



COMPLIANCE ENVIRONMENTAL SERVICES

P.O. Box 186 • West Middlesex, PA 16159 • Ph: 724-342-1990 • www.ces-env.com

SITE CHARACTERIZATION REPORT AND REMEDIAL ACTION PLAN

Facility Information:

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, PA 16159
Shenango Township, Mercer County
PADEP Facility ID No. 43-04177
PAUSTIF Claim No. 2016-008

Prepared For:

Shenango Township
3439 Hubbard-West Middlesex Road
West Middlesex, PA 16159
(724) 528-9571

Prepared By:

Compliance Environmental Services
2700 Kirila Boulevard
Hermitage, PA 16148
(724) 342-1990

Written By:

Dave Siekkinen, P.G.
dsiekkinen@ces-env.com
and
Albert M. Richnafsky, P.G.
(724) 342-1990
brichnafsky@ces-env.com



Submitted To:

Ms. Nancy Duerring, P.G.
Pennsylvania Department of Environmental Protection
Environmental Cleanup and Brownfields
Northwest Regional Office
230 Chestnut Street
Meadville, PA 16365

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**SITE CHARACTERIZATION REPORT
AND REMEDIAL ACTION PLAN**

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PAUSTIF Claim No. 2016-008
March 15, 2017

EXECUTIVE SUMMARY

A release of unleaded gasoline from an underground storage tank (UST) system was discovered at the Shenango Township Municipal Building complex (the "Site") located at 3439 Hubbard-West Middlesex Road, West Middlesex, PA 16159 (mailing address); Shenango Township, Mercer County (physical location) on December 4, 2015, during removal of an unleaded gasoline UST.

Interim remedial actions have not been necessary to prevent an imminent threat to human health or the environment. Water supplies have not been affected as supported by testing of the Township's water supply well and monitoring wells near the hydraulically down-gradient property boundary. Free product, referred to herein as separate phase liquid (SPL), has not been encountered at the Site.

Analytical results for soil, groundwater and soil vapor/indoor air quality have been evaluated according to the appropriate Statewide Health Standard (SHS), as stated in the site Characterization Report (SCR). Exceedance of a SHS (or in the case of soil vapor/indoor air quality, PADEP Indoor Air Criteria screening values) results in a need for further evaluation or remedial action to comply with *PA Code Title 25, Chapter 250* (Administration of Land Recycling Program) and *PA Code Title 25, Chapter 245* (Administration of the Storage Tank and Spill Prevention Program).

The locations of each of the soil borings, monitoring wells and soil vapor sampling locations are provided in Figures 4A and 4B. Soil samples were collected from 17 soil boring locations. The analytical results from these borings, provided in Table 3, show that samples from four locations exceeded Statewide Health Standards (SHS). The impacted soil is shallow (≤ 4 feet) and limited to the area immediately around the UST cavity, including the north side of the active diesel fuel UST. Soil below this depth is below the seasonal high water table and is thereby considered a groundwater issue.

Seventeen groundwater monitoring wells have been installed at the Site, four of which have well screen restricted to the upper 10 to 15 feet of bedrock. Five rounds of groundwater sampling have been completed for MW-1, MW-2, MW-3, MW-4, and MW-6. Three rounds have been completed for MW-9, MW-10, MW-11, and MW-12, which were installed in September 2016. One round has been completed for MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-24, and RW-1, which were installed in February 2017. The analytical results for groundwater sampling are tabulated in Table 4. MW-3, located approximately 6 feet north and down-gradient from the UST cavity, near the northern edge of the diesel tank UST, has had eight of the nine Chemicals of Concern (COC) exceed the SHS. RW-1, located approximately 5 feet north and down-gradient from the UST cavity, approximately 8 feet west of MW-3, had seven of the nine COC exceed the SHS. MW-6, located in the former gasoline UST excavation, has had five of the nine COC exceed the SHS. MW-23, a bedrock ("deep") monitoring well located approximately 25 feet north and down-gradient from the UST cavity had only MTBE exceed the SHS in the one round of groundwater sampling. The groundwater samples from MW-4, located 48 feet to the north and down-gradient from the former gasoline UST excavation, have exceeded the SHS for Benzene and MTBE during three of the five sampling events. The two most recent sample tested from MW-4 (11/1/16 and 2/17/17) showed no COC above the SHS. MW-19, installed in February 2017 on the west side of the Township Building, had two of the nine COC exceed the SHS. MW-21, installed in February 2017 in the parking lot on the west side of the Township Building, had four of the nine COC exceed the SHS. All of the exceedances at the west side of the building were from wells completed above bedrock.

The source area is the former gasoline UST cavity. The groundwater contamination plume follows the groundwater flow direction, which is to the northwest. MW-23 is the only monitoring well which is screened entirely within bedrock that has had an exceedance of a COC (MTBE). The remaining wells that have had exceedances are shallow wells screened within the glacial till. The water well on the site has been sampled two times and has not had any detection of COC. This well is currently on a monthly sampling schedule.

Soil vapor/air phase samples were collected July 11, 2016; August 2, 2016; and January 19, 2017. Test results are provided in Table 5. Soil vapor/air phase test results have exceeded Indoor Air Criteria Nonresidential screening values; therefore further testing will be performed as Additional Site Characterization, described in Section 5.0. The additional air phase sampling will include two sub-slab locations positioned along the potential COC in groundwater migration pathway.

SITE CHARACTERIZATION REPORT

1.0 INTRODUCTION

This SCR describes Site Characterization (SC) activities that took place to define the extent of hydrocarbon impacts that may have occurred to potentially impacted media, specifically soil (used herein to include all solid subsurface materials above bedrock), groundwater, and hydrocarbon vapors (soil gas/air matrix). This SCR provides conclusions regarding the horizontal and vertical extent of impacted soil and groundwater and the potential for impact to indoor air quality through testing of soil vapors/air matrix samples.

This SCR presents the results of all SC activities that have taken place at the Site since the release was discovered on December 4, 2015.

The Site is owned by the municipality of Shenango Township, Mercer County, Pennsylvania. The primary contact for the Township is Ms. Lynnett Beck (724) 528-9571.

Environmental activities are being conducted by Compliance Environmental Services (CES), David E. Siekkinen, P.G.; Project Manager. CES contact information is 2700 Kirila Boulevard, Hermitage, PA 16148; (724) 342-1990; dsiekkinen@ces-env.com.

2.0 FACILITY LOCATION AND DESCRIPTION

2.1 Location

The Shenango Township Municipal Building complex (the "Site") is located in Shenango Township, Mercer County, Pennsylvania. The mailing address of the Site is 3439 Hubbard-West Middlesex Road, West Middlesex, PA 16159. The location of the property is shown in Figure 1 (U.S.G.S. Topographic Map). Coordinates for the Site are: Latitude 41°10'8.58" North; Longitude 80°28'50.29" West (near the center of the former unleaded gasoline UST). The Site is located in a semi-rural area of Shenango Township, west of the Borough of West Middlesex and approximately 1.5 miles west of the intersection of PA Route 18 and Hubbard-West Middlesex Road. Land use in the area is mixed residential, agricultural, and limited commercial. An aerial view of the Site and surrounding area is provided in Figures 3 and 4B.

2.2 Facility Description

The Shenango Township Municipal Building complex property consists of one parcel of land consisting of 10 acres. The shape of the property and property boundary are shown on the Site Map / Tax Map (Figure 2) and Surveyed Site Map (Figure 2A). Site features are shown on

Figures 4A and 4B. The Site is located at the southeast corner of the intersection of Hubbard-Middlesex Road and Jackson Road. The property is somewhat irregular in shape, having approximately 668 feet fronting Jackson Road at the west side of the Site and approximately 285 feet fronting Hubbard-Middlesex Road to the north of the Site. The maximum east-west length of the Site is approximately 900 feet. The property is bordered by single family residences to the north, east, and south. A paving company is located to the northwest of the Site. Wooded property borders part of the Site to the south, and agricultural fields are located east and west of the Site.

Shenango Township utilizes the property for various Township purposes such as administrative offices, meetings, police headquarters, fire station, and as the township maintenance garage and vehicle base. Approximately 8 acres of the property to the south and east of the USTs area are utilized as the Shenango Township Community Park. The Shenango Township Community Park (the "Park") portion of the property is hydraulically up-gradient and at a higher elevation than the former unleaded gasoline UST and no impact from the release is anticipated in the Park area.

The Site and surrounding area are served by individual private "on-lot" septic systems and water supply wells. It is considered in this report that all inhabited dwelling within the area of concern from the release rely on individual water supply wells.

2.2.1 Report Base Maps

Figures 2A and 4A represent "to scale" base maps surveyed by Henry T. Welka and Associates, LLC, a professional surveying company. Figures 3 and 4B, are based on "to scale" aerial imagery provided by Google Earth and provide a "real time" image of surface features existing at the Site as of the date of the aerial imagery. To document the accuracy of the aerial imagery, the scale provided in the Figures was checked by direct measurements of distances between features at the Site and also compared with the surveyed base maps. The Figures provided in this report meet the requirements of *PA Code Title 25, Chapter 245.310, Site Characterization Report*.

2.3 Physical Setting

2.3.1 Topography and Drainage

Figure 1 shows the natural topographic contours at and surrounding the Site from the U.S.G.S. 7½ minute topographic map. Topographic contours are also provided in Figure 2A, 4A, 5A, 5B, and Figures 6A through 6R. The elevations shown by the topographic contours illustrated on the surveyed maps are based on an arbitrary bench mark of 100.0 located at the southeast corner of the fire station building. The elevation of the arbitrary bench mark relative to mean sea level is approximately 1,009 feet. A cross-section is provided in Figure 7.

The elevation of the Site property ranges from 1,128 feet above sea level (asl) at the southeast corner to 1,005 feet asl at the northwest corner. The Park portion of the property occupies the entire southern and eastern parts of the Site, with all parts of Park at a higher elevation than the USTs area.

The main municipal building, located at the northwest portion of the Site, consists of interconnected structures housing the township offices, garage, fire station, and police station. A parking canopy and an equipment garage are located east of the main municipal building. A 10,000-gallon diesel UST and dispenser pump are located near the southeast corner of the garage section of the main municipal building. The diesel UST is oriented in an east west direction. The former 10,000-gallon gasoline UST was located parallel and south of the diesel UST, as shown in Figures 2A, 4A and 4B. The former gasoline dispenser was located adjacent and south of the diesel dispenser ("diesel pump") shown in Figure 4A (and others) at the east side of the garage. A gasoline aboveground storage tank (tank is brand new and unused as of the date of this report) is currently located at the edge of the driveway area southeast of the municipal building complex. The northwest portion of the Site encompassing the Shenango Township Municipal Building complex is relatively level, with an elevation relief of approximately 6 feet between MW-1 and lower area at the northwest corner of the Site around MW-9 and MW-10.

Surface water at the Site drains to drainage swales and catch basins which are present along the north, west and south sides of the area of concern, all of which drain into a catch basin at the northwest corner of the property (Photograph # 7). Drainage from the northwest catch basin then drains beneath Route 318 by means of a culvert pipe that discharges at the north side of Route 318. The ephemeral stream that begins at this location has an elevation of approximately 1,103 feet asl and has a well defined channel flowing in a north-northwesterly direction (before turning north-northeasterly). This ephemeral stream becomes part of an unnamed perennial stream that is a tributary of Shenango River, entering the river approximately 1.5 miles from the Site. No other surface bodies of water are a concern for SC. Paved parking areas are located to the west and north of the municipal building complex. The driveway area south and east of the municipal building complex is hard packed gravel. The northwest portion of the Site is covered by grass and trees as is evident in Figures 3 and 4B.

No other man made features have been recognized that could have a bearing on SC. Underground and above ground utilities and piping are shown in Figures 2A and 4A. A 1-inch underground natural gas line enters the west side of the building in the office area and an underground electric line enters the south side of the building in the garage area. No other underground features have been identified that could act as a conduit for accelerated migration of contaminants.

Photographs of the Site are provided in Appendix J.

2.3.2 Soil, Stratigraphy and Geology

The soil type occupying the entire area of concern for SC is listed in Soil Survey of Mercer County, PA (*U.S.D.A Soil Conservation Service, 1971*) as RaB2, Ravenna silt loam, 3-8% slopes, moderately eroded; and CdB2, Canfield silt loam, 3-8% slopes, moderately eroded. Both soil types are very similar. For both soil types, it is described that because of erosion the upper soil layer now consists partly of brighter colored subsoil but originally had a dark grayish-brown silt loam surface layer and mottled firm silt loam yellowish-brown subsoil. The water table is seasonally high with slow permeability. Both soil types are developed on firm glacial till that normally occurs at a depth of 6 to 9 feet, as has been documented by drilling. Much of the area containing both soil types is or has been cultivated in the area. A soils map of the Site and surrounding area is provided as Figure 9.

Glacial Geology of Northwestern Pennsylvania (*Bulletin G-32, Pennsylvania Topographic and Geologic Survey, 1959*) shows that beneath the soil column the entire area is underlain by glacial till belonging to the Pleistocene Age Kent End Moraine system. This silt loam till is very dense in part and of low permeability. Where the till contains more sand and gravel, permeability can be moderately good within thin discontinuous lenses, as found at MW-4. In general, contaminants coming into contact with these lenses can migrate, mostly horizontally and typically only for short distances. Based on the writer's knowledge of the area, glacial till typically varies from 8 to 25 feet thick, with the bottom several feet containing a substantial percentage of weathered bedrock. This weathered bedrock zone can also display higher permeability and conductivity. The top of bedrock was found to occur at a depth of approximately 6.9 to 9.5 feet. A geologic map that describes the bedrock units is provided as Figure 8.

There are no geologic structures in the area that would have a bearing on the migration of any hydrocarbons. There are no significant karst features in shallow bedrock strata. Bedrock over a short distance is relatively flat, having local dips of variable direction and typically less than 2 degrees. The regional dip is approximately 90 feet/mile or less to the south-southeast. The very limited potential for migration of liquids within bedrock is dependent on the orientation, continuity and frequency of horizontal partings and vertical joint sets. It appears unlikely that hydrocarbon impacts have significantly impacted bedrock even though the bottom of the UST cavity appears to have encountered the top of bedrock. MW-9, MW-18, MW-20 and MW-23 are screened solely within bedrock and will serve as a means of evaluating any potential hydrocarbon impact within bedrock. The one sample tested to date from MW-23, located just north of the hydrocarbon impacted area showed MTBE to be above the SHS. Additional testing will show whether or not this is cause for concern or just minor cross contamination introduced during the well installation process.

The thickness of unconsolidated materials above bedrock, as determined by direct observation during drilling, ranges from approximately 6.9 to 11.5 feet.

2.3.3 Hydrogeology / Hydrology / Aquifers

Drilling evidence, information provided in various geologic publications and the writer's experience in the area indicates that groundwater impacts above SHSs from dissolved phase hydrocarbons are present within the fill material of the USTs cavity and extend to the north approximately 50 feet and northwest approximately 140 feet (as far as MW-21) within the unconsolidated deposits, hydraulically down-gradient from the location of the release, beneath the Township Building and into the parking area to the west of the building (as shown in Figures 6K through 6M. The majority of the detected dissolved hydrocarbons are limited to the sequence of subsurface materials overlying the dense glacial till at the top of bedrock; with the exception of MTBE detected in the deeper bedrock monitoring wells MW-23, MW-18, and MW-20 (only MW-23 exceeded the SHS for MTBE in the deeper wells).

As described in section 2.4.3, most of the water wells identified in the Pennsylvania Groundwater Information System (PAGWIS) database within 0.5 mile of the Site are completed in sandstone bedrock units. Where unconsolidated glacial deposits are thick, such as between moraines and buried valleys, high yield wells are common but these conditions are not present within a 1 mile radius of the Site. Wells completed in sandstone bedrock aquifers within 0.5 mile radius of the Site reportedly yield from 5 to 20 gallons per minute (gpm) as reported in the PAGWIS database.

There is no municipal water supply serving the area around the Site. The Shenango Township Municipal Building and local residences utilize water wells. Aqua Pennsylvania, Inc., the municipal water provider to the east (2,600 feet away) and west (3,400 feet away) of the Site, obtains its water supply from the Shenango River,

Based on observations during groundwater sampling, most monitoring wells at the Site show fairly low groundwater recharge capability (estimated ≤ 1 gpm) within the subsurface interval of concern, above bedrock, with the exception of occasional discontinuous sand/gravel lenses, such as in MW-4 or fractured bedrock lenses as found at RW-1. From monitoring wells that intersect one of these lenses, the recharge was still ≤ 2 gpm based on aquifer testing. Based on observations from drilling, sampling, and aquifer testing, permeability and hydraulic conductivity at the Site is moderately low throughout the Site.

As previously stated, the entire area of concern for SC is served by residential private water supply wells. The primary source aquifers in the area are bedrock sandstone units of the Pottsville Group (lowermost Pennsylvanian System) or the Shenango Formation (uppermost Mississippian System). Most water wells in the area have a total depth of between 65 to 215

feet. It is possible to have shallow water supply wells in the unconsolidated glacial till deposits above bedrock where the till has an abundance of sand and gravel lenses, however, none are reported in the PAGWIS database within 0.5 mile of the Site. Wells completed within the unconsolidated deposits are of greatest concern for hydrocarbon impacts. The topography does not show any nearby features that appear suitable to contain sufficient sand and gravel deposits for a water source.

At the Site, groundwater level fluctuation at individual monitoring wells is a maximum of 3.50 feet, based on data provided in Table 4. Amongst all of the monitoring wells at the Site, depth to groundwater has ranged from 1.84 foot to 12.11 feet. Depth to groundwater for individual monitoring wells is provided in Table 4.

Groundwater flow at the Site is shown in Figures 5A through 5D to flow in a northwesterly direction in both the shallow and the deeper monitoring wells.

Water wells within 0.5 mile of the Site that are restricted to the bedrock aquifer report static water levels from 10 to 40 feet BGL (Table 1). The static water levels of the wells reported within 1 mile of the Site average 50 feet BGL.

2.3.4 Regional Groundwater Flow

Most water wells in the area utilize sandstone members of the Pottsville Group (lowermost Pennsylvanian System) or the Shenango Formation (uppermost Mississippian System). These are the most important groundwater aquifers within the regional area but yield is generally too low for use as municipal wells. The Shenango River is mainly the source of the area-wide municipal supplies. A review of the 112 water well entries listed within a 2-mile radius of the Site in the PAGWIS database shows that most well are less than 150 feet deep and likely utilize sandstones near the bottom of the Pottsville Group bedrock sequence. These wells typically yield 5 to 25 gpm. There is one industrial well identified within a 2-mile radius which has a reported capacity of 225 gpm located 1.9 miles away from the Site. No evidence was found of the existence any local shallow or dug wells having a water source within the vertical sequence of concern for SC. If groundwater testing shows that contaminants are migrating toward potentially susceptible off-site water wells, CES will perform a door-to-door survey to further evaluate local water supply wells and collect water samples upon request.

The shallowest groundwater flow at the Site, based on data from monitoring wells, is to the north-northwest at a hydraulic gradient of 2 to 3 percent, as shown in Figures 5C (for shallow overburden wells) and 5B (for deeper/bedrock wells). Regional groundwater flow varies greatly and typically is in the direction of the regional and local surface water drainage systems. Deep groundwater movement (below the level of the major surface water drainage systems) has not been evaluated but would be expected to be to the south-southeast, the regional dip direction of

bedrock. The Shenango River, the major regional discharge surface water, is located within 2 miles to the north, east, and southeast of the Site. Shallow groundwater flow is typically toward the most local surface water drainage system where discharge of groundwater to surface water would be expected. The nearest surface water to the Site is an ephemeral stream that begins at the north side of Route 318 at an elevation of approximately 1,103 feet asl and has a well defined channel flowing in a north-northwesterly direction (before turning north-northeasterly). This ephemeral stream becomes part of an unnamed perennial stream that is a tributary of Shenango River, entering the river approximately 1.5 miles from the Site.

2.4 Sensitive Receptor Analysis

2.4.1 On-Site Water Well

One water supply well is present on the Shenango Township Municipal Building complex property. This well is located west of the office section of the main building, down-gradient from the UST cavity (Figure 4B and Photograph #9). This well has a reported total depth of 125 feet with surface casing extending to 27 feet. This Township water supply well was sampled on July 26, 2016, and on February 24, 2017; no detectable COC concentrations were found (Table 4). The Township water supply well is not used for consumption purposes and signs have been posted at sinks advising not to drink the water. A water cooler is provided for drinking water. The Township water well will be sampled monthly beginning in February 2017.

2.4.2 Impact to Water Supplies

There is no municipal water supply serving the area around the Site. The Shenango Township Municipal Building and local residences utilize water wells. Aqua Pennsylvania, Inc., the municipal water provider to the east (2,600 feet away) and west (3,400 feet away) of the Site obtains its water supply from the Shenango River, as specified in the 2014 Water Quality Report for PWSID # PA6430054. This document is supplied annually to PADEP by public water systems. The PAGWIS was also checked for wells located within ½ mile radius and 1 mile radius of the Site. A walking site reconnaissance was also performed of the area and water wells not shown in the PAGWIS database were observed. This SCR considers that all inhabited properties within the area of concern have water supply wells.

The closest water supply well is the Shenango Township water well, which is located directly down-gradient from the former gasoline UST location. This well has not been impacted by the release. Shallow monitoring wells have been installed to the south, west and north of the Township water well, and deeper bedrock wells have been installed to the south and west of the Township well. The shallow wells MW-19 and MW-21 have COC exceedances. The deeper bedrock monitoring wells (MW-18 and MW-20; both screened from 20 to 25 feet) had detections of MTBE from the initial groundwater sampling event on 2/17/17, but these values were below SHS. This situation will be further documented by ongoing groundwater testing. There has been

no indication of any impact to surface water bodies or off-site water supply wells from the released unleaded gasoline at the Site.

2.4.3 Well Search

A search was performed on December 9, 2016 of the Pennsylvania Department of Conservation and Natural Resources (DCNR), Bureau of Topographic and Geologic Survey, PAGWIS to identify water wells within 0.5 mile of the Site. Results of the search are provided in Table 1 and approximate well locations are illustrated on Figure 3. The PAGWIS search shows 10 wells are located within a 0.5 mile search radius. Four of the wells are monitoring wells at the Site (MW-9, MW-10, MW-11, and MW-12). There is no public water supply or industrial water well listed in the PGWIS database within 1.0 mile of the Site. This SCR considers that all inhabited properties within the area of concern have water supply wells.

Excluding the four Site monitoring wells on the list, the reported yield of wells within 0.5 mile of the Site range from 5 to 20 gallons per minute, with well depths ranging from 65 to 215 feet, which are completed into bedrock, as shown in Table 1. The PAGWIS database indicates that wells within 1 mile of the Site yield 4 to 50 gpm.

A review of the PAGWIS database on December 9, 2016 shows one high capacity well located within 2 miles of the Site. This well, listed as owned by Wheatland Tube, reportedly has a capacity of 225 gallons per minute and is located 1.9 miles away from the Site.

2.4.4 Potential Sensitive Receptors

There are no recognized “geologically susceptible or sensitive areas”. There are no geologic conditions such as karst dissolution, faults, or fracture zones that would result in accelerated migration of contaminants. Permeability and hydraulic conductivity at the Site are moderately low, as previously described in Sections 2.3.3.

There are no “socially susceptible or sensitive areas” within the potential maximum extent of the COC plumes in groundwater. There are no schools, parks or hospitals within a 0.5 mile radius of the Site.

2.4.5 Potential Ecological Receptors

Potentially Affected Flora and Fauna – The only potential impact to flora or fauna resulting from the gasoline release is speculated be to (no observed affect) burrowing micro-fauna (predominately microorganisms, insects and worms) by direct contact with contaminated soil at the tank cavity or with impacted groundwater within the contaminant plumes mainly encompassing MW-3, MW-6, MW-19, MW-21, MW-23 and RW-1 (illustrated in Figures 6A through 6R). The entire area being referred to is within the Shenango Township property, beneath the hard packed gravel driveway area, beneath the garage area of the main building, and

beneath the paved parking lot to the west of the main building and at a depth of 2 feet or more. With these considerations there is only minimal potential impact to micro-fauna. There is no flora present within the area impacted by the unleaded gasoline release. A 30-year Bioscreen F&T Model, prepared prior to the February 2017 installation and testing of additional monitoring wells, showed the potential migration distance of Benzene (the main COC) in groundwater above the SHS is 50 feet, which is well within the property boundary. Considering that only one round of groundwater data is available for the newly installed wells, a meaningful Fate and Transport computer model is not applicable at this time. Migration of COC will be continually evaluated by groundwater level monitoring and testing. As of this report, the outer margin and depth of the dissolved hydrocarbon plume has been identified.

