _							_ 11 _	-
	_ 12 _. _ _ 13 _.	_						_ 12 __ _ _ 13 __	1
	o . _ _ 14 _							o _ _ _ 14 _	
	_ _ 15 _							_ _ 15 _	
	_ _ 16 _	_						_ _ 16 _	-
	_ _ 17 _							_ _ 17 _	
	_ _ 18 ₋ _							_ _ 18 _	
	_ _ 19 _ _							 _ 19 _ _	
	20							_20_	

Soil Boring MW-2

PAGE 1 OF 1

CLIENT: Heath Oil
SITE: Seneca Mini Mart PROJECT# 6/14/2016 & DATE DRILLED: LOCATION: Seneca, PA 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Geoprobe / B-57 BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe & 4 1/4" H S A WATER LEVEL: 4' Macro Core 8.0 Feet SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-8.0'	Silica	6.5'	NA

FILTER PACK:				1.5'-8.0'	Silica	6.5'		NA	
Monitoring Well Construction Details	DЕРТН (FT.)	HEADSPACE		Description	DESCRIPTION from Soil Boring SB-11 MW-2 installed on July 8, 201	6	BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	54	(0.0' - 1.0') A	sphalt and Gravel s	ubbase. nd Gravel, damp, no	odor.	NA	_ _1_ _ _2_	45.6
	_ _ 3 _ _ 4 _	1811	cobbles	ay/Brown Silty Clay , , damp, hydrocarbon SB-11 (3.0'-4.0') colle		ts, few sandstone		_ _3_ _ _4_	40.0
	_ _ 5 _ _ _ 6 _	68.5					NA	_5_ _5_ _6_	46.8
		4.1			lay, damp, no staining	(Native soil) g. (Native soil)			
	_ _ 9 _ _ _ 10 .	-		Botto	om of Boring at 8.0'			_ _9_ _ _10_	
	_ _ 11 _. _ _ 12 _.	-						_ _ 11 _ _ _ 12 _	
	_ _ 13 . _ _ 14 .	-						_ _ 13 _ _ _ 14 _	
	_ _ 15 _. _ _ 16 .	-						_ _ 15 _ _ _ 16 _	
	_ _ 17							_ _ 17 _ _ _ 18 _	
	_ _ 19 _. _ _20_	-						_ _ 19 _ _ _20_	

Soil Boring MW-3/SB-12

PAGE 1 OF 1

Heath Oil 6/14/2016 & PROJECT# DATE DRILLED: Seneca Mini Mart LOCATION: Seneca, PA SITE: 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Geoprobe BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe & 4 1/4" H S A WATER LEVEL: 4' Macro Core SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-8.0'	Silica	6.5'	NA

FILTER PACK:				1.5'-8.0'	Silica	6.5'		NA	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE			ESCRIPTION V-3 installed at location of SB	12	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	125		sphalt and Gravel so	ubbase. , Gravel Sand and S	lag , dry.	NA	_ _1_ _ 	48
	_ _ 3 _ _ _ 4 _	2274	Soil Sample Gray sta	SB-12 (3.0'-4.0') colleaning and hydrocarbo		(Fill)		3 	
	_ 5 _ 5 _ _ 6 _	841		rbon odor and stainir		is, damp, siigni	NA	_ 5 _ _ 6 _	48
		31	(7.5'-8.0') Yel		(Native soil) d Silty Clay , damp, no	o staining or odor.			
	_ 9 _ 9 _ 10 _	-						_ 9 _ _ 10 _	
	_ 11 __ _ 12 __	-						_	
	_ 13 __ _ 13 __ _ 14 __	-						_ 13 _ _ 14 _	
	_ 15 __ _ 15 __ _ 16 __	-						 _ 15 _ _ _ 16 _	
	_ 17 __ _ 17 __ _ 18 __	-						 _ 17 _ _ _ 18 _	
	_							 _ 19 _ _ _20_	

Soil Boring MW-4/SB-15

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Heath Oil PROJECT# DATE DRILLED: 6/14/2016 & Seneca Mini Mart LOCATION: Seneca, PA SITE: 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Geoprobe/B-57 BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe & 4 1/4" H S A WATER LEVEL: 4' Macro Core SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH: 8.0 Feet

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:	Quartz Sand	1.5'-8.0'	Silica	6.5'	NA

SEAL:		1/8	" Pellets 0.5'-1.5' Bentonite 1.0'						
FILTER PACK:		Qu	artz Sand	1.5'-8.0'	Silica	6.5'		NA	
Monitoring Well Construction Details	DЕРТН (FT.)	HEADSPACE			ESCRIPTION /-4 installed at location of SB-	15	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ 1 _ - 2 _	850		sphalt and Gravel s ray/Brown Fill - Clay	ubbase. , Gravel, and Shale,	dry.	NA	_ _1_ _ _2_	48
_	3 _ - 4 _		Soil Sample strong h	SB-15 (3.0'-4.0') colle ydrocarbon odor and	l staining at 3.5'. (Fill)			3_ 	
_	5 _ - 6 _ - 7 _	1072		ay/Brown Silty Clay , ydrocarbon odor and	some shale fragmen I staining.	ts, wet, free product,	NA	_ 5 _ _ 6 _ _ 7 _	48
	- 8_	36.4	(7.5'-8.0') Ye		(Native soil) d Silty Clay , damp, norm of Boring at 8.0'	o staining or odor.		_ _8_ _	
	9 _ - 10 _ -							_ 9 _ _ _ 10 _ 	
	11 ₋ 12 ₋							_ 11 12	-
	13 ₋ 14 ₋ 15 ₋							_ 13 _ _ 14 _ _ 15 _	-
	16 ₋ 16 ₋ 17 ₋							_ 13 _ _ 16 _ _ 17 _	
	- 18 _ - 19 _							_	
	_ 20_							_ _20_	

Soil Boring MW-5/SB-17

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Heath Oil 6/14/2016 & PROJECT# DATE DRILLED: Seneca Mini Mart LOCATION: Seneca, PA SITE: 7/8/2016 DRILLING COMPANY: Cribbs & Associates RIG Geoprobe BOREHOLE: 8" Diameter LOGGED BY: Gary Cribbs DRILLING METHOD: Geoprobe & 4 1/4" H S A WATER LEVEL: 4' Macro Core 8.0 Feet SAMPLING PROCEDURE: SAMPLING INTERVAL: Continuous TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-2.0'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:	Quartz Sand	1.5'-8.0'	Silica	6.5'	NA

SEAL.	_	1/0	o reliets	0.5-1.5	Denionite	1.0		INA	
FILTER PACK:		Qι	Quartz Sand 1.5'-8.0' Silica 6.5'			6.5'		NA	
Monitoring Well Construction Details	DEРТН (FT.)	HEADSPACE			DESCRIPTION V-4 installed at location of SE	3-15	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	724		sphalt and Gravel s ray/Brown Fill - Clay		e, dry.	NA	_ _ 1 _ _ _ 2 _	48
	_ _ 3 _ _ _ 4 _	2875	(4.5°-6.5°) Gr strong h	ay/Brown Silty Clay ,	d staining.	nts, moist to wet,		3 	
	_ _ 5 _ _ _ 6 _	1419		SB-17 (3.0'-4.0') coll			NA	5_ _5_ _6_	48
		21.4	(6.5'-8.0') Ye	llowish Brown mottle	(Native soil)	no staining or odor.			
	_ _ 9 _ _ _ 10 _	-		Botto	om of Boring at 8.0'			_ _9_ _ _10_	
	_ _ 11 _ _ _ 12 _	-						_ _ 11 _ _ _ 12 _	
	_ _ 13 _ _ _ 14 _	-						_ _ 13 _ _ _ _ 14 _	
	_ _ 15 _ _ _ 16 _	-						_ _ 15 _ _ _ 16 _	
	_ _ 17 _ _	-						_ _ 17 _ _	
	_ 18 __ _ 19 __	-						_ 18 _ _ _ 19 _ 	
	20							_20_	

Monitoring Well MW-6

PAGE 1 OF 1

Heath Oil Seneca Mini Mart PROJECT# DATE DRILLED: 10/17/2016 LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 8" Diameter LOGGED BY: RRB & CR DRILLING METHOD: 4.25" Hollow Stem Auger WATER LEVEL: SAMPLING PROCEDURE: 9.8' SAMPLING INTERVAL: TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.3'-2.3'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.3'-9.8'	PVC sched. 40	7.5'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-9.8'	Silica	8.3'	NA

SEAL:		1/8	8" Pellets 0.5'-1.5' Bentonite 1.0'							
FILTER PACK:				1.5'-9.8'	Silica	8.3'		NA		
Monitoring Well Construction Details	DEРТН (FT.)	HEADSPACE	Мо	onitoring Well installed under	DESCRIPTION powerlines - Split mast using off-set completed November		BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)	
-	 1 2	0.0		(Fill) 3.0') Dark gray to black, Clay, Gravel and Shale, damp, no odor.						
	_ _ 3 _ _ _ 4 _	0.0	(3.0' - 6.0') G	ray and Brown, Silty	(Fill) Clay, plastic, moist,	no odor.	probe	_ 3 _ _ 4 _		
	_ _ 5 _ _	1.7	Soil Sample	MW-6 (4.0'-6.0') colle	ected at 12:40.			_ _5_ _		
	6 _ _7_		(6.0' - 9.8') M no odor	•	(Native soil) owish Brown, Silty Cl	ay, plastic, moist,	_	_6_ _ _7_		
	_ 8 _	0.0						8_		
	_ _9_ _ _	0.0	Soil Sample	MW-6 (8.0'-9.8') colle	ected at 12:50. (Native soil)			 _ 9 _ _ _ 10 _		
	_ 10 _ _ 11 _			Botto	om of Boring at 9.8'			_ 10 _ _ _ 11 _	-	
-	_ 12 _ _							_ _ 12 _ _	-	
_	_ 13 _ _ 14 _							_ 13 _ _ _ 14 _	-	
_	_ _ 15 _ _							_ _ 15 _ _	-	
_								_ 16 _ _ 16 _ _ 17 _		
	_ _18_							_		
_	_ _19 _ _20							 _ 19 _ _ _20_		

Monitoring Well MW-7

PAGE 1 OF 1

CLIENT: Heath Oil PROJECT # DATE DRILLED: 10/17/2016 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates Mobile B-57 RIG BOREHOLE: 8" Diameter LOGGED BY: J Thorn 4.25" Hollow Stem Auger DRILLING METHOD: WATER LEVEL: SAMPLING PROCEDURE: SAMPLING INTERVAL: 10.0' TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.25'-2.5'	PVC sched. 40	2.25 '	2"
SCREEN:	Slotted - 0.01"	2.5'-10.0'	PVC sched. 40	7.5'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-10.0'	Silica	8.5'	NA

FILTER PACK.			1.5-10.0 Silica 6.5	1	INA	
			DESCRIPTION	LS		
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE		BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_		(0.0' - 4.0') Light Brown Silt , little clay and light gray limestone gravel, trace	Auger	_	
	1 _ _2_ _	0.1	fine sand, gravel content decreases with depth, some wood fragments, cohesive, damp to moist, no odor.	7 16 13 17	_1_ _ _2_ _	12
	3 _ _4_ _	2.4	Soil Sample MW-7 (2.5'-4.5') collected at 14:30. (Fill) (4.0'-5.5') Gray Silty Clay , plastic, moist, no odor.	4 3 2 3	_3_ _ _4_ _	17
	5		color transitions to medium brown between 4.5' and 5.5'.	1	_5_	
	_ _ 6 _	0.3	(Native soil) (5.5'-10.5') Medium Brown and Light Gray mottled Silty Clay , plastic, little iron staining, dry.	2 4 3	_ _6_	22
	7			9	_7_	
	_ 8 _ 8 _	0.5	becomes moist to wet at 8.3'.	9 8	_8_	23
	_ _ 9 _		becomes moist to wet at 6.5.	5	_ 9 _	
	_ _ 10 _	0.4	trace of fine grained red sandstone fragments. (Native soil)	7 5 5	_ _ 10 _	20
	_ _ 11 _		Bottom of Boring at 10.0' Bottom of Split Spoon Sampling 10.5'	-	_ _ 11 _	
	_ ' ' _ _ _ 12 _		Bottom of Boning at 10.0 Bottom of opin opoon bampling 10.0		_ ' ' _ _ _ 12 _ _	
	_ 13 _				_ 13 _	
	_ _ 14 _				_ _ 14 _	
	_ _ 15 _				_ _ 15 _	
	_				_	
	_ 16 _				_ 16 _	
	_ _ 17 _				_ _ 17 _	
	_ _ 18 _				_ _ 18 _	
	_ _ 19 _				_ _ 19 _	
	_ _20_				_ _20_	

Monitoring Well MW-8

PAGE 1 OF 1

CLIENT: Heath Oil PROJECT# DATE DRILLED: 11/1/2016 LOCATION: Seneca, PA
RIG Mobile B-57 Seneca Mini Mart SITE: DRILLING COMPANY: Cribbs & Associates BOREHOLE: 8" Diameter LOGGED BY: J Thorn 4.25" Hollow Stem Auger DRILLING METHOD: WATER LEVEL: SAMPLING PROCEDURE: SAMPLING INTERVAL: 16.0' TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.25'-2.5'	PVC sched. 40	2.25 '	2"
SCREEN:	Slotted - 0.01"	2.5'-16.0'	PVC sched. 40	13.5'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-2.0'	Bentonite	1.5'	NA
FILTER PACK:		2.0'-16.0'	Silica	14.0'	NA

DESCRIPTION Section	TIETERT AOR.			2.0 10.0 Oilica 17.0		14/1	
1.0 (Fill) 1.0				DESCRIPTION	Z		
1.0 (Fill) 1.0		Ę.	ACE		.N.O	Ę.	R≺
1.0 (Fill) 1.0		Ë	SP,		Ş	Ę	OVE IES)
1.0 (Fill) 1.0		EPT	EAD		õ	EPT	의 수
1	Details	Ω	エ	(0.0' 4.0') Light Proug and grow City Clay plactic maint no oder	B	Δ	<u>~</u> =
1.0 (Fill) 1.0 (Fill) 1.0 (Fill) 1.0 (Native soil) 1.1 (6.0'-10.0') Light Brown Silt, some light gray motteling, trace clay, trace sandstone and shale fragments, trace black silt, plastic, dry, no odor. 1.5 (Native soil) 2.5 (Soil Sample MW-8 (10.0'-12.0') collected at 12:30. 1.5 (Native soil) 2.6 (13.0'-15.0') Gray and brown Silt, trace clay, trace weathered organic shale fragments, dry, no odor. Increasing sand content with rounded pebbles. 2.6 (Native soil) 2.7 (24) 2.8 (Native soil) 2.9 (13.0'-15.0') Gray and brown Silt, trace clay, trace weathered organic shale fragments, dry, no odor. Increasing sand content with rounded pebbles. 3.1 (Native soil) 3.2 (15.0'-16.0') Gray Silt, trace clay, trace weathered gray shale. 3.1 (Native soil) 3.2 (15.0'-16.0') Gray Silt, trace clay, transitions to weathered gray shale. 3.1 (Native soil) 3.2 (15.0'-16.0') Gray Silt, trace clay, transitions to weathered gray shale. 4.1 (Native soil) 5. (Native soil) 6. (Native soil) 7. (Native soil) 8. (Native soil) 9. (Native soil) 19. 15. (Native soil)		_		(0.0 - 4.0) Light Brown and gray Sifty Clay , plastic, moist, no odor.		_	
1.0 (Fill) -3 -4 -4 -4 -4 -4 -4 -4		<u> </u> 1	ł			_1_	
1.0 (Fill) -3 -4 -4 -4 -4 -4 -4 -4		_				_	
1.0 (Fill)		_2_				_2_	
1.0 (Fill)		_				_	
4		_3_				_3_	
4		_	1.0			_	
Soil Sample MW-8 (10.0'-12.0') collected at 12:30. (Native soil) 12 20 13 24 24 25 26 27 24 25 26 27 24 27 24 27 24 27 24 27 24 27 24 27 27		_4_				_4_	
Company Comp		_		(4.0'-6.0') Light Brown Silt , some light gray motteling, trace clay, trace	5	_	
(Native soil) 32 - 6 - 1.5 (Native soil) 32 - 6 - 24 - 24 - 25 - 1.5 (Soil Sample MW-8 (10.0'-12.0') collected at 12:30.		_5_	25	sandstone and shale fragments, trace black silt, plastic, dry, no odor.	7	_5_	22
1.5		_	2.5		12	_	
1.5 sandstone fragments, dry, no odor. 12 -7 - 24 1.5		_6_		(Native soil)	32	_6_	
1.5		_		(6.0'-10.0') Light Brown Silty Sand , with some weathered fine grained	12	l _	
1.5		7	4.5	sandstone fragments, dry, no odor.	12	_ 7 _	0.4
10			1.5		15		24
10		_ 8			23	8	
12							
10 becomes medium brown 13 14 20 15 23 Soil Sample MW-8 (10.0'-12.0') collected at 12:30. (Native soil) (13.0'-15.0') Gray and brown Silt, trace clay, trace weathered organic shale fragments, dry, no odor. Increasing sand content with rounded pebbles. 12 23 Soil Sample MW-8 (14.0'-16.0') collected at 13:30. (Native soil) 12 15 23 Soil Sample MW-8 (14.0'-16.0') collected at 13:30. (Native soil) 19 15 22 16 17 18 18 19 19 15 16 17 18 19 17 18 19 19 10 19 10 10 10 10		_ a				_ a	
10			3.0	increasing black silt content			24
becomes medium brown 3.7		10		increasing black sill content.		10	
11 3.7 Soil Sample MW-8 (10.0'-12.0') collected at 12:30.		- 10 -		hacamas madium brown		_ 10 _	
12 3.7 Soil Sample MW-8 (10.0'-12.0') collected at 12:30.		_ 11		becomes mediam brown		44	
12		- ' ' -	3.7	Sail Sample MIM 9 (10.0) 12.0) collected at 12:20		- ' ' -	20
(Native soil) 2.3 (Native soil) (13.0'-15.0') Gray and brown Silt , trace clay, trace weathered organic shale fragments, dry, no odor. Increasing sand content with rounded pebbles. 2.3 (Soil Sample MW-8 (14.0'-16.0') collected at 13:30. (Native soil) (15.0'-16.0') Gray Silt , trace clay, dry, transitions to weathered gray shale. (Native soil) Bottom of Boring at 16.0' Bottom of Boring at 16.0'		-		3011 Sample MW-6 (10.0 - 12.0) collected at 12.30.		-	
13		_ 12 _				_ 12 _	
2.3 (13.0'-15.0') Gray and brown Silt , trace clay, trace weathered organic shale fragments, dry, no odor. Increasing sand content with rounded pebbles. 26		-		(A.L. of L		-	
14		_ 13 _	2.3		-	_ 13 _	24
Soil Sample MW-8 (14.0'-16.0') collected at 13:30. (Native soil) 19 15 22 22 16				I'			
15 2.3 Soil Sample MW-8 (14.0'-16.0') collected at 13:30. (Native soil) 19 15 22 16 (Native soil) 25 16		¹⁴		rragments, dry, no odor. Increasing sand content with rounded pebbles.		_ 14 _	-
16 2.3 (15.0'-16.0') Gray Silt , trace clay, dry, transitions to weathered gray shale.		_				_	
(15.0'-16.0') Gray Slit , trace clay, dry, transitions to weathered gray snale. (Native soil) Bottom of Boring at 16.0' 17		_ 15 _	2.3	Soil Sample MW-8 (14.0'-16.0') collected at 13:30. (Native soil)	1	_ 15 _	22
		-				_	
_ 17		_ 16 _			25	_ 16 _	
		_		Bottom of Boring at 16.0'		_	
		_ 17 _				_ 17 _	
		_				_	
		_ 18 _				_ 18 _	
		_				_	
		_ 19 _				_ 19 _	
20 20_		l _				l _	
		20				_20_	

Monitoring Well MW-9

PAGE 1 OF 1

CLIENT: Heath Oil PROJECT# DATE DRILLED: 10/18/2016 LOCATION: Seneca, PA
RIG Mobile B-57 Seneca Mini Mart SITE: DRILLING COMPANY: Cribbs & Associates BOREHOLE: 8" Diameter LOGGED BY: J Thorn 4.25" Hollow Stem Auger DRILLING METHOD: WATER LEVEL: SAMPLING PROCEDURE: SAMPLING INTERVAL: 12.5' TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.5'-2.5'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.5'-12.5'	PVC sched. 40	10.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-2.0	Bentonite	1.5'	NA
FILTER PACK:		1.5'-12.5'	Silica	11.0'	NA

FILTER PACK.			1.0-12.0 Silica 11.0		INA	
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	DЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ 2 _	9.0	(0.0' - 0.5') Light Brown Silt and light gray limestone gravel, little sand, trace clay Fill. (0.5' - 2.0') Light Brown Silty Clay and light gray limestone gravel, slightly plastic, dry. Soil Sample MW-9 (0.5'-2.5') collected at 9:45. (Fill)	Auger 5 5 7	_ _1_ 	14
	_ _3_ _ _4_	0.9	(2.0'-2.5') Black Silt , trace silt, sand and coal fragments, dry, noncohesive. Fill (2.5'-5.0') Medium Gray Silty Clay , trace fine grained sandstone fragments, plastic, damp to moist. transitioning to medium brown with some gray motteling with depth.	3 2 3 3 4	3_ 	19
	_ 5 _ _ _ 6 _ _	0.6	(Fill) (5.0'-12.5') Medium Brown and Gray mottled Silty Clay , trace sand, weathered red-orange shale fragments and light gray sandstone fragments, plastic, dry, no odor, trace of iron staining.	4 7 11 10	_5_ _ _6_	24
	_ 7 _ _ 8 _ _ 9 _	0.0	increasing black silt content with increasing depth.	5 8 11 15	_7_ _8_ _9_	24
	_ 9 _ _ 10 _ _ 11 _	0.2	increasing black sin content with increasing depth.	15 18 17	_9_ _ _10_ _ _11_	20
	_ _ 12 _ _	0.3	(Native soil) Bottom of Boring at 12.5'	14 14 17	_ ' ' _ _ 12 _ _ 13 _	22
	_ 13 _ _ 14 _ _ 15 _ _ 16 _		Bottom of Borning at 12.5		_ 13 _ _ 14 _ _ 15 _ _ 16 _	
	_ _ 17 _ _ _ 18 _ _ _ 19 _					
					_ _20	

Monitoring Well MW-10

PAGE 1 OF 1

Heath Oil DATE DRILLED: PROJECT# 10/17/2016 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 8" Diameter LOGGED BY: RRB & CR DRILLING METHOD: 4.25" Hollow Stem Auger WATER LEVEL: SAMPLING PROCEDURE: 9.9' SAMPLING INTERVAL: TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.15'-2.15'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.15'-9.9'	PVC sched. 40	7.75'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-9.9'	Silica	8.4'	NA

Silica B.4' NA
Monitoring Well
(0.0' - 1.5') Asphalt and Gravel sub-base. (Fill) (1.5' - 4.0') Dark gray to black, Clay, Gravel and Slag, dry, no odor. (Fill) (2-2) (1.5' - 4.0') Dark gray to black, Clay, Gravel and Slag, dry, no odor. (Fill) (4.0' - 6.0') Gray and Brown, Silty Clay, plastic, damp, no odor. (Rative soil) (6.0' - 9.9') Mottled Gray and Yellowish Brown, Silty Clay, plastic, moist, no odor. Soil Sample MW-10 (6.0'-8.0') collected at 11:50. Bottom of Boring at 9.9' 11 hydrocarbon odor noted during monitoring well installation at 6.0'-8.0' not evident during groprobe soil sampling 11 12 13 14 15 16 17 18 18 19 10 10 10 10 11 11 12 13 14 15 16 17 18 18 19 10 10 10 10 10 10 10 10 10

Monitoring Well MW-11

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CLIENT: Heath Oil
SITE: Seneca Mini Mart DATE DRILLED: PROJECT# 10/17/2016 LOCATION: Seneca, PA DRILLING COMPANY: Cribbs & Associates RIG Mobile B-57 BOREHOLE: 8" Diameter 4.25" Hollow Stem Auger WATER LEVEL: LOGGED BY: RRB DRILLING METHOD: SAMPLING PROCEDURE: 9.9' SAMPLING INTERVAL: TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.4'-2.4'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.4'-9.9'	PVC sched. 40	7.5'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5'	Bentonite	1.0'	NA
FILTER PACK:		1.5'-9.9'	Silica	8.4'	NA

SEAL:		1/8	8" Pellets	0.5'-1.5'	Bentonite	1.0'		NA	
FILTER PACK:				1.5'-9.9'	Silica	8.4'		NA	
Monitoring Well Construction Details	DEРТН (FT.)	HEADSPACE	Мо	nitoring Well installed under	DESCRIPTION powerlines - Split mast using off-set completed Novembe		BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
			(0.0' - 1.0') A	sphalt and gray Gra	vel sub-base, rounde	ed with some sand.	Т		ш 🖰
	_ 1 _ _	0.0	dry, no ((1.0' - 5.0') D	odor. ark gray to black, Cl a	(Fill) ay, Gravel and Slag,		Auger and	_ _1_ _	
	2 _ - 3 _ -	0.0		inders, dry, no odor. s moist and plastic			Geo probe	_2	
	4 _ - 5 _	0.0	Soil Sample	MW-11 (4.0'-6.0') cor	llected at 10:20. Clay, plastic, damp,	(Fill)		_4_ _ _5_	
	- 6 _ -				(Native soil)	lay, plastic, moist, no	-	_ _6_ _	
	7 _ - 8 _	0.0	odor. Soil Sample	MW-11 (6.0'-8.0') col	llected at 10:30.			_7_ _ _8_	
	- 9_	0.0						_ 9 _	
	_ 10 _				(Native soil)			_ _ 10 _	
	_ [Botto	om of Boring at 9.9'			_	
-	11 _							_ 11 _	
	_ 12 _ _							_ _ 12 _ _	
	13 _							_ 13 _	
	_ 14 _							_ _ 14 _	
-	_ 15 _							_ _ 15 _	:
-	_ 16 _							_ _ 16 _	
-	_ 17 _							_ _ 17 _	
-	_ 18 _							_ _ 18 _	
-	_ 19 _							 _ 19 _	
	_ 20_							_ _20_	

Monitoring Well MW-12

PAGE 1 OF 1

Heath Oil CLIENT: DATE DRILLED: PROJECT# 1/24/2017 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-53 **BOREHOLE:** 8" Diameter LOGGED BY: J Thorn DRILLING METHOD: 4.25" Hollow Stem Auger WATER LEVEL: 2" Split Spoon 8.0' SAMPLING PROCEDURE: SAMPLING INTERVAL: TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.5'-2.0'	PVC sched. 40	1.5 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5	Bentonite	1.0'	NA
FILTER PACK:		1.5'-8.0'	Silica	6.5'	NA

FILTER PACK:			1.5'-8.0' Silica 6.5'	<u> </u>	NA	
Monitoring Well	(FT.)	PACE	DESCRIPTION	BLOWCOUNTS	(FT.)	ERY S)
Construction Details	ОЕРТН (FT.)	HEADSPACE		1	DEPTH (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _	150	(0.0' - 5.0') Gray and Brown Silty Clay , little weathered brown micaceous sandstone fragments, some fine sand, some gray silt and clay, moderate plasticity, glass and red brick fragments, damp.	2 2 9 8	_ _1_ _	12
	2 _ _3_ _	0.2		4 6 7	_2_ _ _3_ _	4
	_ 4 _ _ _ 5 _	8.7	Soil Sample MW-12 (4.0'-6.0') collected at 11:00. (Fill) (5.0'-7.5') Gray Silty Clay, moderate plasticity, moderate stiff, trace highly	8 11 11 3	_ 4 _ _ _ 5 _	12
	_ _ 6 _ _ 7 _	0.3	weathered shale and gray micaceous sandstone fragments, damp.	3 1 3	_ 6 _ _ 6 _ _ 7 _	3
	_ _ 8 _ _ _ 9 _		(7.5'-8.0') Light Brown Sandy Silty Clay , low-moderate plasticity, fine to medium sand, medium stiff, damp to wet. (Native soil) Bottom of Boring at 8.0'	3 5	_ _ 8 _ _ _ 9 _	
	_ 9 _ _ _ 10 _		Bottom of Boning at 6.0		_ 9 _ _ 10 _ _ 10 _	
	_ 11 _ _ _ 12 _				_ 11 _ _ _ 12 _	
	_ _ 13 _ _ _ _ 14 _				_ _ 13 _ _ _ _ 14 _	
	 _ _ 15 _				_ · · - _ 15 _	
	_ 16 _ _ _ 17 _				_ 16 _ _ _ 17 _	
	_ _ 18 _ _ _ 19 _				 _ 18 _ _ _ 19 _	

Monitoring Well MW-13

PAGE 1 OF 1

CLIENT: Heath On Seneca Mini Mart PROJECT# DATE DRILLED: 1/24/2017

LOCATION: Seneca, PA DRILLING COMPANY: Cribbs & Associates

RIG Mobile B-53 BOREHOLE: 8" Diameter

LOGGED BY: J Thorn DRILLING METHOD: 4.25" Hollow Stem Auger WATER LEVEL:

2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: TOTAL DEPTH: 8.0'

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.5'-2.0'	PVC sched. 40	1.5 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5	Bentonite	1.0'	NA
FILTER PACK:		1.5'-8.0'	Silica	6.5'	NA

FILTER PACK:				1.5'-8.0'	Silica	6.5'		NA		
Monitoring Well Construction Details	ОЕРТН (FT.)	HEADSPACE		C	DESCRIPTION		BLOWCOUNTS	DЕРТН (FT.)	RECOVERY (INCHES)	
	_ _ 1 _ _ _ 2 _	1	(0.4' - 4.0') Lig fragmen	ght Brown Silt, some ts, trace fine sand, a	y and sand, mod. plastice clay, little highly wearind micaceous gray sample MW-13 (1.0'-2.0	athered gray shale andstone fragments,	5 13 8 8	_ _1_ _ _2_	12	
	_ _ 3 _ _ _ 4 _	0.1					6 13 11 10	_ _3_ _ _4_	1	
	_ _ 5 _ _ _ 6 _	_	(4.0'-6.0') No R			wasth are dispress also le	5 5 5 7 8	5_ _5_ _6_	0	
	_ _ 7 _ _ 8 _	0.1	and gray (7.0'-8.0') Ligi	o'-7.0') Gray Silty Clay , highly plasticity, trace highly weathered gray shale and gray micaceous sandstone fragments, roots, wet. (Native soil) o'-8.0') Light Gray to Light Brown Silty Clay , low-plasticity, trace fine sand and white hard medium grained sandstone fragments, damp to dry.						
	_ 9 _ 9 _ _ 10 _	-		вотто	m of Boring at 8.0'	(Native soil)		 _ 9 _ _ _ 10 _		
	_ 11 __ _ 12 __	-						_ _ 11 _ _ _ 12 _		
	_ 13 __ _ 13 __ _ 14 __	-						 _ 13 _ _ _ 14 _		
	_ 15 __ _ 15 __ _ 16 __							 _ 15 _ _ _ 16 _		
	_ 17 __ _ 17 __ _ 18 __							 _ 17 _ _ _ 18 _		
	_ _ 19 _ _ _20_							_ _ 19 _ _ _20_		

Monitoring Well MW-14

PAGE 1 OF 1

CLIENT: Heath Oil PROJECT# DATE DRILLED: 1/25/2017 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates Mobile B-53 RIG BOREHOLE: 8" Diameter LOGGED BY: G. Cribbs DRILLING METHOD: 4.25" Hollow Stem Auger WATER LEVEL: 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: 8.0' TOTAL DEPTH:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.5'-2.0'	PVC sched. 40	1.5 '	2"
SCREEN:	Slotted - 0.01"	2.0'-8.0'	PVC sched. 40	6.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-1.5	Bentonite	1.0'	NA
FILTER PACK:		1.5'-8.0'	Silica	6.5'	NA

FILTER PACK:			1.5'-8.0' Silica 6.5'		NA	
Monitoring Well Construction Details	DEPTH (FT.)	HEADSPACE	DESCRIPTION	BLOWCOUNTS	ОЕРТН (FT.)	RECOVERY (INCHES)
	_ _ 1 _ _ _ 2 _	<1.0	(0.0' - 7.5') Dark Brown to Black, Silty Clay , weathered shale, trace fine	2 8 9 7	_ _1_ _ _2_	21.6
	_ _3_ _ _4_	<1.0	Saturated at 3'	6 7 6 9	_ 3 _ _ 3 _ _ 4 _	18
	_ _5_ _ _6_	<1.0	Gravel content increases.	4 3 2 3	_ 5 _ 5 _ _ 6 _	9.6
	_ _ 7 _ _ 8 _	<1.0	(Fill) (7.5'-8.0') Light Brown Silty Clay , low-moderate plasticity, trace fine grained	2 9 22 24		19.2
	_ _ 9 _ _ _ 10 _		sand, and sandstine fragments, damp. (Native soil) Bottom of Boring at 8.0'		_ 9 _ 9 _ _ 10 _	
	_ _ 11 _ _ _ 12 _				_	
	_ _ 13 _ _ _ _ 14 _	-			_	
	_ _ 15 _ _ _ 16 _				_ 15 _ _ 15 _ _ 16 _	
	_ _ 17 _ _ _ 18 _				_	
	_ _ 19 _ _ 20				_	

Monitoring Well MW-15

PAGE 1 OF 1

DATE DRILLED: CLIENT: Heath Oil PROJECT# 5/24/2017 Seneca Mini Mart LOCATION: Seneca, PA SITE: DRILLING COMPANY: Cribbs & Associates RIG Mobile B-53 **BOREHOLE:** 8" Diameter LOGGED BY: G. Cribbs DRILLING METHOD: 4.25" Hollow Stem Auger WATER LEVEL: Dry 2" Split Spoon SAMPLING PROCEDURE: SAMPLING INTERVAL: TOTAL DEPTH: 12.5

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.5'-2.5'	PVC sched. 40	2.0 '	2"
SCREEN:	Slotted - 0.01"	2.5'-12.5'	PVC sched. 40	10.0'	2"
GROUT:					NA
SEAL:	1/8" Pellets	0.5'-2.0	Bentonite	1.5'	NA
FILTER PACK:		2.0'-12.5'	Silica	10.5'	NA

FILTER PACK:				2.0'-12.5'	Silica	10.5'	NA		
Monitoring We Construction Details	DEPTH (FT.)	DESCRIPTION HEADSPACE							
	_ _ 1 _ 2	_ _		ark Brown, Silty Cla y y, moist, no odor.	y , trace fine grained s	and, low - medium	Soft Dig	_ _1_ _ _2_ _	RECOVER (INCHES)
	_ 3 _ 4 _ 5			range/Brown, Clay , ti to high plasticity, da	race silt and fine grair mp, no odor.	ned sand, mottled,	3 7 12 17	_ 3 _ _ 4 _ _ 5 _	24
	_ _ 6 _ 7	-					Auger	_ _7_	
			(0.51, 40.51)	0 (0			12 13 19 Auger	8 9	24
	_ 1(_ 1′ _ 12	1 _		lded with layers of we	trace silt and fine graeathered Sandstone ,		19 23 27 26	_ 10 _ _ _ 11 _ _ _ 12 _	21.6
	 _ 13 _ 14	1 _		Bottor	m of Boring at 12.5'		Auger	_ _ 13 _ _ _ 14 _ _	
	_ 18 _ 10 _ 17	6 _						_ 15 _ _ _ 16 _ _ _ 17 _	
	_ _ 18 _ 19 _20	3 _ 9 _						_ _ 18 _ _ _ 19 _ _ _20_	

Vapor Point VP-1

PAGE 1 OF 1

CLIENT: Heath Oil
SITE: Seneca Mini Mart
DRILLING COMPANY: PROJECT# DATE DRILLED: 8/30/2016 LOCATION: Seneca, PA Cribbs & Associates, Inc. RIG BOREHOLE: Saw Cut & Hand Auger LOGGED BY: Tyler Vatter DRILLING METHOD: WATER LEVEL: N/A SAMPLING PROCEDURE: SAMPLING INTERVAL: N/A TOTAL DEPTH:

			·		·
	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-1.0'	PVC	1.0'	3/8" Tubing
SCREEN:	.010"	1.0'-2.0'	PVC	1.0'	1"
GROUT:	3/8" chips	N/A	Bentonite	N/A	N/A
SEAL:	1/8" Pellets	0.0'-0.5'	Bentonite	0.5'	3"
FILTER PACK:	Medium Quartz Sand	0.5'-2.0'	Silica	1.5'	3"

FILTER PACK:	N	Mediur	n Quartz Sand	0.5'-2.0'	Silica 1.5'			3"				
Completed with flush mount manhole	DEPTH (FT.)	HEADSPACE		D	ESCRIPTION		BLOWCOUNTS	DEPTH (FT.)	RECOVERY (INCHES)			
				0' - 1.0') Asphalt surface (3" thick) with gravel subbase. 0'-2.0') Brown, Silty Clay & Gravel, damp, non-cohesive, no odor, no staining.								
	_ 2			Bottom of	Boring @ 2.0'			2				
	_ 18 _ _ _ 19 _ _ _20_	-						_ 18 _ _ _ 19 _ _ _20_				

Vapor Point VP-2

PAGE 1 OF 1

CLIENT: Heath Oil
SITE: Seneca Mini Mart
DRILLING COMPANY: PROJECT# DATE DRILLED: 8/30/2016 LOCATION: ___ Seneca, PA Cribbs & Associates, Inc. RIG BOREHOLE: LOGGED BY: Tyler Vatter DRILLING METHOD: Saw Cut & Hand Auger WATER LEVEL: ____ N/A TOTAL DEPTH: SAMPLING PROCEDURE: N/A SAMPLING INTERVAL:

	TYPE	INTERVAL	MATERIAL	LENGTH	DIAMETER
CASING:	Solid	0.0'-1.0'	PVC	1.0'	3/8" Tubing
SCREEN:	.010"	1.0'-2.0'	PVC	1.0'	1"
GROUT:	3/8" chips	N/A	Bentonite	N/A	N/A
SEAL:	1/8" Pellets	0.0'-0.5'	Bentonite	0.5'	3"
FILTER PACK:	Medium Quartz Sand	0.5'-2.0'	Silica	1.5'	3"

FILTER PACK:	N	Mediur	n Quartz Sand	0.5'-2.0'	Silica	1.5'		3"				
Completed with flush mount manhole	DEPTH (FT.)	HEADSPACE		٥	ESCRIPTION		BLOWCOUNTS DEPTH (FT.)	RECOVERY (INCHES)				
				0' - 1.0') Concrete surface (4" thick) with gravel subbase. 0'-2.0') Brown, Silty Clay & Gravel , damp, non-cohesive, no odor, no staining.								
				Bottom of	Boring @ 2.0'		3 4 	_				
	_ 5 _ _ 6 _ _ 7 _						_ 5 _ 6 _ 7	_				
	- -8_ - -9_						_8	_				
	_ 10 _ _ _ 11 _ _ _ 12 _						_ 10 _ _ 11 _ _ 12	2_				
	_ 13 _ _ 13 _ _ 14 _ _ 15 _						13 14 15 15	3 _ 4 _				
	_ _ 16 _ _ _ 17 _						_ 18 _ 16 _ 17	S _				
	_ 18 _ _ 18 _ _ 19 _ _20_						_ _ 18 _ _ 19 _ _ _20	9_				

Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX C

Waste Disposal Documentation



WW. NON-HAZARDOUS MANIFEST

		1. Generator's	US EPA II	No. Ma	nifest Doc N	lo.	2. Page 1	of		1		
	NON-HAZARDOUS MANIFEST	Ge	nator'	s 16	Numb	er	Pag	ge		\mathcal{L}		
	3. Generator's Name & Mailing Addr	ess:	Genera	tor's Site Address (If dif	ferent than ma	riling):	A. Manife	st Number	1			
	HARPER OIL COMPANY		·				W	MNA	«num	ber»		
	3390 STATE ROUTE 257							B. State (Generator's ID			
	SENECA, PA 16346		100				State Generator's 10					
	4. Generator's Phone: 814-671-70	29		•								
	5. Transporter 1 Company Name			6. US EPA ID	Number							
	MCCLYMONDS TRANSIT & SUI	PPLY					C. State Tr	ansporter's II) State	Transpor	ter ID	
				US EPA ID Number D. Transporter's Phon					e 724-368-8040 X219			
	7. Transporter 2 Company Name			8. US EPA ID	Number							
	Transporter 2 Company Name			US EPA ID	Number		E. State Tr	ansporter's II		Transpor		
	•					***************************************	F. Transpo	orter's Phone	Trans	porter 2 l	Phone	
	9. Designated Facility Name and Site			10. US EPA II	D Number		ow the design					
	NORTHWEST SANITARY LAND	FILL		US EPA ID	Number		G. State F	acility ID	10058			
	1436 W.SUNBURY RD.			US LFA ID	Number		H. State F	acility Phone	724-63	37-3552		
	WEST SUNBURY, PA 16061				A POST CONTRACT OF THE PROPERTY OF THE PROPERT							
G	11. Description of Waste Materials				No.	tainers Type	13. Total Quantity	14. Unit Wt./Vol.	I. M	lisc. Commen	ts	
E	a. RWC 508- GASOLINE IMPAC	TED SOIL					-	wt./vol.	1			
N E					1	1) pe	20	Wt./ Vol.	Co	omments		
R	WM Profil	e# 108623	PAW									
T	b. Waste Name				No.	Туре	Total Qty.	Wt./ Vol.	Co	omments	.	
R	WM Profile #	WM Profile I	Númbor		36385038 S.A				1850 SAJES	\$45.25 AL		
	c. Waste Name	WIVI PIOIILE I	Number	de la companya de la contraction de la contracti	Carried Section		Total	00000000000000000000000000000000000000	ABAY 95 (968)	2011 15 CHA 20 18 18 18	139900-033	
	c. Waste Name				No.	Туре	Qty.	-Wt./Vol.	Co	omments		
	WM Profile #	WM Profile	Number									
	d. Waste Name	WWWTTOINE	Tumber		0.8699506.50.70995		Total	6. cas 6 3 8 3 6 7 6 7 5 7 5 2 2		1 - August 1900 per grand	975.1.4 GBC 050-335	
				No. Type			Qty.	Wt./ Vol.	Co	,		
	MAIN ON THE H	MANA Destis N		1.4.	59 9 60 60		EECELIC IS NO					
	J. Additional Descriptions for Mater	WM Profile N			K Disnos	al Location			\$2500 C 10 00 00 00 00 00 00 00 00 00 00 00 00	ASPERTATION OF THE PARTY OF THE	2381000000000	
	Additional Description		-	•								
					Cell		A/		Level			
					Grid							
	15. Special Handling Instructions and	Additional Inform	mation									
	Special Handling Instructions			1			*					
	Purchase Order # Purchase Orde	er Number		EMERGENCY CON	NTACT / PHO	ONE NO.:	ANDY RE	STAURI 81	4-671-70	29		
	16. GENERATOR'S CERTIFICATE:											
	I hereby certify that the above-descri	bed materials are	e not haza	ardous wastes as define	ed by CFR P	art 261 or a	ny applicabl	e state law, h	ave been fu	lly and		
	accurately described, classified and p	ackaged and are	in proper	condition for transpor	tation acco							
	Printed Name			Signature	11/		'On behalf o		Month	Day	Year	
	C. Ramsden			Monday	JLA.	A	A. Restauri	/Heath Oil	8	24	16	
T R	17. Transporter 1 Acknowledgement	of Receipt of Ma	eterials							·		
Α	Printed Name			Signature	1016	<u></u>	>		Month	Day	Year	
N S P	Greg WLAVE				ru				8	24	16	
0	18. Transporter 2 Acknowledgement	of Receipt of Ma	aterials							Т		
R T E	Printed Name			Signature					Month	Day	Year	
R										<u></u>		
_	19. Certificate of Final Treatment/Dis	•										
F A	I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all											
C	applicable laws, regulations, permits											
L		ification of receip	pt of non-	on-hazardous materials covered by this manifest.					; L v			
Y	Printed Name			Signature	W	200	100	1	Month	Day	Year	
				LUUI	UI. L	JUN				LY	INV	

White-TREATMENT, STORAGE, DISPOSAL FACILITY COPY Pink- FACILITY USE ONLY

Blue- GENERATOR #2 COPY

Yellow- GENERATOR #1 COPY

Gold-TRANSPORTER #1 COPY



NORTHWEST SANITARY LANDFILL 1436 WEST SUNBURY ROAD WEST SUNBURY, PA, 16061

Original Ticket# 497029 Ph: (724) 637-3552

Justomer: CRIBBS AND ASSOICATES CRIBBS AND ASSO Carrier: MCCLYMONDS MCCLYMONDS TRUCKING O BOX 44 MCCLYMONDS ELMONT, PA, 15626 Tkt Date 08/24/2016 Vehicle# 935 Volume Pay Type Credit Account Chk# Trailer# 3illing# 0001154 License# AG11532 Acc Tons 24.54 Driver GREG dan Tk# Haul Tk# Generator 192-HARPEROILCOMP HARPER OIL COMPANY Profile# 108623PAW (GASOLINE IMPACTED SOIL) EPA ID NA Manifest 01 igin #XCounty 6111/VENANGO loute FRANKLIN ation Type-Inbound Time ® 75940 1b Scale n 08/24/2016 08:00 Scale1 Tare 26860 16 Jut 08/24/2016 08:18 Scale2 Net 49080 1b Tons 24.54 Comments License: AG11532, PA, Owner: MCCLYMONDS, Address: CURRIE ROAD PORTERSVILLE, PA, 160

^¹ roduct		LD%	Qty	n'ow ,	Rate.	Tax	Amount	Origin	
	Cont Soil Pet-Tons		24.54	Tons .	*****	to the very part tops with from bond parts .	ndrie bert, diese diese gener gener gener deren deren beschieben gener	6111	
ŝ	RCR-P-Regulatory C EVF-P-Standard Env			% %				6111 6111	
ŀ	T3E-TRANSPORTATION	100	24.54	Tons				6111	

Total Tax Total Ticket

leighmaster:

404-WMPA

VOID - CUSTOMER DO NOT ACCEP



NON-HAZARDOUS MANIFEST

		1 Generator's	IIC EDA II) No Ma	nifest Doc I	No	2. Page 1	of .			1
	NON-HAZARDOUS MANIFEST	1. Generator's US EPA ID I				Page		0	02		
	2 Congretor's Name 9 Mailing Adds	L			fferent then m	allingle	A. Manifest Number				
				tor's Site Address (If different than mailing):							
	HARPER OIL COMPANY							MNA	«num	«number»	
		3390 STATE ROUTE 257						B. State	Generator's	enerator's ID	
	SENECA, PA 16346			Contract of the Contract of th	State Generator's 10						
	4. Generator's Phone: 814-671-703	7-1									
				6. US EPA ID							
	MCCLYMONDS TRANSIT & SUPPLY			· ·			C. State Transporter's ID State Transporter ID				
				US EPA ID Number			724 260 0040 V240				
	1187				D. Transporter's Phone 724-368-8040 X219						
-				8. US EPA ID Number							
					E. State Transporter's ID State Transporter ID						
	Transporter 2 Company Name	US EPA ID	F. Transporter's Phone Transporter 2 Phone								
-	9. Designated Facility Name and Site	10. US EPA I	1. Transporter 3 Priorie Transporter 2 Priorie				Hone				
	NORTHWEST SANITARY LANDI		G. State F	acility ID	1005	100585					
	1436 W.SUNBURY RD.	US EPA ID		acility Phone							
	200 CONTRACTOR 10 10 00 00 00 10 10 10 10 10 10 10 10		1		OS EFA ID Number				/24-b	724-637-3552	
	WEST SUNBURY, PA 16061										
			13. Total	14. Unit							
G	11. Description of Waste Materials				No.	ntainers Type	Quantity	Wt./Vol.	1. 1	Aisc. Commen	ts
E	a. RWC 508- GASOLINE IMPAC	TED SOIL			4	37	0.0	1/0/5			
E					1	DAe	30	Wtl/Vol.	Comments		
R	WM Profil	e# 108623	ΡΔ\ λ/						4000000		
A		C# 100023	r / v v		500000000000000000000000000000000000000					1000	
Т	b. Waste Name				No.	Type	Total	Wt./Vol.		Comments	
0						1770	Qty. VVI./ VOI.				
R	WM Profile #	WM Profile N	Number					Section			
	c. Waste Name				No.	_	Total	11/2 / 1/2 /			
						Туре	Qty.	Wt./ Vol.	Comments		
	WM Profile # WM Profile Number								17		
ı	d. Waste Name		1		1		Total			Aprilla de la Contraction de l	
						Туре	Qty.	Wt./ Vol.	Comments		;
					Second Second	000000000000000000000000000000000000000	QLy.		5000 Marin 1910 C		\$40 (B) 25 (B)
-		WM Profile Nu									
-	J. Additional Descriptions for Materi	iais Listed Above		٠.	K. Disposal Location						
	Additional Description		Cell				Laural	Lovel			
							Level				
	15. Special Handling Instructions and Additional Information										
		Additional miori	IIduoii	,•	• .						
	Special Handling Instructions				19 6 2						
1		· · ·									
	Purchase Order # Purchase Order Number EMERGENCY CONTACT / PHONE NO.: ANDY RESTAURI 814-671-7029)29	
	16. GENERATOR'S CERTIFICATE:										
	I hereby certify that the above-described materials are not hazardous wastes as defined by CFR Part 261 or any applicable state law, have been fully and										
	accurately described, classified and packaged and are in proper condition for transportation according to applicable regulations.									·	
	Printed Name						'On behalf o		Month	Day	Year
	C. Ramsden			/pli/K	199	<u>~</u> A	A. Restauri	/Heath Oil	8	24	16
т	17. Transporter 1 Acknowledgement	of Receipt of Mat	terials	6							
R A N	Printed Name	Signature			Month	Day	Year				
N S	Rich Stup	Bach -			8	24	16				
P	18. Transporter 2 Acknowledgement										
R	Printed Name	Signature					Month	Day	Year		
TE											
R				<u> </u>						<u></u>	L
FACIL	19. Certificate of Final Treatment/Disposal										
	I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all										
	applicable laws, regulations, permits and licenses on the dates listed above.										
	20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest.										
Ţ	Printed Name	Signature			Month	Day	Year				
	LUWII. X	auc		Peller	and House				10	DY	$\coprod O$
							-			-	1

White-TREATMENT, STORAGE, DISPOSAL FACILITY COPY
Pink- FACILITY USE ONLY

Blue- GENERATOR #2 COPY Gold- TRANSPORTER #1 COPY Yellow- GENERATOR #1 COPY

23.99



NORTHWEST SANITARY LANDFILL 1436 WEST SUNBURY ROAD WEST SUNBURY. PA. 16061

Original Ticket# 497030 3552

ustomer: CRIBBS AND ASSOICATES O BOX 44 ELMONT, PA, 15626	CRIBBS	AND ASSO	Carrier: MCCLYMONE			OS TRUCKING
kt Date 08/24/2016 ay Type Credit Account Chk# illing# 0001154 cc Tons 48.53 an Tk# J#			Vehicle# Trailer# License# Driver Haul Tk# Dest		Volume	
enerator 192-HARPERDILCOMP HAF EPA ID NA	PER OIL	COMPANY	Profile# Wasta #		(GASOLINE	IMPACTED SOIL)
anifest 2 oute			Origin #)		1/VENANGO AKLIN	,PA
Time Scale n. 08/24/2016 08:23 Scale1 ut 08/24/2016 08:33 Scale2	DAWN	ra or 062587 76 58 N	LANAG	/nb\vu	Tare	75180 lb 27200 lb* 47980 lb
omments License: AG38298, PA,	Owner: M	CCLYMOND	S, Address	: CURRIE	ROAD PORTER	RSVILLE, PA, 160
roduct LD%	Qty	Пом	Rate.	Тах	Amount	Origin
Cont Soil Pet-Tons 100 RCR-P-Regulatory C 100 EVF-P-Standard Env 100	23.99	%				6111 6111
T3E-TRANSPORTATION 100	23.99	% Tons				6111 6111

Total Tax Total Ticket

eighmaster: _	Sound.	Driver:	5+	IRIC	
404-WMPA		VOID - CUSTOMER DO NO	T ACCEPT		



NON-HAZARDOUS MANIEEST

	NON-HAZARDOUS MANIFEST 1. Generato	or's US EPA ID No.	Marifanta			HIAII		21	
			Manifest Do		2. Pag	e 1 of		A	
	3. Generator's Name & Mailing Address:	Generator's Site Address	Nui	mber		Page		7 4	
	HARPER OIL COMPANY 3390 STATE ROUTE 257	a site ridgies.	o (if different than	mailing);	1	ifest Number	\top		
	SENECA, PA 16346	A STATE OF THE STA				WMNA	«n	umber	,
						B. State	General	tor's ID	
	4. Generator's Phone: 814-671-7029 5. Transporter 1 Company Name								
	MCCLYMONDS TRANSIT & SUPPLY	6 US EP	A ID Number		3,0,20,0	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	NES 12/16	\$474.545 <u>9</u> 73 4 9	OF ACT SERVING CO.
	STATE OF THE STATE	- 4.			C. State	Transporter's		ate Trans	porter ID
		US EP/	A ID Number	•	1				
	7. Transporter 2 Company Name	8. IIS ED	A ID Number			porter's Phon	e /24-:	368-804	0 X219
	Transporter 2 Company Name				532				
	9. Designated Facility Name and Site Address		ID Number			Transporter's I Porter's Phone		te Trans	porter ID
	NORTHWEST SANITARY LANDFILL	10. US EP	A ID Number			Jorter's Prione		nsporter	2 Phone
	1436 W.SUNBURY RD.	IIS FDA	ID Number			Facility ID)585	
	WEST SUNBURY, PA 16061	SECOND SE	no Number		H. State	Facility Phone		-637-35	52
1								S. 18 (1)	
G E	11. Description of Waste Materials		12. Co	ntainers	13. Total	14. Unit		45-486.48 	
N	a. RWC 508- GASOLINE IMPACTED SOIL		No.	Туре	Quantity	Wt./Vol.	1.	. Misc. Comn	ents
Εĺ		•	1	Dpe	30	wt./vol.		Commer	ts
R	WM Profile # 108623	PAW		8.3.3.3			#000 History		
	b. Waste Name		Winds and Confe	Service V					
			No.	Туре	Total	Wt./ Vol.		Commen	tc
1	WM Profile # WM Profile N	n Number	2.42.5 S.	říji (783)	Qty.	CHARONEY, OUR			
	c. Waste Name		2.000 A.4.000 B	Kudiyi niyes	Total				in Semicul.
			No.	Туре	Qty.	Wt./ Vol.	(Commen	ts
\vdash	WM Profile # WM Profile i d. Waste Name	Number)						1.223.00	
	a. Waste Maille	•	No	Type	Total				CR-CoastON (a 180
			No.	Туре	Qty.	Wt./Vol.	(Commen	ts
\vdash	WM Profile # WM Profile Nu J. Additional Descriptions for Materials Listed Above	ımber	. 7.4						
	Additional Description	•	K. Disposa	l Location					
			Cell	- 1 ·			Level	T	-
H	47. C		Grid			1	LCVCI		
'	15. Special Handling Instructions and Additional Inform	nation	ST 6	ا اعر •					
	Special Handling Instructions			er.					
	Purchase Order # Purchase Order Number	EMEDICING CO	*						
-	16. GENERATOR'S CERTIFICATE:	EMERGENCY CO	INTACT / PHO	NE NO.:	ANDY RE	STAURI 814	-671-70	029	
1	hereby certify that the above-described materials are	not hazardous wastes as defi	ned by CER Da	rt 261 or ar	w applicable	stata lavo hav			
٢	securately described, classified and packaged and are in	proper condition for transpo	rtation accor	ding to app	licable regul	ations.	ve been n	uny ano	
+	rinted Name	Signature		"(On behalf of	"	Month	Day	Year
-	C. Ramsden	John of	M	<u>, А</u>	. Restauri,	Heath Oil	8	24	16
-	17. Transporter 1 Acknowledgement of Receipt of Mater Printed Names						,	· · · · · · · · · · · · · · · · · · ·	
	Greg Waven	Signature	15		>		Month	Day	Year
1	8. Transporter 2 Acknowledgement of Receipt of Mate	erials	C (C)				8	24	16
	Printed Name	Signature					Month	Day	Year
								1.	
1	9. Certificate of Final Treatment/Disposal						<u> </u>	<u></u>	
1.	certify, on behalf of the above listed treatment facility,	, that to the best of my knowl	edge, the abo	ve-describe	ed waste wa	s managed in o	complianc	ce with all	-
a	pplicable laws, regulations, permits and licenses on the	e dates listed above.					,		
2	10. Facility Owner or Operator: Certification of receipt		overed by this	s manifest.			,		
	Printed Name	Signature	26/2	V 0		1	Month	PR	Year
1	White- TREATMENT, STORAGE, DISPOSAL FACILITY COP	Lilles	الكال	الك	<u>Iru</u>	<u>ر</u>	0	104	
٧	THE TREATMENT, STORAGE, DISPOSAL PACILITY COP	Y Blue- GENERATOR	#2 COPY		Yell	ow- GENERAT	UK #1 CO	PY	



NORTHWEST SANITARY LANDFILL 1436 WEST SUNBURY ROAD WEST SUNBURY, PA, 16061 Original
Ticket# 497050

Ph: (724) 637-3552

ustomer: CRIBBS AND ASSDICATES CRIBBS AND ASSO Carrier: MCCLYMONDS MCCLYMONDS TRUCKING 70 BOX 44 MCCLYMONDS . ELMONT, PA, 15626 kt Date 08/24/2016 Volume Vehicle# 935 'ay Type Credit Account Trailer# 3111ing# 0001154 License# AG11532 lec Tons 72.22 Driver GREG lan Tk# Haul Tk# Dest enerator 192-HARPEROILCOMP HARPER OIL COMPANY Profile# 108623PAW (GASOLINE IMPACTED SOIL) EPA ID NA lanifest 3 igin #%County 611/VENANGO , PA FRANKLIN ation Type-Inbound ®Gross 74120 lb* n 08/24/2016 10:53 Scale1 26740 1b* Jut 08/24/2016 11:20 Scale2 Net 47380 lb Tons 23.69

Comments License: AG11532, PA, Owner: MCCLYMONDS, Address: CURRIE ROAD PORTERSVILLE, PA, 160

Product :	LD%	Qty	UOM	Rate.	Тах	Amount	Origin
Cont Soil Pet-Tons	100	23.69	Tons		The same and white the given was as		6111
: RCR-P-Regulatory C	100		*				6111
BVF-P-Standard Env	100		%				6111
T3E-TRANSPORTATION	100	23:69	Tons				6111

VOID - CUSTOMER DO NOT ACCEPT



NON-HAZARDOUS MANIFEST

	NON-HAZARDOUS MANIFEST	1. Generator's US E	PA ID No.	Manifest Do	oc No.	2. Page	1 of)	
				Nur	nber			6	A.	
	3. Generator's Name & Mailing Addre	ess: Ge	nerator's Site Address				age			94
	HARPER OIL COMPANY			, in universit than	mailing):	A. Mani	fest Number	08	241	6-17
	3390 STATE ROUTE 257					\ \ \	VMNA	1	mber»	
	SENECA, PA 16346						B. State	Generato		
	4. Generator's Phone: 814-671-702	9								
	5. Transporter 1 Company Name		6. HS ED	A 10 N						
	MCCLYMONDS TRANSIT & SUP	PLY	US EP.	A ID Number						
	1		LIC ED	A ID Number		C. State	Fransporter's	ID Stat	e Transp	orter ID
	7. Transporter 2 Company Name			Number		D. Trans	oorter's Phone	24-36	68-8040	X219
			8. US EPA	A ID Number				A Control Car	100	
	Transporter 2 Company Name		US FPA	A ID Number		E. State 1	ransporter's I	D Stat	e Transp	orter ID
	9. Designated Facility Name and Site A	ddene				F. Transp	orter's Phone		sporter 2	
	NORTHWEST SANITARY LANDFI	aaress H	10. US EF	PA ID Number	•					·······
	1436 W.SUNBURY RD.	LL	LICEDA	10.11		G. State F	acility ID	1005	85	
			USEPA	ID Number		H. State F	acility Phone		37-355	7
	WEST SUNBURY, PA 16061						Jenney I Hone	724-0	137-333	
									, 27 (4 (4) (1) (1) 27 (4) (4)	
G	11. Description of Waste Materials				ontainers	13. Total	14. Unit	T	Misc. Comme	
N	a. RWC 508- GASOLINE IMPACT	ED SOIL		No.	Туре	Quantity	Wt./Vol.	 	MISC. Comme	ents
E				1	DAGE	<i>40</i>	wtl/ Vol.	c	Comment	:s
Ä		# 108623PAW	/				***			
T	b. Waste Name			No.	Туре	Total	Wt./Vol.		omment	·
R	WM Profile #	MAR DOCK IN T				Qty.	1		.omment	.3
+	c. Waste Name	WM Profile Number	er							
			·	No.	Туре	Total Qty.	Wt./ Vol.	С	omment	S
-	WM Profile #	WM Profile Numb	er ,							
	d. Waste Name			No.	Туре	Total Qty.	Wt./ Vol.	С	omment	s
	WM Profile # V	VM Profile Number		\$350				96934011 1111	3 77 - 12.	
	J. Additional Descriptions for Materials Additional Description	Listed Above		K. Dispos	al Location					
	Additional Description			Call					·	
				Cell Grid				Level	<u> </u>	
r	15. Special Handling Instructions and Ad	ditional Information		1 Grid						
	Special Handling Instructions	ortional mormation	:							
1	Purchase Order # Purchase Order N	Number	EMERGENCY C	ONTACT / DU	ONE NO .	VNIDA DE	CTALID: 04	1 671 70	120	
+	16. GENERATOR'S CERTIFICATE:		LIVILINGEIVET C	ONIACI / FAC	JINE INU	ANDIKE	STAURI 814	+-0/1-/0		
1										
İ	I hereby certify that the above-described accurately described, classified and pack	materials are not na	zardous wastes as def	ined by CFR P	art 261 or ar	ny applicable	state law, ha	ve been fu	illy and	
r	Printed Name	aged and are in prope	Signatore Signatore	ortanion acco		On behalf of		7 1/2-15	T 5	T
1	C. Ramsden			mil			Heath Oil	Month	Day	Year
+		Danaint of Marta dala	- francis	Est of Same		. Nestauri,	neath Oil	8	24	16
F	17. Transporter 1 Acknowledgement of I	Receipt of Materials	J 6:							·
	RICH STIVASOIX		Signature Puch 27	7				Month	Day	Year
-		D	1-129.1009	wann				8	24	16
-	18. Transporter 2 Acknowledgement of I	receipt of Materials							γ	
	Printed Name		Signature					Month	Day	Year
+	19. Certificate of Final Treatment/Dispos	:al						<u></u>		L
4			o the best of multi	dodao tha -1-	aua dasselle	adaeta	c manessal .			
	I certify, on behalf of the above listed tre applicable laws, regulations, permits and			neuge, the ab	ove-describe	eu waste wa	s managed in	complianc	e with all	
-	20. Facility Owner or Operator: Certifica	······		covered by th	ic manifort		· · · · · · · · · · · · · · · · · · ·			
-	Printed Name	and of receipt of flori	Signature	Covered by th				Month	Day:	Year
	Timed Hame		Signature					wonth	Day	1 cat
1	William TOCATA ISSUE STORAGE DISCOGRA									لـــــــــــــــــــــــــــــــــــــ

White-TREATMENT, STORAGE, DISPOSAL FACILITY COPY

Blue- GENERATOR #2 COPY

Yellow- GENERATOR #1 COPY

47880 lb

23.94



NORTHWEST SANITARY LANDFILL 1436 WEST SUNBURY ROAD WEST SUNBURY, PA, 16061

Original Ticket# 497054.

Ph: (724) 637-3552

Net

Tons

Justomer: CRIBBS AND ASSOICATES CRIBBS AND ASSO Carrier: MCCLYMONDS MCCLYMONDS TRUCKING 🛝 ²0 BOX 44 **MCCLYMONDS**)ELMONT, PA, 15626 Tkt_Date 08/24/2016 Vehicle# 1187 Volume Pay Type Credit Account Chk# Trailer# 3illing# 0001154 License# AG38298 acc Tons 96.16 Driver SHAGGY Man Tk# Haul Tk# **30#** Dest Benerator 192-HARPEROILCOMP HARPER OIL COMPANY Profile# 108623PAW (GASOLINE IMPACTED SOIL) EPA ID NA Manifest 082416D igin # County 61 9/VENANGO , PA Route CRANBERRY ration Type-Inbound ® Gross 75280 1b* Time In 08/24/2016 11:19 Scale1 Tare* 27400 1b* Jut 08/24/2016 11:29 Scale2

Comments License: A638298, PA, Owner: MCCLYMONDS, Address: CURRIE RD. PORTERSVILLE, PA, 1605

Produ	ıct	LD%	Qty	NOM	Rate.	Tax	Amount	Origin	
	Cont Soil Pet-Tons		23. 94	Tons				6109	
	RCR-P-Regulatory C EVF-P-Standard Env			% %				6109 6109	
ŀ	T3E-TRANSPORTATION	100	23. 94	Tons			다. 이 분명 현실 등 20년 1년 1일 등 1일 1일 원 원 1일 1일	6109	

√eighmaster: 404-WMPA

Total Tax Total Ticket

STIRIC

Driver: **VOID - CUSTOMER DO NOT ACCEPT**



Pink- FACILITY USE ONLY

NON-HAZARDOUS MANIFEST

		1. Generator's US EPA ID No. Manifest Doc No.				No.	2. Page 1	of		62 OF	
	NON-HAZARDOUS MANIFEST	7.54	. e: 550r	a fil	Numl	er	Pa	ge	-6	4	U5
	3. Generator's Name & Mailing Addre	ess:	Genera	ator's Site Address (If di	ifferent than m	ailing):	A. Manife	est Number			
	HARPER OIL COMPANY						\ w	WMNA		«number»	
	3390 STATE ROUTE 257							B. Stat	e Generator'	s ID	
	SENECA, PA 16346	20	1					1.4	Spanistrustus;	. 13	
	4. Generator's Phone: 814-671-702 5. Transporter 1 Company Name	29	1	6. US EPA ID	Number						gerreens s
	MCCLYMONDS TRANSIT & SUF	PPLY		o. OSEFAID	Humber		C. State T	ransporter's	ID State	Transpo	rter ID
				US EPA ID	Number			· · · · · · · · · · · · · · · · · · ·		······································	-,v-,
							D. Transp	orter's Phor	e 724-36	8-8040	X219
	7. Transporter 2 Company Name			8. US EPA ID	Number		200	See Addition	1000		Sagn solit
	Transporter 2 Company Name			US EPA ID	Number			ransporter's		Transpo	
	9. Designated Facility Name and Site	Addross		10. US EPA I	D Number		F. Transp	orter's Phon	e Trans	sporter 2	Phone
	NORTHWEST SANITARY LANDS			IO. OSEPAT	D Number		G. State F	acility ID	1005	2 5	
	1436 W.SUNBURY RD.			US EPA ID	Number			acility Phon		37-3552	······································
	WEST SUNBURY, PA 16061		(95)		Sur Contract		11. State r	acility Piloti	2 724-0	37-3332	<u>.</u> 2448 S. V. V.
G	11. Description of Waste Materials				No.	Type	13. Total Quantity	14. Unit Wt./Vol.	1. 1	Misc. Comme	nts
E N	a. RWC 508- GASOLINE IMPAC	TED SOIL		SC 1/2 1/2 1 1 1/2 1/2 1/2 1/2 1/2 1/2 1/2				Vols			
Ε					1	TXPR	A	Wt//Vol	. .	omment	S
R	WM Profile	e# 108623	PAW			1757 A 1777 page	1017 422				
A	b. Waste Name				Ī	-	Total	1111 (1111			
0					No.	Туре	Qty.	Wt./Vol	.	omment	S
R	WM Profile #	WM Profile N	Number		2000						
	c. Waste Name				No.	Type	Total	Wt./Vol		omment	c
					140.	Type	Qty.	1	194000000000000000000000000000000000000	eser zarezer	.
ŀ	WM Profile #	WM Profile I	Number				X 19 X 10 10 10 1		4		
	d. Waste Name		ŧ.		No.	Type	Total	Wt./Vol		omment	s
				٠,	hissodischibebahib		Qty.			ES 3850 2003 V	Bensinger (a. 1986)
-	J. Additional Descriptions for Materi	WM Profile Nu			V Dienoe	al Location				VV (6 V)	
-	Additional Description	uis Listeu Above		· :	. Dispos	ai Location					
					Cell				Level		
ŀ					Grid						
	15. Special Handling Instructions and	Additional Inform	nation								
	Special Handling Instructions			•							
ŀ	Purchase Order # Purchase Orde	r Number		EMERGENCY CON	ITACT / PHO	ONE NO .	ANDV RI	STAURI 8	1/1-671-70	129	
ŀ	16. GENERATOR'S CERTIFICATE:	· ivamber	***************************************	EMENGENCI CON		JIL 110	ANDIN	JIAOMIO	14-0/1-/0		
	I hereby certify that the above-describ	ed materials are	not haza	rdous wastes as define	ed by CFR Pa	art 261 or a	ny applicabl	e state law.	have been fu	ılly and	
-	accurately described, classified and pa			condition for transpor		ding to app	olicable regu	lations.		,	·
	Printed Name			Signature	11.1	,	On behalf o	•	Month	Day	Year
+	C. Ramsden	- f D ' - b - f 3.4 - b		la files is	Continue Co		. Kestaur	/Heath O	8	24	16
R	17. Transporter 1 Acknowledgement of Printed Name	or Receipt or Mat	teriais	Signature					Month	Day	Year
N	Grea Pulsa	V ENZ		Signature	1/10		\geq		8	24	16
P	18. Transporter 2 Acknowledgement of		terials				SCHOOL SAN				
R	Printed Name			Signature					Month	Day	Year
E R											
\dagger	19. Certificate of Final Treatment/Disp	oosal	·····	L						_L	L
F	I certify, on behalf of the above listed t		, that to	the best of my knowle	dge, the ab	ove-describ	ed waste w	as managed	in compliand	e with all	,
c 	applicable laws, regulations, permits a	nd licenses on th	e dates li	sted above.					•		٠.
١	20. Facility Owner or Operator: Certif	ication of receipt	t of non-h	1 7	vered by th	is manifest				-	
Y	Printed Name			Signature	LW.	NA	1.00	\	Month	Day	Year
	White- TREATMENT, STORAGE, DISPOS	SAL FACILITY COS	PΥ	Blue- GENERATOR #	t2 COPY	UU	<u> </u>	Ullow- GENER	ATOR #1 CO	DI-	

Gold- TRANSPORTER #1 COPY



Weighmaster:

NORTHWEST SANITARY LANDFILL 1436 WEST SUNBURY ROAD WEST SUNBURY, PA, 16061

Original Ticket# 497080 Ph: (724) 637-3552

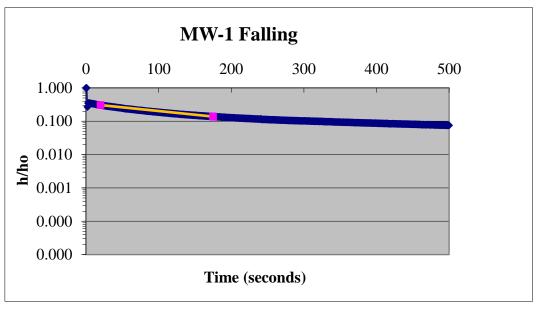
Sustomer: CRIBBS AND ASSOICATES CRIBBS AND ASSO Carrier: MCCLYMONDS MCCLYMONDS TRUCKING PO BOX 44 **MCCLYMONDS** DELMONT, PA, 15626 Tkt Date 08/24/2016 Vehicle# 935 Volume Pay Type Credit Account Trailer# Billing# 0001154 License# AG11532 Acc Tons 109.16 Driver GREG Man Tk# Haul Tk# Dest Senerator 192-HARPEROILCOMP HARPER OIL COMPANY Profile# 108623PAW (GASOLINE IMPACTED SOIL) EPA ID NA <u>Wasto # 508</u> Manifest 03 igin #ACounty 6111/VENANGO , PA Route FRANKLIN ration Type-Inbound Time ®Gross 52640 lb* Scale pund In 08/24/2016 14:24 Scale1 Tare 26640 1b* Jut 08/24/2016 14:48 Scale2 Net 26000 lb Tons 13.00 Comments Product Qty LD% MOU Rate. Amount Origin Cont Soil Pet-Tons 100 Tons 6111 RCR-P-Regulatory C 100 1/4 6111 EVF-P-Standard Env 100 % 6111 13.00 T3E-TRANSPORTATION 100 Tons 6111 Total Tax Total Ticket

VOID - CUSTOMER DO NOT ACCEPT

Site Characterization Report Seneca Mini Mart Seneca, Pennsylvania

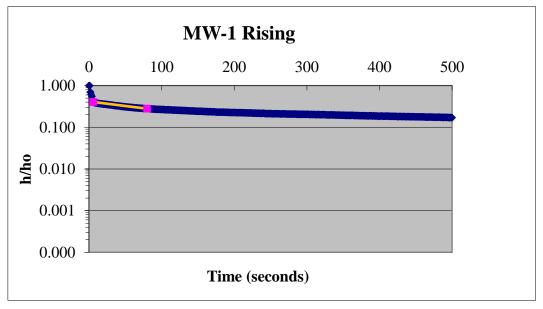
APPENDIX D

Slug Test Results



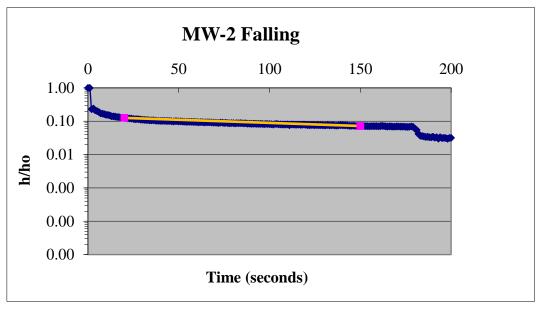
Initial Final	T 20 175	h/h ₀ 0.305 0.138
Hvorslev Time	195.45	seconds

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	2439.16558
L =	6.24 feet		
$T_0 =$	195.45 sec	K=	$\underline{r^2 * \ln (L/R)}$
		K-	$2LT_0$
\mathbf{r}^{2} =	0.006889	$\mathbf{K} =$	7.62568E-06 feet/sec
L/R =	9.369369369	$\mathbf{K} =$	0.658858887 feet/day
ln(L/R) =	2.7	K =	0.000232402 cm/sec



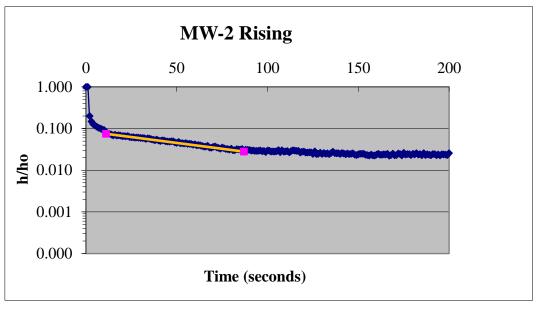
Initial Final	T 6 80	h/h ₀ 0.405 0.279
Hvorslev Time	198.56	seconds

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	889.567978
L =	2.24 feet		
$T_0 =$	198.56 sec	K=	$r^2 * \ln (L/R)$
		N-	$\overline{2LT_0}$
$r^{2} =$	0.006889	K =	2.09094E-05 feet/sec
L/R =	3.363363363	K =	1.806568986 feet/day
ln(L/R) =	2.7	K =	0.000637238 cm/sec



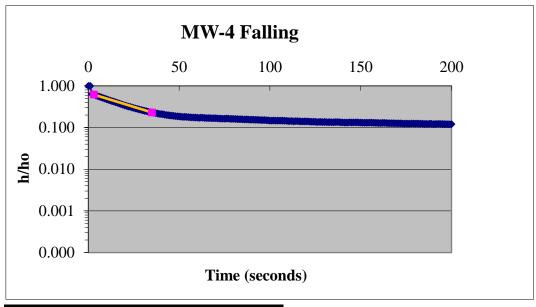
Initial Final	T 20 150	h/h ₀ 0.126 0.072
Hvorslev Time	232.30	seconds

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	2625.01529
L =	5.65 feet		
$T_0 =$	232.30 sec	K=	$r^2 * \ln (L/R)$
		K-	$2LT_0$
$r^2 =$	0.006889	$\mathbf{K} =$	7.08579E-06 feet/sec
L/R =	8.483483483	$\mathbf{K} =$	0.612212023 feet/day
ln(L/R) =	2.7	$\mathbf{K} =$	0.000215948 cm/sec



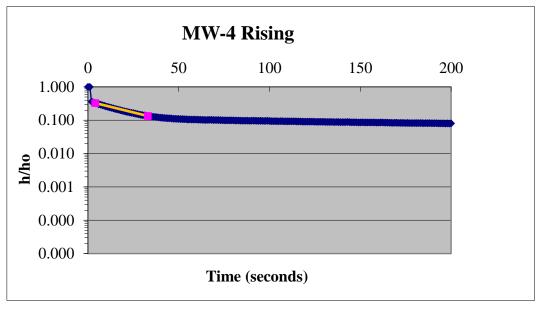
Initial Final	T 11 87	h/h ₀ 0.075 0.028
Hvorslev Time	77.14	seconds

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	871.6272118
L =	5.65 feet		
$T_0 =$	77.14 sec	K=	$r^2 * \ln (L/R)$
		N -	$\overline{2LT_0}$
$\mathbf{r}^{2} =$	0.006889	$\mathbf{K} =$	2.13397E-05 feet/sec
L/R =	8.483483483	$\mathbf{K} =$	1.843753727 feet/day
ln(L/R) =	2.7	$\mathbf{K} =$	0.000650354 cm/sec



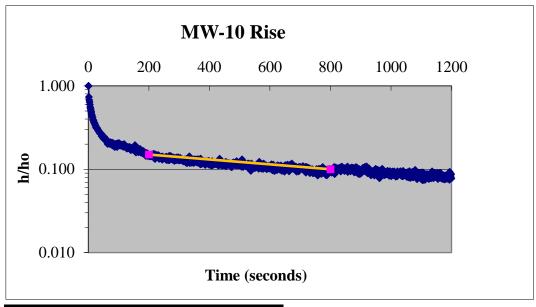
Initial Final	T 3 35	h/h ₀ 0.618 0.231
Hvorslev Time	32.52	seconds

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	438.3424681
L =	6.74 feet		
$T_0 =$	32.52 sec	K=	$r^2 * ln (L/R)$
		K =	$\frac{2LT_0}{}$
$\mathbf{r}^{2} =$	0.006889	$\mathbf{K} =$	4.24333E-05 feet/sec
L/R =	10.12012012	$\mathbf{K} =$	3.66623368 feet/day
ln(L/R) =	2.7	K =	0.001293204 cm/sec



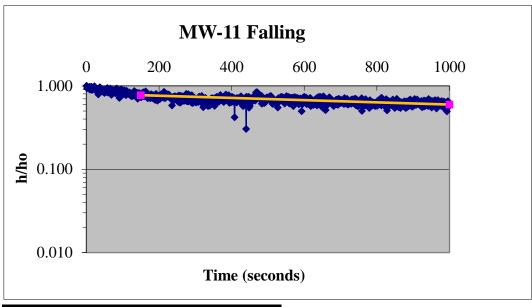
Initial Final	T 4 33	h/h ₀ 0.328 0.134
Hvorslev Time	32.40	seconds

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	436.6973166
L =	6.74 feet		
$T_0 =$	32.40 sec	K=	$r^2 * \ln (L/R)$
		IX-	$2LT_0$
\mathbf{r}^{2} =	0.006889	$\mathbf{K} =$	4.25931E-05 feet/sec
L/R =	10.12012012	$\mathbf{K} =$	3.680045329 feet/day
ln(L/R) =	2.7	K =	0.001298076 cm/sec



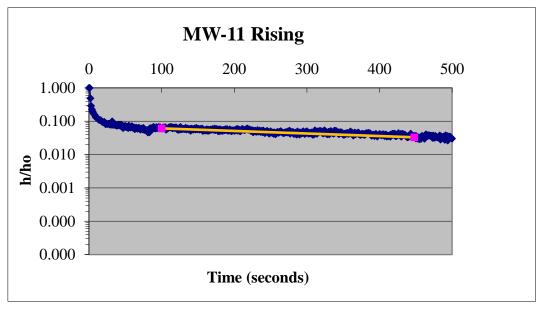
T	h/h_0
200	0.15
800	0.1
1479.78	seconds
	800

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	9677.774786
L =	3.27 feet		
$T_0 =$	1479.78 sec	K=	$r^2 * ln (L/R)$
		V -	$\overline{2LT_0}$
\mathbf{r}^{2} =	0.006889	$\mathbf{K} =$	1.92196E-06 feet/sec
L/R =	4.90990991	$\mathbf{K} =$	0.166057379 feet/day
ln(L/R) =	2.7	$\mathbf{K} =$	5.8574E-05 cm/sec