Potentially Affected Flora and Fauna on Endangered Species List – A Pennsylvania Natural Diversity Inventory (PNDI) search conducted on December 15, 2016 was performed to evaluate potential impact to listed or protected flora and fauna species. The PNDI search includes four agencies: PA Game Commission; PA Department of Conservation and Natural Resources; PA Fish and Boat Commission; and U.S. Fish and Wildlife Service. Each of the four agencies concluded that there was “no known impact” and “no further review required” was listed as the response. With the information provided by these database searches and the conditions at the Site described in this report, it is easily concluded that there is no potential threat to any flora and fauna on the endangered species list from the unleaded gasoline release.

Potential or Observed Effects of Contamination on Vegetation or Wildlife – There are no potential or observed effects of contamination on vegetation or wildlife at the Site. The affected area is within the graveled driveways, east and west of the maintenance garage.

The only potential impact to flora or fauna resulting from the unleaded gasoline release is speculated be to (no observed affect) burrowing micro-fauna (predominately microorganisms, insects and worms) by direct contact with, and only within the area where dissolved COC in groundwater are above the SHS, as shown in Figures 6A through 6R. This potential impact would be minimal at best. The top of the saturated zone within the plume occurs at a depth of 2 to 7 feet. There is no observable impact to flora within or outside of the property resulting from the release of unleaded gasoline that was discovered on December 4, 2015. There is minimal vegetation within the hydrocarbon impacted area.

This SCR concludes that there are no potential or observed effects of contamination on vegetation, wildlife or other ecological receptors at the Site as a result of the unleaded gasoline release and no effects are expected in the future. The only potential exposure pathways, as shown in the Conceptual Site Model in Table 6 are to on-site construction workers and groundwater supplies.

2.4.6 Potential Migration Pathways

No preferential migration pathways have been recognized that would have a bearing on groundwater flow. Figures 2A and 4A show underground and aboveground utility locations, which include an underground natural gas line west of the building and an underground electrical line near the southeast corner of the building.

2.5 Current and Future Land Use

The Site has been used by Shenango Township for their municipal headquarters since 1968, and is currently being used for that purpose. The Township utilizes the property for administrative offices, meetings, police headquarters, fire station, and as the township maintenance garage and vehicle base. The portion of the building closest to the USTs area is used as a maintenance garage. Approximately 8 acres of the property to the south and east of the USTs area are utilized as the Shenango Township Community Park.

Land use in the area is mixed residential, agricultural, and limited commercial. An aerial view of the Site and surrounding area is provided in Figures 3 and 4B. The property is bordered by single family residences to the north, east, and south. A paving company is located to the northwest of the Site. Wooded property borders part of the Site to the south and north, and agricultural fields are located east and west of the Site. The Site and surrounding area are served by individual private "on-lot" septic systems and water supply wells.

There is no sign or knowledge of future changes in land use in the area.

3.0 FACILITY BACKGROUND

3.1 Site History

Shenango Township, the current owner of the property, utilizes the property for various Township purposes such as administrative offices, meetings, police headquarters, and as the township maintenance garage and vehicle base. The current size of the property is 10 acres, as shown in Figure 2 as parcel number 131 (Mercer County Tax Map 27 184 131). Approximately 8 acres of the property to the south and east of the USTs area are utilized as the Shenango Township Community Park. The Park portion of the property is hydraulically up-gradient and at a higher elevation than the former unleaded gasoline UST and no impact from the release is anticipated in the Park area.

The USTs are/were used to fuel Township vehicles. A 10,000-gallon coated steel diesel fuel UST located north and adjacent to the former gasoline UST shown is still in use. Only the

10,000-gallon “StiP3” coated steel unleaded gasoline tank was removed on December 4, 2015 (location illustrated in Figure 4A). Both tanks were located in the same excavation when installed in 1979.

The property in which the former unleaded gasoline USTs was located was purchased by Shenango Township on May 14, 1966 from Betty Mason Hofmeister and Walter S. Hofmeister (Mercer County Deed Record No. 1031). Prior to being purchased by Shenango Township, the property appears to have been used for agricultural purposes, as evident in aerial photographs provided in *Sheet Number 43 of Soil Survey, Mercer County, PA; U.S.D.A., Soil Conservation Service (1971)* dating back to the 1960s. Construction of the current Township Municipal Building was completed in 1968. The property has been used for Shenango Township municipal purposes since that time. The two underground storage tank (UST) systems were installed in August 1979. Underground fiberglass piping extended/extends a short distance from the top of the tanks to the gasoline and diesel fuel dispensers that are/were located at the southeast corner of the municipal building, as shown in Figure 4A and Photographs #4. Underground piping and the dispenser serving the former unleaded gasoline UST have been removed. The diesel fuel tank system is still active.

The aerial photograph of the Site found in *Soil Survey, Mercer County, PA, U.S.D.A. (1971)*, shows the subject property and surrounding properties to be mostly cropland divided by forested plots (at that time). Currently, part of the cropland has reverted to forest. Only a few rural residential dwellings along the main road bordering the north side of the property, PA Route 318, were present within 1,000 feet of the Site in 1971. Currently, there are more residential dwellings within 1,000 feet of the USTs but not many more on the north side of Route 318, the area that could potentially have groundwater impacts resulting from the release. The only noteworthy property use within 1,000 feet is the Davano Paving business located approximately 400 feet to the west of the northwest corner of the subject property, on the north side of Route 318. It appears that the Davano Paving property is used mainly for vehicle and equipment storage. No asphalt processing facilities were evident.

Since being installed in 1979, Township personnel indicated that only routine maintenance has occurred to the tank systems. The UST systems were/are equipped with spill and overfill protection and a “Veeder-Root” leak detection system. The Veeder Root system automatically prints out leak detection reports that are retained by Township personnel. No leaks have been identified by the Veeder-Root system to date. According to Township personnel, the removed UST “looked perfect” when removed from the ground, as supported by Photograph #8 located in Appendix J.

No evidence of any other release was discovered on the Shenango Township property or at any other property within an area of concern for potential impacts. An aboveground storage tank

(AST) is currently located along the gravel driveway area southeast of the UST (Photographs #2 and 3). This AST is brand new and unused, having never contained any petroleum product or hazardous substance. No other fueling systems are known to exist within at least 1,000 feet of the Shenango Township UST systems. No other site investigations for a fuel release are known to exist or have existed within the area of concern for SC.

3.2 Description and Type of Regulated Substances

The only regulated substance of concern is “virgin” unleaded gasoline. A Material Safety Data Sheet (MSDS) describing the characteristics of unleaded gasoline and health and safety concerns is provided in Appendix D. Unleaded gasoline can contaminate surface water, groundwater and soil and has a high potential for impacting indoor air quality by means of volatilization from underground media, both soil and groundwater, due to its high volatility. It is believed that the origin of the released substance was a “swing joint” at the top of the UST that connected the unleaded gasoline tank with fiberglass piping leading to the dispenser. It has been reported that discolored soil was evident at this location during removal of the UST on December 4, 2015.

Compounds that are being tested to evaluate the presence and concentration of unleaded gasoline in soil and groundwater, using the PADEP “New Short List” of unleaded gasoline constituents, include Benzene; Toluene; Ethylbenzene; Total Xylenes; MTBE; Naphthalene; Cumene (Isopropylbenzene); 1,2,4-Trimethylbenzene (1,2,4-TMB); and 1,3,5-Trimethylbenzene (1,3,5-TMB).

No separate phase liquid (SPL) was observed during the UST removal. Discoloration of soil and analytical results from soil and groundwater samples above PADEP statewide health standards (SHS), collected by the tank remover A. Graziani and Company, Inc. upon removal of the UST, were the reasons for PADEP to request that a site characterization (SC) be performed. PADEP representative Andrew Sepos was on-site during the removal of the tank and a Storage System Report Form was prepared (12/4/15) that stated: “heavy dark staining and odors to 12’ depth. Observed staining across top of tank on west end”. A copy of this report, which addresses fire, explosion, and safety hazards, is provided in Appendix K. The Notification of Reportable Release, verbally provided to PADEP on December 4, 2015 (written submittal 12/7/15), estimated that 30 gallons of product were released. The period of time over which this release occurred is not known. No SPL has been observed during any of the activities at the Site and leak test reports have not indicated any loss of product.

Analytical results and the location of soil and groundwater samples collected in conjunction with the UST removal on December 4, 2015 are provided in the January 7, 2016 Underground Storage Tank System Closure Report Form (Appendix K). Soil values exceeded SHS for 1,3,5-Trimethylbenzene; 1,2,5-Trimethylbenzene; and Naphthalene in the Tank West (#38); Tank East

(#39); and Tank Backfill (#40) samples. Soil samples from under the "Pump" (Dispenser) and Piping showed no exceedances of SHSs. The two groundwater samples from the tank pit were above the SHS for all parameters tested (MTBE; Benzene; Toluene; Ethylbenzene; Xylenes; 1,3,5-Trimethylbenzene; 1,2,4-Trimethylbenzene; and Naphthalene).

Soil removed from the tank cavity, as was necessary to remove the UST, was placed back into the tank pit. No soil was disposed off-site.

The gasoline UST was emptied of product by Shenango Township prior to removal. The only disposal associated with closure of the UST system was one 55-gallon drum of tank liquids derived from the cleanout of the tank. The waste was listed as 565 pounds on the waste manifest prepared by the licensed disposal/treatment company Environmental Specialists, Inc. of Youngstown, OH. Shenango Township is listed as a USEPA conditionally exempt small quantity generator (CESQG). No waste disposal manifest has been provided by A. Graziani and Company, Inc., the tank removal company.

No conduits have been identified that would enable the released unleaded gasoline to selectively migrate beyond the confines of the USTs area so it is likely that hydrocarbon impacts migrated to the northwest, under the Township building and beneath a portion of the parking lot at the west side of the building during periods of high groundwater levels and groundwater contact with shallow subsurface materials with increased permeability resulting from construction activities. The extent of hydrocarbons can best be observed in Figures 6K through 6M. The presence of hydrocarbons beneath the parking lot at the west side of the building was just discovered during installation of monitoring wells in February 2017. It appears that hydrocarbons have migrated beneath the Township building in order to be present beneath the parking lot to the west. It is advised that the proposed remedial actions are initiated as soon as possible to alleviate the potential for further migration and potential impact to water supply wells.

There has been no need for interim SPL recovery (no SPL reported) or other remedial action at the Site.

3.2.1 Regulated Substances In Soil

The first round of soil samples was collected on May 18 and 19, 2016. A second round of soil samples was collected on September 13 and 14, 2016, associated with the second round of drilling. A third round of soil samples was collected on February 3 through 10, 2017, associated with the third round of drilling. Table 3 provides the laboratory analytical results for soil. Certificates-of-analysis for soil are provided in Appendix C. Benzene exceeded the SHS in samples collected from MW-3, SB-8, and SB-14; 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene exceeded SHSs in the sample collected from SB-6. Soil samples were collected from above the water table from the interval that showed the most impact based on

field observations and photoionization detector readings. The borings that had soil samples exceeding SHS are all located in the immediate area of the UST cavity, as seen on Figure 4B.

3.2.2 Regulated Substances In Groundwater

As part of SC activities, five rounds of groundwater sampling have been completed for MW-1, MW-2, MW-3, MW-4, and MW-6; three rounds have been completed for MW-9, MW-10, MW-11, and MW-12; two rounds have been completed for the Township's water well; and one round has been completed for MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-24, and RW-1. The analytical results for groundwater sampling are provided in Table 4. MW-3, located approximately 6 feet north and down-gradient from the UST cavity, near the northern edge of the diesel tank UST, has had eight of the nine COC exceed the SHS. RW-1, located approximately 5 feet north and down-gradient from the UST cavity, approximately 8 feet west of MW-3, had seven of the nine COC exceed the SHS. MW-6, located in the former gasoline UST excavation, has had five of the nine COC exceed the SHS. MW-23, a bedrock/"deep" monitoring well located approximately 25 feet north and down-gradient from the UST cavity had only MTBE exceed the SHS in the one round of groundwater sampling. Additional testing will show whether or not the MTBE is a result of cross-contamination resulting from the drilling process. The groundwater samples from MW-4, located 48 feet to the north and down-gradient from the former gasoline UST excavation, have exceeded the SHS for Benzene and MTBE during three of the five sampling events. The two most recent sample tested from MW-4 (11/1/16 and 2/17/17) showed no COC above the SHS. MW-19, installed in February 2017 on the west side of the Township Building, had two of the nine COC exceed the SHS. MW-21, installed in February 2017 in the parking lot on the west side of the Township Building, had four of the nine COC exceed the SHS.

3.2.3 Soil Vapor / Indoor Air Quality Evaluation

Soil vapor/air phase samples were collected on July 11, 2016; August 2, 2016; and January 19, 2017 (results provided in Table 5) to determine potential impact to indoor air quality at the Shenango Township Building. Samples have been collected from an unoccupied hallway inside the main building [SV/AP- #1 (Indoor)]; outside the main building [SV/AP- #2 (Outdoor)]; Soil Vapor Point 1 [SV/AP- #3 (SV-1)]; Soil Vapor Point 2 [SV/AP- #4 (SV-2)]; an occupied office inside the main building [SV/AP- #5 (Indoor-office)]; and inside the garage office [SV/AP- #6 (Indoor-garage)]. The analytical results are compared with PADEP Indoor Air Vapor Intrusion Nonresidential screening values.

The SV/AP- #1 (Indoor) sample, collected from a hallway between the men's and women's restrooms near the garage and fire station sections, has been sampled three times. Benzene, 1,2,4-Trimethylbenzene, and Naphthalene exceeded the screening values for each round, but have decreased with each sample. 1,3,5-Trimethylbenzene exceeded the screening value from only the first round.

The SV/AP- #2 (Outdoor) sample, collected from outside the east side of the main building, has been sampled three times. Naphthalene exceeded the screening value from only the first round.

The SV/AP- #3 (SV-1) sample, collected from a soil vapor monitoring point located south of the main building and west of the former gasoline UST cavity, has been sampled two times. Ethylbenzene exceeded the screening values in both samples. Total Xylenes and Naphthalene exceeded the screening values from the July 11, 2016 sample. Concentrations have declined in these samples between the two rounds of testing. This location was not tested during the most recent sampling event on 1/19/2017 due to high groundwater levels.

The SV/AP- #4 (SV-2) sample, collected from a soil vapor monitoring point located east of the main building and directly downgradient from the former gasoline UST cavity, has been sampled two times. Eight of the nine COC exceeded the screening values (or had detection limits above the screening values) from both rounds of sampling. As with SV-1, SV-2 was not sampled on 1/19/2017 due to high groundwater levels.

The SV/AP- #5 (Indoor-office) sample, collected from the Township Secretary's office located at the northwest section of the main building, has been sampled one time on 1/19/2017. The detection limit for Naphthalene was above the screening value. All other COC were below the screening values.

The SV/AP- #6 (Indoor-garage) sample, collected from the garage office/break room located at the northwest section of the garage area inside main building, has been sampled one time on 1/19/2017. Naphthalene exceeded the screening value. All other COC were below the screening values.

Sub-slab (beneath the concrete floor) vapor samples will be collected from two locations within the garage area of the main building and a second round of air phase samples will be collected from the two office areas in April 2017. Air phase sampling locations are shown in Figure 4B.

Further testing is required to satisfy the requirements of *PADEP's 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* in order to demonstrate that there is no potential impact to indoor air quality. It should be noted that maintenance and other Township vehicles are commonly started and idled within the Shenango Township municipal complex buildings and may be the reason for exceedances of PADEP indoor air criteria from the indoor air samples. Further testing will evaluate this potential exposure pathway.

3.3 Aquifer Testing – Hydraulic Conductivity

An aquifer test was performed on September 23, 2016, using MW-4 as an extraction well. MW-3 and MW-6 were not used due to their location within backfill material or at the edge of the tank cavity, making them non-representative of natural site conditions. MW-4 contains a discontinuous gravel/sand lens that is not found in other monitoring wells, and as a result hydraulic conductivity determined by the pumping test data, using the Aqtesolv Model, should be considered a localized maximum value compared with the Site as a whole. The saturated thickness of 8 feet considers the area at and around the former UST, with the water table at 4 to 5 ft within the weathered glacial till and extending downward through the dense glacial till and into the top few feet of bedrock. The Dense Glacial Till and the top portion of bedrock are considered to have similar hydraulic conductivity. The greatest conductivity will be found within the weathered glacial till and contact boundaries with the dense till and at the boundary of the dense till and bedrock. All other input data used in the Aqtesolv Model are based on measurements from the Pump Test and monitoring well construction data. The hydraulic conductivity as determined by the Aqtesolv Model (6.35×10^{-2} cm/sec) should be considered a maximum value as mentioned above. Appendix E contains the aquifer testing and Aqtesolv Model information. The cover page for Appendix E describes why a (Bioscreen) Fate and Transport Model was not included with this report (as was discussed with PADEP during a meeting at the Site on 1/30/2017).

4.0 SITE CHARACTERIZATION ACTIVITIES

4.1 Parameters Analyzed

Parameters analyzed in association with the SC are those included in PADEP's New Short List of Petroleum Products for Unleaded Gasoline (*Page IV-9, PADEP's Land Recycling Program Technical Guidance Manual, Document Number 253-0300-100, March 15, 2008*), including Benzene; Toluene; Ethylbenzene; Xylenes, (total); Cumene (Isopropylbenzene); MTBE; Naphthalene; 1,2,4-Trimethylbenzene; and 1,3,5-Trimethylbenzene. Medium Specific Concentration (MSC) values used for evaluating attainment of SHSs reflect the revisions effective as of August 27, 2016. The analytical method used for soil (solids) is EPA Method 5035/8260B; for groundwater 5030B/8260B; and for soil vapors/air matrix samples EPA Method TO15 (Short List). Reportable levels for each parameter are provided in the Certificates-of-Analysis in Appendix C.

4.2 Soil Borings and Monitoring Well Installations

Soil boring and monitoring well logs are provided in Appendix B. Installations of soil borings/monitoring wells were completed in three mobilizations (May 2016, September 2016, and February 2017). MW-1 was installed as an upgradient monitoring point. MW-2, MW-3, MW-6, SB-7, SB-8, SB-13, SB-14, SB-15, SB-16, SB-17, and RW-1 were installed in the area immediately around the UST cavity. MW-4 was installed approximately 48 feet to the north and down-gradient from the former gasoline UST excavation. MW-23 was installed approximately 25 feet to the north and down-gradient from the former gasoline UST excavation and is screened entirely in bedrock. MW-10, installed approximately 200 feet northwest and down-gradient from the former gasoline UST excavation, is screened in unconsolidated materials and the top 2.6 feet of bedrock. MW-18 (“deep” monitoring well) and MW-19 were installed downgradient from the former gasoline UST excavation just west of the main building. MW-20 (“deep” monitoring well) and MW-21 were installed downgradient from the former gasoline UST excavation west of the main building in the middle of the parking area. MW-22 was installed 20 feet northwest of the northwest corner of the main building. MW-24 was installed 75 feet west of the main building just off the edge of the parking lot. MW-9, installed approximately 220 feet north-northwest and down-gradient from the former gasoline UST excavation, is screened entirely in bedrock. MW-11, installed approximately 220 feet north-northeast and cross-gradient from the former gasoline UST excavation, is screened in unconsolidated materials. SB-5 and MW-12 were both installed near the southeast corner of the fire station section of the main building approximately 90 feet cross-gradient from the former gasoline UST excavation.

Two soil vapor sampling points (SV) were installed at the Site. SV-1 is located west of the former gasoline UST excavation, next to the exterior wall at the south side of the garage section of the main building. SV-2 is located north-northwest of the former gasoline UST excavation, next to the exterior wall at the east side of the garage section of the main building. Boring/well logs are located in Appendix B.

The “deep” monitoring wells that are screened entirely within bedrock are MW-9, MW-18, MW-20, and MW-23.

4.3 Soil Sampling and Analysis

All soil testing results from samples collected by CES are provided in Tables 3. Laboratory Certificates-of-Analysis for soil analyses are provided in Appendix C. Sample locations are provided in Figures 4A and 4B. Samples were collected according to CES’s soil sampling protocol described in Appendix D, Policies and Procedures, D through F. Immediately after field screening, soil samples were placed into laboratory sealed pre-weighed vials containing the proper preservative, placed on ice and delivered to the PADEP accredited testing laboratory

under normal chain-of-custody protocol. Samples were tested according to EPA Method 5035/8260B. It should be noted that the SB number corresponds with the monitoring well (MW) number for soil sample locations where monitoring wells were installed.

4.4 Groundwater Sampling and Analysis

Groundwater analytical results are tabulated in Table 4 and copies of the laboratory Certificates-of-Analysis are provided in Appendix C. The cover page for Appendix C lists the date of all sampling events that are included (for all media). Groundwater sampling by CES has been performed according to its Policies and Procedures provided in Appendix D and also in accordance with PADEP's *Groundwater Monitoring Guidance Manual, Chapter 6, Document 383-3000-001*. Analytical testing has been performed by a PADEP accredited laboratory according to EPA Method 8260B.

4.5 Soil Vapor / Air Matrix Sampling and Analysis

Soil vapor/air matrix analytical results are provided in Table 5 and copies of the laboratory Certificates-of-Analysis are provided in Appendix C. Sample locations SV-1, SV-2 and Indoor Air are provided in Figure 4B. Soil vapor testing was performed on July 11, 2016 August 2, 2016, and January 19, 2017, and tested according to EPA Method TO-15. The Indoor air samples were collected from an unoccupied hallway located between the garage and fire station sections of the main building, an occupied office located near the northwest corner of the main building, and an office area inside the garage area of the main building. The Outdoor air samples were collected from the open air adjacent to SV-2. All air samples were collected using laboratory provided and pre-measured vacuum "summa" canisters. The chain-of-custody provided to the testing laboratory indicated the pre-sampling and post-sampling vacuum reading and the time at the start and completion of sampling, which lasted a period of 30 minutes. Additional information on soil vapor sampling and conclusions is provided in Sections 3.2.3. CES's soil vapor/air phase sampling procedure is provided in Appendix D.

4.6 Site Specific Health and Safety Plan and Policies

The Health and Safety Plan (H&S Plan), which has been provided to CES's drilling contractors and all other on-site personnel, is provided in Appendix D. The H&S Plan along with the MSDS (Appendix D) was discussed with all on-site personnel prior to the beginning of any work. It is CES's policy to conduct all field work in a safe and careful manner, recognizing and conveying to all site workers any potential hazards that may be present in the physical environment (such as heat, cold, lightning, insect bites, etc.) and associated with the chemicals that are anticipated to be encountered. CES's on-site supervisor is typically a PG (or other qualified person) experienced with field activities and safety considerations.

The MSDS included in Appendix D that describes the hazards associated with virgin unleaded gasoline was maintained on-site during field activities.

4.7 Geophysical Surveys

No Geophysical Surveys were conducted in associated with SC activities and none are anticipated to be needed at this stage of the project. The locations of aboveground and underground utilities are shown on Figures 2A and 4A.

4.8 Waste Disposal

All waste materials have been handled according to appropriate regulations and approvals applicable to Pennsylvania regulations. Cuttings generated during soil sampling and well installation were containerized in 55-gallon drums and staged on-site. Purge and sampling water that does not show any indication of contamination is placed in a portable granular activated carbon filter drum and allowed to slowly discharge to the gravel driveway in the area of the tank cavity. Suspected contaminated purge water was containerized in 55-gallon drums. There is no SPL present at the Site. Eight drums of the environmental investigation derived waste were transported from the Site for proper disposal by Environmental Specialists, Inc. on January 20, 2017. A copy of the waste manifest is included in Appendix G. One drum of tank cleaning liquids was generated during removal of the UST, as described in Section 3.2. Nine drums of drill cuttings and purge water generated from the February 2017 SC activities are currently staged on-site awaiting proper disposal. As a result of CES's environmental policies, environmental investigation derived waste generation has been minimized.

Soil associated with removal of the gasoline UST was placed back into the tank cavity at the time of UST closure.

5.0 ADDITIONAL SITE CHARACTERIZATION

The extent of soil contamination has been well defined to be above the water table within the area of the UST cavity that contained the former gasoline UST and currently contains the diesel fuel UST. The monitoring well network is well placed to define and monitor the groundwater plume. The groundwater within shallow bedrock wells (often referred to as "deep" wells in this report) is monitored from MW-9, MW-18, MW-20, and MW-23, which are "deeper" wells screened entirely in bedrock. Multiple rounds of indoor, outdoor, and soil air phase sampling have been completed.

The groundwater monitoring network will continue to be sampled once each quarter. Additional soil sampling will be performed to demonstrate attainment of SHSs following the completion of remediation at the Site. The Township's water supply well located at the Site will be sampled monthly. This well is not used for potable purposes and signs have been posted at water faucets advising against drinking the water. A pumping test of the Township water supply well will be conducted within 60 days of the date of this report in order to assess possible influence to monitoring wells from pumping of the water well.

Additional testing is needed to evaluate indoor air quality. CES will collect additional rounds of indoor air samples from two occupied (office) areas of the main Shenango Township building to further evaluate the indoor air quality. Sub-slab vapor samples will be collected from two locations within the garage area of the main building and a second round of air phase samples will be collected from the two office areas in April 2017 (locations shown in Figure 4B). Additional air phase sampling will take place once the source removal event has been completed.

No other additional SC activities other than those discussed in this section are needed.

6.0 REMEDIAL ACTIONS

Interim remedial actions have not been necessary to prevent an immediate threat to human health or the environment. Water supplies have not been affected (even though water supply wells remain as potential receptors as discussed in Table 6). Free product / separate phase liquid (SPL), has not been encountered at the Site.

Proposed remedial actions are discussed in the Remedial Action Plan (RAP) portion of this report.

7.0 CONCEPTUAL SITE MODEL (CSM)

A Conceptual Site Model spreadsheet is provided in Table 6, which includes an evaluation of primary (SPL) and secondary (impacted media) sources; transport mechanisms (wind, volatilization, direct contact, soil to groundwater migration and groundwater transport); exposure routes (soil ingestion/adsorption, inhalation, ingestion/dermal contact, and diffuse flow); receptors (on-site and off-site workers, construction workers, residents, flora and fauna, and surface and groundwater supplies). Conclusions in Table 6 indicate that the following potential complete exposure pathways exist:

Surficial Soil (0-2 feet)

Direct contact with surficial soil by on-site workers and construction workers by excavation within the USTs area: There is no evidence of soil impacts at the surface (discoloration or odor). No soil samples from the “surficial zone” (0-2 feet) were tested. Of the 8 soil samples tested from a depth of 2 to 4 feet, only one sample showed an exceedance of SHSs and that was Benzene at SB-14, within the USTs area. Exposure from contact with surficial soil appears to be insignificant.

Subsurface Soil (>2 feet)

Inhalation of vapors from contaminated subsurface soil: Air phase testing has shown indoor air results exceed PADEP Indoor Air Criteria. Elevated indoor air results are likely attributed mainly to vehicles running combustion engines within multiple area of the main building. This potential exposure pathway will be further evaluated by additional air phase testing described in Section 5.

Subsurface soil poses a potential exposure pathway through “volatilization” as it may affect indoor air by means of inhalation. Also, there exists a potential “soil to groundwater” transport mechanism that could impact groundwater supplies by means of ingestion/dermal contact. Subsurface soil below approximately 4 feet is at or below the seasonal high water table and will therefore be handled as a groundwater issue and will be further evaluated as such. Groundwater testing has shown that several of the COC are above SHS, Used Aquifer, Residential, Soil to Groundwater MSCs from within and in close proximity to the UST cavity. Table 6 provides further description of potential receptors. Attainment of SHSs for soil will be demonstrated following attainment of SHSs for groundwater.

Groundwater (Dissolved)

Dissolved COC in groundwater: Groundwater from the area of the USTs can potentially be of concern through direct contact, volatilization and groundwater transport, by means of ingestion/dermal contact, indoor inhalation and groundwater transport (as a potential threat to groundwater supplies). Potential receptors are shown in Table 6. Testing of the monitoring well network has shown no potential discharge of groundwater to the surface. Although no impact has been detected in the Township’s on-site water well, potential impact to water wells on or off-site cannot be ruled out.

Inhalation of vapors from groundwater volatilization can potentially occur during excavation within the UST area and could possibly affect indoor air quality. This potential exposure pathway will be further evaluated by on-going groundwater testing of monitoring wells installed within the unconsolidated materials above bedrock and the four wells (MW-9, MW-18, MW-20, and MW-23) restricted to the bedrock zone, as well as additional air phase testing as described in

Section 5. The Township's on-site water well will be sampled monthly beginning in February 2017, in order to monitor this potential exposure route.

7.1 Chemicals of Concern (COC) and Hazards for All Media

COC are constituents of virgin unleaded gasoline, the substance released at the Site. Specific chemicals evaluated by SC, as applicable to the year of the release (post March 2008 list), include those listed in PADEP's Land Recycling Program Technical Guidance Manual Table IV-9, *Document Number 253-0300-100 (March 15, 2008)*, as Short List of Petroleum Products for Unleaded Gasoline ("New Short List"). MSCs of the "Short List" compounds that were updated as of August 27, 2016 are used in the tables in this report. The following chemicals were tested in all media: Benzene; Toluene; Ethylbenzene; Total Xylenes; Cumene (Isopropylbenzene); MTBE; Naphthalene; 1,2,4-Trimethylbenzene; and 1,3,5-Trimethylbenzene.

As part of SC activities, soil samples were collected at 17 boring locations (17 samples total). Benzene exceeded the SHS in soil samples collected from SB-3, SB-8, and SB-14; 1,2,4-Trimethylbenzene and 1,3,5-Trimethylbenzene exceeded SHS in the sample collected from SB-6. Soil samples were collected from above the water table from the interval that showed the most impact based on field observations and photoionization detector readings. The borings that had soil samples exceeding SHS are all located in the immediate area of the UST cavity, as seen on Figure 4. The interval where COC were found to be above SHS is from 2 to 4 feet below the ground surface. Soil analytical results are provided in Table 3.

As part of SC activities, 5 rounds of groundwater sampling were completed for MW-1, MW-2, MW-3, MW-4, and MW-6; 3 rounds were completed for MW-9, MW-10, MW-11, and MW-12; 2 rounds have been completed at the Township's water supply well; and one round has been performed at newly installed wells MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-24 and RW-1. Locations having exceedances of SHSs in groundwater are illustrated in Figures 6A through 6R, which show COC values for several sampling events and the aerial extent of impacts. Groundwater analytical results are provided in Table 4 and laboratory certificates-of-analysis are provided in Appendix C. Analytical testing has shown that dissolved impacts of COC in groundwater are limited to the Shenango Township property.

Indoor air quality was evaluated by means of indoor, outdoor, and soil vapor testing. Table 5 shows all soil vapor/air phase testing conducted to date. Three rounds of air sampling were completed from an unoccupied hallway inside the main building [SV/AP- #1 (Indoor)], outside the main building [SV/AP- #2 (Outdoor)]. Two rounds of sampling was performed at Soil Vapor Point 1 [SV/AP- #3 (SV-1)], and Soil Vapor Point 2 [SV/AP- #4 (SV-2)]. Groundwater levels were too high to collect an air phase sample at these locations on 1/19/2017. One round of air phase sampling was performed at two other indoor locations, the office and garage break room,

as previous testing showed a need to expand indoor air testing. The analytical results are compared to PADEP Indoor Air Criteria Nonresidential screening values. The SV/AP- #1 (Indoor) samples from both rounds of testing exceeded the screening values for Benzene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, and Naphthalene. The SV/AP- #3 (SV-1) samples from July 11, 2016, exceeded the screening values for Ethylbenzene, Total Xylenes, and Naphthalene but only for Ethylbenzene on August 2, 2016. The SV/AP- #4 (SV-2) samples from July 11 and August 2, 2016, exceeded the screening value for several COC. Only Naphthalene slightly exceeded the screening value at the indoor-office and indoor-garage break room locations on January 19, 2017, the only sample collected to date from these locations. Additional testing is required to satisfy the requirements of *PADEP's 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* in order to demonstrate that there is no potential impact to indoor air quality. Soil vapor analytical results are provided in Table 5. Additional soil vapor/air phase testing is discussed in Section 5.

Analytical results for soil are provided in Tables 3; for groundwater, Table 4; and for Soil Vapor/Air Matrix, Table 5. Certificates-of-analysis for testing of soil, groundwater and soil vapor/air phase are provided in Appendix C.

7.2 Separate Phase Liquid (SPL)

No SPL has been encountered at the Site.

7.3 COC in Soil

The status of COC in soil is described in detail in Section 3.2.1 and 7.1 (For Soil). Twenty-two (22) soil samples were collected from soil borings installed at the Site and four of the samples showed exceedances of SHSs for at least one compound, including Benzene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene (Table 3). Sampling locations for all the soil samples tested, provided in Figures 2A through 4B, show the impacted soil above SHSs is limited to the UST area. No other areas have been identified where additional soil testing may be applicable above the seasonal high water table. Sampling to demonstrate attainment of SHSs for soil will be conducted upon completion of remedial actions. Benzene, 1,2,4-Trimethylbenzene, and 1,3,5-Trimethylbenzene are the only COC that have been recognized for soil.

7.4 COC in Groundwater

The analytical results for groundwater sampling are tabulated in Table 4. Seventeen groundwater monitoring wells have been installed at the Site. Five rounds of groundwater

sampling have been completed for MW-1, MW-2, MW-3, MW-4, and MW-6. Three rounds have been completed for MW-9, MW-10, MW-11, and MW-12, which were installed in September 2016. One round has been completed for MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-24, and RW-1, which were installed in February 2017. The Township's water supply well has been tested twice.

MW-3, located approximately 6 feet north and down-gradient from the UST cavity, near the northern edge of the diesel tank UST, has had eight of the nine Chemicals of Concern (COC) exceed the SHS. RW-1, located approximately 5 feet north and down-gradient from the UST cavity, approximately 8 feet west of MW-3, had seven of the nine COC exceed the SHS. MW-6, located in the former gasoline UST excavation, has had five of the nine COC exceed the SHS. MW-23, a deep monitoring well located approximately 25 feet north and down-gradient from the UST cavity had only MTBE exceed the SHS in the one round of groundwater sampling. Additional testing will determine whether or not the MTBE at MW-23 is a result of cross contamination during well installation, as suspected. Groundwater samples from MW-4, located 48 feet to the north and down-gradient from the former gasoline UST excavation, have exceeded the SHS for Benzene and MTBE during three of the five sampling events. The two most recent sample tested from MW-4 (11/1/16 and 2/17/17) showed no COC above the SHS. MW-19, installed in February 2017 on the west side of the Township Building, had two of the nine COC exceed the SHS. MW-21, installed in February 2017 in the parking lot on the west side of the Township Building, had four of the nine COC exceed the SHS.

Quarterly testing of monitoring wells will continue until point-of-compliance locations demonstrate attainment of SHS, Used Aquifer, Residential criteria.

7.5 Soil Vapor / Indoor Air Quality

Soil vapor/air phase test results have exceeded PADEP Indoor Air Criteria Nonresidential screening values (*PADEP Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2 - Document Number 261-0300-101; Table 5; January 18, 2017*) for the indoor samples and from both soil vapor points. Test results are provided in Table 5. Indoor air phase samples (locations shown in Figure 4B) were collected from an unoccupied hallway situated between the maintenance garage and fire station sections of the main building, the Township Secretary's office near the northwest corner of the main building, and the office/break room located at the northwest corner of the garage section of the main building. Indoor air quality at the location where samples were collected is possibly impacted by the motor vehicles and equipment which are parked and maintained inside multiple areas of the main building. Further sampling will be conducted in occupied sections of the building, as well as from two sub-slab vapor sample locations from below the concrete floor of the garage area, as described in Section 5. Sub-slab sample locations, as well as indoor air

locations, are shown in Figure 4B. Air phase samples will be collected as necessary to satisfy the requirements of the PADEP guidance document described previously in this paragraph.

7.6 Fate and Transport (F&T) Analysis

Five rounds of groundwater sampling were completed from the original monitoring wells around the UST cavity (MW-1, MW-2, MW-3, MW-4, and MW-6). Three rounds have been completed for MW-9, MW-10, MW-11, and MW-12, which were installed in September 2016. One round has been completed for MW-18, MW-19, MW-20, MW-21, MW-22, MW-23, MW-24, and RW-1, which were installed in February 2017. The Township's water supply well has been tested twice to date. Groundwater testing from the entire monitoring well network and the on-site water well shows that dissolved impacts in groundwater above SHSs are limited to the area around and down-gradient of the UST cavity, which extends under the building and to the west of the building, as illustrated in Figures 6K through 6M.

Aquifer testing was completed using MW-4 as an extraction well, as previously described in Section 3.3. Hydraulic conductivity was determined using the Aqtesolv Model. Prior to the most recent round of monitoring well installation in February 2017, a 30-year Bioscreen F&T Model showed that the potential migration distance of Benzene (the main COC) in groundwater above the SHS is 50 feet from the north edge of the former gasoline UST excavation, which is well within the property boundary. The Bioscreen F&T Model showed that the greatest potential migration distance is from the 6-year model, resulting in a potential distance of 130 feet from the edge of the former gasoline UST excavation. Considering data collected from the newly installed monitoring wells, the former Bioscreen Model appears to be invalid and not enough data has been collected to perform a meaningful Bioscreen (or equivalent) F&T Model at this time (as was discussed with PADEP during our on-site meeting on January 30, 2017). As a result, a F&T computer model is not included in this report. Based on groundwater and soil testing data, hydrocarbon impacts from the UST release are confined to the Shenango Township property.

The collection of groundwater analytical data will continue in order to monitor the stability of the groundwater plumes and to refine the fate and transport analysis. Trend line graphs will be provided in remedial action progress reports (RAPRs).

7.7 Preliminary Analysis of Potential Exposure Pathways and Sensitive Receptors

A discussion of sensitive receptors and potential exposure pathways is provided in Sections 2.4 and 7.0. Conclusions relative to the release of unleaded gasoline that have occurred at the Site are as follows:

A potential exposure pathway exists through direct contact with surficial soil by onsite workers and construction workers during digging below a depth of 2 feet. This potential exposure pathway is minor except in the immediate area of the former UST and existing UST. There are no indications (no staining or odor) that surficial soil (0-2 feet) is impacted by the release, but it has not been tested (only soil tested from 2 to 4 feet in the UST area has shown impacts above SHSs).

A potential exposure pathway exists through inhalation of volatilized COC from impacted subsurface soil and groundwater. Laboratory analysis of soil vapor samples and air phase samples from inside the main building exceeded Indoor Air Criteria Nonresidential MSC screening values. The possibility that indoor air is affected by vehicles and equipment inside the building will be further evaluated by additional testing as described in Section 5, which will include sub-slab testing.

The only potential exposure by direct contact with impacted subsurface soil is to workers during excavation within and immediately adjacent to the USTs cavity (including the former gasoline UST and active diesel UST). This is considered an incomplete pathway, as worker safety will be addressed during any excavation activities of the affected area.

A potential exposure pathway exists through subsurface soil, soil to groundwater, ingestion/dermal contact. Groundwater sampling has shown that several of the COC are above SHSs, Used Aquifer, Residential, Soil to Groundwater MSCs from within and down-gradient of the UST cavity, as best illustrated in Figures 6K through 6M.

A potential exposure pathway exists through groundwater transport of impacted groundwater to water supply wells (ingestion/dermal contact). The extent of the dissolved groundwater plume containing COC above SHS has been defined and is limited to the area surrounding the USTs cavity and extending down-gradient as shown in Figures 6K through 6M. This exposure will be continually evaluated by quarterly sampling of the monitoring well network, including monthly sampling of the Township water supply well. This is the most important potential exposure recognized at this time from the release. No potential impact to off-site water supply wells is evident at this time. A potential exposure route by means of ingestion/dermal contact also exists to on-site construction workers during excavation in the vicinity of the USTs.

There are no complete exposure pathways for surface water. The depth to groundwater and the analytical results from groundwater monitoring network show no potential impact to surface water.

Table 6, Conceptual Site Model, provides more discussion on potential exposure pathways and receptors.

8.0 SELECTION OF CLEANUP STANDARDS AND RATIONALE

8.1 Statewide Health Standard (SHS)

8.1.1 Soil Medium Specific Concentrations (MSCs)

The Site is located in an area that has residential properties. Soil is being evaluated according to both SHSs Direct Contact Residential MSCs and SHSs Soil to Groundwater MSCs as provided in *PA Code Title 25, Chapter 250 Appendix A, Table 3A and Table 3B*, respectively. The lowest value provided for each constituent being tested, considering both categories, is considered the attainment value. Individual constituents being tested are those contained in PADEPs New Short List of Petroleum Products for Unleaded Gasoline (March 2008 list) that includes Benzene; Toluene; Ethylbenzene; Total Xylenes; Isopropylbenzene (Cumene); Methyl Tert-Butyl Ether (MTBE); Naphthalene; 1,2,4-Trimethylbenzene; and 1,3,5-Trimethylbenzene. MSC values as revised on August 27, 2016 are used in this report.

8.1.2 Groundwater MSCs

The Site utilizes groundwater through the use of Shenango Township's water supply well located at the west side of the main building. Residential properties in the area are served by individual private "on-lot" groundwater wells, as municipal water is not available. This report considers that all inhabited residences within the area of concern utilize a groundwater supply well. Groundwater is being evaluated according to SHSs Used Aquifers, Residential MSCs as provided in *PA Code Title 25, Chapter 250 Appendix A, Table 1*. The value provided for each constituent being tested, using values that were revised as of 8/27/2016, is considered the attainment value. Individual constituents being tested are those contained in PADEPs New Short List of Petroleum Products for Unleaded Gasoline (March 2008 list) that includes Benzene; Toluene; Ethylbenzene; Total Xylenes; Isopropylbenzene (Cumene); MTBE; Naphthalene; 1,2,4-Trimethylbenzene; and 1,3,5-Trimethylbenzene.

8.1.3 Soil Vapor / Indoor Air Quality MSCs

No residential structures are located within 300 feet of the impacted soil and groundwater. Soil Vapor / Indoor Air Quality is being evaluated according to *PADEP Land Recycling Program Technical Guidance Manual – Section IV.A.4 (Vapor Intrusion into Buildings from Groundwater and Soil) – Document Number 261-0300-101, Table 5*. The Indoor Air Criteria Nonresidential MSC for each constituent being tested is considered the screening value. Individual constituents being tested are those contained in PADEPs New Short List of Petroleum Products for Unleaded Gasoline (March 2008 list) that includes Benzene; Toluene; Ethylbenzene; Total Xylenes; Isopropylbenzene (Cumene); MTBE; Naphthalene; 1,2,4-Trimethylbenzene; and 1,3,5-Trimethylbenzene. Screening values that became effective on 1/18/2017 are used in this report.

Applicable screening values (PADEP Indoor Air Criteria Nonresidential) are provided in Table 5.

REMEDIAL ACTION PLAN

9.0 REMEDIAL OPTIONS EVALUATION

Remedial options considered to further remediate the dissolved COC plume in groundwater include the following:

- Air Sparging (AS): This option would utilize air injection into the saturated zone, within the zone of water table fluctuation and below the water table. Air injection wells (AIWs) would be installed within the area of the dissolved groundwater plume. The AIWs would be installed at adequate spacing so that the injected air would affect the entire area of the dissolved plume. Air sparging would stimulate oxygenation and increased biological degradation of the contaminants. A major problem with this method appears to be its questionable effectiveness due to the tightness (low permeability) of the subsurface materials, making it difficult to establish a significant radius of influence around each well (the injected air would not be able to be distributed very far away from the injection well). Air sparging would also be a very costly option for equipment, operation and maintenance and could potentially cause increased vapor intrusion issues into the main building. Soil vapor extraction should be used in conjunction with AS, but the shallow groundwater limits the size of the unsaturated zone, making the capture of liberated vapors challenging. The negative factors greatly outweigh the positive for this method and as a result the AS method is not recommended.
- Soil Vapor Extraction (SVE): The SV method is most applicable to removing contaminants from the vadose (unsaturated zone) by means of an applied vacuum. Considering the high seasonal water table, SVE would not be an effective remedial option. For this reason, along with the relatively high cost of installation and maintenance, SVE is not recommended.
- Dual Phase Extraction (DPE): The DPE method is similar to SVE in that it removes contaminants in soil vapors and groundwater by means of an applied vacuum. DPE would employ a stronger vacuum than SVE and is designed to remove not only soil vapors but also SPL from the capillary fringe. This method also removes a substantial amount of groundwater. Considering that there is currently no SPL and considering the

high cost associated with installation and maintenance of the remedial system, DPE is not recommended as a remedial option at this time. The low and variable permeability of the subsurface materials also makes this method unattractive.

- Pump and Treat (P&T): P&T would involve pumping impacted groundwater from recovery wells, then treating the groundwater for re-injection or discharge under a PADEP general permit. This method is very effective in preventing plume migration. In order to implement P&T, recovery wells would need to be installed. RW-1 was installed during the February 2017 drilling in order to facilitate this remedial option if needed. When the former gasoline UST cavity is excavated to remove the source (as proposed in this RAP), an additional groundwater recovery point will be installed. This method could take a lot of time to lower dissolved components in groundwater to SHSs. Also, there is a high cost for equipment and operation. P&T is a viable remedial option for conditions present at the Site but it is only considered as a secondary option if Source Removal fails to show progress in containing and diminishing the dissolved COC plume.
- Enhanced Bioremediation (EB): EB is an in-situ method that would involve stimulating naturally occurring micro-organisms in the soil and groundwater that utilize hydrocarbons as a food supply by optimizing nutrients and oxygen levels. This process destroys the mass of contaminants in-situ. The EB option would require installing approximately 4 to 8 injection wells within the plume for oxygen and nutrient injection. This method would utilize the natural movement of groundwater, both horizontally and vertically, to transport the nutrients and oxygen to contaminants to stimulate biodegradation. The injections would be periodic at each injection well and would not require permanent equipment on-site that could interfere with operations at the facility. Prior to implementing EB a laboratory treatability study should be performed to determine if the natural microbial population is suitable for degrading the contaminants, or if the addition of micro-organisms would be needed. A treatability study would also determine the best mixture of nutrients to accelerate microbial decay of the contaminants. The advantage of the EB method is that the initial equipment cost and ongoing operating cost would be low compared with other options (except PR). Also, no discharge permits would be required. The only permit that would be required is the Federal UIC injection permit which is relatively easy to obtain for this type of application. This option would be well suited as a secondary remedial method if additional remedial action for groundwater is necessary following the source removal. This will likely be the case as source removal may not completely address dissolved contaminants from within the existing diesel fuel UST cavity. For the reasons presented above, EB is a viable remedial option if additional remedial action is necessary following source removal. EB is recommended as a second option to contain and diminish the dissolved COC plume. The EB option should be considered if after 4 to 5 quarterly groundwater sampling events

following source removal there is no evidence that attenuation is occurring or the plume is expanding. If there are signs that the plume is expanding EB should be implemented sooner.

- Chemical Oxidation (ChemOx): ChemOx would work under the same principal as EB, meaning the contaminant mass would be destroyed in-situ, rather than extracting the contaminants like other methods presented herein. No water or air discharge permits would be required. Unlike EB, ChemOx requires adding an oxidizing chemical such as Permanganate, Peroxide or Persulfate into the ground rather than relying on naturally occurring organisms to degrade contaminants (as does EB). ChemOx kills the naturally occurring organisms, thereby reducing the ability for natural attenuation to occur. It is often difficult to predict the effective time frame of oxidation chemicals following application as they can react with many solid compounds in the ground, not just the contaminants. ChemOx would require a similar amount of injection wells to be installed as for EB. Also, cost of ChemOx reagents is much higher than the nutrients that would be used for EB. Although ChemOx would be a viable remedial option, it is not recommended ahead of EB for the reasons discussed (higher cost, killing the natural biota and approximately the same time to achieve attainment of SHSs as EB).
- Source Removal: Source removal involves removing the mass of contaminants at the source in both soil and groundwater media. The highest concentrations of COC in the groundwater plume occur at or just downgradient of the former gasoline UST excavation area. When the gasoline UST was removed in December 2015, all excavated soils were placed back into the excavation. Source Removal has a relatively high “up front” cost for transportation, disposal and clean-fill emplacement, but if the source is successfully removed it can prove to be in the long run a very cost competitive option compared with other remedial options that are based on extracting and treating the contaminants. Extracting and treating the contaminants would not be an effective option until the source has been removed. It has been reported by Shenango Township and the PADEP that the contaminated soil was observed to be concentrated at the west end of the excavated area, however, the soil was removed during removal of the UST and placed back into the excavation, likely resulting in mixing of the impacted soil. The 4 soil samples collected during SC activities that exceeded SHS are located within the UST excavation area and just north of the existing diesel fuel UST. During the source removal action for soil, groundwater that accumulates in the excavation will be removed using a vacuum truck. Groundwater will also be extracted from recovery well RW-1 that shows high COC concentrations. The source removal option was suggested by PADEP during an on-site meeting on January 30, 2017. Source Removal of soil coupled with concurrent groundwater extraction is recommended as the primary remedial option.

- Monitored Natural Attenuation (MNA): This option, also known as Passive Remediation, involves no physical action and involves only groundwater monitoring and testing to show that a dissolved contaminant plume is stable and/or degrading naturally. MNA is not recommended as more active remedial action is necessary to protect water supply wells.

10.0 REMEDIAL APPROACH

10.1 Historical Remedial Activities

Interim remedial actions have not been necessary to prevent an immediate threat to human health or the environment. Water supplies have not been affected. Free product, or separate phase liquid (SPL), has not been encountered at the Site.