Initial Final	T 150 1000	h/h ₀ 0.774 0.597
Hvorslev Time	3273.58	seconds

r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	34438.03608
L =	5.26 feet		
$T_0 =$	3273.58 sec	K=	$r^{2} * \ln (L/R)$
		N-	${2LT_0}$
$\mathbf{r}^2 =$	0.006889	$\mathbf{K} =$	5.40109E-07 feet/sec
L/R =	7.897897898	$\mathbf{K} =$	0.046665435 feet/day
ln(L/R) =	2.7	$\mathbf{K} =$	1.64605E-05 cm/sec



Initial Final	T 100 448	h/h ₀ 0.061 0.033
Hvorslev Time	566.44	seconds

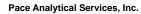
r =	0.083 feet	r2 * ln	0.0186003
R =	0.666 feet	2LT	5958.920572
L =	5.26 feet		
$T_0 =$	566.44 sec	K=	$r^2 * \ln (L/R)$
		V-	$2LT_0$
\mathbf{r}^{2} =	0.006889	$\mathbf{K} =$	3.12142E-06 feet/sec
L/R =	7.897897898	$\mathbf{K} =$	0.269690777 feet/day
ln(L/R) =	2.7	$\mathbf{K} =$	9.5129E-05 cm/sec

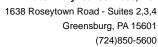
Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX E

Laboratory Analytical Results – Soil







May 13, 2016

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

RE: Project: Heath Oil-Seneca Pace Project No.: 30181701

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on May 02, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

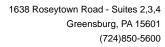
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683

Georgia Certification #: C040 Guam Certification

Hawaii Certification Idaho Certification Illinois Certification

Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457 Michigan/PADEP Certification

Missouri Certification #: 235

Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14

Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051

New Mexico Certification #: PA01457 New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867 Texas/TNI Certification #: T104704188-14-8

Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198
Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

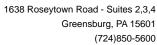


SAMPLE ANALYTE COUNT

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30181701001	SB-1 (8-10)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30181701002	SB-2 (2-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30181701003	SB-3 (2-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30181701004	SB-3 (6-8)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30181701005	SB-4 (4-6)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30181701006	SB-4 (6-8)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30181701007	SB-5 (2-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30181701008	SB-6 (2-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA





PROJECT NARRATIVE

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: May 13, 2016

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: MSV/28345

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: MSV/28346

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:

Analyte Comments:

QC Batch: MSV/28345

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-1 (8-10) (Lab ID: 30181701001)
 - 1,2,4-Trimethylbenzene



PROJECT NARRATIVE

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: May 13, 2016

Analyte Comments:

QC Batch: MSV/28345

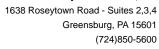
1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-1 (8-10) (Lab ID: 30181701001)
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-3 (6-8) (Lab ID: 30181701004)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-4 (6-8) (Lab ID: 30181701006)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-6 (2-4) (Lab ID: 30181701008)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene

QC Batch: MSV/28346

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-2 (2-4) (Lab ID: 30181701002)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene





PROJECT NARRATIVE

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: May 13, 2016

Analyte Comments:

QC Batch: MSV/28346

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-2 (2-4) (Lab ID: 30181701002)
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-3 (2-4) (Lab ID: 30181701003)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-4 (4-6) (Lab ID: 30181701005)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-5 (2-4) (Lab ID: 30181701007)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Toluene

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



ANALYTICAL RESULTS

Project: Heath Oil-Seneca Pace Project No.: 30181701

Sample: SB-1 (8-10)	Lab ID: 30181701001	Collected:	04/27/16 12:15	Received:	05/02/16 09:09	Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260B	Preparation Me	thod: I	EPA 5035A			
Benzene	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	71-43-2	1c
Ethylbenzene	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	1634-04-4	1c
Naphthalene	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	91-20-3	1c
Toluene	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	5.9	1	05/04/16 11:38	05/04/16 16:26	108-67-8	1c
Xylene (Total)	ND	ug/kg	17.8	1	05/04/16 11:38	05/04/16 16:26	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	68-135	1	05/04/16 11:38	05/04/16 16:26	2037-26-5	
4-Bromofluorobenzene (S)	108	%	65-146	1	05/04/16 11:38	05/04/16 16:26	460-00-4	
1,2-Dichloroethane-d4 (S)	100	%	69-137	1	05/04/16 11:38	05/04/16 16:26	17060-07-0	
Dibromofluoromethane (S)	104	%	70-130	1	05/04/16 11:38	05/04/16 16:26	1868-53-7	
Percent Moisture	Analytical Meth	od: ASTM D297	4-87					
Percent Moisture	12.8	%	0.10	1		05/12/16 16:23		

Sample: SB-2 (2-4) Lab ID: 30181701002 Collected: 04/27/16 13:30 Received: 05/02/16 09:09 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters Results Units Report Limit DF CAS No. Prepared Analyzed Qual

T didiliotoro		OTINO	_ 					
8260B MSV	Analytical Meti	nod: EPA 8260	B Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	71-43-2	1c
Ethylbenzene	ND	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	100-41-4	1c
Isopropylbenzene (Cumene)	333	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	1634-04-4	1c
Naphthalene	ND	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	91-20-3	1c
Toluene	ND	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	241	50	05/04/16 11:41	05/04/16 19:03	108-67-8	1c
Xylene (Total)	ND	ug/kg	724	50	05/04/16 11:41	05/04/16 19:03	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	68-135	50	05/04/16 11:41	05/04/16 19:03	2037-26-5	
4-Bromofluorobenzene (S)	109	%	65-146	50	05/04/16 11:41	05/04/16 19:03	460-00-4	
1,2-Dichloroethane-d4 (S)	91	%	69-137	50	05/04/16 11:41	05/04/16 19:03	17060-07-0	
Dibromofluoromethane (S)	104	%	70-130	50	05/04/16 11:41	05/04/16 19:03	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D2	2974-87					
Percent Moisture	16.4	%	0.10	1		05/12/16 16:23		



ANALYTICAL RESULTS

Project: Heath Oil-Seneca Pace Project No.: 30181701

Sample: SB-3 (2-4)	Lab ID: 30181701003	Collected:	04/27/16 14:45	Received:	05/02/16 09:09	Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260B	Preparation Me	ethod: E	PA 5035A			
Benzene	ND	ug/kg	2430	500	05/04/16 11:41	05/04/16 19:30	71-43-2	1c
Ethylbenzene	316000	ug/kg	24300	5000	05/04/16 11:41	05/04/16 19:56	100-41-4	1c
Isopropylbenzene (Cumene)	27700	ug/kg	2430	500	05/04/16 11:41	05/04/16 19:30	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	2430	500	05/04/16 11:41	05/04/16 19:30	1634-04-4	1c
Naphthalene	64900	ug/kg	2430	500	05/04/16 11:41	05/04/16 19:30	91-20-3	1c
Toluene	ND	ug/kg	2430	500	05/04/16 11:41	05/04/16 19:30	108-88-3	1c
1,2,4-Trimethylbenzene	567000	ug/kg	24300	5000	05/04/16 11:41	05/04/16 19:56	95-63-6	1c
1,3,5-Trimethylbenzene	194000	ug/kg	24300	5000	05/04/16 11:41	05/04/16 19:56	108-67-8	1c
Xylene (Total)	1110000	ug/kg	72900	5000	05/04/16 11:41	05/04/16 19:56	1330-20-7	
Surrogates								
Toluene-d8 (S)	95	%	68-135	500	05/04/16 11:41	05/04/16 19:30	2037-26-5	
4-Bromofluorobenzene (S)	106	%	65-146	500	05/04/16 11:41	05/04/16 19:30	460-00-4	
1,2-Dichloroethane-d4 (S)	111	%	69-137	500	05/04/16 11:41	05/04/16 19:30	17060-07-0	
Dibromofluoromethane (S)	98	%	70-130	500	05/04/16 11:41	05/04/16 19:30	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D297	4-87					
Percent Moisture	12.8	%	0.10	1		05/12/16 16:23		

Sample: SB-3 (6-8) Lab ID: 30181701004 Collected: 04/27/16 15:20 Received: 05/02/16 09:09 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Report Limit DF Qual **Parameters** Results Units Prepared Analyzed CAS No. 8260B MSV Analytical Method: EPA 8260B Preparation Method: EPA 5035A Benzene ND ug/kg 4.1 1 05/04/16 11:38 05/04/16 16:52 71-43-2 1c Ethylbenzene 11.6 ug/kg 4.1 05/04/16 11:38 05/04/16 16:52 100-41-4 1 1c ND Isopropylbenzene (Cumene) ug/kg 4.1 05/04/16 11:38 05/04/16 16:52 98-82-8 1 1c ND ug/kg Methyl-tert-butyl ether 4.1 05/04/16 11:38 05/04/16 16:52 1634-04-4 1 1c Naphthalene ND 4.1 05/04/16 11:38 05/04/16 16:52 91-20-3 ug/kg 1 1c Toluene ND ug/kg 4.1 1 05/04/16 11:38 05/04/16 16:52 108-88-3 1c 1,2,4-Trimethylbenzene 7.6 ug/kg 4.1 1 05/04/16 11:38 05/04/16 16:52 95-63-6 1c 1,3,5-Trimethylbenzene ND ug/kg 4.1 05/04/16 11:38 05/04/16 16:52 108-67-8 1c Xylene (Total) 27.2 12.2 05/04/16 11:38 05/04/16 16:52 1330-20-7 ug/kg Surrogates % 100 68-135 05/04/16 11:38 05/04/16 16:52 2037-26-5 Toluene-d8 (S) 1 4-Bromofluorobenzene (S) 109 % 65-146 05/04/16 11:38 05/04/16 16:52 460-00-4 1 106 % 1,2-Dichloroethane-d4 (S) 69-137 1 05/04/16 11:38 05/04/16 16:52 17060-07-0 Dibromofluoromethane (S) 107 % 70-130 1 05/04/16 11:38 05/04/16 16:52 1868-53-7 **Percent Moisture** Analytical Method: ASTM D2974-87 05/12/16 16:22 Percent Moisture 12.9 % 0.10 1



ANALYTICAL RESULTS

Project: Heath Oil-Seneca Pace Project No.: 30181701

Sample: SB-4 (4-6) Lab ID: 30181701005 Collected: 04/27/16 16:15 Received: 05/02/16 09:09 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260B	Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	71-43-2	1c
Ethylbenzene	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	1634-04-4	1c
Naphthalene	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	91-20-3	1c
Toluene	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	255	50	05/04/16 11:41	05/04/16 20:22	108-67-8	1c
Xylene (Total)	ND	ug/kg	766	50	05/04/16 11:41	05/04/16 20:22	1330-20-7	
Surrogates								
Toluene-d8 (S)	98	%	68-135	50	05/04/16 11:41	05/04/16 20:22	2037-26-5	
4-Bromofluorobenzene (S)	106	%	65-146	50	05/04/16 11:41	05/04/16 20:22	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	69-137	50	05/04/16 11:41	05/04/16 20:22	17060-07-0	
Dibromofluoromethane (S)	107	%	70-130	50	05/04/16 11:41	05/04/16 20:22	1868-53-7	
Percent Moisture	Analytical Meth	od: ASTM D297	4-87					
Percent Moisture	23.5	%	0.10	1		05/12/16 16:22		

Sample: SB-4 (6-8) **Lab ID: 30181701006** Collected: 04/27/16 16:30 Received: 05/02/16 09:09 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260	OB Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	71-43-2	1c
Ethylbenzene	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	1634-04-4	1c
Naphthalene	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	91-20-3	1c
Toluene	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	4.3	1	05/04/16 11:38	05/04/16 17:18	108-67-8	1c
Xylene (Total)	ND	ug/kg	12.8	1	05/04/16 11:38	05/04/16 17:18	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	68-135	1	05/04/16 11:38	05/04/16 17:18	2037-26-5	
4-Bromofluorobenzene (S)	107	%	65-146	1	05/04/16 11:38	05/04/16 17:18	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	69-137	1	05/04/16 11:38	05/04/16 17:18	17060-07-0	
Dibromofluoromethane (S)	109	%	70-130	1	05/04/16 11:38	05/04/16 17:18	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D2	2974-87					
Percent Moisture	11.6	%	0.10	1		05/12/16 16:22		



ANALYTICAL RESULTS

Project: Heath Oil-Seneca
Pace Project No.: 30181701

Sample: SB-5 (2-4)	Lab ID: 301	81701007	Collected: 04/29/1	16 11:00	Received: 05	5/02/16 09:09 N	Matrix: Solid	
Results reported on a "dry weigh	t" basis and are adj	usted for p	ercent moisture, sa	mple si	ize and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B Preparation Me	ethod: El	PA 5035A			
Benzene	553	ug/kg	291	50	05/04/16 11:41	05/04/16 20:48	71-43-2	1c
Ethylbenzene	135000	ug/kg	2910	500	05/04/16 11:41	05/05/16 18:17	100-41-4	
Isopropylbenzene (Cumene)	15800	ug/kg	291	50	05/04/16 11:41	05/04/16 20:48	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	291	50	05/04/16 11:41	05/04/16 20:48	1634-04-4	1c
Naphthalene	33100	ug/kg	2910	500	05/04/16 11:41	05/05/16 18:17	91-20-3	
Toluene	ND	ug/kg	291	50	05/04/16 11:41	05/04/16 20:48	108-88-3	1c
1,2,4-Trimethylbenzene	3000	ug/kg	291	50	05/04/16 11:41	05/04/16 20:48	95-63-6	1c
1,3,5-Trimethylbenzene	1610	ug/kg	291	50	05/04/16 11:41	05/04/16 20:48	108-67-8	1c
Xylene (Total)	ND	ug/kg	873	50	05/04/16 11:41	05/04/16 20:48	1330-20-7	
Surrogates		0 0						
Toluene-d8 (S)	88	%	68-135	50	05/04/16 11:41	05/04/16 20:48	2037-26-5	
4-Bromofluorobenzene (S)	109	%	65-146	50	05/04/16 11:41	05/04/16 20:48	460-00-4	
1,2-Dichloroethane-d4 (S)	78	%	69-137	50	05/04/16 11:41	05/04/16 20:48	17060-07-0	
Dibromofluoromethane (S)	74	%	70-130	50	05/04/16 11:41	05/04/16 20:48	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM	D2974-87					
Percent Moisture	28.4	%	0.10	1		05/12/16 16:22		
Sample: SB-6 (2-4)	Lab ID: 301	81701008	Collected: 04/29/1	16 13:30	Received: 05	5/02/16 09:09 N	Matrix: Solid	
Results reported on a "dry weigh	t" basis and are adj	usted for p	ercent moisture, sa	mple si	ize and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260	B Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	71-43-2	1c
Ethylbenzene	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	1634-04-4	1c
Naphthalene	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	91-20-3	1c
Toluene	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	4.1	1	05/04/16 11:38	05/04/16 17:44	108-67-8	1c
Xylene (Total)	ND	ug/kg	12.2	1	05/04/16 11:38	05/04/16 17:44	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	68-135	1	05/04/16 11:38	05/04/16 17:44	2037-26-5	
4-Bromofluorobenzene (S)	113	%	65-146	1	05/04/16 11:38	05/04/16 17:44	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	69-137	1	05/04/16 11:38	05/04/16 17:44	17060-07-0	
Dibromofluoromethane (S)	107	%	70-130	1	05/04/16 11:38	05/04/16 17:44	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D2	974-87					
Percent Moisture	13.2	%	0.10	1		05/12/16 16:22		



QUALITY CONTROL DATA

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Date: 05/13/2016 01:09 PM

QC Batch: MSV/28345 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30181701001, 30181701004, 30181701006, 30181701008

METHOD BLANK: 1069249 Matrix: Solid

Associated Lab Samples: 30181701001, 30181701004, 30181701006, 30181701008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND -	5.0	05/04/16 12:17	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	05/04/16 12:17	
Benzene	ug/kg	ND	5.0	05/04/16 12:17	
Ethylbenzene	ug/kg	ND	5.0	05/04/16 12:17	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	05/04/16 12:17	
Methyl-tert-butyl ether	ug/kg	ND	5.0	05/04/16 12:17	
Naphthalene	ug/kg	ND	5.0	05/04/16 12:17	
Toluene	ug/kg	ND	5.0	05/04/16 12:17	
Xylene (Total)	ug/kg	ND	15.0	05/04/16 12:17	
1,2-Dichloroethane-d4 (S)	%	92	69-137	05/04/16 12:17	
4-Bromofluorobenzene (S)	%	111	65-146	05/04/16 12:17	
Dibromofluoromethane (S)	%	105	70-130	05/04/16 12:17	
Toluene-d8 (S)	%	102	68-135	05/04/16 12:17	

LABORATORY CONTROL SAMPLE:	1069250					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		17.7	88	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	17.0	85	74-129	
Benzene	ug/kg	20	19.5	97	71-137	
Ethylbenzene	ug/kg	20	17.8	89	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	17.4	87	78-133	
Methyl-tert-butyl ether	ug/kg	20	18.7	94	77-141	
Naphthalene	ug/kg	20	17.0	85	81-126	
Toluene	ug/kg	20	18.1	90	72-127	
Xylene (Total)	ug/kg	60	55.6	93	80-124	
1,2-Dichloroethane-d4 (S)	%			92	69-137	
4-Bromofluorobenzene (S)	%			107	65-146	
Dibromofluoromethane (S)	%			104	70-130	
Toluene-d8 (S)	%			98	68-135	

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



QUALITY CONTROL DATA

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Date: 05/13/2016 01:09 PM

QC Batch: MSV/28346 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30181701002, 30181701003, 30181701005, 30181701007

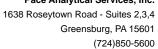
METHOD BLANK: 1069251 Matrix: Solid

Associated Lab Samples: 30181701002, 30181701003, 30181701005, 30181701007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	250	05/04/16 11:50	
1,3,5-Trimethylbenzene	ug/kg	ND	250	05/04/16 11:50	
Benzene	ug/kg	ND	250	05/04/16 11:50	
Ethylbenzene	ug/kg	ND	250	05/04/16 11:50	
Isopropylbenzene (Cumene)	ug/kg	ND	250	05/04/16 11:50	
Methyl-tert-butyl ether	ug/kg	ND	250	05/04/16 11:50	
Naphthalene	ug/kg	ND	250	05/04/16 11:50	
Toluene	ug/kg	ND	250	05/04/16 11:50	
Xylene (Total)	ug/kg	ND	750	05/04/16 11:50	
1,2-Dichloroethane-d4 (S)	%	96	69-137	05/04/16 11:50	
4-Bromofluorobenzene (S)	%	100	65-146	05/04/16 11:50	
Dibromofluoromethane (S)	%	100	70-130	05/04/16 11:50	
Toluene-d8 (S)	%	101	68-135	05/04/16 11:50	

LABORATORY CONTROL SAMPLE:	1069252					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	17.7	88	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	17.0	85	74-129	
Benzene	ug/kg	20	19.5	97	71-137	
Ethylbenzene	ug/kg	20	17.8	89	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	17.4	87	78-133	
Methyl-tert-butyl ether	ug/kg	20	18.7	94	77-141	
Naphthalene	ug/kg	20	17.0	85	81-126	
Toluene	ug/kg	20	18.1	90	72-127	
Xylene (Total)	ug/kg	60	55.6	93	80-124	
1,2-Dichloroethane-d4 (S)	%			92	69-137	
4-Bromofluorobenzene (S)	%			107	65-146	
Dibromofluoromethane (S)	%			104	70-130	
Toluene-d8 (S)	%			98	68-135	

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





QUALITY CONTROL DATA

Project: Heath Oil-Seneca

Pace Project No.: 30181701

QC Batch: PMST/6136 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30181701001, 30181701002, 30181701003, 30181701004, 30181701005, 30181701006, 30181701007,

30181701008

SAMPLE DUPLICATE: 1074225

 Parameter
 Units
 30181701001 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 12.8
 12.6
 2

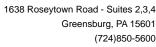
SAMPLE DUPLICATE: 1074226

Date: 05/13/2016 01:09 PM

 Percent Moisture
 Units
 30181701002 Result Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 16.4
 15.4
 6

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





QUALIFIERS

Project: Heath Oil-Seneca

Pace Project No.: 30181701

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: MSV/28345

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: MSV/28346

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

Date: 05/13/2016 01:09 PM

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Heath Oil-Seneca

Pace Project No.: 30181701

Date: 05/13/2016 01:09 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30181701001	SB-1 (8-10)	EPA 5035A	MSV/28345	EPA 8260B	MSV/28353
30181701002 30181701003	SB-2 (2-4) SB-3 (2-4)	EPA 5035A EPA 5035A	MSV/28346 MSV/28346	EPA 8260B EPA 8260B	MSV/28352 MSV/28352
30181701004	SB-3 (6-8)	EPA 5035A	MSV/28345	EPA 8260B	MSV/28353
30181701005	SB-4 (4-6)	EPA 5035A	MSV/28346	EPA 8260B	MSV/28352
30181701006	SB-4 (6-8)	EPA 5035A	MSV/28345	EPA 8260B	MSV/28353
30181701007	SB-5 (2-4)	EPA 5035A	MSV/28346	EPA 8260B	MSV/28352
30181701008	SB-6 (2-4)	EPA 5035A	MSV/28345	EPA 8260B	MSV/28353
30181701001 30181701002 30181701003 30181701004 30181701005 30181701006	SB-1 (8-10) SB-2 (2-4) SB-3 (2-4) SB-3 (6-8) SB-4 (4-6) SB-4 (6-8)	ASTM D2974-87 ASTM D2974-87 ASTM D2974-87 ASTM D2974-87 ASTM D2974-87 ASTM D2974-87	PMST/6136 PMST/6136 PMST/6136 PMST/6136 PMST/6136 PMST/6136		
30181701007 30181701008	SB-5 (2-4) SB-6 (2-4)	ASTM D2974-87 ASTM D2974-87	PMST/6136 PMST/6136		

CHAIN-OF-CUSTODY / Analytical Request Do

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

Face Analytical "
www.pacelabs.com

WO#:30181701

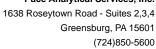
Pace Project No./ Lab I.D. DRINKING WATER (N/λ) F-ALL-Q-020rev.07, 15-May-2007 SAMPLE CONDITIONS 500 GOS 8 OTHER 900 808 Custody Sealed Cooler (Y/N) Ice (Y/N) GROUND WATER Received on Residual Chlorine (Y/N) \mathcal{I} O° ni qmeT REGULATORY AGENCY RCRA Requested Analysis Filtered (Y/N) \$.09 TIME STATE: NPDES Site Location DATE ACCEPTED BY / AFFILIATION 70 1 N/A tagT sizylsnA Other Methanol Preservatives _EO_SS_SBN HOBN HCI nvoice Information: がなって [€]ONH Company Name [†]OS⁷H Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices Pace Quote Reference: Pace Project Manager: Section C ace Profile # 98 Unpreserved Attention; TIME Address: 808 # OF CONTAINERS SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION SIGNATURE of SAMPLER: eveca DATE ΗME でいる COMPOSITE END/GRAB DATE COLLECTED RELINQUISHED BY, AFFILIATION ١ TIME COMPOSITE START 3 DATE Section B Required Project Information; Tast (G=GRAB C=COMP) 39YT 3J9MA8 Purchase Order No.: Project Name: Project Number MATRIX CODE Report To: CRIGINAL Copy To: WWW SILVER ARE TO TAKE TAKE TO TAKE TAKE TO TAKE TO TAKE TO TAKE TO TAKE TAKE TAKE TO TAKE TO TAKE TO Matrix Codes Drinking Water Water Waste Water Waste Water Soil/Solid Oil Wipe Mir A Tissue Other Mondond +ASSOC ADDITIONAL COMMENTS 0 (A-Z, 0-9 / .-) Sample IDs MUST BE UNIQUE ٥ げん SAMPLE ID "P1835 Required Client Information Section A Required Client Information: Requested Due Date/TAT 120X 7,77 Ģ Section D Page 16 of 17 # WELL 0 9 2

Sample Condition Upon Receipt Pittsburgh

30181701

Face Analytical Client Name	<u> </u>	C	ribbs	Project #	
Courier: Fed Ex UPS USPS					
Custody Seal on Cooler/Box Present:	, ,	no Se	eals intact: 🔲 ye	s 🔲 ло	
Thermometer Used			Vet Blue None		
Cooler Temperature Observed Temp Temp should be above freezing to 6°C		_ ,c C	orrection Factor <u>:</u>	°C Final Temp: °C Date and Initials of person examining	
Comments:	Yes	No N	/A]	contents: <u>NSV</u>	·
Chain of Custody Present:	X		1.		
Chain of Custody Filled Out:	X		2,		ヿ
Chain of Custody Relinquished:	X		3.	•	
Sampler Name & Signature on COC:	X		4.		٦
Sample Labels match COC:	X		5.		\exists
-Includes date/time/ID/Analysis Matrix:_		SL		•	
Samples Arrived within Hold Time:	X		6.		7
Short Hold Time Analysis (<72hr remaining):		X	7.		
Rush Turn Around Time Requested:		Χ	8.		
Sufficient Volume:	X		9.		7
Correct Containers Used:	X		10.		7
-Pace Containers Used;	X				
Containers Intact:	Χ		11.		
Filtered volume received for Dissolved tests		X	12.		
All containers needing preservation have been checked.		X	13.		1
All containers needing preservation are found to be in compliance with EPA recommendation.		X			
exceptions: VOA, coliform, TOC, O&G, Phenolic	es		Initial when completed ASJ Lot # of added preservative	Date/time of preservation	
leadspace in VOA Vials (>6mm):		X	14.]
rip Blank Present:		X	15.		1
rip Blank Custody Seals Present		X			
Person Contacted: Comments/ Resolution:			' <u>-</u>	Contacted By:	-

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this from will be really one North Carolina compliance samples, a copy of this from will be really one North Carolina compliance.





August 08, 2016

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

RE: Project: Heath-Seneca

Pace Project No.: 30186436

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on June 15, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was reissued on 08/08/16 to include additional compounds by 8260.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

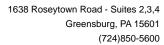
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: Heath-Seneca Pace Project No.: 30186436

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin Certification

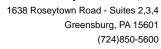
Wyoming Certification #: 8TMS-L



SAMPLE ANALYTE COUNT

Project: Heath-Seneca Pace Project No.: 30186436

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30186436001	SB-7 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436002	SB-7 (7-8)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436003	SB-8 (4-5)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436004	SB-9 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436005	SB-10 (4-5)	EPA 8260B	JEW	13	PASI-PA
30186436006	SB-11 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436007	SB-11 (7-8)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436008	SB-12 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436009	SB-13 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436010	SB-14 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436011	SB-15 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436012	SB-16 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436013	SB-16 (7-8)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30186436014	SB-17 (3-4)	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA





Project: Heath-Seneca Pace Project No.: 30186436

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: August 08, 2016

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 223850

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

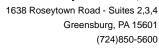
QC Batch: 223851

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 223990

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:





Project: Heath-Seneca Pace Project No.: 30186436

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: August 08, 2016

Analyte Comments:

QC Batch: 223850

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-10 (4-5) (Lab ID: 30186436005)
 - 1,3,5-Trimethylbenzene
 - Methyl-tert-butyl ether
 - Toluene
- SB-11 (7-8) (Lab ID: 30186436007)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-16 (3-4) (Lab ID: 30186436012)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - · Xylene (Total)
- SB-7 (7-8) (Lab ID: 30186436002)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - · Xylene (Total)

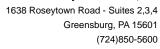
QC Batch: 223851

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-11 (3-4) (Lab ID: 30186436006)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc..





Project: Heath-Seneca Pace Project No.: 30186436

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

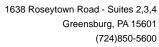
Date: August 08, 2016

Analyte Comments:

QC Batch: 223851

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-11 (3-4) (Lab ID: 30186436006)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-12 (3-4) (Lab ID: 30186436008)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-13 (3-4) (Lab ID: 30186436009)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-14 (3-4) (Lab ID: 30186436010)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-15 (3-4) (Lab ID: 30186436011)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene





Project: Heath-Seneca
Pace Project No.: 30186436

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

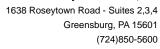
Date: August 08, 2016

Analyte Comments:

QC Batch: 223851

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-15 (3-4) (Lab ID: 30186436011)
 - Toluene
 - Xylene (Total)
- SB-16 (7-8) (Lab ID: 30186436013)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-17 (3-4) (Lab ID: 30186436014)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-7 (3-4) (Lab ID: 30186436001)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)
- SB-8 (4-5) (Lab ID: 30186436003)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - Xylene (Total)





Project: Heath-Seneca
Pace Project No.: 30186436

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: August 08, 2016

Analyte Comments:

QC Batch: 223851

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-9 (3-4) (Lab ID: 30186436004)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
 - · Xylene (Total)

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- SB-16 (7-8) (Lab ID: 30186436013)
 - 1,2,4-Trimethylbenzene
- SB-17 (3-4) (Lab ID: 30186436014)
 - 1,2,4-Trimethylbenzene

QC Batch: 223990

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-10 (4-5) (Lab ID: 30186436005)
 - 1,2,4-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Naphthalene
 - Xylene (Total)

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



Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

Sample: SB-7 (3-4)	Lab ID: 301	86436001	Collected: 06/14/1	16 08:0	0 Received: 06	6/15/16 09:00 M	latrix: Solid	
Results reported on a "dry weigl	ht" basis and are adj	usted for p	ercent moisture, sa	imple s	size and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
3260B MSV	Analytical Meth	nod: EPA 82	60B Preparation Me	ethod: E	EPA 5035A			
Benzene	ND	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	71-43-2	1c
Ethylbenzene	4060	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	100-41-4	1c
Isopropylbenzene (Cumene)	487	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	1634-04-4	1c
Naphthalene	1100	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	91-20-3	1c
Toluene	ND	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	206	50	06/21/16 12:54	06/21/16 15:51	108-67-8	1c
Xylene (Total)	ND	ug/kg	617	50	06/21/16 12:54	06/21/16 15:51	1330-20-7	1c
Surrogates								
Toluene-d8 (S)	101	%	68-135	50	06/21/16 12:54	06/21/16 15:51	2037-26-5	
4-Bromofluorobenzene (S)	103	%	65-146	50	06/21/16 12:54	06/21/16 15:51	460-00-4	
1,2-Dichloroethane-d4 (S)	112	%	69-137	50	06/21/16 12:54	06/21/16 15:51	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	50	06/21/16 12:54	06/21/16 15:51	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM I	D2974-87					
Percent Moisture	11.7	%	0.10	1		06/27/16 15:44		
Sample: SB-7 (7-8)	Lab ID: 301	86436002	Collected: 06/14/1	16 08:1	5 Received: 06	5/15/16 09:00 M	latrix: Solid	
	Lab ID: 301		Collected: 06/14/1				latrix: Solid	
							latrix: Solid CAS No.	Qua
Results reported on a "dry weigl Parameters	ht" basis and are adj	usted for p	Report Limit	DF	Prepared	tions.		Qua
Results reported on a "dry weight Parameters 3260B MSV	Results Analytical Meth	Units One of the property of	Report Limit 60B Preparation Me	DF ethod: E	Prepared EPA 5035A	Analyzed	CAS No.	_
Parameters 8260B MSV Benzene	Results Analytical Meth	Units Hod: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.8	DF ethod: E	Prepared EPA 5035A 06/21/16 12:51	Analyzed 06/21/16 14:05	CAS No.	1c
Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Method ND ND	Units Hod: EPA 82 ug/kg ug/kg	Report Limit 60B Preparation Me 4.8 4.8	DF ethod: E	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51	Analyzed 06/21/16 14:05 06/21/16 14:05	CAS No. 71-43-2 100-41-4	1c 1c
Parameters B260B MSV Benzene Ethylbenzene sopropylbenzene (Cumene)	Results Analytical Method ND ND ND	Units Od: EPA 82 ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8	DF DF ethod: E 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	Analyzed 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	CAS No. 71-43-2 100-41-4 98-82-8	1c 1c 1c
Parameters B260B MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether	Results Analytical Method ND ND ND ND ND ND	Units Od: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8	DF ethod: E 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Results Analytical Method ND	Units Units Dod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8	DF ethod: E 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Analytical Methods ND	Units Od: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8	DF ethod: E 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Analytical Methods Analytical Methods ND ND ND ND ND ND ND ND ND N	Units Od: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Foluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Analytical Methods Analytical Methods ND ND ND ND ND ND ND ND ND N	Units Od: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Kylene (Total)	Analytical Methods Analytical Methods ND ND ND ND ND ND ND ND ND N	Units Od: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 4,3,5-Trimethylbenzene Kylene (Total) Surrogates	Analytical Methods Analytical Methods ND ND ND ND ND ND ND ND ND N	usted for p Units nod: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c
Parameters B260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Results Analytical Method ND	usted for p Units nod: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5	1c 1c 1c 1c 1c 1c 1c
Parameters B260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	Results Analytical Methods ND	usted for p Units nod: EPA 82 ug/kg %	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF thod: E 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 4,3,5-Trimethylbenzene Kylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	Results Analytical Methods ND ND ND ND ND ND ND ND ND N	usted for p Units nod: EPA 82 ug/kg % % %	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c
Parameters Bacob MSV Benzene Ethylbenzene Sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 4,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S)	Results Analytical Method ND	usted for p Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg yg/kg ug/kg yg/kg yg/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF thod: E 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c
Sample: SB-7 (7-8) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S) Percent Moisture	Results Analytical Methods ND ND ND ND ND ND ND ND ND N	usted for p Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg yg/kg ug/kg yg/kg yg/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S)	Results Analytical Method ND	usted for p Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg yg/kg ug/kg yg/kg yg/kg	Report Limit 60B Preparation Me 4.8 4.8 4.8 4.8 4.8 4.8 4.8 4.	DF ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared EPA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 14:05 06/21/16 14:05	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c



Project: Heath-Seneca
Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

Sample: SB-8 (4-5)	Lab ID: 301	86436003	Collected: 06/14/1	16 09:05	5 Received: 06	5/15/16 09:00 N	//atrix: Solid	
Results reported on a "dry weigl	ht" basis and are adj	iusted for p	ercent moisture, sa	mple s	ize and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
3260B MSV	Analytical Metl	nod: EPA 82	260B Preparation Me	ethod: E	PA 5035A			
Benzene	1940	ug/kg	317	50	06/21/16 12:54	06/21/16 16:17	71-43-2	1c
Ethylbenzene	91200	ug/kg	3170	500	06/21/16 12:54	06/22/16 15:50	100-41-4	1c
Isopropylbenzene (Cumene)	8880	ug/kg	317	50	06/21/16 12:54	06/21/16 16:17	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	317	50	06/21/16 12:54	06/21/16 16:17	1634-04-4	1c
Naphthalene	23200	ug/kg	3170	500	06/21/16 12:54	06/22/16 15:50	91-20-3	1c
Toluene	ND	ug/kg	317	50	06/21/16 12:54	06/21/16 16:17	108-88-3	1c
1,2,4-Trimethylbenzene	207000	ug/kg	3170	500	06/21/16 12:54	06/22/16 15:50	95-63-6	1c
1,3,5-Trimethylbenzene	63800	ug/kg	3170	500	06/21/16 12:54	06/22/16 15:50	108-67-8	1c
Xylene (Total)	88100	ug/kg	9500	500	06/21/16 12:54	06/22/16 15:50	1330-20-7	1c
Surrogates		5 5			-			
Toluene-d8 (S)	114	%	68-135	50	06/21/16 12:54	06/21/16 16:17	2037-26-5	
4-Bromofluorobenzene (S)	109	%	65-146	50	06/21/16 12:54	06/21/16 16:17	460-00-4	
1,2-Dichloroethane-d4 (S)	118	%	69-137	50	06/21/16 12:54	06/21/16 16:17	17060-07-0	
Dibromofluoromethane (S)	90	%	70-130	50	06/21/16 12:54	06/21/16 16:17	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM	D2974-87					
Percent Moisture	29.6	%	0.10	1		06/27/16 15:43		
Sample: SP 0 (2.4)	Lab ID. 201	96436004	Collected: 06/14/1	16.00:40	D. Bossiyad: 06	:/15/16 00:00 N	Actriv: Colid	
. , ,	Lab ID: 301		Collected: 06/14/1				Matrix: Solid	
Results reported on a "dry weigl	nt" basis and are adj	iusted for p	ercent moisture, sa	mple s	ize and any dilu	tions.		
. , ,							Matrix: Solid CAS No.	Qual
Results reported on a "dry weigl Parameters	ht" basis and are adj	iusted for p Units	ercent moisture, sa	DF	Prepared	tions.		Qual
Results reported on a "dry weight Parameters 8260B MSV	ht" basis and are adj	iusted for p Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene	Results Analytical Meth	Units Ond: EPA 82	Report Limit 60B Preparation Me	DF ethod: E	Prepared PA 5035A 06/21/16 12:54	Analyzed	CAS No.	
Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Meth	Units Hod: EPA 82 ug/kg	Report Limit 260B Preparation Me	DF DF ethod: E	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54	Analyzed 06/21/16 16:44	CAS No. 71-43-2 100-41-4	1c
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene)	Results Analytical Meth	Units Hod: EPA 82 ug/kg ug/kg	Report Limit 260B Preparation Me 239 2390	DF ethod: E 50 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/21/16 16:44 06/22/16 16:16	CAS No. 71-43-2 100-41-4 98-82-8	1c 1c
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether	Results Analytical Meth 2370 60300 10600	Units Units Local EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 239 2390 2390	DF ethod: E 50 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c 1c
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Results Analytical Meth 2370 60300 10600 ND	Units Units Lod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 239 2390 239 239	DF ethod: E 50 500 50 50	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Analytical Methodology Analytical Methodology 60300 10600 ND 19300	units Units und: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 239 2390 239 239 239 2390	omple s DF ethod: E 50 500 50 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Analytical Methodology	units Units unod: EPA 82 ug/kg	Report Limit 260B Preparation Me 239 2390 239 2390 2390 2390 2390 2390	mple s DF ethod: E 50 500 50 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Analytical Meteronal Analytical	units Units unod: EPA 82 ug/kg	Report Limit 260B Preparation Me 239 2390 239 2390 239 2390 239 2390 239 2390	mple s DF ethod: E 50 500 50 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/22/16 16:16	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total)	Analytical Methodology Analytical Methodology Analytical Methodology 60300 10600 ND 19300 ND 49800 640	units Units unod: EPA 82 ug/kg	Report Limit 239 2390 2390 2390 2390 2390 2390 2390	omple s DF ethod: E 50 500 50 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/22/16 16:16	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	Analytical Methodology Analytical Methodology Analytical Methodology 60300 10600 ND 19300 ND 49800 640	units Units unod: EPA 82 ug/kg	Report Limit 239 2390 2390 2390 2390 2390 2390 2390	omple s DF ethod: E 50 500 50 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/22/16 16:16	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Analytical Methodology	units units units ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 239 2390 2390 2390 2390 2390 2390 2390	50 500 500 500 500 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/22/16 16:16	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	Results Analytical Meth 2370 60300 10600 ND 19300 ND 49800 640 2460	units unod: EPA 82 ug/kg	Report Limit 239 2390 2390 239 2390 2390 2390 2390	50 500 500 500 500 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	Results Analytical Meth 2370 60300 10600 ND 19300 ND 49800 640 2460 114 105 122	units unod: EPA 82 ug/kg Report Limit 160B Preparation Me 239 2390 2390 239 2390 239 2390 2390 2	mple s DF ethod: E 50 500 50 500 500 500 500 500 500 500	Prepared Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c	
Results reported on a "dry weight Parameters B260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S)	Results Analytical Meth 2370 60300 10600 ND 19300 ND 49800 640 2460 114 105 122 88	units units units ug/kg	Report Limit 260B Preparation Me 239 2390 2390 2390 2390 2390 2390 2390	50 500 500 500 500 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c
8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S) Percent Moisture	Analytical Methods Analytical Methods Analytical Methods 2370 60300 10600 ND 19300 ND 49800 640 2460 114 105 122 88 Analytical Methods Analy	units units units units ug/kg	Report Limit 260B Preparation Me 239 2390 239 2390 239 2390 239 239	50 500 500 500 500 500 500 500 500 500	Prepared Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0 1868-53-7	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters B260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S)	Results Analytical Meth 2370 60300 10600 ND 19300 ND 49800 640 2460 114 105 122 88	units units units ug/kg	Report Limit 260B Preparation Me 239 2390 2390 2390 2390 2390 2390 2390	50 500 500 500 500 500 500 500 500 500	Prepared Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/22/16 16:16 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44 06/21/16 16:44	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0 1868-53-7	1c 1c 1c 1c 1c 1c 1c



Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

Sample: SB-10 (4-5) Lab ID: 30186436005 Collected: 06/14/16 10:30 Received: 06/15/16 09:00 Matrix: Solid

Results reported on a "wet-weight" basis

Comments: • Dry Weight Jar was received empty so no dry weight could be determined.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260	DB Preparation Me	thod: E	EPA 5035A			
Benzene	2390	ug/kg	194	50	06/22/16 12:00	06/22/16 20:33	71-43-2	1c
Ethylbenzene	5750	ug/kg	194	50	06/22/16 12:00	06/22/16 20:33	100-41-4	1c
Isopropylbenzene (Cumene)	634	ug/kg	194	50	06/22/16 12:00	06/22/16 20:33	98-82-8	1c
Methyl-tert-butyl ether	10	ug/kg	4.3	1	06/21/16 12:51	06/21/16 14:31	1634-04-4	1c
Naphthalene	1360	ug/kg	194	50	06/22/16 12:00	06/22/16 20:33	91-20-3	1c
Toluene	9.8	ug/kg	4.3	1	06/21/16 12:51	06/21/16 14:31	108-88-3	1c
1,2,4-Trimethylbenzene	11500	ug/kg	194	50	06/22/16 12:00	06/22/16 20:33	95-63-6	1c
1,3,5-Trimethylbenzene	134	ug/kg	4.3	1	06/21/16 12:51	06/21/16 14:31	108-67-8	1c
Xylene (Total)	2690	ug/kg	583	50	06/22/16 12:00	06/22/16 20:33	1330-20-7	1c
Surrogates								
Toluene-d8 (S)	105	%	68-135	1	06/21/16 12:51	06/21/16 14:31	2037-26-5	
4-Bromofluorobenzene (S)	108	%	65-146	1	06/21/16 12:51	06/21/16 14:31	460-00-4	
1,2-Dichloroethane-d4 (S)	115	%	69-137	1	06/21/16 12:51	06/21/16 14:31	17060-07-0	
Dibromofluoromethane (S)	89	%	70-130	1	06/21/16 12:51	06/21/16 14:31	1868-53-7	

Sample: SB-11 (3-4) Lab ID: 30186436006 Collected: 06/14/16 10:55 Received: 06/15/16 09:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260B	Preparation Me	ethod: E	PA 5035A			
Benzene	35300	ug/kg	2070	500	06/21/16 12:54	06/21/16 17:11	71-43-2	1c
Ethylbenzene	108000	ug/kg	2070	500	06/21/16 12:54	06/21/16 17:11	100-41-4	1c
Isopropylbenzene (Cumene)	9410	ug/kg	2070	500	06/21/16 12:54	06/21/16 17:11	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	2070	500	06/21/16 12:54	06/21/16 17:11	1634-04-4	1c
Naphthalene	24400	ug/kg	2070	500	06/21/16 12:54	06/21/16 17:11	91-20-3	1c
Toluene	115000	ug/kg	20700	5000	06/21/16 12:54	06/22/16 16:42	108-88-3	1c
1,2,4-Trimethylbenzene	190000	ug/kg	20700	5000	06/21/16 12:54	06/22/16 16:42	95-63-6	1c
1,3,5-Trimethylbenzene	89800	ug/kg	2070	500	06/21/16 12:54	06/21/16 17:11	108-67-8	1c
Xylene (Total)	434000	ug/kg	62100	5000	06/21/16 12:54	06/22/16 16:42	1330-20-7	1c
Surrogates								
Toluene-d8 (S)	105	%	68-135	500	06/21/16 12:54	06/21/16 17:11	2037-26-5	
4-Bromofluorobenzene (S)	106	%	65-146	500	06/21/16 12:54	06/21/16 17:11	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	69-137	500	06/21/16 12:54	06/21/16 17:11	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	500	06/21/16 12:54	06/21/16 17:11	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D297	4-87					
Percent Moisture	11.9	%	0.10	1		06/27/16 15:43		



Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

Lab ID: 301	86436007	Collected: 06/14/1	6 11:0	5 Received: 06	/15/16 09:00 N	latrix: Solid	
nt" basis and are adj	usted for p	ercent moisture, sa	mple s	size and any dilu	tions.		
Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
Analytical Meth	nod: EPA 82	60B Preparation Me	ethod: E	EPA 5035A			
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	71-43-2	1c
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	100-41-4	1c
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	98-82-8	1c
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	1634-04-4	1c
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	91-20-3	1c
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	108-88-3	1c
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	95-63-6	1c
ND	ug/kg	6.1	1	06/21/16 12:51	06/21/16 14:58	108-67-8	1c
ND	ug/kg	18.3	1	06/21/16 12:51	06/21/16 14:58	1330-20-7	1c
99	%	68-135	1	06/21/16 12:51	06/21/16 14:58	2037-26-5	
102	%	65-146	1	06/21/16 12:51	06/21/16 14:58	460-00-4	
119	%	69-137	1	06/21/16 12:51	06/21/16 14:58	17060-07-0	
100	%	70-130	1	06/21/16 12:51	06/21/16 14:58	1868-53-7	
Analytical Meth	nod: ASTM I	D2974-87					
20.0	%	0.10	1		06/27/16 15:43		
Lab ID: 301	86436008	Collected: 06/14/1	6 12:0	5 Received: 06	/15/16 09:00 M	latrix: Solid	
nt" hasis and are adi	ucted for n	arcant maistura sa					
n bacic and are aa,	usteu ioi p	ercent moisture, sa	impie s	size and any dilui	tions.		
Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
Results	Units		DF	Prepared		CAS No.	Qua
Results	Units	Report Limit	DF	Prepared EPA 5035A			Qua
Results Analytical Meth	Units nod: EPA 82	Report Limit -	DF ethod: E	Prepared EPA 5035A 06/21/16 12:54	Analyzed	71-43-2	
Results Analytical Meth	Units nod: EPA 82 ug/kg ug/kg	Report Limit 60B Preparation Me 2770	DF ethod: E	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07	71-43-2 100-41-4	1c
Results Analytical Meth 76700 14700	Units nod: EPA 82 ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 2770 277	DF ethod: E 500 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37	71-43-2 100-41-4 98-82-8	1c 1c
Results Analytical Meth 76700 14700 844	Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 2770 277 277	DF ethod: E 500 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c 1c
Results Analytical Meth 76700 14700 844 ND	Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 2770 277 277 277	DF ethod: E 500 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900	Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 2770 277 277 277 277 277	DF 500 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790	Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 2770 277 277 277 277 277 277 277	DF 500 50 50 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790 1970	Units ug/kg	Report Limit 2770 277 277 277 277 277 277 277 277	DF 500 50 50 50 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790	Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 2770 277 277 277 277 277 277 277	DF 500 50 50 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790 1970	Units ug/kg	Report Limit 2770 277 277 277 277 277 277 277 277	DF 500 50 50 50 50 50 50 50 50	Prepared 6/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790 1970 16600	Units ug/kg	Report Limit 2770 277 277 277 277 277 277 277 277 2	DF ethod: E 500 50 50 50 50 50 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790 1970 16600	Units ug/kg	Report Limit 2770 277 277 277 277 277 277 277 277 2	DF 500 50 50 50 50 50 50 50 50 50 50 50 50	Prepared 6/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54 66/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790 1970 16600 103 102 112	Units ug/kg	Report Limit 2770 277 277 277 277 277 277 831 68-135 65-146 69-137	DF 500 50 50 50 50 50 50 50 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790 1970 16600 103 102 112 98	Units ug/kg y/kg ug/kg ug/kg ug/kg	Report Limit 2770 277 277 277 277 277 277 277 277 2	DF 500 50 50 50 50 50 50 50 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c
Results Analytical Meth 76700 14700 844 ND 1870 1900 8790 1970 16600 103 102 112	Units ug/kg y/kg ug/kg ug/kg ug/kg	Report Limit 2770 277 277 277 277 277 277 277 277 2	DF 500 50 50 50 50 50 50 50 50 50 50 50 50	Prepared EPA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:07 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37 06/21/16 17:37	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c
	Results Analytical Method ND	Results Units Analytical Method: EPA 82 ND ug/kg Analytical Method: ASTM I	Results Units Report Limit Analytical Method: EPA 8260B Preparation Method Mpt	Results Units Report Limit DF Analytical Method: EPA 8260B Preparation Method: END ug/kg 6.1 1 ND ug/kg 6.1 1	Results Units Report Limit DF Prepared Analytical Method: EPA 8260B Preparation Method: EPA 5035A ND ug/kg 6.1 1 06/21/16 12:51 ND ug/kg 18.3 1 06/21/16 12:51 ND ug/kg 18.3 1 06/21/16 12:51 102 % 68-135 1 06/21/16 12:51 102 % 65-146 1 06/21/16 12:51 100 % 69-137 1 06/21/16 12:51 Analytical Method: ASTM D2974-87 20.0 % 0.10 1	Results Units Report Limit DF Prepared Analyzed Analytical Method: EPA 8260B Preparation Method: EPA 5035A ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 ND ug/kg 18.3 1 06/21/16 12:51 06/21/16 14:58 100 y6 68-135 1 06/21/16 12:51 06/21/16 14:58 102 % 68-135 1 06/21/16 12:51 06/21/16 14:58 102 % 68-135 1 06/21/16 12:51 06/21/16 14:58 100 % 69-137 1 06/21/16 12:51 06/21/16 14:58 Analytical Method: ASTM D2974-87 20.0 % 0.10 1 06/27/16 15:43	Results Units Report Limit DF Prepared Analyzed CAS No. Analytical Method: EPA 8260B Preparation Method: EPA 5035A ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 71-43-2 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 100-41-4 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 98-82-8 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 98-82-8 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 98-82-8 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 91-20-3 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 91-20-3 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 91-20-3 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 95-63-6 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 95-63-6 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 95-63-6 ND ug/kg 6.1 1 06/21/16 12:51 06/21/16 14:58 108-67-8 ND ug/kg 18.3 1 06/21/16 12:51 06/21/16 14:58 1030-20-7 99 % 68-135 1 06/21/16 12:51 06/21/16 14:58 1330-20-7 99 % 68-135 1 06/21/16 12:51 06/21/16 14:58 1330-20-7 99 % 68-135 1 06/21/16 12:51 06/21/16 14:58 1330-20-7 100 % 65-146 1 06/21/16 12:51 06/21/16 14:58 460-00-4 119 % 69-137 1 06/21/16 12:51 06/21/16 14:58 17060-07-0 100 % 70-130 1 06/21/16 12:51 06/21/16 14:58 1868-53-7 Analytical Method: ASTM D2974-87 20.0 % 0.10 1 06/21/16 12:51 06/15/16 09:00 Matrix: Solid



Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

Sample: SB-13 (3-4)	Lab ID: 301	86436009	Collected: 06/14/	16 12:30	Received: 06	/15/16 09:00 N	latrix: Solid	
Results reported on a "dry weigh	t" basis and are adj	usted for p	ercent moisture, sa	ample s	ize and any dilut	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	60B Preparation Me	ethod: E	PA 5035A			
Benzene	36300	ug/kg	2280	500	06/21/16 12:54	06/21/16 18:04	71-43-2	1c
Ethylbenzene	178000	ug/kg	2280	500	06/21/16 12:54	06/21/16 18:04	100-41-4	1c
Isopropylbenzene (Cumene)	14700	ug/kg	2280	500	06/21/16 12:54	06/21/16 18:04	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	2280	500	06/21/16 12:54	06/21/16 18:04	1634-04-4	1c
Naphthalene	41900	ug/kg	2280	500	06/21/16 12:54	06/21/16 18:04	91-20-3	1c
Toluene	6110	ug/kg	2280	500	06/21/16 12:54	06/21/16 18:04	108-88-3	1c
1,2,4-Trimethylbenzene	266000	ug/kg	22800	5000	06/21/16 12:54	06/22/16 17:33	95-63-6	1c
1,3,5-Trimethylbenzene	128000	ug/kg	2280	500	06/21/16 12:54	06/21/16 18:04	108-67-8	1c
Xylene (Total)	523000	ug/kg	68300	5000	06/21/16 12:54	06/22/16 17:33	1330-20-7	1c
Surrogates		3 0						
Toluene-d8 (S)	105	%	68-135	500	06/21/16 12:54	06/21/16 18:04	2037-26-5	
4-Bromofluorobenzene (S)	109	%	65-146	500	06/21/16 12:54	06/21/16 18:04	460-00-4	
1,2-Dichloroethane-d4 (S)	113	%	69-137	500	06/21/16 12:54	06/21/16 18:04	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	500	06/21/16 12:54	06/21/16 18:04	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM I	D2974-87					
Percent Moisture	21.6	%	0.10	1		06/27/16 15:43		
		70	0.10					
Sample: SB-14 (3-4)	Lab ID: 3018	86436010	Collected: 06/14/	16 13:05			latrix: Solid	
Sample: SB-14 (3-4)	Lab ID: 3018	86436010	Collected: 06/14/	16 13:05			latrix: Solid	
Sample: SB-14 (3-4)	Lab ID: 3018	86436010	Collected: 06/14/	16 13:05			latrix: Solid CAS No.	Qua
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters	Lab ID: 3018 t" basis and are adj Results	86436010 usted for p Units	Collected: 06/14/	16 13:05 ample s	Prepared	tions.		Qua
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV	Lab ID: 3018 t" basis and are adj Results	86436010 usted for p Units	Collected: 06/14/ ² ercent moisture, sa Report Limit	16 13:05 ample s	PA 5035A	tions.	CAS No.	Qua
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene	Lab ID: 3018 t" basis and are adj Results Analytical Meth	86436010 usted for p Units nod: EPA 82	Collected: 06/14// ercent moisture, sa Report Limit	16 13:05 ample s DF ethod: E	PA 5035A 06/21/16 12:54	Analyzed	CAS No.	_
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene	Lab ID: 3018 t" basis and are adj Results Analytical Meth	86436010 usted for p Units nod: EPA 82 ug/kg	Collected: 06/14// ercent moisture, sa Report Limit 60B Preparation Me	16 13:05 ample s DF ethod: E	PA 5035A 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:59	CAS No. 71-43-2 100-41-4	1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene)	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000	B6436010 usted for p Units nod: EPA 82 ug/kg ug/kg	Collected: 06/14// ercent moisture, sa Report Limit 60B Preparation Me 2500 2500	16 13:05 ample s DF ethod: E 500 500	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:59 06/22/16 17:59	CAS No. 71-43-2 100-41-4 98-82-8	1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600	B6436010 Units Units nod: EPA 82 ug/kg ug/kg ug/kg	Collected: 06/14// ercent moisture, sa Report Limit 60B Preparation Me 2500 2500	DF ethod: E 500 500 50	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND	B6436010 Units Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg	Collected: 06/14// ercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250	DF othod: E 500 500 50 50	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800	B6436010 usted for p Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Collected: 06/14/rercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250	16 13:05 ample s DF ethod: E 500 500 50 50 50	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300	B6436010 Units Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Collected: 06/14/r ercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 250 250 250	16 13:05 ample s DF ethod: E 500 500 50 50 50 50 50	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 3260B MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300 31200	B6436010 Units Units nod: EPA 82 ug/kg	Collected: 06/14/2 ercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 250 250 2500 250	16 13:05 ample s DF ethod: E 500 500 50 50 50 50 50 50 50	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30 06/21/16 17:59 06/22/16 17:59	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters B260B MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Kylene (Total)	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300	B6436010 Units Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Collected: 06/14/r ercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 250 250 250	16 13:05 ample s DF ethod: E 500 500 50 50 50 50 50	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30 06/21/16 17:59	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 3260B MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Kylene (Total) Surrogates	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300 31200	B6436010 Units Units nod: EPA 82 ug/kg	Collected: 06/14/2 ercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 250 250 2500 250	16 13:05 ample s DF ethod: E 500 500 50 50 50 50 50 50 50	PR 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30 06/21/16 17:59 06/22/16 17:59	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300 31200 87100	B6436010 Units Units ug/kg	Collected: 06/14/rercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 250 250 2500 250	16 13:05 ample s DF 500 500 50 50 50 50 50 50 50	PR 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30 06/21/16 17:59 06/22/16 17:59	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5	1c 1c 1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300 31200 87100 112 109	B6436010 Units Units nod: EPA 82 ug/kg %	Collected: 06/14/rercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 250 250 2500 250	500 500 500 500 500 500 500 500 500 500	PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30 06/22/16 17:59 06/22/16 17:59 06/22/16 17:59	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weight Parameters 3260B MSV Benzene Ethylbenzene sopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 4,3,5-Trimethylbenzene Kylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300 31200 87100	B6436010 Units Units nod: EPA 82 ug/kg	Collected: 06/14/rercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 250 250 250 250 2	16 13:05 ample s DF 2thod: E 500 500 50 50 50 50 50 50 50	PR 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30 06/22/16 17:59 06/22/16 17:59 06/22/16 17:59	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c
Sample: SB-14 (3-4) Results reported on a "dry weigh	Lab ID: 3018 t" basis and are adj Results Analytical Meth 52500 57000 4600 ND 16800 1490 98300 31200 87100 112 109 117	B6436010 Units Units nod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg % % % %	Collected: 06/14// ercent moisture, sa Report Limit 60B Preparation Me 2500 2500 250 250 250 2500 2500 7510 68-135 65-146 69-137 70-130	500 500 500 500 500 500 500 500 500 500	PR 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30 06/21/16 18:30 06/22/16 17:59 06/22/16 17:59 06/22/16 17:59 06/21/16 18:30 06/21/16 18:30	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c



Percent Moisture

Date: 08/08/2016 09:37 AM

ANALYTICAL RESULTS

Project: Heath-Seneca
Pace Project No.: 30186436

Poculte roported on a "dry waint	Lab ID: 301		Collected: 06/14/				latrix: Solid	
Results reported on a "dry weigh	nt" basis and are adj	iusted for p	ercent moisture, sa	ample s	ize and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	60B Preparation Me	ethod: E	PA 5035A			
Benzene	101000	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	71-43-2	1c
Ethylbenzene	397000	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	100-41-4	1c
Isopropylbenzene (Cumene)	32700	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	1634-04-4	1c
Naphthalene	119000	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	91-20-3	1c
Toluene	327000	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	108-88-3	1c
1,2,4-Trimethylbenzene	895000	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	95-63-6	1c
1,3,5-Trimethylbenzene	291000	ug/kg	25100	5000	06/21/16 12:54	06/21/16 18:57	108-67-8	1c
Xylene (Total)	2030000	ug/kg	75200	5000	06/21/16 12:54	06/21/16 18:57	1330-20-7	1c
Surrogates		0 0						
Toluene-d8 (S)	101	%	68-135	5000	06/21/16 12:54	06/21/16 18:57	2037-26-5	
4-Bromofluorobenzene (S)	105	%	65-146	5000	06/21/16 12:54	06/21/16 18:57	460-00-4	
1,2-Dichloroethane-d4 (S)	114	%	69-137	5000	06/21/16 12:54	06/21/16 18:57	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	5000	06/21/16 12:54	06/21/16 18:57	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM I	D2974-87					
Percent Moisture	20.2	%	0.10	1		06/27/16 15:43		
• ,	_			ample s			latrix: Solid	
• ,							fatrix: Solid	Qua
Results reported on a "dry weight Parameters	nt" basis and are adj	usted for p Units	ercent moisture, sa	DF	ize and any dilu Prepared	tions.		Qua
Results reported on a "dry weight Parameters 8260B MSV	nt" basis and are adj	usted for p Units	Report Limit	DF	ize and any dilu Prepared	Analyzed	CAS No.	Qua
Results reported on a "dry weight Parameters 8260B MSV Benzene	Results Analytical Meth	Units Ond: EPA 82	Report Limit 60B Preparation Me	DF ethod: E	PA 5035A 06/21/16 12:51	Analyzed	CAS No.	
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Meth	Units Hod: EPA 82 ug/kg ug/kg	Report Limit 60B Preparation Me 4.9	DF ethod: E	PA 5035A 06/21/16 12:51 06/21/16 12:51	Analyzed 06/21/16 15:24	CAS No. 71-43-2 100-41-4	1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene)	Results Analytical Meth	Units Ond: EPA 82 ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.9 4.9	DF DF ethod: E	PA 5035A 06/21/16 12:51 06/21/16 12:51	Analyzed 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	CAS No. 71-43-2 100-41-4 98-82-8	1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether	Results Analytical Meth 12.7 28.1 ND	Units Output Divide the second of the seco	Report Limit 60B Preparation Me 4.9 4.9 4.9	DF ethod: E 1 1 1	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	Analyzed 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Results Analytical Meth 12.7 28.1 ND 11.7	Units Units Local EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9	ethod: E	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Analytical Methods Analytical Methods 12.7 28.1 ND 11.7 ND ND ND	Units Units Lod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9 4.9 4.9 4.9	ethod: E	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c
8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Analytical Methods Analytical Me	Units Units Lod: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9	ample s DF ethod: E 1 1 1 1 1 1	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Analytical Methods No. 12.7 28.1 ND 11.7 ND ND 47.1 17.6	ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.	ethod: E	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Analytical Methods Analytical Me	Units Units Lod: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9	ethod: E 1 1 1 1 1 1 1 1 1 1	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	Analytical Methods No. 12.7 28.1 ND 11.7 ND ND 47.1 17.6	ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.	ethod: E 1 1 1 1 1 1 1 1 1 1	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Analytical Methans Analytical Me	units unod: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.9	ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	Results Analytical Meth 12.7 28.1 ND 11.7 ND ND 47.1 17.6 112	units unod: EPA 82 ug/kg	Report Limit Report Limit Report Limit 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.	ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Results Analytical Meth 12.7 28.1 ND 11.7 ND ND 47.1 17.6 112 98 102	units Units Lod: EPA 82 ug/kg	Report Limit 60B Preparation Me 4.9 4.9 4.9 4.9 4.9 4.9 4.9 4.	ethod: E 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Prepared PA 5035A 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51 06/21/16 12:51	06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24 06/21/16 15:24	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c

REPORT OF LABORATORY ANALYSIS

0.10 1

16.1

06/27/16 15:43



Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

Sample: SB-16 (7-8)	Lab ID: 301	86436013	Collected: 06/14/1	6 14:10	Received: 06	6/15/16 09:00 N	Matrix: Solid	
Results reported on a "dry weigh	nt" basis and are ad	justed for p	ercent moisture, sa	mple si	ize and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Met	hod: EPA 82	260B Preparation Me	thod: E	PA 5035A			
Benzene	29300	ug/kg	1810	500	06/21/16 12:54	06/22/16 18:50	71-43-2	1c
Ethylbenzene	87100	ug/kg	1810	500	06/21/16 12:54	06/22/16 18:50	100-41-4	1c
Isopropylbenzene (Cumene)	7150	ug/kg	181	50	06/21/16 12:54	06/21/16 19:23	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	181	50	06/21/16 12:54	06/21/16 19:23	1634-04-4	1c
Naphthalene	22600	ug/kg	1810	500	06/21/16 12:54	06/22/16 18:50	91-20-3	1c
Toluene	4460	ug/kg	181	50	06/21/16 12:54	06/21/16 19:23	108-88-3	1c
1,2,4-Trimethylbenzene	176000	ug/kg	1810	500	06/21/16 12:54	06/22/16 18:50	95-63-6	1c,E
1,3,5-Trimethylbenzene	62400	ug/kg	1810	500	06/21/16 12:54	06/22/16 18:50	108-67-8	1c
Xylene (Total)	319000	ug/kg	5440	500	06/21/16 12:54	06/22/16 18:50	1330-20-7	1c
Surrogates	*	3. 3		-			-	
Toluene-d8 (S)	122	%	68-135	50	06/21/16 12:54	06/21/16 19:23	2037-26-5	
4-Bromofluorobenzene (S)	104	%	65-146	50	06/21/16 12:54	06/21/16 19:23	460-00-4	
1,2-Dichloroethane-d4 (S)	131	%	69-137	50	06/21/16 12:54	06/21/16 19:23	17060-07-0	
Dibromofluoromethane (S)	88	%	70-130	50	06/21/16 12:54	06/21/16 19:23	1868-53-7	
Percent Moisture	Analytical Met	hod: ASTM	D2974-87					
Percent Moisture	11.8	%	0.10	1		06/27/16 15:42		
Sample: SB-17 (3-4)	Lab ID: 301	86436014	Collected: 06/14/1	6 14:30	Received: 06	6/15/16 09:00 N	Matrix: Solid	
. ,				-			Matrix: Solid	
. ,				-			Matrix: Solid CAS No.	Qua
Results reported on a "dry weight Parameters	ht" basis and are ad	justed for p	ercent moisture, sa	mple si	ize and any dilui	tions.		Qua
Results reported on a "dry weight Parameters 8260B MSV	Results Analytical Met	Units Hod: EPA 82	Report Limit 260B Preparation Me	mple si	PA 5035A	Analyzed	CAS No.	
Results reported on a "dry weight Parameters 8260B MSV Benzene	Results Analytical Met 50600	Units Hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270	mple si DF thod: El	PA 5035A 06/21/16 12:54	Analyzed 06/22/16 19:42	CAS No.	1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Met 50600 113000	Units Hod: EPA 82 ug/kg ug/kg	Report Limit 260B Preparation Me 2270 2270	mple si DF thod: El 500 500	PR 5035A 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 19:42 06/22/16 19:42	CAS No. 71-43-2 100-41-4	1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene)	Results Analytical Met 50600 113000 12600	Units Hod: EPA 82 ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 2270 2270 227	mple si DF thod: El 500 500 50	PR 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 19:42 06/22/16 19:42 06/21/16 19:50	CAS No. 71-43-2 100-41-4 98-82-8	1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether	Results Analytical Met 50600 113000 12600 ND	Units Hod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227	mple si DF thod: El 500 500 50 50	PR 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	Analyzed 06/22/16 19:42 06/22/16 19:42 06/21/16 19:50 06/21/16 19:50	71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Analytical Met 50600 113000 12600 ND 30200	Units Hod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 2270	mple si DF thod: El 500 500 50 50 50	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Analytical Met 50600 113000 12600 ND 30200 2640	Units hod: EPA 82 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227	mple sind provided the state of	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50 06/22/16 19:42 06/21/16 19:50	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Analytical Met 50600 113000 12600 ND 30200 2640 191000	Units hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 227 227	mple side of the s	PR 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50 06/22/16 19:42 06/21/16 19:50 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900	Units hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 2270 227 227	mple si DF thod: El 500 500 50 50 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c 1c 1c,E
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total)	Analytical Met 50600 113000 12600 ND 30200 2640 191000	Units hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 227 227	mple side of the s	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50 06/22/16 19:42 06/21/16 19:50 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900 297000	Units hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 2270 2270 2270 2270 2270 2270 2270 2270 2270 2270 2270	mple si DF thod: El 500 500 50 50 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c 1c 1c,E
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900 297000	Units Hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 2270 2270 2270 6810	mple si DF thod: El 500 500 50 50 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5	1c 1c 1c 1c 1c 1c 1c 1c,E
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900 297000	Units hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 2270 2270 2270 6810 68-135 65-146	mple si DF thod: El 500 500 50 50 500 500 500 500 500 500	Prepared PA 5035A 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54 06/21/16 12:54	06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/21/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c 1c 1c,E
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900 297000 120 104 111	hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 2270 2270 2270 6810 68-135 65-146 69-137	mple side of the state of the s	PREPARED PRE	06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/21/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c 1c,E
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900 297000	Units hod: EPA 82 ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 2270 227 2270 2270 2270 6810 68-135 65-146	mple si DF thod: El 500 500 50 50 500 500 500 500 500 500	PREPARED PRE	06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/21/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c 1c,E
8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total)	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900 297000 120 104 111	ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 227 2270 227 227	mple side of the state of the s	PREPARED PRE	06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/21/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c 1c 1c,E
Results reported on a "dry weight Parameters" 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S)	Analytical Met 50600 113000 12600 ND 30200 2640 191000 77900 297000 120 104 111 83	ug/kg	Report Limit 260B Preparation Me 2270 2270 227 227 227 227 2270 227 227	mple side of the state of the s	PREPARED PRE	06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/21/16 19:50 06/21/16 19:50 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:42 06/22/16 19:50 06/21/16 19:50	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0 1868-53-7	1c 1c 1c 1c 1c 1c 1c,E



Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

QC Batch: 223850 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30186436002, 30186436005, 30186436007, 30186436012

METHOD BLANK: 1095732 Matrix: Solid
Associated Lab Samples: 30186436002, 30186436005, 30186436007, 30186436012

Associated Lab Samples: 30186436002, 30186436005, 30186436007, 30186436012

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	06/21/16 11:37	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	06/21/16 11:37	
Benzene	ug/kg	ND	5.0	06/21/16 11:37	
Ethylbenzene	ug/kg	ND	5.0	06/21/16 11:37	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	06/21/16 11:37	
Methyl-tert-butyl ether	ug/kg	ND	5.0	06/21/16 11:37	
Naphthalene	ug/kg	ND	5.0	06/21/16 11:37	
Toluene	ug/kg	ND	5.0	06/21/16 11:37	
Xylene (Total)	ug/kg	ND	15.0	06/21/16 11:37	
1,2-Dichloroethane-d4 (S)	%	112	69-137	06/21/16 11:37	
4-Bromofluorobenzene (S)	%	101	65-146	06/21/16 11:37	
Dibromofluoromethane (S)	%	99	70-130	06/21/16 11:37	
Toluene-d8 (S)	%	97	68-135	06/21/16 11:37	

Parameter	Units	Conc.	Result	% Rec	Limits
		Spike	LCS	LCS	% Rec
LABORATORY CONTROL SAMPLE:	1095733				

Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		19.4	97	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	19.2	96	74-129	
Benzene	ug/kg	20	18.5	92	71-137	
Ethylbenzene	ug/kg	20	19.7	99	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	18.9	94	78-133	
Methyl-tert-butyl ether	ug/kg	20	18.3	91	77-141	
Naphthalene	ug/kg	20	19.6	98	81-126	
Toluene	ug/kg	20	18.6	93	72-127	
Xylene (Total)	ug/kg	60	59.9	100	80-124	
1,2-Dichloroethane-d4 (S)	%			112	69-137	
4-Bromofluorobenzene (S)	%			104	65-146	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			102	68-135	

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



Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

QC Batch: 223851 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30186436001, 30186436003, 30186436004, 30186436006, 30186436008, 30186436009, 30186436010,

30186436011, 30186436013, 30186436014

METHOD BLANK: 1095734 Matrix: Solid

Associated Lab Samples: 30186436001, 30186436003, 30186436004, 30186436006, 30186436008, 30186436009, 30186436010,

30186436011, 30186436013, 30186436014

Danasatan	11-26-	Blank	Reporting	A a aloma d	0
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	250	06/21/16 11:11	
1,3,5-Trimethylbenzene	ug/kg	ND	250	06/21/16 11:11	
Benzene	ug/kg	ND	250	06/21/16 11:11	
Ethylbenzene	ug/kg	ND	250	06/21/16 11:11	
Isopropylbenzene (Cumene)	ug/kg	ND	250	06/21/16 11:11	
Methyl-tert-butyl ether	ug/kg	ND	250	06/21/16 11:11	
Naphthalene	ug/kg	ND	250	06/21/16 11:11	
Toluene	ug/kg	ND	250	06/21/16 11:11	
Xylene (Total)	ug/kg	ND	750	06/21/16 11:11	
1,2-Dichloroethane-d4 (S)	%	113	69-137	06/21/16 11:11	
4-Bromofluorobenzene (S)	%	100	65-146	06/21/16 11:11	
Dibromofluoromethane (S)	%	97	70-130	06/21/16 11:11	
Toluene-d8 (S)	%	99	68-135	06/21/16 11:11	

LABORATORY CONTROL SAMPLE:	1095735					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	19.4	97	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	19.2	96	74-129	
Benzene	ug/kg	20	18.5	92	71-137	
Ethylbenzene	ug/kg	20	19.7	99	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	18.9	94	78-133	
Methyl-tert-butyl ether	ug/kg	20	18.3	91	77-141	
Naphthalene	ug/kg	20	19.6	98	81-126	
Toluene	ug/kg	20	18.6	93	72-127	
Xylene (Total)	ug/kg	60	59.9	100	80-124	
1,2-Dichloroethane-d4 (S)	%			112	69-137	
4-Bromofluorobenzene (S)	%			104	65-146	
Dibromofluoromethane (S)	%			98	70-130	
Toluene-d8 (S)	%			102	68-135	

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



Project: Heath-Seneca Pace Project No.: 30186436

QC Batch: 223990 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30186436005

METHOD BLANK: 1096338 Matrix: Solid

Associated Lab Samples: 30186436005

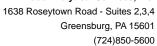
		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	250	06/22/16 12:16	
Benzene	ug/kg	ND	250	06/22/16 12:16	
Ethylbenzene	ug/kg	ND	250	06/22/16 12:16	
Isopropylbenzene (Cumene)	ug/kg	ND	250	06/22/16 12:16	
Naphthalene	ug/kg	ND	250	06/22/16 12:16	
Xylene (Total)	ug/kg	ND	750	06/22/16 12:16	
1,2-Dichloroethane-d4 (S)	%	100	69-137	06/22/16 12:16	
4-Bromofluorobenzene (S)	%	101	65-146	06/22/16 12:16	
Dibromofluoromethane (S)	%	88	70-130	06/22/16 12:16	
Toluene-d8 (S)	%	99	68-135	06/22/16 12:16	

LABORATORY CONTROL SAMPLE: 1096339

Date: 08/08/2016 09:37 AM

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	20	20.4	102	79-125	
Benzene	ug/kg	20	18.5	93	71-137	
Ethylbenzene	ug/kg	20	19.0	95	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	19.4	97	78-133	
Naphthalene	ug/kg	20	16.9	85	81-126	
Xylene (Total)	ug/kg	60	57.7	96	80-124	
1,2-Dichloroethane-d4 (S)	%			98	69-137	
4-Bromofluorobenzene (S)	%			104	65-146	
Dibromofluoromethane (S)	%			95	70-130	
Toluene-d8 (S)	%			100	68-135	

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





Project: Heath-Seneca Pace Project No.: 30186436

QC Batch: 224551 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30186436001, 30186436002, 30186436003, 30186436004, 30186436006, 30186436007, 30186436008,

30186436009, 30186436010, 30186436011, 30186436012, 30186436013, 30186436014

SAMPLE DUPLICATE: 1099192

 Parameter
 Units
 30186436001 Result
 Dup Result
 RPD
 Qualifiers

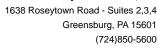
 Percent Moisture
 %
 11.7
 12.1
 3

SAMPLE DUPLICATE: 1099193

Date: 08/08/2016 09:37 AM

		30186436002	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Percent Moisture	%	10.1	9.9	1	

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





QUALIFIERS

Project: Heath-Seneca Pace Project No.: 30186436

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: 223850

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 223851

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 223990

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

Date: 08/08/2016 09:37 AM

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

E Analyte concentration exceeded the calibration range. The reported result is estimated.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Heath-Seneca Pace Project No.: 30186436

Date: 08/08/2016 09:37 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
30186436001	SB-7 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436002	SB-7 (7-8)	EPA 5035A	223850	EPA 8260B	223883
30186436003	SB-8 (4-5)	EPA 5035A	223851	EPA 8260B	223884
30186436004	SB-9 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436005	SB-10 (4-5)	EPA 5035A	223850	EPA 8260B	223883
30186436005	SB-10 (4-5)	EPA 5035A	223990	EPA 8260B	224064
30186436006	SB-11 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436007	SB-11 (7-8)	EPA 5035A	223850	EPA 8260B	223883
30186436008	SB-12 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436009	SB-13 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436010	SB-14 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436011	SB-15 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436012	SB-16 (3-4)	EPA 5035A	223850	EPA 8260B	223883
30186436013	SB-16 (7-8)	EPA 5035A	223851	EPA 8260B	223884
30186436014	SB-17 (3-4)	EPA 5035A	223851	EPA 8260B	223884
30186436001	SB-7 (3-4)	ASTM D2974-87	224551		
30186436002	SB-7 (7-8)	ASTM D2974-87	224551		
30186436003	SB-8 (4-5)	ASTM D2974-87	224551		
30186436004	SB-9 (3-4)	ASTM D2974-87	224551		
30186436006	SB-11 (3-4)	ASTM D2974-87	224551		
30186436007	SB-11 (7-8)	ASTM D2974-87	224551		
30186436008	SB-12 (3-4)	ASTM D2974-87	224551		
30186436009	SB-13 (3-4)	ASTM D2974-87	224551		
30186436010	SB-14 (3-4)	ASTM D2974-87	224551		
30186436011	SB-15 (3-4)	ASTM D2974-87	224551		
30186436012	SB-16 (3-4)	ASTM D2974-87	224551		
30186436013	SB-16 (7-8)	ASTM D2974-87	224551		
30186436014	SB-17 (3-4)	ASTM D2974-87	224551		

CHAIN-OF-CUSTODY / Analytical Request Doc

WO#:30186436

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

Face Analytical

Pace Project No./ Lab I.D. Samples Intact (V/V) DRINKING WATER F-ALL-Q-020rev.07, 15-May-2007 SAMPLE CONDITIONS 88888 88 2009308 8 200 OTHER (N/J) Sealed Cooler Z Custody Ice (Y/N) GROUND WATER Received on Residual Chlorine (Y/N) o vi O° ni qmeT REGULATORY AGENCY RCRA BBB Requested Analysis Filtered (Y/N) 뿔 10/15/10 STATE: Site Location NPDES Saddy DATE UST 9 ACCEPTED BY / AFFILIATION O ~5 t Analysis Test N/A төніС Methanol Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1,5% ber month for any invisions not and formal 30 days. Preservatives $Na_2S_2O_3$ 60 رح ~ ۳ かりな HOSN HCI nvoice Information EONH Company Name [≱]OS^zH Manager: Pace Profile #: Pace Quote Reference: Pace Project Section C Unpreserved Attention: Address: TIME # OF CONTAINERS SAMPLER NAME AND SIGNATURE SAMPLE TEMP AT COLLECTION PRINT Name of SAMPLER: SIGNATURE of SAMPLER: DATE 330 1230 0880 41 13/5 12 Org 08 00%0 1030 205 ME 200 200 らしらがるく へ COMPOSITE END/GRAB 5 5 Z 7 COLLECTED RELINQUISHED BY / AFFILIATION TIME COMPOSITE START DATE Section B Required Project Information: 1501 V V V ৬৬৬ (G=GRAB C=COMP) **39YT 3J9MA8** Purchase Order No. V V V W S Project Name: (see valid codes to left) MATRIX CODE W V Project Numbe Report To: Sopy To: ORIGINAL - 꼭요움~ F E P Matrix Codes Drinking Water Water Waste Water Product Soll/Solid Oil Wipe Mir Tissue Other 20000 Shanderd ADDITIONAL COMMENTS 34 3-4 3-6 7 1 778 7.4 7 (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE 4-5 8 ď Ö SAMPLE ID うちゃく Section A Required Client Information: Required Client Information Requested Due Date/TAT: 0 513-15 52-8 512-14 58-9 1-85 SB-16 58-11 S. 2.-くしない SB-1 5212 Section D Company: Address: Phone: age 22 of 24 ဖ 10 # WBTI N ည

CHAIN-OF-CUSTODY / Analytical Request Document

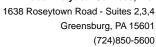
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical*

Pace Project No./ Lab I.D. Samples Intact (Y/N) DRINKING WATER F-ALL-Q-020rev.07, 15-May-2007 2009309 SAMPLE CONDITIONS $\bar{\epsilon}$ OTHER (N/A) Sealed Cooler 2 Custody ŏ lce (Y/N) Весејуед ов GROUND WATER Residual Chlorine (Y/N) 5,9 O° ni qmeT Page: REGULATORY AGENCY RCRA J 15/16 0900 Requested Analysis Filtered (Y/N) TIME Site Location STATE NPDES ₽ TS DATE Signed ACCEPTED BY / AFFILIATION -(MM/DD/YY) 805 **↓ Analysis Test 1** N // Other Methanol Na₂S₂O₃ 2000 HOBN HCI "Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any involces noting HNO Company Name: Pace Quote Reference: Pace Project Manager: Pace Profile #: ⁵OS^zH 200 Section C Z d Unpreserved Ţ Attention: Address: # OF CONTAINERS SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: SAMPLE TEMP AT COLLECTION SIGNATURE of SAMPLER: DATE 20 TIME COMPOSITE END/GRAB 5/10 DATE ゆうしつの COLLECTED RELINQUISHED BY / AFFILIATION TIME COMPOSITE START DATE Section B Required Project Information: Project Name: Heaff Purchase Order No.: (G=GRAB C=COMP) **39YT 3J9MA8** Project Number (see valid codes to left) MATRIX CODE OFIGINAL Report To: Copy To: Matrix Codes MATRIX / CODE Drinking Water Water Waste Water Product Soil/Soild Oil Wipe Afr Afr Afre Other Les Satist A550 Requested Due Date/TAT: 575042/0 ADDITIONAL COMMENTS (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE Fax: SAMPLE ID Required Client Information Required Client Information: 1/053 Section D Section A Email To: Page 23 of 24 \$ # WELL 2 9 ø Ξ