10.2 Remedial Goals – Request for Relief from Liability

Remedial goals are attainment of Statewide Health Standards Residential for both soil and groundwater as described in Section 8.1. The goal for indoor air quality is to meet the appropriate screening values presented in *PADEP Document Number 261-0300-101, Land Recycling Program Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2*, effective January 18, 2017. Upon attaining the remedial goals, Shenango Township requests relief from liability for the chemical compounds that have been tested, as listed in Tables 3 through 5 of this SCR-RAP, and for all media for which has been tested that have achieved attainment of SHSs.

10.3 Remedial Options Chosen

The primary remedial option chosen is Source Removal, involving both soil and groundwater. When the gasoline UST was removed in December 2015, all excavated soils were placed back into the excavation. It has been reported by Shenango Township and the PADEP that the contaminated soil is likely concentrated at the west end of the excavated area and the former line to the dispenser, as the soil was replaced from the same general area that it had been removed. The observed impacted area however was excavated during removal of the UST, placed in a common pile and returned to the excavation, likely causing mixing of the observed contaminated soil. As Source Removal is taking place, a Professional Geologist from CES will field screen soils as they are excavated to segregate obviously contaminated soils from soil that is not obviously contaminated. Field screening methods will include the use of a photoionization detection (PID) meter, visual observation of stained soils, and olfactory senses to detect hydrocarbon impacted soil. The soil appearing clean will be tested for the COC parameters described in this report prior to being returned to the excavation. The amount of samples

collected will be determined by the volume of apparently clean soil, but a minimum of 4 samples will be tested to document that the soil is not impacted. PADEP solid waste regulations and guidelines will be followed to determine re-use options. Hydrocarbon impacted soil will be disposed of at a disposal facility licensed to accept the type of waste. Prior to disposal, the waste will be properly characterized and will be transported under the appropriate waste manifest protocol. Waste transportation documents and disposal receipts will be included in a report of the source removal option that will accompany a RAPR.

The estimated size of the source removal excavation is 33 feet long by 21 feet wide by 7 feet deep. The total soil volume for estimation purposes is 180 cubic yards, or approximately 280 tons. CES expects only 40% (72 cubic yards / 112 tons) of this estimated volume will be contaminated and require disposal.

Once the on-site Geologist has determined that the impacted soil has been sufficiently removed, eight biased soil samples will be collected from the sides of the excavation above the soil/water interface. These samples will be collected from points where any possible remaining contamination would likely be located in order to confirm that the excavation has successfully removed impacted soils. Samples will be tested for the COC parameters described elsewhere in this report and as shown in Table 3.

During the soil removal action, groundwater encountered within the excavation and from RW-1 will be removed using a vacuum truck. All water recovered by the vacuum truck will be transported from the Site to a licensed treatment/disposal facility. The volume of water that would be removed and disposed is estimated to be from 500 to 3,000 gallons. Liquid waste transportation and treatment/disposal documents will be maintained as described above for solid waste. Before the excavation is backfilled, a recovery well will be placed in the backfill to facilitate future water removal if necessary.

Three additional "Vacuum Truck Liquid Removal" ("Vac") events are proposed monthly following the Source Removal. Water will be removed from RW-1 and RW-2 (which will be installed in the backfill of the excavation). In addition to water removal from the recovery wells, monitoring wells that have shown exceedances of SHS will have groundwater removed during each event. These monitoring wells are MW-3, MW-4, MW-6, MW-19, MW-21, and MW-23. As described above, all liquid waste will be taken to a licensed treatment/disposal facility and all transportation and disposal records will be maintained and included in a RAPR.

Upon completion of the proposed Vac events, the need for additional remedial action will be re-evaluated and a Revised Remedial Action Plan will be submitted to PADEP if additional remedial action is necessary, as determined by the concentration of any remaining COC, based

on groundwater analytical results. If additional remedial action is necessary, Enhanced Bioremediation will likely be the method proposed.

Upon approval of the RAP or otherwise “go ahead” is provided by PADEP, CES will provide USTIF with a cost estimate for performing the proposed work and will begin within 10 work days upon funding approval.

10.4 Remedial Action Progress Reports

Upon approval of the SCR-RAP by PADEP remedial action progress reports (RAPRs) will be provided quarterly until attainment of SHSs for soil and groundwater is completed. Until the SCR-RAP is approved, quarterly monitoring, sampling and testing of groundwater as performed for the first quarter 2017 will be continued. The RAPRs will include new information obtained during the reporting period, including updated tables of analytical results, maps of sampling locations and isoconcentration maps. RAPRs will be submitted by the end of the month following completion of each quarter.

10.5 Schedule

The following is an approximate schedule for the Site including additional SC tasks and proposed remedial action items through September 2017.

- Township water supply well pumping test and monthly sample collection – March 2017
- Indoor air and sub-slab air phase sampling – April 2017
- Township Water Well monthly sample collection – April 2017
- Source Removal / Liquids removal – May 2017
- Township Water Well monthly sample collection – May 2017
- 2nd Quarter 2017 groundwater sampling – June 2017
- Vacuum Truck Liquid Removal Event – June 2017
- Township Water Well monthly sample collection – June 2017
- Vacuum Truck Liquid Removal Event – July 2017
- Township Water Well monthly sample collection – July 2017
- 2nd Quarter 2017 RAPR
- Vacuum Truck Liquid Removal Event – August 2017
- Township Water Well monthly sample collection – August 2017
- 3rd Quarter 2017 groundwater sampling – August 2017
- Township Water Well monthly sample collection – September 2017
- Submit revised RAP (if necessary) – End of October 2017

Parts of this schedule which are subject to approvals are subject to change based on the time frame of the RAP approval from PADEP and approval of funding for remedial actions by USTIF.

11.0 REMEDIAL ACTION COMPLETION

11.1 Soil Attainment Demonstration – Points of Compliance

Once groundwater attainment has been achieved, additional soil sampling will be performed to demonstrate attainment of SHSs according to *PA Code Title 25 Chapter 250.703*. Additional information on regulated substances in soil and soil sampling completed during SC is provided in Section 3.2.1. All soil sampling locations (areas where known impacts have occurred that have not demonstrated attainment of SHSs) will be considered POC locations. Soil attainment of SHSs will be evaluated in accordance with *PA Code Title 25, Chapters 250.703 and 250.707*.

Points of Compliance (POCs) for soil will be all areas of concern where soil samples were above SHSs, including the former UST excavation

11.2 Groundwater Attainment Demonstration – Point of Compliance Locations

The attainment demonstration of SHSs in groundwater is to consist of monitoring and sampling/testing at Point of Compliance (POC) locations for a minimum of 8 consecutive calendar quarters, with the possible request to reduce the testing period based on test results, as stipulated in *PA Code Title 25 Chapter 250.704*, upon the approval of the Department. Groundwater POC locations will include shallow monitoring wells near the property boundaries: MW-1; MW-10; MW-11; MW-12; and MW-24; and all bedrock monitoring wells: MW-9, MW-18, MW-20, and MW-23. The Township water supply well will also be considered a POC location and tested along with attainment sampling events. Attainment sampling will begin following the remedial actions proposed and when it appears that the COC in groundwater have been removed to SHSs and/or the plume is stable. Additional information on regulated substances in groundwater is provided in Section 3.2.2.

11.3 Soil Vapor / Indoor Air Quality Demonstration

Analytical results from all of the sampling performed in association with evaluating soil vapors and potential impact to indoor air quality from the release of unleaded gasoline are provided in Table 5. Additional testing is needed to evaluate indoor air quality. Sub-slab vapor samples will be collected from two locations within the garage area of the main building and a second round of air phase samples will be collected from the two office areas in April 2017 (locations shown in Figure 4B). Additional air phase sampling will take place once the source removal event has

been completed and the Site meets the indoor air quality screening standards presented in the *PADEP Land Recycling Program Technical Guidance Manual-Section IV.A.4, Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2*.

11.4 Remedial Action Completion Report

A Remedial Action Completion Report (RACR) will be prepared and submitted to the Department as soon as possible upon attainment of SHSs for all media. All groundwater monitoring wells, extraction wells, soil vapor points, and any other infrastructure will be properly abandoned following approval of the RACR.

11.5 Post Remediation Care Requirements

Upon demonstration of attainment of the selected SHS for all media, as is the remedial goal, no Post Remediation Care will be needed, and as a result, no Post Remediation Care Plan is included in this RAP. It is anticipated that remedial measures addressed in the report will eliminate all potential exposure pathways addressed in this report.

12.0 SITE SPECIFIC PLANS

12.1 Health and Safety Plan

A Health and Safety Plan specific to the Site is provided in Appendix D.

12.2 Sampling and Analysis Plan

Soil sampling, screening and handling will be conducted by CES according to the procedures provided in Appendix D – Policies and Procedures, specifically: Procedure D – Soil Sampling; Procedure E – Jar Headspace Screening; and Procedure F – Preparation of a Chain of Custody Form. Certification of the testing laboratory can be documented by the accreditation information provided on the Certificate-of-Analysis laboratory reports.

CES has and will use testing laboratories that are accredited by PADEP for testing of all media.

Soil attainment sampling will be conducted according to *PA Code Title 25, Chapter 250.703*, which states that “sampling points for demonstration of attainment of soils shall be selected to be random and representative both horizontally and vertically”. Groundwater sampling will continue to be performed according to applicable sections of CES’s Policies and Procedures listed in this section. All areas having COC in soil above the SHS (Table 3) will be considered POC locations.

Additional soil vapor/air phase sampling is necessary. Soil vapor/air phase sampling conducted by CES has utilized pre-cleaned and laboratory prepared “summa canisters” that had a laboratory set vacuum. During testing, pre and post sampling air vacuum readings on the summa canister were recorded as well as the start and stop time of sample collection. This information was provided to the testing laboratory on the Chain-of-Custody. Air phase samples collected by CES were obtained over a period of 30 minutes. CES will continue to follow proper protocols during additional soil vapor/air phase sampling as provided in Appendix D.

12.3 Quality Assurance / Quality Control Plan

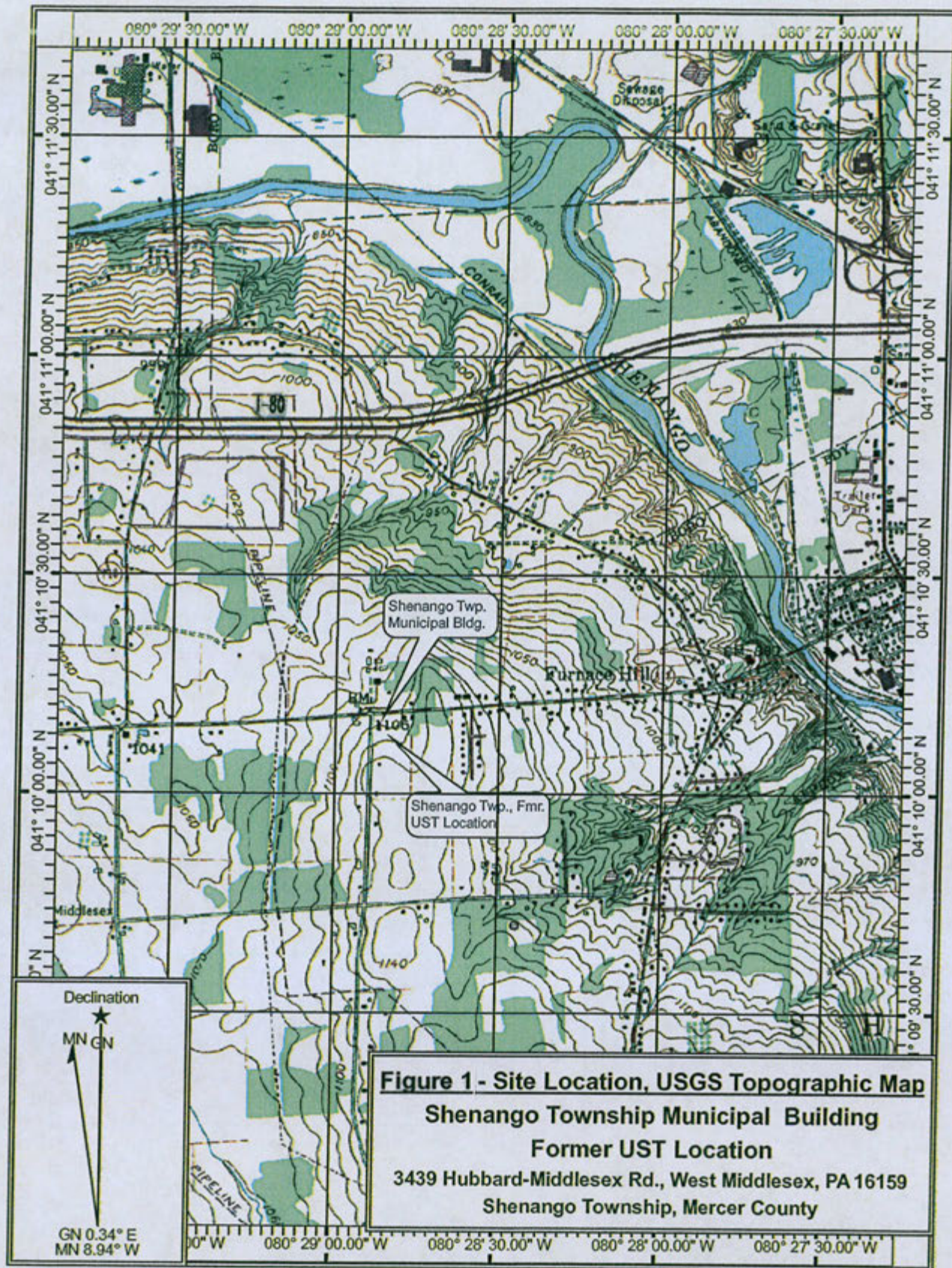
CES’s Quality Assurance / Quality Control Plan includes adherence to all of the applicable items included in Appendix D, including: Health and Safety Plan; MSDS for Unleaded Gasoline; and all Policies and Procedures, in particular the Limited QA/QC procedure.

13.0 REFERENCES

References used in conjunction with SC and remedial action planning are provided in Appendix A.

FIGURES

(1 THROUGH 9)



N 378,000

072

FIGURE2 – SITE MAP / TAX MAP
Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, PA 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008

Shenango Twp Municipal Bldg

Property Boundary

N

T-330



Fmr UST Location



Projected GW Flow Direction

Scale (Approx): 1 Inch = 241 Feet
Mercer County Tax Map 27 184 131
(Sheet 184 of 231)

125

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132

HUBBARD / MIDDLESEX ROAD (S.R. 318)

JACKSON ROAD (S.R. 330)

Location

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2015-008
Mercer County Tax Map 27 184 131
9.74 Acres

Former UST Location

NOTES

BENCHMARK / TEM
S.E. CORNER OF BUILDING
FIND DRILL HOLE
ELEVATION = 100.00

MONITORING WELL ELEVATIONS			
WELL #	LID ELEV.	PVC ELEV.	
MW-1	101.97	101.58	
MW-2	99.88	99.63	
MW-5	100.03	99.80	
MW-4	100.07	99.82	
MW-6	98.78	99.51	
MW-9	96.22	95.97	
MW-10	96.45	96.15	
MW-11	96.89	96.66	
MW-12	99.87	99.53	

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86
SB-8	100.25	SB-17	99.82

Figure 2A
Surveyed Site Map
Shenango Township
Municipal Building

I, James T. Welko, hereby certify that I am a Registered Professional Land Surveyor in the Commonwealth of Pennsylvania. I further certify that this plot correctly represents a survey completed by me and that all monuments shown hereon actually exist and that their location, type, and material are accurately shown.

James T. Welko, P.L.S. Reg. No. 32488-E



DRAWN BY: C.M.W. ACCT. #: 10605 Rev By: AME	PLOT OF SURVEY FOR SHENANGO TWP. MUNICIPAL BUILDING	Compliance Environmental Services, INC. PO Box 186 West Middlesex, PA 16159 (724)-342-1990	SCALE: 	3439 Hubbard-West Middlesex Road SHENANGO TOWNSHIP, MERCER COUNTY, PENNSYLVANIA	SHEET 1 of 1
			DATE: Sept. 21, 2016 Rev: Dec. 12, 2016	SHENANGO TWP. 27-184-131	

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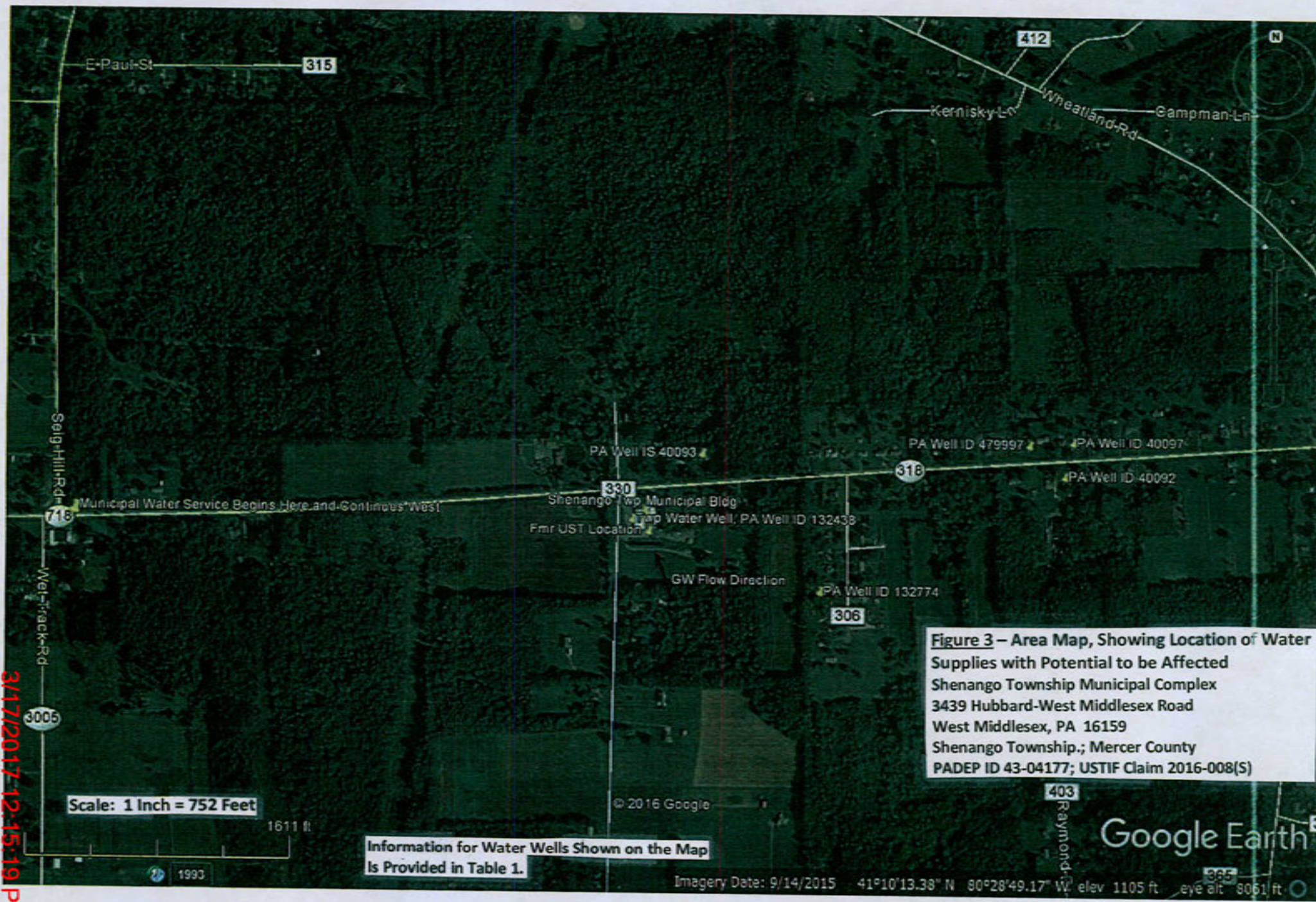
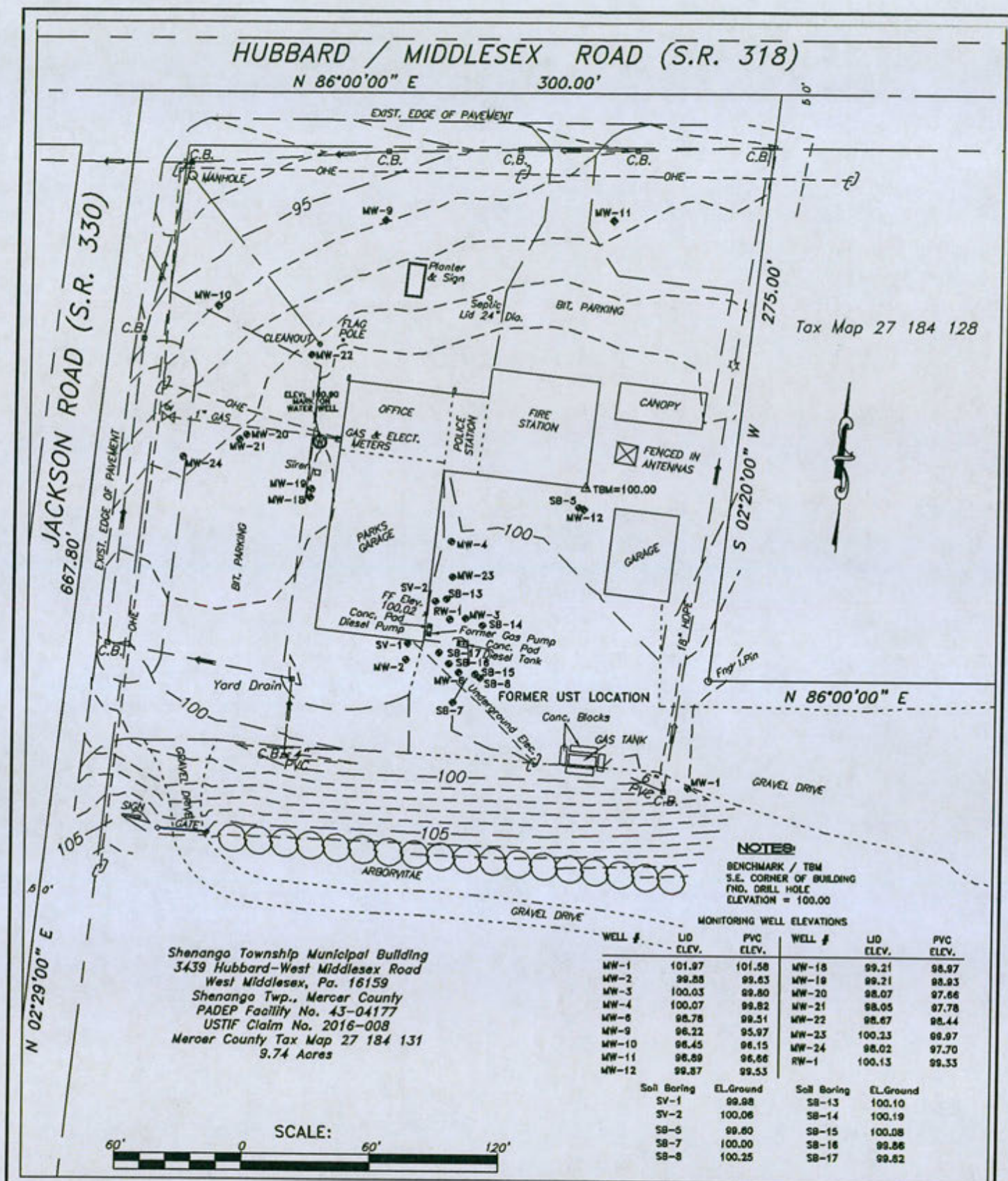


Figure 3 – Area Map, Showing Location of Water Supplies with Potential to be Affected
Shenango Township Municipal Complex
3439 Hubbard-West Middlesex Road
West Middlesex, PA 16159
Shenango Township, Mercer County
PADEP ID 43-04177; USTIF Claim 2016-008(S)

Information for Water Wells Shown on the Map
Is Provided in Table 1.



SB - Soil Boring
 MW - Monitoring Well
 SV - Soil Vapor Sampling
 Installation
 WW - Potable Water Well
 RW - Recovery Well

Figure 4B - Soil Boring and Monitoring Well Locations
 Shenango Township
 3439 Hubbard-West Middlesex Road
 West Middlesex, PA 16159
 Shenango Township; Mercer County
 PADEP ID 43-04177; USTIF Claim 2016-008

Google Earth

Imagery Date: 9/14/2015 41°10'09.70" N 80°28'50.10" W elev 1112 ft eye alt 1531 ft

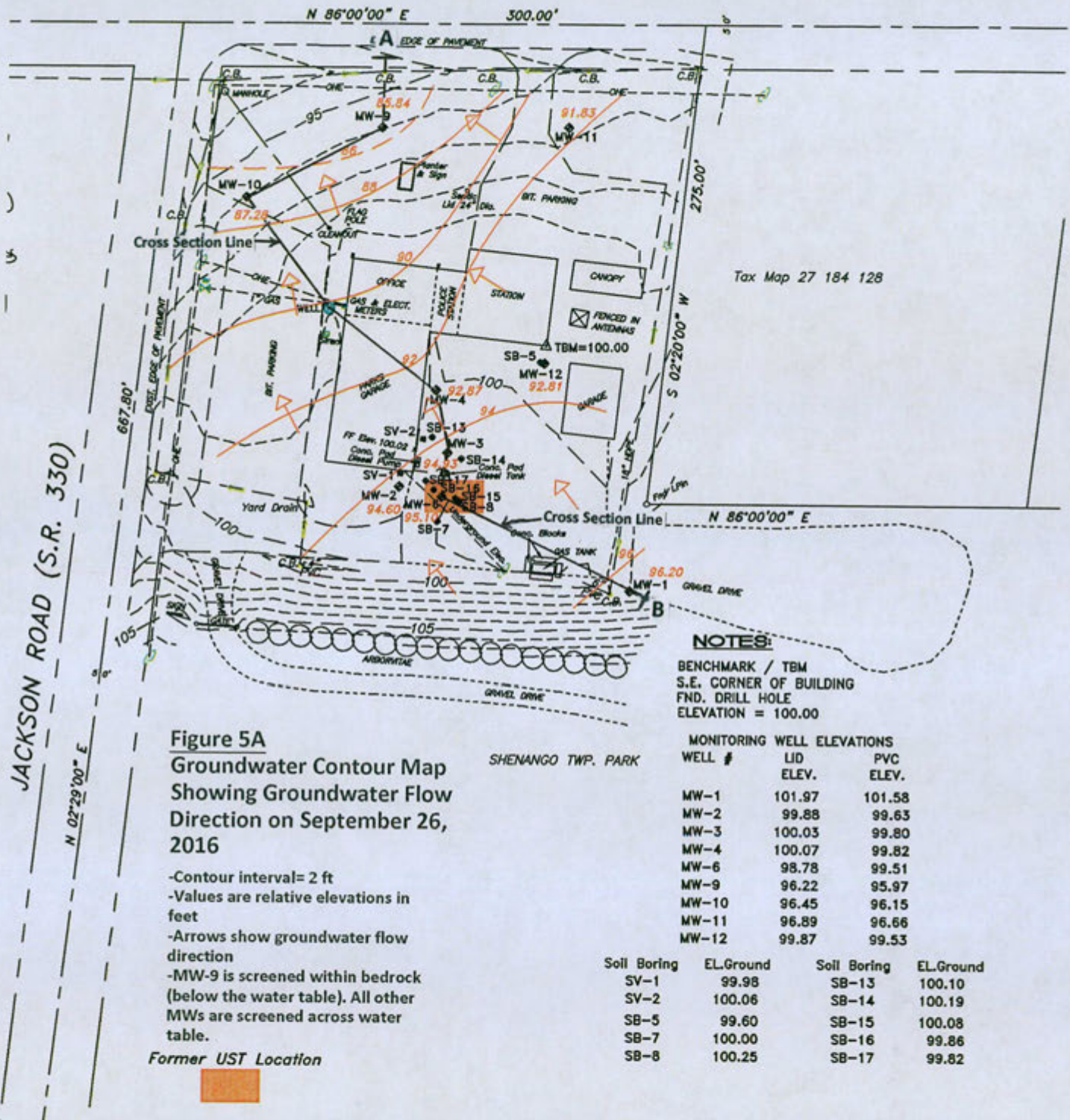
© 2016 Google

Scale: 1 Inch = 50 Feet

107 ft

1993

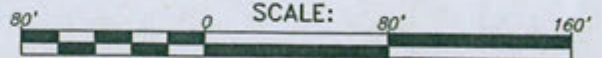
3/17/2017 12:15:21 PM



Rev: 12 Dec.,
2016

Date: 21
Sept., 2016

Location



Drawn By:
C.H.W.

Rev By: AMR

Base Map
Provided By:
Henry T.
Welka &
Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

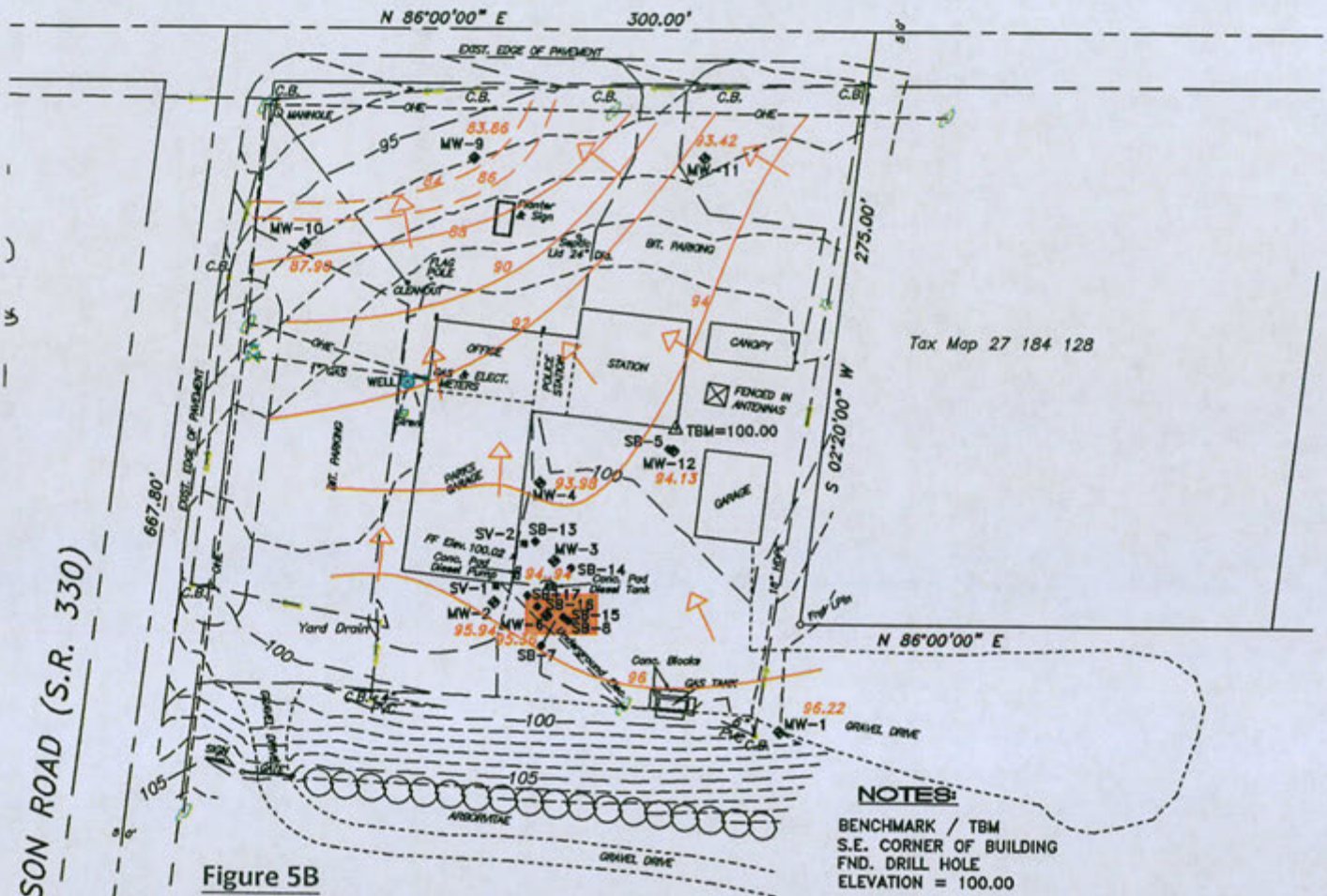


Figure 5B
Groundwater Contour Map
Showing Groundwater Flow
Direction on November 1,
2016

- Contour interval= 2 ft
- Values are relative elevations in feet.
- Arrows show groundwater flow direction
- MW-9 is screened within bedrock (below the water table). All other MWs are screened across water table.

Former UST Location

SHENANGO TWP. PARK

NOTES:

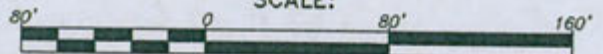
BENCHMARK / TBM
S.E. CORNER OF BUILDING
FND. DRILL HOLE
ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58
MW-2	99.88	99.63
MW-3	100.03	99.80
MW-4	100.07	99.82
MW-6	98.78	99.51
MW-9	96.22	95.97
MW-10	96.45	96.15
MW-11	96.89	96.66
MW-12	99.87	99.53

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86

SCALE:



Location

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

Rev: 12 Dec.,
2016

Date: 21
Sept., 2016

Drawn By:
C.H.W.

Rev By: AMR

Base Map
Provided By:
Henry T.
Welka &
Associates
Surveying and
Engineering
(814)833-3000

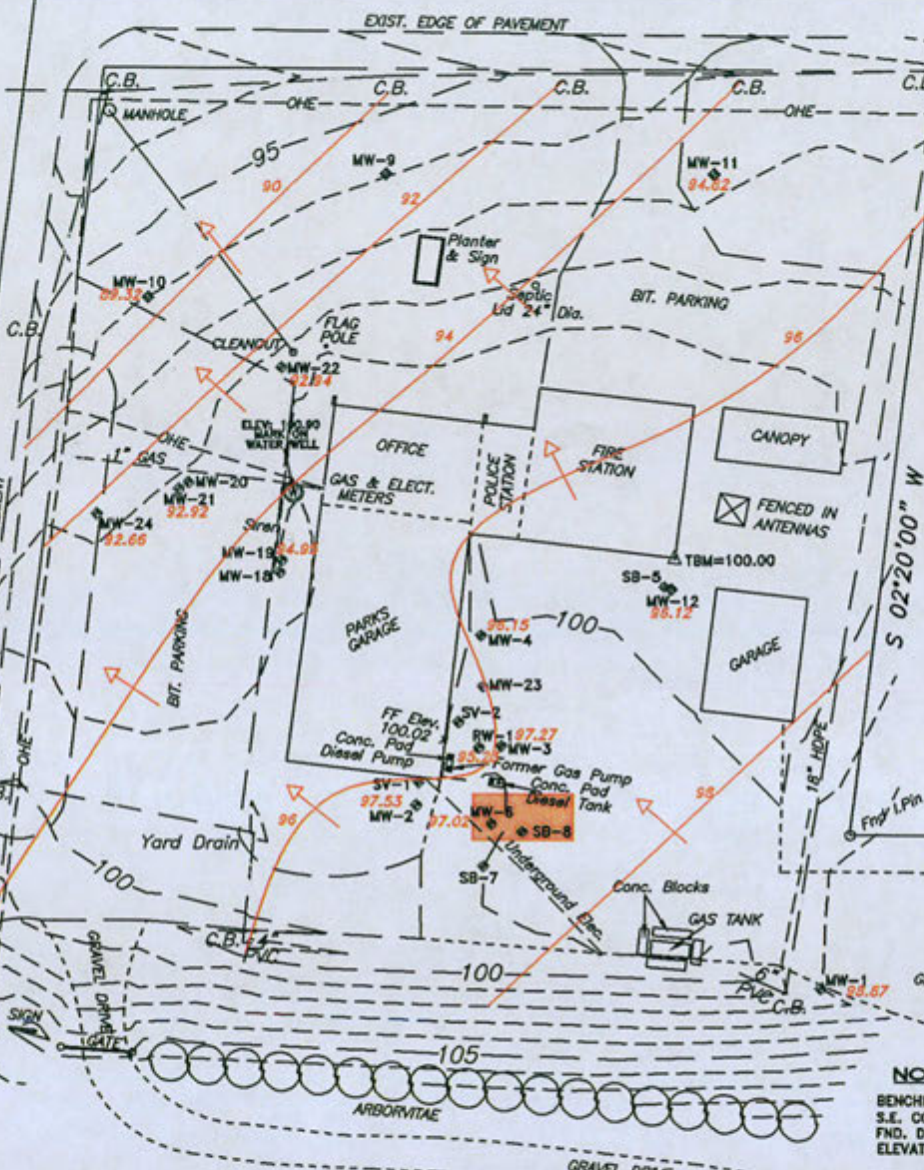
HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

JACKSON ROAD (S.R. 330)
667.80'

Tax Map 27 184 128

N 86°00'00" E



NOTES:

BENCHMARK / TBM
S.E. CORNER OF BUILDING
FND. DRILL HOLE
ELEVATION = 100.00

MONITORING WELL ELEVATIONS

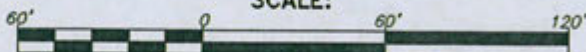
WELL #	LID ELEV.	PVC ELEV.	WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	96.45	96.15	MW-24	98.02	97.70
MW-11	96.89	96.66	RW-1	100.13	99.33
MW-12	99.67	99.53			
Soil Boring	EL.Ground		Soil Boring	EL.Ground	
SV-1	99.98		SB-13	100.10	
SV-2	100.06		SB-14	100.19	
SB-5	99.60		SB-15	100.08	
SB-7	100.00		SB-16	99.86	
SB-8	100.25		SB-17	99.82	

Figure 5C
Groundwater Contour Map Shallow Wells
Showing Groundwater Flow
Direction on February 17, 2017

- Contour interval= 2 ft
- Values are relative elevations in feet
- Arrows show groundwater flow direction
- Values are shown for "shallow" wells only (above bedrock)

FORMER UST LOCATION

SCALE:



Rev: 2 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Date: 21 Sept., 2016

Base Map Provided

By: Henry T. Welka

& Associates

Surveying and

Engineering

(814)833-3000

Shenango Township Municipal Building

3439 Hubbard-West Middlesex Road

West Middlesex, Pa. 16159

Shenango Twp., Mercer County

PADEP Facility No. 43-04177

USTIF Claim No. 2016-008

Mercer County Tax Map 27 184 131

9.74 Acres

Compliance Environmental Services, INC.

PO Box 186

West Middlesex, PA 16159

(724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

JACKSON ROAD (S.R. 330)
667.80'

Tax Map 27 184 128

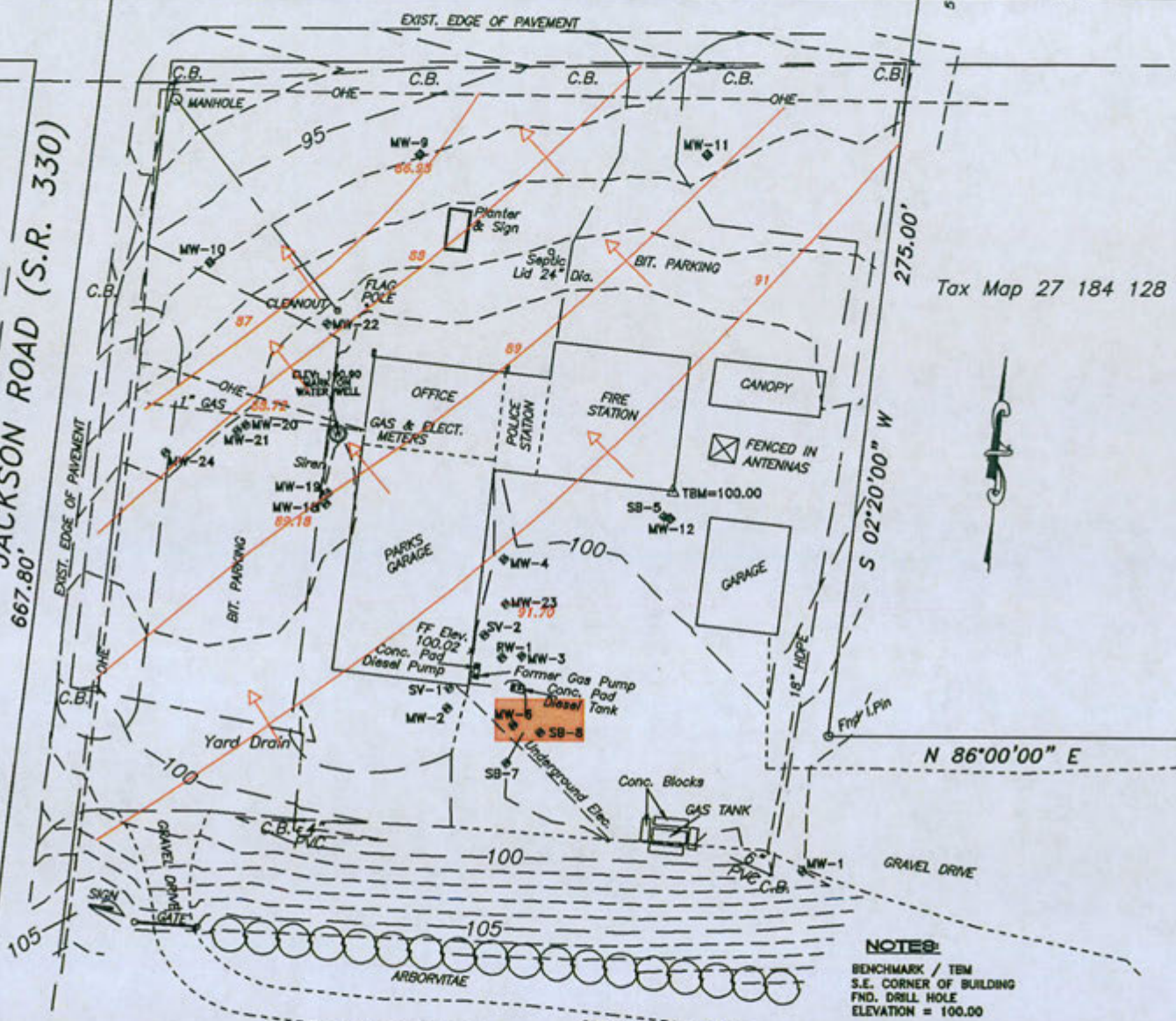
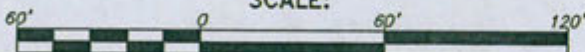


Figure 5D
Groundwater Contour Map Deep Wells
Showing Groundwater Flow
Direction on February 17, 2017

- Contour interval= 1 ft
- Values are relative elevations in feet
- Arrows show groundwater flow direction
- Values are shown for "deep" wells only (in bedrock)

FORMER UST LOCATION

SCALE:



NOTES:
BENCHMARK / TBM
S.E. CORNER OF BUILDING
FND. DRILL HOLE
ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.	WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	96.45	96.15	MW-24	98.02	97.70
MW-11	96.89	96.66	RW-1	100.13	99.33
MW-12	99.87	99.53			
Soil Boring			Soil Boring		
SV-1	99.98	EL.Ground	SB-13	100.10	
SV-2	100.06	EL.Ground	SB-14	100.19	
SB-5	99.60	EL.Ground	SB-15	100.08	
SB-7	100.00	EL.Ground	SB-16	99.86	
SB-8	100.25	EL.Ground	SB-17	99.82	

Rev: 2 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Date: 21 Sept., 2016

Base Map Provided
By: Henry T. Welka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

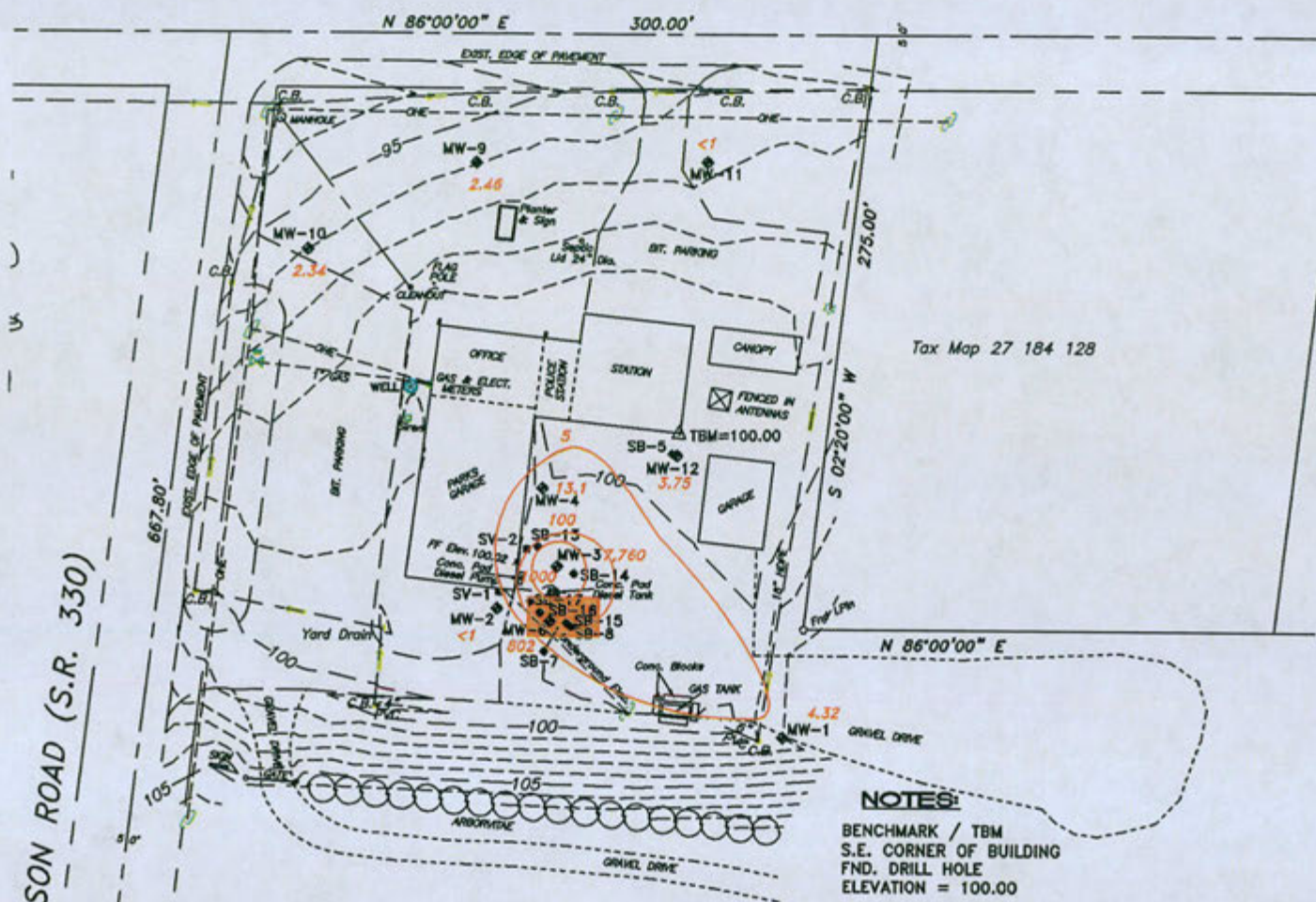


Figure 6A
Contamination Distribution Map
Isoconcentration, Benzene
In Groundwater, September
26, 2016

-5 ug/l = SHS Benzene
 -All values are in ug/l
 -ug/l = micrograms per liter

Former UST Location



NOTES:

BENCHMARK / TBM
 S.E. CORNER OF BUILDING
 FND. DRILL HOLE
 ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58
MW-2	99.88	99.63
MW-3	100.03	99.80
MW-4	100.07	99.82
MW-6	98.78	99.51
MW-9	96.22	95.97
MW-10	96.45	96.15
MW-11	96.89	96.66
MW-12	99.87	99.53

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86
SB-8	100.25	SB-17	99.82

SHENANGO TWP. PARK

Rev: 12 Dec.,
 2016

Date: 21
 Sept., 2016

Drawn By:
 C.H.W.