Sample Condition Upon Receipt Pittsburgh 186436 . Pace Analytical" Client Name: Project # BAR 6/15/16 Courier: ☐ Fed Ex ☐ UPS ☐ USPS 🔀 Client ☐ Commercial 🛣 Pace Other yes no Seals intact: Thermometer Used Type of ice: Wet Blue None Correction Factor: +O, | •C Final Temp: 5.9 Observed Temp 5.8**Cooler Temperature** Temp should be above freezing to 6°C Date and initials of person examining contents: RT6 6/15/16 N/A Yes No Comments: X Chain of Custody Present: X Chain of Custody Filled Out: Chain of Custody Relinquished: X Sampler Name & Signature on COC: 4. X 5. Sample Labels match COC: Matrix: KTP/19/18 SL -Includes date/time/ID/Analysis Samples Arrived within Hold Time: X Short Hold Time Analysis (<72hr remaining): × Rush Turn Around Time Requested: X 9. Sufficient Volume: 10. Correct Containers Used: -Pace Containers Used: 11. Containers Intact: 12. Filtered volume received for Dissolved tests All containers needing preservation have been checked. 13. All containers needing preservation are found to be in X compliance with EPA recommendation. 6/15/16 Date/time of Initial when exceptions: VOA, coliform, TOC, O&G, Phenolics completed preservation Lot # of added preservative × Headspace in VOA Vials (>6mm): 14. X Trip Blank Present: 15. Trip Blank Custody Seals Present Client Notification/ Resolution: Person Contacted: Date/Time: Contacted By: Comments/ Resolution:

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





September 29, 2016

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

RE: Project: Heath: Seneca

Pace Project No.: 30196103

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

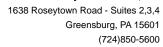
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: Heath: Seneca Pace Project No.: 30196103

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14

Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282 South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868

West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Certification

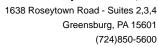
Wyoming Certification #: 8TMS-L



SAMPLE ANALYTE COUNT

Project: Heath :Seneca Pace Project No.: 30196103

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30196103001	SB-18/SS-4/6-8'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30196103002	SB-19/SS-1/0-2'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30196103003	SB-21/SS-2/2-4'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30196103004	SB-22/SS-4/6-8'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30196103005	SB-24/SS-4/6-8'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30196103006	SB-25/SS-2/2-4'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30196103007	SB-26/SS-2/2-4'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA





Project: Heath: Seneca Pace Project No.: 30196103

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: September 29, 2016

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 233799

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 233800

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 234137

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Additional Comments:



Project: Heath: Seneca Pace Project No.: 30196103

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: September 29, 2016

Analyte Comments:

QC Batch: 233799

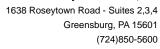
1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-19/SS-1/0-2' (Lab ID: 30196103002)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-25/SS-2/2-4' (Lab ID: 30196103006)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-26/SS-2/2-4' (Lab ID: 30196103007)
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene

QC Batch: 233800

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-18/SS-4/6-8' (Lab ID: 30196103001)
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-21/SS-2/2-4' (Lab ID: 30196103003)
 - Benzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-22/SS-4/6-8' (Lab ID: 30196103004)
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Isopropylbenzene (Cumene)





Project: Heath: Seneca Pace Project No.: 30196103

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: September 29, 2016

Analyte Comments:

QC Batch: 233800

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-22/SS-4/6-8' (Lab ID: 30196103004)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- SB-24/SS-4/6-8' (Lab ID: 30196103005)
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene

QC Batch: 234137

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- SB-26/SS-2/2-4' (Lab ID: 30196103007)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene

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



Project: Heath :Seneca
Pace Project No.: 30196103

Date: 09/29/2016 09:21 AM

### Results reported on a "dry weight" basis and are adjusted field of the field of	Sample: SB-18/SS-4/6-8'	Lab ID: 301	96103001	Collected: 09/14/1	16 11:18	5 Received: 09)/16/16 08:18 N	latrix: Solid		
Analytical Method: EPA 8260B Preparation Method: EPA 5035A Analytical Method: ASTM D2974-87 Preparation Method: EPA 5035A Analytical Method: EPA 8260B Preparation Method: EPA 5035A Analytical Method: EPA 8260B Preparation Method: EPA 5035A Analytical Method: ASTM D2974-87 Preparation Method: EPA 5035A Analytical Method: ASTM D2974-87 Preparation Method: EPA 5035A Analytical Method: EPA 8260B Preparation Method: EPA 5035A Analytical Method: ASTM D2974-87 Preparation Method: ASTM D2974-87 Preparation Method: ASTM D2974-87 An	Results reported on a "dry weigł	nt" basis and are adj	usted for p	ercent moisture, sa	ample s	size and any dilu	tions.			
Senzene	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua	
Ethylbenzene	3260B MSV	Analytical Meth	nod: EPA 82	260B Preparation Me	ethod: E	EPA 5035A				
Sepropylbenzene (Cumene) 2840	Benzene	1170	ug/kg	223	50	09/20/16 13:10	09/20/16 19:12	71-43-2	1c	
Methyl-ten-butyl ether ND ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 163-04-4 1c Naphthalene 5850 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 192-03-1 1c Naphthalene 5850 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 108-88-3 1c Naphthalene A2900 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 108-88-3 1c Naphthalene 7810 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 108-68-8 1c Naphthalene 7810 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 108-67-8 1c Naphthalene 7810 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 108-67-8 1c Naphthalene 7810 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 130-20-7 Surrogates 1000-1000 ug/kg 669 50 09/20/16 13:10 09/20/16 19:12 130-20-7 Surrogates 1000-1000 ug/kg 669 50 09/20/16 13:10 09/20/16 19:12 130-20-7 Surrogates 1000-1000 ug/kg 669-137 50 09/20/16 13:10 09/20/16 19:12 1000-07-0 Dibromofluorobetane (S) 97 % 65-146 50 09/20/16 13:10 09/20/16 19:12 1706-07-0 Dibromofluorobethane (S) 94 % 70-130 50 09/20/16 13:10 09/20/16 19:12 1706-07-0 Dibromofluorobethane (S) 94 % 70-130 50 09/20/16 13:10 09/20/16 19:12 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 16.1 % 0.10 1 09/20/16 13:10 09/20/16 19:12 1868-53-7 Sample: SB-19/SS-1/0-2* Lab ID: 30196103002 Collected: 09/14/16 10:50 Received: 09/16/16 08:18 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qu B260B MSV Analytical Method: EPA 8260B Preparation Method: EPA 5035A Benzene 27.9 ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 71-43-2 1c Ethylbenzene ND ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 17-43-2 1c Ethylbenzene ND ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 17-43-2 1c Ethylbenzene ND ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 10-041-4 1c Naphthalene ND ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 10-041-4 1c Naphthalene ND ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 10-041-4 1c Naphthalene ND ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 10-04-1 1c Naphthalene ND ug/kg 4.3 1 09/20/16 1	Ethylbenzene	22300	ug/kg	2230	500	09/20/16 13:10	09/22/16 21:30	100-41-4		
Naphthalene	Isopropylbenzene (Cumene)	2840	ug/kg	223	50	09/20/16 13:10	09/20/16 19:12	98-82-8	1c	
Toluene ND ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 108-88-3 1c 12,2.4-Trimethylbenzene 42900 ug/kg 2230 500 09/20/16 13:10 09/20/16 19:12 108-88-3 1c 12,3.5-Trimethylbenzene 7810 ug/kg 223 50 09/20/16 13:10 09/20/16 19:12 108-87-8 1c 24/20/20/20/20/20/20/20/20/20/20/20/20/20/	Methyl-tert-butyl ether	ND	ug/kg	223	50	09/20/16 13:10	09/20/16 19:12	1634-04-4	1c	
1,2,4-Trimethylbenzene	Naphthalene	5850	ug/kg	223	50	09/20/16 13:10	09/20/16 19:12	91-20-3	1c	
1,3,5-Trimethylbenzene 7810	Toluene	ND	ug/kg	223	50	09/20/16 13:10	09/20/16 19:12	108-88-3	1c	
Cyclene (Total)	1,2,4-Trimethylbenzene	42900	ug/kg	2230	500	09/20/16 13:10	09/22/16 21:30	95-63-6		
Comparison Source	•	7810		223	50	09/20/16 13:10	09/20/16 19:12	108-67-8	1c	
Surrogates Sur	•									
Following - California - Cali	• , ,		- 3- 3							
1,2-Dichloroethane-d4 (S) 119 % 69-137 50 09/20/16 13:10 09/20/16 19:12 17060-07-0 Dibromofluoromethane (S) 94 % 70-130 50 09/20/16 13:10 09/20/16 19:12 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 16.1 % 0.10 1 09/27/16 15:43 Sample: SB-19/SS-1/0-2* Lab ID: 30196103002 Collected: 09/14/16 10:50 Received: 09/16/16 08:18 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Question of the preparation Method: EPA 5035A Benzene 27.9 ug/kg 4.3 1 09/20/16 13:06 09/20/16 17:29 71-43-2 1c 10-41-4 1c 10-41-4 10-4	_	98	%	68-135	50	09/20/16 13:10	09/20/16 19:12	2037-26-5		
Dibromofluoromethane (S) 94 % 70-130 50 09/20/16 13:10 09/20/16 19:12 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 16.1 % 0.10 1 09/27/16 15:43 Sample: SB-19/SS-1/0-2' Lab ID: 30196103002 Collected: 09/14/16 10:50 Received: 09/16/16 08:18 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Questee 1 09/20/16 13:06 09/20/16 17:29 17-43-2 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/16 13:06 09/20/16 17:29 1634-04-4 1c 109/20/16 13:06 09/20/16 17:29 1634-04-4 1c 109/20/16 13:06 09/20/16 17:29 1634-04-4 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/20/20/20/20/20/20/20/20/20/20/20/20/	4-Bromofluorobenzene (S)	97	%	65-146	50	09/20/16 13:10	09/20/16 19:12	460-00-4		
Dibromofluoromethane (S) 94 % 70-130 50 09/20/16 13:10 09/20/16 19:12 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 16.1 % 0.10 1 09/27/16 15:43 Sample: SB-19/SS-1/0-2' Lab ID: 30196103002 Collected: 09/14/16 10:50 Received: 09/16/16 08:18 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Questee 1 09/20/16 13:06 09/20/16 17:29 17-43-2 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/16 13:06 09/20/16 17:29 1634-04-4 1c 109/20/16 13:06 09/20/16 17:29 1634-04-4 1c 109/20/16 13:06 09/20/16 17:29 1634-04-4 1c 109/20/16 13:06 09/20/16 17:29 100-41-4 1c 109/20/20/20/20/20/20/20/20/20/20/20/20/20/	1,2-Dichloroethane-d4 (S)	119	%	69-137	50	09/20/16 13:10	09/20/16 19:12	17060-07-0		
Collected: Col	. ,	94		70-130	50	09/20/16 13:10	09/20/16 19:12	1868-53-7		
Case	Percent Moisture	Analytical Meth	Analytical Method: ASTM D2974-87							
Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Quality Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Quality CAS No. Quality Prepared Analyzed CAS No. Quality CAS No.	Percent Moisture	16.1	%	0.10	1		09/27/16 15:43			
Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Question	•							latrix: Solid		
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A-Bromofluorobenzene (S) 111 % 65-146 1 09/20/16 13:06 09/20/16 17:29 460-00-4 1,2-Dichloroethane-d4 (S) 113 % 69-137 1 09/20/16 13:06 09/20/16 17:29 17060-07-0 Dibromofluoromethane (S) 98 % 70-130 1 09/20/16 13:06 09/20/16 17:29 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87		107	0/	60 125	1	00/20/46 12:06	00/20/46 17:20	2027 26 5		
1,2-Dichloroethane-d4 (S) 113 % 69-137 1 09/20/16 13:06 09/20/16 17:29 17060-07-0 Dibromofluoromethane (S) 98 % 70-130 1 09/20/16 13:06 09/20/16 17:29 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87	` ,									
Dibromofluoromethane (S) 98 % 70-130 1 09/20/16 13:06 09/20/16 17:29 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87										
Percent Moisture Analytical Method: ASTM D2974-87										
	ווסויסיסוערoromethane (S)				1	09/20/16 13:06	09/20/16 17:29	1868-53-7		
Percent Meinture 12.6 0/ 0.10 1 00/07/46 45:49	Percent Moisture	Analytical Meth	nod: ASTM	D2974-87						
reicent violsture 12.0 % 0.10 i 09/27/16/15:43	Percent Moisture	12.6	%	0.10	1		09/27/16 15:43			



Project: Heath: Seneca Pace Project No.: 30196103

Date: 09/29/2016 09:21 AM

5 5	Sample: SB-21/SS-2/2-4'	Lab ID: 301	96103003	Collected: 09/14/	16 12:25	Received: 09	0/16/16 08:18 N	fatrix: Solid		
### Analytical Method: EPA 8260B Preparation Method: EPA 5035A ### Senzene \$6800 ug/kg	Results reported on a "dry weigl	ht" basis and are adj	usted for p	ercent moisture, sa	ample s	ize and any dilu	tions.			
Senzene \$56800	Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua	
Ethylbenzene 752000 ug/kg 2250 500 0920/16 13:10 09/22/16 21:56 100-41-4 sopropylbenzene (Cumene) 39500 ug/kg 2250 500 0920/16 13:10 09/22/16 19:37 98-82-8 1c dehtyl-tert-buly ether ND ug/kg 2250 500 0920/16 13:10 09/22/16 19:37 1634-04-4 1c Naphthalene 106000 ug/kg 2250 500 0920/16 13:10 09/22/16 19:37 1634-04-4 1c Naphthalene 106000 ug/kg 2250 500 0920/16 13:10 09/22/16 19:37 1634-04-4 1c Naphthalene 1750000 ug/kg 2250 500 0920/16 13:10 09/22/16 19:37 1638-04-3 1c Oliune 28000 ug/kg 2250 500 0920/16 13:10 09/22/16 21:56 98-63-8 1c Oliune 12.4-1 misthylbenzene 1750000 ug/kg 22500 5000 0920/16 13:10 09/22/16 21:56 98-63-8 (ylene (Total) 302000 ug/kg 67600 5000 09/20/16 13:10 09/22/16 21:56 1330-20-7 Surrogates (S) 98 % 68-135 500 09/20/16 13:10 09/22/16 21:56 1330-20-7 Surrogates (S) 99 % 65-146 500 09/20/16 13:10 09/22/16 19:37 2037-26-5 1-4 bromofluorobenzene (S) 99 % 65-146 500 09/20/16 13:10 09/22/16 19:37 1688-53-7 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 19:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:37 1868-53-7 Percent Moisture 15.1 % 0.10 1 09/22/16 13:10 09/22/16 10:30 10.10 09/22/1	3260B MSV	Analytical Meth	nod: EPA 82	260B Preparation Me	ethod: E	PA 5035A				
SepropyBenzene (Cumene) 39500 ug/kg 2250 500 0g/20/16 13:10 0g/20/16 19:37 98-2-8 1c Methyl-lert-buryl ether ND ug/kg 2250 500 0g/20/16 13:10 0g/20/16 19:37 1634-04-4 1c Naphthalene 16600 ug/kg 2250 500 0g/20/16 13:10 0g/20/16 19:37 1634-04-4 1c Naphthalene 16600 ug/kg 2250 500 0g/20/16 13:10 0g/20/16 19:37 91-20-3 1c Toluene 28000 ug/kg 2250 500 0g/20/16 13:10 0g/20/16 19:37 91-20-3 1c Toluene 28000 ug/kg 2250 5000 0g/20/16 13:10 0g/22/16 21:56 95-63-6 13.5-Trimethylbenzene 597000 ug/kg 22500 5000 0g/20/16 13:10 0g/22/16 21:56 95-63-6 13.5-Trimethylbenzene 597000 ug/kg 2550 5000 0g/20/16 13:10 0g/22/16 21:56 95-63-6 13.5-Trimethylbenzene 597000 ug/kg 67600 5000 0g/20/16 13:10 0g/22/16 21:56 1303-20-7 1207-26-5 120	Benzene	56800	ug/kg	2250	500	09/20/16 13:10	09/20/16 19:37	71-43-2	1c	
Methyl-fert-butyl ether	Ethylbenzene	752000	ug/kg	22500	5000	09/20/16 13:10	09/22/16 21:56	100-41-4		
Naphthalene	sopropylbenzene (Cumene)	39500	ug/kg	2250	500	09/20/16 13:10	09/20/16 19:37	98-82-8	1c	
Toluene 28000 ug/kg 2250 500 09/20/16 13:10 09/20/16 19:37 108-88-3 1c 1c 1750000 ug/kg 2250 5000 09/20/16 13:10 09/20/16 21:56 95-63-6 56-78 597000 ug/kg 2250 5000 09/20/16 13:10 09/20/16 21:56 108-67-8 597000 ug/kg 2250 5000 09/20/16 13:10 09/20/16 21:56 108-67-8 500 09/20/16 13:10 09/20/16 21:56 108-67-8 500 09/20/16 13:10 09/20/16 21:56 108-67-8 500 09/20/16 13:10 09/20/16 13:10 09/20/16 19:37 2037-26-5 4-8 4	Methyl-tert-butyl ether	ND	ug/kg	2250	500	09/20/16 13:10	09/20/16 19:37	1634-04-4	1c	
1,2,4-Trimethylbenzene	Naphthalene	106000	ug/kg	2250	500	09/20/16 13:10	09/20/16 19:37	91-20-3	1c	
3,3.5-Trimethylibenzene 597000 ug/kg 22500 5000 09/20/16 13:10 09/22/16 21:56 108-67-8 kylene (Total) ug/kg 67600 5000 09/20/16 13:10 09/22/16 21:56 1303-20-7 Surrogates Followene-d8 (S) 98 % 68-135 500 09/20/16 13:10 09/20/16 19:37 2037-26-5 Horomofluorobenzene (S) 99 % 65-146 500 09/20/16 13:10 09/20/16 19:37 460-00-4 4-10-10-10-10-10-10-10-10-10-10-10-10-10-	Toluene	28000	ug/kg	2250	500	09/20/16 13:10	09/20/16 19:37	108-88-3	1c	
Cylene (Total) 3020000	1,2,4-Trimethylbenzene	1750000	ug/kg	22500	5000	09/20/16 13:10	09/22/16 21:56	95-63-6		
Surrogates 98	1,3,5-Trimethylbenzene	597000	ug/kg	22500	5000	09/20/16 13:10	09/22/16 21:56	108-67-8		
Surrogates 98	Kylene (Total)	3020000	ug/kg	67600	5000	09/20/16 13:10	09/22/16 21:56	1330-20-7		
Percent Moisture S	• , ,		3 0							
1,2-Dichloroethane-d4 (S)	Toluene-d8 (S)	98	%	68-135	500	09/20/16 13:10	09/20/16 19:37	2037-26-5		
### Percent Moisture	4-Bromofluorobenzene (S)	99	%	65-146	500	09/20/16 13:10	09/20/16 19:37	460-00-4		
Percent Moisture	1,2-Dichloroethane-d4 (S)	121	%	69-137	500	09/20/16 13:10	09/20/16 19:37	17060-07-0		
Company Comp	Dibromofluoromethane (S)	93	%	70-130	500	09/20/16 13:10	09/20/16 19:37	1868-53-7		
### Parameters	ercent Moisture	Analytical Meth	Analytical Method: ASTM D2974-87							
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qualifold No. Quali	Percent Moisture	15.1	%	0.10	1		09/27/16 15:43			
Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qualifold No. Quali	Sample: SB-22/SS-4/6-8'	Lab ID: 301	96103004	Collected: 09/14/	16 12:45	5 Received: 09)/16/16 08:18 N	Matrix: Solid		
Parameters Results Units Report Limit DF Prepared Analyzed CAS No. Qual Q	•	ht" basis and are adi	usted for p	ercent moisture, sa	ample s	ize and any dilu	tions.			
Benzene 963 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 71-43-2 1c Ethylbenzene 18500 ug/kg 1980 500 09/20/16 13:10 09/20/16 20:22 100-41-4 sopropylbenzene (Cumene) 1470 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 98-82-8 1c Methyl-tert-butyl ether ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 1634-04-4 1c Naphthalene 2920 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 91-20-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 91-20-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-86-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03		-	•		•	•		CAS No.	Qua	
Ethylbenzene (Boundary 18500 ug/kg 1980 500 09/20/16 13:10 09/22/16 22:22 100-41-4 sporpoylbenzene (Cumene) 1470 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 98-82-8 1c Methyl-tert-butyl ether ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 1634-04-4 1c Naphthalene 2920 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 1634-04-4 1c Naphthalene ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c ND ug/kg 198 50 09/20/16 13:1	3260B MSV	Analytical Meth	nod: EPA 82	260B Preparation Me	ethod: E	PA 5035A	-			
Ethylbenzene 18500 ug/kg 1980 500 09/20/16 13:10 09/22/16 22:22 100-41-4 sopropylbenzene (Cumene) 1470 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 98-82-8 1c Methyl-tert-butyl ether ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 1634-04-4 1c Naphthalene 2920 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 1634-04-4 1c Naphthalene ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c ND ug/kg 198 50 09/20/16 2	Benzene	963	ug/kg	198	50	09/20/16 13:10	09/20/16 20:03	71-43-2	1c	
sopropylbenzene (Cumene) 1470 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 98-82-8 1c Methyl-tert-butyl ether ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 1634-04-4 1c Naphthalene 2920 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 91-20-3 1c Toluene ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 91-20-3 1c Toluene ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c I,2,4-Trimethylbenzene 40000 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c I,3,5-Trimethylbenzene 14600 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c Kylene (Total) 37000 ug/kg 5950 500 09/20/16 13:10 09/20/16 20:03 108-67-8 1c Kylene (Total) Surrogates Toluene-d8 (S) 100 % 68-135 50 09/20/16 13:10 09/20/16 20:03 2037-26-5 4-Bromofluorobenzene (S) 99 % 65-146 50 09/20/16 13:10 09/20/16 20:03 460-00-4 I,2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 Dibromofluoromethane (S) Percent Moisture Analytical Method: ASTM D2974-87	Ethylbenzene	18500		1980	500	09/20/16 13:10	09/22/16 22:22	100-41-4		
Methyl-tert-butyl ether ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 1634-04-4 1c Naphthalene 2920 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 91-20-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c ND ug/kg 198 50 09/20/16 13:10 09/20	•								1c	
Naphthalene 2920 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 91-20-3 1c Foluene ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c 1,2,4-Trimethylbenzene 40000 ug/kg 198 50 09/20/16 13:10 09/22/16 22:22 95-63-6 1,3,5-Trimethylbenzene 14600 ug/kg 198 50 09/20/16 13:10 09/22/16 22:22 95-63-6 1,3,5-Trimethylbenzene 14600 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c Kylene (Total) Surrogates Foluene-d8 (S) 100 % 68-135 50 09/20/16 13:10 09/20/16 20:03 2037-26-5 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 Dibromofluoromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87										
Toluene ND ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-88-3 1c 1,2,4-Trimethylbenzene 40000 ug/kg 1980 500 09/20/16 13:10 09/22/16 22:22 95-63-6 1,3,5-Trimethylbenzene 14600 ug/kg 198 50 09/20/16 13:10 09/22/16 20:03 108-67-8 1c (Xylene (Total) 37000 ug/kg 5950 500 09/20/16 13:10 09/22/16 22:22 1330-20-7 (Surrogates Toluene-d8 (S) 100 % 68-135 50 09/20/16 13:10 09/20/16 20:03 2037-26-5 1-Bromofluorobenzene (S) 99 % 65-146 50 09/20/16 13:10 09/20/16 20:03 460-00-4 1,2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 Dibromofluoromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7	,									
1,2,4-Trimethylbenzene 40000 ug/kg 1980 500 09/20/16 13:10 09/22/16 22:22 95-63-6 1,3,5-Trimethylbenzene 14600 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c (Xylene (Total) 37000 ug/kg 5950 500 09/20/16 13:10 09/22/16 22:22 1330-20-7 (Surrogates Toluene-d8 (S) 100 % 68-135 50 09/20/16 13:10 09/20/16 20:03 2037-26-5 1-Bromofluorobenzene (S) 99 % 65-146 50 09/20/16 13:10 09/20/16 20:03 460-00-4 1,2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 (Dibromofluoromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7 (Percent Moisture Analytical Method: ASTM D2974-87	•									
14600 ug/kg 198 50 09/20/16 13:10 09/20/16 20:03 108-67-8 1c (xylene (Total) 37000 ug/kg 5950 500 09/20/16 13:10 09/22/16 22:22 1330-20-7 (Surrogates Toluene-d8 (S) 100 % 68-135 50 09/20/16 13:10 09/20/16 20:03 2037-26-5 1-Bromofluorobenzene (S) 99 % 65-146 50 09/20/16 13:10 09/20/16 20:03 460-00-4 1,2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 Dibromofluoromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7									. •	
Xylene (Total) 37000 ug/kg 5950 500 09/20/16 13:10 09/22/16 22:22 1330-20-7 Surrogates Followed (S) 100 % 68-135 50 09/20/16 13:10 09/20/16 20:03 2037-26-5 I-Bromofluorobenzene (S) 99 % 65-146 50 09/20/16 13:10 09/20/16 20:03 460-00-4 I,2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 Dibromofluoromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87	•								10	
Surrogates Foluene-d8 (S) Foluene-d8	• •								10	
Toluene-d8 (S) 100 % 68-135 50 09/20/16 13:10 09/20/16 20:03 2037-26-5 1-Bromofluorobenzene (S) 99 % 65-146 50 09/20/16 13:10 09/20/16 20:03 460-00-4 10.2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 10.2-Dichloromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87	• •	0,000	ug/Ng	0000	000	00/20/10 10:10	00/22/10 22:22	1000 20 7		
A-Bromofluorobenzene (S) 99 % 65-146 50 09/20/16 13:10 09/20/16 20:03 460-00-4 0.2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 0.2-Dichloromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87		100	%	68-135	50	09/20/16 13:10	09/20/16 20:03	2037-26-5		
,2-Dichloroethane-d4 (S) 103 % 69-137 50 09/20/16 13:10 09/20/16 20:03 17060-07-0 Dibromofluoromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87	()									
Dibromofluoromethane (S) 89 % 70-130 50 09/20/16 13:10 09/20/16 20:03 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87										
Percent Moisture Analytical Method: ASTM D2974-87										
	. ,				50	30,20,10 10.10	33,23,10 20.00	.000 00 1		
Percent Moisture 12.1 % 0.10 1 09/27/16 15:43										



Percent Moisture

Date: 09/29/2016 09:21 AM

ANALYTICAL RESULTS

Project: Heath :Seneca
Pace Project No.: 30196103

Results reported on a "dry weigh					Received: 09		latrix: Solid			
Parameters	nt" basis and are adj Results	Units	rcent moisture, sa Report Limit	mpie s DF	Prepared	analyzed	CAS No.	Qua		
- arametere					<u> </u>					
8260B MSV	Analytical Meth	nod: EPA 826	0B Preparation Me	thod: E	PA 5035A					
Benzene	214	ug/kg	195	50	09/20/16 13:10	09/20/16 20:29	71-43-2	1c		
Ethylbenzene	8110	ug/kg	195	50		09/20/16 20:29		1c		
Isopropylbenzene (Cumene)	817	ug/kg	195	50	09/20/16 13:10	09/20/16 20:29	98-82-8	1c		
Methyl-tert-butyl ether	ND	ug/kg	195	50	09/20/16 13:10	09/20/16 20:29	1634-04-4	1c		
Naphthalene	1970	ug/kg	195	50	09/20/16 13:10	09/20/16 20:29	91-20-3	1c		
Toluene	ND	ug/kg	195	50	09/20/16 13:10	09/20/16 20:29	108-88-3	1c		
1,2,4-Trimethylbenzene	17500	ug/kg	1950	500	09/20/16 13:10	09/22/16 22:47	95-63-6			
1,3,5-Trimethylbenzene	5490	ug/kg	195	50	09/20/16 13:10	09/20/16 20:29	108-67-8	1c		
Xylene (Total)	9470	ug/kg	586	50	09/20/16 13:10	09/20/16 20:29	1330-20-7			
Surrogates										
Toluene-d8 (S)	98	%	68-135	50	09/20/16 13:10	09/20/16 20:29	2037-26-5			
4-Bromofluorobenzene (S)	96	%	65-146	50	09/20/16 13:10	09/20/16 20:29	460-00-4			
1,2-Dichloroethane-d4 (S)	111	%	69-137	50	09/20/16 13:10	09/20/16 20:29	17060-07-0			
Dibromofluoromethane (S)	98	%	70-130	50	09/20/16 13:10	09/20/16 20:29	1868-53-7			
Percent Moisture	Analytical Meth	Analytical Method: ASTM D2974-87								
Percent Moisture	14.1	%	0.10	1		09/27/16 15:43				
Sample: SB-25/SS-2/2-4'	Lab ID: 301	06402006								
	_	usted for pe		mple s	ize and any dilut	ions.	latrix: Solid CAS No.	Qu		
Parameters	Results	usted for per Units	Report Limit	mple s	ize and any dilut Prepared		CAS No.	Qua		
Parameters 8260B MSV	Results Analytical Meth	Units nod: EPA 826	Report Limit OB Preparation Me	DF ethod: E	PA 5035A	Analyzed	CAS No.			
Parameters 8260B MSV Benzene	Results Analytical Meth	Units Hod: EPA 8260 ug/kg	Report Limit OB Preparation Me 3.6	DF ethod: E	PA 5035A 09/20/16 13:06	Analyzed 09/20/16 17:55	CAS No.	1c		
Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Methods ND ND	Units Units nod: EPA 8266 ug/kg ug/kg	Report Limit OB Preparation Me 3.6 3.6	DF ethod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06	Analyzed 09/20/16 17:55 09/20/16 17:55	CAS No. 71-43-2 100-41-4	1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Method ND ND ND	Units Units nod: EPA 8266 ug/kg ug/kg ug/kg	Report Limit OB Preparation Me 3.6	DF ethod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	Analyzed 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	CAS No. 71-43-2 100-41-4 98-82-8	1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether	Results Analytical Methods ND ND	Units Units nod: EPA 8266 ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit OB Preparation Me 3.6 3.6	DF ethod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Results Analytical Method ND ND ND S.0 ND	Units Units nod: EPA 8266 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6	omple s DF ethod: E 1 1 1 1	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Analytical Meth ND ND ND 5.0 ND	units Units nod: EPA 8266 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6	propriet sethod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Results Analytical Method ND ND ND S.0 ND	Units Units nod: EPA 8266 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	ethod: E 1 1 1 1 1 1 1	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Results Analytical Method ND ND ND S.0 ND	units Units nod: EPA 8266 ug/kg	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	propriet sethod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total)	Results Analytical Method ND ND ND S.0 ND	units Units nod: EPA 8266 ug/kg	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	ethod: E 1 1 1 1 1 1 1	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	Results Analytical Method ND ND ND S.0 ND	units units nod: EPA 8266 ug/kg	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	thod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Results Analytical Method ND ND ND S.0 ND	units un	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	thod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5	1c 1c 1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	Results Analytical Method ND ND ND S.0 ND	units un	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	thod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c		
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	Results Analytical Method ND ND ND S.0 ND	units un	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	thod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c		
Results reported on a "dry weigh Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S)	Results Analytical Method ND ND ND S.0 ND	units un	Report Limit OB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	thod: E	PA 5035A 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06 09/20/16 13:06	09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55 09/20/16 17:55	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c		

REPORT OF LABORATORY ANALYSIS

0.10

8.5

09/27/16 15:43



Project: Heath: Seneca Pace Project No.: 30196103

Date: 09/29/2016 09:21 AM

Sample: SB-26/SS-2/2-4' Lab ID: 30196103007 Collected: 09/14/16 14:10 Received: 09/16/16 08:18 Matrix: Solid

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 8260B	Preparation Me	thod: E	EPA 5035A			
Benzene	3450	ug/kg	234	50	09/22/16 13:31	09/22/16 21:05	71-43-2	1c
Ethylbenzene	2420	ug/kg	234	50	09/22/16 13:31	09/22/16 21:05	100-41-4	1c
sopropylbenzene (Cumene)	236	ug/kg	4.6	1	09/20/16 13:06	09/20/16 18:20	98-82-8	1c
Methyl-tert-butyl ether	41.7	ug/kg	4.6	1	09/20/16 13:06	09/20/16 18:20	1634-04-4	1c
Naphthalene	257	ug/kg	4.6	1	09/20/16 13:06	09/20/16 18:20	91-20-3	1c
Toluene	51.0	ug/kg	4.6	1	09/20/16 13:06	09/20/16 18:20	108-88-3	1c
1,2,4-Trimethylbenzene	6340	ug/kg	234	50	09/22/16 13:31	09/22/16 21:05	95-63-6	1c
1,3,5-Trimethylbenzene	2090	ug/kg	234	50	09/22/16 13:31	09/22/16 21:05	108-67-8	1c
Xylene (Total)	9080	ug/kg	703	50	09/22/16 13:31	09/22/16 21:05	1330-20-7	
Surrogates								
Toluene-d8 (S)	106	%	68-135	1	09/20/16 13:06	09/20/16 18:20	2037-26-5	
4-Bromofluorobenzene (S)	105	%	65-146	1	09/20/16 13:06	09/20/16 18:20	460-00-4	
1,2-Dichloroethane-d4 (S)	130	%	69-137	1	09/20/16 13:06	09/20/16 18:20	17060-07-0	
Dibromofluoromethane (S)	90	%	70-130	1	09/20/16 13:06	09/20/16 18:20	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D297	74-87					
Percent Moisture	19.7	%	0.10	1		09/27/16 15:43		



Project: Heath :Seneca Pace Project No.: 30196103

Date: 09/29/2016 09:21 AM

QC Batch: 233799 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30196103002, 30196103006, 30196103007

METHOD BLANK: 1146427 Matrix: Solid

Associated Lab Samples: 30196103002, 30196103006, 30196103007

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	09/20/16 12:58	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	09/20/16 12:58	
Benzene	ug/kg	ND	5.0	09/20/16 12:58	
Ethylbenzene	ug/kg	ND	5.0	09/20/16 12:58	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	09/20/16 12:58	
Methyl-tert-butyl ether	ug/kg	ND	5.0	09/20/16 12:58	
Naphthalene	ug/kg	ND	5.0	09/20/16 12:58	
Toluene	ug/kg	ND	5.0	09/20/16 12:58	
Xylene (Total)	ug/kg	ND	15.0	09/20/16 12:58	
1,2-Dichloroethane-d4 (S)	%	104	69-137	09/20/16 12:58	
4-Bromofluorobenzene (S)	%	94	65-146	09/20/16 12:58	
Dibromofluoromethane (S)	%	106	70-130	09/20/16 12:58	
Toluene-d8 (S)	%	95	68-135	09/20/16 12:58	

LABORATORY CONTROL SAMPLE:	1146428					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		21.2	106	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	21.5	107	74-129	
Benzene	ug/kg	20	19.2	96	71-137	
Ethylbenzene	ug/kg	20	20.0	100	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	21.2	106	78-133	
Methyl-tert-butyl ether	ug/kg	20	19.0	95	77-141	
Naphthalene	ug/kg	20	19.9	99	81-126	
Toluene	ug/kg	20	19.9	99	72-127	
Xylene (Total)	ug/kg	60	62.5	104	80-124	
1,2-Dichloroethane-d4 (S)	%			107	69-137	
4-Bromofluorobenzene (S)	%			100	65-146	
Dibromofluoromethane (S)	%			106	70-130	
Toluene-d8 (S)	%			99	68-135	

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



Project: Heath :Seneca Pace Project No.: 30196103

Date: 09/29/2016 09:21 AM

QC Batch: 233800 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30196103001, 30196103003, 30196103004, 30196103005

METHOD BLANK: 1146429 Matrix: Solid
Associated Lab Samples: 30196103001, 30196103003, 30196103004, 30196103005

Reporting Blank Qualifiers Parameter Result Limit Analyzed Units 1,2,4-Trimethylbenzene ND 250 09/20/16 12:32 ug/kg 1,3,5-Trimethylbenzene ug/kg ND 250 09/20/16 12:32 ND Benzene ug/kg 250 09/20/16 12:32 Ethylbenzene ug/kg ND 250 09/20/16 12:32 Isopropylbenzene (Cumene) ug/kg ND 250 09/20/16 12:32 Methyl-tert-butyl ether ug/kg ND 250 09/20/16 12:32 Naphthalene ug/kg ND 250 09/20/16 12:32 Toluene ug/kg ND 250 09/20/16 12:32 Xylene (Total) ug/kg ND 750 09/20/16 12:32 1,2-Dichloroethane-d4 (S) 108 09/20/16 12:32 % 69-137 4-Bromofluorobenzene (S) % 95 65-146 09/20/16 12:32 Dibromofluoromethane (S) % 105 70-130 09/20/16 12:32 Toluene-d8 (S) % 100 68-135 09/20/16 12:32

LABORATORY CONTROL SAMPLE:	1146430					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		21.2	106	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	21.5	107	74-129	
Benzene	ug/kg	20	19.2	96	71-137	
Ethylbenzene	ug/kg	20	20.0	100	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	21.2	106	78-133	
Methyl-tert-butyl ether	ug/kg	20	19.0	95	77-141	
Naphthalene	ug/kg	20	19.9	99	81-126	
Toluene	ug/kg	20	19.9	99	72-127	
Xylene (Total)	ug/kg	60	62.5	104	80-124	
1,2-Dichloroethane-d4 (S)	%			107	69-137	
4-Bromofluorobenzene (S)	%			100	65-146	
Dibromofluoromethane (S)	%			106	70-130	
Toluene-d8 (S)	%			99	68-135	

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



Project: Heath :Seneca Pace Project No.: 30196103

QC Batch: 234137 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30196103007

METHOD BLANK: 1148345 Matrix: Solid

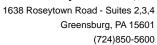
Associated Lab Samples: 30196103007

Date: 09/29/2016 09:21 AM

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	250	09/22/16 13:12	
1,3,5-Trimethylbenzene	ug/kg	ND	250	09/22/16 13:12	
Benzene	ug/kg	ND	250	09/22/16 13:12	
Ethylbenzene	ug/kg	ND	250	09/22/16 13:12	
Xylene (Total)	ug/kg	ND	750	09/22/16 13:12	
1,2-Dichloroethane-d4 (S)	%	113	69-137	09/22/16 13:12	
4-Bromofluorobenzene (S)	%	93	65-146	09/22/16 13:12	
Dibromofluoromethane (S)	%	104	70-130	09/22/16 13:12	
Toluene-d8 (S)	%	100	68-135	09/22/16 13:12	

LABORATORY CONTROL SAMPLE	: 1148346					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		21.9	110	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	22.2	111	74-129	
Benzene	ug/kg	20	20.1	101	71-137	
Ethylbenzene	ug/kg	20	19.7	98	78-126	
Xylene (Total)	ug/kg	60	61.4	102	80-124	
1,2-Dichloroethane-d4 (S)	%			114	69-137	
4-Bromofluorobenzene (S)	%			98	65-146	
Dibromofluoromethane (S)	%			105	70-130	
Toluene-d8 (S)	%			98	68-135	

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





QUALITY CONTROL DATA

Project: Heath: Seneca Pace Project No.: 30196103

QC Batch: 234583 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30196103001, 30196103002, 30196103003, 30196103004, 30196103005, 30196103006, 30196103007

SAMPLE DUPLICATE: 1151430

30196102001 Dup

ParameterUnitsResultResultRPDQualifiersPercent Moisture%13.911.518

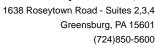
SAMPLE DUPLICATE: 1151431

Date: 09/29/2016 09:21 AM

 Parameter
 Units
 Result Result Result RPD
 Qualifiers

 Percent Moisture
 %
 16.2
 18.3
 12

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





QUALIFIERS

Project: Heath :Seneca Pace Project No.: 30196103

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: 233799

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 233800

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 234137

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

Date: 09/29/2016 09:21 AM

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Heath :Seneca Pace Project No.: 30196103

Date: 09/29/2016 09:21 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
30196103001	SB-18/SS-4/6-8'	EPA 5035A	233800	EPA 8260B	233903
30196103002	SB-19/SS-1/0-2'	EPA 5035A	233799	EPA 8260B	233902
30196103003	SB-21/SS-2/2-4'	EPA 5035A	233800	EPA 8260B	233903
30196103004	SB-22/SS-4/6-8'	EPA 5035A	233800	EPA 8260B	233903
30196103005	SB-24/SS-4/6-8'	EPA 5035A	233800	EPA 8260B	233903
30196103006	SB-25/SS-2/2-4'	EPA 5035A	233799	EPA 8260B	233902
30196103007	SB-26/SS-2/2-4'	EPA 5035A	233799	EPA 8260B	233902
30196103007	SB-26/SS-2/2-4'	EPA 5035A	234137	EPA 8260B	234227
30196103001	SB-18/SS-4/6-8'	ASTM D2974-87	234583		
30196103002	SB-19/SS-1/0-2'	ASTM D2974-87	234583		
30196103003	SB-21/SS-2/2-4'	ASTM D2974-87	234583		
30196103004	SB-22/SS-4/6-8'	ASTM D2974-87	234583		
30196103005	SB-24/SS-4/6-8'	ASTM D2974-87	234583		
30196103006	SB-25/SS-2/2-4'	ASTM D2974-87	234583		
30196103007	SB-26/SS-2/2-4'	ASTM D2974-87	234583		

CHAIN-0 WO#: 30196103

ent ately.

GROUND WATER Z Page: REGULATORY AGENCY RCRA STATE: Site Location NPDES TSU 💉 141562 10101 J. 16 16 6 Company Name: Address: Pace Quote Reference: Pace Project Manager: Pace Profile #: Theth Section B Required Project Information: Purchase Order No.: Project Number: Project Name: Report To: Copy To: J. 19.51 Company: STank. Face Analytical www.pacelabs.com

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Address:

Section A Required Client Information:

J.

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Email To:

Fax:

Shane: Requested Due Date/TAT:

DRINKING WATER

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OTHER

Requested Analysis Filtered (Y/N)

	Section D Matrix Codes Required Client Information MATRIX / CODE				COLLECTED	стер			P	Preservatives	ıtives	ĴN/A						1			
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F-ALL-Q-020rev.07, 15-May-2007

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

Sample Condition Upon Receipt Pittsburgh

Pace Analytical C	lient Name:	Cri	<u> </u>	5 2	Associates	Project # 30 1 9 6 1 0	3
Courier: Fed Ex UF	PS □ USPS Clier	at 🗆	Comm	ercial	☐ Pace Other		
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Chain of Custody Relinquishe	ed:	\ <u>\</u>	ļ	-	3.		
Sampler Name & Signature o	n COC:	/			4.		
Sample Labels match COC:	.,		<u> </u>	<u></u>	5.		
-Includes date/time/ID/Ana	ılysis Matrix: <u>S</u> L	1 -	r	ī			
Samples Arrived within Hold	Time:		ļ		6.		
Short Hold Time Analysis (<	72hr remaining):	ļ	<u> </u>		7.		
Rush Turn Around Time Re	quested:				8.		
Sufficient Volume:		/			9.Ziploc sentu	17th 5B-19/55-1/0-2'. Coolere	Jater 1
Correct Containers Used:		\leq			10.		True V
-Pace Containers Used:		/					
Containers Intact:		V			11.		
Filtered volume received for D	Dissolved tests			V	12.		
All containers needing preservation	have been checked.				13.		
All containers needing preservation compliance with EPA recommend				/			
exceptions: (VOA) coliform, T	OC OSC Phonolics				Initial when completed	Date/time of preservation	
exceptions: VOA,7 collionii, 1	OC, OAG, Flieliolics				Lot # of added	preservation	
					preservative		
Headspace in VOA Vials (>6r	mm):			<u> </u>	14.		
Trip Blank Present:				1	15.		
Trip Blank Custody Seals Pres				1	I-Walinbar		
Rad Aqueous Samples Scre	ened > 0.5 mrem/hr			1	Initial when completed:	Date: 9-16-16	
Client Notification/ Resolution	on:			ound up not maken			
				Date/	Time:	Contacted By:	
Comments/ Resolution:							
						3	

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

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

(724)850-5600





November 02, 2016

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

RE: Project: HO: Seneca

Pace Project No.: 30199799

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on October 20, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

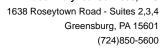
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO: Seneca Pace Project No.: 30199799

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282 South Dakota Certification

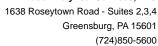
Tennessee Certification #: TN2867

Montana Certification #: Cert 0082

Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L





SAMPLE ANALYTE COUNT

Project: HO: Seneca Pace Project No.: 30199799

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30199799001	MW-7 2.5-4.5	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA
30199799002	MW-9 / SS-1/0.5-2.5'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	SRA	1	PASI-PA



Project: HO: Seneca Pace Project No.: 30199799

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: November 02, 2016

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 237977

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

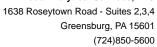
Additional Comments:

Analyte Comments:

QC Batch: 237977

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-7 2.5-4.5 (Lab ID: 30199799001)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene





Project: HO: Seneca Pace Project No.: 30199799

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: November 02, 2016

Analyte Comments:

QC Batch: 237977

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-7 2.5-4.5 (Lab ID: 30199799001)
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-9 / SS-1/0.5-2.5' (Lab ID: 30199799002)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene

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

(724)850-5600



ANALYTICAL RESULTS

Project: HO: Seneca Pace Project No.: 30199799

Percent Moisture

Percent Moisture

Date: 11/02/2016 02:48 PM

Collected: 10/17/16 14:30 Received: 10/20/16 15:00 Sample: MW-7 2.5-4.5 Lab ID: 30199799001 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: EPA 8260B Preparation Method: EPA 5035A 8260B MSV 5.1 Benzene 5.2 ug/kg 10/26/16 09:28 10/26/16 13:17 71-43-2 1c Ethylbenzene ND ug/kg 5.1 10/26/16 09:28 10/26/16 13:17 100-41-4 1c Isopropylbenzene (Cumene) ND ug/kg 5.1 10/26/16 09:28 10/26/16 13:17 98-82-8 1 1c Methyl-tert-butyl ether ND ug/kg 5.1 1 10/26/16 09:28 10/26/16 13:17 1634-04-4 1c 10/26/16 09:28 10/26/16 13:17 91-20-3 Naphthalene ND ug/kg 5.1 1 1c Toluene ND 5.1 10/26/16 09:28 10/26/16 13:17 108-88-3 ug/kg 1 1c 1,2,4-Trimethylbenzene ND 5.1 10/26/16 09:28 10/26/16 13:17 95-63-6 ug/kg 1 1c 1,3,5-Trimethylbenzene NΠ 5.1 10/26/16 09:28 10/26/16 13:17 108-67-8 ug/kg 1 1c 10/26/16 09:28 10/26/16 13:17 1330-20-7 Xylene (Total) ND 15.3 ug/kg 1 Surrogates 105 10/26/16 09:28 10/26/16 13:17 2037-26-5 Toluene-d8 (S) % 68-135 1 4-Bromofluorobenzene (S) 109 % 65-146 1 10/26/16 09:28 10/26/16 13:17 460-00-4 1,2-Dichloroethane-d4 (S) 119 % 69-137 10/26/16 09:28 10/26/16 13:17 17060-07-0 1 Dibromofluoromethane (S) 101 % 70-130 10/26/16 09:28 10/26/16 13:17 1868-53-7 1 **Percent Moisture** Analytical Method: ASTM D2974-87 Percent Moisture 23.9 % 0.10 1 11/01/16 16:59 Sample: MW-9 / SS-1/0.5-2.5' Lab ID: 30199799002 Collected: 10/18/16 09:45 Received: 10/20/16 15:00 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. DF Qual **Parameters** Results Units Report Limit Prepared Analyzed CAS No. 8260B MSV Analytical Method: EPA 8260B Preparation Method: EPA 5035A Benzene ND ug/kg 5.0 1 10/26/16 09:28 10/26/16 13:42 71-43-2 1c Ethylbenzene ND ug/kg 5.0 10/26/16 09:28 10/26/16 13:42 100-41-4 1 1c ND 5.0 Isopropylbenzene (Cumene) ug/kg 10/26/16 09:28 10/26/16 13:42 98-82-8 1 1c ND 5.0 10/26/16 09:28 10/26/16 13:42 1634-04-4 Methyl-tert-butyl ether ug/kg 1 1c Naphthalene ND ug/kg 5.0 10/26/16 09:28 10/26/16 13:42 91-20-3 1 1c 5.0 Toluene ND ug/kg 1 10/26/16 09:28 10/26/16 13:42 108-88-3 1c 1,2,4-Trimethylbenzene ND ug/kg 5.0 1 10/26/16 09:28 10/26/16 13:42 95-63-6 1c 1,3,5-Trimethylbenzene ND ug/kg 5.0 10/26/16 09:28 10/26/16 13:42 108-67-8 1 1c Xylene (Total) ND 14.9 10/26/16 09:28 10/26/16 13:42 1330-20-7 ug/kg Surrogates 104 % 68-135 10/26/16 09:28 10/26/16 13:42 2037-26-5 Toluene-d8 (S) 1 4-Bromofluorobenzene (S) 104 % 65-146 10/26/16 09:28 10/26/16 13:42 460-00-4 1 % 1,2-Dichloroethane-d4 (S) 118 69-137 1 10/26/16 09:28 10/26/16 13:42 17060-07-0 Dibromofluoromethane (S) 103 % 70-130 1 10/26/16 09:28 10/26/16 13:42 1868-53-7

REPORT OF LABORATORY ANALYSIS

0.10

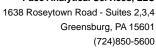
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11/01/16 16:59

Analytical Method: ASTM D2974-87

%

14.2





QUALITY CONTROL DATA

Project: HO: Seneca Pace Project No.: 30199799

Date: 11/02/2016 02:48 PM

QC Batch: 237977 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30199799001, 30199799002

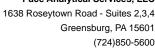
METHOD BLANK: 1169606 Matrix: Solid

Associated Lab Samples: 30199799001, 30199799002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND -	5.0	10/26/16 12:51	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	10/26/16 12:51	
Benzene	ug/kg	ND	5.0	10/26/16 12:51	
Ethylbenzene	ug/kg	ND	5.0	10/26/16 12:51	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	10/26/16 12:51	
Methyl-tert-butyl ether	ug/kg	ND	5.0	10/26/16 12:51	
Naphthalene	ug/kg	ND	5.0	10/26/16 12:51	
Toluene	ug/kg	ND	5.0	10/26/16 12:51	
Xylene (Total)	ug/kg	ND	15.0	10/26/16 12:51	
1,2-Dichloroethane-d4 (S)	%	112	69-137	10/26/16 12:51	
4-Bromofluorobenzene (S)	%	99	65-146	10/26/16 12:51	
Dibromofluoromethane (S)	%	101	70-130	10/26/16 12:51	
Toluene-d8 (S)	%	105	68-135	10/26/16 12:51	

LABORATORY CONTROL SAMPLE:	1169607					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		17.4	87	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	20.2	101	74-129	
Benzene	ug/kg	20	16.3	81	71-137	
Ethylbenzene	ug/kg	20	16.1	81	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	20.0	100	78-133	
Methyl-tert-butyl ether	ug/kg	20	18.7	93	77-141	
Naphthalene	ug/kg	20	20.0	100	81-126	
Toluene	ug/kg	20	16.5	82	72-127	
Xylene (Total)	ug/kg	60	48.5	81	80-124	
1,2-Dichloroethane-d4 (S)	%			105	69-137	
4-Bromofluorobenzene (S)	%			122	65-146	
Dibromofluoromethane (S)	%			103	70-130	
Toluene-d8 (S)	%			104	68-135	

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





QUALITY CONTROL DATA

Project: HO: Seneca Pace Project No.: 30199799

QC Batch: 238798 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30199799001, 30199799002

SAMPLE DUPLICATE: 1173545

 Percent Moisture
 Units
 30199740001 Result
 Dup Result
 RPD
 Qualifiers

 21.0
 20.7
 2

SAMPLE DUPLICATE: 1173546

Date: 11/02/2016 02:48 PM

 Parameter
 Units
 30199799001 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 23.9
 25.5
 6

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



QUALIFIERS

Project: HO: Seneca Pace Project No.: 30199799

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

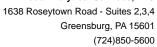
Batch: 237977

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

Date: 11/02/2016 02:48 PM

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO: Seneca Pace Project No.: 30199799

Date: 11/02/2016 02:48 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30199799001	MW-7 2.5-4.5	EPA 5035A	237977	EPA 8260B	238135
30199799002	MW-9 / SS-1/0.5-2.5'	EPA 5035A	237977	EPA 8260B	238135
30199799001	MW-7 2.5-4.5	ASTM D2974-87	238798		
30199799002	MW-9 / SS-1/0.5-2.5'	ASTM D2974-87	238798		

CHAIN-OF-CUSTODY / Analytical Request Doct WO#: 30199799

DRINKING WATER 2061250 OTHER NPDES GROUND WATER REGULATORY AGENCY RCRA STATE: Site Location TUST. Delaws PA 15626 Company Name: " PSSCOCOTOS, Inc. Pirith Attention: Cary Cribbs Laria Address:

Pace Quote
Reference:
Respect Ranger:
Ranager:
Pace Profile #: Invoice Information: Section C HO: Sewaca Report To: Cary Cribis CODY TO: Gary Cribbs Section B Required Project Information: Purchase Order No.: Project Number: Project Name: Email To: Georphis @ Combleson & Assecrates, Con Octos To Br ompany: STANdard Face Analytical"
www.pacelabs.com Section A Required Client Information: Phone: 454-2310 Requested Due Date/TAT: Address: Scr 44 15620

Requested Analysis Filtered (Y/N)

DATE Signed Minkinghy: A hallysis Test A hallysis Test	SAMPLE ID Control When the Way was a second of the State		Section D Required Client Information	흥성	Alania markana anna an			S	COLLECTED	, О				Prese	Preservatives	Sé	Î N /A						1				
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	Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.								PRINT	Name of S TURE of S	AMPLER AMPLER		1000	1 3	12/2	200	-	DATE Sign«			1			Ice (Y/N	Sealed Coc	ini səlqmsi (N/Y)	

Sample Condition Upon Receipt Pittsburgh

30199799

Pace Analytical Client Name:	CVIV	0,02	14 F	Associates Project#
Courier: Fed Ex UPS USPS Clie				
Custody Seal on Cooler/Box Present:	□ n	-		intact: ☐ yes ☐ no
Thermometer Used	Type o	f Ice:(Wet	Blue None
Cooler Temperature Observed Temp	5.4	٠C	Corre	ection Factor: -0.2 °C Final Temp: 5.7 °C
Temp should be above freezing to 6°C				Date and Initials of person examining contents:
	IV.	No	N/A	contents:
Comments:	Yes	INO	19/7	4
Chain of Custody Present:	- - , 			1.
Chain of Custody Filled Out:	14			2.
Chain of Custody Relinquished:				3.
Sampler Name & Signature on COC:	1/			4.
Sample Labels match COC:	,匚尘			5.
-Includes date/time/ID/Analysis Matrix: 5	<u>L</u>		<u> </u>	
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):		V		7.
Rush Turn Around Time Requested:		/		8.
Sufficient Volume:	V			9.
Correct Containers Used:				<u>_</u> 10.
-Pace Containers Used:	V			
Containers Intact:	V			11.
Filtered volume received for Dissolved tests			/	12.
All containers needing preservation have been checked.			1	13.
All containers needing preservation are found to be in				/
compliance with EPA recommendation.		<u> </u>	L	Initial when Date/time of
exceptions: VOA) coliform, TOC, O&G, Phenolic	cs			completed preservation
exceptions. Porty domesting 12 sy				Lot # of added preservative
			1	14.
Headspace in VOA Vials (>6mm):			1	15.
Trip Blank Present:			1	*
Trip Blank Custody Seals Present Rad Aqueous Samples Screened > 0.5 mrem/l	hr		1	Initial when completed: Date:
		<u> </u>	1	Completed. 7 11
Client Notification/ Resolution:			Date	/Time: Contacted B <u>y:</u>
Person Contacted:				·
Comments/ Resolution:				

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

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

(724)850-5600



November 15, 2016

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

RE: Project: HO: Seneca

Pace Project No.: 30201304

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on November 02, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

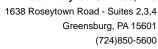
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO: Seneca Pace Project No.: 30201304

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051

Montana Certification #: Cert 0082

New Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282 South Dakota Certification

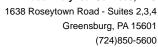
Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

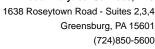




SAMPLE ANALYTE COUNT

Project: HO: Seneca Pace Project No.: 30201304

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30201304001	MW-8/SS-5/10-12'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30201304002	MW-8/SS-7/14-16'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA





Project: HO: Seneca Pace Project No.: 30201304

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: November 15, 2016

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 239206

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

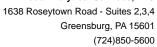
Additional Comments:

Analyte Comments:

QC Batch: 239206

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-8/SS-5/10-12' (Lab ID: 30201304001)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene





Project: HO: Seneca Pace Project No.: 30201304

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: November 15, 2016

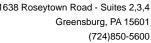
Analyte Comments:

QC Batch: 239206

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-8/SS-5/10-12' (Lab ID: 30201304001)
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-8/SS-7/14-16' (Lab ID: 30201304002)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene

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





ANALYTICAL RESULTS

Project: HO: Seneca Pace Project No.: 30201304

Percent Moisture

Date: 11/15/2016 01:42 PM

	Lab ID: 302		Collected: 11/01/1				fatrix: Solid	
Results reported on a "dry weigl Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Metl	nod: EPA 826	60B Preparation Me	ethod: E	PA 5035A			
Benzene	10.9	ug/kg	4.6	1	11/04/16 09:29	11/04/16 10:56	71-43-2	1c
Ethylbenzene	ND	ug/kg	4.6	1		11/04/16 10:56		1c
Isopropylbenzene (Cumene)	ND	ug/kg	4.6	1	11/04/16 09:29	11/04/16 10:56	98-82-8	1c
Methyl-tert-butyl ether	166	ug/kg	4.6	1	11/04/16 09:29	11/04/16 10:56	1634-04-4	1c
Naphthalene	ND	ug/kg	4.6	1	11/04/16 09:29	11/04/16 10:56	91-20-3	1c
Toluene	ND	ug/kg	4.6	1	11/04/16 09:29	11/04/16 10:56	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	4.6	1	11/04/16 09:29	11/04/16 10:56	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	4.6	1	11/04/16 09:29	11/04/16 10:56	108-67-8	1c
Xylene (Total)	ND	ug/kg	13.9	1	11/04/16 09:29	11/04/16 10:56	1330-20-7	
Surrogates		0 0						
Toluene-d8 (S)	103	%	68-135	1	11/04/16 09:29	11/04/16 10:56	2037-26-5	
4-Bromofluorobenzene (S)	95	%	65-146	1	11/04/16 09:29	11/04/16 10:56	460-00-4	
1,2-Dichloroethane-d4 (S)	113	%	69-137	1	11/04/16 09:29	11/04/16 10:56	17060-07-0	
Dibromofluoromethane (S)	98	%	70-130	1	11/04/16 09:29	11/04/16 10:56	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D	2974-87					
Percent Moisture	10.6	%	0.10	1		11/14/16 14:23		
Sample: MW.9/SS 7/4.46'	Lab ID: 302	01204002	Collected: 11/01/1	6 12:20) Paggiyad: 11	/02/16 14:39 N	Natrix: Salid	
Sample: MW-8/SS-7/14-16' Results reported on a "dry weigl Parameters	Lab ID: 302 nt" basis and are adj Results		Collected: 11/01/1 ercent moisture, sa				Matrix: Solid CAS No.	Qua
Results reported on a "dry weigl	nt" basis and are adj	Units	Report Limit	DF	Prepared	tions.		Qua
Results reported on a "dry weight Parameters 8260B MSV	Results Analytical Meth	Units nod: EPA 826	Report Limit	DF ethod: E	Prepared EPA 5035A	Analyzed	CAS No.	
Results reported on a "dry weight Parameters 8260B MSV Benzene	Results Analytical Meth	Units Hod: EPA 826 ug/kg	Report Limit 60B Preparation Me 3.6	DF DF ethod: E	Prepared PA 5035A 11/04/16 09:29	Analyzed 11/04/16 11:22	CAS No.	1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Method ND ND	Units Hod: EPA 826 ug/kg ug/kg	Report Limit 60B Preparation Me 3.6 3.6	DF ethod: E	Prepared PA 5035A 11/04/16 09:29 11/04/16 09:29	Analyzed 11/04/16 11:22 11/04/16 11:22	CAS No. 71-43-2 100-41-4	1c 1c
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene)	Results Analytical Method ND ND ND	Units Od: EPA 826 ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 3.6 3.6 3.6	DF ethod: E	Prepared PA 5035A 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	Analyzed 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	CAS No. 71-43-2 100-41-4 98-82-8	1c 1c 1c
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether	Results Analytical Method ND ND ND ND 7.2	Units Od: EPA 826 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit 60B Preparation Me 3.6 3.6 3.6 3.6	ethod: E	Prepared PA 5035A 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	Analyzed 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	CAS No. 71-43-2 100-41-4 98-82-8 1634-04-4	1c 1c 1c 1c
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Results Analytical Method ND ND ND ND 7.2 ND	Units Od: EPA 826 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit	propriet sethod: E	Prepared PA 5035A 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	Analyzed 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3	1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Analytical Methods ND	Units Units nod: EPA 826 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit	properties of the second secon	Prepared Prepared 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3	1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Analytical Methods ND	Units Units nod: EPA 826 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit	property setting the setting s	Prepared PA 5035A 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Analytical Methods ND	Units Units nod: EPA 826 ug/kg	Report Limit	ethod: E 1 1 1 1 1 1 1 1	Prepared Prepared 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c
Results reported on a "dry weight Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total)	Analytical Methods ND	Units Units nod: EPA 826 ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	Report Limit	property setting the setting s	Prepared Prepared 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Analytical Methods ND	Units Units nod: EPA 826 ug/kg	Report Limit	ethod: E 1 1 1 1 1 1 1 1	Prepared PA 5035A 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Analytical Methods ND	Units Units nod: EPA 826 ug/kg	Report Limit SOB Preparation Me 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.	ample s DF ethod: E 1 1 1 1 1 1 1 1	Prepared Prepared 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	Results Analytical Methods ND	Units Units nod: EPA 826 ug/kg	Report Limit	ethod: E	Prepared Prepared 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	1c 1c 1c 1c 1c 1c
Results reported on a "dry weight" Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	Results Analytical Methods ND	Units Units Lod: EPA 826 ug/kg Report Limit	property sethod: Each of the sethod: Each of t	Prepared Prepared 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29 11/04/16 09:29	11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22 11/04/16 11:22	71-43-2 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	1c 1c 1c 1c 1c 1c	

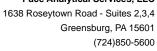
REPORT OF LABORATORY ANALYSIS

0.10 1

11/14/16 14:23

%

9.0





QUALITY CONTROL DATA

Project: HO: Seneca Pace Project No.: 30201304

Date: 11/15/2016 01:42 PM

QC Batch: 239206 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30201304001, 30201304002

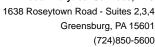
METHOD BLANK: 1175453 Matrix: Solid

Associated Lab Samples: 30201304001, 30201304002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND ND	5.0	11/04/16 09:08	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	11/04/16 09:08	
Benzene	ug/kg	ND	5.0	11/04/16 09:08	
Ethylbenzene	ug/kg	ND	5.0	11/04/16 09:08	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	11/04/16 09:08	
Methyl-tert-butyl ether	ug/kg	ND	5.0	11/04/16 09:08	
Naphthalene	ug/kg	ND	5.0	11/04/16 09:08	
Toluene	ug/kg	ND	5.0	11/04/16 09:08	
Xylene (Total)	ug/kg	ND	15.0	11/04/16 09:08	
1,2-Dichloroethane-d4 (S)	%	98	69-137	11/04/16 09:08	
4-Bromofluorobenzene (S)	%	97	65-146	11/04/16 09:08	
Dibromofluoromethane (S)	%	94	70-130	11/04/16 09:08	
Toluene-d8 (S)	%	102	68-135	11/04/16 09:08	

LABORATORY CONTROL SAMPLE:	1175454					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		19.0	95	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	17.5	88	74-129	
Benzene	ug/kg	20	18.3	92	71-137	
Ethylbenzene	ug/kg	20	18.5	92	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	17.7	89	78-133	
Methyl-tert-butyl ether	ug/kg	20	18.7	94	77-141	
Naphthalene	ug/kg	20	16.9	85	81-126	
Toluene	ug/kg	20	17.6	88	72-127	
Xylene (Total)	ug/kg	60	50.7	84	80-124	
1,2-Dichloroethane-d4 (S)	%			103	69-137	
4-Bromofluorobenzene (S)	%			98	65-146	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			103	68-135	

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





QUALITY CONTROL DATA

Project: HO: Seneca Pace Project No.: 30201304

QC Batch: 240179 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30201304001, 30201304002

SAMPLE DUPLICATE: 1180712

Parameter Units Result Result RPD Qualifiers

Percent Moisture % 11.1 9.5 16

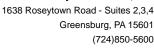
SAMPLE DUPLICATE: 1180713

Date: 11/15/2016 01:42 PM

 Parameter
 Units
 30201526001 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 1.5
 1.5
 0

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





QUALIFIERS

Project: HO: Seneca Pace Project No.: 30201304

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

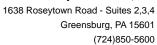
Batch: 239206

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

Date: 11/15/2016 01:42 PM

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO: Seneca Pace Project No.: 30201304

Date: 11/15/2016 01:42 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30201304001	MW-8/SS-5/10-12'	EPA 5035A	239206	EPA 8260B	239490
30201304002	MW-8/SS-7/14-16'	EPA 5035A	239206	EPA 8260B	239490
30201304001	MW-8/SS-5/10-12'	ASTM D2974-87	240179		
30201304002	MW-8/SS-7/14-16'	ASTM D2974-87	240179		

CHAIN-OF-CUSTODY / Analytical Request Document

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

The Chain-of-Custo

Face Analytical www.pacelabs.com

Pace Project No./ Lab I.D. DRINKING WATER SAMPLE CONDITIONS 0 OTHER 2 Ö ŏ 0 WO#:30201304 8 B 7 GROUND WATER Residu 0 Page: 00 REGULATORY AGENCY RCRA Requested Analysis Filtered (Y/N) TIME である STATE Site Location NPDES 11-2-16 DATE ₩ NST Grayce 15625 ACCEPTED BY / AFFILIATION Tace 225 9 30 🌡 Je9T alaylsnA 🌡 N/A Delmont төн៛С Methanol Preservatives Na₂S₂O₃ N HOBN HCI Address: Box 44 Invoice Information: HNO³ Attention: Company Name: ^⁵OS[™]H Pace Quote Reference: Pace Project Manager: ace Profile #: Section C Unpreserved TIME · 7 7 # OF CONTAINERS SAMPLE TEMP AT COLLECTION DATE (330 330 TIME COMPOSITE END/GRAB DATE COLLECTED RELINQUISHED BY / AFFILIATION TIME COMPOSITE START Sereci Cibb DATE Required Project Information: Project Name: Copy To: SAMPLE TYPE (G=GRAB C=COMP) Report To: Purchase Order No. Project Number: 35 S (see valid codes to left) **MATRIX CODE** Section B Matrix Codes
MATRIX / CODE Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other Email To. bbs @ Gribbs and Associates 10-12 131.51 5457 1157 15626 ADDITIONAL COMMENTS 547 PIES (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE Company, 55-2 SAMPLE ID 55 Required Client Information: Required Client Information Phone: Requested Due Date/TAT: Address: Boy 44 Dolmont 2012 シ Anchze Section D PADEP Maria Section A 10 7 12 7 ဖ 7 m 4 2 œ 6 H Mati

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 4.5% per month for any invoices not paid within 30 days.

(N/Y)

Samples Intact

(N/Y)

Sealed Cooler

Ice (Y/N)

Received on

O° ni qmeT

13016

16

DATE Signed (MM/DD/YY):

2

2000

PRINT Name of SAMPLER: SIGNATURE of SAMPLER:

SAMPLER NAME AND SIGNATURE

ORIGINAL

Page 11 of 12

Darsnelers

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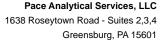
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F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt Pittsburgh Client Name: Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other Tracking #: Seals intact: ☐ yes ☐ no Thermometer Used Type of Ice: (We) Blue None Correction Factor: 0.2 °C Final Temp: 16 ° C **Cooler Temperature** Observed Temp Temp should be above freezing to 6°C Date and Initials of person examining contents: N/A Comments: Yes No Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: З. Sampler Name & Signature on COC: Sample Labels match COC: Matrix: C -Includes date/time/ID/Analysis Samples Arrived within Hold Time: Short Hold Time Analysis (<72hr remaining): Rush Turn Around Time Requested: 8. Sufficient Volume: Correct Containers Used: 10. -Pace Containers Used: Containers Intact: 11. Filtered volume received for Dissolved tests All containers needing preservation have been checked. 13. All containers needing preservation are found to be in compliance with EPA recommendation. Date/time of Initial when/ exceptions: VOA, coliform, TOC, O&G, Phenolics completed preservation Lot # of added preservative Headspace in VOA Vials (>6mm): 14. Trip Blank Present: 15. Trip Blank Custody Seals Present Initial when Rad Aqueous Samples Screened > 0.5 mrem/hr Date: completed: Client Notification/ Resolution: Person Contacted: Contacted By: Comments/ Resolution:

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

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



(724)850-5600



December 02, 2016

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

RE: Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on November 16, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

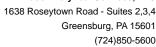
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

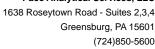


SAMPLE ANALYTE COUNT

Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30202686001	MW-6 4'-6'	EPA 8260B		13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30202686002	MW-6 8'-10'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30202686003	MW-10 6'-8'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30202686004	MW-10 8'-10'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30202686005 MW-11 4'-6'	MW-11 4'-6'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30202686006	MW-11 6'-8'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA





Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: December 02, 2016

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 241302

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

QC Batch: 241457

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

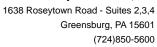
Additional Comments:

Analyte Comments:

QC Batch: 241302

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-10 6'-8' (Lab ID: 30202686003)
 - 1,2,4-Trimethylbenzene





Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

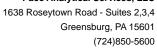
Date: December 02, 2016

Analyte Comments:

QC Batch: 241302

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-10 6'-8' (Lab ID: 30202686003)
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-11 4'-6' (Lab ID: 30202686005)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-11 6'-8' (Lab ID: 30202686006)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-6 4'-6' (Lab ID: 30202686001)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-6 8'-10' (Lab ID: 30202686002)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene





Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: December 02, 2016

Analyte Comments:

QC Batch: 241302

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

• MW-6 8'-10' (Lab ID: 30202686002)

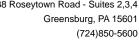
• Toluene

QC Batch: 241457

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-10 8'-10' (Lab ID: 30202686004)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene

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





ANALYTICAL RESULTS

Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

1,2,4-Trimethylbenzene

1,3,5-Trimethylbenzene

4-Bromofluorobenzene (S)

1,2-Dichloroethane-d4 (S)

Date: 12/02/2016 04:00 PM

Xylene (Total)

Toluene-d8 (S)

Percent Moisture

Surrogates

Lab ID: 30202686001 Sample: MW-6 4'-6' Collected: 11/15/16 12:40 Received: 11/16/16 08:11 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: EPA 8260B Preparation Method: EPA 5035A 8260B MSV 5.4 Benzene ND ug/kg 11/23/16 11:58 11/23/16 12:27 71-43-2 1c Ethylbenzene ND ug/kg 5.4 11/23/16 11:58 11/23/16 12:27 100-41-4 1c Isopropylbenzene (Cumene) ND ug/kg 5.4 11/23/16 11:58 11/23/16 12:27 98-82-8 1 1c Methyl-tert-butyl ether ND ug/kg 5.4 1 11/23/16 11:58 11/23/16 12:27 1634-04-4 1c Naphthalene 5.5 ug/kg 5.4 1 11/23/16 11:58 11/23/16 12:27 91-20-3 1c Toluene ND 5.4 11/23/16 11:58 11/23/16 12:27 108-88-3 ug/kg 1 1c 1,2,4-Trimethylbenzene ND 5.4 11/23/16 11:58 11/23/16 12:27 95-63-6 ug/kg 1 1c 1,3,5-Trimethylbenzene NΠ 5.4 11/23/16 11:58 11/23/16 12:27 108-67-8 ug/kg 1 1c 11/23/16 11:58 11/23/16 12:27 1330-20-7 Xylene (Total) ND 16.1 ug/kg 1 Surrogates Toluene-d8 (S) 102 % 68-135 1 11/23/16 11:58 11/23/16 12:27 2037-26-5 4-Bromofluorobenzene (S) 96 % 65-146 1 11/23/16 11:58 11/23/16 12:27 460-00-4 1,2-Dichloroethane-d4 (S) 108 % 69-137 1 11/23/16 11:58 11/23/16 12:27 17060-07-0 Dibromofluoromethane (S) 95 % 70-130 1 11/23/16 11:58 11/23/16 12:27 1868-53-7 **Percent Moisture** Analytical Method: ASTM D2974-87 Percent Moisture 20.0 % 0.10 11/30/16 16:35 1 Lab ID: 30202686002 Collected: 11/15/16 12:50 Sample: MW-6 8'-10' Received: 11/16/16 08:11 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. DF Qual **Parameters** Results Units Report Limit Prepared Analyzed CAS No. 8260B MSV Analytical Method: EPA 8260B Preparation Method: EPA 5035A Benzene ND ug/kg 4.4 1 11/23/16 11:58 11/23/16 12:49 71-43-2 1c Ethylbenzene ND ug/kg 4.4 11/23/16 11:58 11/23/16 12:49 100-41-4 1 1c ND Isopropylbenzene (Cumene) ug/kg 4.4 11/23/16 11:58 11/23/16 12:49 98-82-8 1 1c ND 11/23/16 11:58 11/23/16 12:49 1634-04-4 Methyl-tert-butyl ether ug/kg 4.4 1 1c Naphthalene ND ug/kg 4.4 11/23/16 11:58 11/23/16 12:49 91-20-3 1 1c Toluene ND ug/kg 4.4 1 11/23/16 11:58 11/23/16 12:49 108-88-3 1c

Dibromofluoromethane (S) 96 % 70-130 Percent Moisture Analytical Method: ASTM D2974-87

ND

ND

ND

101

93

108

10.5

ug/kg

ug/kg

ug/kg

%

%

%

%

11/30/16 16:36

11/23/16 11:58 11/23/16 12:49 95-63-6

11/23/16 11:58 11/23/16 12:49 108-67-8

11/23/16 11:58 11/23/16 12:49 1330-20-7

11/23/16 11:58 11/23/16 12:49 2037-26-5

11/23/16 11:58 11/23/16 12:49 460-00-4

11/23/16 11:58 11/23/16 12:49 17060-07-0

11/23/16 11:58 11/23/16 12:49 1868-53-7

REPORT OF LABORATORY ANALYSIS

4.4

4.4

13.3

68-135

65-146

69-137

0.10

1

1

1

1

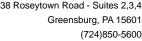
1

1

1

1c

1c





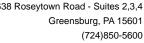
Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Date: 12/02/2016 04:00 PM

Lab ID: 30202686003 Sample: MW-10 6'-8' Collected: 11/15/16 11:50 Received: 11/16/16 08:11 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: EPA 8260B Preparation Method: EPA 5035A 8260B MSV Benzene ND ug/kg 4.8 11/23/16 11:58 11/23/16 13:11 71-43-2 1c Ethylbenzene ND ug/kg 4.8 11/23/16 11:58 11/23/16 13:11 100-41-4 1c Isopropylbenzene (Cumene) ND ug/kg 4.8 11/23/16 11:58 11/23/16 13:11 98-82-8 1 1c Methyl-tert-butyl ether ND ug/kg 4.8 11/23/16 11:58 11/23/16 13:11 1634-04-4 1 1c Naphthalene ND ug/kg 4.8 1 11/23/16 11:58 11/23/16 13:11 91-20-3 1c Toluene ND 48 11/23/16 11:58 11/23/16 13:11 108-88-3 ug/kg 1 1c 1,2,4-Trimethylbenzene ND 4.8 11/23/16 11:58 11/23/16 13:11 95-63-6 ug/kg 1 1c 1,3,5-Trimethylbenzene NΠ 4.8 11/23/16 11:58 11/23/16 13:11 108-67-8 ug/kg 1 1c 11/23/16 11:58 11/23/16 13:11 1330-20-7 Xylene (Total) ND 14.3 ug/kg 1 Surrogates 101 Toluene-d8 (S) % 68-135 1 11/23/16 11:58 11/23/16 13:11 2037-26-5 4-Bromofluorobenzene (S) 97 % 65-146 1 11/23/16 11:58 11/23/16 13:11 460-00-4 1,2-Dichloroethane-d4 (S) 105 % 69-137 17060-07-0 1 11/23/16 11 58 11/23/16 13 11 Dibromofluoromethane (S) % 70-130 96 1 11/23/16 11:58 11/23/16 13:11 1868-53-7 **Percent Moisture** Analytical Method: ASTM D2974-87 Percent Moisture 14.0 % 0.10 11/30/16 16:36 1 Sample: MW-10 8'-10' Lab ID: 30202686004 Collected: 11/15/16 12:00 Received: 11/16/16 08:11 Matrix: Solid Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions. DF Qual **Parameters** Results Units Report Limit Prepared Analyzed CAS No. 8260B MSV Analytical Method: EPA 8260B Preparation Method: EPA 5035A Benzene ND ug/kg 230 50 11/28/16 12:00 11/28/16 16:40 71-43-2 1c Ethylbenzene ND 230 50 11/28/16 12:00 11/28/16 16:40 100-41-4 ug/kg 1c ND 230 50 Isopropylbenzene (Cumene) ug/kg 11/28/16 12:00 11/28/16 16:40 98-82-8 1c ND 230 50 11/28/16 12:00 11/28/16 16:40 1634-04-4 Methyl-tert-butyl ether ug/kg 1c Naphthalene ND 230 50 11/28/16 12:00 11/28/16 16:40 91-20-3 ug/kg 1c

50 Toluene ND ug/kg 230 11/28/16 12:00 11/28/16 16:40 108-88-3 1c 50 1,2,4-Trimethylbenzene ND ug/kg 230 11/28/16 12:00 11/28/16 16:40 95-63-6 1c 1,3,5-Trimethylbenzene ND ug/kg 230 50 11/28/16 12:00 11/28/16 16:40 108-67-8 1c Xylene (Total) ND 691 50 11/28/16 12:00 11/28/16 16:40 1330-20-7 ug/kg Surrogates 100 % 68-135 50 11/28/16 12:00 11/28/16 16:40 2037-26-5 Toluene-d8 (S) 50 4-Bromofluorobenzene (S) 97 % 65-146 11/28/16 12:00 11/28/16 16:40 460-00-4 99 % 50 1,2-Dichloroethane-d4 (S) 69-137 11/28/16 12:00 11/28/16 16:40 17060-07-0 Dibromofluoromethane (S) 93 % 70-130 50 11/28/16 12:00 11/28/16 16:40 1868-53-7 Percent Moisture Analytical Method: ASTM D2974-87 Percent Moisture 11.0 % 0.10 1 11/30/16 16:36





Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Date: 12/02/2016 04:00 PM

Sample: MW-11 4'-6'	Lab ID: 302	02686005	Collected: 11/15/1	6 10:20	Received: 11	/16/16 08:11 N	Matrix: Solid	
Results reported on a "dry weigl	ht" basis and are ad	iusted for p	ercent moisture, sa	mple s	ize and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Met	nod: EPA 82	260B Preparation Me	ethod: E	PA 5035A			
Benzene	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	71-43-2	1c
Ethylbenzene	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	1634-04-4	1c
Naphthalene	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	91-20-3	1c
Toluene	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	5.4	1	11/23/16 11:58	11/23/16 13:55	108-67-8	1c
Xylene (Total) Surrogates	ND	ug/kg	16.3	1	11/23/16 11:58	11/23/16 13:55	1330-20-7	
Toluene-d8 (S)	98	%	68-135	1	11/23/16 11:58	11/23/16 13:55	2037-26-5	
4-Bromofluorobenzene (S)	95	%	65-146	1	11/23/16 11:58	11/23/16 13:55	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	69-137	1	11/23/16 11:58	11/23/16 13:55	17060-07-0	
Dibromofluoromethane (S)	98	%	70-130	1	11/23/16 11:58	11/23/16 13:55	1868-53-7	
Percent Moisture	Analytical Met	nod: ASTM	D2974-87					
Percent Moisture	20.1	%	0.10	1		11/30/16 16:36		
Sample: MW-11 6'-8'	Lab ID: 302	02686006	Collected: 11/15/1	6 10:30	Received: 11	/16/16 08:11 N	//atrix: Solid	
Results reported on a "dry weigl	ht" basis and are ad	iusted for p	ercent moisture, sa	mple s	ize and any dilu	tions.		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Met	nod: EPA 82	260B Preparation Me	ethod: E	PA 5035A			
Ronzono	ND	ua/ka	4.0	1	44/00/40 44 50	11/22/16 17:17	74 40 0	10

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 8260	DB Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	71-43-2	1c
Ethylbenzene	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	1634-04-4	1c
Naphthalene	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	91-20-3	1c
Toluene	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	4.3	1	11/23/16 11:58	11/23/16 14:17	108-67-8	1c
Xylene (Total)	ND	ug/kg	12.8	1	11/23/16 11:58	11/23/16 14:17	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	68-135	1	11/23/16 11:58	11/23/16 14:17	2037-26-5	
4-Bromofluorobenzene (S)	93	%	65-146	1	11/23/16 11:58	11/23/16 14:17	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	69-137	1	11/23/16 11:58	11/23/16 14:17	17060-07-0	
Dibromofluoromethane (S)	95	%	70-130	1	11/23/16 11:58	11/23/16 14:17	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D2	2974-87					
Percent Moisture	17.4	%	0.10	1		11/30/16 16:36		



Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Date: 12/02/2016 04:00 PM

QC Batch: 241302 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30202686001, 30202686002, 30202686003, 30202686005, 30202686006

METHOD BLANK: 1186268 Matrix: Solid

Associated Lab Samples: 30202686001, 30202686002, 30202686003, 30202686005, 30202686006

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	11/23/16 11:03	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	11/23/16 11:03	
Benzene	ug/kg	ND	5.0	11/23/16 11:03	
Ethylbenzene	ug/kg	ND	5.0	11/23/16 11:03	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	11/23/16 11:03	
Methyl-tert-butyl ether	ug/kg	ND	5.0	11/23/16 11:03	
Naphthalene	ug/kg	ND	5.0	11/23/16 11:03	
Toluene	ug/kg	ND	5.0	11/23/16 11:03	
Xylene (Total)	ug/kg	ND	15.0	11/23/16 11:03	
1,2-Dichloroethane-d4 (S)	%	100	69-137	11/23/16 11:03	
4-Bromofluorobenzene (S)	%	94	65-146	11/23/16 11:03	
Dibromofluoromethane (S)	%	95	70-130	11/23/16 11:03	
Toluene-d8 (S)	%	103	68-135	11/23/16 11:03	

LABORATORY CONTROL SAMPLE:	1186269					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		21.5	108	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	19.7	98	74-129	
Benzene	ug/kg	20	20.3	102	71-137	
Ethylbenzene	ug/kg	20	19.8	99	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	19.7	99	78-133	
Methyl-tert-butyl ether	ug/kg	20	20.0	100	77-141	
Naphthalene	ug/kg	20	18.3	91	81-126	
Toluene	ug/kg	20	19.8	99	72-127	
Xylene (Total)	ug/kg	60	55.6	93	80-124	
1,2-Dichloroethane-d4 (S)	%			96	69-137	
4-Bromofluorobenzene (S)	%			99	65-146	
Dibromofluoromethane (S)	%			95	70-130	
Toluene-d8 (S)	%			102	68-135	

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



Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Date: 12/02/2016 04:00 PM

QC Batch: 241457 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30202686004

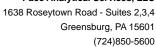
METHOD BLANK: 1187084 Matrix: Solid

Associated Lab Samples: 30202686004

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	250	11/28/16 09:42	
1,3,5-Trimethylbenzene	ug/kg	ND	250	11/28/16 09:42	
Benzene	ug/kg	ND	250	11/28/16 09:42	
Ethylbenzene	ug/kg	ND	250	11/28/16 09:42	
Isopropylbenzene (Cumene)	ug/kg	ND	250	11/28/16 09:42	
Methyl-tert-butyl ether	ug/kg	ND	250	11/28/16 09:42	
Naphthalene	ug/kg	ND	250	11/28/16 09:42	
Toluene	ug/kg	ND	250	11/28/16 09:42	
Xylene (Total)	ug/kg	ND	750	11/28/16 09:42	
1,2-Dichloroethane-d4 (S)	%	96	69-137	11/28/16 09:42	
4-Bromofluorobenzene (S)	%	96	65-146	11/28/16 09:42	
Dibromofluoromethane (S)	%	96	70-130	11/28/16 09:42	
Toluene-d8 (S)	%	101	68-135	11/28/16 09:42	

LABORATORY CONTROL SAMPLE:	1187085					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		21.4	107	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	19.9	100	74-129	
Benzene	ug/kg	20	20.4	102	71-137	
Ethylbenzene	ug/kg	20	20.3	102	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	19.5	98	78-133	
Methyl-tert-butyl ether	ug/kg	20	20.0	100	77-141	
Naphthalene	ug/kg	20	17.1	85	81-126	
Toluene	ug/kg	20	19.6	98	72-127	
Xylene (Total)	ug/kg	60	54.9	91	80-124	
1,2-Dichloroethane-d4 (S)	%			99	69-137	
4-Bromofluorobenzene (S)	%			97	65-146	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			102	68-135	

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





Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

QC Batch: 241827 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture Associated Lab Samples: 30202686001, 30202686002, 30202686003, 30202686004, 30202686005, 30202686006

SAMPLE DUPLICATE: 1188537

Parameter

30202686001 Dup
Units Result Result RPD Qualifiers

Percent Moisture % 20.0 23.4 15

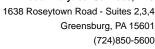
SAMPLE DUPLICATE: 1188538

Date: 12/02/2016 04:00 PM

 Parameter
 Units
 30202686002 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 10.5
 11.0
 5

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





QUALIFIERS

Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

Batch: 241302

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

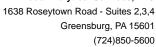
Batch: 241457

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

Date: 12/02/2016 04:00 PM

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. Seneca Soil Samples

Pace Project No.: 30202686

Date: 12/02/2016 04:00 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30202686001	MW-6 4'-6'	EPA 5035A	241302	EPA 8260B	241405
30202686002	MW-6 8'-10'	EPA 5035A	241302	EPA 8260B	241405
30202686003	MW-10 6'-8'	EPA 5035A	241302	EPA 8260B	241405
30202686004	MW-10 8'-10'	EPA 5035A	241457	EPA 8260B	241461
30202686005	MW-11 4'-6'	EPA 5035A	241302	EPA 8260B	241405
30202686006	MW-11 6'-8'	EPA 5035A	241302	EPA 8260B	241405
30202686001	MW-6 4'-6'	ASTM D2974-87	241827		
30202686002	MW-6 8'-10'	ASTM D2974-87	241827		
30202686003	MW-10 6'-8'	ASTM D2974-87	241827		
30202686004	MW-10 8'-10'	ASTM D2974-87	241827		
30202686005	MW-11 4'-6'	ASTM D2974-87	241827		
30202686006	MW-11 6'-8'	ASTM D2974-87	241827		

Face Analytical" www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Project No./ Lab I.D. DRINKING WATER (N/A) Samples Intact F-ALL-Q-020rev.07, 15-May-2007 SAMPLE CONDITIONS (0) OTHER (N/Y) Sealed Cooler 0 ğ Custody WO#:30202686 (0 Received on Ice (Y/N) GROUND WATER 7 Residual Ch O° ni qmeT Page: 7 REGULATORY AGENCY RCRA Requested Analysis Filtered (Y/N) TIME 000 Site Location STATE NPDES 14-16 DATE TSU 🚿 DATE Signed (MM/DD/YY): den ont to 2 ACCEPTED BY / AFFILIATION 1-0138 ¥35 1/2 J teeT elevisor J ÎN/A Other Methanol Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invidices not paid within 30 days. Preservatives Na₂S₂O₃ N NaOH HCI Invoice Information: €ОИН Company Name: Pace Quote Reference: Pace Project Manager: Pace Profile #: ⁵OS^zH Section C Unpreserved Address: TIME $\tilde{\alpha}$ # OF CONTAINERS SAMPLER NAME AND SIGNATURE SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION PRINT Name of SAMPLER: 11.11.-16 DATE 16:54 TIME 12:00 16.65 COMPOSITE END/GRAB 11-15-16 1-15-16 1-15/10 01.577 41816 11.11.16 DATE COLLECTED RELINQUISHED BY / AFFILIATION TIME COMPOSITE START DATE Section B
Required Project Information: 1.00 Purchase Order No.: (G=GRAB C=COMP) SAMPLE TYPE Ś Project Number: 4 (see valid codes to left) MATRIX CODE Project Name: Report To: ORIGINAL Copy To: Matrix Codes
MATRIX / CODE Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other Standardo ADDITIONAL COMMENTS 9 0 · 16 0 Ô (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE Ì * 75 Œ Fax: SAMPLEID Required Client Information Section A Required Client Information: 20 Requested Due Date/TAT: 3187 -45h 18 CAN 9 0 10/60 CHEMBEN Section D Company: Address: Email To: Page 15 of 16 # M3TI N 4 22 10 ო φ œ Ø Ξ

Sample Condition Upon Receipt Pittsburgh

30202686

Pace Analytical Client Name:		\mathcal{L}	ab	05	Project#
Courier: Fed Ex UPS USPS Clier		-	ercial	☐ Pace Other	
Custody Seal on Cooler/Box Present:				- ,] no
Thermometer Used	Type	of Ice:	(We	Blue None	31 41
Cooler Temperature Observed Temp Temp should be above freezing to 6°C	<u>.b_</u>	°С -	Corr	ection Factor <u>: 0, 2</u>	_°C Final Temp <u>: Ϥ.Ψ</u> °C
		, .	1	7	Date and Initials of person examining, contents:
Comments:	Yes	No	N/A		
Chain of Custody Present:	K.	<u> </u>	-	1.	
Chain of Custody Filled Out:	X		<u> </u>	2	
Chain of Custody Relinquished:	K.		ļ	3.	
Sampler Name & Signature on COC:	<u> X</u>	ļ		4.	
Sample Labels match COC:	X			5.	
-Includes date/time/ID/Analysis Matrix: S			т —		
Samples Arrived within Hold Time:	X			6.	
Short Hold Time Analysis (<72hr remaining):		X		7.	·
Rush Turn Around Time Requested:		X		8.	
Sufficient Volume:	X			9.	
Correct Containers Used:	X			10.	
-Pace Containers Used:	X				. `
Containers Intact:	X		<u></u>	11.	
Filtered volume received for Dissolved tests			X	12.	
All containers needing preservation have been checked.			X	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.			X		
				Initial when A COL	Date/time of
exceptions: VOA, coliform, TOC, O&G, Phenolics				Lot # of added	preservation
				preservative	
Headspace in VOA Vials (>6mm):			X_{-}	14.	
Trip Blank Present:		\mathbb{X}		15.	
Trip Blank Custody Seals Present			\times		
Rad Aqueous Samples Screened > 0.5 mrem/hr			X	Initial when completed:	Date:
Client Notification/ Resolution:					
Person Contacted:			Date/	Time:	Contacted By:
Comments/ Resolution:					
	·				

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

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

(724)850-5600



February 02, 2017

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

RE: Project: HO: Seneca

Pace Project No.: 30208942

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on January 25, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

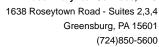
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO: Seneca Pace Project No.: 30208942

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706

North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

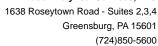
South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

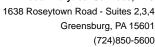




SAMPLE ANALYTE COUNT

Project: HO: Seneca Pace Project No.: 30208942

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30208942001	MW-12 4-6'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30208942002	MW-13 1-2'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA
30208942003	MW-14 1-2'	EPA 8260B	JEW	13	PASI-PA
		ASTM D2974-87	TAW	1	PASI-PA





PROJECT NARRATIVE

Project: HO: Seneca Pace Project No.: 30208942

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: February 02, 2017

General Information:

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

Hold Time:

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

Sample Preparation:

The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

QC Batch: 247829

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

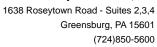
Additional Comments:

Analyte Comments:

QC Batch: 247829

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-12 4-6' (Lab ID: 30208942001)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene





PROJECT NARRATIVE

Project: HO: Seneca
Pace Project No.: 30208942

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: February 02, 2017

Analyte Comments:

QC Batch: 247829

1c: A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

- MW-12 4-6' (Lab ID: 30208942001)
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-13 1-2' (Lab ID: 30208942002)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene
- MW-14 1-2' (Lab ID: 30208942003)
 - 1,2,4-Trimethylbenzene
 - 1,3,5-Trimethylbenzene
 - Benzene
 - Ethylbenzene
 - Isopropylbenzene (Cumene)
 - Methyl-tert-butyl ether
 - Naphthalene
 - Toluene

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



Project: HO: Seneca Pace Project No.: 30208942

Date: 02/02/2017 02:54 PM

Sample: MW-12 4-6' Lab ID: 30208942001 Collected: 01/24/17 11:00 Received: 01/25/17 17:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Comments: • Trip blank not present in cooler with samples at time of receipt at the lab.