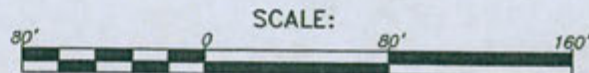
Rev By: AMR

Base Map
 Provided By:
 Henry T.
 Welka &
 Associates
 Surveying and
 Engineering
 (814)833-3000

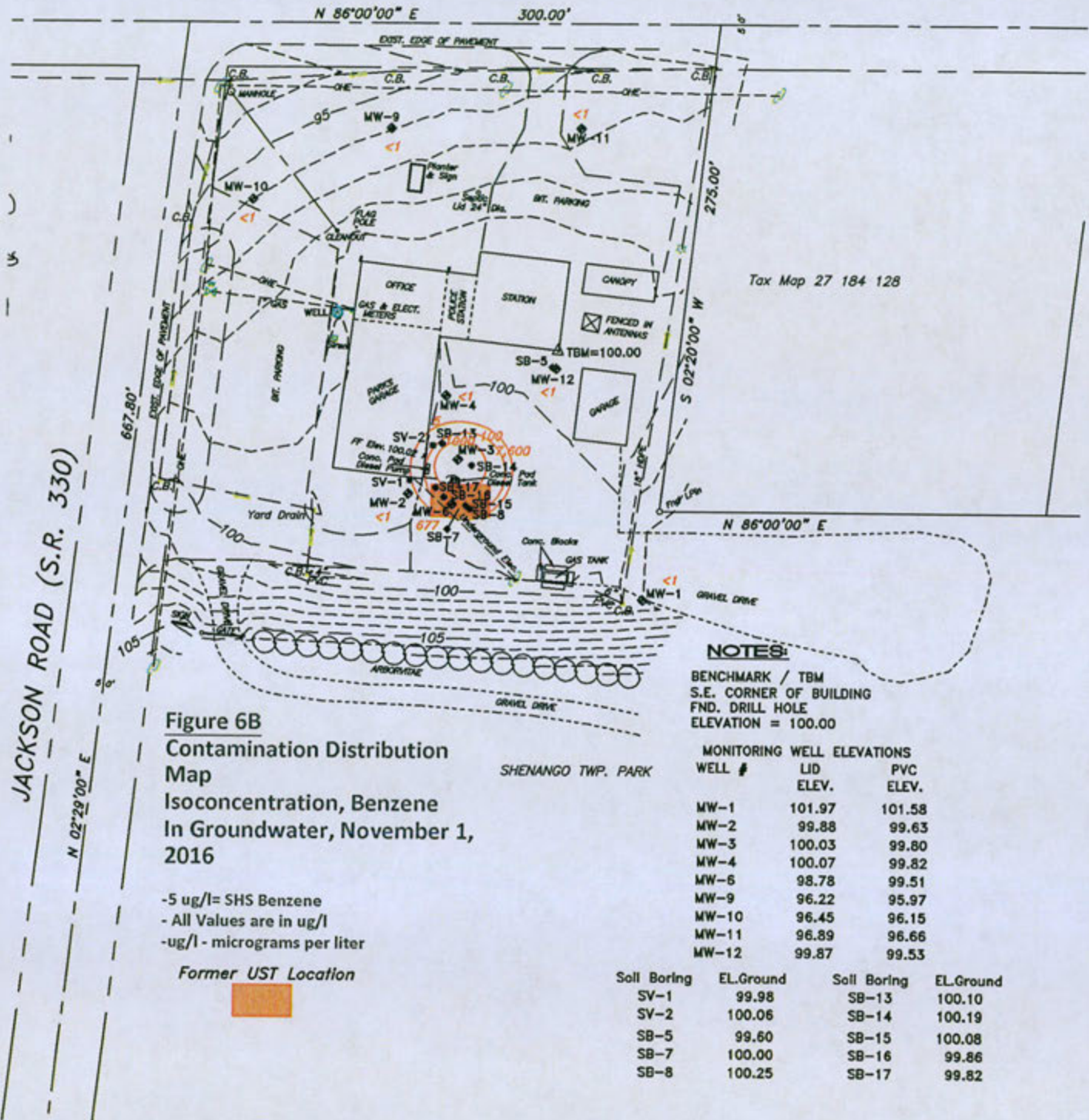
Location

Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
 West Middlesex, Pa. 16159
 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
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 9.74 Acres

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HUBBARD / MIDDLESEX ROAD (S.R. 318)



Rev: 12 Dec., 2016

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Base Map Provided By: Henry T. Welka & Associates
 Surveying and Engineering
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Location

Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
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 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
 Mercer County Tax Map 27 184 131
 9.74 Acres

Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990

SCALE: 80' 0 80' 160'

HUBBARD / MIDDLESEX ROAD (S.R. 318)

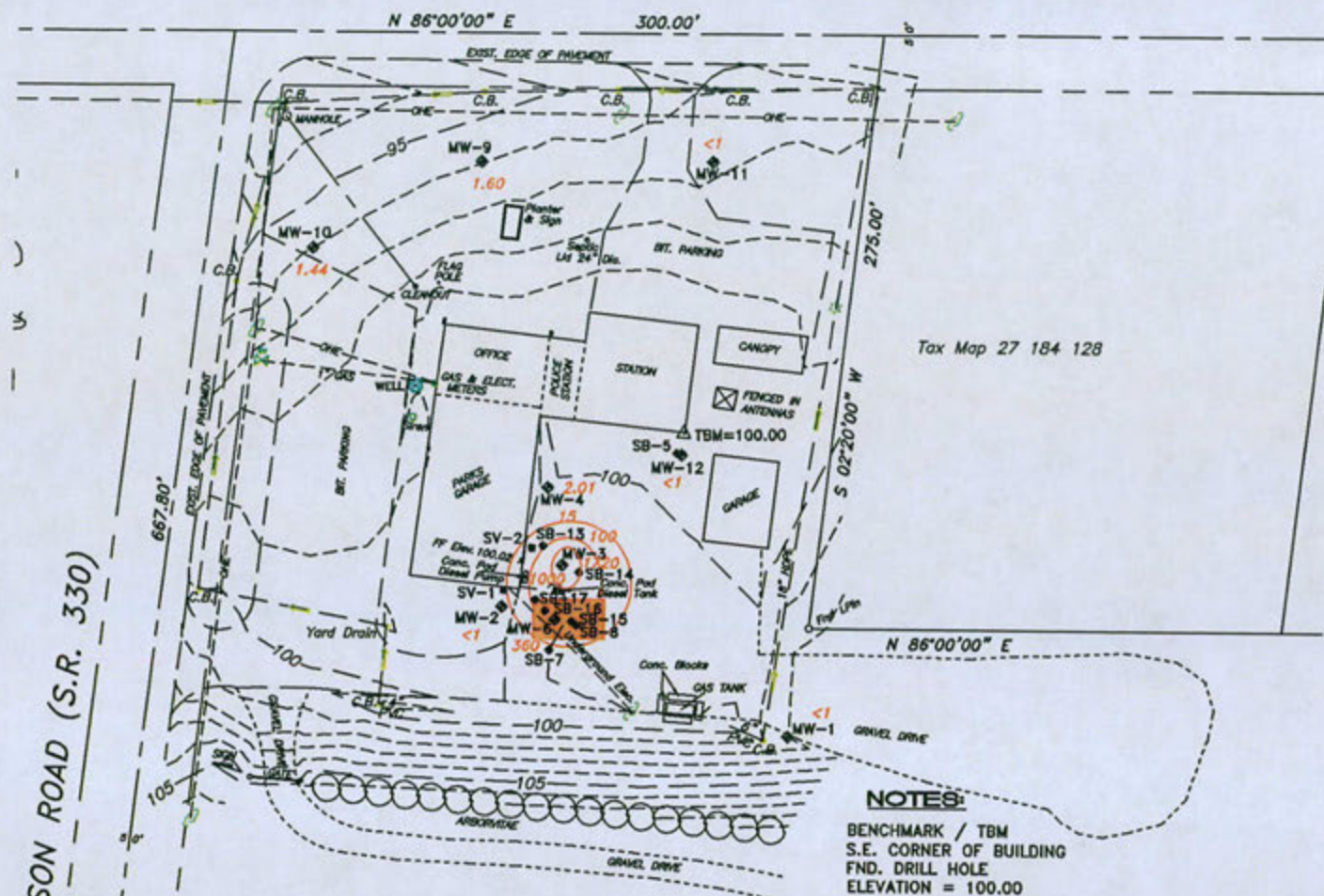


Figure 6C
Contamination Distribution
Map
Isoconcentration, 1,2,4-TMB
In Groundwater, September
26, 2016

-TMB= Trimethylbenzene
 -15 ug/l= SHS 1,2,4- TMB
 -All values are in ug/l
 -ug/l = micrograms per liter

Former UST Location



Rev: 12 Dec.,
 2016

Date: 21
 Sept., 2016

Drawn By:
 C.H.W.

Rev By: AMR

Base Map
 Provided By:
 Henry T.
 Welka &
 Associates
 Surveying and
 Engineering
 (814)833-3000

Location

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 9.74 Acres

Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990

SCALE:
 80' 0 80' 160'

NOTES:
 BENCHMARK / TBM
 S.E. CORNER OF BUILDING
 FND. DRILL HOLE
 ELEVATION = 100.00

WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58
MW-2	99.88	99.63
MW-3	100.03	99.80
MW-4	100.07	99.82
MW-6	98.78	99.51
MW-9	96.22	95.97
MW-10	96.45	96.15
MW-11	96.89	96.66
MW-12	99.87	99.53

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86
SB-8	100.25	SB-17	99.82

HUBBARD / MIDDLESEX ROAD (S.R. 318)

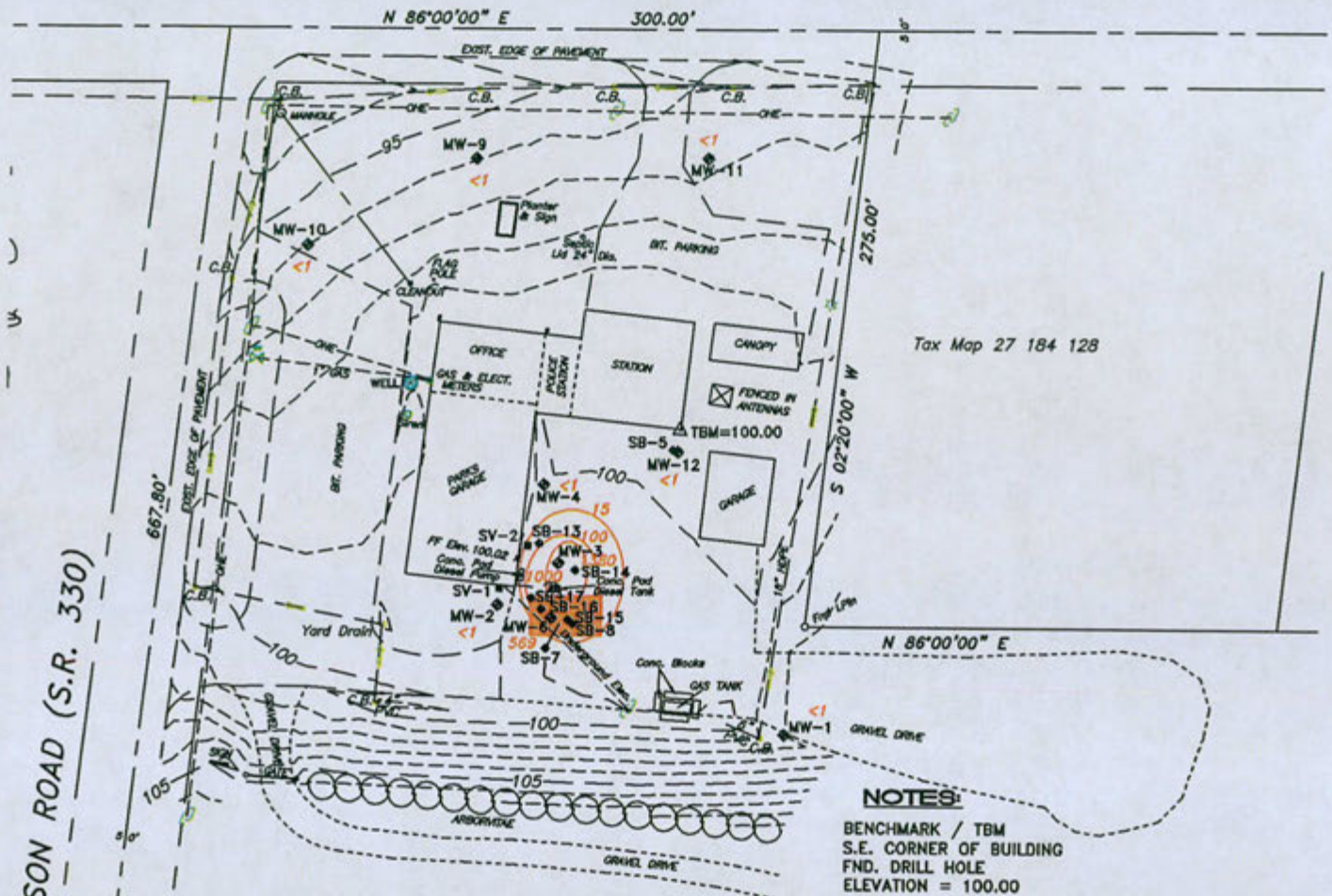


Figure 6D
Contamination Distribution
Map
Isoconcentration, 1,2,4-TMB
In Groundwater, November 1,
2016

-TMB= Trimethylbenzene
 -15 ug/l= SHS 1,2,4- TMB
 -All values are in ug/l
 -ug/l = micrograms per liter

Former UST Location



NOTES:

BENCHMARK / TBM
 S.E. CORNER OF BUILDING
 FND. DRILL HOLE
 ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58
MW-2	99.88	99.63
MW-3	100.03	99.80
MW-4	100.07	99.82
MW-6	98.78	99.51
MW-9	96.22	95.97
MW-10	96.45	96.15
MW-11	96.89	96.66
MW-12	99.87	99.53

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86
SB-8	100.25	SB-17	99.82

SHENANGO TWP. PARK

Rev: 12 Dec.,
 2016

Date: 21
 Sept., 2016

Drawn By:
 C.H.W.

Rev By: AMR

Base Map
 Provided By:
 Henry T.
 Welka &
 Associates
 Surveying and
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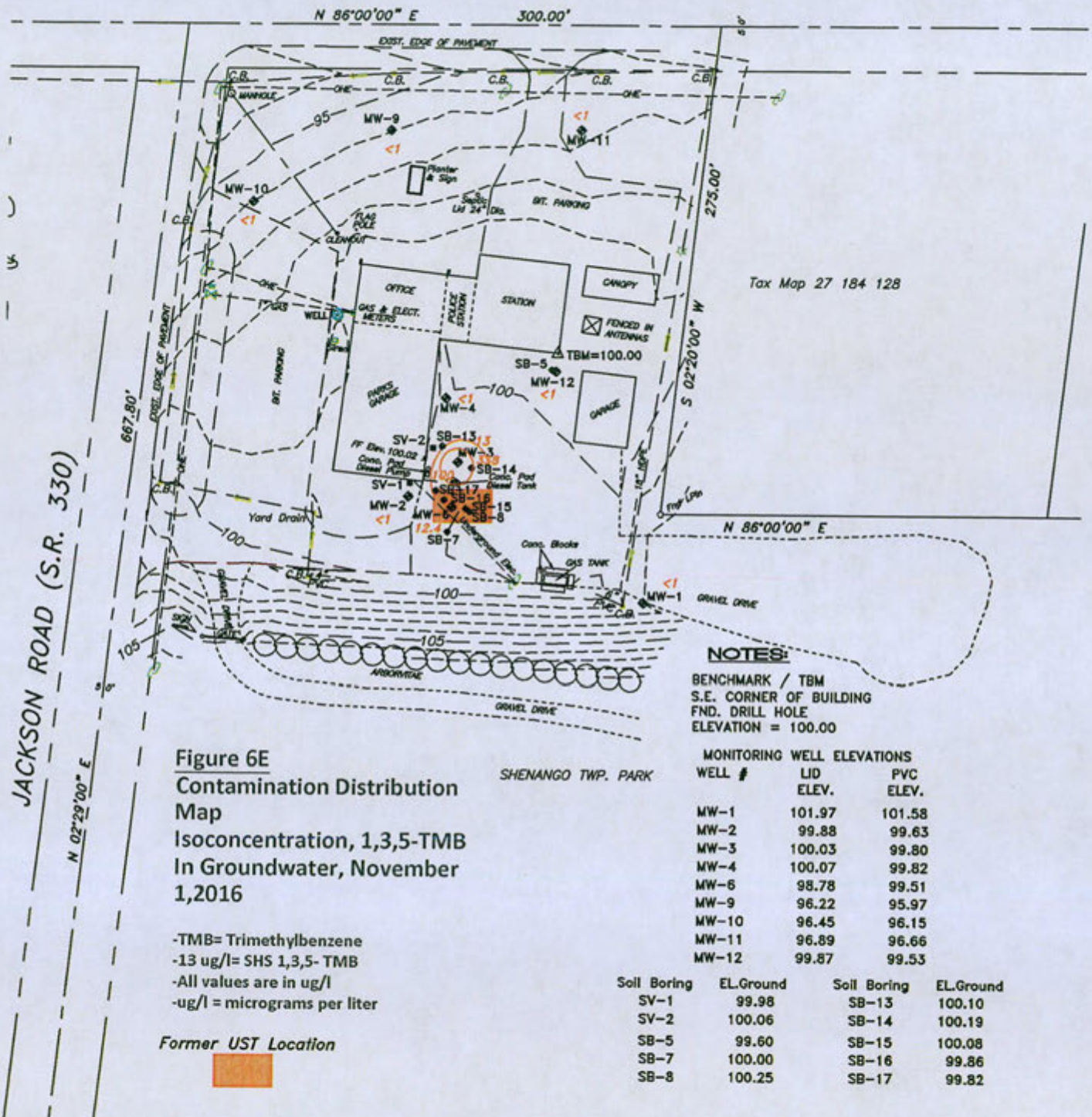
Location

Shenango Township Municipal Building
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 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
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HUBBARD / MIDDLESEX ROAD (S.R. 318)



Rev: 12 Dec.,
2016

Date: 21
Sept., 2016

Drawn By:
C.H.W.

Rev By: AMR

Base Map
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 Associates
 Surveying and
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 (814)833-3000

Location
 Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
 West Middlesex, Pa. 16159
 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
 Mercer County Tax Map 27 184 131
 9.74 Acres

Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

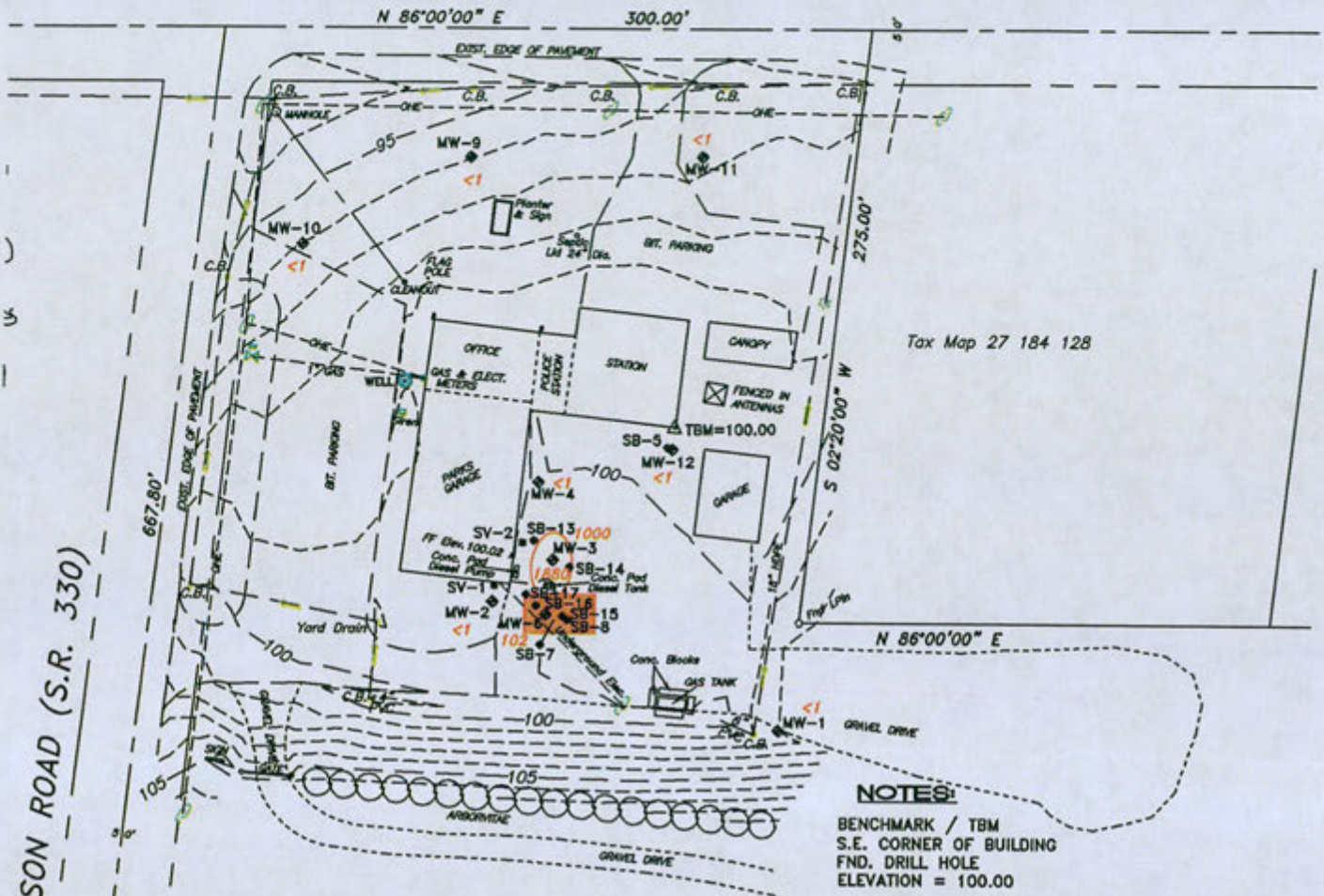


Figure 6F
Contamination Distribution
Map
Isoconcentration, Toluene
In Groundwater, November
1,2016

-1,000 ug/l = SHS Toluene
 -All values are in ug/l
 -ug/l = micrograms per liter

Former UST Location



NOTES:

BENCHMARK / TBM
 S.E. CORNER OF BUILDING
 FND. DRILL HOLE
 ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58
MW-2	99.88	99.63
MW-3	100.03	99.80
MW-4	100.07	99.82
MW-5	98.78	99.51
MW-9	96.22	95.97
MW-10	96.45	96.15
MW-11	96.89	96.66
MW-12	99.87	99.53

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86
SB-8	100.25	SB-17	99.82

Rev: 12 Dec.,
 2016

Date: 21
 Sept., 2016

Drawn By:
 C.H.W.

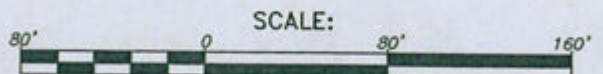
Rev By: AMR

Base Map
 Provided By:
 Henry T.
 Welka &
 Associates
 Surveying and
 Engineering
 (814)833-3000

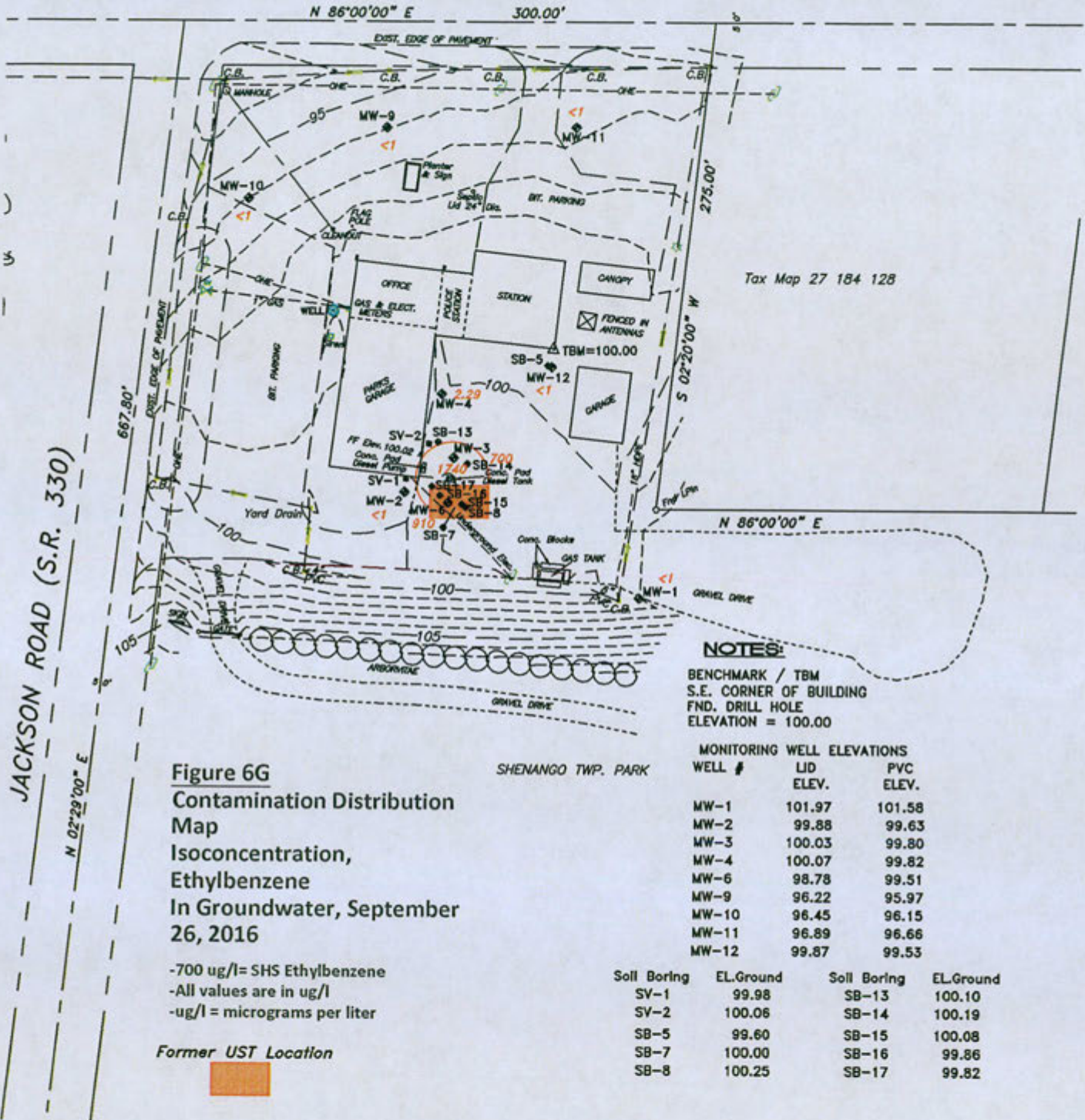
Location

Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
 West Middlesex, Pa. 16159
 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
 Mercer County Tax Map 27 184 131
 9.74 Acres

Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990



HUBBARD / MIDDLESEX ROAD (S.R. 318)



Rev: 12 Dec., 2016

Date: 21 Sept., 2016

Drawn By: C.H.W.