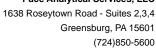
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260	B Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	71-43-2	1c
Ethylbenzene	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	1634-04-4	1c
Naphthalene	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	91-20-3	1c
Toluene	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	5.9	1	01/30/17 13:11	01/30/17 18:27	108-67-8	1c
Xylene (Total)	ND	ug/kg	17.6	1	01/30/17 13:11	01/30/17 18:27	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	68-135	1	01/30/17 13:11	01/30/17 18:27	2037-26-5	
4-Bromofluorobenzene (S)	102	%	65-146	1	01/30/17 13:11	01/30/17 18:27	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	69-137	1	01/30/17 13:11	01/30/17 18:27	17060-07-0	
Dibromofluoromethane (S)	102	%	70-130	1	01/30/17 13:11	01/30/17 18:27	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D2	974-87					
Percent Moisture	25.0	%	0.10	1		02/01/17 15:31		

Sample: MW-13 1-2' Lab ID: 30208942002 Collected: 01/25/17 15:00 Received: 01/25/17 17:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Comments: • Trip blank not present in cooler with samples at time of receipt at the lab.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260	B Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	71-43-2	1c
Ethylbenzene	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	1634-04-4	1c
Naphthalene	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	91-20-3	1c
Toluene	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	5.7	1	01/30/17 13:11	01/30/17 18:53	108-67-8	1c
Xylene (Total)	ND	ug/kg	17.1	1	01/30/17 13:11	01/30/17 18:53	1330-20-7	
Surrogates								
Toluene-d8 (S)	97	%	68-135	1	01/30/17 13:11	01/30/17 18:53	2037-26-5	
4-Bromofluorobenzene (S)	102	%	65-146	1	01/30/17 13:11	01/30/17 18:53	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	69-137	1	01/30/17 13:11	01/30/17 18:53	17060-07-0	
Dibromofluoromethane (S)	100	%	70-130	1	01/30/17 13:11	01/30/17 18:53	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D2	2974-87					
Percent Moisture	16.7	%	0.10	1		02/01/17 15:31		





Project: HO: Seneca Pace Project No.: 30208942

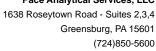
Date: 02/02/2017 02:54 PM

Sample: MW-14 1-2' Lab ID: 30208942003 Collected: 01/25/17 10:40 Received: 01/25/17 17:00 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Comments: • Trip blank not present in cooler with samples at time of receipt at the lab.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260B	Preparation Me	thod: E	EPA 5035A			
Benzene	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	71-43-2	1c
Ethylbenzene	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	100-41-4	1c
Isopropylbenzene (Cumene)	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	98-82-8	1c
Methyl-tert-butyl ether	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	1634-04-4	1c
Naphthalene	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	91-20-3	1c
Toluene	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	108-88-3	1c
1,2,4-Trimethylbenzene	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	95-63-6	1c
1,3,5-Trimethylbenzene	ND	ug/kg	10.7	1	01/30/17 13:11	01/30/17 19:18	108-67-8	1c
Xylene (Total)	ND	ug/kg	32.1	1	01/30/17 13:11	01/30/17 19:18	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	68-135	1	01/30/17 13:11	01/30/17 19:18	2037-26-5	
4-Bromofluorobenzene (S)	102	%	65-146	1	01/30/17 13:11	01/30/17 19:18	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	69-137	1	01/30/17 13:11	01/30/17 19:18	17060-07-0	
Dibromofluoromethane (S)	100	%	70-130	1	01/30/17 13:11	01/30/17 19:18	1868-53-7	
Percent Moisture	Analytical Meth	nod: ASTM D29	74-87					
Percent Moisture	31.8	%	0.10	1		02/01/17 15:31		





Project: HO: Seneca Pace Project No.: 30208942

Date: 02/02/2017 02:54 PM

QC Batch: 247829 Analysis Method: EPA 8260B

QC Batch Method: EPA 5035A Analysis Description: 8260B MSV UST-SOIL

Associated Lab Samples: 30208942001, 30208942002, 30208942003

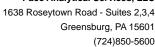
METHOD BLANK: 1219116 Matrix: Solid

Associated Lab Samples: 30208942001, 30208942002, 30208942003

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	01/30/17 12:53	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	01/30/17 12:53	
Benzene	ug/kg	ND	5.0	01/30/17 12:53	
Ethylbenzene	ug/kg	ND	5.0	01/30/17 12:53	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	01/30/17 12:53	
Methyl-tert-butyl ether	ug/kg	ND	5.0	01/30/17 12:53	
Naphthalene	ug/kg	ND	5.0	01/30/17 12:53	
Toluene	ug/kg	ND	5.0	01/30/17 12:53	
Xylene (Total)	ug/kg	ND	15.0	01/30/17 12:53	
1,2-Dichloroethane-d4 (S)	%	98	69-137	01/30/17 12:53	
4-Bromofluorobenzene (S)	%	102	65-146	01/30/17 12:53	
Dibromofluoromethane (S)	%	98	70-130	01/30/17 12:53	
Toluene-d8 (S)	%	97	68-135	01/30/17 12:53	

LABORATORY CONTROL SAMPLE:	1219117					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg		18.3	92	79-125	
1,3,5-Trimethylbenzene	ug/kg	20	18.1	91	74-129	
Benzene	ug/kg	20	18.4	92	71-137	
Ethylbenzene	ug/kg	20	18.1	90	78-126	
Isopropylbenzene (Cumene)	ug/kg	20	18.8	94	78-133	
Methyl-tert-butyl ether	ug/kg	20	17.3	86	77-141	
Naphthalene	ug/kg	20	19.5	97	81-126	
Toluene	ug/kg	20	18.6	93	72-127	
Xylene (Total)	ug/kg	60	54.5	91	80-124	
1,2-Dichloroethane-d4 (S)	%			103	69-137	
4-Bromofluorobenzene (S)	%			99	65-146	
Dibromofluoromethane (S)	%			108	70-130	
Toluene-d8 (S)	%			98	68-135	

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





Project: HO: Seneca Pace Project No.: 30208942

QC Batch: 248087 Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 30208942001, 30208942002, 30208942003

SAMPLE DUPLICATE: 1220158

 Percent Moisture
 Washington
 60236687001 Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 57.6
 57.5
 0

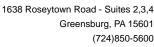
SAMPLE DUPLICATE: 1220159

Date: 02/02/2017 02:54 PM

 Percent Moisture
 Units
 60236687002 Result Result
 Dup Result
 RPD
 Qualifiers

 Percent Moisture
 %
 54.1
 58.8
 8

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





QUALIFIERS

Project: HO: Seneca Pace Project No.: 30208942

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

BATCH QUALIFIERS

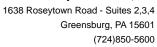
Batch: 247829

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

Date: 02/02/2017 02:54 PM

1c A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO: Seneca Pace Project No.: 30208942

Date: 02/02/2017 02:54 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30208942001	MW-12 4-6'	EPA 5035A	247829	EPA 8260B	
30208942002	MW-13 1-2'	EPA 5035A	247829	EPA 8260B	247858
30208942003	MW-14 1-2'	EPA 5035A	247829	EPA 8260B	247858
30208942001	MW-12 4-6'	ASTM D2974-87	248087		
30208942002	MW-13 1-2'	ASTM D2974-87	248087		
30208942003	MW-14 1-2'	ASTM D2974-87	248087		

Pace Analytical www.pacelabs.com

cl WO#:30208942

Page:

Documentpleted accurately.

DRINKING WATER (T) **C** OTHER . 20 20 20 GROUND WATER REGULATORY AGENCY RCRA Requested Analysis Filtered (Y/N) STATE: Site Location NPDES TSU X Notess; 44 Delinar I VI 15625 Pace Quote Company Name: Reference:
Pace Project
Manager: Logo December Pace Profile #: 30008049 Invoice Information: Attention: Project Name: #0: Servere Cribbs Section B Required Project Information: Purchase Order No.: Report To: Project Number: Copy To: bbs Geribbsandossenvies un Libbs and Assessibe En STandard Dolment PM 15626 Section A Required Client Information: Requested Due Date/TAT: 134.454.2316

	Section D Required Client Information	Matrix Codes MATRIX / CODE	,, WI		(awo		COLLECTED	TED			Pr	Preservatives	atives		↑ N /A								
		Drinking Water Water Waste Water Product Soil/Solid	WW A IS	see valid codes t	=GRAB C=CC	COMPOSITE	ш	COMPOSITE END/GRAB		www.permonomorphic.mag					î					(N/A)			
# Wall	Sample IDs MUST BE UNIQUE			····		DATE	TIME	DATE	E E TA 4MBT BJ4MAS	# OF CONTAINER	HMO ³ H ⁵ 2O [†]	HCI	HO _B N EO _S S _S BN	Methanol Other	teeT eleylanA↓ NaC ∃3€	กเลก อาก				Residual Chlorine	0.00	oped of the state	
	Mw-12 4-61		S	Si			77	1 [1] 1.4]	1100	7			4		X						200	7	
7	Mr-13 1.21		10	36			7	1 0/50	1500	2-			4		1//	Ja) (\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
<u>س</u>	Mr-141-21		S	56				125/17 1	10.70	7			4		1/	9						8 8	
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12	6																						
	ADDITIONAL COMMENTS			RELIN	IQUISH	ED BY / AF	RELINQUISHED BY / AFFILIATION		DATE	TIME	EII		ACCE	PTED	BY/A	ACCEPTED BY / AFFILIATION	à	DATE	TIME	"	AMPLE CO	SAMPLE CONDITIONS	
-	Analyze all serples	les for	1	1	1	0	C1 16059 11 5300	Nessee 1	135-117	1640			1	M	1/1/2		1/2	11/2	01,2				
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12	40						H	PRINT Name o	of SAMPLER:		Jarea	B	Thai	1	1	700	2	N		ni qr bəvie	(pojsr	(N/A)	(N/A) les lu
of 13	of 4						Š	SIGNATURE	of SAMPLER:		A	1	1			DATE Signed (MM/DD/YY):	1	5/2		Кесе	Cr))	dweS
3	Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and acreeing to late charges	you are accepting Pa	ace's NET	- 30 day	/ navmen	of terms and	anreeing to a	ate charnes of	of 1 5% ner month for an	th for any die	200		3	1	1			,					;

F-ALL-Q-020rev.07, 15-May-2007

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1,5% per month for any process not paid within 30

Sample Condition Upon Recei	pt P	ittsb	urgh	
Pace Analytical Client Name:	<u>_</u> C	<u>rik</u>	<u>)DS</u>	30208942 → A550€. Project#
Courier: Fed Ex UPS USPS Clien	t 🗆	Comm	ercial	Pace Other
Custody Seal on Cooler/Box Present: yes		no	Seals	intact: yes no
Thermemeter Used	Type	of Ice:	∠v√et) Blue None
On the Tanas actives Observed Temp 5	0	٠c	Corre	ection Factor <u>: -() . </u> °C Final Temp <u>: 5. %</u> °C
Cooler Temperature Observed Temp Temp should be above freezing to 6°C		•		
Tonip should be a second				Date and Initials of person examining contents:
Comments:	Yes	No	N/A	
Chain of Custody Present:	1	i		1.
Chain of Custody Filled Out:	1			2.
Chain of Custody Relinquished:	/			3.
Sampler Name & Signature on COC:	/			4.
Sample Labels match COC:				5.
-Includes date/time/ID Matrix: St	250			
Samples Arrived within Hold Time:	1			6.
Short Hold Time Analysis (<72hr remaining):		1		7.
Rush Turn Around Time Requested:		1		8.
Sufficient Volume:	V			9.
Correct Containers Used:	V			10.
-Pace Containers Used:	1			
	J			11.
Containers Intact:			V	12.
Orthophosphate field filtered Organic Samples checked for dechlorination:			1	13.
Filtered volume received for Dissolved tests			1	14.
All containers have been checked for preservation.	<u> </u>		1	15.
			1	
All containers needing preservation are found to be in compliance with EPA recommendation.				
exceptions: VOA) coliform, TOC, O&G, Phenolics				Initial when Completed XXX Date/time of preservation
exceptions: VOA) collionii, 100, 088, 1 henolios				Lot # of added
		Ι		preservative
Headspace in VOA Vials (>6mm):			<u> </u>	16.
Trip Blank Present:			1	17.
Trip Blank Custody Seals Present	ļ		V	Initial when
Rad Aqueous Samples Screened > 0.5 mrem/hr			V	Initial when completed: WAA Date: -25-17
Client Notification/ Resolution:	-			
Person Contacted:			Date/	Time: Contacted By:
Comments/ Resolution:				

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

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

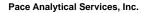
*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

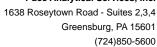
Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX F

Laboratory Analytical Results – Groundwater







July 26, 2016

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

RE: Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on July 13, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

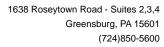
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification Hawaii Certification Idaho Certification Illinois Certification Indiana Certification

Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification
Missouri Certification #: 235

Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

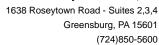
South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L



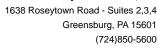


SAMPLE ANALYTE COUNT

Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30189495001	MW-1	EPA 8260B	JAS	13	PASI-PA
30189495002	MW-2	EPA 8260B	JAS	13	PASI-PA
30189495003	MW-3	EPA 8260B	JAS	13	PASI-PA
30189495004	MW-4	EPA 8260B	JAS	13	PASI-PA
30189495005	MW-5	EPA 8260B	JAS	13	PASI-PA





PROJECT NARRATIVE

Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: July 26, 2016

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

QC Batch: 226642

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample reanalysis).

- MW-2 (Lab ID: 30189495002)
 - 1,2-Dichloroethane-d4 (S)
 - Dibromofluoromethane (S)
- MW-3 (Lab ID: 30189495003)
 - 1,2-Dichloroethane-d4 (S)
 - Dibromofluoromethane (S)
 - Toluene-d8 (S)
- MW-4 (Lab ID: 30189495004)
 - 1,2-Dichloroethane-d4 (S)
- MW-5 (Lab ID: 30189495005)
 - 1,2-Dichloroethane-d4 (S)
 - Dibromofluoromethane (S)

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Pace Analytical Services, Inc.

Pace Analytical www.pacelabs.com

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

PROJECT NARRATIVE

Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: July 26, 2016

Additional Comments:

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



Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Date: 07/26/2016 03:10 PM

Sample: MW-1	Lab ID: 301	89495001	Collected: 07/12/1	6 12:20	Received: (07/13/16 09:25	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	63.2	ug/L	5.0	1		07/19/16 06:47	71-43-2	
Ethylbenzene	321	ug/L	50.0	10		07/19/16 18:30	100-41-4	
Isopropylbenzene (Cumene)	17.5	ug/L	5.0	1		07/19/16 06:47	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		07/19/16 06:47	1634-04-4	
Naphthalene	94.3	ug/L	5.0	1		07/19/16 06:47	91-20-3	
Toluene	ND	ug/L	5.0	1		07/19/16 06:47	7 108-88-3	
1,2,4-Trimethylbenzene	301	ug/L	50.0	10		07/19/16 18:30	95-63-6	
1,3,5-Trimethylbenzene	81.5	ug/L	5.0	1		07/19/16 06:47	108-67-8	
Xylene (Total)	694	ug/L	50.0	10		07/19/16 18:30	1330-20-7	
Surrogates		•						
Toluene-d8 (S)	100	%	84-115	1		07/19/16 06:47	2037-26-5	
4-Bromofluorobenzene (S)	87	%	81-119	1		07/19/16 06:47	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	77-126	1		07/19/16 06:47	17060-07-0	
Dibromofluoromethane (S)	97	%	70-130	1		07/19/16 06:47	1868-53-7	
Sample: MW-2	Lab ID: 301	89495002	Collected: 07/12/1	6 10:30	Received: (07/13/16 09:25	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth						_	
	·			00		07/10/10 10 5		
Benzene	664	ug/L	100	20		07/19/16 18:55	-	
Ethylbenzene	509	ug/L	100	20		07/19/16 18:55		
Isopropylbenzene (Cumene)	39.5	ug/L	5.0	1		07/19/16 07:15		
Methyl-tert-butyl ether	12.3	ug/L	5.0	1		07/19/16 07:15		
Naphthalene	170	ug/L	5.0	1		07/19/16 07:15		
Toluene	106	ug/L	5.0	1		07/19/16 07:15		
1,2,4-Trimethylbenzene	1100	ug/L	20.0	20		07/19/16 18:55		
1,3,5-Trimethylbenzene	328	ug/L	20.0	20		07/19/16 18:55		
Xylene (Total)	2210	ug/L	100	20		07/19/16 18:55	1330-20-7	
Surrogates Toluene-d8 (S)	93	%	84-115	1		07/19/16 07:15	2027 26 5	
4-Bromofluorobenzene (S)	93	% %	81-119	1		07/19/16 07:15		
` ,	63	% %	77-126	1		07/19/16 07:15		S2
1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S)	142	%	70-130	1		07/19/16 07:15		S2
Sample: MW-3	Lab ID: 301		Collected: 07/12/1				Matrix: Water	
Parameters	Results —	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	15000	ug/L	500	100		07/19/16 19:20	71-43-2	
Ethylbenzene	3070	ug/L	500	100		07/19/16 19:20	100-41-4	
Isopropylbenzene (Cumene)	85.0	ug/L	5.0	1		07/19/16 07:43	8 98-82-8	
Methyl-tert-butyl ether	41.7	ug/L	5.0	1		07/19/16 07:43	3 1634-04-4	
, ,								

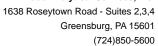


Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Date: 07/26/2016 03:10 PM

Pace Project No.: 30189495								
Sample: MW-3	Lab ID: 301	89495003	Collected: 07/12/1	6 11:45	Received:	07/13/16 09:25	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Toluene	10500	ug/L	500	100		07/19/16 19:20	108-88-3	
1,2,4-Trimethylbenzene	2320	ug/L	100	100		07/19/16 19:20	95-63-6	
1,3,5-Trimethylbenzene	595	ug/L	100	100		07/19/16 19:20	108-67-8	
Xylene (Total)	15600	ug/L	500	100		07/19/16 19:20	1330-20-7	
Surrogates		3						
Toluene-d8 (S)	28	%	84-115	1		07/19/16 07:43	3 2037-26-5	S2
4-Bromofluorobenzene (S)	95	%	81-119	1		07/19/16 07:43	3 460-00-4	
1,2-Dichloroethane-d4 (S)	62	%	77-126	1		07/19/16 07:43		S2
Dibromofluoromethane (S)	140	%	70-130	1		07/19/16 07:43		S2
Sample: MW-4	Lab ID: 301	80405004	Collected: 07/12/1	6 11:10	Pacaivad:	07/13/16 09:25	Matrix: Water	
Parameters	Results	Units		DF	Prepared		CAS No.	Ougl
		Offics	Report Limit		- Frepareu	Analyzed	CAS NO.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	2240	ug/L	250	50		07/19/16 19:45	71-43-2	
Ethylbenzene	1240	ug/L	250	50		07/19/16 19:45	5 100-41-4	
sopropylbenzene (Cumene)	81.3	ug/L	5.0	1		07/19/16 08:10	98-82-8	
Methyl-tert-butyl ether	7.8	ug/L	5.0	1		07/19/16 08:10	1634-04-4	
Naphthalene	291	ug/L	250	50		07/19/16 19:45	5 91-20-3	
Toluene	667	ug/L	250	50		07/19/16 19:45	5 108-88-3	
1,2,4-Trimethylbenzene	1200	ug/L	50.0	50		07/19/16 19:45	5 95-63-6	
1,3,5-Trimethylbenzene	300	ug/L	50.0	50		07/19/16 19:45		
Xylene (Total)	3070	ug/L	250	50		07/19/16 19:45		
Surrogates		~g/ _	200			0.7.107.10 101.10		
Toluene-d8 (S)	106	%	84-115	1		07/19/16 08:10	2037-26-5	
4-Bromofluorobenzene (S)	99	%	81-119	1		07/19/16 08:10		
1,2-Dichloroethane-d4 (S)	54	%	77-126	1		07/19/16 08:10		S2
Dibromofluoromethane (S)	85	%	70-130	1		07/19/16 08:10		OZ.
			0 !! !					
Sample: MW-5	Lab ID: 301		Collected: 07/12/1				Matrix: Water	
Parameters	Results —	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	3940	ug/L	250	50		07/19/16 20:10		
Ethylbenzene	2140	ug/L	250	50		07/19/16 20:10	100-41-4	
Isopropylbenzene (Cumene)	96.3	ug/L	5.0	1		07/19/16 08:38	3 98-82-8	
Methyl-tert-butyl ether	51.7	ug/L	5.0	1		07/19/16 08:38	3 1634-04-4	
violity to the buty! of ioi	450	ug/L	5.0	1		07/19/16 08:38	3 91-20-3	
•	150							
Naphthalene	85.2	ug/L	5.0	1		07/19/16 08:38	3 108-88-3	
Naphthalene Toluene	85.2	ug/L	5.0 250					
Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene		-		1 50 50		07/19/16 08:38 07/19/16 20:10 07/19/16 20:10	95-63-6	





Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Date: 07/26/2016 03:10 PM

Sample: MW-5	Lab ID: 3	0189495005	Collected: 07/12/1	6 12:55	Received: 07	7/13/16 09:25 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical M	lethod: EPA 82	260B					
Surrogates								
Toluene-d8 (S)	101	%	84-115	1		07/19/16 08:38	2037-26-5	
4-Bromofluorobenzene (S)	96	%	81-119	1		07/19/16 08:38	460-00-4	
1,2-Dichloroethane-d4 (S)	60	%	77-126	1		07/19/16 08:38	17060-07-0	S2
Dibromofluoromethane (S)	147	%	70-130	1		07/19/16 08:38	1868-53-7	S2



Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Date: 07/26/2016 03:10 PM

QC Batch: 226642 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30189495001, 30189495002, 30189495003, 30189495004, 30189495005

METHOD BLANK: 1110673 Matrix: Water

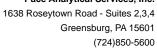
Associated Lab Samples: 30189495001, 30189495002, 30189495003, 30189495004, 30189495005

		Blank	Reporting		0 115
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	07/19/16 01:15	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	07/19/16 01:15	
Benzene	ug/L	ND	1.0	07/19/16 01:15	
Ethylbenzene	ug/L	ND	1.0	07/19/16 01:15	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	07/19/16 01:15	
Methyl-tert-butyl ether	ug/L	ND	1.0	07/19/16 01:15	
Naphthalene	ug/L	ND	2.0	07/19/16 01:15	
Toluene	ug/L	ND	1.0	07/19/16 01:15	
Xylene (Total)	ug/L	ND	3.0	07/19/16 01:15	
1,2-Dichloroethane-d4 (S)	%	98	77-126	07/19/16 01:15	
4-Bromofluorobenzene (S)	%	102	81-119	07/19/16 01:15	
Dibromofluoromethane (S)	%	96	70-130	07/19/16 01:15	
Toluene-d8 (S)	%	98	84-115	07/19/16 01:15	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
2,4-Trimethylbenzene	ug/L		18.5	92	75-128	
3,5-Trimethylbenzene	ug/L	20	17.6	88	74-125	
enzene	ug/L	20	19.0	95	69-115	
thylbenzene	ug/L	20	19.4	97	71-116	
opropylbenzene (Cumene)	ug/L	20	16.5	82	79-121	
ethyl-tert-butyl ether	ug/L	20	19.6	98	83-140	
aphthalene	ug/L	20	18.4	92	64-140	
luene	ug/L	20	19.4	97	70-115	
lene (Total)	ug/L	60	57.3	96	73-118	
2-Dichloroethane-d4 (S)	%			86	77-126	
Bromofluorobenzene (S)	%			102	81-119	
bromofluoromethane (S)	%			94	70-130	
luene-d8 (S)	%			102	84-115	

MATRIX SPIKE & MATRIX SPIKE	DUPLICATE	E: 111097	70		1110971						
			MS	MSD							
	301	89595001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	18.9	19.2	94	96	69-121	2	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.5	18.3	87	91	68-118	4	
Benzene	ug/L	ND	20	20	21.2	20.5	106	103	63-123	3	

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





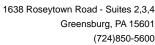
Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Date: 07/26/2016 03:10 PM

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 111097	70		1110971						
	301	189595001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	20.6	20.2	103	101	70-120		
Isopropylbenzene (Cumene)	ug/L	ND	20	20	17.1	17.6	85	88	71-129	3	
Methyl-tert-butyl ether	ug/L	6.9	20	20	23.7	23.3	84	82	63-143	2	
Naphthalene	ug/L	ND	20	20	18.0	18.4	90	92	55-122	2	
Toluene	ug/L	ND	20	20	20.7	20.7	103	104	66-124	0	
Kylene (Total)	ug/L	ND	60	60	60.5	59.2	101	99	68-123	2	
1,2-Dichloroethane-d4 (S)	%						84	83	77-126		
1-Bromofluorobenzene (S)	%						100	103	81-119		
Dibromofluoromethane (S)	%						95	92	70-130		
Toluene-d8 (S)	%						108	103	84-115		

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





QUALIFIERS

Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

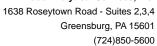
LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

Date: 07/26/2016 03:10 PM

S2 Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. Seneca Initial Sample

Pace Project No.: 30189495

Date: 07/26/2016 03:10 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30189495001	MW-1	EPA 8260B	226642	_	
30189495002	MW-2	EPA 8260B	226642		
30189495003	MW-3	EPA 8260B	226642		
30189495004	MW-4	EPA 8260B	226642		
30189495005	MW-5	EPA 8260B	226642		

Face Analytical"
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Docum WO#: 30189495

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

DRINKING WATER OTHER NPDES GROUND WATER | REGULATORY AGENCY RCRA T Requested Analysis Filtered (Y/N) Site Location STATE X ust C. 55.55 F. 11. 25 11.2 Section C Invoice Information: Attention: X 6 Jan 19 1 J Company Name: Pace Quote
Reference:
Pace Project
Manager:
Pace Profile #: Address: Sample Les tres 1 SENEEM Section B
Required Project Information:
Report To: 19,0 Purchase Order No.: Project Number: Project Name: Copy To: Delmost. Requested Due Date/TAT: 54m 0 2020 Address: PO Cox 44 Phone: 724- 454-230 Section A Required Client Information: C.C. 1885 15626 Company: Email To: E

SAMPLE ID (A-Z, 0-9 / -) Sample IDS MUST BE UNIQUE Mus Z Mus Z Mus S ADDITIONAL COMMENTS	/ater ter		_				•				_	· 人	_	_	-	-					
Sample IDS MUST BE UNIQUE Muss 2 Muss 2 Muss 3 Muss 3 Muss 3 Muss 5		=CKAB C=		COMPOSITE START	COMI	COMPOSITE			70311									(N/A)	7		
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Sample Condition Upon Receipt Pittsburgh

Pace Analytical Client Name:	/		569	45		Project #_	30	18	9 4	9 5
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Courier: Fed Ex UPS USPS Clie Tracking #:		_	ercial	☐ Pace O	ther					
Custody Seal on Cooler/Box Present: yes		no		s intact:] по				
Thermometer Used & Cooler Temperature Observed Temp	Туре	of Ice	: (We	Blue Non	е					
Cooler Temperature Observed Temp	15	· c	Corr	ection Factor	: 10,1	C Final T	emp <u>: /</u>	مل،	— .c	
Temp should be above freezing to 6°C						Date and In			aminin	
			T	- 1		contents;	BLM	7-	13-1	0
Comments:	Yes	No	N/A			(m		· · · · · · · · · · · · · · · · · · ·		
Chain of Custody Present:	$+\!\!\!\!/$	 		11						
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Sampler Name & Signature on COC:	1/,	_		4.						
Sample Labels match COC:		<u> </u>		5.						
-Includes date/time/ID/Analysis Matrix:	W	1.T	T							_
Samples Arrived within Hold Time:	1/			6.						
Short Hold Time Analysis (<72hr remaining):		/	ļ	7.						
Rush Turn Around Time Requested:				8.						
Sufficient Volume:	1/		<u> </u>	9.						
Correct Containers Used:				10.						
-Pace Containers Used:	1/									
Containers Intact:	/		ļ	11.						_
Filtered volume received for Dissolved tests			4	12.						_
All containers needing preservation have been checked.			/	13.						
All containers needing preservation are found to be in compliance with EPA recommendation.										
exceptions VOA, coliform, TOC, O&G, Phenolics			•	Initial when completed	BLM	Date/time of preservation				
exceptions, very contain, res, sac, mississ				Lot # of added preservative		<u></u>				
Headspace in VOA Vials (>6mm):				14.			•			_
Trip Blank Present:				15.						
Trip Blank Custody Seals Present			/							
Client Notification/ Resolution:										
Person Contacted:			Date/	Time:		Contacte	d By:			
Comments/ Resolution:										
									_	
			. "						<u></u>	 -

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

(724)850-5600



October 14, 2016

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

RE: Project: H.O. Seneca

Pace Project No.: 30198306

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on October 06, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

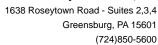
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. Seneca Pace Project No.: 30198306

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002

Montana Certification #: Cert 0082

Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

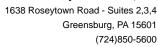
South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

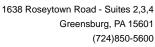




SAMPLE ANALYTE COUNT

Project: H.O. Seneca Pace Project No.: 30198306

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30198306001	MW-1	EPA 8260B	LEL	13	PASI-PA
30198306002	MW-2	EPA 8260B	LEL	13	PASI-PA
30198306003	MW-3	EPA 8260B	LEL	13	PASI-PA
30198306004	MW-4	EPA 8260B	LEL	13	PASI-PA
30198306005	MW-5	EPA 8260B	LEL	13	PASI-PA
30198306006	Upgradient Stream	EPA 8260B	LEL	13	PASI-PA
30198306007	Downgradient Stream	EPA 8260B	LEL	13	PASI-PA





PROJECT NARRATIVE

Project: H.O. Seneca Pace Project No.: 30198306

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: October 14, 2016

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

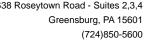
This data package has been reviewed for quality and completeness and is approved for release.



Project: H.O. Seneca Pace Project No.: 30198306

Date: 10/14/2016 03:48 PM

Sample: MW-1	Lab ID: 3019	98306001	Collected: 10/04/1	6 11:05	Received:	10/06/16 08:55 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	92.1	ug/L	5.0	1		10/11/16 07:07	71-43-2	
Ethylbenzene	1100	ug/L	50.0	10		10/11/16 17:20	100-41-4	
Isopropylbenzene (Cumene)	53.7	ug/L	5.0	1		10/11/16 07:07	98-82-8	
Methyl-tert-butyl ether	6.2	ug/L	5.0	1		10/11/16 07:07	1634-04-4	
Naphthalene	233	ug/L	5.0	1		10/11/16 07:07	91-20-3	
Toluene	9.8	ug/L	5.0	1		10/11/16 07:07	108-88-3	
1,2,4-Trimethylbenzene	604	ug/L	50.0	10		10/11/16 17:20	95-63-6	
1,3,5-Trimethylbenzene	214	ug/L	5.0	1		10/11/16 07:07	108-67-8	
Xylene (Total)	1270	ug/L	50.0	10		10/11/16 17:20	1330-20-7	
Surrogates		_						
Toluene-d8 (S)	94	%	84-115	1		10/11/16 07:07	2037-26-5	
4-Bromofluorobenzene (S)	95	%	81-119	1		10/11/16 07:07	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	77-126	1		10/11/16 07:07	17060-07-0	
Dibromofluoromethane (S)	102	%	70-130	1		10/11/16 07:07	1868-53-7	
Sample: MW-2	Lab ID: 3019	98306002	Collected: 10/04/1	6 12:00	Received:	10/06/16 08:55 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B			<u>.</u>		,
Benzene	1800	ug/L	50.0	10		10/11/16 17:45	71-43-2	
Ethylbenzene	752	ug/L	50.0	10		10/11/16 17:45	100-41-4	
Isopropylbenzene (Cumene)	66.5	ug/L	5.0	1		10/11/16 03:46	98-82-8	
Methyl-tert-butyl ether	21.3	ug/L	5.0	1		10/11/16 03:46	1634-04-4	
Naphthalene	134	ug/L	5.0	1		10/11/16 03:46	91-20-3	
Toluene	82.6	ug/L	5.0	1		10/11/16 03:46	108-88-3	
1,2,4-Trimethylbenzene	635	ug/L	10.0	10		10/11/16 17:45		
1,3,5-Trimethylbenzene	264	ug/L	1.0	1		10/11/16 03:46		
Xylene (Total)	740	ug/L	5.0	1		10/11/16 03:46		
Surrogates		-9-		•				
Toluene-d8 (S)	96	%	84-115	1		10/11/16 03:46	2037-26-5	
4-Bromofluorobenzene (S)	95	%	81-119	1		10/11/16 03:46	460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	77-126	1		10/11/16 03:46	17060-07-0	
Dibromofluoromethane (S)	95	%	70-130	1		10/11/16 03:46	1868-53-7	
Sample: MW-3	Lab ID: 3019	98306003	Collected: 10/04/1	6 15:15	Received:	10/06/16 08:55 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B			,		
Benzene	17800	ug/L	250	50		10/11/16 20:17	71-43-2	
Ethylbenzene	3000	ug/L	250	50		10/11/16 20:17		
Isopropylbenzene (Cumene)	88.2	ug/L ug/L	5.0	1		10/11/16 20:17		
Methyl-tert-butyl ether	39.7	•	5.0	1		10/11/16 04:11		
, ,		ug/L						
Naphthalene	411	ug/L	250	50		10/11/16 20:17	31-20-3	





Project: H.O. Seneca Pace Project No.: 30198306

Date: 10/14/2016 03:48 PM

Pace Project No.: 30198306								
Sample: MW-3	Lab ID: 301	98306003	Collected: 10/04/	16 15:15	Received:	10/06/16 08:55	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Met	hod: EPA 82	260B					
Toluene	10200	ug/L	250	50		10/11/16 20:1	7 108-88-3	
1,2,4-Trimethylbenzene	2020	ug/L	50.0	50		10/11/16 20:1	7 95-63-6	
1,3,5-Trimethylbenzene	557	ug/L	50.0	50		10/11/16 20:1	7 108-67-8	
Xylene (Total)	15600	ug/L	250	50		10/11/16 20:1		
Surrogates	10000	ug/ L	200	00		10/11/10 20:1	1000 20 1	
Toluene-d8 (S)	92	%	84-115	1		10/11/16 04:1	1 2037-26-5	
4-Bromofluorobenzene (S)	100	%	81-119	1		10/11/16 04:1		
1,2-Dichloroethane-d4 (S)	109	%	77-126	1			1 17060-07-0	
Dibromofluoromethane (S)	94	%	70-130	1		10/11/16 04:1		
Sample: MW-4	Lab ID: 301	98306004	Collected: 10/04/	16 11:35	Received:	10/06/16 08:55	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Met	hod: EPA 82	260B					
Benzene	1200	ug/L	50.0	10		10/11/16 18:1 ⁻	1 71-43-2	
Ethylbenzene	485	ug/L	50.0	10		10/11/16 18:1	1 100-41-4	
Isopropylbenzene (Cumene)	55.1	ug/L	5.0	1		10/11/16 07:4		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/11/16 07:4		
Naphthalene	133	ug/L	5.0	1		10/11/16 07:4		
Toluene	170	ug/L	5.0	1		10/11/16 07:4		
1,2,4-Trimethylbenzene	313	ug/L	1.0	1		10/11/16 07:4		
1,3,5-Trimethylbenzene	103	-	1.0	1		10/11/16 07:4		
Xylene (Total)	922	ug/L ug/L	50.0	10		10/11/16 17:4		
Surrogates	322	ug/L	30.0	10		10/11/10 10.1	1 1330-20-7	
Toluene-d8 (S)	96	%	84-115	1		10/11/16 07:4	5 2037-26-5	
4-Bromofluorobenzene (S)	94	%	81-119	1		10/11/16 07:4		
1,2-Dichloroethane-d4 (S)	109	%	77-126	1			5 17060-07-0	
Dibromofluoromethane (S)	97	%	70-130	1		10/11/16 07:4		
Dibromondomentarie (3)	31	70	70-130	'		10/11/10 07.4	J 1000-33-7	
Sample: MW-5	Lab ID: 301	98306005	Collected: 10/04/	16 12:30	Received:	10/06/16 08:55	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Met	hod: EPA 82	260B					
Benzene	9860	ug/L	250	50		10/12/16 20:0	6 71-43-2	
Ethylbenzene	2300	ug/L	100	20		10/11/16 19:5	1 100-41-4	
Isopropylbenzene (Cumene)	99.2	ug/L	5.0	1		10/11/16 08:1	0 98-82-8	
Methyl-tert-butyl ether	75.5	ug/L	5.0	1		10/11/16 08:1		
Naphthalene	384	ug/L	100	20		10/11/16 19:5		
Toluene	32.1	ug/L	5.0	1		10/11/16 08:1		
1,2,4-Trimethylbenzene	1950	ug/L	100	20		10/11/16 19:5		
1,3,5-Trimethylbenzene	554	ug/L ug/L	100	20		10/11/16 19:5		
Xylene (Total)	6450		100	20		10/11/16 19:5		
Aylone (Total)	0430	ug/L	100	20		10/11/10 19.5	1 1000-20-7	



Project: H.O. Seneca Pace Project No.: 30198306

Date: 10/14/2016 03:48 PM

Sample: MW-5	Lab ID: 301	98306005	Collected: 10/04/1	6 12:30	Received:	10/06/16 08:55	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Met	nod: EPA 82	260B					
Surrogates								
Toluene-d8 (S)	98	%	84-115	1		10/11/16 08:1	0 2037-26-5	
4-Bromofluorobenzene (S)	103	%	81-119	1		10/11/16 08:1	0 460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	77-126	1		10/11/16 08:1	0 17060-07-0	
Dibromofluoromethane (S)	92	%	70-130	1		10/11/16 08:1	0 1868-53-7	
Sample: Upgradient Stream	Lab ID: 301	98306006	Collected: 10/04/1	6 10:00	Received:	10/06/16 08:55	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Met	nod: EPA 82	260B			•		
Benzene	ND	ug/L	5.0	1		10/11/16 06:1	7 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		10/11/16 06:1	7 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		10/11/16 06:1		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/11/16 06:1	7 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/11/16 06:1	7 91-20-3	
Toluene	ND	ug/L	5.0	1		10/11/16 06:1		
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/11/16 06:1		
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/11/16 06:1		
Xylene (Total)	ND	ug/L	5.0	1		10/11/16 06:1		
Surrogates	00	0/	04.445	4		40/44/40 00:41	7 0007 00 5	
Toluene-d8 (S)	98	%	84-115	1		10/11/16 06:1		
4-Bromofluorobenzene (S)	100	%	81-119	1		10/11/16 06:1		
1,2-Dichloroethane-d4 (S)	108	%	77-126	1			7 17060-07-0	
Dibromofluoromethane (S)	101	%	70-130	1		10/11/16 06:1	/ 1868-53-/	
Sample: Downgradient Stream	Lab ID: 301	98306007	Collected: 10/04/1	6 10:30	Received:	10/06/16 08:55	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Met	hod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		10/11/16 06:4	2 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		10/11/16 06:4	2 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		10/11/16 06:4	2 98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		10/11/16 06:4	2 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		10/11/16 06:4	2 91-20-3	
Toluene	ND	ug/L	5.0	1		10/11/16 06:4	2 108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/11/16 06:4		
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/11/16 06:4		
Xylene (Total)	ND	ug/L	5.0	1		10/11/16 06:4		
		3					-	
, ,						10/11/16 06:4	2027.26.5	
Surrogates	99	%	84-115	1		10/11/10 00.4	2 2037-20-5	
Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	99 99	% %	84-115 81-119	1 1		10/11/16 06:4		
Surrogates Toluene-d8 (S)						10/11/16 06:4		



QUALITY CONTROL DATA

Project: H.O. Seneca Pace Project No.: 30198306

Date: 10/14/2016 03:48 PM

QC Batch: 236154 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30198306001, 30198306002, 30198306003, 30198306004, 30198306005, 30198306006, 30198306007

METHOD BLANK: 1160179 Matrix: Water

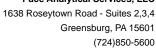
Associated Lab Samples: 30198306001, 30198306002, 30198306003, 30198306004, 30198306005, 30198306006, 30198306007

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	10/11/16 01:15	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	10/11/16 01:15	
Benzene	ug/L	ND	1.0	10/11/16 01:15	
Ethylbenzene	ug/L	ND	1.0	10/11/16 01:15	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	10/11/16 01:15	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/11/16 01:15	
Naphthalene	ug/L	ND	2.0	10/11/16 01:15	
Toluene	ug/L	ND	1.0	10/11/16 01:15	
Xylene (Total)	ug/L	ND	3.0	10/11/16 01:15	
1,2-Dichloroethane-d4 (S)	%	105	77-126	10/11/16 01:15	
4-Bromofluorobenzene (S)	%	96	81-119	10/11/16 01:15	
Dibromofluoromethane (S)	%	99	70-130	10/11/16 01:15	
Toluene-d8 (S)	%	98	84-115	10/11/16 01:15	

LABORATORY CONTROL SAMPLE:	1160180					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		19.4	97	75-128	
1,3,5-Trimethylbenzene	ug/L	20	18.9	95	74-125	
Benzene	ug/L	20	19.1	96	69-115	
Ethylbenzene	ug/L	20	19.6	98	71-116	
sopropylbenzene (Cumene)	ug/L	20	19.2	96	79-121	
Methyl-tert-butyl ether	ug/L	20	19.3	97	83-140	
Naphthalene	ug/L	20	17.8	89	64-140	
Toluene	ug/L	20	18.9	95	70-115	
Kylene (Total)	ug/L	60	58.7	98	73-118	
1,2-Dichloroethane-d4 (S)	%			102	77-126	
4-Bromofluorobenzene (S)	%			95	81-119	
Dibromofluoromethane (S)	%			101	70-130	
Toluene-d8 (S)	%			98	84-115	

MATRIX SPIKE & MATRIX SPIKE	DUPLICAT	E: 11601	81		1160182						
			MS	MSD							
	301	98495003	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	18.2	15.1	91	76	69-121	18	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	17.8	14.7	89	73	68-118	19	
Benzene	ug/L	ND	20	20	18.3	14.9	92	75	63-123	20	

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





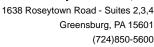
QUALITY CONTROL DATA

Project: H.O. Seneca Pace Project No.: 30198306

Date: 10/14/2016 03:48 PM

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 11601	B1		1160182						
			MS	MSD							
	301	198495003	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	19.0	15.9	95	79	70-120	18	
sopropylbenzene (Cumene)	ug/L	ND	20	20	18.4	15.0	92	75	71-129	20	
lethyl-tert-butyl ether	ug/L	ND	20	20	13.6	16.2	68	81	63-143	17	
laphthalene	ug/L	ND	20	20	16.9	14.6	85	73	55-122	15	
oluene	ug/L	ND	20	20	20.5	16.8	103	84	66-124	20	
ylene (Total)	ug/L	ND	60	60	56.6	47.4	94	79	68-123	18	
,2-Dichloroethane-d4 (S)	%						100	103	77-126		
-Bromofluorobenzene (S)	%						99	95	81-119		
ibromofluoromethane (S)	%						100	101	70-130		
oluene-d8 (S)	%						99	100	84-115		

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





QUALIFIERS

Project: H.O. Seneca Pace Project No.: 30198306

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

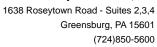
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 10/14/2016 03:48 PM

PASI-PA Pace Analytical Services - Greensburg





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. Seneca Pace Project No.: 30198306

Date: 10/14/2016 03:48 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30198306001	MW-1	EPA 8260B	236154		
30198306002	MW-2	EPA 8260B	236154		
30198306003	MW-3	EPA 8260B	236154		
30198306004	MW-4	EPA 8260B	236154		
30198306005	MW-5	EPA 8260B	236154		
30198306006	Upgradient Stream	EPA 8260B	236154		
30198306007	Downgradient Stream	EPA 8260B	236154		

Face Analytical " www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

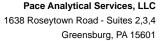
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		DATE Signed	ieceR ecol ecol ecol ecol ecol ecol ecol ecol

Sample Condition Upon Receipt Pittsburgh

Face Analytical	Client Name:			'pil	obs	Project#
Courier: Fed Ex Tracking #:	UPS USPS D Clier	it 🗆	Comm	nercial	☐ Pace Other	
Custody Seal on Coole	r/Box Present: 🗌 yes	p	no	Seal	s intact:	l no
Thermometer Used	6	Туре	of Ice	: (We	Blue None	
Cooler Temperature Temp should be above free:	Observed Temp	.8	°C	Corr	ection Factor <u>: -(), 2</u>	°C Final Temp: O °C Date and Initials of person examining ,
Comments:		Yes	No	N/A	٦	Date and Initials of person examining contents:
Chain of Custody Presen	f:	X			1.	
Chain of Custody Filled C		文			2.	
Chain of Custody Relingu		V			3.	
Sampler Name & Signatu		X			4.	
Sample Labels match CC		X			5.	
-Includes date/time/ID	1 ^	7				
Samples Arrived within H		X			6.	
Short Hold Time Analys			X		7.	
Rush Turn Around Time			X		8.	
Sufficient Volume:		X			9.	
Correct Containers Used:		X			10.	
-Pace Containers Use	d:	X				
Containers Intact:		X			11.	
Filtered volume received	for Dissolved tests	,		X	12.	
All containers needing preserve	ation have been checked.			X	13.	
All containers needing preser compliance with EPA recomm				X		
exceptions: VOA colifor	m, TOC, O&G, Phenolics				Initial when Completed Children Lot # of added preservative	Date/time of preservation
Headspace in VOA Vials ('>6mm):		X		14.	
Trip Blank Present:			X		15.	
Trip Blank Custody Seals	Present			X		
Rad Aqueous Samples S				X	Initial when completed:	Date:
Client Notification/ Reso Person Contacted: Comments/ Resolution:				Date/⊺	Time:	Contacted By:
						
· · · · · · · · · · · · · · · · · · ·						

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

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



(724)850-5600



December 20, 2016

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

RE: Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on December 06, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

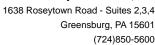
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification Hawaii Certification

Idaho Certification Illinois Certification

Indiana Certification lowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976

New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888

North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

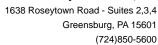
South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C Wisconsin Certification

Wyoming Certification #: 8TMS-L



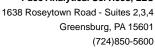


SAMPLE ANALYTE COUNT

Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30204388001	MW-8	EPA 8260B	JAS	13	PASI-PA
30204388002	MW-9	EPA 8260B	JAS	13	PASI-PA
30204388003	MW-10	EPA 8260B	JAS	13	PASI-PA





PROJECT NARRATIVE

Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: December 20, 2016

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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



Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Date: 12/20/2016 10:52 AM

Sample: MW-8	Lab ID: 3020	04388001	Collected: 12/06/1	6 12:30	Received:	12/06/16 14:40 N	Natrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		12/15/16 06:27	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		12/15/16 06:27	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/15/16 06:27	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		12/15/16 06:27	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		12/15/16 06:27	91-20-3	
Toluene	ND	ug/L	5.0	1		12/15/16 06:27	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		12/15/16 06:27	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		12/15/16 06:27	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		12/15/16 06:27	1330-20-7	
Surrogates		Ü						
Toluene-d8 (S)	95	%	84-115	1		12/15/16 06:27	2037-26-5	
4-Bromofluorobenzene (S)	97	%	81-119	1		12/15/16 06:27	460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	77-126	1		12/15/16 06:27	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	1		12/15/16 06:27	1868-53-7	
Sample: MW-9	Lab ID: 3020	04388002	Collected: 12/06/1	6 11:30	Received:	12/06/16 14:40 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		12/15/16 06:52	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		12/15/16 06:52	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		12/15/16 06:52		
Methyl-tert-butyl ether	10.4	ug/L	5.0	1		12/15/16 06:52		
Naphthalene	ND	ug/L	5.0	1		12/15/16 06:52		
Toluene	ND	ug/L	5.0	1		12/15/16 06:52		
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		12/15/16 06:52		
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		12/15/16 06:52		
Xylene (Total)	ND	ug/L	5.0	1		12/15/16 06:52		
Surrogates		-9-		•		, ., ., ., ., ., ., ., ., ., ., .,		
Toluene-d8 (S)	94	%	84-115	1		12/15/16 06:52	2037-26-5	
4-Bromofluorobenzene (S)	93	%	81-119	1		12/15/16 06:52	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	77-126	1		12/15/16 06:52	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	1		12/15/16 06:52	1868-53-7	
Sample: MW-10	Lab ID: 3020	04388003	Collected: 12/06/1	6 10:30	Received:	12/06/16 14:40 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	16.3	ug/L	5.0	1		12/15/16 07:17	71-43-2	
Ethylbenzene	315	ug/L	5.0	1		12/15/16 07:17		
Isopropylbenzene (Cumene)	59.4	ug/L	5.0	1		12/15/16 07:17		
Methyl-tert-butyl ether	15.9	ug/L	5.0	1		12/15/16 07:17		
Naphthalene	99.3	ug/L ug/L	5.0	1		12/15/16 07:17		
Maphillalono	33.3	ug/∟	3.0	•		12, 10, 10 01.11	31 20 3	



Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Date: 12/20/2016 10:52 AM

Sample: MW-10	Lab ID: 3020	04388003	Collected: 12/06/1	6 10:30	Received: 12	2/06/16 14:40 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Toluene	ND	ug/L	5.0	1		12/15/16 07:17	108-88-3	
1,2,4-Trimethylbenzene	260	ug/L	1.0	1		12/15/16 07:17	95-63-6	
1,3,5-Trimethylbenzene	9.2	ug/L	1.0	1		12/15/16 07:17	108-67-8	
Xylene (Total)	8.3	ug/L	5.0	1		12/15/16 07:17	1330-20-7	
Surrogates		-						
Toluene-d8 (S)	97	%	84-115	1		12/15/16 07:17	2037-26-5	
4-Bromofluorobenzene (S)	99	%	81-119	1		12/15/16 07:17	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	77-126	1		12/15/16 07:17	17060-07-0	
Dibromofluoromethane (S)	96	%	70-130	1		12/15/16 07:17	1868-53-7	



QUALITY CONTROL DATA

Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Date: 12/20/2016 10:52 AM

QC Batch: 243328 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30204388001, 30204388002, 30204388003

METHOD BLANK: 1196912 Matrix: Water

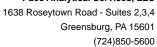
Associated Lab Samples: 30204388001, 30204388002, 30204388003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L		1.0	12/15/16 00:09	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	12/15/16 00:09	
Benzene	ug/L	ND	1.0	12/15/16 00:09	
Ethylbenzene	ug/L	ND	1.0	12/15/16 00:09	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	12/15/16 00:09	
Methyl-tert-butyl ether	ug/L	ND	1.0	12/15/16 00:09	
Naphthalene	ug/L	ND	2.0	12/15/16 00:09	
Toluene	ug/L	ND	1.0	12/15/16 00:09	
Xylene (Total)	ug/L	ND	3.0	12/15/16 00:09	
1,2-Dichloroethane-d4 (S)	%	108	77-126	12/15/16 00:09	
4-Bromofluorobenzene (S)	%	101	81-119	12/15/16 00:09	
Dibromofluoromethane (S)	%	97	70-130	12/15/16 00:09	
Toluene-d8 (S)	%	96	84-115	12/15/16 00:09	

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.3	107	75-128	
1,3,5-Trimethylbenzene	ug/L	20	21.3	107	74-125	
Benzene	ug/L	20	20.0	100	69-115	
Ethylbenzene	ug/L	20	20.5	103	71-116	
Isopropylbenzene (Cumene)	ug/L	20	20.9	105	79-121	
Methyl-tert-butyl ether	ug/L	20	24.2	121	83-140	
Naphthalene	ug/L	20	21.3	106	64-140	
Toluene	ug/L	20	20.2	101	70-115	
Xylene (Total)	ug/L	60	63.0	105	73-118	
1,2-Dichloroethane-d4 (S)	%			116	77-126	
4-Bromofluorobenzene (S)	%			98	81-119	
Dibromofluoromethane (S)	%			101	70-130	
Toluene-d8 (S)	%			99	84-115	

MATRIX SPIKE & MATRIX SPIKE	DUPLICAT	E: 11969	14		1196915						
			MS	MSD							
	302	204570001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.4	22.2	112	111	69-121	1	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.9	22.1	115	111	68-118	4	
Benzene	ug/L	ND	20	20	21.6	20.7	108	103	63-123	4	

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





QUALITY CONTROL DATA

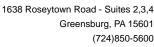
Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Date: 12/20/2016 10:52 AM

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 11969	14		1196915						
			MS	MSD							
	302	204570001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	21.8	21.7	109	109	70-120	0	
sopropylbenzene (Cumene)	ug/L	ND	20	20	22.8	22.2	114	111	71-129	3	
lethyl-tert-butyl ether	ug/L	ND	20	20	22.8	22.4	114	112	63-143	2	
laphthalene	ug/L	ND	20	20	20.6	20.5	103	103	55-122	1	
oluene	ug/L	ND	20	20	21.7	21.8	109	109	66-124	1	
ylene (Total)	ug/L	ND	60	60	66.7	66.1	111	110	68-123	1	
,2-Dichloroethane-d4 (S)	%						103	96	77-126		
-Bromofluorobenzene (S)	%						99	98	81-119		
ibromofluoromethane (S)	%						100	96	70-130		
oluene-d8 (S)	%						99	101	84-115		

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





QUALIFIERS

Project: H.O. Seneca New Wells

Pace Project No.: 30204388

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

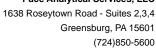
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 12/20/2016 10:52 AM

PASI-PA Pace Analytical Services - Greensburg





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. Seneca New Wells

Pace Project No.: 30204388

Date: 12/20/2016 10:52 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30204388001	MW-8	EPA 8260B	243328		
30204388002	MW-9	EPA 8260B	243328		
30204388003	MW-10	EPA 8260B	243328		

WO#:30204388

st Document completed accurately.

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Page:

Face Analytical www.pacelabs.com

DRINKING WATER ロガスの の に の の に OTHER GROUND WATER Olgo Electron REGULATORY AGENCY RCRA Requested Analysis Filtered (Y/N) Site Location STATE NPDES UST CE1685 * POLICE TORONIC Crach LAURA A Company Name: Reference:
Pace Project
Manager:
Pace Profile #: Pace Quote Address: Attention VOE: 15 N. S. L. Section B Required Project Information: Ö Purchase Order No.: Project Name: Project Number: Report To: Copy To: 156.26 C-frootes 200 Se time T Section A Required Client Information: Phone: 454 2310 Requested Due Date/TAT: 5000 Scimost ompany: Email To: ddress:

SAMPLE ID				-	ŀ	L								I			-	_	F				
The process of the pr	Section D Required Client	information	Matrix Code	***************************************		-نمدلـ)	Õ	LLECTED		dus esta		Prese	rvatives	N/A									
MAST RE UNIQUE TESS AND THE TOTAL TIME DATE TIME BOATE	(<u>.</u>	Drinking Water Water Waste Water Product Soll/Solid				COMPOSITE	COMP		COMPANY AND COMPANY COMPANY										(IV/A/	(N/X) 6		
	o ed	Sample IDs MUST BE UNIQUE	Wipe Air Tissue Other						TIME	AND AUDIO CONTRACTOR ADVISOR AND CONTRACTOR AND CON	Unpreserved	^E ONH	HO _B N £O _S S _S bN	Other	ISOL BIGGINIA					aisold Daubioo G	•	Ice Projec	. No./ Lab I.D.
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"Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for lary involved to to bald within 30 days.

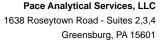
F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt Pittsburgh , Pace Analytical ` Courier: ☐ Fed Ex ☐ UPS ☐ USPS # Client ☐ Commercial ☐ Pace Other _____ Tracking #: Custody Seal on Cooler/Box Present: yes Seals intact: ☐ yes ☐ no Type of Ice: (Wet) Blue None Thermometer Used ·c Correction Factor: 012 · c Final Temp: 32 · c Observed Temp 3,4 Cooler Temperature Temp should be above freezing to 6°C Date and Initials of person examining, contents: Yes No N/A Comments: Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: 5. Sample Labels match COC: Matrix: -Includes date/time/ID/Analysis Samples Arrived within Hold Time: Short Hold Time Analysis (<72hr remaining): 8. Rush Turn Around Time Requested: 9. Sufficient Volume: 10. Correct Containers Used: -Pace Containers Used: 11. Containers Intact: 12. Filtered volume received for Dissolved tests All containers needing preservation have been checked. 13. All containers needing preservation are found to be in compliance with EPA recommendation. Date/time of Initial when preservation exceptions: VOA coliform, TOC, O&G, Phenolics completed Lot # of added preservative 14 Headspace in VOA Vials (>6mm): 15. Trip Blank Present: Trip Blank Custody Seals Present Initial when Rad Aqueous Samples Screened > 0.5 mrem/hr Date: completed: Client Notification/ Resolution: Contacted By: Date/Time: Person Contacted:

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

Comments/ Resolution:

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



(724)850-5600



January 24, 2017

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

RE: Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on January 17, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

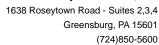
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification Hawaii Certification Idaho Certification Illinois Certification

Indiana Certification lowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457

New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

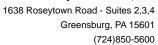
South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L



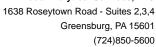


SAMPLE ANALYTE COUNT

Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30208193001	MW-6	EPA 8260B	JAS	13	PASI-PA
30208193002	MW-7	EPA 8260B	JAS	13	PASI-PA





PROJECT NARRATIVE

Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: January 24, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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



Project: H.O. Seneca MW-6 & 7

30208193 Pace Project No.:

Date: 01/24/2017 10:37 AM

Sample: MW-6	Lab ID: 3020	08193001	Collected: 01/17/1	7 12:30	Received: 0	1/17/17 16:25 N	/latrix: Water	
Comments: • Trip blank not prese	nt in cooler with samp	ples at time	of receipt at the lab.					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		01/20/17 14:35	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		01/20/17 14:35	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/20/17 14:35	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		01/20/17 14:35	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		01/20/17 14:35	91-20-3	
Toluene	ND	ug/L	5.0	1		01/20/17 14:35	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		01/20/17 14:35	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		01/20/17 14:35	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		01/20/17 14:35	1330-20-7	
Surrogates		•						
Toluene-d8 (S)	102	%	59-140	1		01/20/17 14:35	2037-26-5	
4-Bromofluorobenzene (S)	103	%	78-117	1		01/20/17 14:35	460-00-4	
1,2-Dichloroethane-d4 (S)	87	%	70-128	1		01/20/17 14:35	17060-07-0	
Dibromofluoromethane (S)	94	%	66-132	1		01/20/17 14:35	1868-53-7	
Sample: MW-7	Lab ID: 3020	08193002	Collected: 01/17/1	7 13:15	Received: 0	1/17/17 16:25 N	Matrix: Water	

Collected: 01/17/17 13:15 Received: 01/17/17 16:25 Matrix: Water

Comments: • Trip blank not present in cooler with samples at time of receipt at the lab.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 826	0B					
Benzene	ND	ug/L	5.0	1		01/20/17 15:02	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		01/20/17 15:02	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		01/20/17 15:02	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		01/20/17 15:02	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		01/20/17 15:02	91-20-3	
Toluene	ND	ug/L	5.0	1		01/20/17 15:02	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		01/20/17 15:02	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		01/20/17 15:02	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		01/20/17 15:02	1330-20-7	
Surrogates								
Toluene-d8 (S)	95	%	59-140	1		01/20/17 15:02	2037-26-5	
4-Bromofluorobenzene (S)	100	%	78-117	1		01/20/17 15:02	460-00-4	
1,2-Dichloroethane-d4 (S)	89	%	70-128	1		01/20/17 15:02	17060-07-0	
Dibromofluoromethane (S)	88	%	66-132	1		01/20/17 15:02	1868-53-7	



QUALITY CONTROL DATA

Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

Date: 01/24/2017 10:37 AM

QC Batch: 246914 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30208193001, 30208193002

METHOD BLANK: 1214167 Matrix: Water

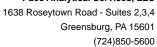
Associated Lab Samples: 30208193001, 30208193002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	01/20/17 11:23	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	01/20/17 11:23	
Benzene	ug/L	ND	1.0	01/20/17 11:23	
Ethylbenzene	ug/L	ND	1.0	01/20/17 11:23	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	01/20/17 11:23	
Methyl-tert-butyl ether	ug/L	ND	1.0	01/20/17 11:23	
Naphthalene	ug/L	ND	2.0	01/20/17 11:23	
Toluene	ug/L	ND	1.0	01/20/17 11:23	
Xylene (Total)	ug/L	ND	3.0	01/20/17 11:23	
1,2-Dichloroethane-d4 (S)	%	96	70-128	01/20/17 11:23	
4-Bromofluorobenzene (S)	%	109	78-117	01/20/17 11:23	
Dibromofluoromethane (S)	%	98	66-132	01/20/17 11:23	
Toluene-d8 (S)	%	99	59-140	01/20/17 11:23	

LABORATORY CONTROL SAMPLE:	1214168					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		19.5	97	78-116	
1,3,5-Trimethylbenzene	ug/L	20	19.4	97	77-114	
Benzene	ug/L	20	17.3	86	80-113	
Ethylbenzene	ug/L	20	17.9	90	80-115	
Isopropylbenzene (Cumene)	ug/L	20	19.2	96	78-114	
Methyl-tert-butyl ether	ug/L	20	17.8	89	82-126	
Naphthalene	ug/L	20	21.2	106	61-139	
Toluene	ug/L	20	19.3	97	82-116	
Xylene (Total)	ug/L	60	55.7	93	82-115	
1,2-Dichloroethane-d4 (S)	%			91	70-128	
4-Bromofluorobenzene (S)	%			106	78-117	
Dibromofluoromethane (S)	%			96	66-132	
Toluene-d8 (S)	%			107	59-140	

MATRIX SPIKE & MATRIX SPIKE	DUPLICAT	E: 12148	50		1214851						
			MS	MSD							
	302	208256001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	20.5	20.2	103	101	69-121	2	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	19.7	19.4	99	97	68-118	2	
Benzene	ug/L	ND	20	20	19.5	18.5	97	93	63-123	5	

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





QUALITY CONTROL DATA

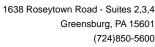
Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

Date: 01/24/2017 10:37 AM

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 12148	50		1214851						
Description		208256001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec	000	01
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	18.5	18.5	92	92	70-120	0	
sopropylbenzene (Cumene)	ug/L	ND	20	20	20.0	19.3	100	97	71-129	3	
Methyl-tert-butyl ether	ug/L	121	20	20	135	128	69	32	63-143	6 ML	
Naphthalene	ug/L	ND	20	20	20.5	20.6	103	103	55-122	1	
Toluene	ug/L	ND	20	20	20.3	19.7	101	98	66-124	3	
Xylene (Total)	ug/L	ND	60	60	58.0	56.5	97	94	68-123	3	
1,2-Dichloroethane-d4 (S)	%						100	99	70-128		
4-Bromofluorobenzene (S)	%						104	107	78-117		
Dibromofluoromethane (S)	%						99	98	66-132		
Toluene-d8 (S)	%						108	107	59-140		

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





QUALIFIERS

Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

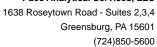
LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

Date: 01/24/2017 10:37 AM

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





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. Seneca MW-6 & 7

Pace Project No.: 30208193

Date: 01/24/2017 10:37 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30208193001	MW-6	EPA 8260B	246914		
30208193002	MW-7	EPA 8260B	246914		

Face Analytical " www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Requested Due Date/TAT: チェッショの	Project Number	1 1						Pace P	rofile #:	1	1920	38	6//3		ST	STATE:	Of I				
													Req	uested A	Requested Analysis Filtered (Y/N)	Filtered	(N/K)				
Section D Required Client Information	Matrix Codes	(flel o	(dW		COLLECTED	TED			u.	Preservatives	atives	ÎИД			F 9			Т			
	Drinking Water WT Waste Water WW Product P Soil/Solid SL	see valid codes to	00=0 8ARD=	COMPOSITE	ш	COMPOSITE END/GRAB												WO#:30208193	<u>ෆ</u> ග		
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ADDITIONAL COMMENTS			NQUISH	RELINQUISHED BY / AFFILIATION	FILIATION		DATE		HWIL				MOCEPHEN NATIONAL MATERIAL PARTIES NATIONAL PROPERTY NATIONAL PROP			+					
1621 Sh. a. 1132		1	1	0110				1	1	-	0				UAIR		Σl	-	SAMPLE	SAMPLE CONDITIONS	SNS
105/ 12 18.408.0	Gase i.vg			11 1000		,	11.11-		7	$\frac{3}{2}$		3	7	72.00		7-1716	52	\ \ \ \		>	
Dakameters																					
				SA	MPLER	SAMPLER NAME AND SIGNATURE	SIGNATUI	_ 									12.	+		JE	10
∋ 10 of		e Promo		<u> </u>	K 3	PRINT Name of	of SAMPLER:	12/1/CS	3/2	1, 6	Virex		1	PATE Sizes				O° ni qm	oeived or se (Y/N)	vatody led Coole (V/V)	(A/M) bles luts
					รัก	SIGNATURE OF	Of SAMPIFR~	`\	*	0			2	ממומים		,			,	ŧ	u

Sample Condition	า Upon Rece	ipt F	ittsl	ourg		
Face Analytical Clie	nt Name:			Cv	ribbs 3	0 2 0 8 1 9 3 Project #
Courier: Fed Ex UPS Tracking #:	USPS Clier	nt 🗌	Comr	nercia	I ☐ Pace Other	
Custody Seal on Cooler/Box P	resent: yes		no	Seal	s intact: yes	no
Thermometer Used	6	- 1	of Ice	: (We	Blue None	
Cooler Temperature Obser	ved Temp	0	° C	Cori	rection Factor: 17	1.2°C Final Temp: 1.2 °C
Temp should be above freezing to 6°	,c		•			_
				1 81/8	7	Date and Initials of person examining contents:
Comments:		Yes	No	N/A		
Chain of Custody Present:		 		1	11.	
Chain of Custody Filled Out:		\			2.	
Chain of Custody Relinquished:		1		ļ	3.	
Sampler Name & Signature on C	OC:	X		ļ	4.	
Sample Labels match COC:	•				5.	
-Includes date/time/ID	Matrix:	WI		T .		
Samples Arrived within Hold Tim	e:	X			6.	
Short Hold Time Analysis (<72	hr remaining):		X		7.	
Rush Turn Around Time Reque	ested:		X		8.	
Sufficient Volume:		X			9.	
Correct Containers Used:		X			10.	
-Pace Containers Used:		X				
Containers Intact:		X			11.	
Orthophosphate field filtered				X	12.	
Organic Samples checked for	dechlorination:			X	13.	
Filtered volume received for Diss				X	14.	
All containers have been checked for	preservation.			4	15.	
All containers needing preservation ar compliance with EPA recommendation				X		
exceptions: VOA, coliform, TOC	, O&G, Phenolics				Initial when Completed Lot # of added	Date/time of preservation
Headspace in VOA Vials (>6mm)):		Δ		16.	
Trip Blank Present:	,		父		17.	
Trip Blank Custody Seals Present	,			X		
Rad Aqueous Samples Screene				1	Initial when	Date:
Direct Madification / December 1				/\	completed:	pare.
Client Notification/ Resolution:				Data	Timo:	Contacted By:
Person Contacted: Comments/ Resolution:					THIRC.	Contacted By:
Comments/ (vesolution)						
			-			
	·-···	•				
A check in this box ind	icates that addit	ional i	nforr	natio	n has been stored	in ereports.

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

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

(724)850-5600



February 09, 2017

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

RE: Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on February 02, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

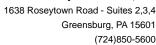
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification

Iowa Certification #: 391 Kansas/TNI Certification #: E-10358

Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082

Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888

North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282
South Dakota Certification

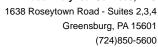
South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L



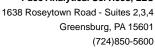


SAMPLE ANALYTE COUNT

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30209623001	MW-12	EPA 8260B	LEL	13	PASI-PA
30209623002	MW-13	EPA 8260B	LEL	13	PASI-PA
30209623003	MW-14	EPA 8260B	LEL	13	PASI-PA





PROJECT NARRATIVE

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: February 09, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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



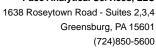
ANALYTICAL RESULTS

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Date: 02/09/2017 12:19 PM

Received: 02/02/17 09:59 Sample: MW-12 Lab ID: 30209623001 Collected: 02/01/17 11:00 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: EPA 8260B 8260B MSV Benzene ND ug/L 5.0 1 02/08/17 21:11 71-43-2 Ethylbenzene ND ug/L 5.0 1 02/08/17 21:11 100-41-4 Isopropylbenzene (Cumene) ND ug/L 5.0 02/08/17 21:11 98-82-8 1 Methyl-tert-butyl ether ND ug/L 5.0 02/08/17 21:11 1634-04-4 1 Naphthalene 02/08/17 21:11 91-20-3 ND ug/L 5.0 1 Toluene ND ug/L 5.0 02/08/17 21:11 108-88-3 1 1,2,4-Trimethylbenzene ND 1.0 02/08/17 21:11 95-63-6 ug/L 1 1,3,5-Trimethylbenzene NΠ 02/08/17 21:11 108-67-8 ug/L 1.0 1 Xylene (Total) 02/08/17 21:11 1330-20-7 ND ug/L 5.0 1 Surrogates 104 02/08/17 21:11 2037-26-5 Toluene-d8 (S) % 59-140 1 4-Bromofluorobenzene (S) 99 % 78-117 1 02/08/17 21:11 460-00-4 02/08/17 21:11 17060-07-0 1,2-Dichloroethane-d4 (S) 104 % 70-128 1 Dibromofluoromethane (S) 100 % 02/08/17 21:11 1868-53-7 66-132 1 Matrix: Water Sample: MW-13 Lab ID: 30209623002 Collected: 02/01/17 11:45 Received: 02/02/17 09:59 Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. Qual **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Analytical Method: EPA 8260B 8260B MSV Benzene ND ug/L 5.0 1 02/08/17 21:36 71-43-2 Ethylbenzene ND ug/L 5.0 02/08/17 21:36 100-41-4 1 Isopropylbenzene (Cumene) ND 5.0 02/08/17 21:36 98-82-8 ug/L 1 Methyl-tert-butyl ether NΠ ug/L 5.0 02/08/17 21:36 1634-04-4 1 ND Naphthalene ug/L 5.0 1 02/08/17 21:36 91-20-3 ND 02/08/17 21:36 108-88-3 Toluene ug/L 5.0 1 1,2,4-Trimethylbenzene ND ug/L 1.0 1 02/08/17 21:36 95-63-6 1,3,5-Trimethylbenzene ND ug/L 1.0 02/08/17 21:36 108-67-8 1 Xylene (Total) ND 5.0 02/08/17 21:36 1330-20-7 ug/L Surrogates Toluene-d8 (S) 98 % 59-140 1 02/08/17 21:36 2037-26-5 4-Bromofluorobenzene (S) 102 % 78-117 1 02/08/17 21:36 460-00-4 % 1,2-Dichloroethane-d4 (S) 104 70-128 1 02/08/17 21:36 17060-07-0 Dibromofluoromethane (S) 97 % 66-132 02/08/17 21:36 1868-53-7 Matrix: Water Sample: MW-14 Lab ID: 30209623003 Collected: 02/01/17 12:45 Received: 02/02/17 09:59 Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual 8260B MSV Analytical Method: EPA 8260B ND Benzene ug/L 5.0 1 02/08/17 22:02 71-43-2 Ethylbenzene ND ug/L 5.0 1 02/08/17 22:02 100-41-4





ANALYTICAL RESULTS

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Date: 02/09/2017 12:19 PM

Sample: MW-14 Lab ID: 30209623003 Collected: 02/01/17 12:45 Received: 02/02/17 09:59 Matrix: Water

Comments: • Trip blank not present in cooler with samples at time of receipt at the lab.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 826	0B					
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		02/08/17 22:02	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		02/08/17 22:02	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		02/08/17 22:02	91-20-3	
Toluene	ND	ug/L	5.0	1		02/08/17 22:02	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		02/08/17 22:02	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		02/08/17 22:02	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		02/08/17 22:02	1330-20-7	
Surrogates								
Toluene-d8 (S)	102	%	59-140	1		02/08/17 22:02	2037-26-5	
4-Bromofluorobenzene (S)	101	%	78-117	1		02/08/17 22:02	460-00-4	
1,2-Dichloroethane-d4 (S)	109	%	70-128	1		02/08/17 22:02	17060-07-0	
Dibromofluoromethane (S)	101	%	66-132	1		02/08/17 22:02	1868-53-7	



QUALITY CONTROL DATA

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Date: 02/09/2017 12:19 PM

QC Batch: 248785 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30209623001, 30209623002, 30209623003

METHOD BLANK: 1223400 Matrix: Water

Associated Lab Samples: 30209623001, 30209623002, 30209623003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	02/08/17 15:14	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	02/08/17 15:14	
Benzene	ug/L	ND	1.0	02/08/17 15:14	
Ethylbenzene	ug/L	ND	1.0	02/08/17 15:14	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	02/08/17 15:14	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/08/17 15:14	
Naphthalene	ug/L	ND	2.0	02/08/17 15:14	
Toluene	ug/L	ND	1.0	02/08/17 15:14	
Xylene (Total)	ug/L	ND	3.0	02/08/17 15:14	
1,2-Dichloroethane-d4 (S)	%	103	70-128	02/08/17 15:14	
4-Bromofluorobenzene (S)	%	100	78-117	02/08/17 15:14	
Dibromofluoromethane (S)	%	102	66-132	02/08/17 15:14	
Toluene-d8 (S)	%	101	59-140	02/08/17 15:14	

LABORATORY CONTROL SAMPLE:	1223401					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		21.1	106	78-116	
1,3,5-Trimethylbenzene	ug/L	20	20.8	104	77-114	
Benzene	ug/L	20	19.7	98	80-113	
Ethylbenzene	ug/L	20	20.1	100	80-115	
sopropylbenzene (Cumene)	ug/L	20	21.0	105	78-114	
Methyl-tert-butyl ether	ug/L	20	18.7	94	82-126	
Naphthalene	ug/L	20	22.5	113	61-139	
Toluene	ug/L	20	20.3	101	82-116	
Xylene (Total)	ug/L	60	61.5	103	82-115	
1,2-Dichloroethane-d4 (S)	%			105	70-128	
4-Bromofluorobenzene (S)	%			102	78-117	
Dibromofluoromethane (S)	%			98	66-132	
Toluene-d8 (S)	%			100	59-140	

MATRIX SPIKE & MATRIX SPIKE	DUPLICAT	E: 12234	02		1223403						
			MS	MSD							
	302	209987003	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	16.1	18.2	80	91	69-121	12	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	15.9	17.8	79	89	68-118	11	
Benzene	ug/L	ND	20	20	16.2	17.1	81	86	63-123	5	

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



QUALITY CONTROL DATA

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Date: 02/09/2017 12:19 PM

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 12234	02		1223403						
Parameter	302 Units	209987003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec	RPD	Qual
Ethylbenzene	ug/L	ND -	20	20	16.2	16.7	81	84	70-120	3	
Isopropylbenzene (Cumene)	ug/L ug/L	ND	20	20	16.2	18.7	81	93	71-129	14	
Methyl-tert-butyl ether	ug/L	ND	20	20	17.9	16.1	89	80	63-143	10	
Naphthalene	ug/L	ND	20	20	16.7	18.2	84	91	55-122	8	
Toluene	ug/L	ND	20	20	16.7	17.4	83	87	66-124	4	
Xylene (Total)	ug/L	ND	60	60	49.8	52.0	83	87	68-123	4	
1,2-Dichloroethane-d4 (S)	%						105	109	70-128		
1-Bromofluorobenzene (S)	%						97	101	78-117		
Dibromofluoromethane (S)	%						102	100	66-132		
Toluene-d8 (S)	%						103	99	59-140		

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



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

QUALIFIERS

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

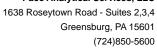
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 02/09/2017 12:19 PM

PASI-PA Pace Analytical Services - Greensburg





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. SENECA MW-12,13,14

Pace Project No.: 30209623

Date: 02/09/2017 12:19 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30209623001	MW-12	EPA 8260B	248785		
30209623002	MW-13	EPA 8260B	248785		
30209623003	MW-14	EPA 8260B	248785		

Face Analytical www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

Pace Project No./ Lab I.D. DRINKING WATER SAMPLE CONDITIONS 000 ₩ 0 0 8 OTHER 00 οť WO#:30209623 NPDES K GROUND WATER Residual Chlorine (Y/N) Page: REGULATORY AGENCY RCRA 4:59 Requested Analysis Filtered (Y/N) TIME STATE: Site Location ング DATE UST M (V (0 ACCEPTED BY / AFFILIATION (3) Ce.385 10136 N ↑N/A JaaT sisylsnA J Methanol Other (sen 1 Preservatives _EO_sS_sbN NaOH Second . HCI MM ~ Invoice Information: нио^з Company Name: Pace Quote
Reference:
Pace Project
Manager: ⁵OS^zH Section C 9:59 Unpreserved Address: TIME # OF CONTAINERS M M SAMPLE TEMP AT COLLECTION Ţ DATE 17-7-2 11:45 12:45 11:00 TIME Mw-12,13, COMPOSITE END/GRAB 1-1-1 1-1-2 6-1-17 DATE COLLECTED RELINQUISHED BY / AFFILIATION SENECA TIME COMPOSITE START DATE Section B Required Project Information: 4.0. (G=GRAB C=COMP) SAMPLE TYPE P S S Purchase Order No.: 7 <u>;</u> Project Number: (see valid codes to left) MATRIX CODE Project Name: Report To: Sopy To: WW WWP OLL SL ARR ARR OT TS Matrix Codes
MATRIX / CODE Drinking Water Water Waste Water Waste Water Soil/Soild Oil Wipe Air Air Tissue Other Delme. GRAMETES Strogges 馬 ADDITIONAL COMMENTS UNIEAZED 111 (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE Sheet 11st Fax: SAMPLE ID 15626 Section A Required Client Information: Phone: 754-2310 Required Client Information 710-13 Requested Due Date/TAT: 11-MM 6,335 P.4.180 Sassilias Section D a E NEW Company: Address: 10 # MaTI 7 က Ŋ 9 F 12 7 00 o

Samples Intact (Y/V) F-ALL-Q-020rev.07, 15-May-2007

Sealed Cooler Received on

(N/X)

Custody

Ice (Y/N)

O° ni qmeT

DATE Signed (MM/DD/YY):

VatteR

SIGNATURE of SAMPLER:

SAMPLER NAME AND SIGNATURE

ORIGINAL

PRINT Name of SAMPLER:

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

Page 11 of 12

Sample Condition Upon Receipt Pittsburgh

30209623

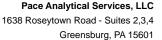
Face Analytical Client Name:	(16	SQ Assoc. Project#
Courier: Fed Ex UPS USPS Clien	nt 🗌	Comn	nercial	Pace Other
Custody Seal on Cooler/Box Present: yes	2	no	Seals	s intact: yes no
Thermometer Used	Туре		We	Blue None
Cooler Temperature Observed Temp 3.	E*			ection Factor: +0,2 °C Final Temp: 3,3 °C
Temp should be above freezing to 6°C	ŧ	•		
				Date and Initials of person examining contents: 13(11) 2-2-17
Comments:	Yes	No	N/A	
Chain of Custody Present:		_	ļ	1.
Chain of Custody Filled Out:				2.
Chain of Custody Relinquished:			ļ	3.
Sampler Name & Signature on COC:				4.
Sample Labels match COC:				5.
-Includes date/time/ID Matrix:	W	T		
Samples Arrived within Hold Time:				6.
Short Hold Time Analysis (<72hr remaining):]	7.
Rush Turn Around Time Requested:				8.
Sufficient Volume:				9.
Correct Containers Used:				10.
-Pace Containers Used:	/			
Containers Intact:		_		11.
Orthophosphate field filtered			سمرر	12.
Organic Samples checked for dechlorination:				13.
Filtered volume received for Dissolved tests				14.
All containers have been checked for preservation.				15.
All containers needing preservation are found to be in compliance with EPA recommendation.				
				Initial when Date/time of preservation
exceptions VOA coliform, TOC, O&G, Phenolics				completed 1271 preservation Lot # of added
	,			preservative
Headspace in VOA Vials (>6mm):				16.
Trip Blank Present:		_		17.
Trip Blank Custody Seals Present				L. Wl. v.h. a
Rad Aqueous Samples Screened > 0.5 mrem/hr				Initial when completed: Date:
Client Notification/ Resolution:				
Person Contacted:			Date/	Time: Contacted B <u>y:</u>
Comments/ Resolution:				

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

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR

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

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



(724)850-5600



March 02, 2017

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

RE: Project: HO: Seneca

Pace Project No.: 30211653

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on February 23, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

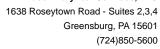
Laura Piulla

(724)850-5616 Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO: Seneca Pace Project No.: 30211653

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457

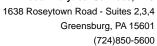
Rhode Island Certification #: 65-00282 South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

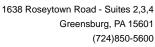




SAMPLE ANALYTE COUNT

Project: HO: Seneca Pace Project No.: 30211653

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
30211653001	MW-11	EPA 8260B	JAS	13	PASI-PA	-





PROJECT NARRATIVE

Project: HO: Seneca Pace Project No.: 30211653

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: March 02, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

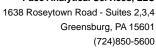
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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





ANALYTICAL RESULTS

Project: HO: Seneca Pace Project No.: 30211653

Date: 03/02/2017 02:51 PM

Sample: MW-11 Lab ID: 30211653001 Collected: 02/22/17 10:00 Received: 02/23/17 14:00 Matrix: Water

Comments: • Trip blank not received with the sample.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 826	0B					
Benzene	ND	ug/L	5.0	1		02/28/17 16:04	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		02/28/17 16:04	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		02/28/17 16:04	98-82-8	
Methyl-tert-butyl ether	11.6	ug/L	5.0	1		02/28/17 16:04	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		02/28/17 16:04	91-20-3	CH
Toluene	ND	ug/L	5.0	1		02/28/17 16:04	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		02/28/17 16:04	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		02/28/17 16:04	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		02/28/17 16:04	1330-20-7	
Surrogates								
Toluene-d8 (S)	87	%	59-140	1		02/28/17 16:04	2037-26-5	
4-Bromofluorobenzene (S)	105	%	78-117	1		02/28/17 16:04	460-00-4	
1,2-Dichloroethane-d4 (S)	107	%	70-128	1		02/28/17 16:04	17060-07-0	
Dibromofluoromethane (S)	104	%	66-132	1		02/28/17 16:04	1868-53-7	



QUALITY CONTROL DATA

Project: HO: Seneca Pace Project No.: 30211653

Date: 03/02/2017 02:51 PM

QC Batch: 250544 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30211653001

METHOD BLANK: 1232745 Matrix: Water

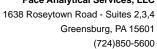
Associated Lab Samples: 30211653001

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND ND	1.0	02/28/17 14:09	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	02/28/17 14:09	
Benzene	ug/L	ND	1.0	02/28/17 14:09	
Ethylbenzene	ug/L	ND	1.0	02/28/17 14:09	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	02/28/17 14:09	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/28/17 14:09	
Naphthalene	ug/L	ND	2.0	02/28/17 14:09	
Toluene	ug/L	ND	1.0	02/28/17 14:09	
Xylene (Total)	ug/L	ND	3.0	02/28/17 14:09	
1,2-Dichloroethane-d4 (S)	%	105	70-128	02/28/17 14:09	
4-Bromofluorobenzene (S)	%	102	78-117	02/28/17 14:09	
Dibromofluoromethane (S)	%	97	66-132	02/28/17 14:09	
Toluene-d8 (S)	%	121	59-140	02/28/17 14:09	

LABORATORY CONTROL SAMPLE:	1232746					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		19.8	99	78-116	
1,3,5-Trimethylbenzene	ug/L	20	19.1	95	77-114	
Benzene	ug/L	20	18.4	92	80-113	
Ethylbenzene	ug/L	20	21.2	106	80-115	
Isopropylbenzene (Cumene)	ug/L	20	19.7	98	78-114	
Methyl-tert-butyl ether	ug/L	20	22.0	110	82-126	
Naphthalene	ug/L	20	26.5	133	61-139	
Toluene	ug/L	20	19.8	99	82-116	
Xylene (Total)	ug/L	60	64.3	107	82-115	
1,2-Dichloroethane-d4 (S)	%			95	70-128	
4-Bromofluorobenzene (S)	%			99	78-117	
Dibromofluoromethane (S)	%			95	66-132	
Toluene-d8 (S)	%			96	59-140	

MATRIX SPIKE & MATRIX SPIKE	DUPLICAT	E: 12327	47		1232748						
			MS	MSD							
	302	211683001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.2	21.3	111	107	69-121	4	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	21.2	20.7	106	104	68-118	2	
Benzene	ug/L	ND	20	20	21.9	22.1	110	111	63-123	1	

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





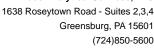
QUALITY CONTROL DATA

Project: HO: Seneca Pace Project No.: 30211653

Date: 03/02/2017 02:51 PM

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 12327	47		1232748						
	302	211683001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	22.5	22.6	112	113	70-120		
sopropylbenzene (Cumene)	ug/L	ND	20	20	22.5	21.1	113	106	71-129	6	
Nethyl-tert-butyl ether	ug/L	3.1	20	20	23.4	21.8	101	93	63-143	7	
laphthalene	ug/L	ND	20	20	23.0	20.8	115	104	55-122	10	
oluene	ug/L	ND	20	20	21.4	22.5	107	113	66-124	5	
ylene (Total)	ug/L	ND	60	60	69.1	67.9	115	113	68-123	2	
,2-Dichloroethane-d4 (S)	%						101	99	70-128		
-Bromofluorobenzene (S)	%						106	104	78-117		
ibromofluoromethane (S)	%						101	104	66-132		
oluene-d8 (S)	%						98	102	59-140		

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





QUALIFIERS

Project: HO: Seneca Pace Project No.: 30211653

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

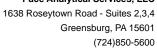
LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

Date: 03/02/2017 02:51 PM

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO: Seneca Pace Project No.: 30211653

Date: 03/02/2017 02:51 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30211653001	MW-11	EPA 8260B	250544		

Pace Analytical www.pacelabs.com

Section B Required Project Information: Report To:

CODY TO: Gary Cribbs

Cribits or Associates, Inc

Address: Address: 44

Section A Required Client Information:

CHAIN WO#:30211653 30211653 Invoice Information: Attention:

sccurately.

Page:

DRINKING WATER

S GROUND WATER

NPDES

15626

Delrant PA

Address:

Laura

Reference:
Pace Project
Manager:
Pace Profile #: ace Quote

Servers

Project Name: 140;

Project Number:

Requested Due Date/TAT: 124-454-2360

Purchase Order No.:

cobbs @ Cribbs and associates con

PA 1582

Phont

RCRA

UST

REGULATORY AGENCY

Company Name: Cribbs + Associates, Fre

OTHER

d d

STATE: Site Location

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Section D	Matrix Codes	(1)	(.								1	Ė								
Required Client Information	힝	19 O]	-MO	COLLECTED	CTED			F	Preservatives	ives	N /A						annes—pelos			
<u>с</u> <u>п</u>	_	See valid codes	=GRAB C=C	COMPOSITE	COMPOSITE END/GRAB						Î						(N/A		(%).	
Sample IDs MUST BE UNIQUE	Wipe Air Air Tissue Other) ADDS XIRTAM	5) =4YI =14MA8	E E	L F		O TA MELE TEMP AT C	1 ₂ SO ₄ Inpreserved	1 ⁵ 0H 1Cl 1NO ³	yethanol Ja ₂ S ₂ O ₃	other Analysis Test	mp128 325) əninoldƏ lsubisə			
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3											1			\downarrow						
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ADDITIONAL COMMENTS	TS	RELING	RELINQUISHED BY / AFFILIATION	/ AFFILIATIO	7	DATE	F	TIME		ACCEPTE	ED BY /,	ACCEPTED BY / AFFILIATION	- - -	DATE	+	TIME		0		
Analyze all sanples for	GEL PROEP	1/2	1	Calm	1. 610 x 4 1850	2/2/11	2021	000	<u>}</u>	K		1	J.	200	+	[Ģ	SAMP	I CONDI	ions
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F																				
Page		,		SAMPLER	SAMPLER NAME AND SIGNATURE	SIGNATU	₹E										- C		et.	jo:
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of 1				si 	SIGNATURE of SAMPLER:	fSAMPLEF	;;		14/	,	1	DATE Signed	ned	1	122/	1	Tem		esjec	
Important Note: By signing this form you are accepting Pace's NFT 30 day navment forms and acceptant to the second	rm vou are accepting Pace	o veb 05 THIN a'	1				1	1	1 1			(MM/DD/YY):	χ;	•	,,,	_	-		ıs	sS

F-ALL-Q-020rev.07, 15-May-2007

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

Sample Con	dition Upon Rece	ipt P	ittsb	urgl	n		X
Pace Analytical	Client Name:			Crit	005	Project #3 0 2 1 1 6	5 3
Courier: Fed Ex Tracking #:	UPS USPS Clier	nt 🗆	Comm	ercial	Pace Other		
Custody Seal on Coole	r/Box Present: 🔲 yes	0	no (_Seals	s intact:] no	
Thermometer Used	U	Туре	of Ice.	We	t Blue None	, (3)	
Cooler Temperature	Observed Temp	U,	°C	Corr	ection Factor <u>:# 0 ∈ 2</u>	°C Final Temp <u>:)、</u>	, C
Temp should be above free:						The state of the s	ina
					_	Date and Initials of person examin	119
Comments:		Yes	No	N/A		JKV 2120	111
Chain of Custody Preser	nt:				1.		
Chain of Custody Filled C	Out:				2.		
Chain of Custody Relinqu	uished:				3.		
Sampler Name & Signatu	ure on COC:				4.		
Sample Labels match CO	DC:				5.		
-Includes date/time/ID	Matrix:	M					<u>.</u>
Samples Arrived within H	lold Time:				6.		
Short Hold Time Analys					7.		
Rush Turn Around Time	e Requested:		San		8.		
Sufficient Volume:					9.		
Correct Containers Used		3			10.		
-Pace Containers Use							
Containers Intact:					11.		
Orthophosphate field filte	red		200	أسمر	12.		
	ked for dechlorination:				13.		
Filtered volume received					14.		
All containers have been ch	ecked for preservation.				15.		
All containers needing prese							
compliance with EPA recomi		L1			Initial when	Date/time of	
exceptions (VOA), colifor	m, TOC, O&G, Phenolics				Initial when completed ARM	preservation	
					Lot # of added preservative		
Headspace in VOA Vials	(>6mm);				16.		
Trip Blank Present:	(Commy				17.		
Trip Blank Custody Seals	Present			/	·		
Rad Aqueous Samples	Screened > 0.5 mrem/hr			1	Initial when completed:	Date:	
	L. At.	<u> </u>			Completed.	Duto.	•
Client Notification/ Reso				Date/	Time:	Contacted By:	
Comments/ Resolution:				Dato			
Comments/ Resolution.							
			-				

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

 $\hfill \square$ A check in this box indicates that additional information has been stored in ereports.

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





April 14, 2017

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

RE: Project: H.O. SENECA

Pace Project No.: 30214776

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

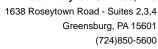
Laura Piulla

(724)850-5616 **Project Manager**

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. SENECA
Pace Project No.: 30214776

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082 Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888

North Carolina Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282 South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143 West Virginia DHHR Certification #: 9964C

Wisconsin Certification

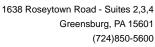
Wyoming Certification #: 8TMS-L



SAMPLE ANALYTE COUNT

Project: H.O. SENECA
Pace Project No.: 30214776

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30214776001	MW-1	EPA 8260B	RES	13	PASI-PA
30214776002	MW-2	EPA 8260B	RES	13	PASI-PA
30214776003	MW-3	EPA 8260B	RES	13	PASI-PA
30214776004	MW-4	EPA 8260B	RES	13	PASI-PA
30214776005	MW-5	EPA 8260B	RES	13	PASI-PA
30214776006	MW-6	EPA 8260B	RES	13	PASI-PA
30214776007	MW-7	EPA 8260B	RES	13	PASI-PA
30214776008	MW-8	EPA 8260B	RES	13	PASI-PA
30214776009	MW-9	EPA 8260B	RES	13	PASI-PA
30214776010	MW-10	EPA 8260B	RES	13	PASI-PA
30214776011	MW-11	EPA 8260B	RES	13	PASI-PA
30214776012	MW-12	EPA 8260B	RES	13	PASI-PA
30214776013	MW-13	EPA 8260B	RES	13	PASI-PA
30214776014	MW-14	EPA 8260B	RES	13	PASI-PA
30214776015	SWTR-1	EPA 8260B	RES	13	PASI-PA
30214776016	SWTR-2	EPA 8260B	RES	13	PASI-PA





PROJECT NARRATIVE

Project: H.O. SENECA Pace Project No.: 30214776

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: April 14, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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

(724)850-5600



ANALYTICAL RESULTS

Project: H.O. SENECA Pace Project No.: 30214776

Date: 04/14/2017 11:56 AM

Sample: MW-1	Lab ID: 302	14776001	Collected: 03/29/1	7 11:35	Received:	03/31/17 11:35	Matrix: Water	
Comments: • Trip blank not preso	ent in cooler with samp	oles at time	of receipt at the lab.					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	od: EPA 82	260B					
Benzene	76.2	ug/L	5.0	1		04/06/17 18:59	71-43-2	
Ethylbenzene	638	ug/L	25.0	5		04/11/17 20:50	100-41-4	
Isopropylbenzene (Cumene)	43.2	ug/L	5.0	1		04/06/17 18:59	98-82-8	
Methyl-tert-butyl ether	9.3	ug/L	5.0	1		04/06/17 18:59	1634-04-4	
Naphthalene	179	ug/L	5.0	1		04/06/17 18:59	91-20-3	
Toluene	ND	ug/L	5.0	1		04/06/17 18:59		
1,2,4-Trimethylbenzene	573	ug/L	25.0	5		04/11/17 20:50		
1,3,5-Trimethylbenzene	219	ug/L	5.0	1		04/06/17 18:59		
Xylene (Total)	497	ug/L	5.0	1		04/06/17 18:59		
Surrogates	701	ug/L	5.0	į		04/00/17 10.50	1000 20 7	
Toluene-d8 (S)	98	%	59-140	1		04/06/17 18:59	2037-26-5	
4-Bromofluorobenzene (S)	100	%	78-117	1		04/06/17 18:59		
1,2-Dichloroethane-d4 (S)	104	%	70-117	1		04/06/17 18:59		
Dibromofluoromethane (S)	92	%	66-132	1		04/06/17 18:59		
Dibiomondometriarie (3)	92	/0	00-132	'		04/00/17 10.58	1000-33-7	
Sample: MW-2	Lab ID: 302°	14776002	Collected: 03/29/1	7 12:25	Received: (03/31/17 11:35	Matrix: Water	
•	ent in cooler with samp							
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
rarametere		OTILO	- Troport Ellint		Troparea	- Analyzou		
8260B MSV	Analytical Meth	od: EPA 82	260B					
Benzene	783	ug/L	25.0	5		04/10/17 22:00	71-43-2	
Ethylbenzene	250	ug/L	5.0	1		04/06/17 19:26	100-41-4	
Isopropylbenzene (Cumene)	18.8	ug/L	5.0	1		04/06/17 19:26	98-82-8	
Methyl-tert-butyl ether	14.8	ug/L	5.0	1		04/06/17 19:26	1634-04-4	
Naphthalene	37.4	ug/L	5.0	1		04/00/47 40:00		
Toluene			5.0			04/06/17 19:26	91-20-3	
	ND	ug/L	5.0	1		04/06/17 19:26		
1,2,4-Trimethylbenzene	ND 118	-					108-88-3	
		ug/L ug/L	5.0	1		04/06/17 19:26	6 108-88-3 6 95-63-6	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	118	ug/L ug/L ug/L	5.0 1.0	1 1		04/06/17 19:26 04/06/17 19:26	5 108-88-3 5 95-63-6 5 108-67-8	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	118 97.7	ug/L ug/L	5.0 1.0 1.0	1 1 1		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	5 108-88-3 5 95-63-6 5 108-67-8	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	118 97.7	ug/L ug/L ug/L	5.0 1.0 1.0	1 1 1		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total)	118 97.7 91.1	ug/L ug/L ug/L ug/L	5.0 1.0 1.0 5.0	1 1 1		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	118 97.7 91.1 102 100	ug/L ug/L ug/L ug/L %	5.0 1.0 1.0 5.0 59-140 78-117	1 1 1 1		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	118 97.7 91.1	ug/L ug/L ug/L ug/L	5.0 1.0 1.0 5.0	1 1 1 1		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4 6 17060-07-0	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	118 97.7 91.1 102 100 102	ug/L ug/L ug/L ug/L % %	5.0 1.0 1.0 5.0 59-140 78-117 70-128	1 1 1 1 1 1		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4 6 17060-07-0	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S) Sample: MW-3	118 97.7 91.1 102 100 102 86	ug/L ug/L ug/L ug/L % % %	5.0 1.0 1.0 5.0 59-140 78-117 70-128 66-132	1 1 1 1 1 1 1	Received:	04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4 6 17060-07-0	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S) Sample: MW-3	118 97.7 91.1 102 100 102 86 Lab ID: 302	ug/L ug/L ug/L ug/L % % % %	5.0 1.0 1.0 5.0 59-140 78-117 70-128 66-132 Collected: 03/29/1 of receipt at the lab.	1 1 1 1 1 1 1 1 7 15:10		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4 6 17060-07-0 6 1868-53-7 Matrix: Water	
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S) Sample: MW-3	118 97.7 91.1 102 100 102 86	ug/L ug/L ug/L ug/L % % %	5.0 1.0 1.0 5.0 59-140 78-117 70-128 66-132	1 1 1 1 1 1 1	Received: 0	04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4 6 17060-07-0 6 1868-53-7	Qua
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S) Sample: MW-3 Comments: • Trip blank not prese	118 97.7 91.1 102 100 102 86 Lab ID: 302	ug/L ug/L ug/L y/c % % % 14776003 bles at time Units	5.0 1.0 1.0 5.0 59-140 78-117 70-128 66-132 Collected: 03/29/1 of receipt at the lab. Report Limit	1 1 1 1 1 1 1 1 7 15:10		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4 6 17060-07-0 6 1868-53-7 Matrix: Water	Qua
1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S) Dibromofluoromethane (S) Sample: MW-3 Comments: • Trip blank not prese	118 97.7 91.1 102 100 102 86 Lab ID: 302 ent in cooler with samp	ug/L ug/L ug/L y/c % % % 14776003 bles at time Units	5.0 1.0 1.0 5.0 59-140 78-117 70-128 66-132 Collected: 03/29/1 of receipt at the lab. Report Limit	1 1 1 1 1 1 1 1 7 15:10		04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26 04/06/17 19:26	6 108-88-3 6 95-63-6 6 108-67-8 6 1330-20-7 6 2037-26-5 6 460-00-4 6 17060-07-0 6 1868-53-7 Matrix: Water	Qua

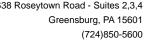


ANALYTICAL RESULTS

Project:	H.O. SENECA
Pace Project No.:	30214776

Date: 04/14/2017 11:56 AM

Sample: MW-3	Lab ID:	30214776003	Collected: 03/29/1	7 15:10	Received: (03/31/17 11:35	Matrix: Water	
Comments: • Trip blar	nk not present in cooler with s	amples at time	of receipt at the lab.					
Parameter	rs Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical N	/lethod: EPA 82	260B					
Isopropylbenzene (Cum	nene) 191	ug/L	25.0	5		04/06/17 22:06	98-82-8	
Methyl-tert-butyl ether	ND	•	25.0	5		04/06/17 22:06		
Naphthalene	880	•	25.0	5		04/06/17 22:06		
Toluene	8810	_	500	100		04/06/17 22:33		
1,2,4-Trimethylbenzene		•	100	100		04/06/17 22:33		
1,3,5-Trimethylbenzene		•	5.0	5		04/06/17 22:06		
Xylene (Total)	23900	-	500	100		04/06/17 22:33		
Surrogates	23300	ug/L	300	100		04/00/17 22:50	1000-20-7	
Toluene-d8 (S)	102	%	59-140	5		04/06/17 22:06	2037-26-5	
4-Bromofluorobenzene			78-117	5		04/06/17 22:06		
1,2-Dichloroethane-d4 (` '		70-117	5		04/06/17 22:06		
Dibromofluoromethane	'		66-132	5		04/06/17 22:06		
Dibiomondorometrarie	(5)	70	00-132	3		04/00/17 22:00	1000-33-7	
Sample: MW-4	Lab ID:	30214776004	Collected: 03/29/1	7 14:30	Received: ()3/31/17 11:35	Matrix: Water	
Comments: • Trip blar	nk not present in cooler with s	amples at time	of receipt at the lab.					
Parameter	rs Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
	A -							
8260B MSV	Analytical i	/lethod: EPA 82	260B					
	Analytical i		260B 100	20		04/06/17 20:46	5 71-43-2	
Benzene	•	ug/L		20 20		04/06/17 20:46 04/06/17 20:46		
Benzene Ethylbenzene	1760 764	ug/L ug/L	100				100-41-4	
Benzene Ethylbenzene Isopropylbenzene (Cum	1760 764	ug/L ug/L ug/L	100 100	20		04/06/17 20:46	100-41-4 98-82-8	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether	1760 764 nene) 71.9	ug/L ug/L ug/L ug/L	100 100 5.0	20 1		04/06/17 20:46 04/06/17 20:19	100-41-4 98-82-8 1634-04-4	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene	1760 764 nene) 71.9 5.1	ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0	20 1 1		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19	100-41-4 98-82-8 1634-04-4 91-20-3	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene	1760 764 nene) 71.9 5.1 145 47.0	ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0	20 1 1 1 1		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	98-82-8 1634-04-4 91-20-3 108-88-3	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	1760 764 71.9 5.1 145 47.0 394	ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0	20 1 1 1 1 1 20		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	1760 764 71.9 5.1 145 47.0 394	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0	20 1 1 1 1 20 1		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 6 95-63-6 108-67-8	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	1760 764 71.9 5.1 145 47.0 394	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0	20 1 1 1 1 1 20		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 6 95-63-6 108-67-8	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	1760 764 71.9 5.1 145 47.0 394	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0	20 1 1 1 1 20 1		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	1760 764 71.9 5.1 145 47.0 394 133 1400	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0 1.0 100	20 1 1 1 1 20 1 20		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene	1760 764 71.9 5.1 145 47.0 394 133 1400 (S)	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0 1.0 100	20 1 1 1 1 20 1 20		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 6 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (1760 764 71.9 5.1 145 47.0 394 133 1400 (S) 99 S) 97	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0 1.0 100	20 1 1 1 1 20 1 20		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (Dibromofluoromethane	1760 764 71.9 5.1 145 47.0 394 133 1400 (S) 99 (S) 99 (S) 97 (S) 81	ug/L ug/L ug/L ug/L ug/L ug/L ug/L wg/L	100 100 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128	20 1 1 1 1 1 20 1 20 1 20		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (Dibromofluoromethane	1760 764 71.9 5.1 145 47.0 394 133 1400 (S) 99 (S) 99 (S) 97 (S) 81	ug/L ug/L ug/L ug/L ug/L ug/L ug/L wg/L % %	100 100 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128 66-132	20 1 1 1 1 20 1 20 1 20	Received: (04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (Dibromofluoromethane	1760 764 71.9 5.1 145 47.0 394 133 1400 (S) 99 (S) 99 (S) 97 (S) 81	ug/L ug/L ug/L ug/L ug/L ug/L ug/L wg/L % %	100 100 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128 66-132	20 1 1 1 1 20 1 20 1 20	Received: (04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0 1868-53-7	
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (Dibromofluoromethane	1760 764 71.9 5.1 145 47.0 394 133 1400 99 (S) 99 (S) 97 (S) 81 Lab ID: 300	ug/L ug/L ug/L ug/L ug/L ug/L ug/L wg/L % %	100 100 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128 66-132	20 1 1 1 1 20 1 20 1 20	Received: (04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0 1868-53-7	Qual
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (Dibromofluoromethane Sample: MW-5 Comments: • Trip blar	1760 764 71.9 5.1 145 47.0 394 133 1400 99 (S) 99 (S) 97 (S) 81 Lab ID: 31 nk not present in cooler with sers Results	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128 66-132 Collected: 03/29/1 of receipt at the lab.	20 1 1 1 1 20 1 20 1 1 1 1 1 1		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	6 100-41-4 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 1330-20-7 2037-26-5 460-00-4 17060-07-0 1868-53-7	Qual
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (Dibromofluoromethane Sample: MW-5 Comments: • Trip blar Parameter	1760 764 71.9 5.1 145 47.0 394 133 1400 99 (S) 99 (S) 97 (S) 81 Lab ID: 31 nk not present in cooler with sers Results	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128 66-132 Collected: 03/29/1 of receipt at the lab.	20 1 1 1 1 20 1 20 1 1 1 1 1		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	6 100-41-4 9 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 6 1330-20-7 1 2037-26-5 1 460-00-4 1 17060-07-0 1 1868-53-7 Matrix: Water CAS No.	Qual
Benzene Ethylbenzene Isopropylbenzene (Cum Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S) 4-Bromofluorobenzene 1,2-Dichloroethane-d4 (Dibromofluoromethane Sample: MW-5 Comments: • Trip blar Parameter 8260B MSV Benzene	1760 764 71.9 5.1 145 47.0 394 133 1400 99 (S) 99 (S) 97 (S) 81 Lab ID: 3 nk not present in cooler with sers Results Analytical M	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128 66-132 Collected: 03/29/1 of receipt at the lab. Report Limit	20 1 1 1 1 20 1 20 1 1 1 1 1 7 14:00		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 11:35	6 100-41-4 9 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 6 1330-20-7 1 2037-26-5 1 460-00-4 1 17060-07-0 1 1868-53-7 Matrix: Water CAS No.	Qual
•	1760 764 71.9 5.1 145 47.0 394 133 1400 99 (S) 99 (S) 97 (S) 81 Lab ID: 3 nk not present in cooler with sers Results Analytical N 9180 2420	ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	100 100 5.0 5.0 5.0 5.0 20.0 1.0 100 59-140 78-117 70-128 66-132 Collected: 03/29/1 of receipt at the lab. Report Limit	20 1 1 1 1 20 1 20 1 1 1 1 1 7 14:00 DF		04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:46 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19 04/06/17 20:19	6 100-41-4 9 98-82-8 1634-04-4 91-20-3 108-88-3 95-63-6 108-67-8 6 1330-20-7 1 2037-26-5 1 460-00-4 1 17060-07-0 1 1868-53-7 Matrix: Water CAS No.	Qual





ANALYTICAL RESULTS

I.O. SENECA
80214776

Date: 04/14/2017 11:56 AM

Sample: MW-5	Lab ID: 3021	4776005	Collected: 03/29/1	7 14:00	Received: 0	3/31/17 11:35	Matrix: Water	
Comments: • Trip blank not prese	ent in cooler with samp	oles at time	of receipt at the lab.					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	od: EPA 82	60B				_	
Naphthalene	386	ug/L	5.0	1		04/06/17 21:13	91-20-3	
Toluene	27.3	ug/L	5.0	1		04/06/17 21:13		
1,2,4-Trimethylbenzene	2010	ug/L ug/L	100	20		04/06/17 21:39		
1,3,5-Trimethylbenzene	585	ug/L ug/L	100	20		04/06/17 21:39		
Xylene (Total)	3220	ug/L	100	20		04/06/17 21:39		
Surrogates	3220	ug/L	100	20		04/00/17 21.33	1330-20-7	
Toluene-d8 (S)	106	%	59-140	1		04/06/17 21:13	2037-26-5	
4-Bromofluorobenzene (S)	99	%	78-117	1		04/06/17 21:13		
1,2-Dichloroethane-d4 (S)	98	%	70-128	1		04/06/17 21:13		
Dibromofluoromethane (S)	77	%	66-132	1		04/06/17 21:13		
Sample: MW-6	Lab ID: 3021		Collected: 03/29/1	7 13:15	Received: 0	3/31/17 11:35	Matrix: Water	
Comments: • Trip blank not prese	ent in cooler with samp	oles at time	of receipt at the lab.					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	od: EPA 82	60B					
Benzene	ND	ug/L	5.0	1		04/06/17 14:33	3 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		04/06/17 14:33	3 100-41-4	
sopropylbenzene (Cumene)	ND	ug/L	5.0	1		04/06/17 14:33	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/06/17 14:33	3 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		04/06/17 14:33	91-20-3	
Toluene	ND	ug/L	5.0	1		04/06/17 14:33	3 108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		04/06/17 14:33		
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		04/06/17 14:33		
Xylene (Total)	ND	ug/L	5.0	1		04/06/17 14:33		
Surrogates		3-						
Toluene-d8 (S)	104	%	59-140	1		04/06/17 14:33	3 2037-26-5	
1-Bromofluorobenzene (S)	103	%	78-117	1		04/06/17 14:33	3 460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-128	1		04/06/17 14:33	3 17060-07-0	
Dibromofluoromethane (S)	93	%	66-132	1		04/06/17 14:33	1868-53-7	
Sample: MW-7	l ah ID: 3021	14776007	Collected: 03/29/1	7 10:50	Received: 0)3/31/17 11·35	Matrix: Water	
Comments: • Trip blank not prese				, 10.50	reconveu. U	,0,01,11 11.00 1	viatiin. VVatei	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	od: EPA 82	<u> </u>					
Benzene	ND	ug/L	5.0	1		04/06/17 15:00	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		04/06/17 15:00	-	
sopropylbenzene (Cumene)	ND	ug/L	5.0	1		04/06/17 15:00		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/06/17 15:00		
monty to to buty of to	IND	•						
Naphthalene	ND	ug/L	5.0	1		04/06/17 15:00) 91-20-3	



1,3,5-Trimethylbenzene

Date: 04/14/2017 11:56 AM

ANALYTICAL RESULTS

Project: H.O. SENECA Pace Project No.: 30214776 Lab ID: 30214776007 Sample: MW-7 Collected: 03/29/17 10:50 Received: 03/31/17 11:35 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: EPA 8260B 8260B MSV ND 1,2,4-Trimethylbenzene ug/L 1.0 1 04/06/17 15:00 95-63-6 1,3,5-Trimethylbenzene ND ug/L 1.0 1 04/06/17 15:00 108-67-8 Xylene (Total) ND ug/L 5.0 04/06/17 15:00 1330-20-7 1 Surrogates 100 % 04/06/17 15:00 2037-26-5 Toluene-d8 (S) 59-140 1 4-Bromofluorobenzene (S) 98 % 78-117 04/06/17 15:00 460-00-4 1 1,2-Dichloroethane-d4 (S) 104 % 70-128 1 04/06/17 15:00 17060-07-0 Dibromofluoromethane (S) 96 % 66-132 04/06/17 15:00 1868-53-7 Lab ID: 30214776008 Collected: 03/28/17 12:50 Received: 03/31/17 11:35 Sample: MW-8 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual 8260B MSV Analytical Method: EPA 8260B ND ug/L 5.0 1 04/06/17 19:52 71-43-2 Benzene Ethylbenzene ND ug/L 5.0 1 04/06/17 19:52 100-41-4 Isopropylbenzene (Cumene) ND ug/L 5.0 1 04/06/17 19:52 98-82-8 Methyl-tert-butyl ether 422 25.0 04/10/17 22:26 1634-04-4 ug/L 5 Naphthalene ND 04/06/17 19:52 91-20-3 ug/L 5.0 1 Toluene ND ug/L 5.0 1 04/06/17 19:52 108-88-3 1,2,4-Trimethylbenzene ND ug/L 1.0 04/06/17 19:52 95-63-6 1 1,3,5-Trimethylbenzene ND 04/06/17 19:52 108-67-8 ug/L 1.0 1 Xylene (Total) ND 5.0 04/06/17 19:52 1330-20-7 ug/L 1 Surrogates Toluene-d8 (S) 103 % 59-140 04/06/17 19:52 2037-26-5 1 4-Bromofluorobenzene (S) 100 % 78-117 1 04/06/17 19:52 460-00-4 1.2-Dichloroethane-d4 (S) 105 % 70-128 04/06/17 19:52 17060-07-0 1 Dibromofluoromethane (S) 94 % 66-132 1 04/06/17 19:52 1868-53-7 Lab ID: 30214776009 Sample: MW-9 Collected: 03/28/17 11:15 Received: 03/31/17 11:35 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. DF **Parameters** Results Units Report Limit Prepared Analyzed CAS No. Qual 8260B MSV Analytical Method: EPA 8260B Benzene ND ua/L 5.0 1 04/06/17 15:26 71-43-2 Ethylbenzene ND ug/L 5.0 1 04/06/17 15:26 100-41-4 Isopropylbenzene (Cumene) ND 5.0 ug/L 1 04/06/17 15:26 98-82-8 04/06/17 15:26 1634-04-4 Methyl-tert-butyl ether ND 5.0 ug/L 1 Naphthalene ND 5.0 04/06/17 15:26 91-20-3 ug/L 1 ND 5.0 Toluene 04/06/17 15:26 108-88-3 ug/L 1 1,2,4-Trimethylbenzene ND ug/L 1.0 1 04/06/17 15:26 95-63-6

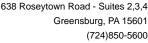
REPORT OF LABORATORY ANALYSIS

1.0

ND

ug/L

04/06/17 15:26 108-67-8





Methyl-tert-butyl ether

1,2,4-Trimethylbenzene

1,3,5-Trimethylbenzene

Date: 04/14/2017 11:56 AM

Naphthalene

Xylene (Total)

Toluene

ANALYTICAL RESULTS

Project: H.O. SENECA Pace Project No.: 30214776 Lab ID: 30214776009 Sample: MW-9 Collected: 03/28/17 11:15 Received: 03/31/17 11:35 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual 8260B MSV Analytical Method: EPA 8260B Xylene (Total) ND ug/L 5.0 1 04/06/17 15:26 1330-20-7 Surrogates 101 % Toluene-d8 (S) 59-140 04/06/17 15:26 2037-26-5 1 4-Bromofluorobenzene (S) 104 04/06/17 15:26 460-00-4 % 78-117 1 103 % 04/06/17 15:26 17060-07-0 1,2-Dichloroethane-d4 (S) 70-128 1 04/06/17 15:26 1868-53-7 Dibromofluoromethane (S) 94 % 66-132 1 Lab ID: 30214776010 Sample: MW-10 Collected: 03/28/17 12:10 Received: 03/31/17 11:35 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual 8260B MSV Analytical Method: EPA 8260B Benzene 8.9 ug/L 5.0 1 04/06/17 15:53 71-43-2 Ethylbenzene 141 ug/L 5.0 04/06/17 15:53 100-41-4 1 Isopropylbenzene (Cumene) 23.1 ug/L 04/06/17 15:53 98-82-8 5.0 1 Methyl-tert-butyl ether 16.3 ug/L 5.0 1 04/06/17 15:53 1634-04-4 Naphthalene 31.5 ug/L 5.0 1 04/06/17 15:53 91-20-3 Toluene 04/06/17 15:53 108-88-3 ND ug/L 5.0 1 1,2,4-Trimethylbenzene 22.3 04/06/17 15:53 95-63-6 ug/L 1.0 1 1,3,5-Trimethylbenzene 2.6 ug/L 1.0 1 04/06/17 15:53 108-67-8 Xylene (Total) ND 5.0 04/06/17 15:53 1330-20-7 ug/L 1 Surrogates 102 Toluene-d8 (S) % 59-140 1 04/06/17 15:53 2037-26-5 4-Bromofluorobenzene (S) 103 % 78-117 04/06/17 15:53 460-00-4 1 1,2-Dichloroethane-d4 (S) 102 % 70-128 04/06/17 15:53 17060-07-0 1 Dibromofluoromethane (S) 91 % 66-132 1 04/06/17 15:53 1868-53-7 Sample: MW-11 Lab ID: 30214776011 Collected: 03/28/17 10:00 Received: 03/31/17 11:35 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared CAS No. Qual Analyzed 8260B MSV Analytical Method: EPA 8260B ND 04/06/17 16:20 71-43-2 Benzene ug/L 5.0 1 ND Ethylbenzene ug/L 5.0 1 04/06/17 16:20 100-41-4 Isopropylbenzene (Cumene) ND ug/L 5.0 04/06/17 16:20 98-82-8 1

REPORT OF LABORATORY ANALYSIS

5.0

5.0

5.0

1.0

1.0

5.0

1

1

1

1

1

1

11.2

ND

ND

ND

ND

ND

ug/L

ug/L

ug/L

ug/L

ug/L

ug/L

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04/06/17 16:20 1634-04-4

04/06/17 16:20 91-20-3 04/06/17 16:20 108-88-3

04/06/17 16:20 95-63-6

04/06/17 16:20 108-67-8

04/06/17 16:20 1330-20-7



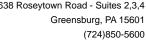
Date: 04/14/2017 11:56 AM

ANALYTICAL RESULTS

Project: H.O. SENECA	A							
Pace Project No.: 30214776	1 - 1 ID 000	4.4770044	0-1111 00/00/4	7.40.00	Danibard 0	00/04/47 44 05	Matein Matein	
Sample: MW-11	Lab ID: 302		Collected: 03/28/1	7 10:00	Received: 0	3/31/17 11:35	Matrix: Water	
Comments: • Trip blank not prese			·				0.0.1	
Parameters	Results —	Units	Report Limit	DF	Prepared	Analyzed ———	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Surrogates	404	0.4	50.440			04/00/47 40 0		
Toluene-d8 (S)	104	%	59-140	1		04/06/17 16:2		
4-Bromofluorobenzene (S) 1,2-Dichloroethane-d4 (S)	102	%	78-117 70-128	1 1		04/06/17 16:2	0 460-00-4 0 17060-07-0	
Dibromofluoromethane (S)	103 94	% %	66-132	1		04/06/17 16:2		
Sample: MW-12	Lab ID: 302	14776012	Collected: 03/28/1	7 13:40	Received: 0	03/31/17 11:35	Matrix: Water	
Comments: • Trip blank not prese	ent in cooler with sam	ples at time	of receipt at the lab.					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		04/06/17 16:4	6 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		04/06/17 16:4	-	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		04/06/17 16:4		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/06/17 16:4	6 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		04/06/17 16:4	6 91-20-3	
Toluene	ND	ug/L	5.0	1		04/06/17 16:4	6 108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		04/06/17 16:4	6 95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		04/06/17 16:4	6 108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		04/06/17 16:4	6 1330-20-7	
Surrogates								
Toluene-d8 (S)	99	%	59-140	1		04/06/17 16:4		
4-Bromofluorobenzene (S)	100	%	78-117	1		04/06/17 16:4		
1,2-Dichloroethane-d4 (S)	103	%	70-128	1			6 17060-07-0	
Dibromofluoromethane (S)	95	%	66-132	1		04/06/17 16:4	6 1868-53-7	
Sample: MW-13	Lab ID: 302	14776013	Collected: 03/28/1	7 14:30	Received: 0	3/31/17 11:35	Matrix: Water	
Comments: • Trip blank not prese	ent in cooler with sam	ples at time	of receipt at the lab.					
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	5.0	1		04/06/17 17:1	3 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		04/06/17 17:1	3 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		04/06/17 17:1		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/06/17 17:1		
Naphthalene	ND	ug/L	5.0	1		04/06/17 17:1		
Toluene	ND	ug/L	5.0	1		04/06/17 17:1		
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		04/06/17 17:1		
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		04/06/17 17:1		
Xylene (Total)	ND	ug/L	5.0	1		04/06/17 17:1	s 1330-20-7	
Surrogates Toluene-d8 (S)	103	%	59-140	1		04/06/17 17:1	3 2037-26-5	

REPORT OF LABORATORY ANALYSIS

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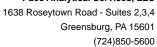
Date: 04/14/2017 11:56 AM

ANALYTICAL RESULTS

Project: H.O. SENECA Pace Project No.: 30214776 Lab ID: 30214776013 Sample: MW-13 Collected: 03/28/17 14:30 Received: 03/31/17 11:35 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual Analytical Method: EPA 8260B 8260B MSV Surrogates 4-Bromofluorobenzene (S) 101 % 78-117 1 04/06/17 17:13 460-00-4 105 % 70-128 04/06/17 17:13 17060-07-0 1,2-Dichloroethane-d4 (S) 1 Dibromofluoromethane (S) 95 % 66-132 04/06/17 17:13 1868-53-7 1 Received: 03/31/17 11:35 Sample: MW-14 Lab ID: 30214776014 Collected: 03/28/17 15:15 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. DF **Parameters** Results Units Report Limit Prepared Analyzed CAS No. Qual 8260B MSV Analytical Method: EPA 8260B 04/06/17 17:39 71-43-2 ND 5.0 **Benzene** ug/L 1 ND Ethylbenzene ug/L 5.0 04/06/17 17:39 100-41-4 1 Isopropylbenzene (Cumene) ND ug/L 5.0 1 04/06/17 17:39 98-82-8 Methyl-tert-butyl ether ND ug/L 5.0 04/06/17 17:39 1634-04-4 1 Naphthalene ND 04/06/17 17:39 91-20-3 ug/L 5.0 1 Toluene ND ug/L 5.0 1 04/06/17 17:39 108-88-3 1,2,4-Trimethylbenzene ND ug/L 1.0 1 04/06/17 17:39 95-63-6 1,3,5-Trimethylbenzene ND 04/06/17 17:39 108-67-8 ug/L 1.0 1 Xylene (Total) 04/06/17 17:39 1330-20-7 ND ug/L 5.0 1 Surrogates Toluene-d8 (S) 103 % 59-140 1 04/06/17 17:39 2037-26-5 4-Bromofluorobenzene (S) 100 % 78-117 1 04/06/17 17:39 460-00-4 1,2-Dichloroethane-d4 (S) 104 % 70-128 1 04/06/17 17:39 17060-07-0 Dibromofluoromethane (S) 95 % 66-132 04/06/17 17:39 1868-53-7 Sample: SWTR-1 Lab ID: 30214776015 Collected: 03/29/17 10:00 Received: 03/31/17 11:35 Matrix: Water Comments: • Trip blank not present in cooler with samples at time of receipt at the lab. **Parameters** Results Units Report Limit DF Prepared Analyzed CAS No. Qual 8260B MSV Analytical Method: EPA 8260B Benzene ND ug/L 5.0 1 04/06/17 18:06 71-43-2 Ethylbenzene ND ug/L 5.0 04/06/17 18:06 100-41-4 1 Isopropylbenzene (Cumene) ND ug/L 5.0 1 04/06/17 18:06 98-82-8 Methyl-tert-butyl ether ND ug/L 5.0 1 04/06/17 18:06 1634-04-4 Naphthalene ND ua/L 5.0 1 04/06/17 18:06 91-20-3 Toluene ND ug/L 5.0 1 04/06/17 18:06 108-88-3 ND 1,2,4-Trimethylbenzene ug/L 1.0 1 04/06/17 18:06 95-63-6 1,3,5-Trimethylbenzene ND ug/L 1.0 1 04/06/17 18:06 108-67-8 ND Xylene (Total) ug/L 5.0 04/06/17 18:06 1330-20-7 1 Surrogates Toluene-d8 (S) 103 % 59-140 1 04/06/17 18:06 2037-26-5 4-Bromofluorobenzene (S) 101 % 78-117 04/06/17 18:06 460-00-4

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: H.O. SENECA Pace Project No.: 30214776

Date: 04/14/2017 11:56 AM

Sample: SWTR-1	Lab ID: 302	14776015	Collected: 03/29/1	7 10:00	Received: 03	/31/17 11:35	Matrix: Water		
Comments: • Trip blank not pres	ent in cooler with samp	oles at time	of receipt at the lab.						
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua	
8260B MSV	Analytical Meth	Analytical Method: EPA 8260B							
Surrogates									
1,2-Dichloroethane-d4 (S)	105	%	70-128	1		04/06/17 18:06	6 17060-07-0		
Dibromofluoromethane (S)	93	%	66-132	1		04/06/17 18:06	6 1868-53-7		
Sample: SWTR-2	Lab ID: 302°	14776016	Collected: 03/28/1	7 14:15	Received: 03	/31/17 11:35	Matrix: Water		
-	ent in cooler with samp								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua	
8260B MSV	Analytical Meth	od: EPA 82	260B						
Benzene	ND	ug/L	5.0	1		04/06/17 18:32	2 71-43-2		
Ethylbenzene	ND	ug/L	5.0	1		04/06/17 18:32	2 100-41-4		
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		04/06/17 18:32	2 98-82-8		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		04/06/17 18:32	2 1634-04-4		
Naphthalene	ND	ug/L	5.0	1		04/06/17 18:32	2 91-20-3		
Toluene	ND	ug/L	5.0	1		04/06/17 18:32	2 108-88-3		
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		04/06/17 18:32	2 95-63-6		
.,_,			1.0	1		04/06/17 18:32	2 108-67-8		
•	ND	ug/L	1.0						
1,3,5-Trimethylbenzene Xylene (Total)	ND ND	ug/L ug/L	5.0	1		04/06/17 18:32	2 1330-20-7		
1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)		Ū		1		04/06/17 18:32 04/06/17 18:32			
1,3,5-Trimethylbenzene Xylene (Total) Surrogates	ND	ug/L	5.0				2 2037-26-5		
1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	ND 102	ug/L %	5.0 59-140	1		04/06/17 18:32	2 2037-26-5 2 460-00-4		



Project: H.O. SENECA Pace Project No.: 30214776

Date: 04/14/2017 11:56 AM

QC Batch: 254568 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30214776001, 30214776002, 30214776003, 30214776004, 30214776005, 30214776006, 30214776007,

30214776008, 30214776009, 30214776010, 30214776011, 30214776012, 30214776013, 30214776014,

30214776015, 30214776016

METHOD BLANK: 1253459 Matrix: Water

Associated Lab Samples: 30214776001, 30214776002, 30214776003, 30214776004, 30214776005, 30214776006, 30214776007,

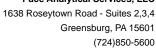
30214776008, 30214776009, 30214776010, 30214776011, 30214776012, 30214776013, 30214776014,

30214776015, 30214776016

Qualifiers

LABORATORY CONTROL SAMPLE:	1253460					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		18.7	93	78-116	
1,3,5-Trimethylbenzene	ug/L	20	18.9	95	77-114	
Benzene	ug/L	20	18.4	92	80-113	
Ethylbenzene	ug/L	20	19.5	98	80-115	
sopropylbenzene (Cumene)	ug/L	20	19.4	97	78-114	
Methyl-tert-butyl ether	ug/L	20	18.0	90	82-126	
Naphthalene	ug/L	20	21.5	107	61-139	
Toluene	ug/L	20	19.6	98	82-116	
Xylene (Total)	ug/L	60	57.1	95	82-115	
I,2-Dichloroethane-d4 (S)	%			100	70-128	
1-Bromofluorobenzene (S)	%			102	78-117	
Dibromofluoromethane (S)	%			100	66-132	
Toluene-d8 (S)	%			103	59-140	

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



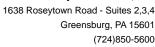


Project: H.O. SENECA
Pace Project No.: 30214776

Date: 04/14/2017 11:56 AM

MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 12535	22		1253523						
			MS	MSD							
	302	214776007	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	16.2	17.6	81	88	69-121	8	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	16.3	17.8	82	89	68-118	9	
Benzene	ug/L	ND	20	20	16.6	17.4	83	87	63-123	5	
Ethylbenzene	ug/L	ND	20	20	17.1	17.9	85	90	70-120	5	
sopropylbenzene (Cumene)	ug/L	ND	20	20	17.0	18.2	85	91	71-129	7	
Methyl-tert-butyl ether	ug/L	ND	20	20	15.8	15.3	79	76	63-143	3	
Naphthalene	ug/L	ND	20	20	16.6	18.1	83	91	55-122	9	
oluene	ug/L	ND	20	20	17.4	18.3	87	92	66-124	5	
Kylene (Total)	ug/L	ND	60	60	50.8	53.4	85	89	68-123	5	
,2-Dichloroethane-d4 (S)	%						108	105	70-128		
I-Bromofluorobenzene (S)	%						103	102	78-117		
Dibromofluoromethane (S)	%						99	101	66-132		
oluene-d8 (S)	%						104	101	59-140		

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





QUALIFIERS

Project: H.O. SENECA
Pace Project No.: 30214776

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

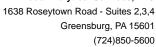
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 04/14/2017 11:56 AM

PASI-PA Pace Analytical Services - Greensburg





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. SENECA
Pace Project No.: 30214776

Date: 04/14/2017 11:56 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30214776001	MW-1	EPA 8260B	<u>254568</u>		
30214776002	MW-2	EPA 8260B	254568		
30214776003	MW-3	EPA 8260B	254568		
30214776004	MW-4	EPA 8260B	254568		
30214776005	MW-5	EPA 8260B	254568		
30214776006	MW-6	EPA 8260B	254568		
30214776007	MW-7	EPA 8260B	254568		
30214776008	MW-8	EPA 8260B	254568		
30214776009	MW-9	EPA 8260B	254568		
30214776010	MW-10	EPA 8260B	254568		
30214776011	MW-11	EPA 8260B	254568		
30214776012	MW-12	EPA 8260B	254568		
30214776013	MW-13	EPA 8260B	254568		
30214776014	MW-14	EPA 8260B	254568		
30214776015	SWTR-1	EPA 8260B	254568		
30214776016	SWTR-2	EPA 8260B	254568		

CHAIN-OF-CUSTODY / Analytical Request Document

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

Invoice Information:

Section B Required Project Information:

Section A Required Client Information:

Face Analytical www.paretlabs.com

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N ŏ Page:

Section C

	4776	Residual C	9	000	200	\$	E	3	9	8	8	0	5	20	SAMPLE CONDITIONS		5 × 5			on)	Pecelved N/Y) Ice (Y/V) Sealed Co (Y/V) Samples In (Y/V)
- #OM	WO#:30214776	30214776													ILIATION DATE TIME	3-30-17 11:00	2% = %2	200			DATE Signed (MM/DD/Y): 03 22 / 7
Preservatives	1	Amalysis Test Methanol NaOH HCI HNO ₃	×	~ ~		3		w 	X	×	× ×		X	X	ACCEPTED BY / AFFILIATION	Chall Hans	まられて				J WATER DA
ď.	COLLECTION	SAMPLE TEMP AT OF CONTAINER Unpreserved H ₂ SO ₄	11:35 3	2.25	15:10 3	M.30 3	14.60 3	2 51.51	10:50 3		11:15 3	2 01:21	2 00:00	13:40 3	DATE TIME	Co:11 11:05-8	SE 11408. E			D SIGNATURE	of SAMPLER: Tyle
COLLECTED	COMPOSITE COMPOSITE START END/GRAB	DATE DATE	1 2.62.5	3-25-17	325-17	3-29-7	X-25-77	3-29-17	3-1817		3-28-17	3.20.17	3-2827	3.22-17	RELINQUISHED BY / AFFILIATION	3	7			SAMPLER NAME AND SIGNATURE	PRINT Name SIGNATURE
(fiel o	See valid codes to	MATRIX CODE (6)	wt G	\(\frac{\pi}{\pi}\)	r, S	<u>ئ</u> غ	らさ	Et 6	かった	wt 6	12 C	kit G	2,7	1804 CT	RELINQUISHED	M-7/12					ORIGINAL
Section D Matrix Codes Required Client Information MATRIX / CODE	Drinking Water Water Waster Waste Water Product Soil/Solid	Sample IDs MUST BE UNIQUE Tissue CHZ 0-9/-, Air CHZ 0-9/-, Air Other	1 mm - 1	2 Min - Z	38.38	7.38	5 MW-S	0 - MM - 6	7 . MW . 7	8 MW - 82	6 . 3W	10 12-10	11- 2000	12 MW - 12	ADDITIONAL COMMENTS	New Sheet list For	UNIERD ED GRASOLINE	Pormeters	P	age	17 of 19

F-ALL-Q-020rev.07, 15-May-2007

fices not paid within 30 days.

Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any joy

CHAIN-OF-CUSTODY / Analytical Request Document

72697 NPDES K GROUND WATER UST N RCRA Page: REGULATORY AGENCY sça. The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately. UST 18185 80 80 80 かりの 1 Invoice Information: Attention: Company Name: Pace Quote Reference: Pace Project Manager: Pace Profile #: Section C Address: 25.00 Gaey Section B Required Project Information: Purchase Order No.: Project Name: Report To: Copy To: Assoc Inc 15626 Phylip 454-2310 Fax:
Requested Due Date/TAT: 5 + 2 2 2 2 2 Pace Analytical www.pacelabs.com 44 Q

Company: (2.885 9 Section A Required Client Information:

Address:

NELMONT

Email To:

DRINKING WATER

OTHER

9

STATE: Site Location

1401/14

A. C. C. A.

SENERA

40.

Project Number:

Requested Analysis Filtered (Y/N)

ഗ് ജ	Section D Required Client Information	Matrix Codes	,,,,			00	COLLECTED	Q				Prese	Preservatives	Si	N/A	_								:		-
		Drinking Water DW Water WT Waste Water WW Product P Sol/Solid SL	<u> </u>	eee valid codes t		COMPOSITE START		COMPOSITE END/GRAB	ООГГЕСТІОИ	S					î								(N/X) ÷			
	SAMPLE ID (A-Z. 0-9 / -) Sample IDs MUST BE UNIQUE	Wile World World Wile World Wo			DATE	E TIME		DATE TIME	TA GAMPLE TEMP AT 0	# OF CONTAINER	Ωubteserved H ₂ SO₄	HCI HNO ³	NaOH Na ₂ S ₂ O ₃	Methanol	Other ↓Analysis Test								Residual Chlorine	ace Proj	Pace Project No./ Lab I.D.	ab I.D.
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Sample Condition Upon Receipt Pittsburgh

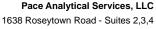
BLA

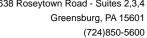
Cample Condition Open reco			· 5		
Face Analytical Client Name:	Cr	16	bs	& ASSOC	Project # 30 2 1 4 7 7
Courier:		_			
Custody Seal on Cooler/Box Present: yes	Ø	no	Seals	s intact: yes	no
(11	Type	of Ica	: (Vet	Blue None	~ · · · ·
Cooler Temperature Observed Temp 5.	4	°C	Corre	ection Factor <u>:</u>	°C Final Temp: 5.4 °C
Temp should be above freezing to 6°C	·				
			1	٦	Date and Initials of person examining contents:
Comments:	Yes	No	N/A		
Chain of Custody Present:	·K			1.	
Chain of Custody Filled Out:	K			2.	
Chain of Custody Relinquished:	K		ļ	3.	
Sampler Name & Signature on COC:	X		ļ	4.	
Sample Labels match COC:	X			5.	
-Includes date/time/ID Matrix:	WI	T		<u> </u>	
Samples Arrived within Hold Time:	K			6.	
Short Hold Time Analysis (<72hr remaining):		V		7.	
Rush Turn Around Time Requested:	<u> </u>	X	ļ	8.	
Sufficient Volume:	X.		<u> </u>	9.	
Correct Containers Used:	K			10.	
-Pace Containers Used:	K				
Containers Intact:	X			11.	
Orthophosphate field filtered			X	12.	
Organic Samples checked for dechlorination:			X	13.	
Filtered volume received for Dissolved tests			K	14.	
All containers have been checked for preservation.			×	15.	
All containers needing preservation are found to be in compliance with EPA recommendation.			×		
exceptions VOA, coliform, TOC, O&G, Phenolics				Initial when completed	Date/time of preservation
				Lot # of added preservative	
		X		16.	
Headspace in VOA Vials (>6mm):		,		17.	
Trip Blank Present:		X	W	1''	
Trip Blank Custody Seals Present Rad Aqueous Samples Screened > 0.5 mrem/hr			,	Initial when Office	8/3/10
Rau Aqueous oumples estesines			X	completed:	Date: \$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Client Notification/ Resolution:					Contacted Dy
Person Contacted:			_Date/	Time:	Contacted By:
Comments/ Resolution:					

 \square A check in this box indicates that additional information has been stored in ereports.

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

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







May 09, 2017

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

RE: Project: HO: Seneca

Pace Project No.: 30217300

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on April 27, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

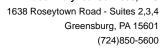
Laura Piulla

(724)850-5616 Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO: Seneca Pace Project No.: 30217300

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Nebraska Certification #: NE-05-29-14 Nevada Certification #: PA014572015-1 New Hampshire/TNI Certification #: 2976 New Jersey/TNI Certification #: PA 051 New Mexico Certification #: PA01457 New York/TNI Certification #: 10888

Montana Certification #: Cert 0082

North Carolina Certification #: 42706 North Dakota Certification #: R-190 Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457

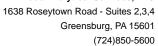
Rhode Island Certification #: 65-00282 South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213 Vermont Dept. of Health: ID# VT-0282 Virgin Island/PADEP Certification Virginia/VELAP Certification #: 460198 Washington Certification #: C868 West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C Wisconsin Certification

Wyoming Certification #: 8TMS-L

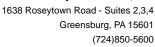




SAMPLE ANALYTE COUNT

Project: HO: Seneca Pace Project No.: 30217300

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
30217300001	MW-8	EPA 8260B	JAS	13	PASI-PA	-





PROJECT NARRATIVE

Project: HO: Seneca Pace Project No.: 30217300

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: May 09, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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



Project: HO: Seneca Pace Project No.: 30217300

Date: 05/09/2017 05:17 PM

Sample: MW-8 Lab ID: 30217300001 Collected: 04/25/17 12:00 Received: 04/27/17 13:25 Matrix: Water

Comments: • Trip blank not present in cooler with samples at time of receipt at the lab.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 8260)B					
Benzene	ND	ug/L	5.0	1		05/06/17 20:09	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		05/06/17 20:09	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		05/06/17 20:09	98-82-8	
Methyl-tert-butyl ether	520	ug/L	50.0	10		05/06/17 20:33	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		05/06/17 20:09	91-20-3	
Toluene	ND	ug/L	5.0	1		05/06/17 20:09	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		05/06/17 20:09	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/06/17 20:09	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		05/06/17 20:09	1330-20-7	
Surrogates								
Toluene-d8 (S)	96	%	59-140	1		05/06/17 20:09	2037-26-5	
4-Bromofluorobenzene (S)	93	%	78-117	1		05/06/17 20:09	460-00-4	
1,2-Dichloroethane-d4 (S)	110	%	70-128	1		05/06/17 20:09	17060-07-0	
Dibromofluoromethane (S)	100	%	66-132	1		05/06/17 20:09	1868-53-7	



Project: HO: Seneca Pace Project No.: 30217300

QC Batch: 257538 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30217300001

METHOD BLANK: 1268577 Matrix: Water

Associated Lab Samples: 30217300001

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	05/05/17 11:38	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	05/05/17 11:38	
Benzene	ug/L	ND	1.0	05/05/17 11:38	
Ethylbenzene	ug/L	ND	1.0	05/05/17 11:38	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	05/05/17 11:38	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/05/17 11:38	
Naphthalene	ug/L	ND	2.0	05/05/17 11:38	
Toluene	ug/L	ND	1.0	05/05/17 11:38	
Xylene (Total)	ug/L	ND	3.0	05/05/17 11:38	
1,2-Dichloroethane-d4 (S)	%	106	70-128	05/05/17 11:38	
4-Bromofluorobenzene (S)	%	92	78-117	05/05/17 11:38	
Dibromofluoromethane (S)	%	102	66-132	05/05/17 11:38	
Toluene-d8 (S)	%	95	59-140	05/05/17 11:38	

METHOD BLANK: 1269366 Matrix: Water

Associated Lab Samples: 30217300001

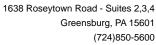
		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	05/06/17 15:39	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	05/06/17 15:39	
Benzene	ug/L	ND	1.0	05/06/17 15:39	
Ethylbenzene	ug/L	ND	1.0	05/06/17 15:39	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	05/06/17 15:39	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/06/17 15:39	
Naphthalene	ug/L	ND	2.0	05/06/17 15:39	
Toluene	ug/L	ND	1.0	05/06/17 15:39	
Xylene (Total)	ug/L	ND	3.0	05/06/17 15:39	
1,2-Dichloroethane-d4 (S)	%	101	70-128	05/06/17 15:39	
4-Bromofluorobenzene (S)	%	91	78-117	05/06/17 15:39	
Dibromofluoromethane (S)	%	101	66-132	05/06/17 15:39	
Toluene-d8 (S)	%	96	59-140	05/06/17 15:39	

LABORATORY CONTROL SAMPLE: 1268578

Date: 05/09/2017 05:17 PM

		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		18.0	90	78-116	
1,3,5-Trimethylbenzene	ug/L	20	17.4	87	77-114	
Benzene	ug/L	20	19.8	99	80-113	

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





Project: HO: Seneca Pace Project No.: 30217300

Date: 05/09/2017 05:17 PM

ABORATORY CONTROL SAMPLE:	1268578					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
ylbenzene	ug/L		20.2	101	80-115	
propylbenzene (Cumene)	ug/L	20	17.5	87	78-114	
thyl-tert-butyl ether	ug/L	20	21.9	109	82-126	
ohthalene	ug/L	20	19.0	95	61-139	
ene	ug/L	20	19.7	99	82-116	
ie (Total)	ug/L	60	59.3	99	82-115	
richloroethane-d4 (S)	%			102	70-128	
omofluorobenzene (S)	%			92	78-117	
omofluoromethane (S)	%			100	66-132	
ene-d8 (S)	%			99	59-140	

LABORATORY CONTROL SAMPLE:	1269367					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		18.9	94	78-116	
1,3,5-Trimethylbenzene	ug/L	20	18.2	91	77-114	
Benzene	ug/L	20	22.1	111	80-113	
Ethylbenzene	ug/L	20	19.8	99	80-115	
Isopropylbenzene (Cumene)	ug/L	20	18.7	94	78-114	
Methyl-tert-butyl ether	ug/L	20	21.4	107	82-126	
Naphthalene	ug/L	20	19.7	99	61-139	
Toluene	ug/L	20	20.7	104	82-116	
Xylene (Total)	ug/L	60	59.7	100	82-115	
1,2-Dichloroethane-d4 (S)	%			104	70-128	
4-Bromofluorobenzene (S)	%			92	78-117	
Dibromofluoromethane (S)	%			104	66-132	
Toluene-d8 (S)	%			98	59-140	

MATRIX SPIKE & MATRIX SPIK	E DUPLICAT	E: 12685	79 MS	MSD	1268580						
Parameter	302 Units	217850002 Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.9	20.6	100	103	69-121	3	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	18.2	19.4	91	97	68-118	7	
Benzene	ug/L	ND	20	20	22.1	23.5	111	117	63-123	6	
Ethylbenzene	ug/L	ND	20	20	19.9	20.9	100	104	70-120	5	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	18.8	20.1	94	100	71-129	7	
Methyl-tert-butyl ether	ug/L	ND	20	20	19.4	19.8	95	97	63-143	2	
Naphthalene	ug/L	ND	20	20	18.7	20.1	93	101	55-122	8	
Toluene	ug/L	ND	20	20	21.0	21.7	105	108	66-124	3	
Xylene (Total)	ug/L	ND	60	60	59.1	62.5	98	104	68-123	6	
1,2-Dichloroethane-d4 (S)	%						105	104	70-128		
4-Bromofluorobenzene (S)	%						96	95	78-117		
Dibromofluoromethane (S)	%						101	104	66-132		

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

Qual



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

QUALITY CONTROL DATA

Project: HO: Seneca Pace Project No.: 30217300

Date: 05/09/2017 05:17 PM

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1268579 1268580

MS MSD

30217850002 Spike Spike MS MSD MS MSD % Rec Parameter Units Conc. Result % Rec Limits RPD Result Conc. Result % Rec

Toluene-d8 (S) % 97 98 59-140

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

(724)850-5600





QUALIFIERS

Project: HO: Seneca Pace Project No.: 30217300

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

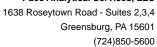
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 05/09/2017 05:17 PM

PASI-PA Pace Analytical Services - Greensburg





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO: Seneca Pace Project No.: 30217300

Date: 05/09/2017 05:17 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch	
30217300001	MW-8	EPA 8260B	257538			

CHAIN-OF-CUSTODY / Analytical Request Document

Page:

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

Section C

Face Analytical www.pacelabs.com

Pace Project No./ Lab I.D. DRINKING WATER (N/A) Samples Intaci SAMPLE CONDITIONS F-ALL-Q-020rev.07, 15-May-2007 で の の の の の OTHER (N/A) Sealed Cooler Custody Ice (Y/N) K GROUND WATER Received on WO#:30217300 Residual Chlorine (Y/N) Ō O° ni qmeT 9 REGULATORY AGENCY RCRA Requested Analysis Filtered (Y/N) TIME STATE: Site Location NPDES DATE . 170 TSU 🥦 DATE Signed (MM/DD/YY): ACCEPTED BY / AFFILIATION 41 d 1355015 FES. Inc. M 44 Delmont-Box 10778 335 tesT eisγisnA ֆ Pirilly ÎN/A Methanol Other 302 JANN J Cci bbs Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month to Any invoices not paid within 30 days. Preservatives Na₂S₂O₃ Pace Quote Reference: Pace Project HOBN HCI Invoice Information: HNO³ Company Name: Address: G. x ^bOS^zH Pace Profile #: Unpreserved TIME # OF CONTAINERS SAMPLER NAME AND SIGNATURE SAMPLE TEMP AT COLLECTION PRINT Name of SAMPLER: SIGNATURE of SAMPLER: Cribbs + 15500 4/27/17 1200 DATE TIME COMPOSITE END/GRAB 1/25/17 DATE COLLECTED RELINQUISHED BY / AFFILIATION Cribb. Cribb TIME COMPOSITE START DATE ろしゃし Section B Required Project Information: Project Name: 170: Surchase Order No.: (G=GRAB C=COMP) SAMPLE TYPE Project Number (see valid codes to left) MATRIX CODE Report To: ORIGINAL Copy To: Matrix Codes Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Afrir Arr Tissue Company. 10: 11 pts Oculting notosse ciates. con SHORTLES 6-950 line Requested Due Date/TAT: STandard Ÿ, ADDITIONAL COMMENTS (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE 597010 SAMPLE ID アカア Unleaded Section A Required Client Information: Required Client Information 44 Phone: 724-7310 (new T Address: IT O 776 Section D J SA Page 11 of 12 # MBTI ~ 9 2 ĸ ဖ 7 œ ၈ 7

Sample Condition Upon Rece	ipt P				302173	() ()
Pace Analytical Client Name:			<u>Cri</u>	hb3	Project #	<i></i>
Courier: Fed Ex UPS USPS Clier	nt 🗆	Comm	iercial	Pace Other _	///91°8	
Custody Seal on Cooler/Box Present: yes		no	Seals	intact: 🔲 yes [no ***	
Thermometer Used (()	Туре	of Ice:	Wet	Blue None		
Cooler Temperature Observed Temp	6	۰c	Corre	ection Factor: C	°C Final Temp: 1.6 °C	
Temp should be above freezing to 6°C		_				
				-	Date and Initials of person examining contents:	-
Comments:	Yes	No	N/A		JAM 41211	4
Chain of Custody Present:				1.		4
Chain of Custody Filled Out:	//			2.		4
Chain of Custody Relinquished:			ļ	3.		4
Sampler Name & Signature on COC:		_		4.		_
Sample Labels match COC:		<u> </u>		5.		
-Includes date/time/ID Matrix:	<u>N</u>	<u> </u>	-			
Samples Arrived within Hold Time:				6.		
Short Hold Time Analysis (<72hr remaining):		//		7.		
Rush Turn Around Time Requested:				8,		
Sufficient Volume:				9.		
Correct Containers Used:				10.		
-Pace Containers Used:						
Containers Intact:				11.		
Orthophosphate field filtered			1	12.		
Organic Samples checked for dechlorination:				13.		
Filtered volume received for Dissolved tests	-			14.		
All containers have been checked for preservation.				15.		
All containers needing preservation are found to be in compliance with EPA recommendation.			in			
exceptions: VOA, colliform, TOC, O&G, Phenolics				Initial when completed	Date/time of preservation	
exceptions. WOA, voilionn, 100, 080, Fhenolics				Lot # of added preservative	preservation	
Headspace in VOA Vials (>6mm):				16.		
Trip Blank Present:				17.		
Trip Blank Custody Seals Present			//			
Rad Aqueous Samples Screened > 0.5 mrem/hr				Initial when completed:	Date:	
Client Notification/ Resolution:						
Person Contacted:			Date/	Time:	Contacted By:	
Comments/ Resolution:						
						_
						_

 $\ \square$ A check in this box indicates that additional information has been stored in ereports. Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR

Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers) *PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Greensburg, PA 15601 (724)850-5600



June 29, 2017

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

RE: Project: HO:Seneca

Pace Project No.: 30221585

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on June 15, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Samantha Bayura for Laura M. Pirilla

Samantha Bayune

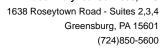
laura.pirilla@pacelabs.com

(724)850-5616 Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO:Seneca Pace Project No.: 30221585

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190

Oregon/TNI Certification #: PA200002 Pennsylvania/TNI Certification #: 65-00282 Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: TN2867

Texas/TNI Certification #: T104704188-14-8
Utah/TNI Certification #: PA014572015-5
USDA Soil Permit #: P330-14-00213
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin Certification

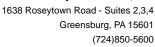
Wyoming Certification #: 8TMS-L



SAMPLE ANALYTE COUNT

Project: HO:Seneca Pace Project No.: 30221585

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30221585001	MW-1	EPA 8260B	LEL	13	PASI-PA
30221585002	MW-2	EPA 8260B	LEL	13	PASI-PA
30221585003	MW-3	EPA 8260B	LEL	13	PASI-PA
30221585004	MW-4	EPA 8260B	LEL	13	PASI-PA
30221585005	MW-5	EPA 8260B	LEL	13	PASI-PA
30221585006	MW-6	EPA 8260B	LEL	13	PASI-PA
30221585007	MW-7	EPA 8260B	LEL	13	PASI-PA
30221585008	MW-8	EPA 8260B	LEL	13	PASI-PA
30221585009	MW-9	EPA 8260B	LEL	13	PASI-PA
30221585010	MW-10	EPA 8260B	LEL	13	PASI-PA
30221585011	MW-11	EPA 8260B	LEL	13	PASI-PA
30221585012	MW-12	EPA 8260B	LEL	13	PASI-PA
30221585013	MW-13	EPA 8260B	LEL	13	PASI-PA
30221585014	MW-14	EPA 8260B	LEL	13	PASI-PA
30221585015	MW-15	EPA 8260B	LEL	13	PASI-PA
30221585016	Upstream	EPA 8260B	LEL	13	PASI-PA
30221585017	Downstream	EPA 8260B	LEL	13	PASI-PA





PROJECT NARRATIVE

Project: HO:Seneca Pace Project No.: 30221585

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: June 29, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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



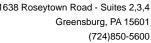
Project: HO:Seneca
Pace Project No.: 30221585