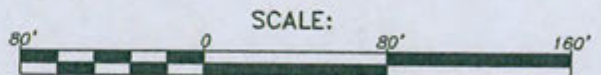
Base Map Provided By: Henry T. Welka & Associates
 Surveying and Engineering
 (814)833-3000

Rev By: AMR

Location

Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
 West Middlesex, Pa. 16159
 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
 Mercer County Tax Map 27 184 131
 9.74 Acres

Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990



HUBBARD / MIDDLESEX ROAD (S.R. 318)

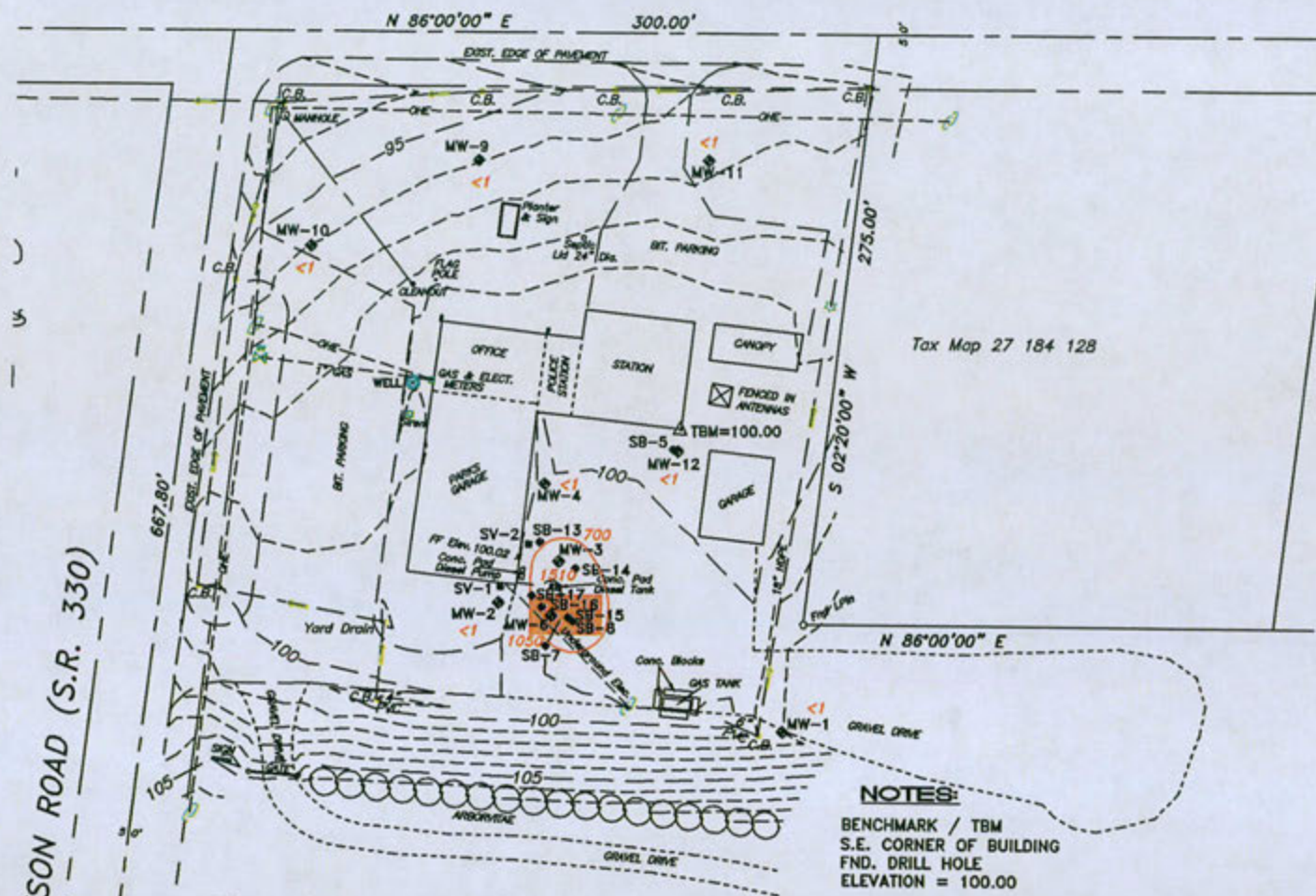


Figure 6H
Contamination Distribution
Map
Isoconcentration,
Ethylbenzene
In Groundwater, November 1,
2016

-700 ug/l = SHS Ethylbenzene
 -All values are in ug/l
 -ug/l = micrograms per liter

Former UST Location



NOTES:

BENCHMARK / TBM
 S.E. CORNER OF BUILDING
 FND. DRILL HOLE
 ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58
MW-2	99.88	99.63
MW-3	100.03	99.80
MW-4	100.07	99.82
MW-6	98.78	99.51
MW-9	96.22	95.97
MW-10	96.45	96.15
MW-11	96.89	96.66
MW-12	99.87	99.53

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86
SB-8	100.25	SB-17	99.82

Rev: 12 Dec.,
 2016

Date: 21
 Sept., 2016

Drawn By:
 C.H.W.

Rev By: AMR

Base Map
 Provided By:
 Henry T.
 Welka &
 Associates
 Surveying and
 Engineering
 (814)833-3000

Location

Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
 West Middlesex, Pa. 16159
 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
 Mercer County Tax Map 27 184 131
 9.74 Acres



Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

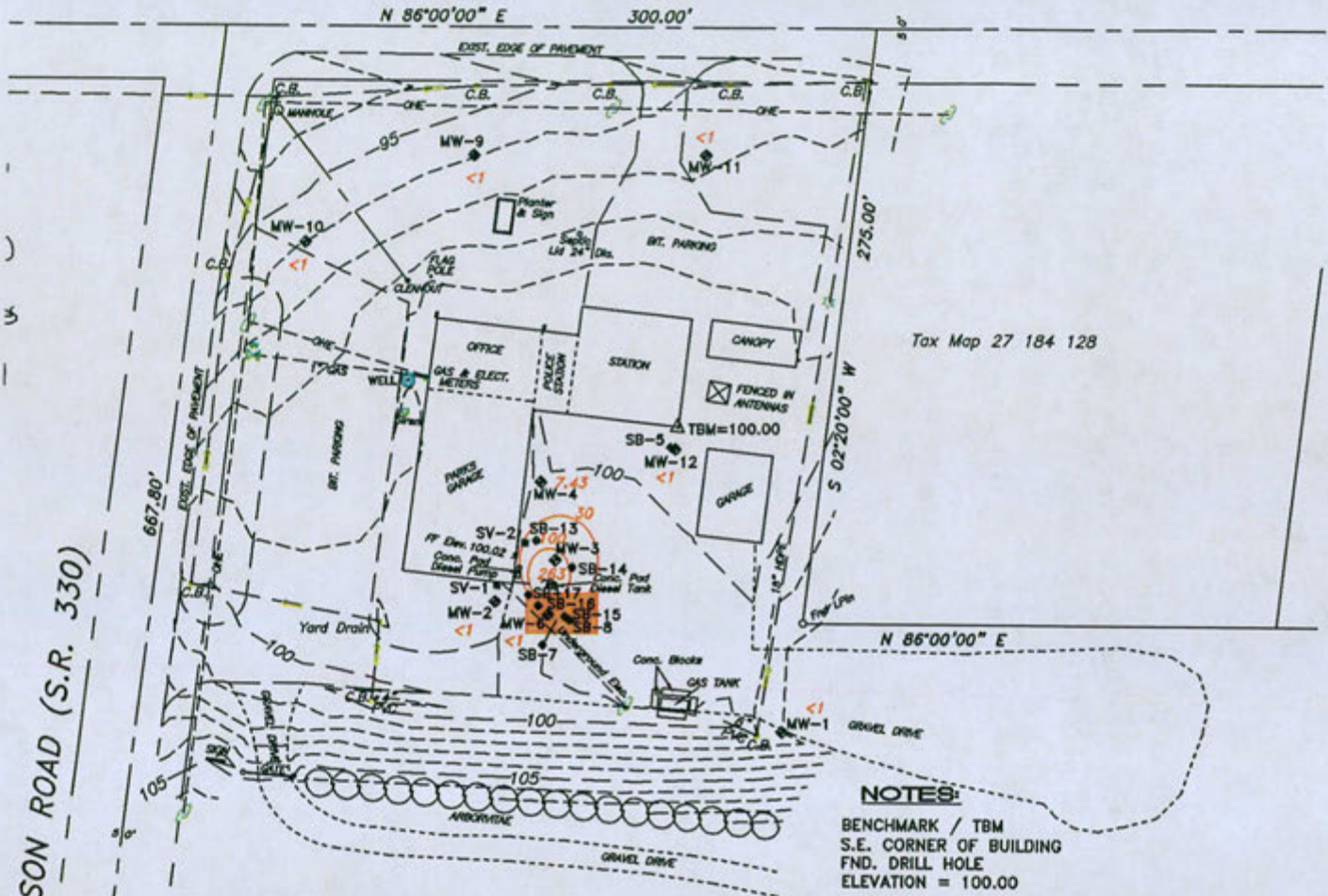


Figure 61
Contamination Distribution
Map
Isoconcentration, MTBE
In Groundwater, November 1,
2016

-30 ug/l = SHS MTBE
 -All values are in ug/l
 -ug/l = micrograms per liter

Former UST Location



NOTES:

BENCHMARK / TBM
 S.E. CORNER OF BUILDING
 FND. DRILL HOLE
 ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58
MW-2	99.88	99.63
MW-3	100.03	99.80
MW-4	100.07	99.82
MW-6	98.78	99.51
MW-9	96.22	95.97
MW-10	96.45	96.15
MW-11	96.89	96.66
MW-12	99.87	99.53

Soil Boring	EL.Ground	Soil Boring	EL.Ground
SV-1	99.98	SB-13	100.10
SV-2	100.06	SB-14	100.19
SB-5	99.60	SB-15	100.08
SB-7	100.00	SB-16	99.86
SB-8	100.25	SB-17	99.82

Rev: 12 Dec.,
 2016

Date: 21
 Sept., 2016

Drawn By:
 C.H.W.

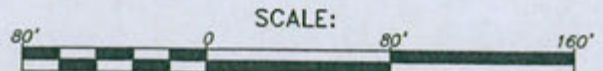
Rev By: AMR

Base Map
 Provided By:
 Henry T.
 Welka &
 Associates
 Surveying and
 Engineering
 (814)833-3000

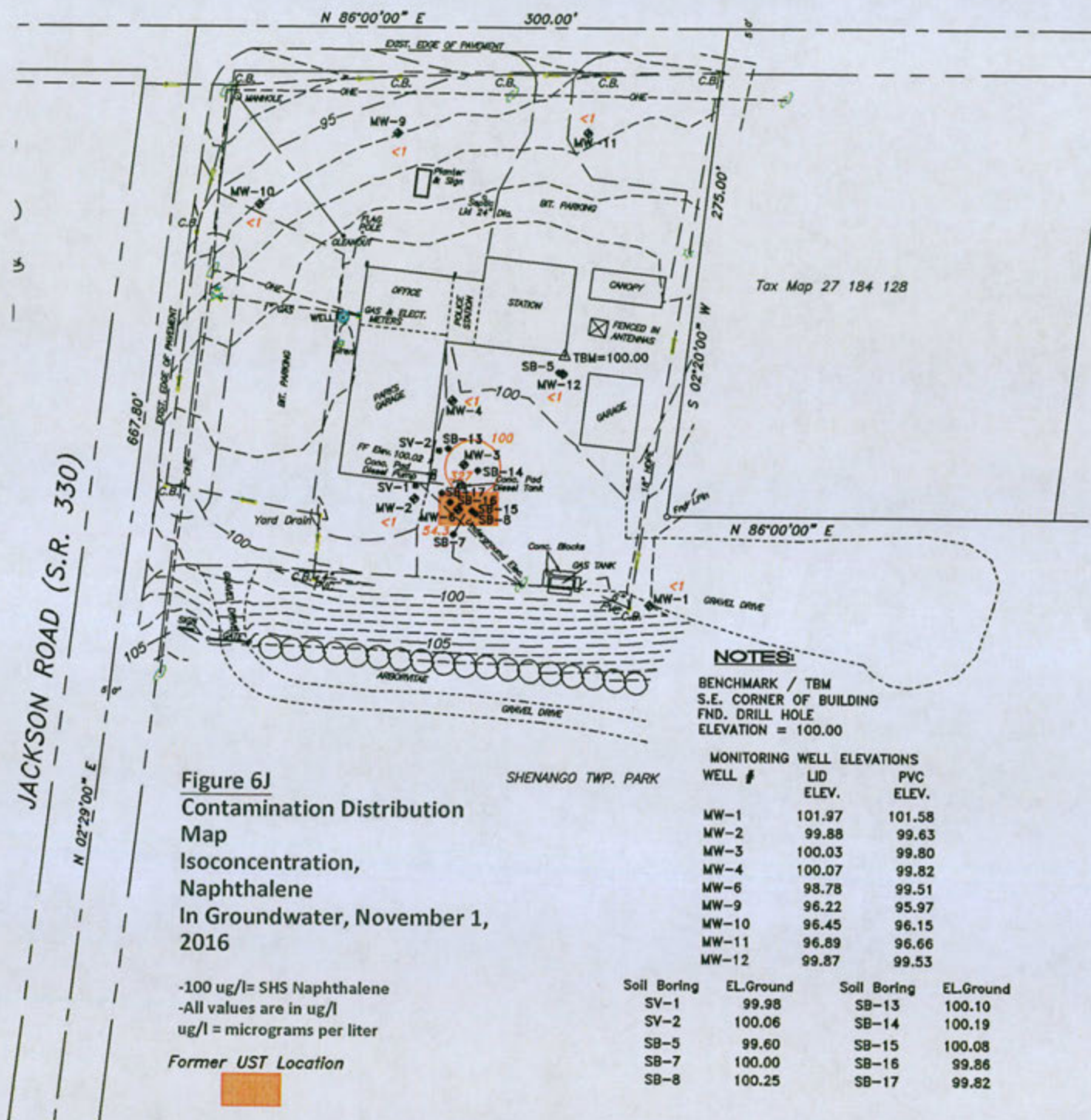
Location

Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
 West Middlesex, Pa. 16159
 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
 Mercer County Tax Map 27 184 131
 9.74 Acres

Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990



HUBBARD / MIDDLESEX ROAD (S.R. 318)



Rev: 12 Dec., 2016

Date: 21 Sept., 2016

Drawn By: C.H.W.

Rev By: AMR

Base Map Provided By: Henry T. Welka & Associates
 Surveying and Engineering
 (814)833-3000

Location

Shenango Township Municipal Building
 3439 Hubbard-West Middlesex Road
 West Middlesex, Pa. 16159
 Shenango Twp., Mercer County
 PADEP Facility No. 43-04177
 USTIF Claim No. 2016-008
 Mercer County Tax Map 27 184 131
 9.74 Acres

Compliance Environmental Services, INC.
 PO Box 186
 West Middlesex, PA 16159
 (724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

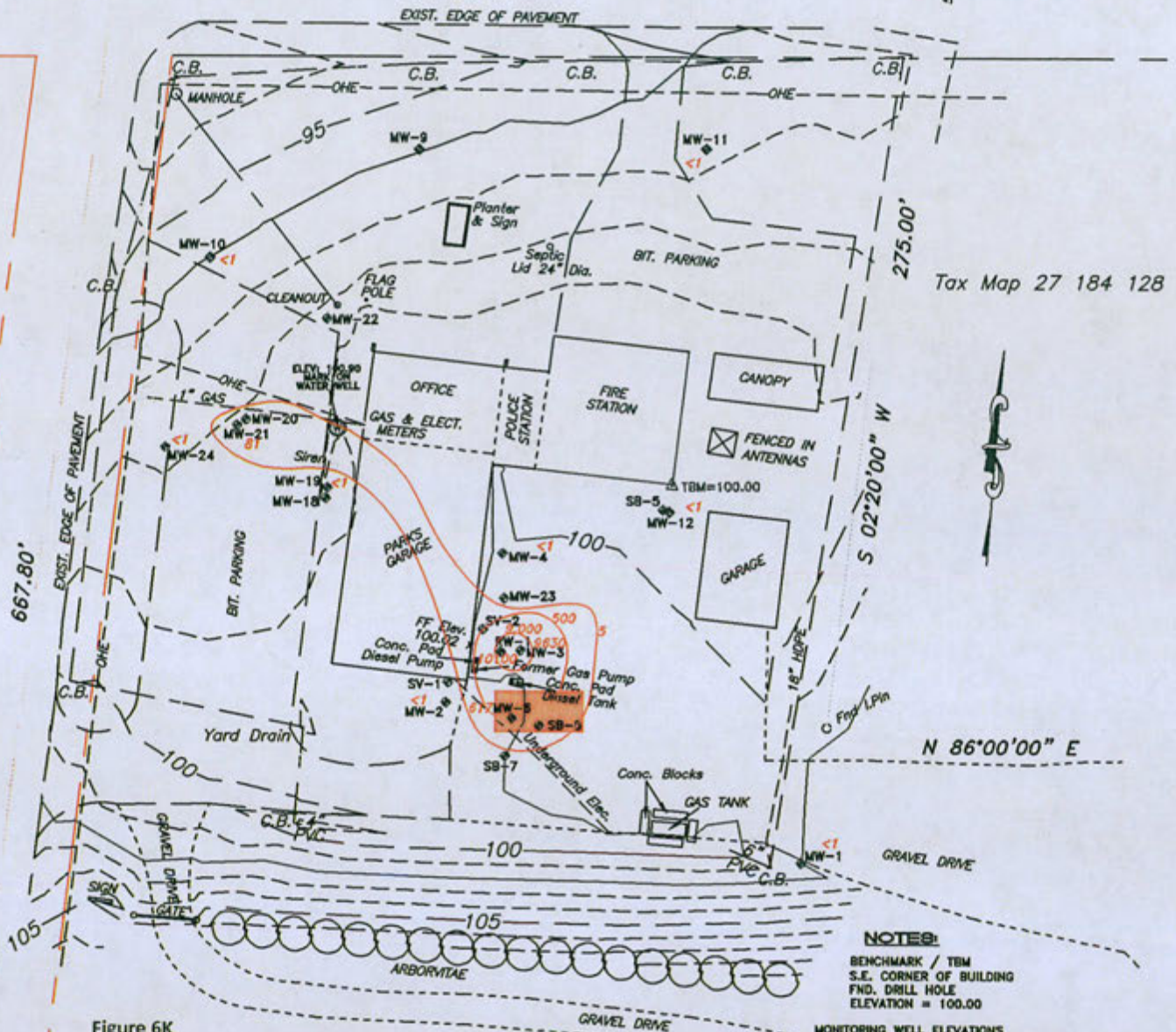


Figure 6K
Contamination Distribution Map
Isoconcentration, Benzene
In Groundwater for Shallow Wells, February 17, 2017

- 5 ug/l = SHS Benzene
- All Values are in ug/l
- ug/l - micrograms per liter
- Values are shown for "shallow" wells only (above bedrock)

FORMER UST LOCATION



Date: 21 Sept., 2016

Rev: 7 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Base Map Provided
By: Henry T. Welka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

MONITORING WELL ELEVATIONS					
WELL #	LID ELEV.	PVC ELEV.	WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	98.45	95.15	MW-24	98.02	97.70
MW-11	96.89	96.66	RW-1	100.13	99.33
MW-12	99.87	99.53			
Soil Boring					
SB-1	99.98		SB-13	100.10	
SB-2	100.06		SB-14	100.19	
SB-5	99.60		SB-15	100.08	
SB-7	100.00		SB-16	99.86	
SB-8	100.25		SB-17	99.82	
EL.Ground					

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

5'0"

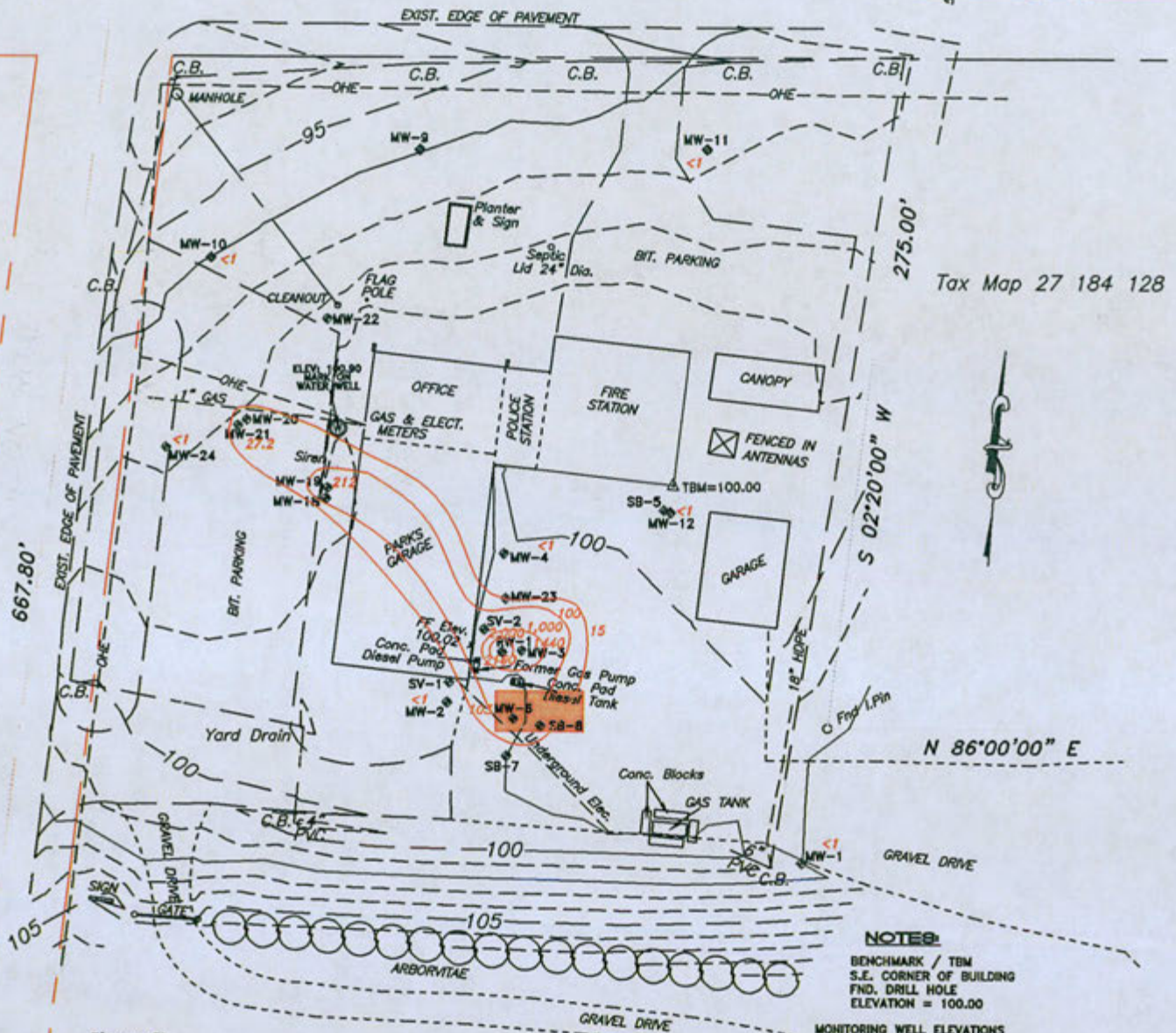


Figure 6L
Contamination Distribution Map
Isoconcentration, 1, 2, 4- Trimethylbenzene
In Groundwater for Shallow Wells, February 17, 2017

- 15 ug/l= SHS 1, 2, 4- Trimethylbenzene
- All Values are in ug/l
- ug/l - micrograms per liter
- Values are shown for "shallow" wells only (above bedrock)

FORMER UST LOCATION



SCALE:



MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.	WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	96.45	96.15	MW-24	98.02	97.70
MW-11	96.89	96.66	RW-1	100.13	99.33
MW-12	99.87	99.53			
Soil Boring	EL.Ground		Soil Boring	EL.Ground	
SV-1	99.98		SB-13	100.10	
SV-2	100.06		SB-14	100.19	
SB-5	99.60		SB-15	100.08	
SB-7	100.00		SB-16	99.86	
SB-8	100.25		SB-17	99.82	