Date: 06/29/2017 03:45 PM

Sample: MW-1	Lab ID: 302	21585001	Collected: 06/13/1	7 12:55	Received: (06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	45.9	ug/L	5.0	1		06/20/17 05:24	71-43-2	
Ethylbenzene	370	ug/L	25.0	5		06/20/17 05:50	100-41-4	
Isopropylbenzene (Cumene)	30.1	ug/L	5.0	1		06/20/17 05:24	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 05:24	1634-04-4	
Naphthalene	93.6	ug/L	5.0	1		06/20/17 05:24	91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 05:24	108-88-3	
1,2,4-Trimethylbenzene	297	ug/L	5.0	1		06/20/17 05:24	95-63-6	
1,3,5-Trimethylbenzene	69.1	ug/L	5.0	1		06/20/17 05:24	108-67-8	
Xylene (Total)	325	ug/L	5.0	1		06/20/17 05:24	1330-20-7	
Surrogates		3						
Toluene-d8 (S)	98	%	59-140	1		06/20/17 05:24	2037-26-5	
4-Bromofluorobenzene (S)	98	%	78-117	1		06/20/17 05:24	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-128	1		06/20/17 05:24		
Dibromofluoromethane (S)	102	%	66-132	1		06/20/17 05:24	1868-53-7	
Sample: MW-2	Lab ID: 302	21585002	Collected: 06/13/1	7 13:50	Received: (06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	884	ug/L	25.0	5		06/20/17 06:4	71-43-2	
Ethylbenzene	319	ug/L	5.0	1		06/20/17 06:15	100-41-4	
Isopropylbenzene (Cumene)	23.6	ug/L	5.0	1		06/20/17 06:15	98-82-8	
Methyl-tert-butyl ether	15.9	ug/L	5.0	1		06/20/17 06:15	1634-04-4	
Naphthalene	46.5	ug/L	5.0	1		06/20/17 06:15	91-20-3	
Toluene	10.5	ug/L	5.0	1		06/20/17 06:15	108-88-3	
1,2,4-Trimethylbenzene	179	ug/L	1.0	1		06/20/17 06:15	95-63-6	
1,3,5-Trimethylbenzene	87.3	ug/L	1.0	1		06/20/17 06:15	108-67-8	
Xylene (Total)	290	ug/L	5.0	1		06/20/17 06:15	1330-20-7	
Surrogates		-						
Toluene-d8 (S)	98	%	59-140	1		06/20/17 06:15	2037-26-5	
4-Bromofluorobenzene (S)	101	%	78-117	1		06/20/17 06:15	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-128	1		06/20/17 06:15	17060-07-0	
Dibromofluoromethane (S)	99	%	66-132	1		06/20/17 06:15	1868-53-7	
Sample: MW-3	Lab ID: 302	21585003	Collected: 06/13/1	7 14:40	Received: (06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EDA 83				<u> </u>		
	•							
Benzene	17000	ug/L	500	100		06/20/17 10:17		
Ethylbenzene	2980	ug/L	500	100		06/20/17 10:17		
Isopropylbenzene (Cumene)	73.4	ug/L	25.0	5		06/20/17 09:5	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	25.0	5		06/20/17 09:5	1634-04-4	
	537	ug/L	25.0	5		06/20/17 09:51		

REPORT OF LABORATORY ANALYSIS

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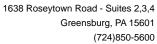




Project: HO:Seneca 30221585 Pace Project No.:

Date: 06/29/2017 03:45 PM

Pace Project No.: 30221585								
Sample: MW-3	Lab ID: 302	21585003	Collected: 06/13/1	7 14:40	Received: 0	06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Toluene	7270	ug/L	500	100		06/20/17 10:17	7 108-88-3	
1,2,4-Trimethylbenzene	2730	ug/L	100	100		06/20/17 10:17	7 95-63-6	
1,3,5-Trimethylbenzene	595	ug/L	5.0	5		06/20/17 09:5	1 108-67-8	
Xylene (Total)	16800	ug/L	500	100		06/20/17 10:17	7 1330-20-7	
Surrogates		Ū						
Toluene-d8 (S)	100	%	59-140	5		06/20/17 09:5	1 2037-26-5	
4-Bromofluorobenzene (S)	100	%	78-117	5		06/20/17 09:51	1 460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-128	5		06/20/17 09:5	1 17060-07-0	
Dibromofluoromethane (S)	96	%	66-132	5		06/20/17 09:5	1 1868-53-7	
			0 !! !					
Sample: MW-4	Lab ID: 302	21585004	Collected: 06/13/1			06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	1600	ug/L	100	20		06/20/17 08:35	5 71-43-2	
Ethylbenzene	626	ug/L	100	20		06/20/17 08:35		
Isopropylbenzene (Cumene)	66.5	ug/L	5.0	1		06/20/17 08:09		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 08:09		
Naphthalene	153	ug/L	5.0	1		06/20/17 08:09		
Toluene	25.7	ug/L	5.0	1		06/20/17 08:09		
1,2,4-Trimethylbenzene	289	ug/L	1.0	1		06/20/17 08:09		
1,3,5-Trimethylbenzene	86.7	-	1.0	1		06/20/17 08:09		
Xylene (Total)	856	ug/L ug/L	5.0	1		06/20/17 08:09		
Surrogates	030	ug/L	3.0	'		00/20/17 00.03	1330-20-7	
Toluene-d8 (S)	99	%	59-140	1		06/20/17 08:09	2037-26-5	
4-Bromofluorobenzene (S)	102	%	78-117	1		06/20/17 08:09		
1,2-Dichloroethane-d4 (S)	103	%	70-117	1		06/20/17 08:09		
Dibromofluoromethane (S)	96	%	66-132	1		06/20/17 08:09		
Dibromondometriane (3)	30	70	00-132	'		00/20/17 00:03	9 1000-55-7	
Sample: MW-5	Lab ID: 302	21585005	Collected: 06/13/1	7 12:00	Received: 0	06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82						
Benzene	10500	ug/L	250	50		06/20/17 09:26	5 71-43-2	
Ethylbenzene	3020	ug/L	250	50		06/20/17 09:26		
Isopropylbenzene (Cumene)	109	ug/L	5.0	1		06/20/17 09:00	98-82-8	
Methyl-tert-butyl ether	61.3	ug/L	5.0	1		06/20/17 09:00		
Naphthalene	4470	ug/L	250	50		06/20/17 09:26		
Toluene	53.9	ug/L	5.0	1		06/20/17 09:00		
1,2,4-Trimethylbenzene	3510	ug/L	250	50		06/20/17 09:26		
1,3,5-Trimethylbenzene	1040	ug/L	250	50		06/20/17 09:26		
Xylene (Total)	8660	ug/L	250	50		06/20/17 09:26		
7.5 (10.0.1)	5555	~g/ L	230	00		00,20,11 00.20	1000 20 1	

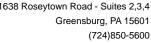




Project: HO:Seneca
Pace Project No.: 30221585

Date: 06/29/2017 03:45 PM

Sample: MW-5	Lab ID: 3022	1585005	Collected: 06/13/1	7 12:00	Received: (06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	od: EPA 82	260B					
Surrogates								
Toluene-d8 (S)	104	%	59-140	1		06/20/17 09:0	0 2037-26-5	
4-Bromofluorobenzene (S)	106	%	78-117	1		06/20/17 09:0	0 460-00-4	
1,2-Dichloroethane-d4 (S)	106	%	70-128	1		06/20/17 09:0	0 17060-07-0	
Dibromofluoromethane (S)	93	%	66-132	1		06/20/17 09:0	0 1868-53-7	
Sample: MW-6	Lab ID: 3022	1585006	Collected: 06/13/1	7 11:50	Received:	06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	od: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 01:1	0 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 01:1	0 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 01:1	0 98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 01:1	0 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 01:1	0 91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 01:1	0 108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 01:1	0 95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 01:1	0 108-67-8	
Xylene (Total) Surrogates	ND	ug/L	5.0	1		06/20/17 01:1	0 1330-20-7	
Toluene-d8 (S)	99	%	59-140	1		06/20/17 01:1	0 2037-26-5	
4-Bromofluorobenzene (S)	105	%	78-117	1		06/20/17 01:1		
1,2-Dichloroethane-d4 (S)	103	%	70-128	1			0 17060-07-0	
Dibromofluoromethane (S)	105	%	66-132	1		06/20/17 01:1		
Complex MM 7	Lab ID: 3022	21585007	Collected: 06/13/1	7 11:05	Received: (06/15/17 08:42	Matrix: Water	
Sample: MW-7								
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
•				DF	Prepared	Analyzed	CAS No.	Qua
Parameters 8260B MSV	Results Analytical Meth	od: EPA 82	260B		Prepared			Qua
Parameters 8260B MSV Benzene	Results Analytical Meth	od: EPA 82 ug/L	260B 5.0	1	Prepared	06/20/17 01:3	5 71-43-2	Qua
Parameters 8260B MSV Benzene Ethylbenzene	Results Analytical Meth ND ND	od: EPA 82 ug/L ug/L	260B 5.0 5.0	1 1	Prepared	06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene)	Results Analytical Method ND ND ND	od: EPA 82 ug/L ug/L ug/L	5.0 5.0 5.0	1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether	Results Analytical Method ND ND ND ND ND ND	od: EPA 82 ug/L ug/L ug/L ug/L	5.0 5.0 5.0 5.0 5.0	1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene	Results Analytical Method ND ND ND ND ND ND ND ND	od: EPA 82 ug/L ug/L ug/L ug/L ug/L ug/L ug/L	5.0 5.0 5.0 5.0 5.0 5.0	1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene	Results Analytical Method ND	od: EPA 82 ug/L ug/L ug/L ug/L ug/L ug/L ug/L ug/L	5.0 5.0 5.0 5.0 5.0 5.0 5.0	1 1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3 5 108-88-3	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene	Results Analytical Method ND	od: EPA 82 ug/L	5.0 5.0 5.0 5.0 5.0 5.0 5.0 1.0	1 1 1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3 5 108-88-3 5 95-63-6	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	Results Analytical Method ND	od: EPA 82 ug/L	5.0 5.0 5.0 5.0 5.0 5.0 5.0 1.0	1 1 1 1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3 5 108-88-3 5 95-63-6 5 108-67-8	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total)	Results Analytical Method ND	od: EPA 82 ug/L	5.0 5.0 5.0 5.0 5.0 5.0 5.0 1.0	1 1 1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3 5 108-88-3 5 95-63-6 5 108-67-8	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	Results Analytical Method ND	od: EPA 82 ug/L	5.0 5.0 5.0 5.0 5.0 5.0 1.0 1.0	1 1 1 1 1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3 5 108-88-3 5 95-63-6 5 108-67-8 5 1330-20-7	Qua
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates Toluene-d8 (S)	Results Analytical Method ND	od: EPA 82 ug/L 5.0 5.0 5.0 5.0 5.0 5.0 1.0 1.0 5.0	1 1 1 1 1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3 5 108-88-3 5 95-63-6 5 108-67-8 5 1330-20-7 5 2037-26-5	Qua	
Parameters 8260B MSV Benzene Ethylbenzene Isopropylbenzene (Cumene) Methyl-tert-butyl ether Naphthalene Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene Xylene (Total) Surrogates	Results Analytical Method ND	od: EPA 82 ug/L	5.0 5.0 5.0 5.0 5.0 5.0 1.0 1.0	1 1 1 1 1 1 1 1	Prepared	06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3 06/20/17 01:3	5 71-43-2 5 100-41-4 5 98-82-8 5 1634-04-4 5 91-20-3 5 108-88-3 5 95-63-6 5 108-67-8 5 1330-20-7 5 2037-26-5	Qua

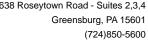




Project: HO:Seneca
Pace Project No.: 30221585

Date: 06/29/2017 03:45 PM

Sample: MW-8	Lab ID: 302	21585008	Collected: 06/12/1	7 15:30	Received: 0	06/15/17 08:42 N	latrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 07:06	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 07:06	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 07:06	98-82-8	
Methyl-tert-butyl ether	421	ug/L	25.0	5		06/20/17 07:44	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 07:06	91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 07:06	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 07:06	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 07:06	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 07:06	1330-20-7	
Surrogates		3						
Toluene-d8 (S)	99	%	59-140	1		06/20/17 07:06	2037-26-5	
4-Bromofluorobenzene (S)	101	%	78-117	1		06/20/17 07:06		
1,2-Dichloroethane-d4 (S)	109	%	70-128	1		06/20/17 07:06		
Dibromofluoromethane (S)	106	%	66-132	1		06/20/17 07:06		
, ,								
Sample: MW-9	Lab ID: 302	21585009	Collected: 06/12/1	7 14:15	Received: 0	06/15/17 08:42 N	Natrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 02:01	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 02:01	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 02:01	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 02:01	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 02:01	91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 02:01	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 02:01	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 02:01		
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 02:01		
Surrogates		3		•				
Toluene-d8 (S)	98	%	59-140	1		06/20/17 02:01	2037-26-5	
4-Bromofluorobenzene (S)	100	%	78-117	1		06/20/17 02:01	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-128	1		06/20/17 02:01		
Dibromofluoromethane (S)	105	%	66-132	1		06/20/17 02:01		
Sample: MW-10	Lab ID: 302	21585010	Collected: 06/12/1	7 15:05	Received: (06/15/17 08:42 N	Natrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
			<u> </u>			7 111019200		
8260B MSV	Analytical Meth		2000					
Benzene	5.3	ug/L	5.0	1		06/20/17 04:08	71-43-2	
Ethylbenzene	81.8	ug/L	5.0	1		06/20/17 04:08	100-41-4	
[14.4	ug/L	5.0	1		06/20/17 04:08	98-82-8	
Isopropylbenzene (Cumene)								
Methyl-tert-butyl ether	21.3	ug/L	5.0	1		06/20/17 04:08	1634-04-4	





Project: HO:Seneca
Pace Project No.: 30221585

Date: 06/29/2017 03:45 PM

Pace Project No.: 30221585								
Sample: MW-10	Lab ID: 302	21585010	Collected: 06/12/1	7 15:05	Received:	06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Toluene	ND	ug/L	5.0	1		06/20/17 04:0	8 108-88-3	
1,2,4-Trimethylbenzene	6.4	ug/L	1.0	1		06/20/17 04:0	8 95-63-6	
1,3,5-Trimethylbenzene	1.9	ug/L	1.0	1		06/20/17 04:0	8 108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 04:0	8 1330-20-7	
Surrogates Toluene-d8 (S)	96	%	59-140	1		06/20/17 04:0	8 2037-26-5	
4-Bromofluorobenzene (S)	101	%	78-117	1		06/20/17 04:0		
1,2-Dichloroethane-d4 (S)	101	%	70-117	1			8 17060-07-0	
Dibromofluoromethane (S)	105	%	66-132	1		06/20/17 04:0		
Sample: MW-11	Lab ID: 302	21585011	Collected: 06/12/1	7 13:50	Received:	06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 04:3	3 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 04:3	3 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 04:3	3 98-82-8	
Methyl-tert-butyl ether	13.2	ug/L	5.0	1		06/20/17 04:3	3 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 04:3	3 91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 04:3	3 108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 04:3	3 95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 04:3	3 108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 04:3	3 1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	59-140	1		06/20/17 04:3		
4-Bromofluorobenzene (S)	102	%	78-117	1		06/20/17 04:3		
1,2-Dichloroethane-d4 (S)	103	%	70-128	1			3 17060-07-0	
Dibromofluoromethane (S)	106	%	66-132	1		06/20/17 04:3	3 1868-53-7	
Sample: MW-12	Lab ID: 302	21585012	Collected: 06/12/1	7 11:45	Received:	06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 82	260B			,		_
Benzene	ND	ug/L	5.0	1		06/20/17 02:2	6 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 02:2		
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 02:2	6 98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 02:2	6 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 02:2		
Toluene	ND	ug/L	5.0	1		06/20/17 02:2		
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 02:2	6 95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 02:2	6 108-67-8	



Project: HO:Seneca
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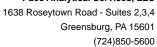
Sample: MW-12	Lab ID: 302	21585012	Collected: 06/12/1	7 11:45	Received: (06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meti	nod: EPA 82	260B					
Surrogates								
Toluene-d8 (S)	98	%	59-140	1		06/20/17 02:2	6 2037-26-5	
4-Bromofluorobenzene (S)	101	%	78-117	1		06/20/17 02:2	6 460-00-4	
1,2-Dichloroethane-d4 (S)	108	%	70-128	1		06/20/17 02:2	6 17060-07-0	
Dibromofluoromethane (S)	107	%	66-132	1		06/20/17 02:2	6 1868-53-7	
Sample: MW-13	Lab ID: 302	21585013	Collected: 06/12/1	7 11:50	Received: (06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B			•		
Benzene	ND	ug/L	5.0	1		06/20/17 02:5	2 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 02:5	2 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 02:5		
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 02:5	2 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 02:5	2 91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 02:5	2 108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 02:5		
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 02:5		
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 02:5		
Surrogates	07	0.4	50.440			00/00/47 00 5		
Toluene-d8 (S)	97	%	59-140	1		06/20/17 02:5		
4-Bromofluorobenzene (S)	107	%	78-117	1		06/20/17 02:5		
1,2-Dichloroethane-d4 (S)	108	%	70-128	1			2 17060-07-0	
Dibromofluoromethane (S)	103	%	66-132	1		06/20/17 02:5	2 1868-53-7	
Sample: MW-14	Lab ID: 302	21585014	Collected: 06/12/1	7 12:50	Received: (06/15/17 08:42	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Metl	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 03:1	7 71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 03:1	7 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 03:1	7 98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 03:1	7 1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 03:1	7 91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 03:1	7 108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 03:1	7 95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 03:1		
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 03:1		
		3					-	
Surrogates						06/20/17 03:1	7 2027 26 5	
	99	%	59-140	1		06/20/17 03.1	7 2037-20-5	
Surrogates Toluene-d8 (S) 4-Bromofluorobenzene (S)	99 102	% %	59-140 78-117	1 1		06/20/17 03:1		
Toluene-d8 (S)						06/20/17 03:1		



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Sample: MW-15	Lab ID: 302	21585015	Collected: 06/12/1	7 16:00	Received: 0	06/15/17 08:42 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 04:59	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 04:59	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 04:59	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 04:59	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 04:59	91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 04:59	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 04:59	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 04:59	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 04:59		
Surrogates		. 3						
Toluene-d8 (S)	100	%	59-140	1		06/20/17 04:59	2037-26-5	
4-Bromofluorobenzene (S)	101	%	78-117	1		06/20/17 04:59	460-00-4	
1,2-Dichloroethane-d4 (S)	102	%	70-128	1		06/20/17 04:59	17060-07-0	
Dibromofluoromethane (S)	105	%	66-132	1		06/20/17 04:59	1868-53-7	
Sample: Upstream	Lab ID: 302	21585016	Collected: 06/12/1	7 12:30	Received: 0	06/15/17 08:42 I	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 03:43	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 03:43	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 03:43	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 03:43	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		06/20/17 03:43	91-20-3	
Toluene	ND	ug/L	5.0	1		06/20/17 03:43	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 03:43	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 03:43	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 03:43	1330-20-7	
Surrogates		-						
Toluene-d8 (S)	97	%	59-140	1		06/20/17 03:43	2037-26-5	
4-Bromofluorobenzene (S)	98	%	78-117	1		06/20/17 03:43	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	70-128	1		06/20/17 03:43	17060-07-0	
Dibromofluoromethane (S)	104	%	66-132	1		06/20/17 03:43	1868-53-7	
Sample: Downstream	Lab ID: 302	21505017	Collected: 06/12/1	7 12:40	Possived: C	06/15/17 08:42	Matrix: Water	
•								0
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
8260B MSV	Analytical Meth	nod: EPA 82	260B					
Benzene	ND	ug/L	5.0	1		06/20/17 03:55		
Ethylbenzene	ND	ug/L	5.0	1		06/20/17 03:55	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		06/20/17 03:55	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		06/20/17 03:55	1634-04-4	
		ug/L						





Project: HO:Seneca
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Sample: Downstream	Lab ID: 3022	21585017	Collected: 06/12/1	7 12:40	Received: 06	6/15/17 08:42 N	Matrix: Water	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	od: EPA 82	260B					
Toluene	ND	ug/L	5.0	1		06/20/17 03:55	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 03:55	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		06/20/17 03:55	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		06/20/17 03:55	1330-20-7	
Surrogates		•						
Toluene-d8 (S)	96	%	59-140	1		06/20/17 03:55	2037-26-5	
4-Bromofluorobenzene (S)	107	%	78-117	1		06/20/17 03:55	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	70-128	1		06/20/17 03:55	17060-07-0	
Dibromofluoromethane (S)	104	%	66-132	1		06/20/17 03:55	1868-53-7	



Project: HO:Seneca Pace Project No.: 30221585

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QC Batch: 262332 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30221585001, 30221585002, 30221585003, 30221585004, 30221585005, 30221585006, 30221585007,

30221585008, 30221585009, 30221585010, 30221585011, 30221585012, 30221585013, 30221585014,

30221585015, 30221585016

METHOD BLANK: 1292160 Matrix: Water

Associated Lab Samples: 30221585001, 30221585002, 30221585003, 30221585004, 30221585005, 30221585006, 30221585007,

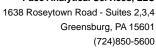
30221585008, 30221585009, 30221585010, 30221585011, 30221585012, 30221585013, 30221585014,

30221585015, 30221585016

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	06/20/17 00:44	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	06/20/17 00:44	
Benzene	ug/L	ND	1.0	06/20/17 00:44	
Ethylbenzene	ug/L	ND	1.0	06/20/17 00:44	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/20/17 00:44	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/20/17 00:44	
Naphthalene	ug/L	ND	2.0	06/20/17 00:44	
Toluene	ug/L	ND	1.0	06/20/17 00:44	
Xylene (Total)	ug/L	ND	3.0	06/20/17 00:44	
1,2-Dichloroethane-d4 (S)	%	105	70-128	06/20/17 00:44	
4-Bromofluorobenzene (S)	%	102	78-117	06/20/17 00:44	
Dibromofluoromethane (S)	%	99	66-132	06/20/17 00:44	
Toluene-d8 (S)	%	98	59-140	06/20/17 00:44	

LABORATORY CONTROL SAMPLE:	1292161					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		18.5	92	78-116	
1,3,5-Trimethylbenzene	ug/L	20	18.0	90	77-114	
Benzene	ug/L	20	17.8	89	80-113	
Ethylbenzene	ug/L	20	18.8	94	80-115	
Isopropylbenzene (Cumene)	ug/L	20	18.0	90	78-114	
Methyl-tert-butyl ether	ug/L	20	19.0	95	82-126	
Naphthalene	ug/L	20	24.0	120	61-139	
Toluene	ug/L	20	18.2	91	82-116	
Xylene (Total)	ug/L	60	57.3	96	82-115	
1,2-Dichloroethane-d4 (S)	%			102	70-128	
4-Bromofluorobenzene (S)	%			99	78-117	
Dibromofluoromethane (S)	%			104	66-132	
Toluene-d8 (S)	%			102	59-140	

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





Project: HO:Seneca
Pace Project No.: 30221585

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MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 12921	62		1292163						
			MS	MSD							
	302	221585006	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.1	19.5	95	97	69-121		
1,3,5-Trimethylbenzene	ug/L	ND	20	20	18.1	19.1	90	96	68-118	6	
Benzene	ug/L	ND	20	20	19.5	20.4	85	90	63-123	4	
Ethylbenzene	ug/L	ND	20	20	17.3	17.9	87	90	70-120	3	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	17.9	19.1	89	95	71-129	7	
Methyl-tert-butyl ether	ug/L	ND	20	20	17.6	18.8	83	89	63-143	7	
Naphthalene	ug/L	ND	20	20	24.1	23.0	103	98	55-122	4	
Toluene	ug/L	ND	20	20	16.8	17.4	84	87	66-124	4	
Xylene (Total)	ug/L	ND	60	60	53.1	54.9	88	91	68-123	3	
1,2-Dichloroethane-d4 (S)	%						103	97	70-128		
4-Bromofluorobenzene (S)	%						103	102	78-117		
Dibromofluoromethane (S)	%						104	102	66-132		
Toluene-d8 (S)	%						98	96	59-140		

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



Project: HO:Seneca Pace Project No.: 30221585

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QC Batch: 262334 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30221585017

METHOD BLANK: 1292164 Matrix: Water

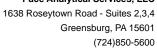
Associated Lab Samples: 30221585017

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	06/20/17 00:57	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	06/20/17 00:57	
Benzene	ug/L	ND	1.0	06/20/17 00:57	
Ethylbenzene	ug/L	ND	1.0	06/20/17 00:57	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	06/20/17 00:57	
Methyl-tert-butyl ether	ug/L	ND	1.0	06/20/17 00:57	
Naphthalene	ug/L	ND	2.0	06/20/17 00:57	
Toluene	ug/L	ND	1.0	06/20/17 00:57	
Xylene (Total)	ug/L	ND	3.0	06/20/17 00:57	
1,2-Dichloroethane-d4 (S)	%	100	70-128	06/20/17 00:57	
4-Bromofluorobenzene (S)	%	102	78-117	06/20/17 00:57	
Dibromofluoromethane (S)	%	105	66-132	06/20/17 00:57	
Toluene-d8 (S)	%	98	59-140	06/20/17 00:57	

LABORATORY CONTROL SAMPLE:	1292165					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		18.8	94	78-116	
1,3,5-Trimethylbenzene	ug/L	20	18.9	94	77-114	
Benzene	ug/L	20	17.8	89	80-113	
Ethylbenzene	ug/L	20	18.6	93	80-115	
Isopropylbenzene (Cumene)	ug/L	20	18.6	93	78-114	
Methyl-tert-butyl ether	ug/L	20	18.2	91	82-126	
Naphthalene	ug/L	20	18.7	94	61-139	
Toluene	ug/L	20	18.4	92	82-116	
Xylene (Total)	ug/L	60	56.9	95	82-115	
1,2-Dichloroethane-d4 (S)	%			96	70-128	
4-Bromofluorobenzene (S)	%			102	78-117	
Dibromofluoromethane (S)	%			97	66-132	
Toluene-d8 (S)	%			102	59-140	

MATRIX SPIKE & MATRIX SPIK	E DUPLICAT	E: 12921	66		1292167						
			MS	MSD							
	302	221669001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	20.5	18.4	103	92	69-121	11	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	20.4	18.2	102	91	68-118	11	
Benzene	ug/L	ND	20	20	18.4	16.3	92	82	63-123	12	

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



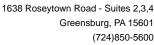


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MATRIX SPIKE & MATRIX SPIKI	E DUPLICAT	E: 12921	66		1292167						
	302	221669001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	19.9	18.2	100	91	70-120	9	
sopropylbenzene (Cumene)	ug/L	ND	20	20	20.3	18.4	101	92	71-129	9	
Methyl-tert-butyl ether	ug/L	ND	20	20	14.5	14.1	73	70	63-143	3	
Naphthalene	ug/L	ND	20	20	20.6	18.0	103	90	55-122	14	
Toluene	ug/L	ND	20	20	19.2	17.9	96	89	66-124	7	
(ylene (Total)	ug/L	ND	60	60	60.6	56.1	101	94	68-123	8	
,2-Dichloroethane-d4 (S)	%						96	94	70-128		
I-Bromofluorobenzene (S)	%						102	104	78-117		
Dibromofluoromethane (S)	%						97	99	66-132		
Toluene-d8 (S)	%						99	104	59-140		

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





QUALIFIERS

Project: HO:Seneca Pace Project No.: 30221585

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

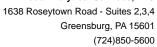
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 06/29/2017 03:45 PM

PASI-PA Pace Analytical Services - Greensburg





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO:Seneca Pace Project No.: 30221585

Date: 06/29/2017 03:45 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
30221585001	MW-1	EPA 8260B	262332		
30221585002	MW-2	EPA 8260B	262332		
30221585003	MW-3	EPA 8260B	262332		
30221585004	MW-4	EPA 8260B	262332		
30221585005	MW-5	EPA 8260B	262332		
30221585006	MW-6	EPA 8260B	262332		
30221585007	MW-7	EPA 8260B	262332		
30221585008	MW-8	EPA 8260B	262332		
30221585009	MW-9	EPA 8260B	262332		
30221585010	MW-10	EPA 8260B	262332		
30221585011	MW-11	EPA 8260B	262332		
30221585012	MW-12	EPA 8260B	262332		
30221585013	MW-13	EPA 8260B	262332		
30221585014	MW-14	EPA 8260B	262332		
30221585015	MW-15	EPA 8260B	262332		
30221585016	Upstream	EPA 8260B	262332		
30221585017	Downstream	EPA 8260B	262334		

Pace Analytical www.pacelabs.com

CHAIN. WO#: 30221585

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F-ALL-Q-020rev.07, 15-May-2007

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for adv

CHAIN-OF-CUSTODY / Analytical Request Document

Face Analytical "
www.pacelabs.com

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

Pace Project No./ Lab I.D. (N/A) DRINKING WATER gambles intact SAMPLE CONDITIONS F-ALL-Q-020rev.07, 15-May-2007 1.69263 OTHER Custody Sealed Cooler (Y/N) 2 013 110 010 015 5 ice (Y/N) っ Received on 区 GROUND WATER Residual Chlorine (Y/V) 7.08080 O° ni qmeT Page: REGULATORY AGENCY RCRA BA Requested Analysis Filtered (Y/N) TIME Site Location STATE STATE STATE NPDES DATE 下 UST DATE Signed (MM/DD/YY): ACCEPTED BY / AFFILIATION Address:

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Pase Quote
Pase Project

Page Project

10 11 Line y Inc ~0130 33S 00 Analysis Test 4 N/A Pirilla Cribbs and Associates 153 Gary Cribbs Other 10/10 Methanol Section C S O 2 2 Preservatives _€O_SS_SBN Laura HOBN HC mm ω κ 6160 нио^з [†]OS^zH Manager: Pace Profile #: 842 Attention: Unpreserved 뽈 # OF CONTAINERS 3 SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: SIGNATURE of SAMPLER: SAMPLE TEMP AT COLLECTION A 120 DATE B 04, 21 150 0561 4/4/9 1600 TIME. B COMPOSITE END/GRAB 11/11 4/11/9 Them Orbboakson DATE COLLECTED RELINQUISHED BY / AFFILIATION 40: Senece TIME Report To: Cary Cribbs COMPOSITE START Gary Cubbs DATE Required Project Information: R アク S SAMPLE TYPE (G=GRAB C=COMP) urchase Order No.: Š 7 (see valid codes to left) MATRIX CODE Project Name: Project Number TYZOKO Section B Matrix Codes MATRIX / CODE Drinking Water Water Waste Water Lasa 11pve Product Soil/Solid PADEP NEW Shorthul mail To: Oil Wipe Air Tissue Other Anolyze all samples for Standard LINDS Y ASSOCIATES, IN ADDITIONAL COMMENTS 15626 (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE DOWNSTREAD SAMPLE ID For Waleaded Section D Required Client Information Section A Required Client Information: Requested Due Date/TAT: 24-454-2310 Elmout PA UP STream Odress: Mw-13 ハルードグ ハトーバ Page 20 of 21 9 12 Ξ # M∃TI 9 80 တ

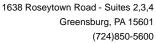
Voices not paid within 30 days "Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any

Sample Condition Upon Rec	eipt Pi	ttsb	urgf	1				
Pace Analytical Client Name:	Cri	2010	<u>;</u> 4	Assoc.	Project #	30 2	21	58
Courier: Fed Ex UPS USPS C			-		<u> </u>			
Custody Seal on Cooler/Box Present:	es 📝 r	10	Seals	intact: yes	no			
Thermometer Used	Туре	fice:	Wet) Blue None				
Cooler Temperature Observed Temp	<u>0.4</u>	° C	Corre	ection Factor <u>: 🔘 -</u>	O°C Final	Гетр <u>: С</u>	1 4	°C
Temp should be above freezing to 6°C	-				Date and I	nitials of ner	son exam	oining
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Comments:	Yes	No	N/A	· · · · · · · · · · · · · · · · · · ·				
Chain of Custody Present:				1.				
Chain of Custody Filled Out:				2.				
Chain of Custody Relinquished:				3.				
Sampler Name & Signature on COC:				4.	<u></u>			
Sample Labels match COC:				5.				
-Includes date/time/ID Matrix: <u>//</u>	V+					<u></u>		
Samples Arrived within Hold Time:				6.				
Short Hold Time Analysis (<72hr remaining):		/		7.				
Rush Turn Around Time Requested:				8.				
Sufficient Volume:				9.			***	
Correct Containers Used:				10.				
-Pace Containers Used:						,		
Containers Intact:				11.				
Orthophosphate field filtered			/	12.				
Organic Samples checked for dechlorination	1:			13.				
Filtered volume received for Dissolved tests				14.				
All containers have been checked for preservation.			A STATE OF THE STA	15.				
All containers needing preservation are found to be in compliance with EPA recommendation.								
exceptions: VOA coliform, TOC, O&G, Phenoli	cs			Initial when completed	Date/time of preservation			
				Lot # of added preservative				
Headspace in VOA Vials (>6mm):		/		16.				
Trip Blank Present:		/		17.				
Trip Blank Custody Seals Present								
Rad Aqueous Samples Screened > 0.5 mrem/	hr			Initial when completed:	Date:			
Client Notification/ Resolution:								
Person Contacted:			Date/	Time:	Contac	cted By:		
Comments/ Resolution:								

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

 $\ \square$ A check in this box indicates that additional information has been stored in ereports.

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





August 04, 2017

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

RE: Project: HO:Seneca

Pace Project No.: 30225797

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on July 31, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

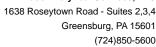
Laura Piulla

(724)850-5616 **Project Manager**

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO:Seneca Pace Project No.: 30225797

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

L-A-B DOD-ELAP Accreditation #: L2417

Alabama Certification #: 41590 Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification

Connecticut Certification #: PH-0694

Delaware Certification

Florida/TNI Certification #: E87683 Georgia Certification #: C040

Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391

Kansas/TNI Certification #: E-10358 Kentucky Certification #: 90133

Louisiana DHH/TNI Certification #: LA140008 Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: PA00091 Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification Missouri Certification #: 235 Nebraska Certification #: NE-05-29-14
Nevada Certification #: PA014572015-1
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282

Montana Certification #: Cert 0082

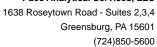
Puerto Rico Certification #: PA01457 Rhode Island Certification #: 65-00282 South Dakota Certification

Tennessee Certification #: TN2867 Texas/TNI Certification #: T104704188-14-8 Utah/TNI Certification #: PA014572015-5 USDA Soil Permit #: P330-14-00213

Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C

Wisconsin Certification

Wyoming Certification #: 8TMS-L

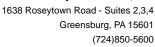




SAMPLE ANALYTE COUNT

Project: HO:Seneca Pace Project No.: 30225797

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory	
30225797001	MW-15	EPA 8260B	JAS	13	PASI-PA	-





PROJECT NARRATIVE

Project: HO:Seneca Pace Project No.: 30225797

Method: EPA 8260B Description: 8260B MSV

Client: Cribbs and Associates

Date: August 04, 2017

General Information:

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

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Surrogates

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

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

Additional Comments:

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



ANALYTICAL RESULTS

Project: HO:Seneca Pace Project No.: 30225797

Date: 08/04/2017 04:09 PM

Sample: MW-15 Lab ID: 30225797001 Collected: 07/31/17 11:25 Received: 07/31/17 16:46 Matrix: Water

Comments: • Trip blank not present in cooler with samples at time of receipt at the lab.

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV	Analytical Meth	nod: EPA 826	0B					
Benzene	ND	ug/L	5.0	1		08/03/17 15:27	71-43-2	
Ethylbenzene	ND	ug/L	5.0	1		08/03/17 15:27	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	1		08/03/17 15:27	98-82-8	
Methyl-tert-butyl ether	ND	ug/L	5.0	1		08/03/17 15:27	1634-04-4	
Naphthalene	ND	ug/L	5.0	1		08/03/17 15:27	91-20-3	
Toluene	ND	ug/L	5.0	1		08/03/17 15:27	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		08/03/17 15:27	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		08/03/17 15:27	108-67-8	
Xylene (Total)	ND	ug/L	5.0	1		08/03/17 15:27	1330-20-7	
Surrogates								
Toluene-d8 (S)	101	%	59-140	1		08/03/17 15:27	2037-26-5	
4-Bromofluorobenzene (S)	100	%	78-117	1		08/03/17 15:27	460-00-4	
1,2-Dichloroethane-d4 (S)	101	%	70-128	1		08/03/17 15:27	17060-07-0	
Dibromofluoromethane (S)	99	%	66-132	1		08/03/17 15:27	1868-53-7	



QUALITY CONTROL DATA

Project: HO:Seneca Pace Project No.: 30225797

Date: 08/04/2017 04:09 PM

QC Batch: 267170 Analysis Method: EPA 8260B

QC Batch Method: EPA 8260B Analysis Description: 8260B MSV UST-WATER

Associated Lab Samples: 30225797001

METHOD BLANK: 1315254 Matrix: Water

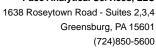
Associated Lab Samples: 30225797001

		Blank	Reporting		0 ""
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	08/03/17 12:33	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	08/03/17 12:33	
Benzene	ug/L	ND	1.0	08/03/17 12:33	
Ethylbenzene	ug/L	ND	1.0	08/03/17 12:33	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	08/03/17 12:33	
Methyl-tert-butyl ether	ug/L	ND	1.0	08/03/17 12:33	
Naphthalene	ug/L	ND	2.0	08/03/17 12:33	
Toluene	ug/L	ND	1.0	08/03/17 12:33	
Xylene (Total)	ug/L	ND	3.0	08/03/17 12:33	
1,2-Dichloroethane-d4 (S)	%	101	70-128	08/03/17 12:33	
4-Bromofluorobenzene (S)	%	97	78-117	08/03/17 12:33	
Dibromofluoromethane (S)	%	100	66-132	08/03/17 12:33	
Toluene-d8 (S)	%	97	59-140	08/03/17 12:33	

LABORATORY CONTROL SAMPLE:	1315255					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L		19.6	98	78-116	
1,3,5-Trimethylbenzene	ug/L	20	19.0	95	77-114	
Benzene	ug/L	20	18.5	92	80-113	
Ethylbenzene	ug/L	20	19.6	98	80-115	
Isopropylbenzene (Cumene)	ug/L	20	19.5	98	78-114	
Methyl-tert-butyl ether	ug/L	20	23.3	116	82-126	
Naphthalene	ug/L	20	21.6	108	61-139	
Toluene	ug/L	20	20.0	100	82-116	
Xylene (Total)	ug/L	60	59.9	100	82-115	
1,2-Dichloroethane-d4 (S)	%			95	70-128	
4-Bromofluorobenzene (S)	%			101	78-117	
Dibromofluoromethane (S)	%			102	66-132	
Toluene-d8 (S)	%			100	59-140	

MATRIX SPIKE & MATRIX SP	IKE DUPLICAT	E: 13152	56		1315257						
	302	225836001	MS Spike	MSD Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
1,2,4-Trimethylbenzene	ug/L	ND	20	20	23.1	23.2	116	116	69-121	0	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	21.5	22.1	108	110	68-118	3	
Benzene	ug/L	ND	20	20	20.8	20.6	104	103	63-123	1	

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





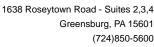
QUALITY CONTROL DATA

Project: HO:Seneca
Pace Project No.: 30225797

Date: 08/04/2017 04:09 PM

			MS	MSD							
	302	225836001	Spike	Spike	MS	MSD	MS	MSD	% Rec		
Parameter	Units	Result	Conc.	Conc.	Result	Result	% Rec	% Rec	Limits	RPD	Qual
Ethylbenzene	ug/L	ND	20	20	22.6	21.5	113	108	70-120	5	
sopropylbenzene (Cumene)	ug/L	ND	20	20	21.7	22.7	108	113	71-129	4	
Methyl-tert-butyl ether	ug/L	ND	20	20	22.2	23.0	111	115	63-143	3	
Naphthalene	ug/L	ND	20	20	23.0	22.7	115	114	55-122	1	
Toluene	ug/L	ND	20	20	21.7	20.9	108	105	66-124	3	
(ylene (Total)	ug/L	ND	60	60	66.7	66.0	111	110	68-123	1	
,2-Dichloroethane-d4 (S)	%						101	96	70-128		
I-Bromofluorobenzene (S)	%						99	100	78-117		
Dibromofluoromethane (S)	%						105	101	66-132		
Toluene-d8 (S)	%						100	102	59-140		

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





QUALIFIERS

Project: HO:Seneca Pace Project No.: 30225797

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

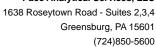
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 08/04/2017 04:09 PM

PASI-PA Pace Analytical Services - Greensburg





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO:Seneca Pace Project No.: 30225797

Date: 08/04/2017 04:09 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30225797001	 MW-15	EPA 8260B	267170		

Face Analytical www.pacelebs.com

CHAIN-OF-CUSTODY / Analytical Request Document The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section C Required Project information: Required Project inf	Page:	Arms andre reference	REGULATORY AGENCY NODES & GROTIND MATER TO DIMENSIONALED	L L	Location	STATE: 1A.	Requested Analysis Filtered (Y/N)		WO#:30225797		pise	IX Pace Project No./ Lab I.D.				Andrews Andrews		DATE SAMPLE CONDITIONS	27 7.27 S				O° ni qmə
Required Project Information: Report To: Copy To: Copy To: Copy To: Copy To: Copy To: Project Name: Project Name: Project Name: WWW WWW Project Name: Composite SAMPLE TYPE: COLLECTED DATE Time DATE DATE Time DATE		e. 6. 6. 6. 5.	and Horociates	4 44 Veltrant File	Course Por		Requested	Î N /A	S SOULECTION	рэvi рэvi I	A CL CO	1/25 3 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1						TIME	13161			AND SIGNATURE	ame of SAMPLER: ALL EN THE OF SAMPLER:
	roject Informatio	Copy To:	\ \ \	William De Contraction of Some of the Contraction	Project Name: #0: Sping	indiana.		O (S)	SORPOSITE CTART TART START	CODE	3J9MA2 FF	7/3//						RELINQUISHED BY / AFFILIATION		For	LINE	SAMPLER NAME	

Sample Condition Upon Rec	elpt f	⊃itts	bur	gh	
Pace Analytical Client Name:	(1	, ~- }	Laites	30 2 2 5 7 9 7 Project #
Client Name.		1 /6	/\ <u>/_</u>		, , , , ,
Courler: Fed Ex UPS USPS Clie	nι [Domn	nercia	Pace Olher _	LabelLiMS Login QVV
Tracking #: Custody Seal on Cooler/Box Present:	- Toronto	STATES OF THE PARTY OF THE PART	C	als Intact: yes	[] no
Thermometer Used	Туре	of Ic	۵/ν/۱	/el Blue None	
Cooler Temperature Observed Temp	-9	- °C	Co	rrection Factor <u></u>	C Final Temp: S. 9 °C
Temp should be above freezing to 6°C					Date and initials of person examining
	Yes	l No	5 N/	Δ	contents: (2)
Comments:	168	147	144		
Chain of Custody Present:				1	
Chain of Custody Filled Oul:		-	+	2.	
Chain of Custody Relinquished:	-	-		3.	
Sampler Name & Signature on COC:	- CONTRACTOR OF THE PARTY OF TH	-	-	4.	
Sample Labels match COC:	-	 		5.	
-Includes date/lime/ID Matrix:	4	1	Ī		·
Samples Arrived within Hold Time:	-	<u> </u>		6.	
Short Hold Time Analysis (<72hr remaining):		- Andrews	<u></u>	7.	
Rush Turn Around Time Requested:		- American	 	8	
Sufficient Volume:	Parameter Control	ļ	-	9.	
Correct Containers Used:		ļ	 		
-Pace Conlainers Used:	-		╀—		
Containers Intact:	of the same		100000	<u> 11.</u>	
Orthophosphate fleld filtered				12,	
Organic Samples checked for dechlorination:	1		and a	13.	
Fillered volume received for Dissolved tests			ALL COMMON TO SERVICE AND ADDRESS OF THE PARTY OF THE PAR	14.	
All containers have been checked for preservation,			Sacratical Section 1	15.	Ì
All containers needing preservation are found to be in compilance with EPA recommendation.					Date/lime of
exceptions: VOA coliform, TOC, O&G, Phenolics				Inilial when completed	preservation
			,	Lot # of added preservative	
Headspace in VOA Vials (>6mm):		CALLED TO SERVICE TO S		16.	
Trip Blank Present:		A STATE OF THE PARTY OF THE PAR		17.	
Frip Blank Cuslody Seals Present					
Rad Aqueous Samples Screened > 0,5 mrem/hr			FERMINE	Initial when completed:	Date:
Client Notification/ Resolution:	11	1			
Person Contacled:			Date/	Time:	Contacted By:
Comments/ Resolution:					
	 .				
		· · · · · · ·			
A check in this box indicates that addit					
lote: Whenever there is a discrepancy affecting North Ca	rolina cor	mpliand	ce sam	ples, a copy of this form wil	be sent to the North Carolina DEHNR
erlification Office (I.e. out of hold, incorrect preservative, PM review is documented electronically in LIMS, When the	OUT OF LET	אמנ מנר	OFFECT	COMBUSELSI	

J:\QAQC\Master\Document Management\Sample Mgt\Sample Condition Upon Recelpt Pittsburgh (C056-5 5.July2017)

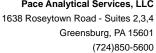
of the Workorder Edit Screen.

Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX G

Laboratory Analytical Results – Soil Vapor





October 18, 2016

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

RE: Project: H.O. Seneca

Pace Project No.: 30198312

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on October 06, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

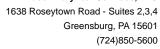
Laura Piulla

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: H.O. Seneca Pace Project No.: 30198312

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

Alaska Certification UST-107
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA

Colorado Certification #Pace Connecticut Certification #: PH-0256 EPA Region 8 Certification #: 8TMS-L Florida/NELAP Certification #: E87605

Guam Certification #:14-008r Georgia Certification #: 959 Georgia EPD #: Pace

Idaho Certification #: MN00064 Hawaii Certification #MN00064 Illinois Certification #: 200011 Indiana Certification#C-MN-01 Iowa Certification #: 368 Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062 Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086 Louisiana DHH #: LA140001 Maine Certification #: 2013011 Maryland Certification #: 322 Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530

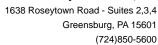
North Carolina State Public Health #: 27700

North Dakota Certification #: R-036

Ohio EPA #: 4150

Ohio VAP Certification #: CL101 Oklahoma Certification #: 9507 Oregon Certification #: MN200001 Oregon Certification #: MN300001 Pennsylvania Certification #: 68-00563

Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970





SAMPLE ANALYTE COUNT

Project: H.O. Seneca Pace Project No.: 30198312

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30198312001	VP-1	TO-15	DR1	10	PASI-M
30198312002	VP-2	TO-15	DR1	10	PASI-M



PROJECT NARRATIVE

Project: H.O. Seneca Pace Project No.: 30198312

Method: TO-15

Description: TO15 MSV AIR
Client: Cribbs and Associates
Date: October 18, 2016

General Information:

2 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

OC Batch: 441418

L3: Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

- LCS (Lab ID: 2402759)
 - Methyl-tert-butyl ether

Additional Comments:

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



ANALYTICAL RESULTS

Project: H.O. Seneca Pace Project No.: 30198312

Date: 10/18/2016 03:41 PM

Sample: VP-1	Lab ID: 301	98312001	Collected: 10/04/	16 16:15	Received: '	10/06/16 08:55	Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
TO15 MSV AIR	Analytical Met	nod: TO-15						
Benzene	0.98	ug/m3	0.65	2.01		10/17/16 00:49	71-43-2	
Ethylbenzene	ND	ug/m3	1.8	2.01		10/17/16 00:49	9 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	5.0	2.01		10/17/16 00:49	9 98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	7.4	2.01		10/17/16 00:49	9 1634-04-4	
Naphthalene	7.2	ug/m3	5.3	2.01		10/17/16 00:49	91-20-3	
Toluene	4.5	ug/m3	1.5	2.01		10/17/16 00:49	9 108-88-3	
1,2,4-Trimethylbenzene	20.0	ug/m3	5.0	2.01		10/17/16 00:49	9 95-63-6	
1,3,5-Trimethylbenzene	10.6	ug/m3	2.0	2.01		10/17/16 00:49	9 108-67-8	
m&p-Xylene	ND	ug/m3	8.9	2.01		10/17/16 00:49	9 179601-23-1	
o-Xylene	ND	ug/m3	4.4	2.01		10/17/16 00:49	95-47-6	
Sample: VP-2 Parameters	Lab ID: 301 Results	Units	Collected: 10/04/	DF	Prepared	10/06/16 08:55 Analyzed	Matrix: Air CAS No.	Qua
TO15 MSV AIR	Analytical Met	nod: TO-15						
Benzene	0.71	ug/m3	0.55	1.68		10/17/16 01:5	1 71-43-2	
Ethylbenzene	ND	ug/m3	1.5	1.68		10/17/16 01:5	1 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.2	1.68		10/17/16 01:5	1 98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	6.2	1.68		10/17/16 01:5°	1 1634-04-4	
Naphthalene	12.8	ug/m3	4.5	1.68		10/17/16 01:5°	1 91-20-3	
	4.1	ug/m3	1.3	1.68		10/17/16 01:5°	1 108-88-3	
Toluene			4.0	1.68		10/17/16 01:5	1 95-63-6	
	5.3	ug/m3	4.2	1.00			. 00 00 0	
Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene	5.3 2.0	ug/m3 ug/m3	4.2 1.7	1.68		10/17/16 01:5		
1,2,4-Trimethylbenzene		•						



QUALITY CONTROL DATA

Project: H.O. Seneca Pace Project No.: 30198312

Date: 10/18/2016 03:41 PM

QC Batch: 441418 Analysis Method: TO-15

QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level

Associated Lab Samples: 30198312001, 30198312002

METHOD BLANK: 2402758 Matrix: Air

Associated Lab Samples: 30198312001, 30198312002

_		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	2.5	10/16/16 17:13	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	10/16/16 17:13	
Benzene	ug/m3	ND	0.32	10/16/16 17:13	
Ethylbenzene	ug/m3	ND	0.88	10/16/16 17:13	
Isopropylbenzene (Cumene)	ug/m3	ND	2.5	10/16/16 17:13	
m&p-Xylene	ug/m3	ND	4.4	10/16/16 17:13	
Methyl-tert-butyl ether	ug/m3	ND	3.7	10/16/16 17:13	
Naphthalene	ug/m3	ND	2.7	10/16/16 17:13	
o-Xylene	ug/m3	ND	2.2	10/16/16 17:13	
Toluene	ug/m3	ND	0.77	10/16/16 17:13	

LABORATORY CONTROL SAMPLE:	2402759					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	62.7	125	57-143	
1,3,5-Trimethylbenzene	ug/m3	50	61.4	123	54-147	
Benzene	ug/m3	32.5	35.9	110	62-141	
Ethylbenzene	ug/m3	44.2	53.2	120	59-149	
Isopropylbenzene (Cumene)	ug/m3	50	56.5	113	65-150	
m&p-Xylene	ug/m3	88.3	112	126	59-146	
Methyl-tert-butyl ether	ug/m3	91.6	126	138	64-135	CH,L3
Naphthalene	ug/m3	53.3	65.1	122	46-146	
o-Xylene	ug/m3	44.2	56.6	128	54-149	
Toluene	ug/m3	38.3	47.8	125	61-138	

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

(724)850-5600



QUALIFIERS

Project: H.O. Seneca Pace Project No.: 30198312

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

L3

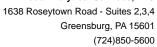
PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

Date: 10/18/2016 03:41 PM

The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased CH

Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: H.O. Seneca Pace Project No.: 30198312

Date: 10/18/2016 03:41 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30198312001	VP-1	TO-15	441418		
30198312002	VP-2	TO-15	441418		

DATE Signed (MM / DD / YY)

V 10120

SIGNATURE of SAMPLER:

Face Analytical www.pacelabs.com

WO#:30198312 AIR: CHAIN-OF-CUSTODY //

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant

N/Y Jostni selqmeS N/A Clean Air Act SAMPLE CONDITIONS Other Pace Lab ID Reporting Units
ug/m³ mg/m³
PPBV PPMV ŏ Sealed Cooler 8 N/A N/A JAY. N/A RCRA Page: Other 90| risid mone ston ØΥ N/Y N/A N/X Received on Emissions Dry Clean 4 D° ni qmeT ≥ 28963 y Program at a 父ろろ Superfund Voluntary Clean Up Location of Sampling by State Report Level DATE 10-5-16 **™**UST Method: Control Number ACCEPTED BY / AFFILIATION 500 いったのと Delinert PA 15626 ξŲ, Number Summa 3 O O Pace Project Manager/Sales Rep. Pd (2 SAMPLER NAME AND SIGNATURE (Final Field - psig) 3 300 Canister Pressure TIME C1,605 0855 2000 Company Name: 30 (Initial Field - psig) Canister Pressure 955 10/4/16 1620 DATE 10/4/10 950 10/4/16 1615 TIME 6000 Address: COLLECTED DATE Pace Profile #: RELINQUISHED BY / AFFILIATION Section C Attention: TIME 10/4/16 DATE Project Name;
Project Number: PID Reading (Client only) Report To: Gary Cribbs Gary Cubbs 3 Section B Required Project Information: MEDIA CODE MEDIA
Tediar Bag TB
1 Liter Summa Can 1LC
ELiter Summa Can 6LC
Low Volume Puff LVP
High Volume Puff HVP
Other PM10 Purchase Order No.: Copy To: Analyze for PADED
New Sheltlist for OHORA PAROED Ernall 10. C C ribbs ond seccustos, C. Pax 'Section D Required Client Information Company.
Addipse: Addipse: 100. Requested Due Date/TAT: 5/3 1/3/1/ Sample IDs MUST BE UNIQUE PA 15626 AIR SAMPLE ID Section A Required Client Information: Pagus Fors Phone: 754 7.310 4-07 DelnowT 2 Comments: # MaTI

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414 Air Technical Phone: 612.607.6386

Page 9 of 10

Sample Condition Upon Receipt Pittsburgh Păce Analytical Cribbs Project # 30 198312 Client Name: Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☐ Pace Other Tracking #: Custody Seal on Cooler/Box Present: ☐ yes Seals intact: ☐ yes ☐ no Type of Ice: Wet Blue (None) Thermometer Used °C Final Temp: Correction Factor: **Cooler Temperature** Observed Temp Temp should be above freezing to 6°C Date and Initials of person examining contents: N/A Yes No Comments: Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: Samples Arrived within Hold Time: Short Hold Time Analysis (<72hr remaining): Rush Turn Around Time Requested: Sufficient Volume: 10. Correct Containers Used: -Pace Containers Used: Containers Intact: 12, Filtered volume received for Dissolved tests All containers needing preservation have been checked. 13. All containers needing preservation are found to be in compliance with EPA recommendation. Date/time of Initial when 🖊 exceptions: VOA, coliform, TOC, O&G, Phenolics completed (preservation Lot # of added preservative 14. Headspace in VOA Vials (>6mm): 15. Trip Blank Present: Trip Blank Custody Seals Present Rad Aqueous Samples Screened > 0.5 mrem/hr Initial when Date:

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

Client Notification/ Resolution:

Person Contacted: _____ Comments/ Resolution:

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

Date/Time: _____ Contacted By:

(724)850-5600



May 23, 2017

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

RE: Project: HO:Seneca

Pace Project No.: 30218183

Dear Mr. Cribbs:

Enclosed are the analytical results for sample(s) received by the laboratory on May 08, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Revision 1. This report replaces the 5-18-17 report. Report revised 5/23/17 to include a revised subcontracted report from Pace MN.

This report was revised on May 22, 2017 per client request to report the short TO-15 compound list.

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

Sincerely,

Laura M. Pirilla

laura.pirilla@pacelabs.com

Laura Piulla

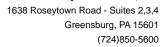
(724)850-5616

Project Manager

Enclosures

cc: Bob Botterman, Cribbs and Associates







CERTIFICATIONS

Project: HO:Seneca Pace Project No.: 30218183

Minnesota Certification IDs

1700 Elm Street SE, Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01 Alabama Certification #: 40770

Alaska Contaminated Sites Certification #: UST-078

Alaska DW Certification #: MN00064
Arizona Certification #: 88-0680
California Certification #: MN00064
CNMI Saipan Certification #: MN00064
CNMI Saipan Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida Certification #: E87605
Georgia Certification #: 959

Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 868
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064

Maryland Certification #: 322

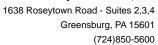
Michigan Certification #: 9909

Minnesota Certification #: 027-053-137
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647

North Carolina DW Certification #: 27700
North Carolina DW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507

Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia WW Certification #: 382
Wisconsin Certification #: 999407970

Wyoming via EPA Region 8 Certification #: 8TMS-L

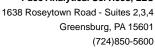




SAMPLE ANALYTE COUNT

Project: HO:Seneca Pace Project No.: 30218183

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30218183001	VP-1	TO-15	EMC	10	PASI-M
30218183002	VP-2	TO-15	EMC	10	PASI-M





PROJECT NARRATIVE

Project: HO:Seneca Pace Project No.: 30218183

Method: TO-15

Description: TO15 MSV AIR **Client:** Cribbs and Associates

Date: May 23, 2017

General Information:

2 samples were analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

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

Initial Calibrations (including MS Tune as applicable):

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

Continuing Calibration:

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

Internal Standards:

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

Method Blank:

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

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Duplicate Sample:

All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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



ANALYTICAL RESULTS

Project: HO:Seneca Pace Project No.: 30218183

Date: 05/23/2017 09:47 AM

Sample: VP-1	Lab ID: 302	18183001	Collected: 05/03/	17 18:30	Received: 0	5/08/17 09:00	Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
TO15 MSV AIR	Analytical Met	nod: TO-15						
Benzene	0.51	ug/m3	0.50	1.55		05/13/17 01:52	2 71-43-2	
Ethylbenzene	ND	ug/m3	1.4	1.55		05/13/17 01:5	2 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	3.9	1.55		05/13/17 01:5	2 98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	5.7	1.55		05/13/17 01:5	2 1634-04-4	
Naphthalene	ND	ug/m3	4.1	1.55		05/13/17 01:52	2 91-20-3	
Toluene	2.7	ug/m3	1.2	1.55		05/13/17 01:52	2 108-88-3	
1,2,4-Trimethylbenzene	4.0	ug/m3	1.5	1.55		05/13/17 01:52	2 95-63-6	
1,3,5-Trimethylbenzene	1.8	ug/m3	1.5	1.55		05/13/17 01:52	2 108-67-8	
m&p-Xylene	3.3	ug/m3	2.7	1.55		05/13/17 01:5	2 179601-23-1	
o-Xylene	1.6	ug/m3	1.4	1.55		05/13/17 01:5	2 95-47-6	
Sample: VP-2	Lab ID: 302	18183002	Collected: 05/03/	17 18:35	Received: 0	5/08/17 09:00	Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qua
TO15 MSV AIR	Analytical Met	nod: TO-15				•	•	
Benzene	1.1	ug/m3	0.52	1.61		05/13/17 02:23	3 71-43-2	
Ethylbenzene	ND	ug/m3	1.4	1.61		05/13/17 02:23	3 100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.0	1.61		05/13/17 02:23	3 98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	5.9	1.61		05/13/17 02:23	3 1634-04-4	
Naphthalene	4.5	ug/m3	4.3	1.61		05/13/17 02:23	3 91-20-3	
Talinana	F 0	ug/m3	1.2	1.61		05/13/17 02:23	3 108-88-3	
roluene	5.0	ug,c				05/40/47 00 0		
	5.0 4.3	ug/m3	1.6	1.61		05/13/17 02:23	3 95-63-6	
1,2,4-Trimethylbenzene		-	1.6 1.6	1.61 1.61		05/13/17 02:23		
Toluene 1,2,4-Trimethylbenzene 1,3,5-Trimethylbenzene m&p-Xylene	4.3	ug/m3				05/13/17 02:23		



QUALITY CONTROL DATA

Project: HO:Seneca Pace Project No.: 30218183

Date: 05/23/2017 09:47 AM

QC Batch: 473462 Analysis Method: TO-15

QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level

Associated Lab Samples: 30218183001, 30218183002

METHOD BLANK: 2582521 Matrix: Air

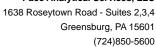
Associated Lab Samples: 30218183001, 30218183002

		Blank	Reporting		
Parameter	Units	Result	Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	05/12/17 16:00	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	05/12/17 16:00	
Benzene	ug/m3	ND	0.32	05/12/17 16:00	
Ethylbenzene	ug/m3	ND	0.88	05/12/17 16:00	
Isopropylbenzene (Cumene)	ug/m3	ND	2.5	05/12/17 16:00	
m&p-Xylene	ug/m3	ND	1.8	05/12/17 16:00	
Methyl-tert-butyl ether	ug/m3	ND	3.7	05/12/17 16:00	
Naphthalene	ug/m3	ND	2.7	05/12/17 16:00	
o-Xylene	ug/m3	ND	0.88	05/12/17 16:00	
Toluene	ug/m3	ND	0.77	05/12/17 16:00	

LABORATORY CONTROL SAMPLE:	2582522					
		Spike	LCS	LCS	% Rec	
Parameter	Units	Conc.	Result	% Rec	Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	51.5	49.0	95	70-136	
1,3,5-Trimethylbenzene	ug/m3	51.5	51.0	99	70-133	
Benzene	ug/m3	34.7	33.9	97	70-130	
Ethylbenzene	ug/m3	47.7	44.0	92	70-134	
Isopropylbenzene (Cumene)	ug/m3	51.5	44.7	87	70-140	
m&p-Xylene	ug/m3	47.7	44.8	94	70-130	
Methyl-tert-butyl ether	ug/m3	38.8	35.0	90	66-148	
Naphthalene	ug/m3	56	40.6	73	53-150	
o-Xylene	ug/m3	47.2	42.5	90	70-130	
Toluene	ug/m3	41.4	37.8	91	70-130	

SAMPLE DUPLICATE: 2585226					
		10387901022	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	1.8	1.8	1	
1,3,5-Trimethylbenzene	ug/m3	ND	ND		
Benzene	ug/m3	1.7	1.8	5	
Ethylbenzene	ug/m3	ND	ND		
Isopropylbenzene (Cumene)	ug/m3	ND	ND		
m&p-Xylene	ug/m3	ND	ND		
Methyl-tert-butyl ether	ug/m3	ND	ND		
Naphthalene	ug/m3	ND	ND		
o-Xylene	ug/m3	ND	ND		
Toluene	ug/m3	ND	ND		

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





QUALITY CONTROL DATA

Project: HO:Seneca Pace Project No.: 30218183

Date: 05/23/2017 09:47 AM

SAMPLE DUPLICATE: 2585227					
		10387901023	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	2.0	2.0	0	
1,3,5-Trimethylbenzene	ug/m3	ND	ND		
Benzene	ug/m3	0.78	0.82	5	
Ethylbenzene	ug/m3	ND	ND		
Isopropylbenzene (Cumene)	ug/m3	ND	ND		
m&p-Xylene	ug/m3	ND	2.2J		
Methyl-tert-butyl ether	ug/m3	ND	ND		
Naphthalene	ug/m3	ND	ND		
o-Xylene	ug/m3	ND	ND		
Toluene	ug/m3	2.0	2.0	2	

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

(724)850-5600





QUALIFIERS

Project: HO:Seneca Pace Project No.: 30218183

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

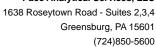
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

Date: 05/23/2017 09:47 AM

PASI-M Pace Analytical Services - Minneapolis





QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: HO:Seneca Pace Project No.: 30218183

Date: 05/23/2017 09:47 AM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30218183001	VP-1	TO-15	473462		
30218183002	VP-2	TO-15	473462		

WO#:30218183



Analytical Request Document

fields must be completed accurately.

Page: f of	/ Program ZLIST Superfund Emissions Clean Air Act Voluntary Clean Up Dry Clean RCRA Other	Method: Met	SAMPLE CONDITIONS N. * \$78117 GGC Custody Y/N
Section C Section C Invoice Information:	5	COLLECTED COMPAGE START COMPAGE ST	RELINGUISHED BY JAFFILIATION - DATE. TIME & ACCEPTED BY JAFFILIATION! DATE TIME AND The CINES THESE STATES ACCEPTED BY JAFFILIATION! DATE: TIME FINAL THE SAMPLER NAME AND SIGNATURE STATES AND THE SIGNATURE STATES AND THE SIGNATURE STATES AND THE STATES AND TH
Section A Section B Required Prefet Information.	Required Clern information. Company: Company: Address: PO B 0 × 4 4 DE 1 1 0 × 7 6 4 156 2 6 Email To: Co. 1 bb 2 0 Cr. 1 bb 2 not 2 50 custe 8 cm Project Name: HO: Sene Requested Due Date(TA): Requested Due Date(TA): Company: Copy To: opy To: Co	Section D Require AIR SA Sample IDs ML V f - J V f - J	Comments:

Sample Condition Upon Receipt Pittsburgh

30218183

Temp should be above freezing to 6°C Comments: Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Date a cont 1. 2. 4.	nal Temp: Condition of person examining onto: 17
Custody Seal on Cooler/Box Present: yes no Seals intact: yes no Thermometer Used	nar remp.
Thermometer Used Cooler Temperature Observed Temp Temp should be above freezing to 6°C Comments: Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Sample Labels match COC: Type of Ice: Wet Blue (None) C Correction Factor: °C Filled Control Filled Control Factor: °C Filled Control Factor: °	nar remp.
Cooler Temperature Observed Temp °C Correction Factor: °C Fit Temp should be above freezing to 6°C Comments: Yes No N/A Chain of Custody Present: 1. Chain of Custody Filled Out: 2. Chain of Custody Relinquished: 3. Sampler Name & Signature on COC: 4. Sample Labels match COC: 5.	nar remp.
Temp should be above freezing to 6°C Comments: Yes No N/A Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Sample Labels match COC: Date a control Yes No N/A 1. 2. 4. 5.	nd Initials of person examining ents: 11 7 7 7 17
Comments: Yes No N/A Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Sample Labels match COC: Sometimes No N/A 1. 2. 4. 5.	nd Initials of person examining ants: (1011)
Comments: Yes No N/A Chain of Custody Present: Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Sample Labels match COC: Sometimes No N/A 1. 2. 4. 5.	
Chain of Custody Filled Out: Chain of Custody Relinquished: Sampler Name & Signature on COC: Sample Labels match COC: 2. 3. 4. 5.	
Chain of Custody Relinquished: Sampler Name & Signature on COC: Sample Labels match COC: 5.	
Sampler Name & Signature on COC: Sample Labels match COC: 4. 5.	
Sample Labels match COC: 5.	
Includes data/time/ID Matrix:	
"Hordoes date/tille/ID Mattis. [[]]	
Samples Arrived within Hold Time: 6.	
Short Hold Time Analysis (<72hr remaining): 7.	
Rush Turn Around Time Requested: 8.	
Sufficient Volume: 9.	
Correct Containers Used:	
-Pace Containers Used:	
Containers Intact:	
Orthophosphate field filtered 12.	
Organic Samples checked for dechlorination: 13.	
Filtered volume received for Dissolved tests 14.	
All containers have been checked for preservation, 15.	
All containers needing preservation are found to be in compliance with EPA recommendation.	
exceptions: VOA, coliform, TOC, O&G, Phenolics Initial when Date/time of completed D1 A preservation	
Lot # of added	
preservative	
Headspace in VOA Vials (>6mm): 16.	
Trip Blank Present:	İ
Trip Blank Custody Seals Present Rad Aqueous Samples Screened > 0.5 mrem/hr Initial when	
Completed: Date:	
Client Notification/ Resolution:	. 15
Total Odnasod.	acted By:
Comments/ Resolution:	
A check in this box indicates that additional information has been stored in ereports.	

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

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

Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX H

Sensitive Receptor Review

PENNSYLVANIA GROUNDWATER INFORMATION SYSTEM APPENDIX H

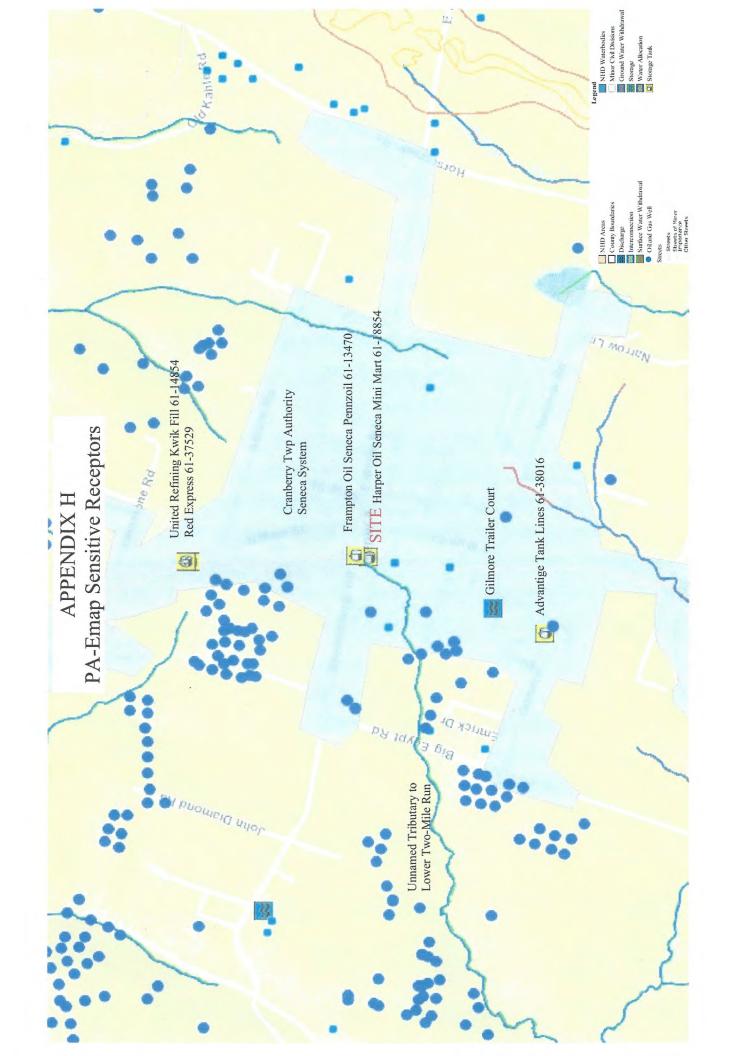
Harper Oil Company/Heath Oil, Inc., Seneca Mini Mart Seneca, Venango Co., Pennsylvania

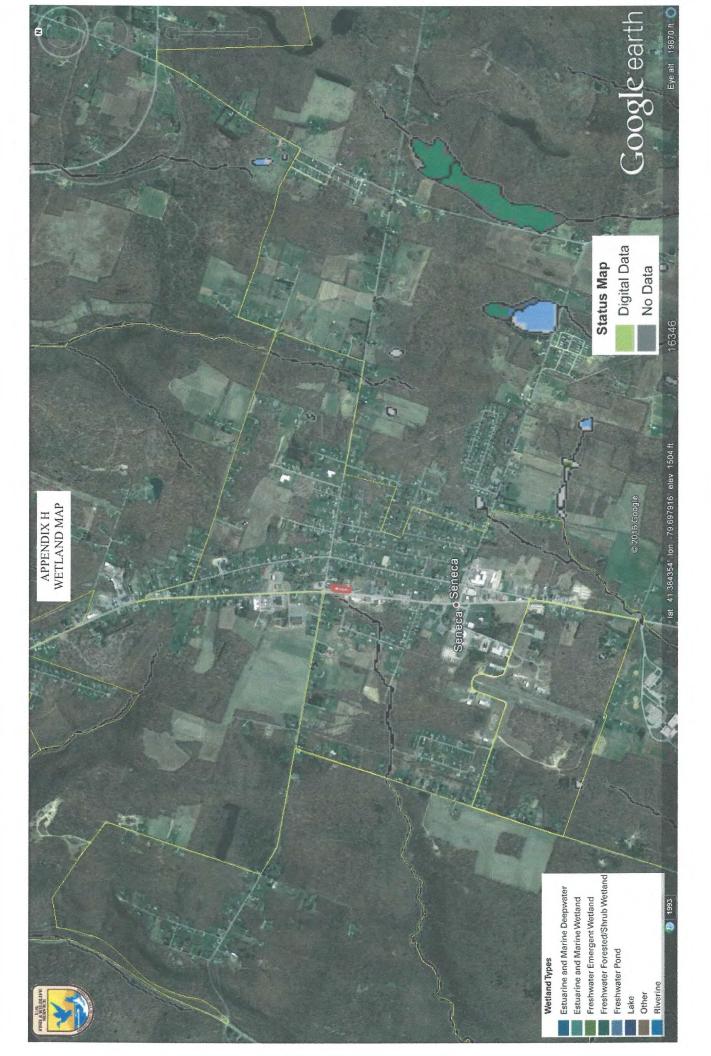
Lat: 41.385181°

Long: -79.702821° Radius 1.0 Mile

	Direction												wsw	SW	NW	ш	*	SE	S	SW
		ite	Site	Site	ite	Site	Site	ite	Site	Site	ite	ite								
	Distance from Site	On Site	on s	on s	On Site	on s	on s	On Site	on s	On S	On Site	On Site	3,550	C 4,100	NL 200	3,400	C 1,400	3,600	700	2,300
	Water Use	OTHER	ОТНЕВ	ОТНЕВ	OTHER	OTHER	ОТНЕВ	ОТНЕВ	ОТНЕВ	OTHER	ОТНЕВ	ОТНЕВ	DOMESTIC	DOMESTIC	INDUSTRIAL	DOMESTIC	DOMESTIC	DOMESTIC	SUPPLY	PUBLIC
	Well Use	MONITORING	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	WITHDRAWAL	TEST	WITHDRAWAL										
	Length of Test (min)												09			120	09		48	
	Water Level After Yield Test (ft)												84			100	166	18	80	
	Static Water Level (ft)							7					74			73	116	18	05	
	Well Yield (gpm)												30			10	18	4	100	139
	Yield Measurement Method												BAILER	UNKNOWN	UNKNOWN	BAILER	BAILER	BAILER	ORIFICE	NOT KNOWN
	Bedrock Not Reached	True	False	False	False	False	False	False												
	Depth to Bedrock (ft)												0	7	6	2	0	16	8	
	Well I Depth (ft)	10.5	10	10	12.5	16	10	10	8	8	8	8	104	105	30	160	236	56.5	357	357
IVIIIC	Original Owner	Heath Oil Inc.	Heath Oil Company	WHITLING	BOYCE	TOWNSHIP BUILDING	VANDERMARK JR	GRAHAM	REX	CRANBERRY TWP	CRANBERRY VENANGO CO GENL AUTH									
radius 1.0 millo	Driller	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	CRIBBS & ASSOCIATES INC.	HARRY BROS INC	KARLS COMPLETE WATER SYS CO	KARLS COMPLETE WATER SYS CO	HARRY BROS INC	HARRY BROS INC	L M MELAT	MOODY AND ASSOCIATES INC	
	Local Well ID	MW-7	MW-11	Mw-10	6-WM	MW-8	MW-6	MW-5	MW-4	MW-3	MW-2	MW-1	X 0934	X 0729	X 0728	X 0347	X 0345	0900 X	1218N	
	Longitude DD	-79.70263	-79.70299	-79.7029	-79.70289	-79.70259	-79.70296	-79.70282	-79.70291	-79.70292	-79.70294	-79.70294	-79.71583	-79.71722	-79.70333	-79.69028	-79.70806	-79.69611	-79.70361	-79.71139
	Latitude DD	41.38544	41.38476	41.38547	41.3849	41.38511	41.38499	41.38518	41.38538	41.38523	41.38523	41.3851	41.38389	41.38083	41.38583	41.38389	41.38611	41.37583	41.38278	41.3825
	Municipality	CRANBERRY TWP.	CRANBERRY TWP.	CRANBERRY TWP.	CRANBERRY TWP.	CRANBERRY TWP.	CRANBERRY TWP.	CRANBERRY TWP.	CRANBERRY TWP.											
	Quad Name	OILCITY	OILCITY	OILCITY	OIL CITY	OILCITY	OILCITY	OIL CITY	OILCITY	OIL CITY	OIL CITY	OILCITY	OILCITY	OILCITY	OILCITY	OILCITY	OIL CITY	OILCITY	OIL CITY	OIL CITY
	County	VENANGO	VENANGO	VENANGO	VENANGO	VENANGO	VENANGO	VENANGO	VENANGO											
	Well Zip Code	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346	16346		
	Well Address		3364 State Route 257	106 E State Rd	3364 State Route 257	105 E State Rd	3364 State Route 257	3390 State Route 257	3390 State Route 257	3390 State Route 257	3390 State Route 257	3390 State Route 257	Big Egypt Rd Cranberry Pa	Big Egypt Rd Cranberry Pa	3726 State Route 257 Cranberry Pa	E State Rd Cranberry Pa	Bredinsburg Rd Cranberry Pa	R. D. 1 Meadow Road Seneca		
	Type of Activity	NEW WELL	NEW WELL	NEW WELL	NEW WELL	NEW WELL	NEW WELL	NEW WELL												
	PA Well ID Date Drilled	10/17/2016	10/17/2016	10/17/2016	10/18/2016	11/1/2016	10/17/2016	7/8/2016	7/8/2016	7/8/2016	7/8/2016	7/8/2016	3/1/1979	12/19/1979	8/22/1974	2/6/1973	3/8/1976	12/14/1966	9/1/1981	
	PA Well ID	646611	646609	646590	646571	646570	646557	643202	643159	643158	643157	643156	145310	145266	145265	145242	145240	145206	145111	254034







Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX I

PNDI Environmental Review

1. PROJECT INFORMATION

Project Name: **HO Seneca Mini Mart**Date of Review: **4/12/2017 01:22:53 PM**

Project Category: Hazardous Waste Clean-up, Site Remediation, and Reclamation, Spill (e.g., oil, chemical)

Project Area: **0.78 acres** County(s): **Venango**

Township/Municipality(s): CRANBERRY

ZIP Code: 16346

Quadrangle Name(s): OIL CITY

Watersheds HUC 8: Middle Allegheny-Tionesta

Watersheds HUC 12: Lower Twomile Run-Allegheny River

Decimal Degrees: 41.385068, -79.702750

Degrees Minutes Seconds: 41° 23' 6.2460" N, 79° 42' 9.9008" W

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Project Search ID: PNDI-612532

HO Seneca Mini Mart

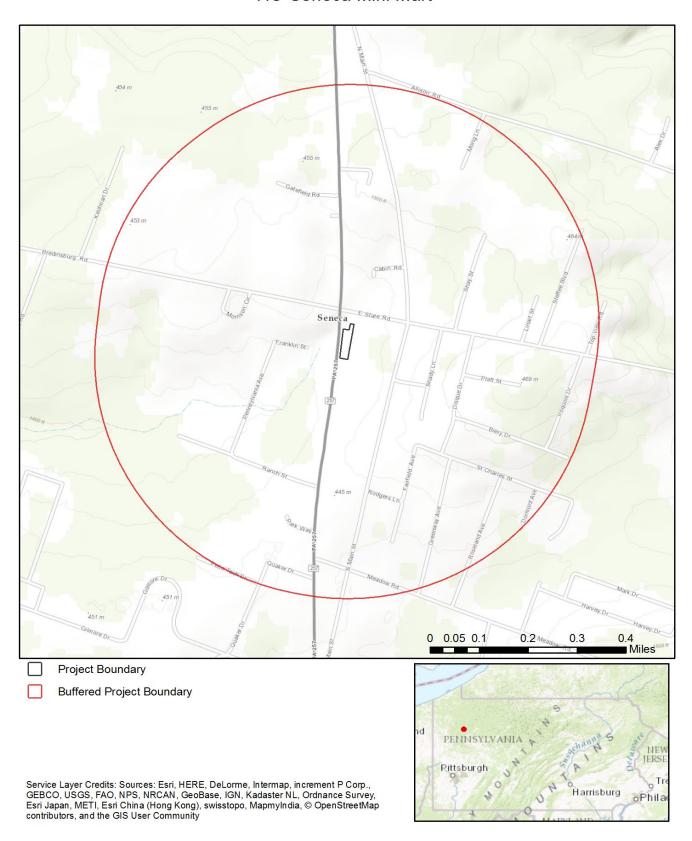


Project Boundary

Buffered Project Boundary

Service Layer Credits: Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user

HO Seneca Mini Mart



3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jurisdictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

Project Search ID: PNDI-612532

Project Search ID: PNDI-612532

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section 400 Market Street, PO Box 8552 Harrisburg, PA 17105-8552 Email: RA-HeritageReview@pa.gov

PA Fish and Boat Commission

Company/Business Name:__

Name:

Address:

Division of Environmental Services 450 Robinson Lane, Bellefonte, PA 16823 Email: RA-FBPACENOTIFY@pa.gov

U.S. Fish and Wildlife Service

Pennsylvania Field Office Endangered Species Section 110 Radnor Rd; Suite 101 State College, PA 16801 NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat
Protection

2001 Elmerton Avenue, Harrisburg, PA 17110-9797

Email: RA-PGC PNDI@pa.gov

NO Faxes Please

7. PROJECT CONTACT INFORMATION

Cribbs & Associates, Inc.

P.O. Box 44

Robert R. Botterman

City, State, Zip: Delmont, PA 13020	
Phone:(<u>412</u>) 780-3094 Fax:(
Email: bbotterman@cribbsandassociates.com	
8. CERTIFICATION	
I certify that ALL of the project information contained in	this receipt (including project location, project
size/configuration, project type, answers to questions)	is true, accurate and complete. In addition, if the project type,
location, size or configuration changes, or if the answe	ers to any questions that were asked during this online review
change, I agree to re-do the online environmental review	₽W.
Robot Butturn	
por & Tween	April 13, 2017
applicant/project proponent signature	date

Site Characterization Report Seneca Mini Mart

Seneca, Pennsylvania

APPENDIX J

Fate and Transport Models (Quick Domenico)

Appendix J

	Project		Seneca Mini Mart
	Contaminant and Well ID		Benzene, MW-3
Date	7/26/2017	Prepared By	RRB
<u> </u>	5 6 14		_
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)
КОС	Organic Carbon Partition Coefficent	58	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

Appendix JQuick Domenico Fate and Transport Modeling

Seneca Mini-Mart 3390 State Route 257 Seneca, Pennsylvania

Concentration Az Contentinent: Benzene, MW-3	ADVECTIVE IN	Sanaca Mini Mari	IH IHKEE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	RDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	_ _	_	
Contaminant Benzene, MW3 Contaminant Benzene, MW3	Date:	7/26/2017	red by:	RRB	Benzene, MV	V-3						
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(ft) (ft)	SOURCE	Ax	Ay	Az		SOURCE	SOURCE	Time (days)		SPREADSHEET,	APPLICATION OF	
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Concentration Creating Concentration Creating	17.8			1.07E+00	0.000959	02	9			DECAYING CONTA	AMINANT SPECIES"	
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Concentration Porosity Glock frac.) Glock f	nyaraunc	nyaraunc 		Soli Bulk			Retaru-	\(\frac{1}{2}\)				
Concentration Concentratio	Cond	Gradient		Density (g/cm³)	KOC		ation (R)	(=K*i/n*R)				
Table Tabl	1,10E+00	(1011)	0.35		58	5.00E-03	2,427214286	(Inday				
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X(ft) V(ft) Z(ft) D C C C C C C C C C					00.61		1		•			ield Data
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		Distance fro	m Source		0	85						

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IBRATION TOOL		NEW QUICK_DOMENICO.XLS	SPREADSHEET APPLICATION OF	"AN ANALYTICAL MODEL FOR		DECAY	P.A. Domenico (1987)	Modified to Include Retardation			3		Centerline Plot (log)		Model • Model		1,000		00	110	-	•	-	0 1000	distance	073	05/ 040	2 0.001 0.001 0.000 1 0.006 0.003 0.002	0.010 0.005	1 0.006 0.003 0.002	0.001 0.001	0 0 0 0	0 0 0 0
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Page 3 of 7

ADVECTIVE TR	SANSPORT WITH THE	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISP	ENSIONAL DISPE	RSION,1ST (ORDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	SRATION TOO	_	_	
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1.10E+00	0.079	0.35	1.7225	28	5.00E-03	2.427214286	0.10266443				
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125						0.021				0.002	
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	Distance from Source	om Source		0	98	0	0	0	0	0	

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ADVECTIVE TR Project: Date:	Seneca Mini Mari	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISF Project: Seneca Mini Mart Date: 7/26/2017 Prepared by: RRB Contaminant: Renzene MW-		RSION,1ST ORE Benzene, MW-3	ORDER DECAN	/ and RETARDA	ERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL Benzene, MW-3 3	BRATION TOC		NEW OULICK DOMENICO X IS	
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(MG/L)	1.07E+02	1.07E+01	001 1.07E+00	day-1	(ft) 70	(ft) 6	0082		MULTIDIMENSIO DECAYING CON	MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES"	JF A S''
				0.00000	2				P.A. Don	P.A. Domenico (1987)	
Hydraulic Cond	Hydraulic Gradient	Porosity	Soil Bulk Density	КОС	Frac. Org. Carb.	Retard- ation	V (=K*i/n*R)		Modified to Ir	Modified to Include Retardation	_
(ft/day)	(ft/ft)	(;				(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	58	5.00E-03	2.427214286	0.10266443				
oint Conc€	entration				Centerline Plot (linear)	ot (linear)		ŏ	Centerline Plot (log)	log)	
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125					0.035	0.021	0.013			0.003	
0			0.348			0.045	0.024			0.004	
-125						0.021				0.003	
-250		0.000	0.001	0.002		0.002	0.002	0.001	0.001	0.001	
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											١

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Appendix JQuick Domenico Fate and Transport Modeling

Seneca Mini-Mart 3390 State Route 257 Seneca, Pennsylvania

TION TOOL		NEW QUICK_DOMENICO.XLS	SPBEADSHEFT APPLICATION OF	"AN ANALYTICAL MODEL FOR	MULTIDIMENSIONAL TRANSPORT OF A	DECAYING CONTAMINANT SPECIES"	P.A. Domenico (1987)	Modified to Include Retardation				Centerline Plot (log)	Mandal	Output	and C. C. C. C. C. C. C. C. C. C. C. C. C.	Lield Data		•	•	•	•		. 500 1000	distance		640 720 800	0.001	0.005	0.013 0.008 0.004	0.008 0.005 0.003	0.001 0.001 0.001	0 0 0	0 0 0
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	KKB E	Benzene, MW-3	7		001	1.07E+00		Soil Bulk	Density	(g/cm²/	5 1.7225						z(ft)	7 0	7 7 7	1.348	mg/I	Z								3 0.085	0.001	uc	
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TRANSPORT WITH	7/26/2017		>	€ €	(2.1)	.8 1.07E+02		Hydraulic	Gradient	(ft/ft)	0.079	centration	y(ft)		107		x(ft)	1	91.			AREAL	MODEL	Length (ft)	Width (ft)	}			0 2.380	25 0.058	50 0.000		Distance f
ADVECTIVE :	Date:		a Jailos		(MG/L)	17.8		Hydraulic	Cond	(ft/day)	1.10E+00	Point Con	x(ft) y(ft))[Conc. At	at								250	125		-125	-250	Field Data:	

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Appendix JQuick Domenico Fate and Transport Modeling

Seneca Mini-Mart 3390 State Route 257 Seneca, Pennsylvania

ADVECTIVE TH	RANSPORT WITH THI	TH THREE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	ORDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	_	_	
Date:	7/26/2017	red by:	RRB	Benzene, MW-3	V-3						
			ene, MW-3						NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax		Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)			WIDTH	THICKNESS	(days)		"AN ANALYTIC	"AN ANALYTICAL MODEL FOR	
(MG/L)			>=.001	day-1	(ft)	(ft)			MULTIDIMENSIONAL TRANSPORT OF A	IAL TRANSPORT OI	⋖ :
17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	02	9	10950		DECAYING CONT.	DECAYING CONTAMINANT SPECIES"	=
0:11:0:10:1	O:Incapril		7 - - - - - - - - - - - - -		003	7,010			P.A. Dome Modified to Inc	P.A. Domenico (1987) Modified to Include Retardation	
nyaraunc	nyar auric		Soll Bulk			retaru-	>				
Cond	Gradient		Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
1,10F±00	_	(dec. 11ac.)		58	5.00F-03	2,427214286	_	T			
				3							
Doint Conc	ontration				Centerline Plot (linear)	ot (linear)		Ö	Centerline Plot (log)	(50	
	בוונו מנוסוו							•		ĺ.	
x(ft) y(ft)	y(rt)	z(ft)		20.00		†	Model 100.000	0		•	Model
107	10.7	1.07		7 7			10.000				
				00.61		1	Field Data 7 000	•		1	Field Data
	x(ft)	y(ft)	z(ft)	ol S					,		
Conc. At	107	10.7	0	103			0.100		•		
at	10950 days	days =	97.1				c 0.010		•		
			1.548	100°C				-		•	
			mg/l	0		•	0.00			•	
	AREAL	CALCULATION		+ 00.00			0000		-	•	_
		DOMAIN		0		500 1000	□ 0	0	200	7	1000
	Length (ft)	800			dist	distance			distance		
	VVIGUI (11)		240	350	400	480	260	640	062	008	
020				070	2000			010	67.	1000	
125				0.057	0.035					0.003	
0			0.348	0.167	0.085			0.013		0.004	
-125	0.058	0.106	0.085	0.057	0.035	120.0	0.013	0.008	0.005	0.003	
-250	0.000	0.000	0.001	0.002	0.003	0.002	0.002	0.001	0.001	0.001	
Field Data:	Centerline C	Centerline C Concentration	u	17.8	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	98	0	0	0	0	0	

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Appendix J

	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 is 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 Coefficent	58	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

ATION TOOL			NEW QUICK_DOMENICO.XLS	SPREADSHEET APPLICATION OF	"AN ANALYTICAL MODEL FOR	MULTIDIMENSIONAL TRANSPORT OF A	DECAYING CONTAMINANT SPECIES"	P.A. Domenico (1987)	Modified to fincinge Netariation					Centerline Plot (log)		Model	Output	Field Data				•		• • • •	0 50 100 150 200	distance			0000	0.000	0.000 0.000 0.000	0.000 0.000 0.000	0.000 0.000 0.000		
ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL				Time (days)	(days)		365		^	(=K*i/n*R)	(ft/da	0.004349289	I			— Model 100.000		— Field Data 1.000	0.100	Onc.) () ()	0.001	0.000	0.000							00000	0.000	0.000		
AY and RETARDA				SOURCE	THICKNESS	(ft)	9 02		Retard-	ation		3 2.427214286		Centerline Plot (linear)		†		1						†	100 200	distance		90 108	0000 0000		0000	0.000	0.000	55	85
T ORDER DEC		MW-3		SOURCE	WIDTH	(tt)	. 69	<u>!</u>	Frac.	Org. Carb.		58 5.00E-03		Centerline							/	,	,		0	ਰ					00 0:000	00 0.000	00 0.000	17.8 0.0025	0
ERSION,1S		Benzene, MW-3	3	LAMBDA		day	0.000959			KOC			Ţ			20.00	7	13.00	ou Juc	0 100		00.6		0.00							1 0.000	3 0.000	0.000	41	
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISP		KKB	Benzene, MW-3	Αz	(ft)	>=.001	1.07E+0		Soil Bulk	Density	(g/cm ²⁾	1.7225							z(ft)		,	0.000	mg/l								0.011	0.003	0.000	u	
TH THREE DIME	ı Mart	Prepared by:	Contaminant:	Ay	(ft)		1.07E+01			Porosity	(dec. frac.)	0.35			(++/4	2 (11)	1.07		y(ft)	10.7	365 days =			CALCULATION	DOMAIN	180	125	36			0.216	0.044	0.000	Centerline C Concentration	m Source
ANSPORT WIT		9/6/2017			(ft)		1.07E+02			ient		0.079		intration			10.7		x(ft)	107	365			AREAL	MODEL	Length (ft)	Width (ft)	18	0.000	0.202	2.318	0.202	0.000	Centerline C	Distance from Source
ADVECTIVE TR	Project:	Date:		빗		(MG/L)	17.8		ulic			4.68E-02		Point Concentration	\(\frac{1}{2}\)	۸(۱۱)	107			Conc. At	at								125	62.5	0	-62.5	-125	Field Data:	

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ADVECTIVE TI	RANSPORT WITH THI	ITH THREE DIM	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST	ORDER DECA	Y and RETARDA	RSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	BRATION TOOI	_	_	
Date:	9/6/2017	Dranarad hv.	RRR	Renzene MW-3	V-3						
7	10700	Contaminant:	ne. MW-3						NEW OUICK	NEW OUICK DOMENICO XIS	
											I
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET A	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)	(ft)		WIDTH	THICKNESS	(days)		"AN ANALYTIC	"AN ANALYTICAL MODEL FOR	
(MG/L)			>=.001	day-1	(ft)	(ft)		2	AULTIDIMENSION	MULTIDIMENSIONAL TRANSPORT OF A	⋖
17.8	3 1.07E+02	2 1.07E+01	1.07E+00	0.000959	70	9	730		DECAYING CONTA	DECAYING CONTAMINANT SPECIES"	
									P.A. Dome	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk			Retard-	>		Modified to Inc	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(Inday)	_			50	E 00E 03	2 47774 4796	_				
4.001-02				96		2.421214200					
Point Concentration	entration				Centerline Plot (linear)	lot (linear)		Ö	Centerline Plot (log)	(bi	
21100	1,1/64)	179/2							•	ì	
x(11))(II)	z (11)		20.00 T		†	- Model 100.000	00		•	Model
107	10.7	1.07		700			_	00			
				20.5		•	Field Data 1.000	00			- Field Data
	x(ft)	y(ft)	z(ft)	JC C	/	<u></u>		00			
Conc. At	107	10.7	0	00.00			Duc	10			
at	730	730 days =			/		co		_		
			0.000	□ 00.c	,		ص		•		
			mg/l	0			0.000	00			1
	AREAL	CALCULATION		+ 00.0			000.0	8			
	MODEL	DOMAIN		>		100 200		0 50	100	150 20	200
	Length (ft)	180 125			dist	distance			distance		
	18		54	72	06	108	126	144	162	180	
125	000'0	0.001	0.001	0.000	0000	0000	0000	00000	0.000	0.000	
62.5				0.005					0.000	0.000	
0	3.590	0.688		0.013	0.001	0000	0000		0.000	0.000	
-62.5	0.313	3 0.139	0.032	0.005	0.000	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	0.000	
Field Data:	Centerline C	Centerline C Concentration	u	17.8	0.0025	0		0 0	0	0	
	Distance from Source	om Source		0	85	0		0 0	0	0	
											١

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Appendix J

Quick Domenico Fate and Transport Modeling Seneca Mini-Mart 3390 State Route 257

Seneca, Pennsylvania

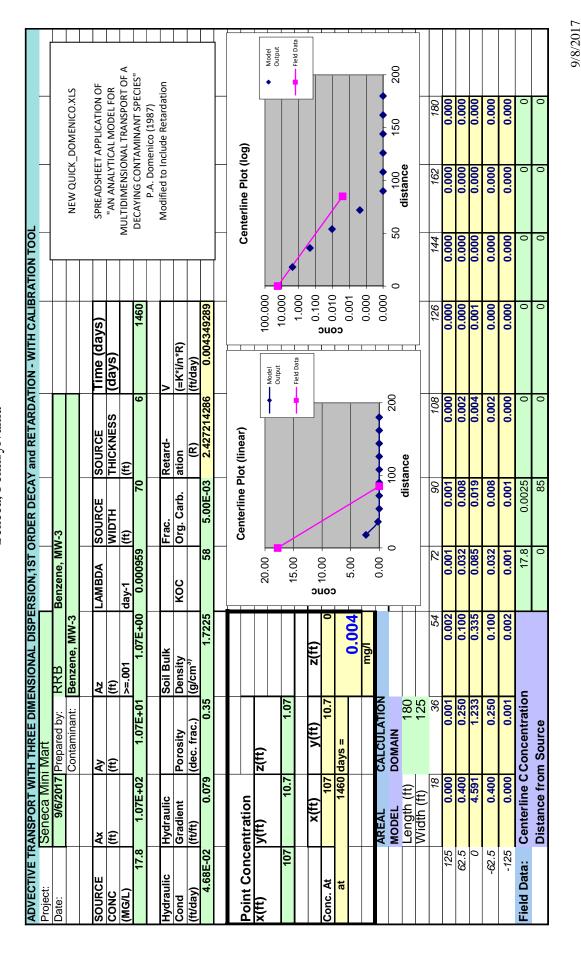
Field Data Model 200 **MULTIDIMENSIONAL TRANSPORT OF A** DECAYING CONTAMINANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation SPREADSHEET APPLICATION OF NEW QUICK_DOMENICO.XLS "AN ANALYTICAL MODEL FOR 180 0.00 0.000 0.000 0.000 150 Centerline Plot (log) 100 **distance** 0.000 162 0.000 0.000 0.000 ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL 20 144 0.000 0.000 0.000 0.010 10.000 1.000 0.100 0.001 0.000 0.000 100.000 126 0.000 0.000 0.000 1095 0.004349289 0.000 0 0 Time (days) (days) (=K*i/n*R) (ft/day) Field Data Model Output 108 200 0.000 0.000 0.000 2.427214286 SOURCE Centerline Plot (linear) Retard-(R) ation distance (£ 0.000 0.003 0.0025 0.003 0.000 5.00E-03 85 Org. Carb. SOURCE WIDTH Frac. Benzene, MW-3 (£ 28 0.017 0.017 0.001 17.8 0.001 0.000959 **conc** 10.00 0.00 20.00 15.00 5.00 LAMBDA **K**00 day-1 0.069 54 0.001 0.069 0.001 0.001 1.07E+00 1.7225 Benzene, MW-3 z(ft) ∥gш Soil Bulk Density (g/cm³⁾ >=.001 RRB ¥ Œ **Centerline C Concentration** 180 125 36 0.001 0.207 0.001 CALCULATION 0.207 1.07 1.07E+0 **9/6/2017** Prepared by: Contaminant: y(ft) (dec. frac.) **Distance from Source** Porosity DOMAIN 1095 days = Seneca Mini Mar z(ft) **€** 0.000 0.368 0.000 0.079 10.7 18 0.368 1.07E+02 MODEL Length (ft) Width (ft) Hydraulic Gradient (ft/ft) Point Concentration x(ft) AREAL y(fft) ¥ (ft) 17.8 62.5 -62.5 -125 107 125 4.68E-02 Field Data: Hydraulic SOURCE Sonc. At Ħ Project: (ft/day) CONC (MG/L) Cond Date: x(ft)

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Appendix J

Quick Domenico Fate and Transport Modeling Seneca Mini-Mart

3390 State Route 257 Seneca, Pennsylvania



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ADVECTIVE T	RANSPORT WI	TH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION, 1ST	ORDER DECA	Y and RETARDA	RSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	SRATION TOO	_		
Project:	Seneca Mini Mart	ni Mart								_	
Date:	9/6/2017	9/6/2017 Prepared by:	RRB	Benzene, MW-3	W-3						
		Contaminant:	Benzene, MW-3						NEW QUICK_[NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET /	SPREADSHEET APPLICATION OF	
CONC	(#t)	(tt)	(ft)		WIDTH	THICKNESS	(days)		"AN ANALYTIC	"AN ANALYTICAL MODEL FOR	
(MG/L)			>=.001	day-1	(ft)	(ft)			MULTIDIMENSIONAL TRANSPORT OF A	AL TRANSPORT (JF A
17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	0.2	9	1825		DECAYING CONTAMINANT SPECIES"	AMINANT SPECIE	
			:			-	2		P.A. Dome	P.A. Domenico (1987) Modified to Include Betardation	
nyaraulic	nyaraulic 		Soli Bulk	3	rrac.	Ketara-	\(\frac{1}{2}\)				
Cond (ft/dav)	Gradient (ft/ft)	Porosity (dec. frac.)	Density (g/cm³/	KOC	Org. Carb.	ation (R)	(=K*i/n*R) (ft/dav)				
4.68E-02	-			58	5.00E-03	2.427214286					
Point Conce	entration				Centerline Plot (linear)	lot (linear)		င်	Centerline Plot (log)	(6 :	
x(ft) y(ft)	y(ft)	z(ft)		20.00		†	F	0			Model
107	10.7	1.07		75	_						Ontho
				00:61		•	- Field Data 7.000	0			Field Data
	x(ft)	y(ft)	z(ft)	ol G	/			•			
Conc. At	107	10.7	0	100			Duc				
at	1825	1825 days =			/))		,-		
			0.009	5.00			0.001		•		
			mg/l	0			0.000	0			
	AREAL	CALCULATION		0.00			0000				
	MODEL	DOMAIN		>		100		0 20	001,	150	200
	Length (ft)	180			dist	distance			distance		
	VVIGITI (IL)	27	24	SF SF	6	7007		777	700	400	
						001			701	00/	
125									0.000	0.000	
6.20								0.000	0.000	0.000	
0	4.809	1.368	0.410	0.120	0.033	0.008		0000	0.000	0.000	
-62.5	0.419	0.277	0.122	0.045	0.014	0.004	0.001	0.000	0.000	0.000	
-125	0.000	0.001	0.002	0.002	0.001	0.000	0.000	0.000	0.000	0.000	
Field Data:	Centerline C	Centerline C Concentration	u,	17.8	0.0025	0	0	0	0	0	
	Distance from Source	m Source		0	98	0	0	0	0	0	

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ADVECTIVE TH	RANSPORT WI	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	ORDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	-		
Project:	Seneca Mini I	ni Mart									
Date:	9/6/2017	9/6/2017 Prepared by:	RRB	Benzene, MW-3	N-3						
		Contaminant:	Benzene, MW-3						NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Α×	Αy	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)			WIDTH	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-1	(ft)	(ft)			MULIDIMENSION	MULI IDIMENSIONAL I KANSPORT OF A	∀
17.8	1.07E+02	1.07E+01	1.07E+00	0.000959	02	9	3650		DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	Λ		Modified to In	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	кос	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.	(g/cm ₋₎			(R)	(ft/da				
4.68E-02	0.079	0.35	1.7225	28	5.00E-03	2.427214286	0.004349289				
							Ţ				
Point Conce	entration				Centerline Plot (linear)	lot (linear)		ŭ	Centerline Plot (log)	(bc	ı
x(ft) y(ft)	V(ft)	z(ft)		0000			100 000				
` _	`	`				†	Model 100.00			•	Model
107	10.7	1.07		15.00							- 3
				2000		<u> </u>	- Field Data 1.000	0			Field Data
	x(ft)	y(ft)	z(ft)	ou C			0.100	0			
Conc. At	107	10.7	0	00	/			0			
at	3650	3650 days =		9	/		c		_		
			0.029	00.cc	•		0.00	- (•		
			mg/I				0.000				
	AREAL	CALCULATION		+ 00.0			000.0		•		
	MODEL	DOMAIN		0		100 200		0 5	50 , 100	150 20	200
	Length (ft)	180 125			dist	distance			distance		
	18		54	22	06	108	126	144	162	180	
125	0.000	0.001	0.003	0.003	0.003	0.002	0.001	0000	0.000	0.000	
62.5				0.075		0.014				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	0000	0000	0.000	
Field Data:	Centerline (Centerline C Concentration	u.	17.8	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	98	0	0	0	0	0	

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NIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RRB Benzene, MW-3	Benzene, MW-3	SE SOURCE Time (days)	WIDTH THICKNESS (days)	>=.001 day-1 (ft) (ft)	1.07E+00 0.000959 70 6 7300 DECAY	Soil Bulk Frac. Retard- V Modified to include Ketardation	KOC Org. Carb. ation	(g/cm³) (R) (ft/da	0.35 1.7225 58 5.00E-03 2.427214286 0.004349289	Centerline Plot (linear)		20.00 T Model + Model	15.00 1	Held Data	Z(II)	5	90	0.00	000:0	>	distance	25	90 108 126 144 162	0.003 0.004 0.003	329 0.170 0.081 0.037 0.017 0.008 0.003 0.002 0.001	622 0.572 0.216 0.085 0.035 0.014 0.006 0.003 0.001	329 0.170 0.081 0.037 0.017 0.008 0.003 0.002 0.001 0.001	001 0.003 0.004 0.003 0.002 0.001 0.001 0.000 0.000 0.000	ition 17.8 0.0025 0 0 0 0 0 0 0	
PERSION, 1ST ORDER DECAY and RETARI	Benzene, MW-3	1 1	BDA SOURCE		(ft)	0.000959	Frac.	Org. Carb.		58 5.00E-03	Centerline Plot (linear)		20.00	7 00 47							00L :	distance		72 90	0.004 0.003	0.081 0.037	0.216 0.085	0.081 0.037	0.004 0.003		0 85
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSIG	ed by:		Ay Az	(tt) (tt)		1.07E+02 1.07E+01 1.07E+	Hydraulic Soil Bulk	ient Porosity	(dec. frac.)	0.079 0.35 1.72	ıtion		Z(II)	10.7		λ(π)	10.7	7300 days =	0.0	_	- DOMAIN	£	Width (ft) 125	36	0.000 0.001 0.0	0.452 0.329 0.1	5.194 1.622 0.5	0.452 0.329 0.1	0.000 0.001 0.0	Centerline C Concentration	Distance from Source
ADVECTIVE TRANS Project: Sen			SOURCE Ax	CONC (ft)	(MG/L)	, 17.8	Hydraulic Hydr	Cond Gradient	(ft/day) (ft/ft)	4.68E-02	Point Concentra	(4)	(11)X	107		1	Conc. At	at		AKEA	MODEL	Len	Wid		125	62.5	0	-62.5	-125	Field Data: Cent	Dist

CTIVE TR (CE () () () () () () () () () (ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL		Benzene, MW-3	Contaminant: Benzene, MW-3 NEW QUICK_DOMENICO.XLS	SE SOURCE Time (days)	(ft) (ft) (ft) WIDTH THICKNESS (days) "AN ANALYTICAL MODEL FOR	>=.001 day-1 (ft) (ft)	1.07E+02 1.07E+01 1.07E+00 0.000959 70	Hydraulic Soil Bulk Frac. Retard- V Modified to Include Retardation	Gradient Porosity Density KOC Org. Carb. ation (=K*i/n*R)	(dec. frac.) (g/cm ³⁾	0.079 0.35	entration Centerline Plot (linear) Centerline Plot (log)	7.7. And Andrews	10.000	Pied Data	x(lt) y(lt) z(lt) on 10.00	999	3650 days = 0.029 5.00	1	† †	200	distance distance	125	54 72 90 108 126 144 162	0.000 0.001 0.003 0.003 0.003 0.003 0.002 0.001 0.000 0.000 0.000 0.000	0.448 0.322 0.163 0.075 0.033 0.014 0.005	5.146 1.590 0.548 0.200 0.074 0.028 0.010 0.004 0.001	5 0.448 0.322 0.163 0.075 0.033 0.014 0.005 0.002 0.001 0.000	0.000 0.001 0.003 0.003	Centerline C Concentration 17.8 0.0025 0 0 0 0 0 0	
	ANSPORT WITH	Seneca Mini N	9/6/2017 Pr	သ					Hydraulic			0.079	ntration		10.7	171177	_	1000	3650 da					Width (ft)	18	0.000	0.448	5.146	0.448	0.000	Centerline C Co	,

Appendix J

	Project		Seneca Mini Mart
Date	Contaminant and Well ID 7/26/2016	Dranarad Bu	Ethylbenzene, MW-3
Date	7726/2016	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	4.41	Highest concentration of Ethylbenzene 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	0.003041	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 in UST basin
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 Coefficent	220	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

ADVECTIVE TF	RANSPORT WI	TH THREE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	RDER DECAN	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	TION - WITH CA	LIBRATION TOC) <u>r</u>		
Project:	Seneca Mini Mari	ii Mart						_			ſ
Date:	7/26/2016	7/26/2016 Prepared by:	RRB	Ethylbenzene, MW-3	е, МW-3						
		Contaminant:	Ethylbenzene, M	MW-3					NEW QUICK	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax			LAMBDA	щ	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(tt)	(ft)	(ft)	1	WIDTH	THICKNESS	(days)		"AN ANALYI MIIITIDIMENSIOI	"AN ANALY IICAL MODEL FOR MIII TIDIMENSIONAI TBANSPORT OF A	
				uay-ı							
4.41	1.07E+02	1.07E+01	1.07E+00	0.003041	20	9		1825	DECAYING CON	DECAYING CONTAMINANT SPECIES"	
									P.A. DOIT	P.A. DOMENICO (1987)	
Hydraulic	Hydraulic		Soil Bulk			Retard-	>		Nogilied to II	cione Retaination	
Cond	Gradient		Density	кос	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₋₎			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	220	5.00E-03	6.413571429	0.038853324	24			
							I				
Point Conce	entration			1	Centerline Plot (linear)	ot (linear)		ŭ	Centerline Plot (log)	og)	
x(ft) y(ft)	y(ft)	z(ft)		2 00				10 000			Τ.
				2000		†	- Model	200		◆ Model Output	e t
107	10.7	1.07		4.00				1 000			5
				0	/		Held Data	000:	•		Paga
	x(ft)	y(ft)	z(ft)	3:00 u	•						
Conc. At	107	10.7	0	000			ouc	00.100	/	•	
at	1825	1825 days =			N))		/		
			0.062	1.00	,		0	0.010			
			mg/l						,		
	AREAL	CALCULATION		+ 00.0				0.001	-		
	MODEL	DOMAIN		o -	ũ	100 150		0	50	100 150	
	Length (ft)	100			dist	distance			distance		
	Width (Tt)	_									
				40	90	90				100	
100	0.000	0.001	900'0	0.011	0.014	910'0	0.015		0.013	0.011	
20	0.425	0.415	0.334	0.257	0.196	0.148	0.112	12 0.085	0.064	0.049	
0		1.613		0.654	0.440	0:303	0.212	12 0.151	0.108	0.079	
-20	0.425	0.415	0.334	0.257	0.196	0.148	0.112	12 0.085	0.064	0.049	
-100	0.000	0.001	0.006	0.011	0.014	0.016	0.015	15 0.014	0.013	0.011	
Field Data:	Centerline C	Centerline C Concentration	u	4.41	0.0025						
	Distance from Source	om Source		0	98						
											1

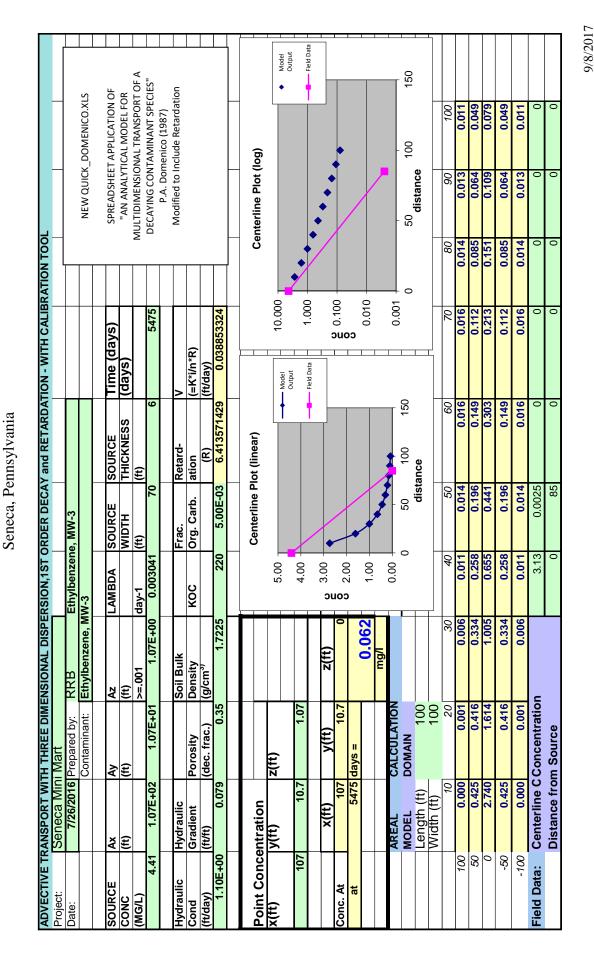
Page 2 of 7

Couper C	0.016
## Appendix Property and RETARDA Moves NWW-3	5 0 0
SOURCE SO	
Ethylbenzene, MW-3 W-3 W-3 W-3 W-3 W-3 W-3 W-3 WIDTH day-1 (ft) 0.003041 Centerl 5.00 7.00 0.00 0.00 0.058 0.655 0.655	3.13 0.0025 0 85
RKB	0.000 nu
T WITH THREE DIME Z016 Prepared by: Contaminant: Contaminant: (ft) (ft) Ay (ft) (dec. frac.) 0.079 0.079 0.079 CALCULATION DOMAIN (ft) 10.7 10.7 10.7 10.7 10.7 10.7 10.7 10.7	Centerline C Concentration Distance from Source
AREAL MODEL AND TASION TASI	Field Data: Centerline C

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Appendix J

Quick Domenico Fate and Transport Modeling Seneca Mini-Mart 3390 State Route 257



Page 4 of 7

ADVECTIVE THE	RANSPORT WI	TH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	ORDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	_		
Project:	Seneca Mini I	ii Mart									[
Date:	7/26/2016	7/26/2016 Prepared by:	RRB	Ethylbenzene, MW-3	e, MW-3						
		Contaminant:	Ethylbenzene, M	NW-3					NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)			WIDTH	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-1	(#t)	(tt)		_	VIOLI IDIINIEINSIOI	VAL I KANSPORI OF A	
4.41	1.07E+02	1.07E+01	1.07E+00	0.003041	02	9	7300		DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	^		Modified to In	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	КОС	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₃)			(R)	(ft/da				
1.10E+00	0.079	0.35	1.7225	220	5.00E-03	6.413571429	0.038853324				
							I				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		ပီ	Centerline Plot (log)	og)	
x(ft) v(ft)	V(ft)	z(ft)		9							
				I 00.c			Model 10.000			♦	Model
107	10.7	1.07		4.00			000	•/			1 2
				(/	<u> </u>	Fleid Data		•		FIEIG Data
	x(ft)	y(ft)	z(ft)	3:00 3:00	•		3				
Conc. At	107	10.7	0	000	_		ouc		/	•	
at	7300	7300 days =) N) 		/		
			0.002	1.00	**		0.010		/		ı
	L		mg/I			1			,		
	AREAL	CALCULATION					0.001		-	-	
	MODEL	DOMAIN		0	2	100 150		0	20	100 150	
	Length (ft)	100			dist	distance			distance		
	10		30	40	20	09	02	80	06	100	
100	000.0	0.001	900'0	0.011	0.014	0.016	0.016	0.014	0.013	0.011	
20				0.258	0.196	0.149		0.085	0.064	0.049	
0	2.740	1.614	1.005	0.655	0.441	0.303	0.213	0.151	0.109	0.079	
-20	0.425	0.416	0.334	0.258	0.196	0.149	0.112	0.085	0.064	0.049	
-100	0.000	0.001	0.006	0.011	0.014	0.016	0.016	0.014	0.013	0.011	
Field Data:	Centerline (Centerline C Concentration	u.	3.13	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	98	0	0	0	0	0	

Page 5 of 7

Project: Seneca Mini Mart	ini Mart										
OE Ax (ft) (ft)	252										
(ft) (ft) (AX (ft) (ft) (ft) (ft) (ft) (ft) (ft) (ft)	7/26/2016 Prepared by:		Ethylbenzene, MW-3	e, MW-3							
CE Ax (ft) (ft) 4.41	Contaminant:	Ethylbenzene, M	IW-3						NEW QUICK_	NEW QUICK_DOMENICO.XLS	
(ft) (ft) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1											
4.41	Ay	Az (#)	LAMBDA	SOURCE	SOURCE	Time (days)	(S)		SPREADSHEET "AN ANALYTIVE	SPREADSHEET APPLICATION OF "AN ANAI YTICAI MODFI FOR	
4.41		001	day-1			(2622)		Σ	MULTIDIMENSIONAL TRANSPORT OF A	NAL TRANSPORT	. OF A
	1.07E+01	1.07E+00	0.003041	20	9		9125	_	DECAYING CONTAMINANT SPECIES"	FAMINANT SPEC	IES
									P.A. Dom	P.A. Domenico (1987)	
	Porosity	Soil Bulk Density	KOC	Frac. Org. Carb.	Retard-	V (=K*i/n*R)			Modified to In	Modified to Include Retardation	
((dec. frac.)	(g/cm³)				(ft/day)					<u> </u>
1.10E+00 0.079		1.7225	220	5.00E-03	6.413571429	0.038853324	53324				
Point Concentration				Centerline Plot (linear)	lot (linear)			Cer	Centerline Plot (log)	og)	
x(ft) y(ft)	z(ft)		5.00 T		†	- Model	10.000				• Model
107	7.1		4.00			Output	000	*/			Output
				/	<u> </u>	- Field Data	000.1				Field Data
x(ft)	y(ft)	z(ft)	3:00 3:00	•				/			
Conc. At 10	107	0	100	<i>/</i>			0.100 0.100			•	
at 91;	9125 days =	0000) N					/		
		0.002	1.00				0.010		/		
i.		I/Bill			1				_		
AKEAL	CALCULATION						0.001		-	-	Т
MODEL	DOMAIN		> 	กั	061 001		0		50	100	150
Length (ft)	100			dista	distance				distance		
	10 20	30	40	20	09		202	80	06	100	
100 0.000	00.001	900'0	0.011	0.014	0.016		0.016	0.014	0.013	0.011	
50 0.425	25 0.416	0.334	0.258	0.196	0.149		0.112	0.085	0.064	0.049	
0 2.740	1.614	1.005	0.655	0.441	0:303		0.213	0.151	0.109	0.079	
-50 0.425	25 0.416	0.334	0.258	0.196	0.149		0.112	0.085	0.064	0.049	
-100 0.000	0000	900'0	0.011	0.014	0.016		0.016	0.014	0.013	0.011	
Field Data: Centerline	Centerline C Concentration	u	3.13	0.0025	0		0	0	0	0	
Distance f	Distance from Source		0	85	0		0	0	0	0	

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RATION TOOL		NEW QUICK_DOMENICO.XLS	SDDEADSHEET ADDITION OF	"AN ANALYTICAL MODEL FOR	MULTIDIMENSIONAL TRANSPORT OF A	DECAYING CONTAMINANT SPECIES"	P.A. Domenico (1987)	Modified to include Retardation				Centerline Plot (log)	• Model	•	Fleid Data	•	•		_	100	distance	80 90 100	0.013 0.	0.064	0.151 0.109 0.079	0.085 0.064 0.049	0.014 0.013 0.011	0 0 0	0 0 0
TION - WITH CALIBE			Time (davs)	(days)	() () ()	10950		>	(=K*i/n*R)	_					Field Data)C 0.100	(O)	0.010		0.00		02	0.0		0.213	0.112	0.016	0	0 0
ECAY and RETARD		-	L		(ft)		Frac. Retard-		atic		E-03 6.413571429	Centerline Plot (linear)			T				***	100 150	distance	50	0.0		0.441 0.303	0.196 0.149	0.014 0.016	0.0025 0	85
ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	Ethylbenzene, MW-3	1-3	and Adding		day-1 (ft)	003041			KOC Org. Carb.	220 5 00F-03			5.00	4.00	3.00	ouc	2.00	1.00	00.0	0 20		40			0.655 0.	0.258 0.	0.011 0.0	3.13 0.0	0
ENSIONAL DISPER	RRB E	Ethylbenzene, MW-3		(#)	001	1.07E+00	Soil Bulk	¥	Density	17225					(3)	2(11)		0.062	mg/l			30	0.0		1.005	3 0.334	900.0	uc	
WITH THREE DIM	716 Prepared by:	Contaminant:	7	λ¥.	(2.1)	н02 1.07E+01			Porosity	0 079 0 35			z(ft)	10.7	3377	107 y(11)	days =			DOMAIN	t)	100	0.0		740 1.614	0.425 0.416	0.000	Centerline C Concentration	Distance from Source
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISP	Date: 7/26/2016		30100	SOURCE AX		4.41 1.07E+02		ulic	Cond Gradient			Point Concentration	t) y(ft)	107	(T)	VIII)			ADEA	MODE	Length (ft)	VVIGTN (TT)	100	20 0.4	0 2.7	-50 05-	-100	Field Data: Centerlin	Distance

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Appendix J

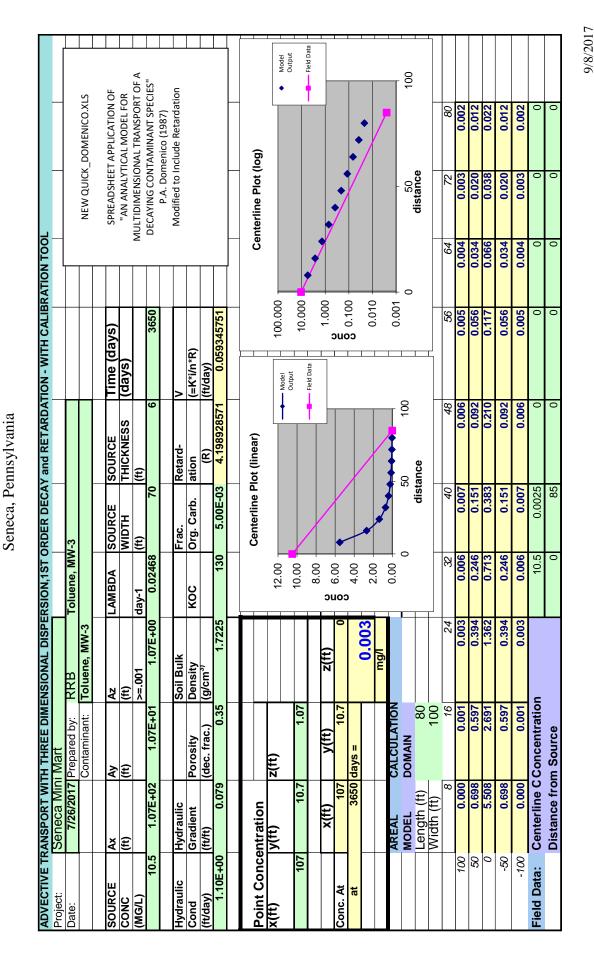
	Project		Seneca Mini Mart
	Contaminant and Well ID	Dropored De-	Toluene, MW-3
Date	7/26/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	10.5	Highest concentration of Toluene observed in MW-3 during SCR sampling 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	0.02468	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 Coefficent	130	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

ADVECTIVE TR Project:	RANSPORT WITH THE Seneca Mini Mart	ITH THREE DIMI II Mart	AAL DISP	RSION,1ST	ORDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	SRATION TOO		_	
Date:	7/26/2017	7/26/2017 Prepared by:	KRB .	Toluene, MW-3	V-3						
		Contaminant:	Toluene, MW-3						NEW QUICK_I	NEW QUICK_DOMENICO.XLS	
SOURCE	Ąx	Αλ		LAMBDA	Щ	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(#)	(tt)	(#)		표	THICKNESS	(days)		"AN ANALYTIC	"AN ANALYTICAL MODEL FOR	
(MG/L)			>=.001	day-1	(ft)	(ft)			MULTIDIMENSION	MULTIDIMENSIONAL TRANSPORT OF A	
10.5	1.07E+02	1.07E+01	1.07E+00	0.02468	02	9	1825		DECAYING CONTA	DECAYING CONTAMINANT SPECIES"	
									P.A. Dome	P.A. Domenico (1987) isod to Indiado Potordation	
Hydraulic	Hydraulic		Soil Bulk			Retard-	>		Modified to Inc	Modified to Include Relargation	
Cond	Gradient	Porosity	Density	кос	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₃₎			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	130	5.00E-03	4.198928571	0.059345751				
							I				
Point Concentration	entration				Centerline Plot (linear)	lot (linear)		ບຶ	Centerline Plot (log)	(B	I
x(ft)	v(ft)	z(ft)						ç			
	(-)(12.00 H		<u>†</u>	- Model 100.000			•	Model
107	10.7	1.07		10.00			10.000	0			- 3
				8.00		1	- Field Data	*			rieid Data
	x(ft)	y(ft)	z(ft)				1.000	0	*/		
Conc. At	107	10.7	0) (0)	/		ouo		/		
at	1825	days =		4.00			ਤ •• □	2		•	
			0.003	2.00	*		0.010	0		•	
			mg/l							<u></u>	
	AREAL	CALCULATION		00.00		*	0.001	<u></u>	-		
	MODEL	DOMAIN		•		50 100	I	0	20	100	
	Length (ft)	80			dist	distance			distance		
	Width (ft)	100									
	8	16	24	32	40	48	56	64	72	80	
100				0.006		900'0				0.002	
09				0.246		0.092				0.012	
0	5.508	3 2.691	1.362	0.713	0.383	0.210	0.117	990'0	0.038	0.022	
-20	0.698	0.597	0.394	0.246	0.151	0.092	0.056	0.034	0.020	0.012	
-100	0.000	0.001	0.003	0.006	0.007	0.006	0.005	0.004	0.003	0.002	
Field Data:	Centerline C	Centerline C Concentration	uı	10.5	0.0025						
	Distance from Source	om Source		0	85						
										_	

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Appendix J

Quick Domenico Fate and Transport Modeling Seneca Mini-Mart 3390 State Route 257



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ADVECTIVE TF	RANSPORT WI	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RSION,1ST	DRDER DECA	Y and RETARDA	TION - WITH CAI	IBRATION TOC	ا	-	
Project:	Seneca Mini Mart	Mart IVI									_
Date:	7/26/2017	7/26/2017 Prepared by:		Toluene, MW-3	V-3						
		Contaminant:	Toluene, MW-3						NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)	(ft)		WIDTH	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)			>=.001	day-1	(#)	(ft)			MULTIDIMENSION	MULTIDIMENSIONAL TRANSPORT OF A	
10.5	1.07E+02	1.07E+01	1.07E+00	0.02468	20	9	5475	2	DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	۸		Modified to Inc	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₃)			(R)	(ft/day)				
1.10E+00	0.079	0.35		130	5.00E-03	4.198928571	0.059345751	<u></u>			
				1			I				,
Point Concentration	entration				Centerline Plot (linear)	lot (linear)	I	ŏ	Centerline Plot (log)	(Bo	
(++)^	1//#	7/44)									-
(11)	7(11)	2(11)		12.00		<u>†</u>	— Model 100.	100.000		• Model	
107	10.7	1.07		10.00	/			10.000			. ;
				8.00		<u>†</u>	Field Data	<u>/</u>		Held Data	Jata
	x(ft)	y(ft)	z(ft)		/			1.000	*		
Conc. At	107	10.7	0	100	•		ouc	- 0	/		
at	5475	5475 days =		4.00			⊃ ⊃ □	001	/	•	
			0.003	00 6	A.			0.010	,	•	
			mg/l	201			; 	<u> </u>		<u></u>	
	AREAL	CALCULATION		00.0				0.001	-		
	MODEL	DOMAIN		0		50 100		0	20	100	
	Length (ft)	_ 			dist	distance			distance	_	
	8		24	32	40	48	47	56 64	72	80	
100	0.000	0.0	0.0	0.00	0.0	0.00	0.0	0.0	0.0	0.002	
20				0.246		0.092				0.012	
0	5.508	1 2.691	1.362	0.713	0.383		0.117	7 0.066	0.038	0.022	
09-	0.698	10.597	0.394	0.246	0.151	0.092	0.056	6 0.034	0.020	0.012	
-100	0.000	0.001	0.003	0.006	0.007	0.006	0.005	0.004	0.003	0.002	
Field Data:	Centerline (Centerline C Concentration	u.	10.5	0.0025	0		0 0	0	0	
	Distance from Source	om Source		0	85	0		0 0	0	0	

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	NEW QUICK_DOMENICO.XLS	SPREADSHEET APPLICATION OF	"AN ANALYTICAL MODEL FOR	MIOLIIDIMENSIONAL IRANSPORI OF A	DECAYING CONTAMINANT SPECIES:	Modified to Include Retardation					Centerline Plot (log)	•		•	*/	*/	•		0		64 72 80	0.004 0.003 0.002	0.020	0.038	0.034 0.020 0.012	0.004 0.003 0.002	0 0 0	0 0 0
		Time (days)	(days)			>	(=K*i/n*R)	(ft/day)	0.059345751						ouc	co 0.100 □	0.010				26	90.002			0.056	0.005	0	0
_	_		THICKNESS		20 6	Retard.		8			ne Plot (linear)									distance	49 48							85 0
Foluene, MW-3	_				0.02468	Fran			130 5.00		Centerli	12.00	10.00	8.00		4.00	2.00	00:00	0		33	0.006			0.246 0	0.006	10.5	0
	Toluene, MW-3	Az		>=.001		Soil Bulk	Density	(g/cm ³⁾	1.7225					(+)/2			0.003 mg/l				24				0.394	0.003	uc	
17 Prepared by:	Contaminant:	Ay	(ft)				Porosity	(dec. frac.)				z(ft)		(44)	21.1	00 days =		CALCULATION	DOMAIN		8						C Concentration	Distance from Source
		RCE Ax		_	Ì		2	6	1.10E+00 0.0		t Concentration	y(ft)	107	(##/X		-		AREAL	MODEL	Length (ft		100 0.0	9.0 0.6	0 5.5	-50 0.6	-100 0.0		Distance
	RRB Toluene, MW-3	7/26/2017 Prepared by: RRB Contaminant: Toluene, MW-3	7/26/2017 Prepared by: RRB Toluene, MW-3 Contaminant: Toluene, MW-3 CE Ax Ay Az LAMBDA SOURCE Time (days)	7/26/2017 Prepared by: RRB Toluene, MW-3 Contaminant: Toluene, MW-3 SE Ax Az LAMBDA SOURCE Time (days) (ft) (ft) WIDTH THICKNESS (days)	7/26/2017 Prepared by: RRB Toluene, MW-3 MW-3 Contaminant: Toluene, MW-3 Time (days) Contaminant: Toluene, MW-3 Time (days) Contaminant: Toluene, MW-3 Time (days) Contaminant: Time (days) Contaminant: Toluene, MW-3 Toluene, M	Ax Ay Az LAMBDA (ft) SOURCE (ft) THICKNESS (days) 10.5 1.07E+02 1.07E+01 1.07E+01 1.07E+01 1.07E+01 Toluene, MW-3 AP Toluene, MW-3 AP AP AP AP AZ LAMBDA SOURCE	Ax Ay Az LAMBDA (ft) SOURCE (ft) THICKNESS (days) 10.5 1.07E+02 1.07E+02 1.07E+00 0.02468 70 6 7300	7/26/2017 Prepared by: RRB Toluene, MW-3	Ax Ay Az LAMBDA (ft) SOURCE (ft) THICKNESS (days) 10.5 1.07E+02 1.07E+01 1.07E+00 0.02468 7.0 6 7300 Ilic Hydraulic Soil Bulk KOC Org. Carb. ation (=K*I/h*R) Iff(ft) (ft/tt) (ft/tt) (ft/tt/tt) (ft/h*R)	Ax Ay Az LAMBDA (tf) SOURCE (tf) THICKNESS (days) 10.5 1.07E+02 1.07E+01 1.07E+00 0.02468 70 6 7300 10E+00 0.079 0.079 0.035 1.7225 130 0.059345751 0.059345751	Ax Ay Az LAMBDA (tf) SOURCE (tf) THICKNESS (days) 10.5 1.07E+02 1.07E+01 1.07E+00 0.02468 70 6 7300 Ilic Hydraulic Soil Bulk KOC Org. Carb. ation (=K*I/n*R) Ilic Hydraulic Soil Bulk KOC Org. Carb. ation (=K*I/n*R) Ilic Hydraulic Rocsity Density KOC Org. Carb. ation (=K*I/n*R) Ilic (ft/ft) (dec. frac.) (g/cm³) 1.7225 130 5.00E-03 4.198928571 0.059345751	T/26/2017 Prepared by: RRB Toluene, MW-3 Contaminant: Toluene, MW-3 Toluene, MW-3 Contaminant: Toluene, MW-3 Contaminant: Toluene, MW-3 Toluene, MW-3 Contaminant: Toluene, MW-3 T	Ti26/2017 Prepared by: RRB Toluene, MW-3	T/26/2017 Prepared by: RRB Toluene, MW-3 New Quick_Domenico XLS	Ti26/2017 Prepared by: RRB Toluene, MW-3 New QUICK_DOMENICO.XLS	Tize/2017 Prepared by: RRB Toltene, MW-3	Tize/2017 Prepared by: RRB Toluene, MW-3	Tibeloo17 Prepared by: RRB Toluene, MW-3 New Quick, DoMenico XLS	7/26/2017 Prepared by RRB Toluene, MW-3	TigE/2017 Prepared by: RRB Tolluene, MW-3	TigE/2017 Prepared by RRB Toluene, MW-3	Tige/gort Prepared by: RRB	Tizeizon T Prepared by RRB Toluene, MW-3 Contaminant: Toluene, MW-3	Titelizonty Prepared by RRB Tolliene, MW-3 Contaminant: Tolliene, Contaminant	T7267017 Prepared by: RRB Tolluene, MW-3 New Quick, DoMeNICOXIS	Title Clays Title Clays	Tight State Tight State Tolleane, MW-3 Tolleane, Tolleane, MW-3 Tolleane, Tolleane, Tolleane, MW-3 Tolleane, Tolleane	Titolinamiant Tolume, MW-3 Titolinamiant Tolume, Tolume, MW-3 Titolinamiant Tolume, Tolume, Titolinamiant Tolume, Tolume, Tolume, Titolinamiant Tolume, Tolume, Tolume, Tolume, Tolume, Tolume, Titolinamiant Tolume, Tolu

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RATION TOOL		NEW QUICK_DOMENICO.XLS		SPREADSHEEL APPLICATION OF	AN ANALY IICAL MODEL FOR	DICONOLINA MINOR CONTROL OF THE CONT	DECAYING CONTAININANT SPECIES	Modified to Include Botardation	Modified to Hickare Netaluation					Centerline Plot (log)		♦ Model		Held Data	•	*/	*/				0 100	distance		64 72 80	0.003	0.020	0.066 0.038 0.022	0.034 0.020 0.012	0.004 0.003 0.002	0 0 0	0 0 0
TION - WITH CALIBE			(0):00/ 000:1	IIme (days)	(days)		9125		>	(=K*i/n*R)	(ft/day)	0.059345751]			— Model 100.000	10.000	Field Data	1.000	ouc	∂. ⊃	0.010		0.001	I			26	90000		0.117	0.056	90.00	0	0
ECAY and RETARDA		_			I HICKNESS		20 6			atic		:-03 4.198928571		Centerline Plot (linear)		<u>†</u>		1		/					50 100	distance		40 48	0.007 0.006		0.383 0.210	0.151 0.092	0.007 0.006	0.0025 0	85 0
ERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	Toluene, MW-3	_		LAMBDA SOURCE		משא-ו (וון)	0.02468	<u>!</u>		KOC Org. Carb.		130 5.00E-03		Centerlin		12.00	10.00	8.00		000	4.00	2.00		0.00	0			32			0.713 0.3	0.246 0.7	0.006	10.5	0
ENSIONAL DISPER	1 1	Toluene, MW-3	-			_	1.07E+00	:	¥		(g/cm ^{-,}	1.7225							z(ft)	0		0.003	mg/I								1.362	0.394	0.003	u	
WITH THREE DIM Ini Mart	7 Prepared by:	Contaminant:		A)	(ш))2 1.07E+01			Porosity	(dec. frac.	79 0.35			7/6#)	Z(11.)	7. 1.07		y(ft)	10.7	25 days =			CALCULATION	DOMAIN		Ť	8 16			18 2.691	98 0.597	0.001	Centerline C Concentration	Distance from Source
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISP Project: Seneca Mini Mart	7/26/2017				(H)		10.5 1.07E+02			Gradient	(ft/ft)	1.10E+00 0.079		Point Concentration	\/\(\frac{1}{4}\)	7(11)	107 10.7		x(ft)	107	9125			AREAL	MODEL	Length (ft)	Width (ft)		100 0.000	969.0	0 5.50	-50 0.698	-100 0.000		Distance fi
ADVECTIN Project:	Date:		L	SOURCE		(MO/L)			Hydraulic	Cond	(ft/day)	1.10		Point Co	(++/^	() () () () () () () () () () () () () (Conc. At	at													Field Data:	

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Continue Continue	ADVECTIVE TF Project:	RANSPORT WITH THE Seneca Mini Mart	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISP Project: Seneca Mini Mart	ENSIONAL DISPE	RSION,1ST (ORDER DECA	r and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO		_	
Contaminant: Toluene, MW-3 Ax	ate:	7/26/2017		RRB	Toluene, MW	1-3						
(ft) (ft)			Contaminant:	Toluene, MW-3						NEW QUICK_	NEW QUICK_DOMENICO.XLS	
10.5 1.07E+02 1.07E+01 1.07E+01 1.07E+01 1.07E+02 1.07E+01 1.07E+01 1.07E+02 1.07E+01 1.07E+02 1.07E+01 1.07E+02 1.07E+02 1.07E+02 1.07E+01 1.07E+02 1.07E+01 1.07E+02 1.	ביפור	7	V.	71	AMBDA		SOLIDE	Time (daye)		CDREANCHEET	SPREADSHEET APPLICATION OF	
10.5 1.07E+02 1.07E+01 1.07E+01 1.07E+01 1.07E+01 1.07E+02 1.	JUCE	*	ξ.	(#)	במוווים	ì	THICKNESS	(days)		"AN ANALYTIC	"AN ANALYTICAL MODEL FOR	
Porosity Density Carb. Italian Porosity Density Density Carb. Italian Porosity Density Carb. Italian (2/C)	()	()		dav-1		(ft)	(a (an)		MULTIDIMENSION	MULTIDIMENSIONAL TRANSPORT OF A		
Porosity Soil Bulk KOC Org. Carb. ation (Frac.) (Gec. frac.) (Gec.				1.07E+00	0.02468	20		10950		DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
Porosity Soil Bulk Frac. Retard- V										P.A. Dom	P.A. Domenico (1987)	
Calculation Calculation	draulic	Hydraulic		Soil Bulk		Frac.	Retard-	۸		Modified to Inc	Modified to Include Retardation	
(dec. frac.) (g/cm³) (f/day)	pu	Gradient	Porosity	Density	кос		ation	(=K*i/n*R)				
Calculation Calculation	'day)	(ft/ft)	(dec. frac.	(g/cm _{³/}			(R)	(ft/day)				
12.00	1.10E+00			1.722	130	5.00E-03	4.198928571	0.059345751		-	=	
12.00 10.000 10												
12.00 10.000 10	oint Conce	entration				Centerline PI	ot (linear)		ပိ	Centerline Plot (log)	(Bc	
10.000	ft)	y(ft)	z(ft)		12.00			H	0			Model
X(ft) X(ft) X(ft) Z(ft) S S S S S S S S S	107				10.00							Output
AREAL CALCULATION Color					0	/	<u> </u>		1		<u>†</u>	- Field Data
107 107		x(ft)	y(ft)	z(ft)				1.00	0	•		j
10950 days = 0.003 2.00 MoDEL DOMAIN DOMAIN MODEL DOMAIN DOMAIN MODEL DOMAIN DO	nc. At	107		0		/		ouc		*/		
Centerline Concentration Concession Co	at	10950				-		o:.0 □	5	/	•	
AREAL CALCULATION Ingrit 0.00 50 100 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.001 0.005 <t< td=""><td></td><td></td><td></td><td>0.003</td><td>2.00</td><td></td><td></td><td>0.01</td><td>0</td><td></td><td>•/</td><td></td></t<>				0.003	2.00			0.01	0		•/	
MODEL CONDITION CO		VDEVI	VOLV II SIVS		000	,	/				,	
Length (tt)		MODEL	CALCOLATION				•			- 5		- 8
Width (ft) Width (ft) 100 24 32 40 48 56 Width (ft) 8 16 24 32 40 48 56 No 0.000 0.001 0.003 0.006 0.007 0.006 0.005 No 0.009 0.597 0.394 0.246 0.151 0.092 0.017 No 0.000 0.001 0.394 0.246 0.151 0.092 0.056 No 0.000 0.001 0.003 0.006 0.005 0.005 Centerline Concentration 0.002 0.002 0.002 0.005 0.005		l ength (ft)))	distance	_	3
00 0.000 0.001 0.003 0.006 0.007 0.006 0.005 00 0.698 0.597 0.394 0.246 0.151 0.092 0.056 00 5.508 2.691 1.362 0.713 0.383 0.210 0.017 00 0.009 0.0597 0.394 0.246 0.151 0.092 0.056 00 0.000 0.001 0.005 0.005 0.005 Centerline Concentration 10.5 0.0025 0 0		Width (ft)	100									
00 0.000 0.001 0.003 0.006 0.007 0.006 0.005 00 0.698 0.597 0.394 0.246 0.151 0.092 0.056 00 5.508 2.691 1.362 0.713 0.383 0.210 0.117 00 0.698 0.597 0.394 0.246 0.151 0.092 0.056 00 0.000 0.001 0.005 0.005 0.005 Centerline Concentration Distance from Source		8			32	40	48	99	64	72	80	
50 0.698 0.597 0.394 0.246 0.151 0.092 0.056 0 5.508 2.691 1.362 0.713 0.383 0.210 0.117 0 0.698 0.597 0.394 0.246 0.151 0.092 0.056 0 0.000 0.001 0.002 0.005 0.005 Centerline Concentration 10.5 0.0025 0 0	100	0.000		0.003			0.006		0.004		0.002	
0 5.508 2.691 1.362 0.713 0.383 0.210 0.117 0 0.698 0.597 0.394 0.246 0.151 0.092 0.056 0 0.000 0.001 0.003 0.006 0.005 0.005 Centerline Concentration Distance from Source	20						0.092		0.034		0.012	
00 0.698 0.597 0.394 0.246 0.151 0.092 0.056 00 0.000 0.001 0.002 0.005 0.005 0.005 Centerline Concentration 10.5 0.0025 0 0 0	0	5.508		1.362			0.210		0.066	0.038	0.022	
00 0.000 0.001 0.003 0.006 0.007 0.006 0.005 Centerline Concentration 10.5 0.0025 0 0 Distance from Source 0 85 0 0	-20				0.246		0.092		0.034	0.020	0.012	
Centerline C Concentration 10.5 0.0025 0 Distance from Source	-100				0.006		0.006		0.004	0.003	0.002	
58	Id Data:	Centerline C	Concentratio	u	10.5		0		0	0	0	
200		Distance fro	om Source		0	98	0	0	0	0	0	

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Appendix J

	Project		Seneca Mini Mart
	Contaminant and Well ID		Total Xylenes, MW-3
Date	7/26/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	23.9	Highest concentration of Total Xylenes 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	0.001781	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
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 Coefficent	350	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

ADVECTIVE TI	RANSPORT W	ITH THREE DIM	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	RDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	_	_	
Project:	seneca Mini	ı Mart									
Date:	7/26/2017	7/26/2017 Prepared by:	KKB	Xylene, MW-3	3						
		Contaminant:	Total Xylenes, MW-3	W-3					NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(tt)			ОТН	THICKNESS	(days)		"AN ANALYTIC	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-1	(ft)	(ft)		_	AULTIDIMENSION	MULTIDIMENSIONAL TRANSPORT OF A	<1 × 1
23.9	1.07E+02	1.07E+01	1.07E+00	0.001781	02	9	1825		DECAYING CONT,	DECAYING CONTAMINANT SPECIES"	
									P.A. Dome	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	۸		Modified to Inc	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	кос	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.	(g/cm ₃)			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	320	5.00E-03	9.6125	0.025923388				
							I				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		పి	Centerline Plot (log)	(Br	
x(ff) \(\lambda(ff)	V(ff)	7(#)									
(1)	6.76	(1)		30.00		†	- Model 100.000			•	Model
107	10.7	1.07		25.00			10.000				
				20.00		1	- Field Data	• /			Field Data
	x(ft)	y(ft)	z(ft)	nc 17			1.000				
Conc. At	107	10.7	0	000	/		ouc			•	
at	1825	1825 days =	010	10.00	•)))		/	•	
			0.578	2.00			0.010				
	AREAL	CALCULATION		00.00		*	1000		_		
	MODEL	DOMAIN		0		100 200		- 0		150 200	
	l ength (ft)	180			dist	distance			distance		
	Width (ft)	75									
	18	36	54	22	06	108	126	144	162	180	
75				0.285	0.200	0.134	0.088	0.057	0:036	0.022	
37.5	4.803			0.830		0.290	0.173	0.104	0.062	0.037	
0	9.895	4.399	2.202	1.178	0.656	0.374	0.217	0.127	0.074	0.043	
-37.5	4.803	2.551	1.435	0.830	0.488	0.290	0.173	0.104	0.062	0.037	
-75	0.222	0.415	0.376	0.285	0.200	0.134	0.088	0.057	0.036	0.022	
Field Data:	Centerline (Centerline C Concentration	u	23.9	0.0025						
	Distance from Source	om Source		0	85						

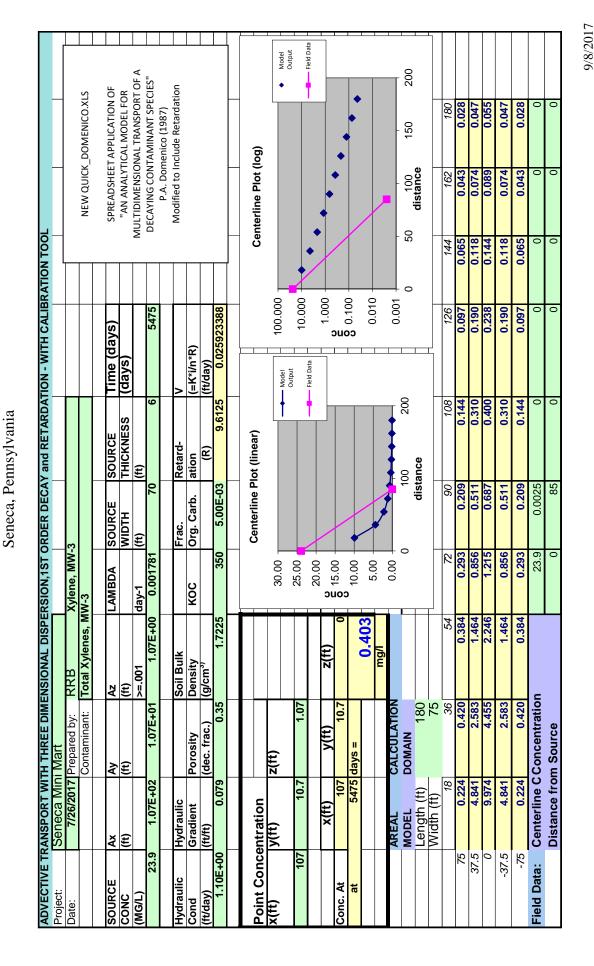
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ADVECTIVE T	RANSPORT WI	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	RDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	_	-	
Project:	Seneca Mini	Mart Mart									
Date:	7/26/2017	7/26/2017 Prepared by:	RRB	Xylene, MW-3	3						
		Contaminant:	Total Xylenes, MW-3	W-3					NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	兴	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)		10114	ОТН	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-i	_	(т)			VIOLI IDIIVILIAGIOI	וייייייייייייייייייייייייייייייייייייי	ſ
23.9	1.07E+02	1.07E+01	1.07E+00	0.001781	20	9	3650		DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	^		Modified to In	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₃ /			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	350	5.00E-03	9.6125	0.025923388				
Point Concentration	entration				Centerline Plot (linear)	ot (linear)		ပိ	Centerline Plot (log)	(Bc	
7,64)	1,7,64)	179/=								ì	
х(пт))(II)	Z (II)		30.00 T		†	- Model 100.000			•	Model
107	10.7	1.07		25.00			10.000				output
				20.00		1	Field Data	•			- Field Data
	x(ft)	y(ft)	z(ft)	ou The contract of the contrac			1.000				
Conc. At	107	10.7	0	000	/		ouc			•	
at	3650	3650 days =		10.00	•		≘. ••• □□		/	•	
			0.403	5.00	•		0.010	0			
	4		mg/I		***************************************				,		
	AKEAL	CALCOLATION				• •	0.001		-		
	MODEL	DOMAIN		0		100		0 20	0 100	150 200	0
	Length (ft)	180 75			dist	distance			distance	_	
	18		54	72	06	108	126	144	162	180	
75	0.224		0.384	0.293	0.209	0.143	0.097	0.065	0.043	0.028	
37.5				0.855	0.511	0.310		0.118	0.074	0.046	
0	9.972		2.245	1.214	0.686	0.399	0.238	0.144	0.088	0.055	
-37.5	4.840	2.583	1.464	0.855	0.511	0.310	0.190	0.118	0.074	0.046	
-75	0.224	0.420	0.384	0.293	0.209	0.143	0.097	0.065	0.043	0.028	
Field Data:	Centerline (Centerline C Concentration	u	23.9	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	85	0	0	0	0	0	

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Appendix J

Quick Domenico Fate and Transport Modeling Seneca Mini-Mart 3390 State Route 257



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ADVECTIVE TF	RANSPORT WI	TH THREE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	RDER DECAN	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	TION - WITH C	ALIBRATION TOC	JC		
Project:	Seneca Mini Mart	ii Mart						_		_	
Date:	7/26/2017	7/26/2017 Prepared by:	RRB	Xylene, MW-3	3						
		Contaminant:	Total Xylenes, M	MW-3					NEW QUICK	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	Ж	SOURCE	Time (days)		SPREADSHEE	SPREADSHEET APPLICATION OF	
CONC	(#1)	(#t)	(ft)		WIDTH	THICKNESS	(days)		AN ANALYI	"AN ANALYTICAL MODEL FOR MITTIDIMENSIONAL TRANSPORT OF A	
				7						, io io io io io io io io io io io io io	
23.9	1.07E+02	1.07E+01	1.07E+00	0.001781	70	9	7	7300	DECAYING CON	DECAYING CONTAMINANT SPECIES	
:	:		:						Modified to Ir	P.A. DOMEMICO (1967) Modified to Include Betardation	
Hydraulic	Hydraulic		Soil Bulk			Retard-	^		IN ON DELINOIN	וכוממב עבושומשווסוו	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.	(g/cm ^{-/,}			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	320	5.00E-03	9.6125	0.025923388	388			
							<u></u>				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		Ö	Centerline Plot (log)	(Bo	
x(ft) y(ft)	y(ft)	z(ft)		30 00			_	100 000			
`	`	`		00.00		+	Model Output	000.0		•	Model
107	10.7	1.07		25.00				10.000			. 3
				20.00			- Field Data	•	•		rieid Data
	x(ft)	y(ft)	z(ft)	ou 1				1.000	•		
Conc. At	107	10.7	0	000			ouc	ouc		•	
at	7300	7300 days =		10.00	•			001.7	/	•	
			0.403	2.00				0.010			
			mg/l) ()	*				, <u>.</u>		
	AREAL	CALCULATION		+ 00:00				0.001	-	_	
	MODEL	DOMAIN		0		100 200		0	50 100	150 200	
	Length (ft)	180			dista	distance			distance		
	Width (ft)	75									
	18			72	06	108		126 144		180	
75		0.420	0.384	0.293	0.209	0.144	0.0	0.097 0.065	6 0.043	0.028	
37.5	4.841	2.583	1.464	958'0	0.511	0.310		0.190 0.118	9.074	0.047	
0	9.974	4.456	2.246	1.215	0.687	0.400		0.238 0.144	680'0	0.055	
-37.5	4.841	2.583	1.464	0.856	0.511	0.310		0.190 0.118	3 0.074	0.047	
-75	0.224	0.420	0.384	0.293	0.209	0.144	0.0	0.097 0.065	5 0.043	0.028	
Field Data:	Centerline C	Centerline C Concentration	u	23.9	0.0025	0		0 0	0 (0	
	Distance from Source	m Source		0	85	0		0 0	0	0	

Page 5 of 7

ADVECTIVE TI	RANSPORT WI	TH THREE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION.1ST	DRDER DECA	RSION.1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	TION - WITH	CALIBRATI	JOOT NO			
Project:	Seneca Mini Mart	ni Mart										
Date:	7/26/2017	7/26/2017 Prepared by:		Xylene, MW-3	.3							
		Contaminant:	Total Xylenes, M	IW-3						NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax (#)	Ay (#)	Az (#)	LAMBDA	SOURCE	SOURCE	Time (days)	(s)		SPREADSHEET "AN ANALYTIC	SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR	<u> </u>
(MG/L)	(2.1)		001	day-1	(ft)	(ft)	(2(32)		M M	JLTIDIMENSION	MULTIDIMENSIONAL TRANSPORT OF A	OF A
23.9	1.07E+02	1.07E+01	1.07E+00	0.001781	70	9		9125		ECAYING CONT	DECAYING CONTAMINANT SPECIES"	IES
										P.A. Dom	P.A. Domenico (1987)	
Hydraulic Cond	Hydraulic Gradient	Porosity	Soil Bulk Density	KOC	Frac. Org. Carb.	Retard- ation	V (=K*i/n*R)			Modified to In	Modified to Include Ketardation	
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₃)			(R)	(ft/day)					
1.10E+00	0.079		1.7225	320	5.00E-03	9.6125	0.025923388	23388				
							I					
Point Conc	entration				Centerline Plot (linear)	lot (linear)			Ceni	Centerline Plot (log)	og)	
x(ft) y(ft)	y(ft)	z(ft)		30.00 T		†	- Model	100.000				Model
107	10.7	1.07		25.00			Output	10.000	•			Output
				20.00		†	Field Data		•		<u> </u>	Field Data
	x(ft)	y(ft)	z(ft)	JC 4				1.000 🕂		•		
Conc. At	107	10.7	0	10:00				ouc	/	•	•	
at	9125	9125 days =	0010	10.00	•			001.00			•	
			0.403	5.00	•		I	0.010				
	L		mg/I		*					,		
	AKEAL	CALCULATION						0.001	-	-	-	T
	MODEL	DOMAIN		⊃ 		100		0	20	100	150	200
	Length (ft)	180			dist	distance				distance		
	18		54	22	06	108		126	144	162	180	
75	0.224	1 0.420	0.384	0.293	0.2	0.144		0.097	0.065	0.043	0.028	
37.5	4.841	2.583	1.464		0.511	0.310		0.190	0.118	0.074	0.047	
0	9.974	4.456	2.246	1.215	0.687	0.400		0.238	0.144	0.089	0.055	
-37.5	4.841	2.583	1.464	0.856	0.511	0.310		0.190	0.118	0.074	0.047	
-75	0.224	0.420	0.384	0.293	0.209	0.144		0.097	0.065	0.043	0.028	
Field Data:	Centerline C	Centerline C Concentration	u	23.9	0.0025	0		0	0	0	0	
	Distance from Source	om Source		0	85	0		0	0	0	0	
												ĺ

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ADVECTIVE T	RANSPORT WI	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	RDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	_		
Project:	Seneca Mini I	ı Mart									
Date:	7/26/2017	7/26/2017 Prepared by:	RRB	Xylene, MW-3	3						
		Contaminant:	Total Xylenes, MW-3	W-3					NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Αx	Αλ	Az	LAMBDA	Щ	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)		1	DTH	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-1		(т)		_	VIOLI IDIINILIASIOI	AL INAINSFORT OF	
23.9	1.07E+02	1.07E+01	1.07E+00	0.001781	20	9	10950		DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	^		Modified to In	Modified to include Retardation	
Cond	Gradient	Porosity	Density	КОС	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₃)			(R)	(ft/da				
1.10E+00	0.079	0.35	1.7225	320	5.00E-03	9.6125	0.025923388				
							I				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		ပိ	Centerline Plot (log)	(Bc	
×/++/	(++//-	1+4/4								i	
w(11)	7(11)	2 (11)		30.00 H		<u>†</u>	- Model 100.000			•	Model
107	10.7	1.07		25.00			10.000				ont bar
				20.00		<u>†</u>	Field Data	•			Field Data
	x(ft)	y(ft)	z(ft)	nc 7			1.000				
Conc. At	107	10.7	0	00:	/		ouc			•	
at	10950	10950 days =	6070	10.00	•		e. ⊝ ⊡		/	•	
			0.403	5.00	•		0.010		/		
	ADEAL		IIIg/II	00.0	*				,		
	71.7	מארכים ביינים בי				000	100.0 				
	MODEL	DOMAIN		>				0 20	100	150 200	_
	Length (ft)	180 - 75			dista	distance			distance		
	18		54	22	06	108	126	144	162	180	
75	0.224		0.384	0.293	0.209	0.144	260'0	0.065	0.043	0.028	
37.5				0.856	0.511	0.310		0.118	0.074	0.047	
0	9.974	4.456	2.246	1.215	0.687	0.400	0.238	0.144	0.089	0.055	
-37.5	4.841	2.583	1.464	0.856	0.511	0.310	0.190	0.118	0.074	0.047	
-75	0.224	0.420	0.384	0.293	0.209	0.144	0.097	0.065	0.043	0.028	
Field Data:	Centerline (Centerline C Concentration	u	23.9	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	85	0	0	0	0	0	

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Appendix J

	Project		Seneca Mini Mart
	Contaminant and Well ID		MTBE, MW-8
Date	7/26/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	0.52	Highest concentration of MTBE observed in MW-8 during SCR sampling events.
Ax (ft)	Longitudinal dispersivity in the x direction	23	Distance from monitoring well to the property boundary in the direction of groundwater flow.
Ay (ft)	Transverse dispersivity in the y direction	2.3	Ay=Ax/10
Az (ft)	Vertical dispersivity in the z direction	0.23	Az=Ax/100
Lambda	First order decay constant	0.00189	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	0.016	Maximum gradient measured between high groundwater elevation MW-3 and MW-8 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 Coefficent	12	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL Project: Seneca Mini Mart	red by: KRB	Contaminant: MTBE, MW-8 NEW QUICK_DOMENICO.XLS	Ay Az LAMBDA SOURCE SOURCE Time (days) SPREADSHEET APPLICATION OF	(ft) WIDTH THICKNESS (>=.001 day-1 (ft) (ft)	2.30E+00 2.30E-01 0.00189 70 6 1825 DECAY	Soil Bulk Frac. Retard-	Porosity Density KOC Org. Carb. ation	(dec. frac.) (g/cm³/ (ft/da).016 0.35 1.7225 12 5.00E-03 1.295285714 0.038963273	Centerline Plot (linear)	Z(ft)	•	0.100	23 2.3	0.20	0.247	l/gm	0.00	DOMAIN	distance distance	(1) bu de la faction de la fac	0.003 0.005 0.004 0.003 0.002 0.002 0.001 0.001 0.0	0.128 0.071 0.041 0.023 0.013 0.008 0.004 0.002	0.192 0.111 0.063 0.036 0.020 0.011	0.238 0.128 0.071 0.041 0.023 0.013 0.008 0.004 0.002 0.001	0.000 0.003 0.005 0.004 0.003 0.002 0.002 0.001 0.001 0.000	ne C Concentration 0.52 0.0025 0.0025	Distance from Source
ANSPORT WITH THREE DIMENS Seneca Mini Mart	red by:							Porosity	(dec. frac.)	0.016 0.35	uc				23	days =			CALCULATION			ıc				0.238 0.128	0.000 0.003	Centerline C Concentration	Colling Colling
ADVECTIVE TRANSPO			SOURCE Ax		(MG/L)	0.52 2.30	ulic		(ft/day) (ft/ft)	1.10E+00	Point Concentration	x(ft) y(ft)	23	(+ /^	Conc. At	at			AREAL	MODEL	Length (ft)	VVIQID	09	30	0	-30	09-	Field Data: Center	

ADVECTIVE TH	AANSPORT W	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST	DRDER DECA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	TION - WITH CAL	IBRATION TOO	ا		
Project:	Seneca Mini Mart	i Mart									
Date:	7/26/2017	7/26/2017 Prepared by:	RRB								
		9/2/2016	MTBE, MW-8						NEW QUICK	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEE ⁻	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)	(ft)		ОТН	THICKNESS	(days)		"AN ANALYT	"AN ANALYTICAL MODEL FOR	
(MG/L)			>=.001	day-1	(ft)	(ft)			MULTIDIMENSIO	MULTIDIMENSIONAL TRANSPORT OF A	
0.52	2.30E+01	2.30E+00	2.30E-01	0.00189	20	9	3650	0	DECAYING CON	DECAYING CONTAMINANT SPECIES"	
									P.A. Don	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	^		Modified to Ir	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm _² /			(R)	(ft/day)				
1.10E+00	0.016	0.35	1.7225	12	5.00E-03	1.295285714	0.038963273	3			
				Ī			I				
Point Conce	entration				Centerline Plot (linear)	lot (linear)		ŏ	Centerline Plot (log)	og)	I
x(ft) \(\frac{1}{2}\)	\/(ff)	7(ff)		(•		
()	6.76	(;) <u> </u>		09:0		†	— Model 1.	1.000		•	Model
23	2.3	0.23		0.50				•			1
				0.40		<u> </u>	Field Data 0.	0.100			rieid Data
	x(ft)	y(tt)	z(tt)	ou Uc	•		၁		•		
Conc. At	23	2.3	0		_		uc		•		
at	3650	3650 days =		0.20	4		Ö □	0.010			
			0.249	0.10	Jac.				•		
			mg/I	0	<i>*</i>			•		•	
	AREAL	CALCULATION		+ 00.00				0.001	-		
	MODEL	DOMAIN		o 		100 200		0	50 100	150 200	_
	Length (ft)	150			dist	distance			distance		
	VVIGTN (TT)										
	15			90		90	302		135	150	
09		0.003		0.004						0.001	
30	0.239			0.042			0000		0.003	0.002	
0	0.329	0.194	0.112	0.065	0.038	0.023	0.01	3 0.008		0.003	
-30	0.239	0.129	0.073	0.042	0.025	0.015	0.009	9 0.005	0.003	0.002	
09-	0.000	0.003	0.005	0.004	0.004	0.003	0.002	0.001	0.001	0.001	
Field Data:	Centerline (Centerline C Concentration	u	0.52	0.0025	0		0 0	0	0	
	Distance from Source	om Source		0	20	0		0 0	0	0	

REE DIME	KKB	9/2/2016 MTBE, MW-8 NEW QUICK_DOMENICO.XLS	Ay Az LAMBDA SOURCE SOURCE TIME (days)	(ft) (ft) WIDTH THICKNESS (days)	>=.001 day-1 (ft) (ft) N	2.30E-01 0.00189 70 6 5475 DECAY	P.A. Domenico (1987)	draulic Soil Bulk Frac. Retard- V Modified to Include Retardation	ient Porosity	(dec. frac.) (g/cm³/ (ft/da	0.016 0.35 1.7225 12 5.00E-03 1.295285714 0.038963273	Centerline Plot (linear) Centerline Plot (log)	(1)/2		•	0.40 Field Data 0.100	y(tt) z(ft) c c c c c c c c c c c c c c c c c c c		0.20	0.10	l/gm	CALCULATION	DOMAIN 0 100 200	150 distance	09	15 30 45 60 75 90 105 120 135 150 150	0.000 0.003 0.005 0.004 0.004 0.003 0.002 0.001 0.001	0.129 0.073 0.042 0.025 0.015 0.009 0.005 0.003	0.329 0.194 0.112 0.065 0.038 0.023 0.013 0.008 0.005 0.003	0.239 0.129 0.073 0.042 0.025 0.015 0.009 0.005 0.003 0.002	0.003 0.005 0.004 0.004 0.003	Centerline Concentration 0.52 0.0025 0 0 0 0 0 0 0	Distance from Source
RANSPORT WITH THE Seneca Mini Mart	7/26/2017 Prepa	3/5		(ft) (ft)		2.30E+01		Hydraulic	ient		0.016	entration						23	5475 days :					Length (ft)	Width (ft)	15	0.000	0.239	0.329	0.239	0.000	Centerline C Conc	Dietance from Soi
ADVECTIVE TR Project:	Date:		 SOURCE	CONC	(MG/L)	0.52		Hydraulic	Cond	(ft/day)	1.10E+00	Point Conce	× (ft)	(1) w	23			Conc. At	at								09	30	0	08-	09-	Field Data:	

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

Source Seneca Date: Seneca T/26/2 T/	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL Project: Seneca Mini Mart	7/26/2017 Prepared by: RRB	Ay Az LAMBDA SOURCE SOURCE Time (days)	(ft) (ft) WIDTH THICKNESS (days)	>=.001 day-1 (ft) (ft)	2.30E+01 2.30E+00 2.30E-01 0.00189 70 6 7300 DECAY	Hydraulic Soil Bulk Frac. Retard-	ient Porosity Density KOC Org. Carb. atio	(dec. frac.) (g/cm³/ (ft/da	0.016 0.35	Oncentration Centerline Plot (linear) Centerline Plot (log)	z(ft)	thriding OS O	2.3 0.23	0.100	23 2.3	0.20	0.10	l/bm	CALCULATION	DOMAIN 0 100 200	t) 150 distance	Width (it) 800 75 90 126 120 135 150	0.000 0.003 0.005 0.004 0.003 0.002 0.001 0.001	0.239 0.129 0.073 0.042 0.025 0.015 0.009 0.005 0.003	0.329	-30 0.239 0.129 0.073 0.042 0.025 0.015 0.005 0.009 0.005 0.003 0.002	0.000 0.003 0.005 0.004 0.004 0.003	Field Data: Centerline CConcentration 0.52 0.0025 0 0 0 0 0 0	Distance from Source
Columbia Columbia	VE TRANSPOR'	7/26/2	Αx	(£)				Gradient			oncentration	y(ft)		23	x(ft)					AREAL	MODEL	Length (I) AVIGITI							Dietance

Date:

ON TOOL		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 (log)		Model	and First	TRIU Data	•	•	•	•	•	50 100 150 200	distance		735	0.001	0.005 0.003 0.002		0.005 0.003 0.002	0.001 0.001 0.001	0 0 0	0 0 0
ERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL			Time (days)	(days)		10920		^	(=K*i/n*R)	(ft/day)	0.038963273			— Model 1.000	in the state of th	0.100 —) 	JOS	0.010		1000							0.013	0.009	0.002	0	0
SAY and RETARDA			SOURCE	THICKNESS	(ft)	9 02		d-	ation	(R)	03 1.295285714	Centerline Plot (linear)		†								100 200	distance					38 0.023	25 0.015	04 0.003	25 0	20 0
T ORDER DEC			SOURCE	WIDTH	(tt)			Frac.	Org. Carb.		12 5.00E-03	Centerline					•					0	ō					65 0.038	42 0.025	0.004	0.52 0.0025	0
ERSION,18			LAMBDA		day-	1 0.00189			KOC					09:0	0.50	0.40	0:30 0:30			0.10	0.00						3 0.042		3 0.042	5 0.004	0.	
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISP Project: Seneca Mini Mart	RRB	MTBE, MW-8	Αz	(#)	>=.001	2.30E-0		Soil Bulk	Density	(g/cm ₃₎	1.722					177/-	2(11)		0.249	l/gm						0.005		0.112	0.073	0.005	u	
rH THREE DIME	red by:	9/2/2016		(ft)		2.30E+00				(dec. frac.)	0.35		7(ff)	-	0.23	177	y(11)	2.3	uays =		CALCULATION	DOMAIN	150	90	30	0.003	0.129	0.194	0.129	0.003	Centerline C Concentration	n Source
RANSPORT WITH THE Seneca Mini Mart	7/26/2017			(#)		2.30E+01		Hydraulic	ient		0.016	ntration			2.3	1777	x(III)	40050	10300 days		AREAL	_	Length (ft)	Width (ft)	CL	0.000	0.239	0.329	0.239	0.000	Centerline C	Distance from Source
ADVECTIVE TR Project:	Date:		SOURCE	CONC	(MG/L)	0.52		Hydraulic	Cond	(ft/day)	1.10E+00	Point Concentration	X(##)	(1.1)	23		74	Conc. At	מו							09	30	0	-30	09-	Field Data:	

Appendix J

	Project		Seneca Mini Mart
	Contaminant and Well ID		MTBE, MW-8
Date	9/7/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	0.52	Highest concentration of MTBE observed in MW-8 during SCR sampling events.
Ax (ft)	Longitudinal dispersivity in the x direction	23	Distance from monitoring well to the property boundary in the direction of groundwater flow.
Ay (ft)	Transverse dispersivity in the y direction	2.3	Ay=Ax/10
Az (ft)	Vertical dispersivity in the z direction	0.23	Az=Ax/100
Lambda	First order decay constant	0.00189	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 is results at off site wells.
Hydraulic Gradient (ft/ft)	Hydraulic Gradient	0.016	Maximum gradient measured between high groundwater elevation MW-3 and MW-8 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 Coefficent	12	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

MTBE_520 MW-8 to PL CALB QD.xls 9/8/2017

Appendix JQuick Domenico Fate and Transport Modeling

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 (log) 0
CALIBRATION - WITH CALIBRATION IOC	(days) (days) (days) 730 V (=K*i/n*R) (ft/day) (ft/day)	Control (1,000 output or 1,000 output or 1,000 output or 1,000 or
and RETARDA	SOURCE THICKNESS ((ft) 6 (ft) 6 Retard- Valion (R) (R) (R)	40 0.0000 0.0001 0 0.0001
	SOURCE WIDTH (ft) 70 Frac. Org. Carb. 5.00E-03	Centerliir
	LAMBDA day-1 0.00189 KOC	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0
RRB MTBE, MW-8	Az (ft) >=.001 2.30E-01 Soil Bulk Density (g/cm³)	z(ft) 0.000 mg/l 10.5 0.003 0.036 0.036 0.036
eca Mini Mart 9/7/2017 Prepared by: RRB Contaminant: MTBE, MW-8	Ay (ft) 2.30E+00 Porosity (dec. frac.) 0.35	x(ft) z(ft) x(ft) z(ft) x(ft) x(ft) x(ft) y(ft) x(ft) y(ft) AREAL CALCULATION MODEL DOMAIN Length (ft) 35 Width (ft) 45 0.001 0.004 0.027 0.095 0.226 0.095 0.226 0.095 0.227 0.097 Centerline C Concentration
Seneca Mini Mari 97/2017 Prepa Conte	Ax (ft) 2.30E+01 Hydraulic Gradient (ft/ft) 0.016	AREAL MODEL Length (ft)
Project: Seneca Mini Mart Date: 9/7/2017 Prepared by: RRB Contaminant: MTBE, MW-8	SOURCE CONC (MG/L) 0.52 Hydraulic Cond (ft/day) 4.68E-02	Noint Concentration x(ft) y(ft) x(ft)

	REE DIME	9/7/2017 Prepared by: RRB	Contaminant: MTBE, MW-8 New QUICK_DOMENICO.XLS	Az LAMBDA SOURCE SOURCE Time (days)	(ft) (ft) WIDTH THICKNESS (days) AN ANALYTICAL MODEL FOR	(ft) (ft)	2.30E+01 2.30E+00 2.30E-01 0.00189 70 6 1095 DECAYING CONTAMINANT SPECIES"	Jraulic Soil Bulk Frac. Retard- V Modified to Include Retardation	Indient Porosity Density KOC Org. Carb. ation (=K*i/n*R)	(dec. frac.) (g/cm ³⁾	0.016 0.35 1.7225 12 5.00E-03 1.295285714 0.001650645	ation Centerline Plot (linear) Centerline Plot (log)	z(ft) 0.60 The second of the s	Model		0.40 0.010 0.010	23 2.3 0 0.30 under 1.30 under 1.	davs=	0.001	Mg/l	CALCULATION 0.00	DOMAIN 0 20 40	(ft) 35 distance	(#)	7 10.5 14 17.5 21 24.5 28 31.5	0.002 0.001 0.000 0.000 0.000 0.000	0.112 0.048 0.020 0.007 0.003 0.001 0.000 0.000	0.244 0.113 0.050 0.021 0.008 0.003 0.001 0.000 0.000 0.000	0.243 0.112 0.048 0.020 0.007 0.003 0.001 0.000 0.000 0.000	0.002 0.004 0.002 0.001 0.000 0.000 0.000 0.000 0.000	Centerline C Concentration 0.52 0.0025 0 0 0 0 0 0 0	
	ANSPORT WITH THI Seneca Mini Mari	9/7/2017 Prep.	Con		(ft) (ft)		2.30E+01	Hydraulic	Gradient Poro	(ft/ft) (dec.	0.016	ıtration	x(ft) y(ft) z(ft)	C	2.3	-	23	1095 days			AREAL CAL(MODEL DOM	_	Width (ft)	3.5	0.002	0.243	0.244	0.243	0.002	Senterline C Con	Distance from Source

MTBE_520 MW-8 to PL CALB QD.xls 9/8/2017

Appendix JQuick Domenico Fate and Transport Modeling

Date: 9		Seneca Mini Mart								-	
	9/7/2017	9/7/2017 Prepared by:	RRB								
		Contaminant:	MTBE, MW-8						NEW QUICK_D	NEW QUICK_DOMENICO.XLS	
SOURCE		Av	Az	LAMBDA	SOURCE	SOURCE	Time (davs)		SPREADSHEET APPLICATION OF	(PPLICATION O	ш
			(#)		WIDTH	THICKNESS	(davs)		"AN ANALYTICAL MODEL FOR	AL MODEL FOR	
			001	dav-1	(ft)	(ft)	(2 (mm)		MULTIDIMENSIONAL TRANSPORT OF A	1L TRANSPORT	OF A
0.52	2 30F±01	2 30F±00	2 30E-01	0 00180	70	_		1460	DECAYING CONTAMINANT SPECIES"	MINANT SPECI	ES"
		2012012	10 100:3	20.0	2			2	P.A. Domenico (1987)	nico (1987)	
Hydraulic Hydraulic	ulic		Soil Bulk		Frac.	Retard-	>		Modified to Include Retardation	ude Retardatio	_
	ent	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/ft) (ft/ft)		(dec. frac.)	(g/cm ³⁾			(R)	(ft/day)				
4.68E-02	0.016	0.35	1.7225	12	5.00E-03	1.295285714	0.001650645	345			
]			
oint Concentrat	ion				Centerline Plot (linear)	lot (linear)		-	Centerline Plot (log)	6)	
x(ft) y(ft)		z(ft)		09.0 ⊥				1.000			laboM
23	23	0 23		0.50			Output	0070			Output
2	212			-	/	<u>†</u>	- Field Data		/	1	
×	x(ft)	y(ft)	z(ft)					0.010	/		
Conc. At	23	2.3	0	10:			oud 		,		
at	1460	1460 days =		0.20	•			0.001			
			0.003	0.10				0.000	•		
			mg/l) (j						
AREA	Į	CALCULATION		+ 00.00		+		0.000	•	•	
MODEL	긆	DOMAIN		0		20 40		0	10 20	30	40
Length	Length (ft) Width (ft)	35			dist	distance			distance		
			10.5	14	17.5	21	24	24.5	28 31.5	35	
45	0.002	00:0		0.003	0.001	0.001		0000 0000		0.000	
22.5	0.250	0.119	0.054	0.024	0.010			0.002 0.001	0000	0000	
0	0.251	0.120		0.025	0.011	0.005		0.002 0.001	00000	0.000	
-22.5	0.250	0.119	0.054	0.024	0.010	0.004		0.002 0.001	00000	0.000	
-45	0.002	0.005	0.004	0.003	0.001	0.001		0.000 0.000	00000 0000	0.000	
Field Data: Cente	erline C	Centerline C Concentration	u	0.52	0.0025	0		0	0 0	0	
Dista	nce from	Distance from Source		0	20	0		0	0 0	0	

MTBE_520 MW-8 to PL CALB QD.xls 9/8/2017

Appendix J Quick Domenico Fate and Transport Modeling

rigedi.	Selleca Milli Mali	ı Mart									
Date:	9/7/2017	9/7/2017 Prepared by:	RRB								<u> </u>
		Contaminant:	MTBE, MW-8						NEW QUICK_DOMENICO.XLS	1ENICO.XLS	ı 1
	^٧	Y	71	ACIONA	BOILD	301100	Time (dave)		SPREADSHEET APPLICATION OF	ICATION OF	
OUNCE	ž	έ	7	LAMBDA	SOUNCE	SOURCE	111115 (days)		יייייייייייייייייייייייייייייייייייייי		
CONC	(ft)	(tt)	(ft)		WIDTH	THICKNESS	(days)		"AN ANALYTICAL MODEL FOR	MODEL FOR	
(MG/L)			>=.001	day-1	(ft)	(ft)			MULTIDIMENSIONAL TRANSPORT OF A	RANSPORT OF	⋖
0.52	2.30E+01	2.30E+00	2.30E-01	0.00189	20	9		1825	DECAYING CONTAMINANT SPECIES"	NANT SPECIES"	l
									P.A. Domenico (1987)	ر1987) ر	1
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	>		Modified to Include Retardation	Retardation	1
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₂)			(R)	(ft/day)				<u> </u>
4.68E-02		0.35	1.7225	12	5.00E-03	1.295285714	4 1	45			
oint Conce	entration				Centerline Plot (linear)	lot (linear)		Ö	Centerline Plot (log)		
x(ft)	IV(ff)	Z(ft)		0					.		
<u>.</u>	6.76	(1.)		09.0		†	- Model	1.000		•	Model
23	2.3	0.23		0.50				0.100			i .
		100		0.40		1	Field Data	0.50	/		- Field Data
	X(TT)	У(П)	Z(TT)	- 020 - ou				0.0.0	/		
Conc. At	23	2.3	0		/		uo	7000	•		
at	1825	days =	0000	0.20	•			100.0	•		
			0.003	0.10	\ \-			0.000			
			mg/l								
	AREAL	CALCULATION		00.00		+		0.000	•	•	
	MODEL	DOMAIN		o 		20 40		0	10 20	30 40	_
	Length (ft)	35			dist	distance			distance		
	3.5		10.5	14	17.5	21	24	24.5	31.5	35	
45	C	0 0 0	J	0 003	J	0		0 0		0000	
22.5				0.026						0.000	
0				0.028	0.013					0.000	
-22.5	0.253	0.122	0.057	0.026	0.012	0.005		0.002 0.001	0.000	0.000	
-45	0.002	0.005	0.004	0.003	0.002	0.001	0.000	000 0.000	0.000	0.000	
Field Data:	Centerline C	Centerline C Concentration	u	0.52	0.0025	0		0 0	0 0	0	
	Dietanos from Course			•	00	*		Č		•	

MTBE_520 MW-8 to PL CALB QD.xls 9/8/2017

Appendix J Quick Domenico Fate and Transport Modeling

0.52 0.52	016 101 101 101 101 101 101 101 101 101	red by:	KKB MTBE. MW-8						NEW OUICK DOMENICO XIS		
2E Ax (ft) (ft) (10) 0.52 2 2 Ilic Hydra Grad	101	pared by: ontaminant:	KKB MTBE. MW-8						NEW OLLICK DON		
)E Ax (ft) (ft) 0.52 liic Hydl Grac	+01	ontaminant:	MTBE. MW-8						NEW OUICK DON	0 57 00 1111	
0.52 Hydl	101									MENICO.XLS	
0.52 Hydi	016										
0.52 IIIC Hydi	101	(99)	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR	VICATION OF	
0.52	101		001	day-1			(dd) 3)		MULTIDIMENSIONAL TRANSPORT OF A	TRANSPORTC	FA
ji	910	2.30E+00	2.30E-01	.00189	20	9	3650		DECAYING CONTAMINANT SPECIES"	INANT SPECIE	
lic	016								P.A. Domenico (1987)	o (1987)	
	016		Soil Bulk		Frac.	Retard-	^		Modified to Include Retardation	e Retardation	
	016	Porosity	Density	КОС	Org. Carb.		(=K*i/n*R)				
(ft/day) (ft/ft)	016		(g/cm ₃ /			-	(ft/day)				
4.68E-02		0.35	1.7225	12	5.00E-03	1.295285714	0.001650645				
Point Concentration	I				Centerline Plot (linear)	ot (linear)		ŏ	Centerline Plot (log)		1
x(ft) \(\frac{1}{2}\)		z(ft)		_				Ç			
()		()		I 09:0 -		<u> </u>	Model 1.000	00			Model
23	2.3	0.23		0:00			0.100	00			- 2
				0.40		1	- Field Data		/.	<u> </u>	Held Data
×	x(ft)	y(ft)	z(ft)		/		0.010	0			
Conc. At	23	2.3	0) (3)	/		ouo		-		
at	3650	3650 days =		0.20	•				•		
			C00.0	0.10			000:0	00	•		_
ARFA		CAL CULATION	mg/l	00.00	•				•		
MODE		DOMAIN		0		20 40		- c	10 20	30	40
Lengi	h (ft)				dista	distance	1		distance		2
Width	h (ff)	45									
	3.5	7	10.5	14	17.5	21	24.5	28	31.5	35	
45	0.002	0.005	200'0	0.003	0.002	0.001	0.001	0.000	0000	0.000	
22.5	0.256	0.124		0.028			0.003	0.001		0.000	
0	0.256	0.126	0.062	0:030	0.014	0.007	0.003	0.002	0.001	0.000	
-22.5	0.256	0.124	0.059	0.028	0.013	0.006	0.003	0.001	0.001	0.000	
-45	0.002	0.002	0.005	0.003	0.002	0.001	0.001	0.000	0.000	0.000	
Field Data: Cente	erline C	Centerline C Concentration	u	0.52	0.0025	0	0	0	0 0	0	
Dista	nce from	Distance from Source		0	20	0	0	0	0	0	

MTBE_520 MW-8 to PL CALB QD.xls 9/8/2017

Appendix J Quick Domenico Fate and Transport Modeling

ENSION, 1ST ORDER DECAT and RELARDATION - WITH CALIBRATION TOOL		NEW QUICK_DOMENICO.XLS	SDDEADSHEET ADDI ICATION OF	טרוברו אדי בוכא ווסוי סי	"AN ANALYTICAL MODEL FOR	MULTIDIMENSIONAL TRANSPORT OF A	DECAY	P.A. Domenico (1987)	Modified to Include Retardation			51		Centerline Plot (log)	1.000 T	Output	0.100	0.010	_	0.001	0.000	•	0.000	0 10 20 30 40	distance		28 31.5	0.000 0.000	100.0	0.002 0.001	0.001 0.001 0.000	0000 0000 0.000	0 0 0 0	0 0 0
HON - WITH CAL			Time (daye)	inie (days)	(days)		2300		>	(=K*i/n*R)	(ft/da	0.001650645]			Output	Field Data		ouc		·0				1		24.5		0.003	0.00	0.003	0.001		
I allu NETANDA			SOLIDE	SOURCE	THICKNESS	(ft)	9		Retard-	ation	(R)	1.295285714		lot (linear)			<u>†</u>					•		20 40	distance				900'0	0.007	0.006	0.001	0	0
			300100		WIDTH	(ft)	20		Frac.	Org. Carb.		5.00E-03		Centerline Plot (linear)			/			•		1			dist						0.013	0.002	0.0025	20
			I AMBDA	LAMBDA		day-1	0.00189			KOC		12			09:0	0.50	20.0		0:30		0.10		+ 00.0	0			14	0.003	0.028	0:030	0.028	0.003	0.52	0
	RRB	MTBE, MW-8	A-2	7.	(#)		2.30E-01		Soil Bulk	Density	(g/cm³/	1.7225						z(ft)	0		0.005	mg/l					10.5	0.005	0.059	0.062	0.059	0.005		
i Mart	9/7/2017 Prepared by:	Contaminant:			<u></u>		2.30E+00			Porosity	(dec. frac.)	0.35			z(ft)		0.23	y(ft)		7300 days =			CALCULATION	DOMAIN	35	45				0.126	0.124	0.005	Centerline C Concentration	m Source
Project: Seneca Mini Mart	9/7/2017		7,	ŧ	(¥)		2.30E+01		Hydraulic	Gradient	(ft/ft)	0.016		utration			2.3	x(ft)	23	7300			AREAL	MODEL	Length (ft)	Width (ft)			0.256	0.256	0.256		Centerline C	Distance from Source
Project:	Date:		3701100	SOURCE	CONC	(MG/L)	0.52		Hydraulic	Cond	(ft/day)	4.68E-02		Point Conce	x(ft) y(ft)	ď	73		Conc. At	at								45	22.5	0	-22.5	-45	Field Data:	

MTBE_520 MW-8 to PL CALB QD.xls 9/8/2017

Appendix J Quick Domenico Fate and Transport Modeling

		S		JC	~	r OF A	CIES"		on						• Model Output	200							Γ	40											
		NEW QUICK_DOMENICO.XLS		SPREADSHEET APPLICATION OF	"AN ANALYTICAL MODEL FOR	AL TRANSPOR	AMINANT SPEC	P.A. Domenico (1987)	lude Retardati				(Bo										-	30			35	0.000	0.000	000'0	0.000	0.000	0	0	
		NEW QUICK_		SPREADSHEET	"AN ANALYTIC	MULTIDIMENSIONAL TRANSPORT OF A	DECAYING CONTAMINANT SPECIES"	P.A. Dom	Modified to Include Retardation				Centerline Plot (log)				/	/	-	•	•	•	l	20 dietance	distance		31.5	0.000	0.001	0.001	0.001	0.000	0	0	
ATION TOOL						Σ							Cen		_/	<u>/</u>	<u>/</u>							0 10			28	0.000	0.001	0.002	0.001	0.000	0	0	
RSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL				ime (days)	(days)		10950			(=K*i/n*R)	(ft/day)	0.001650645		1 000	- Model	0.100	rieid Data	0.010	ouo		0000		0,000 1				24.5	0.001	0.003	0.003	0.003	0.001	0	0	
' and RETARDATI					ICKNESS	(ft)	9		Retard-	ation (:		1.295285714	ot (linear)		+										9		21	0.001	900'0	0.007	9000	0.001	0	0	
RDER DECAY				Щ	DTH	(#)	70		Frac.	Org. Carb.		5.00E-03	Centerline Plot (linear)						/	•			C	7 10:15	distance		17.5	0.005	0.013	0.015	0.013	0.002	0.0025	20	
RSION,1ST O				LAMBDA		day-1	.00189			КОС		12		090	0 1	09:0	0.40	ou uc) (0)	0.20	0.10	000		> 			14	0.003	0.028	0.030	0.028	0.003	0.52	0	
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	KKB	MTBE, MW-8	•	Az		>=.001	2.30E-01		Soil Bulk	Density	(g/cm ₂ ,	1.7225						z(ft)	0		c00.0	1811					10.5	0.002	0.059	0.062	0.059	0.005			
'H THREE DIME Mart	ed by:	t:			(tt)		2.30E+00					0.35		z(ft)		0.23		y(ft)	2.3	days =		NOIT VIII O	CALCOLATION	DOMAIN	SS .	45	7	0.002	0.124	0.126	0.124	0.005	Centerline C Concentration	n Source	
ANSPORT WITH THE Seneca Mini Mart	9/7/2017		9		(tt)		2.30E+01		Hydraulic	ient		0.016	ntration			2.3		x(ft)	23	10950 days =		ABEAI			Lengtn (rt)	Width (ft)	3.5	0.005	0.256	0.256	0.256	0.002	Centerline C	Distance from Source	
ADVECTIVE TR				빙		(MG/L)	0.52		Hydraulic			4.68E-02	Point Conce	x(ft) y(ft)	•	23			Conc. At	at								45	22.5	0	-22.5	-45	Field Data:		

Appendix J

	Project		Seneca Mini Mart
	Contaminant and Well ID		MTBE, MW-5
Date	7/26/2017	Prepared By	RRB
D	D. C. G.	\/-I	D
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	0.0755	Highest concentration of MTBE observed in MW-5 during SCR sampling events.
Ax (ft)	Longitudinal dispersivity in the x direction	85	Distance from monitoring well to the unnamed tributary in the direction of groundwater flow.
Ay (ft)	Transverse dispersivity in the y direction	8.5	Ay=Ax/10
Az (ft)	Vertical dispersivity in the z direction	0.85	Az=Ax/100
Lambda	First order decay constant	0.00189	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 Coefficent	12	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

TION TOOL		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 (log)		♦ Model	and place	Lieu Data		*/			-	-	50	distance		80 90 100		800'0	0.012 0.010 0.008	0.010 0.008 0.007	0.006 0.005 0.005		
ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL			Time (days)	(davs)	() () () () ()	1825		Λ	(=K*i/n*R)	(ft/day)	0.192381162]			- Model 1.000	in the state of th	- Field Data		uc	c 0.010			0.001				<u>8</u>	0.007	0.011	0.014	0.011	0.007		
VY and RETARDAT	-		SOURCE	SS		-		Retard-	ation		1.295285714		Plot (linear)		+									100 150	distance		09			0.017	0.014	3 0.007	9	2
ORDER DECA			SOURCE	WIDTH	(ft)			Frac.	Org. Carb.		5.00E-03		Centerline Plot (linear)					<i>/</i>	, N	8.5				0 20	dis		20			0.020	0.016	0.008	0.0025	85
ERSION,1ST			I AMBDA		day-1	0.00189			КОС		12		- 1	(0.08	0.00	0.00		000 000		0.02	0.01	00:00				8			0.025	0.020	0.009	0.0755	0
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE Project: Seneca Mini Mart	RRB	MTBE, MW-5	47	(ft)	>=.001	8.50E-01		Soil Bulk	Density	(g/cm _{ə/}	1.7225							z(ft)	0	7700	0.011	mg/l					30			0.033	0.025	0.009	u	
TH THREE DIME	7/26/2017 Prepared by:	Contaminant:	Αv	(#)		8.50E+00				(dec. frac.)	0.35			7(ff)	(1.1)	0.85		y(ft)	8.5	days =			CALCULATION	DOMAIN	100	20	20	0.010	0.032	0.043	0.032	0.010	Centerline C Concentration	m Source
RANSPORT WITH THE Seneca Mini Mart	7/26/2017		Δ×			8.50E+01		Hydraulic	ient		0.079		Intration			8.5		x(ft)	85	1825			AREAL	MODEL	Length (ft)	Width (ft)	10	0.007	0.047	0.059	0.047	0.007	Centerline C	Distance from Source
ADVECTIVE TR Project:	Date:		SOURCE		(MG/L)	0.0755		Hydraulic			1.10E+00		Point Concentration	x(ff)	(11)	85			Conc. At	at								20	25	0	-25	-20	Field Data:	

ADVECTIVE TI	RANSPORT WITH THE	TH THREE DIME	ENSIONAL DISPE	RSION,1ST	ORDER DECA	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	TION - WITH C	ALIBRATION T			
n roject. Date:	7/26/2017	.ed by:	RRB					_			
			MTBE, MW-5						NEW QUICK	NEW QUICK_DOMENICO.XLS	
										ı	
SOURCE	Ax		Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEE	SPREADSHEET APPLICATION OF	<u>П</u>
CONC	(#)	(#t)	(ft) >= 001	dav-1	WIDTH	THICKNESS (ft)	(days)		AN ANALYI MULTIDIMENSIO	"AN ANALYTICAL MIODEL FUR MULTIDIMENSIONAL TRANSPORT OF A	OF A
0.0755	8 50F±01	8 50F±00	8 50F-01	0.00189	_	_		3650	DECAYING CON	DECAYING CONTAMINANT SPECIES"	ES
		2012000	5 1000	200				3	P.A. Don	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	>		Modified to In	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)				(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	12	5.00E-03	1.295285714	0.192381162	162			
							I				
Point Conc	entration				Centerline Plot (linear)	lot (linear)	I		Centerline Plot (log)	log)	
x(ft) y(ft)	y(ft)	z(ft)		0.08			- Control of the cont	1.000			labo M
				0.07			Output				Output
85	8.5	0.85		0.06	•		Field Data				Field Data
	1777	100	-					0.100			
	x(rt)	y(rt)	z(tt)	5 000	A		c	<u>*</u>			
Conc. At	85	8.5	0) N		uo		/		
at	3650	3650 days =	770	0.03	A.))	0.010		•	
			0.011	0.02					/	•	
			mg/I	0.0					,-		
	AREAL	CALCULATION		00.00				0.001	-	-	T
		DOMAIN			09	100 150		0	50	100	150
	Length (ft)	100			dist	distance			distance		
	VVIGITI (IL)	000	30	01/	202	09		02	00	00,	
										2000	
30	0.007	0.010	0.009	0.009	0.008	0.007		0.007	0.006 0.005	0.005	
0										600.0	
-25										0.007	
-50	0.007	0.010						0.007	0.006 0.005	0.005	
Field Data:	Centerline C	Centerline C Concentration		0.0755	0.0025	0		0	0 0	0	
	Distance from Source	m Source		0	85	0		0	0 0	0	

RATION TOOL		NEW QUICK_DOMENICO.XLS		SPREADSHEET APPLICATION OF	"AN ANALY IICAL MODEL FOR	MULIIDIMENSIONAL I KANSPOKI OF A	DECAYING CONTAMINANT SPECIES"	P.A. Domenico (1987)	Modified to Ilicitude Retalitation					Centerline Plot (log)		→ Model Output	and the state of t		**			,		0 50	distance		90	0.005		0.012 0.010 0.009	0.010 0.009 0.007	0.006 0.005 0.005	0 0 0	0 0 0
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL Project:				IIme (days)	(days)		5475		>	(=K*i/n*R)	(ft/da	0.192381162	I			Model 1.000		0.100	эu	03			0.001							0.014	0.012	0.007	0	0
AY and RETARDA	-		!	SOURCE	THICKNESS	(ft)	70 6		Retard-	ation		3 1.295285714		Centerline Plot (linear)		†								100 150	distance					0.017	6 0.014	8 0.007	9	0 98
ORDER DEC				SOURCE	WIDTH	(ft)	2		Frac.	Org. Carb.		5.00E-03		Centerline										ũ	픙						0.016	0.008	0.0025	
RSION,1ST				LAMBDA		day-1	0.00189			KOC		12	I			0.08	70.0		ono 0.04		0.02	0.01	00.00	0		!				0.025	0.020	0.009	0.0755	0
ENSIONAL DISPE	RRB	MTBE, MW-5		Az			8.50E-01		Soil Bulk	Density	(g/cm ^{-,}	1.7225						2(##)			0.011	l/gm						0000			0.025	0.009	u	
H THREE DIMI Mart	Prepared by:	9/2/2016		Ay	(ft)		8.50E+00			Porosity	(dec. frac.)	0.35			z(ft)		0.85	\/(##)	3(11)	ıı			CALCULATION	DOMAIN	100	50	20	0.010	0.032	0.043	0.032	0.010	Concentratio	n Source
ANSPORT WITH THE Seneca Mini Mart	7/26/2017				(ft)		8.50E+01			ient		0.079		ntration			8.5	(##/X	A(14)	5475 days			AREAL (MODEL	Length (ft)	Width (ft)	10	0.007	0.047	0.059	0.047	0.007	Centerline C Concentration	Distance from Source
ADVECTIVE TR Project:				SE.		(MG/L)	0.0755		ulic			1.10E+00		Point Concentration	x(ft)	(85		Conc. At	at								20	25	0	-25	-20	Field Data:	

RATION TOOL		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 Relardation					Centerline Plot (log)		Model -	and I is a		**			,-	-	0 50	distance		06	0.005		0.012 0.010 0.009	0.010 0.009 0.007	0.006 0.005 0.005	0 0 0	0 0 0
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL Project:			Time (days)	(days)		7300		>	(=K*i/n*R)	(ft/da	0.192381162	I			— Model 1.000		- Field Data 0.100	эu	CO 0.010			0.001							0.014	0.012	0.007	0	0
AY and RETARDA	-		SOURCE	THICKNESS	(ft)	70 6		Retard-	ation		3 1.295285714		Centerline Plot (linear)		†								100 150	distance		09			0.017	6 0.014	8 0.007	9	0 98
ORDER DEC			SOURCE	WIDTH	(ft)	7		Frac.	Org. Carb.		5.00E-03		Centerline										0 20	ਚੌ						0.016	0.008	0.0025	
RSION,1ST			LAMBDA		day-1	0.00189			KOC		12	I		0	0.08	70.0		- 0.04		0.02	0.01	00.0							0.025	0.020	0.009	0.0755	0
ENSIONAL DISPE	RRB	MTBE, MW-5	Az			8.50E-01		Soil Bulk	Density	(g/cm ^{-,}	1.7225						(++)2			0.011	mg/l						0000			0.025	0.009	u	
H THREE DIMI Mart	Prepared by:	9/2/2016	Ay	(£)		8.50E+00			Porosity	(dec. frac.)	0.35			z(ft)		0.85	144//	3(1.5)	II			CALCULATION	DOMAIN	100	20	20	0.010	0.032	0.043	0.032	0.010	Concentratio	n Source
ANSPORT WITH THE Seneca Mini Mart	7/26/2017			(tt)		8.50E+01			ient		0.079		ntration			8.5	\##/^	85	7300 days			AREAL (MODEL	Length (ft)	Width (ft)	10	0.007	0.047	0.059	0.047	0.007	Centerline C Concentration	Distance from Source
ADVECTIVE TR Project:			SE SE		(MG/L)	0.0755		ulic			1.10E+00		Point Concentration	x(ft)	()	85		Conc. At	at								20	22	0	-25	-20	Field Data:	

ADVECTIVE THE	RANSPORT W	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST C	ORDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	BRATION TOO)L		
Project:	Seneca Mini Mart	ni Mart									
Date:	7/26/2017	7/26/2017 Prepared by:	RRB								
		9/2/2016	MTBE, MW-5						NEW QUICK	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEE ⁻	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)	(ft)		ОТН	THICKNESS	(days)		"AN ANALYT	"AN ANALYTICAL MODEL FOR	
(MG/L)			>=.001	day-1	(ft)	(ft)			MULTIDIMENSIO	MULTIDIMENSIONAL TRANSPORT OF A	
0.0755	8.50E+01	8.50E+00	8.50E-01	0.00189	20	9	9125		DECAYING CON	DECAYING CONTAMINANT SPECIES"	
									P.A. Don	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	^		Modified to Ir	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	КОС	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm _² /			(R)	(ft/day)				
1.10E+00	0.079	9 0.35	1.7225	12	5.00E-03	1.295285714	0.192381162				
							I				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		ŏ	Centerline Plot (log)	og)	·
x(ft) v(ft)	v(ft)	z(ft)		000			•	9			
				0.08		<u> </u>	- Model 1.000	2		•	Model
85	8.5	5 0.85		0.0							- 3
	144/2	177/77	-744				O.100	00			2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Vono V	۸(۱۱) و د	y(1t)		0.04	•		ວ ເ	*			
COIIC. AL	ó))	*			_	/		
at	9125	9125 days =	0.011	0.02	**		o 0.010	10		•	
			l/gm	- 0.01	•	*	I		/		
	AREAL	CALCULATION		00.0	-	-	0.001	7	-		
	MODEL	DOMAIN		0	ũ	100 150		0	20	100 150	
	Length (ft)	100			dist	distance			distance		
	Width (Tt)	20	C	•	Ü			G	C	700	
	01			3	OC	00	0/			201	
20				0.009		0.007				0.005	
25	0.047			0.020		0.014	0.012			0.007	
0	0.058	9 0.043	0.033	0.025	0.020	0.017			0.010	0.00	
-25	0.047	7 0.032	0.025	0.020	0.016	0.014	0.012	0.010	0.009	0.007	
-20	0.007	7 0.010	0.009	0.009	0.008	0.007	0.007	0.006	0.005	0.005	
Field Data:	Centerline (Centerline C Concentration	u	0.0755	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	98	0	0	0	0	0	

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

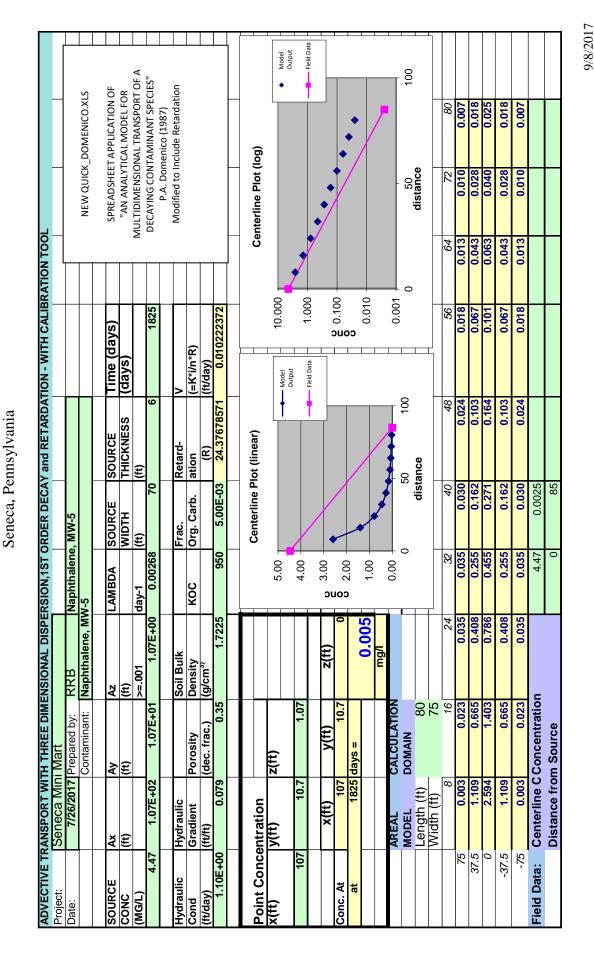
BRATION TOOL		NEW QUICK_DOMENICO.XLS		SPREADSHEE! APPLICATION OF	"AN ANALYTICAL MODEL FOR	_	DECAY	P.A. Domenico (1987)	Modified to include Retardation			2		Centerline Plot (log)		Model Working			*/	0,1		_	01	0 50	distance		90 08	0.006 0.005	0.010	0.012 0.010	2 0.010 0.009 0.007	7 0.006 0.005 0.005	0 0 0 0	0 0 0 0
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL Project: Seneca Mini Mart				IIme (days)	(days)		10950		>	(=K*i/n*R)	(ft/da	0.192381162	r			Model 1.000	, i	0.100	эu	co	<u> </u>		0.001							0.014	0.012	0.007		
AY and RETARDA		-	-01110	SOURCE	THICKNESS	(ft)	0 6	ļ	Retard-	ation		3 1.295285714		Centerline Plot (linear)		<u>†</u>								100 150	distance		09 60			0.017	6 0.014	8 0.007	2 0	0 9
ORDER DEC		_	100	SOURCE	WIDTH	(ft)	20	<u> </u>	Frac.	Org. Carb.		5.00E-03		Centerline					•	•				0 20	ij						0.016	0.008	0.0025	85
RSION,1ST				LAMBDA		day-1	0.00189			KOC		12			0	0.08	0.0		000 0.04		0.02	0.01	00.0							0.025	0.020	0.009	9920'0	0
ENSIONAL DISPE	RRB	MTBE, MW-5		Az	(ft)	>=.001	8.50E-01	:	Soil Bulk	Density	(g/cm ^{-,}	1.7225						2(#)			0.011	l/gm						0.009			0.025	0.009	n	
H THREE DIMI Mart	Prepared by:	9/2/2016		Ay	(ft)		8.50E+00			Porosity	(dec. frac.)	0.35			z(ft)		0.85	\/(##)	3(15)	ıı			CALCULATION	DOMAIN	100	20	20	0.010	0.032	0.043	0.032	0.010	Concentratio	n Source
ANSPORT WITH THE Seneca Mini Mart	7/26/2017				(ft)		8.50E+01			ient		0.079		ntration			8.5	(##)X	85	10950 days			AREAL	MODEL	Length (ft)	Width (ft)	10	0.007	0.047	0.059	0.047	0.007	Centerline C Concentration	Distance from Source
ADVECTIVE TR Project:	Date:			SE.		(MG/L)	0.0755		ulic			1.10E+00		Point Concentration	x(ft)		85		Conc. At	at								20	25	0	-25	-20	Field Data:	

Appendix J

	Project		Seneca Mini Mart
	Contaminant and Well ID		Naphthalene, MW-5
Date	7/26/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	4.47	Highest concentration of Naphthalene observed in MW-5 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	0.00268	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 Coefficent	950	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



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ADVECTIVE TI	RANSPORT WI	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST	RDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	SRATION TOO	7		
Project:	Seneca Mini	i Mart									[
Date:	7/26/2017	7/26/2017 Prepared by:	RRB	Naphthalene, MW-5	, MW-5						
		Contaminant:	Naphthalene, MV	W-5					NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Ax	Ay	Az	LAMBDA	兴	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)			ртн	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-1		(π)			IVIOLI IDIIVIEIVSIOI	MAL I MAINSPORT OF A	
4.47	1.07E+02	1.07E+01	1.07E+00	0.00268	02	9	3650		DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	Λ		Modified to In	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.	(g/cm ₃)			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	950	5.00E-03	24.37678571	0.010222372				
]				
Point Conce	entration				Centerline Plot (linear)	lot (linear)		ŏ	Centerline Plot (log)	og)	
x(ft) y(ft)	y(ft)	z(ft)		ا د			10,000				
	` .			00.5		†	Model 10.00			•	Model
107	10.7	1.07		4.00			1 000	•			- 1
					/	<u>†</u>	Field Data	7	•/		Field Data
	x(ft)	y(ft)	z(ft)) ၁u	•		3		*/]
Conc. At	107	10.7	0	00 0			ouo	2	/	•	
at	3650	3650 days =			A	/) 		/	• •	
			0000	1.00		/	0.010	0		/	
			mg/I							,-	
	AKEAL	CALCULATION					0.001		-		
	MODEL	DOMAIN		0		001		0	20	100	
	Length (ft)	80			dist	distance			distance	-	
	8		24	æ	40	48	999	64	72	80	
75	0.003	0.023	0.035	0.035	0.030	0.024	0.018	0.014	0.010	0.007	
37.5						0.104				0.019	
0	2.598	1.406	0.788	0.457	0.272	0.166	0.102	0.064	0.040	0.026	
-37.5	1.110	0.666	0.409	0.256	0.163	0.104	0.067	0.044	0.029	0.019	
-75	0.003	0.023	0.035	0.035	0:030	0.024	0.018	0.014	0.010	0.007	
Field Data:	Centerline (Centerline C Concentration	u	4.47	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	98	0	0	0	0	0	

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ADVECTIVE TI	RANSPORT WI	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST	SRDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	SRATION TOO	<u>, </u>		
Project:	Seneca Mini	ni Mart									ſ
Date:	7/26/2017	7/26/2017 Prepared by:	RRB	Naphthalene, MW-5	, MW-5						
		Contaminant:	Naphthalene, MV	W-5					NEW QUICK_	NEW QUICK_DOMENICO.XLS	
SOURCE	Α×	Αy	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)		40.14	ОТН	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-i	_	(т)				T 10 1310 1511711 75	
4.47	1.07E+02	1.07E+01	1.07E+00	0.00268	20	9	5475		DECAYING CONT	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	Λ		Modified to In	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ₃)			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	920	5.00E-03	24.37678571	0.010222372				
							Ţ				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		ŏ	Centerline Plot (log)	(bc	ı
x(ft) y(ft)	y(ft)	z(ft)		200			Г				
`	`	` _				†	Model IO.000			•	Model
107	10.7	1.07		4.00			1 000	•			- 1
				ď	/		Fleid Data	/	•		Field Data
	x(ft)	y(ft)	z(ft)	ou ou	<i>/</i>		3		•/]
Conc. At	107	10.7	0	00 0			ouo	2	/	•	
at	5475	5475 days =			•	/) 		/	•	
			0.000	1.00	*	/	0.010	0		/	
			mg/I							,-	
	AKEAL	CALCULATION					0.001	_	-		
	MODEL	DOMAIN		0		001		0	20	100	
	Length (ft)	80			dist	distance			distance	_	
	8		24	32	40	48	99	64	72	80	
75	0.003	0.023	0.035	0.035	0.030	0.024	0.018	0.014	0.010	0.007	
37.5				0.256	0.163	0.104		0.044		0.019	
0	2.598	1.406	0.788	0.457	0.272	0.166	0.102	0.064	0.040	0.026	
-37.5	1.110	0.666	0.409	0.256	0.163	0.104	0.067	0.044	0.029	0.019	
-75	0.003	0.023	0.035	0.035	0.030	0.024	0.018	0.014	0.010	0.007	
Field Data:	Centerline (Centerline C Concentration	u	4.47	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	85	0	0	0	0	0	

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Naphthalene, MW-5 Naphthalene, MW-5	ADVECTIVE TR Project: Date:	Seneca Mini Mar 7/26/2017 Prepa	iPORT WITH THREE DIM neca Mini Mart 7/26/2017 Prepared by:	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOI Project: Seneca Mini Mart Date: 7/26/2017 Prepared by: RRB Naphthalene, MW-5	RSION,1ST ORDER Naphthalene, MW-5	ORDER DECA , MW-5	Y and RETARDA	TION - WITH C	ALIBRATION TO			
(ft)			Contaminant:	Naphthalene, MV	۷-5					NEW QUICK	NEW QUICK_DOMENICO.XLS	
Hydraulic Hydraulic Concentration Conc	OURCE	Ax (ft)	Ay (ft)		LAMBDA	SOURCE WIDTH	SOURCE THICKNESS	Time (days (days)		SPREADSHEE" "AN ANALYT	SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR	
Hydraulic					day-1					MULTIDIMENSIO	MULTIDIMENSIONAL TRANSPORT OF A	
10 Hydraulic Hydraulic Hydraulic Hydraulic Hydraulic Hydraulic Hydraulic Gradient Hydraulic Hy	4.47	1.07E+02		1.07E+00	0.00268	20	9		300	DECAYING CON P.A. Don	ING CONTAMINANT SPECIES'' P.A. Domenico (1987)	
Gradient Porosity Density KOC Org. Carb. ation (=K*in*rR)	/draulic	Hydraulic		Soil Bulk		Frac.	Retard-	>		Modified to Ir	Modified to Include Retardation	
(dec. frac.) (g/cm²) (g/cm²) (f/tday) (f/tday	pud	Gradient	Porosity	Density	КОС	Org. Carb.	ation	(=K*i/n*R)				
10 10 10 10 10 10 10 10	/day)	(ft/ft)	(dec. frac.	(g/cm²)	010	20 100 1	(R)	(ft/day)	010			
10.000 1	1.10E+00				nce	3.00E-U3	24.37678371	0.01022	7/5			
10.000 1	oint Conce	utration			.	Centerline Pl	lot (linear)			Centerline Plot (log)	log)	
107 10.7 1.07 1.00	(#)	y(ft)	z(ft)		5.00 J		†		000.0		\$ 6 ◆	Model
X(ft) X(ft) Z(ft) Z(ft	107				4.00				000		3 :	in d
AREAL CALCULATION MODEL DOMAIN MODEL	(#J/A	(+)/(2(#)					000:	*/		Field Data	
AREAL CALCULATION MODEL DOMAIN MODEL M	onc. At	_	3117	(11)		/		ouc	0.100		•	1
AREAL CALCULATION Mg/l 0.00 50 100 0.001	at	7300	days =	9000		•	/			/	* * /	
MODEL CALCULATION DOMAIN Company Com				mg/l	1.00	لعما	/		0.010		<u>/</u>	
MODEL DOMAIN 6 50 100 6 Length (ft) 75 40 48 56 64 Width (ft) 75 40 48 56 64 75 0.003 0.035 0.035 0.036 0.016 0.014 75 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 75 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 75 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 75 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 75 0.003 0.035 0.035 0.035 0.034 0.014 0.014 8 0.003 0.035 0.002 0.014 0.014 0.014 9 0.002 0.003 0.0025 0.003 0.014 0.0		AREAL	CALCULATION				1		0.001	-	•	
Length (ft)		MODEL	DOMAIN		о —					20	100	Ţ
75 0.003 16 24 32 40 48 56 64 75 0.003 0.023 0.035 0.035 0.036 0.034 0.014 0.014 0 2.598 1.406 0.409 0.256 0.163 0.104 0.067 0.044 5 1.110 0.666 0.409 0.256 0.163 0.105 0.044 75 0.003 0.025 0.163 0.014 0.044 75 0.003 0.035 0.035 0.035 0.034 0.014 Centerline Concentration Pistance from Source		Length (ft) Width (ft)	80			dist	ance			distance	_	
75 0.003 0.035 0.035 0.036 0.034 0.018 0.014 .5 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 .5 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.064 .5 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 .5 0.003 0.035 0.035 0.035 0.034 0.014 0.014 Centerline Concentration A.47 0.0025 0 0 0 0					32	40	48				80	
.5 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 0 2.598 1.406 0.788 0.457 0.272 0.166 0.102 0.064 .5 1.110 0.666 0.409 0.256 0.163 0.104 0.067 0.044 75 0.003 0.035 0.035 0.036 0.018 0.014 Centerline Concentration Pistance from Source	75						0.024				0.007	
Centerline Concentration Concentration 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0025 0.0046	37.5						0.104				0.019	
75 0.003 0.023 0.035 0.035 0.035 0.035 0.035 0.035 0.035 0.004 0.014 Centerline Concentration 4.47 0.0025 0 0 0 0 Distance from Source 0 85 0 0 0 0	-37.5						0.104				0.026	
Centerline Concentration 4.47 0.0025 0 0 0 Distance from Source	-75						0.024				0.007	
0 0 98 0	eld Data:	Centerline C	Concentratio	Z.	4.47	0.0025	0		0		0	
6 89 6		Distance fro	om Source		0	85	0		0	0 0	0	

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ADVECTIVE TI	RANSPORT WI	TH THREE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST	SRDER DECA	RSION,1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	FION - WITH C	ALIBRATION TO	30L		
Project:	Seneca Mini Mari	i Mart									
Date:	7/26/2017	7/26/2017 Prepared by:	RRB	Naphthalene, MW-5	, MW-5						
		Contaminant:	Naphthalene, MW	۷-5					NEW QUICK	NEW QUICK_DOMENICO.XLS	
SOURCE	¥ e	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)	(6)	SPREADSHEE "AN ANALY"	SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR	<u> </u>
(MG/L)	(11)	(11)	001	dav-1	(£)	(ft)	(days)		MULTIDIMENSIC	MULTIDIMENSIONAL TRANSPORT OF A	OF A
4.47	1.07E+02	1.07E+01	1.07E+00	0.00268	70	9		9125	DECAYING CON	DECAYING CONTAMINANT SPECIES"	IES
									P.A. Dor	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	^		Modified to I	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ²⁾			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	920	5.00E-03	24.37678571	0.010222372	2372			
Point Conce	entration				Centerline Plot (linear)	lot (linear)			Centerline Plot (log)	(log)	I
x(ft) y(ft)	y(ft)	z(ft)		5.00 T		†	- Model	10.000			• Model
107	10.7	1.07		4.00			Output	•			Output
					/	<u>†</u>	- Field Data	000.1	*/		Field Data
	x(ft)	y(ft)	z(ft)	3.00 3.00	/				*/		
Conc. At	107	10.7	0	103	/		uc	0.100	/	•	
at	9125	days =	000		,	/)) 		/	•	
			0.000	1.00	•			0.010		/	
			mg/l	0						,	
	AREAL	CALCULATION		00.00	•			0.001	-		T
	MODEL	DOMAIN		0		50 100		0	. 20		100
	Length (ft)	80			dist	distance			distance		
	vvidili (II)		<i>PC</i>	2	40	87		9	72	8	
X	0	0	0	0 035	0200	0.0	,	0	0	0	
37.5				0.256	0.033						
0				0.457	0.272	0.166	0				
-37.5	1.110	0.666	0.409	0.256	0.163	0.104)	0.067 0.044	14 0.029	0.019	
-75	0.003	0.023	0.035	0.035	0:030	0.024	0	0.018 0.014	14 0.010	0.007	
Field Data:	Centerline (Centerline C Concentration	Ē	4.47	0.0025	0		0	0 0	0	
	Distance from Source	om Source		0	98	0		0	0 0	0	

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Naphthalene, MW-5 Nubtraction Nubtract	0.018
DECAY and RETARDA E SOURCE THICKNESS (ft) 70 Retard- ation (R) DE-03 24.37678571 Ine Plot (linear) 50 10024 40 48 50 10024 50.103 0.104 0.103 0.104 0.103 0.103 0.103 0.103 0.103 0.103	
	0.030 0.024 0.0025 0 85 0
Naphthalene, MW-5 Naphthalene, MW-5 Naphthalene, MW-5 Nupth (ft) O.00268 O.00268 O.006 O.006 O.006 O.007 0.035 0. 4.47 0.0 0 0	
	on 0.035
Number Number	0.003 0.023 Centerline C Concentration Distance from Source
Seneca Min Wart	-75 0.003 Field Data: Centerline C

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Appendix J

	Project		Seneca Mini Mart
	Contaminant and Well ID	<u> </u>	1,2,4-TMB, MW-3
Date	7/26/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	4.92	Highest concentration of 1,2,4-TMB 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	0.012329	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 Coefficent	2200	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

Appendix JQuick Domenico Fate and Transport Modeling

Seneca Mini-Mart 3390 State Route 257 Seneca, Pennsylvania

ADVECTIVE TH	RANSPORT WI	ITH THREE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION, 1ST	DRDER DECA	RSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	TION - WITH C	ALIBRATION TO	OOL		
Project:	Seneca Mini Mart	ni Mart									
Date:	7/26/2017	7/26/2017 Prepared by:	RRB	1,2,4-TMB, MW-3	AW-3						
		Contaminant:	1,2,4-TMB, MW-3	**					NEW QUICK	NEW QUICK_DOMENICO.XLS	
							į				
SOURCE	Ax	Ay (#)	Az (#)	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEE "AN ANALYI	SPREADSHEET APPLICATION OF "AN ANAI YTICAI MODFI FOR	
(MG/L)	(11)		001	day-1	(ft)	(ft)	(ofpp)		MULTIDIMENSIC	MULTIDIMENSIONAL TRANSPORT OF A	OF A
4.92	1.07E+02	1.07E+01	1.07E+00	0.012329	-	9		1825	DECAYING CON	DECAYING CONTAMINANT SPECIES"	ES
									P.A. Doi	P.A. Domenico (1987)	
Hydraulic Cond	Hydraulic Gradient	Porosity	Soil Bulk Density	KOC	Frac. Org. Carb.	Retard- ation	V (=K*i/n*R)		Modified to	Modined to Include Ketardation	
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm ³⁾								
1.10E+00				2200	5.00E-03	55,13571429	0.004519549	9549			
Point Conce	entration				Centerline Plot (linear)	lot (linear)			Centerline Plot (log)	(log)	ı
x(ft) y(ft)	y(ft)	z(ft)		6.00 J			_ Model	10.000			Model
107	10.7	1.07		5.00			Output	1.000			Output
				4.00		†	- Field Data	•	/		Field Data
	x(ft)	y(ft)	z(ft)		/			0.100			
Conc. At	107	10.7	0	103	/		uc	ouc	•	/	
at	1825	1825 days =		2.00)) 	0.0.0	•	<mark>/</mark>	
			0000	1.00				0.001	•		
	VEEN	CALCIII ATION		00.00	*						
	MODEL	DOMOI				50 100		000.0	- 6		
	l ength (ft)	50			dist	ce		>	distance		2
	Width (ft)	75									
	5	10	15	20	25	30		35	40 45	20	
75	0.000	0.003	0.004	0.004	0.002	0.001	0	0.001 0.000	0000 0000	0000	
37.5		0.358	0.150	0.063		0.012		0.005 0.002			
0	2.080	0.814	0.320	0.128	0.052	0.021	9	0.009 0.004	04 0.002	0.001	
-37.5	0.842	0.358	0.150	0.063	0.027	0.012		0.005 0.002	02 0.001	0.000	
-75	0.000	0.003	0.004	0.004	0.002	0.001	0	0.001 0.000	000 0.000	0.000	
Field Data:	Centerline C	Centerline C Concentration	u	4.92	0.0025						
	Distance from Source	om Source		0	85						

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RATION TOOL		NEW QUICK_DOMENICO.XLS	TO MOLEVOLI INDIA PERSONAL PROPERTY OF THE PER	"AN ANALYTICAL MODEL EOP	MULTIDIMENSIONAL TRANSPORT OF A	DECAYING CONTAMINANT SPECIES"	P.A. Domenico (1987)	Modified to Include Retardation					Centerline Plot (log)		onthin	Cinkle Mark	/	•	•		•		. 0	distance		40 45 50	0000	0.001	0.004 0.002 0.001	0.002 0.001 0.000	0.000 0.000 0.000	0 0 0	0 0 0
ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL			Time (daye)	(days)	(days)	3650		>	(=K*i/n*R)	(ft/day)	0.004519549	I		10.000	- Model Output	1.000	Held Data	c 0.100	on 0))) 	0.001	0000				35			0.009	0.005	0.001	0	0
AY and RETARDA		_	100	SOURCE	(ft)	70 6		Retard-	ation	(R)	3 55.13571429		Centerline Plot (linear)		<u>†</u>				/	/	/	•	50 100	distance		25 30			52 0.021	27 0.012	0.001	25 0	85 0
ORDER DEC	MW-3	_	100	SOURCE	LICIM (#)			Frac.	Org. Carb.) 5.00E-03		Centerline			<u></u>	/		/	•	_		0	ਰ					3 0.052	3 0.027	4 0.002	2 0.0025	3 0
RSION,1ST	1,2,4-TMB, MW-3	-3	4000	LAMBDA	dav-1	0.012329			KOC		2200		- 1	00'9) (2.00 2.00	4.00	ou ou		2.00	1.00	0.00				20			0.128	0.063	0.004	4.92)
ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE Project: Seneca Mini Mart	RRB	1,2,4-TMB, MW-	-	AZ W	(it) >= 001	1.07E+00		Soil Bulk	Density	(g/cm _{³/}	1.7225						(33)	Z(TT)	0		ma/l					15	0.004		0.320	0.150	0.004	u	
TH THREE DIM	Prepared by:	Contaminant:		Ay (#)	(III)	1.07E+01			Porosity	(dec. frac.)	0.35			z(ft)		1.07	(H)	у(тт)	10.7	days =		CALCULATION	DOMAIN		75	10	0.003	0.358	0.814	0.358	0.003	Centerline C Concentration	m Source
ANSPORT WITH THE Seneca Mini Mart	7/26/2017			¥ ¥		1.07E+02		Hydraulic	Gradient		0.079		ntration			10.7		х(пт)	107	3650 days		AREAL	MODEL	Length (ft)	Width (ft)	2	0.000	0.842	2.080	0.842	0.000	Centerline C	Distance from Source
ADVECTIVE TR	Date:			SOURCE		4.92		Hydraulic	Cond		1.10E+00		Point Conce	x(ft) $y(ft)$		107			Conc. At	at							75	37.5	0	-37.5	-75	Field Data:	

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ADVECTIVE TF	RANSPORT WI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISP	ENSIONAL DISPE	RSION,1ST C	RDER DECAN	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	FION - WITH CA	LIBRATION TOC	OL.		
Project:	Seneca Mini Mart	i Mart									
Date:	7/26/2017	7/26/2017 Prepared by:		1,2,4-TMB, MW-3	IW-3						
		Contaminant:	1,2,4-TMB, MW-3						NEW QUICK	NEW QUICK_DOMENICO.XLS	
						2					
SOURCE	Αx	Ay	Az	LAMBDA	Ж	SOURCE	Time (days)		SPREADSHEE	SPREADSHEET APPLICATION OF	
CONC	(H)	(H)	(#) >= 001	dav-1	WIDIH	I HICKNESS	(days)		AN ANALY I	AN ANALY IICAL MUDEL FUR MULTIDIMENSIONAL TRANSPORT OF A	
4 92	1 07E±02	1 07E±01	1 07E±00	0.012220	02	()	27	5475	DECAYING CON	DECAYING CONTAMINANT SPECIES"	
4.35			1.01 2.400	0.012323	2	0	T .	2	P.A. Don	P.A. Domenico (1987)	
Hydraulic	Hvdraulic		Soil Bulk		Frac.	Retard-	>		Modified to Ir	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	KOC	Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm³)			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	2200	5.00E-03	55.13571429	0.004519549	49			
							I				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		Ö	Centerline Plot (log)	log)	
x(ft) y(ft)	y(ft)	z(ft)		00.9			_	10.000			Model
107	10.7	1.07		2.00			Output	1 000			Output
				4 00 4	/	•	Field Data	•	/	<u>†</u>	- Field Data
	x(ft)	y(ft)	z(ft)		/			0.100	/		
Conc. At	101	10.7	0	00:	/		ouc	- 0.70	/	/	
at	5475	5475 days =		2.00)))	0.0.0	•	/	
			0000	1.00	•			0.001	•		
	ARFA	CALCIII ATION	1/6	00.0	*			000			I
	MODEL	DOMAIN		•		50 100		- 000.	- 1	001	
	I anoth (ft)	50			dista	ce		D	distance		
	Width (ft)	75									
	5		15	20	25	30		35 40	45	20	
75	0.000	0.003	0.004	0.004	0.002	0.001	0.001		00000	0.000	
37.5				0.063	0.027	0.012	900'0	05 0.002		0.000	
0	2.080	0.814	0.320	0.128	0.052	0.021	600'0	0000		0.001	
-37.5	0.842	0.358	0.150	0.063	0.027	0.012	0.0	0.005 0.002	0.001	0.000	
-75	0.000	0.003	0.004	0.004	0.002	0.001	0.001	01 0.000	0.000	0.000	
Field Data:	Centerline (Centerline C Concentration	u	4.92	0.0025	0		0 0	0 (0	
	Distance from Source	om Source		0	85	0		0 0	0 0	0	

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ADVECTIVE TR	RANSPORT WI	TH THREE DIME	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RSION,1ST	DRDER DECA	Y and RETARDA	TION - WITH CAL	IBRATION TO	OL -	_	
	Seneca Mini Mar	ii iviai t		1 C 1 THE							T
	//26/201/	//26/2017 Prepared by:		1,2,4-IMB, MW-3	IW-3						
		Contaminant:	1,2,4-TMB, MW-3						NEW QUICK	NEW QUICK_DOMENICO.XLS	
SOURCE	Α×	Ay	Az	LAMBDA	SOURCE	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(#t)	(#t)	(ft)	dov.1	WIDTH (#)	THICKNESS	(days)		MULTIDIMENSIO	"AN ANALY IICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A	
(INIG/L)		1 017	4 075 00	day-1					- NOU GIVING CON-	DECAVING CONTAMINANT SPECIES."	
4.92	1.0/E+02	1.0/E+01	1.0/E+00	0.012329	0/	Q	/ 300	51	P A DOM	P A Domenico (1987)	
Undraulia	Cilitaria		Soil Bully		7.00	2,040	>		Modified to Ir	Modified to Include Retardation	
2	Gradient	Poroeity	Density	KOC	Ord Carb	ation	(-K*i/n*B)				
(ft/dav)	(ft/ft)	(dec. frac.)	(a/cm ³⁾	2	9.5	(R)	(ft/dav)				
1.10E+00				2200	5.00E-03	55,13571429	0.004519549	6			
t Conce	utration				Centerline Plot (linear)	lot (linear)		0	Centerline Plot (log)	log)	
	x(ft) y(ft)	z(ft)		6.00 T				10.000		•	Model
107	10.7	1.07		2.00				1.000			utbut
				4.00		†	- Field Data	•	/	<u> </u>	Field Data
	x(ft)	y(ft)	z(ft)		/		° ;	0.100	/		
Conc. At	107	10.7	0	103	/		ouc		/	/	
at	7300	7300 days =	000	2.00			.; >> □ □	01.0	•	\ ^{\\}	
			0.000	1.00	-		0.0	0.001	•		I
	AREAL	CALCULATION		00:00	***************************************		Ċ	0000			
	MODEL	DOMAIN		0		50 100		0	20	100	
	Length (ft)	- 50 75			dist	distance			distance		
	5		15	20	25	30	8	35 40	0 45	90	
75	0.000	0.003	0.004	0.004	0.0	0.001	0.001	1 0.000	00000	0000	
37.5						0.012				0.000	
0	2.080	0.814	0.320	0.128	0.052		00:0	9 0.004	4 0.002	0.001	
-37.5	0.842	0.358	0.150	0.063	0.027	0.012	0.005	5 0.002	2 0.001	0.000	
-75	0.000	0.003	0.004	0.004	0.002	0.001	0.001	1 0.000	00000	0.000	
Field Data:	Centerline C	Centerline C Concentration	u,	4.92	0.0025	0		0	0 0	0	
	Distance from Source	m Source		0	85	0		0	0 0	0	

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SOURCE Ax	Z(ff)	RRB 1,2,4-TMB, MW-3 Az (ft) >=.001 Soil Bulk Density (g/cm³/ 1,7225	LAMBDA LAMBDA day-1 0.012329 KOC KOC 2200 6.00 5.00	RCE 70 70 70 Figure Plane SOURCE THICKNESS (ft) 6 Retard- ation (R) 55.13571429	(days) (days) (days) (e-K*i/n*R) (ft/day) (NEW QUICK_DOMENICO.XLS SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINIANT SPECIES" P.A. Domenico (1987) Modified to Include Retardation Centerline Plot (log)	NEW QUICK_DOMENICO.XLS SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR ECAYING CONTAMINANT SPECIE P.A. Domenico (1987) Modified to Include Retardation	S" S" Model Output	
X(ft) 107 107 107 107 105 10	AREAL CALCULATION MODEL DOMAIN Length (ft) 5 Width (ft) 5 0.000 0.003 0.842 0.358 0.842 0.358 0.842 0.358 Centerline C Concentration Distance from Source	0.000 mg/l 15 0.004 0.150 0.150 0.150	2000 2000 1.00 0.00 0.00 0.00 0.00 0.00	25 distance 0.002 0.0025 0.0025 85	30 tance 30 0.012 0.012 0.021 0.001 0.001	35 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000	00 00 00 00 00 00 00 00 00 00 00 00 00	45 45 0.000 0.000 0.000 0.000 0.000	0000 0000 0000 0000 0000 0000 0000	100

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RATION TOOL		NEW QUICK_DOMENICO.XLS		SPREADSHEEL APPLICATION OF	AN HIDIMENSIONAL TRANSPORT OF A	INIOLI IDIINEINSIOINAL I RAINSPORT OF A	DECAYING CONTAMINANT SPECIES"	P.A. Domenico (1987)	Modified to include Retardation				Centerline Plot (log)		• Model		+ Heid Data		/	•	•	•	_	0 100	distance	!		0000	0.001	0.004 0.002 0.001	0.002 0.001 0.000	0.000 0.000 0.000	0 0 0	0 0 0
ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL			100000	IIme (days)	(days)		10950		>	(=K*i/n*R)	(ft/da	0.004519549			- Model IU.000	1.000	Field Data	0.100	ouc	oo □	0.001		000.0							0.009	0.005	0.001	0	0
AY and RETARDA		-	!!!!	SOURCE	THICKNESS	(II)	9 0.		Retard-	ation		13 55.13571429	Centerline Plot (linear)				1					<u> </u>	•	001.	distance		25 30			12 0.021	7 0.012	0.001	0 9;	85 0
ORDER DEC	MW-3	_	1011100	SOURCE	WIDTH	(II)		<u> </u>	Frac.	Org. Carb.		5.00E-03	Centerline				/		/	•	-	A	_ (; >	ਰ					0.052	0.027	0.002	0.0025	
RSION,1ST	1,2,4-TMB, MW-3	~		LAMBDA	7 ::-	day-1	0.012329			KOC		2200	. 1	0	00.00	2.00	4.00			2.00	1.00									0.128	0.063	0.004	4.92	0
VAL DISP	RRB	1,2,4-TMB, MW-3		AZ	(#)	>=.001	1.07E+00		Soil Bulk	Density	(g/cm ²⁾	1.7225						z(ft)	0	000	0000	mg/I						0.004		0.320	0.150	0.004	u	
TH THREE DIMI	Prepared by:	Contaminant:		A)	(#)		1.07E+01			Porosity	(dec. frac.)	0.35		z(ft)		1.07		y(ft)	10.7	days =			CALCULATION	DOMAIN	20	(5)	10	0.003	0.358	0.814	0.358	0.003	Centerline C Concentration	n Source
ANSPORT WITH THE Seneca Mini Mart	7/26/2017				(#)		1.07E+02			ient		0.079	ntration			10.7		x(ft)	107	10950 days					Length (ft)	Width (ft)	5	0.000	0.842	2.080	0.842	0.000	Centerline C	Distance from Source
ADVECTIVE TR. Project:				<u>, , , , , , , , , , , , , , , , , , , </u>		(MG/L)	4.92		ulic			1.10E+00	Point Conce	x(ft) \ \(\text{v(ft)}		107			Conc. At	at								75	37.5	0	-37.5	-75	Field Data:	

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	Project		Seneca Mini Mart
	Contaminant and Well ID		1,3,5-TMB, MW-3
Date	7/26/2017	Prepared By	RRB
Parameter	Definition	Value	Reason
Source Concentration (mg/L)	Concentration of contaminant of concern in groundwater.	1.59	Highest concentration of 1,3,5-TMB 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	0.000275	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 Coefficent	660	See Appendix A , Table 5 of the Act 2 Regulations
Frac. Org. Carb	Fraction Organic Carbon	0.005	Estimated at 0.005

Appendix JQuick Domenico Fate and Transport Modeling

Seneca Mini-Mart 3390 State Route 257 Seneca, Pennsylvania

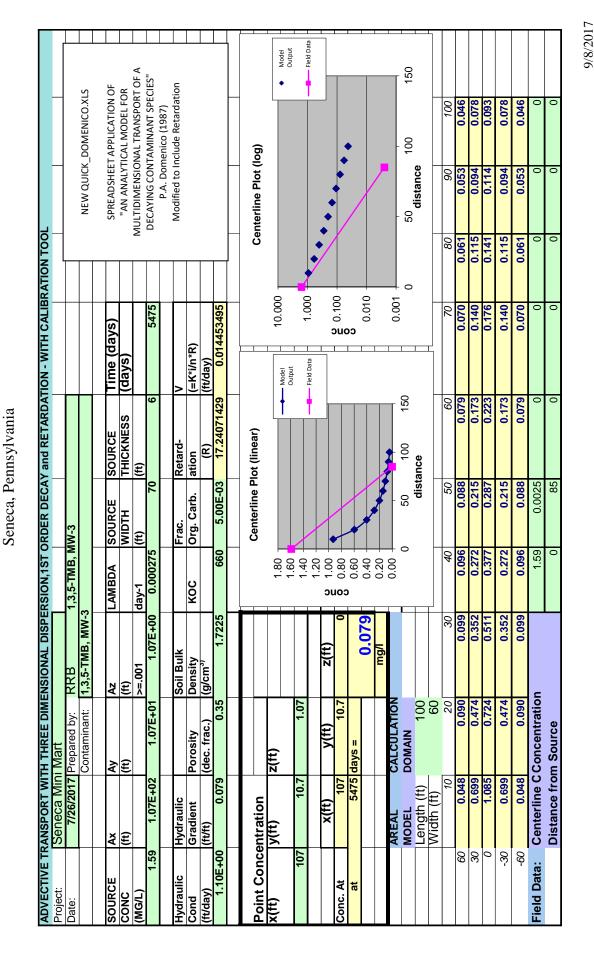
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ADVECTIVE TI	RANSPORT WI	ITH THREE DIMI	ADVECTIVE TRANSPORT WITH THREE DIMENSIONAL DISPE	RSION,1ST	RDER DECA	Y and RETARDA	ERSION, 1ST ORDER DECAY and RETARDATION - WITH CALIBRATION TOOL	RATION TOO	<u>۱</u>	-	
Project:	seneca Mini	ı Mart									
Date:	7/26/2017	7/26/2017 Prepared by:		1,3,5-TMB, MW-3	W-3						
		Contaminant:	1,3,5-TMB, MW-3		İ				NEW QUICK	NEW QUICK_DOMENICO.XLS	
							į				
SOURCE	Ą	Ay	Az	LAMBDA	Щ	SOURCE	Time (days)		SPREADSHEET	SPREADSHEET APPLICATION OF	
CONC	(ft)	(ft)		40.14	DTH	THICKNESS	(days)		"AN ANALYTI	"AN ANALYTICAL MODEL FOR	
(MG/L)				day-i		(т)			VIOLI IDIIVILIADIO		
1.59	1.07E+02	1.07E+01	1.07E+00	0.000275	70	9	3650		DECAYING CON	DECAYING CONTAMINANT SPECIES"	
									P.A. Dom	P.A. Domenico (1987)	
Hydraulic	Hydraulic		Soil Bulk		Frac.	Retard-	>		Modified to In	Modified to Include Retardation	
Cond	Gradient	Porosity	Density	КОС	Org. Carb.	ation	(=K*i/n*R)				
(ft/day)	(ft/ft)	(dec. frac.)	(g/cm³/			(R)	(ft/day)				
1.10E+00	0.079	0.35	1.7225	099	5.00E-03	17.24071429	0.014453495				
							I				
Point Conce	entration				Centerline Plot (linear)	ot (linear)		ŭ	Centerline Plot (log)	og)	
x(ft) y(ft)	y(ft)	z(ft)		1.80			10.000				
				1.60		†	Model)		•	Model
107	10.7	1.07		1.40			1 000				Field Data
				1.20				*/ */			
	x(ft)	y(tt)	z(tt)	-00.	•		o]
Conc. At	107	10.7	0				ouo		/		
at	3650	3650 days =	7900				cc		/	•	
			0.004 mg/	0.40			0.010		/		
	AREAL	CALCULATION		0.00	-	*	0 00 1				
	MODEL	DOMAIN		0	20	100 150		- C	50	100 150	
	Length (ft)	_			dista	distance		1	distance		1 1
	VVIGUT (TL)	00	08	40	20	09	02	80	06	100	
09	0.0	0.0	0.0	0.089	0.081	0.071	0.062	0.053	0.0	0.038	
30				0.252	0.197	0.156		0.100		0.065	
0	1.039	0.687	0.480	0.350	0.262	0.201	0.156	0.122	0.097	0.077	
<i>0</i> E-	0.669	0.450	0.330	0.252	0.197	0.156	0.124	0.100	080'0	0.065	
09-	0.046	0.086	0.093	0.089	0.081	0.071	0.062	0.053	0.045	0.038	
Field Data:	Centerline (Centerline C Concentration	u	1.59	0.0025	0	0	0	0	0	
	Distance from Source	om Source		0	85	0	0	0	0	0	

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Quick Domenico Fate and Transport Modeling Seneca Mini-Mart 3390 State Route 257



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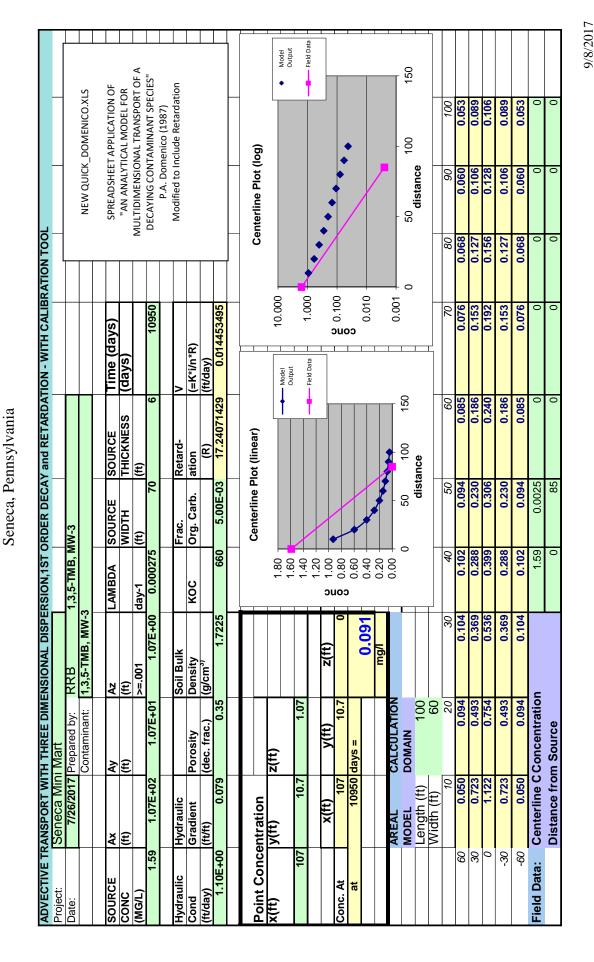
Project: Seneca Mini Mart Date: 7/26/2017 Prepared by: RRB	Seneca Mini Mart									_	
(ft) (ft)	3047 Dangard L										
DE AX (ft) (1.59	zoli / Prepared D		1,3,5-TMB, MW-3	IW-3							
(ft) (ft)	Contaminant:	nt: 1,3,5-TMB, MW- 3	3					_	NEW QUICK_L	NEW QUICK_DOMENICO.XLS	
(ff) (7) (1.59								ı			
1.59	Ay (#)	Az (ft)	LAMBDA	SOURCE	SOURCE THICKNESS	Time (days) (davs)	(S)	<u>.</u>	PREADSHEET 'AN ANALYTIC	SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR	
1.59	(2.)	001	day-1			(26)		LINM	TIDIMENSION,	MULTIDIMENSIONAL TRANSPORT OF A	OF A
	E+02 1.07E+0	1.07E+00	000275	20	9		7300	DEC	AYING CONT	DECAYING CONTAMINANT SPECIES"	ES
Ì								-	P.A. Dome	P.A. Domenico (1987)	
Hydraulic Hydraulic Cond Gradient	Porosity	Soil Bulk Density	KOC	Frac. Org. Carb.	Retard-	V (=K*i/n*R)		<u>`</u>	iodined to inc	Modified to Include Retardation	
(ft/ft)	(dec. frac.)	(g/cm ³⁾			(R)	(ft/day)					
1.10E+00 0	0.079	0.35 1.7225	099	5.00E-03	17.24071429	0.014453495	3495				
						I					
Point Concentration				Centerline Plot (linear)	ot (linear)			Center	Centerline Plot (log)	(bo	
x(ft) y(ft)	z(ft)		1.80 T		1	- Model	10.000				Model
107	10.7	1.07	1.60			Output	000				Output
			1.20		<u> </u>	- Field Data	000.1	•			Field Data
x(ft)	y(ft)	z(ft)	_					•/	•		
Conc. At	107	10.7	0.80			uc	0.100	/	•	•	
at	7300 days =) 			/	•	
		0.080	0.40				0.010				
		mg/I	0.20	*	4				,		
AREAL	CALCULATION	NOL					0.001	-		-	T
MODEL	DOMAIN		o	ā	100		0	20		100	150
Length (ft)		100		dista	distance				distance		
	10	20 30	40	20	09		92	80	06	100	
0 09	0.049	0.093 0.102	0.099	0.0	0.083		0.074	0.065	0.057	0.050	
30 00	0.713 0.	0.485 0.362	0.281	0.224	0.181		0.148	0.122	0.101	0.084	
0	1.106 0.	0.742 0.526	0.389	0.298	0.233		0.185	0.150	0.122	0.100	
-30 0	0.713 0.	0.485 0.362	0.281	0.224	0.181		0.148	0.122	0.101	0.084	
09-	0.049 0.	0.093 0.102	0.099	0.092	0.083	,	0.074	0.065	0.057	0.050	
Field Data: Centerlin	Centerline C Concentration	ation	1.59	0.0025	0		0	0	0	0	
Distance	Distance from Source		0	82	0		0	0	0	0	

SPREADSHEET APPLICATION OF "AN ANALYTICAL MODEL FOR MULTIDIMENSIONAL TRANSPORT OF A DECAYING CONTAMINANT SPECIES"	P.A. Domenico (1987) Modified to Include Retardation	Centerline Plot (log)	•	Field Data	_	0 50 150 150 150	06	0.059	0.126	0.104	0.059 0.05	0 0 0
Time (days) (days)	V (=K*i/n*R) (ft/day) 0.014453495			couc	0.010							0
SOURCE THICKNESS (ft)	Ret atic	ne Plot (linear)	†			100 istance						85 0
3DA 000275	KOC Org. Car 660 5.00	Centerli	1.80	conc (500 (500 (500 (500 (500 (500 (500 (50	0.20	0						1.59 0.0 0
Az (ft) >=.001 0	Soil Bulk Density (g/cm³/			Z	٤							uc
(ft) (02 1.07E+01	Porosity (dec. frac.		z(ft)	y(ft)	CALCULATION						50 0.094	Centerline C Concentration Distance from Source
(ft) (Tt) (Tt)	ulic Hydraul Gradien) (tVft) 1.10E+00	t Concentration	y(ft) 107 10	x(ft	AREAL	MODEL Length (ft					20	
	Ax Ay Az LAMBDA SOURCE SOURCE Time (days) (ft) (ft) (ft) width THICKNESS (days) 1.07E+02 1.07E+01 1.07E+00 0.000275 70 6 9125	DE Ax Ay Az LAMBDA SOURCE SOURCE Time (days) (ft) <	Concentration Ax	SE Ax Ay Az LAMBDA SOURCE SOURCE Time (days) SPREADSHET APPLICATION OF "AN ANALYTICAL MODEL FOR "AN ANALYTICAL	Concentration Concentratio	Ax Ay Az LAMBDA SOURCE SOURCE SOURCE Time (days) Analytical Model FOR	Concentration Concentratio	1.00 1.00	1.59	1.59	1.56	1.59 1.07E + 0.02 1.07E + 0.0

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