Rev: 7 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Date: 21 Sept., 2016

Base Map Provided
By: Henry T. Welka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

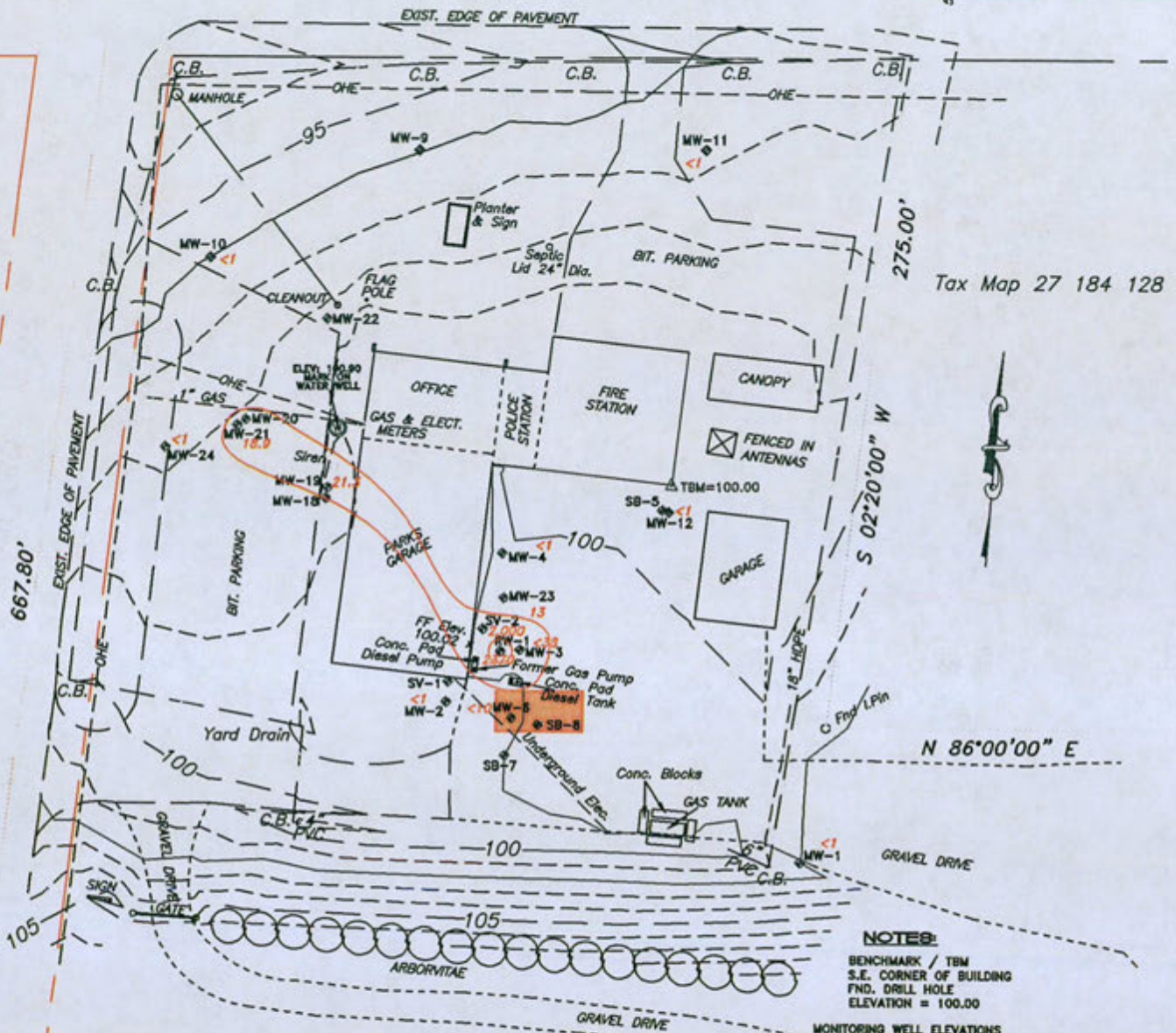
Compliance Environmental Services, INC
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E

300.00'

50



HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

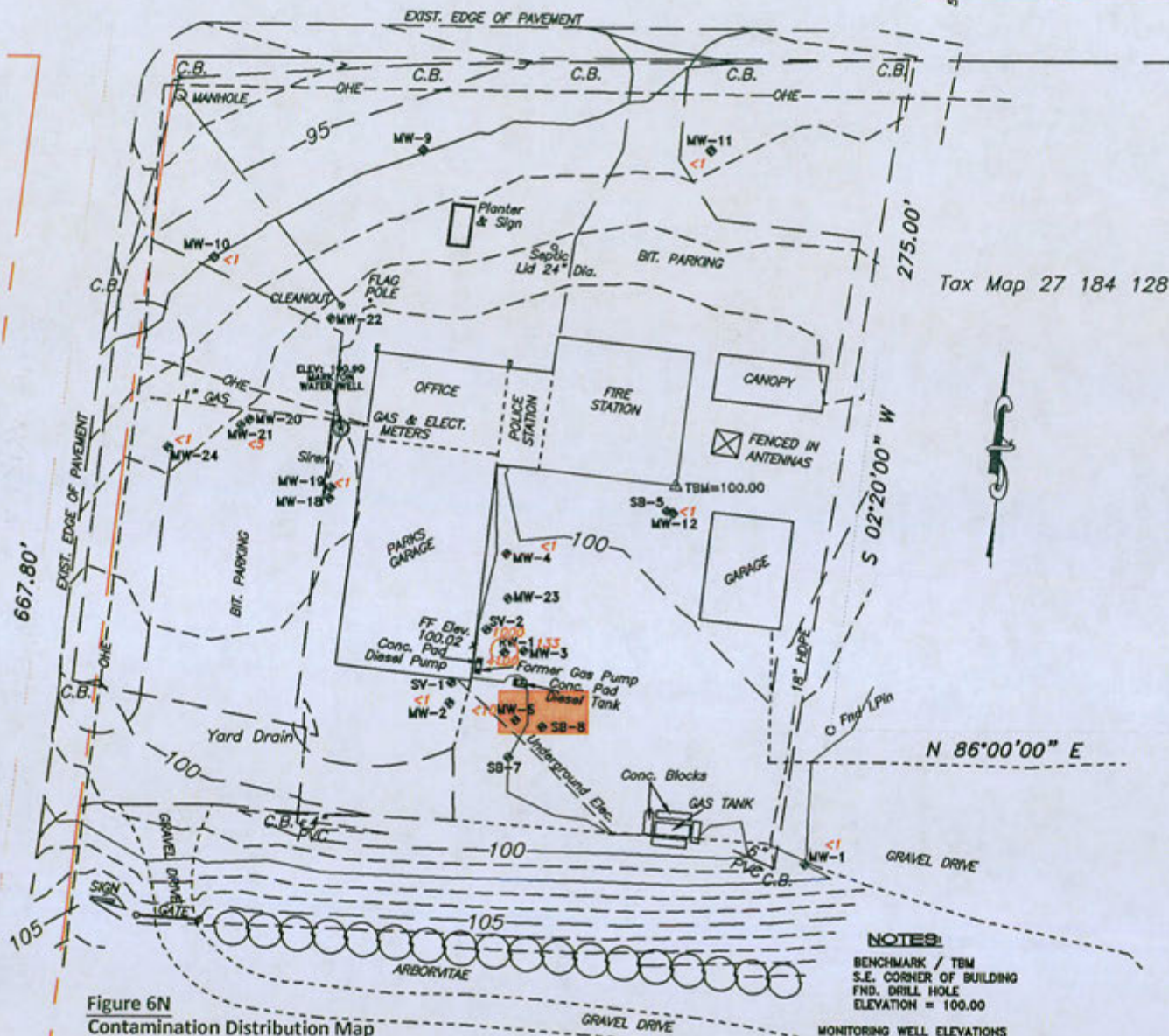


Figure 6N
Contamination Distribution Map
Isoconcentration, Toluene
In Groundwater for Shallow Wells, February 17, 2017

- 1,000 ug/l= SHS Toluene
- All Values are in ug/l
- ug/l - micrograms per liter
- Values are shown for "shallow" wells only (above bedrock)

NOTES:
BENCHMARK / TBM
S.E. CORNER OF BUILDING
FND. DRILL HOLE
ELEVATION = 100.00

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.	WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	96.45	96.15	MW-24	98.02	97.70
MW-11	96.89	96.66	RW-1	100.13	99.33
MW-12	99.87	99.53			
Soil Boring	EL.Ground	Soil Boring	EL.Ground		
SV-1	99.98	SB-13	100.10		
SV-2	100.06	SB-14	100.19		
SB-5	99.60	SB-15	100.08		
SB-7	100.00	SB-16	99.86		
SB-8	100.25	SB-17	99.82		

SCALE: 60' 120' Former UST Location

Rev: 8 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Date: 21 Sept., 2016

Base Map Provided
By: Henry T. Walka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

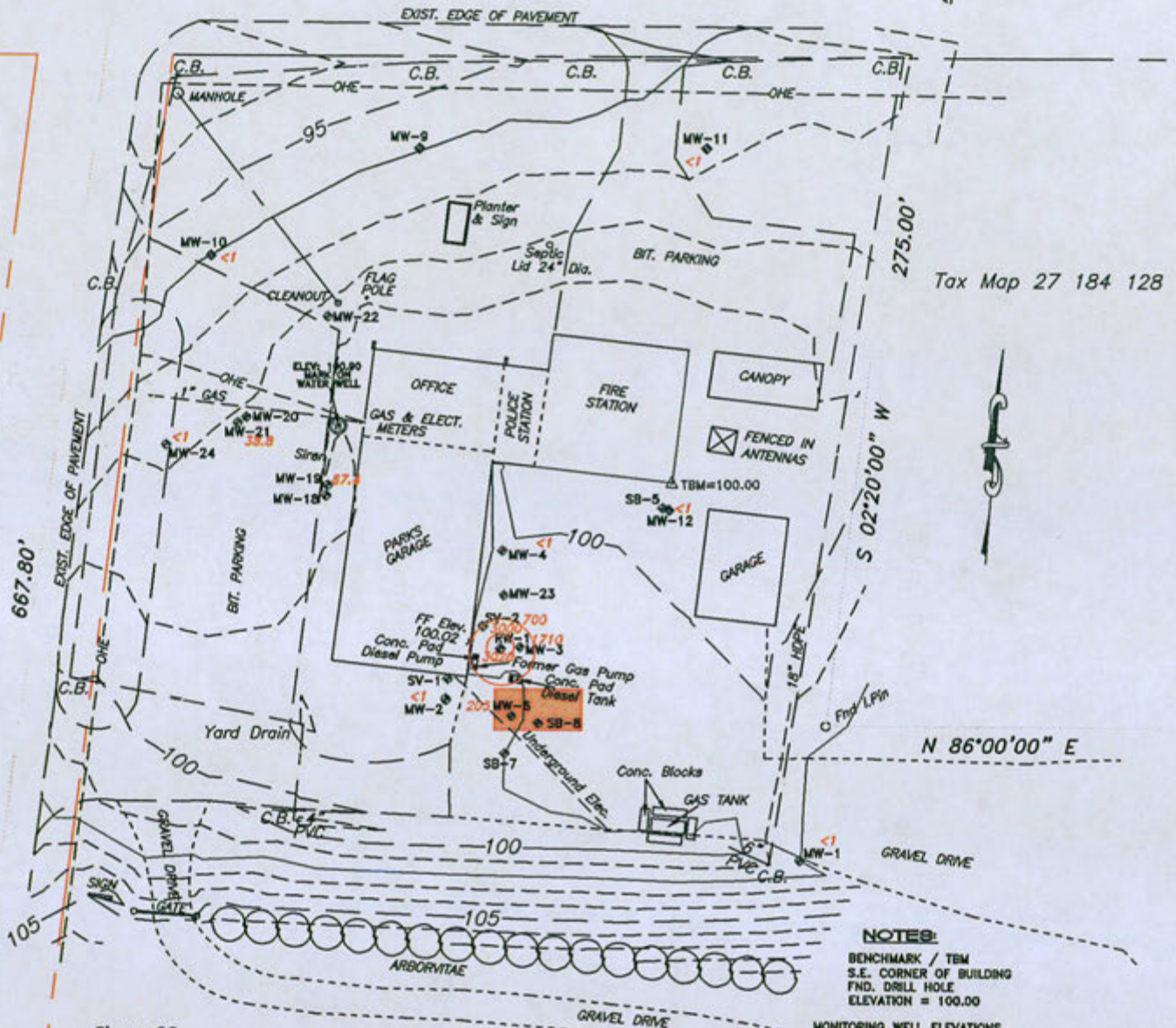


Figure 60
Contamination Distribution Map
Isoconcentration, Ethylbenzene
In Groundwater for Shallow Wells, February 17, 2017

- 700 ug/l= SHS Ethylbenzene
- All Values are in ug/l
- ug/l - micrograms per liter
- Values are shown for "shallow" wells only (above bedrock)

FORMER UST LOCATION



SCALE:



Date: 21 Sept., 2016

Rev: 8 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Base Map Provided
By: Henry T. Welka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

MONITORING WELL ELEVATIONS

WELL #	LID ELEV.	PVC ELEV.	WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	98.45	98.15	MW-24	98.02	97.70
MW-11	98.89	98.66	RW-1	100.13	99.33
MW-12	99.87	99.53			
Soil Boring	EL.Ground	Soil Boring	EL.Ground		
SV-1	99.98	SB-13	100.10		
SV-2	100.06	SB-14	100.19		
SB-5	99.60	SB-15	100.08		
SB-7	100.00	SB-16	99.86		
SB-8	100.25	SB-17	99.82		

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

50'

Tax Map 27 184 128

N 86°00'00" E

NOTES:

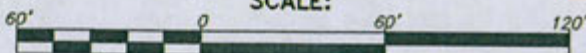
BENCHMARK / TBM
S.E. CORNER OF BUILDING
FND. DRILL HOLE
ELEVATION = 100.00

Figure 6P
Contamination Distribution Map
Isoconcentration, MTBE
In Groundwater for Shallow Wells, February 17, 2017

- 20 ug/l = SHS MTBE
- All Values are in ug/l
- ug/l - micrograms per liter
- Values are shown for "shallow" wells only (above bedrock)

FORMER UST LOCATION

SCALE:



Date: 21 Sept., 2016

Rev: 7 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Base Map Provided
By: Henry T. Welka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

MONITORING WELL ELEVATIONS			
WELL #	LID ELEV.	PVC ELEV.	
MW-1	101.97	101.58	
MW-2	99.88	99.63	
MW-3	100.03	99.80	
MW-4	100.07	99.82	
MW-6	98.78	99.51	
MW-9	98.22	95.97	
MW-10	98.45	96.15	
MW-11	98.89	96.66	
MW-12	99.87	99.53	
	Soil Boring	EL.Ground	
	SV-1	99.98	
	SV-2	100.06	
	SB-5	99.60	
	SB-7	100.00	
	SB-8	100.25	
WELL #	LID ELEV.	PVC ELEV.	
MW-18	99.21	98.97	
MW-19	99.21	98.93	
MW-20	98.07	97.66	
MW-21	98.05	97.78	
MW-22	98.67	98.44	
MW-23	100.23	99.97	
MW-24	98.02	97.70	
RW-1	100.13	99.33	
	Soil Boring	EL.Ground	
	SB-13	100.10	
	SB-14	100.19	
	SB-15	100.08	
	SB-16	99.86	
	SB-17	99.82	

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

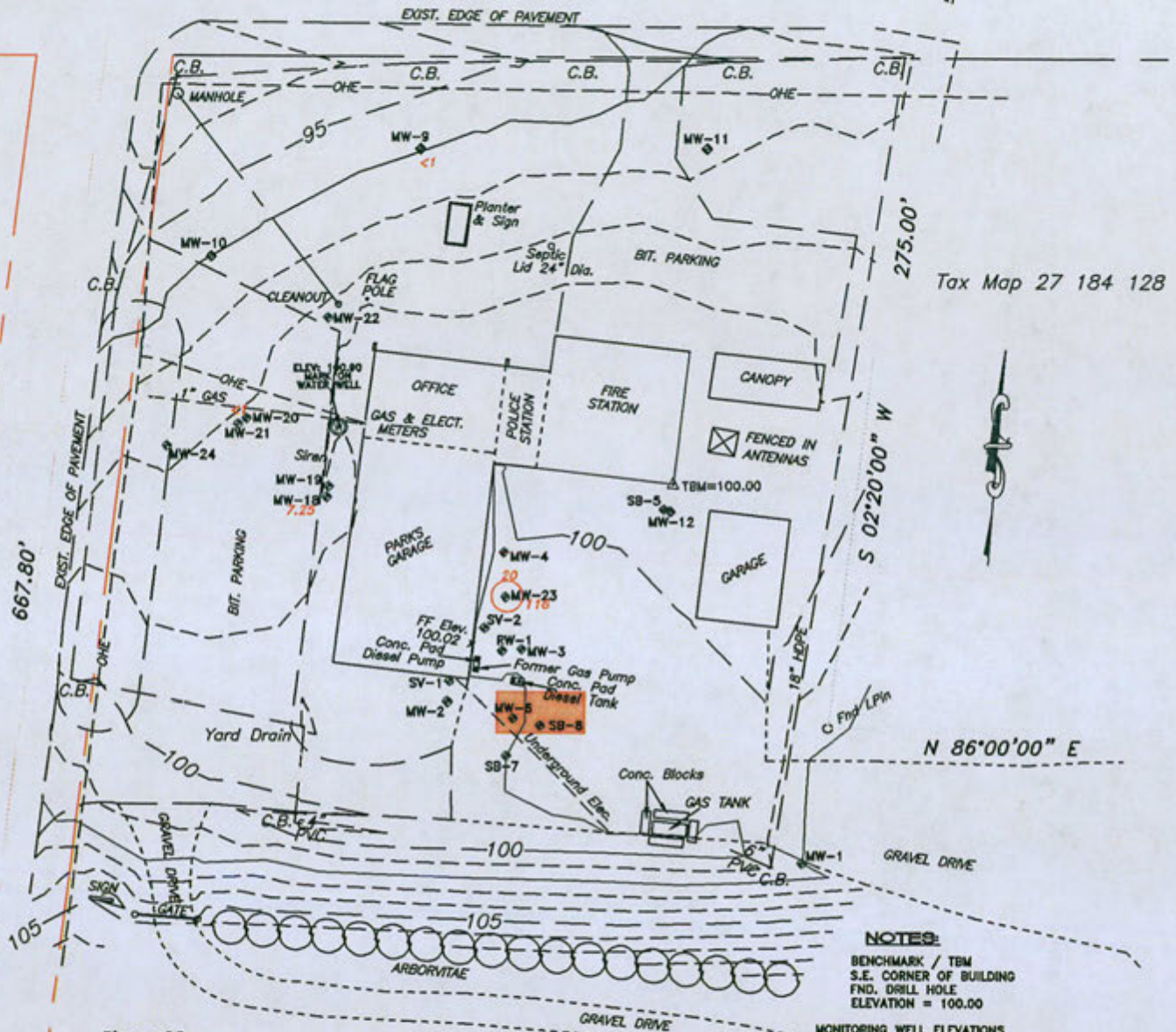


Figure 6Q
Contamination Distribution Map
Isoconcentration, MTBE
In Groundwater for Deep Wells, February 17, 2017

- 20 ug/l = SHS MTBE
- All Values are in ug/l
- ug/l - micrograms per liter
- Values are shown for "deep" wells only (in bedrock)

FORMER UST LOCATION



SCALE:



Date: 21 Sept., 2016

Rev: 7 Mar., 2017

Drawn By: M.M.

Rev By: AMR

Base Map Provided
By: Henry T. Welka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

MONITORING WELL ELEVATIONS					
WELL #	LID ELEV.	PVC ELEV.	WELL #	LID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	98.45	98.15	MW-24	98.02	97.70
MW-11	96.89	96.66	RW-1	100.13	99.33
MW-12	99.87	99.53			
Soil Boring			Soil Boring		
SV-1	99.98	100.10	SB-13	100.10	
SV-2	100.06	100.19	SB-14	100.19	
SB-5	99.60	100.08	SB-15	100.08	
SB-7	100.00	99.86	SB-16	99.86	
SB-8	100.25	99.82	SB-17	99.82	

HUBBARD / MIDDLESEX ROAD (S.R. 318)

N 86°00'00" E 300.00'

5'0"

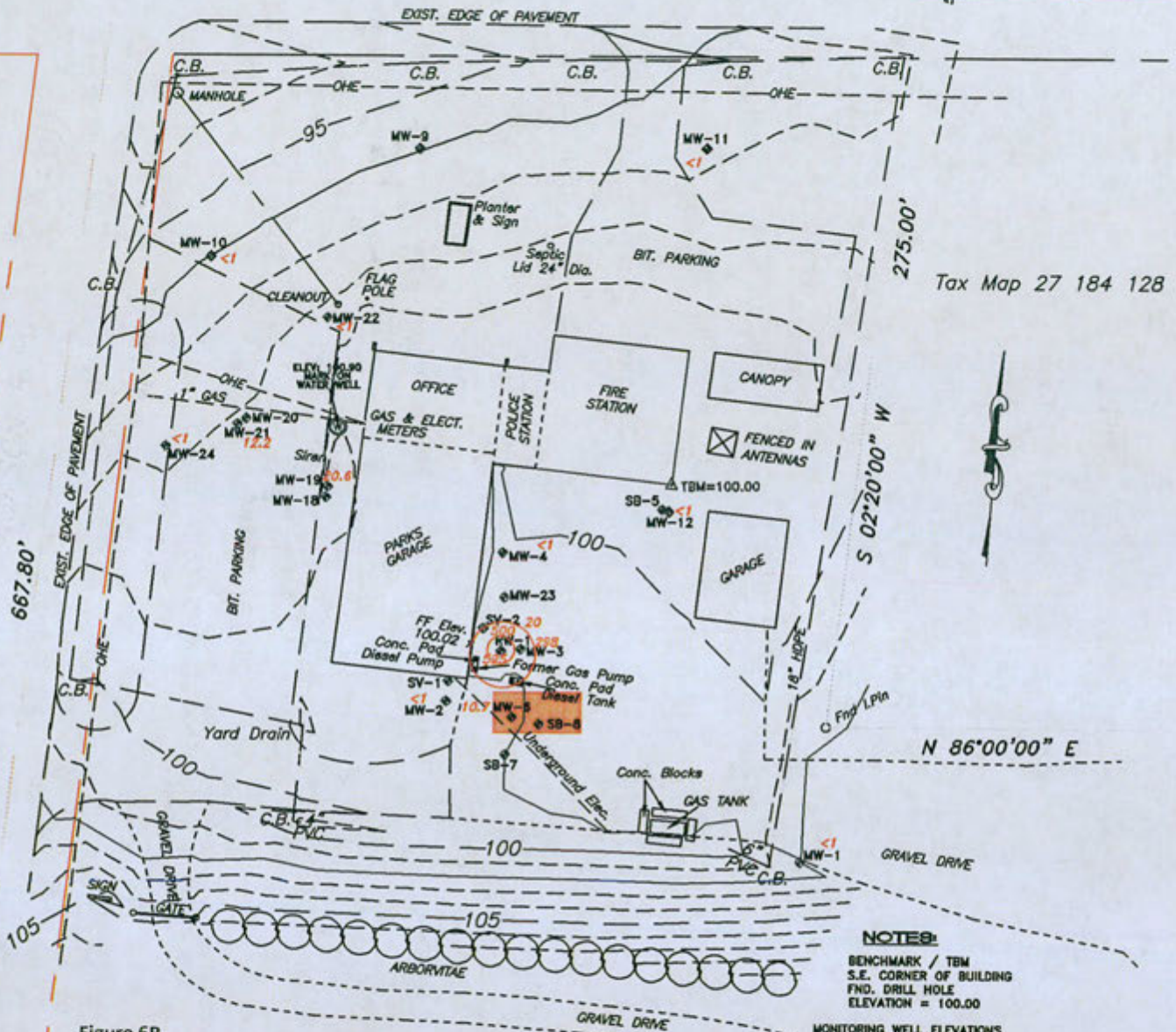
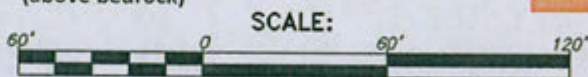


Figure 6R
Contamination Distribution Map
Isoconcentration, Naphthalene
In Groundwater for Shallow Wells, February 17, 2017

- 100 ug/l= SHS Naphthalene
- All Values are in ug/l
- ug/l - micrograms per liter
- Values are shown for "shallow" wells only (above bedrock)

FORMER UST LOCATION



Date: 21 Sept., 2016

Rev: 8 Mar., 2017

Drawn By: M.M.

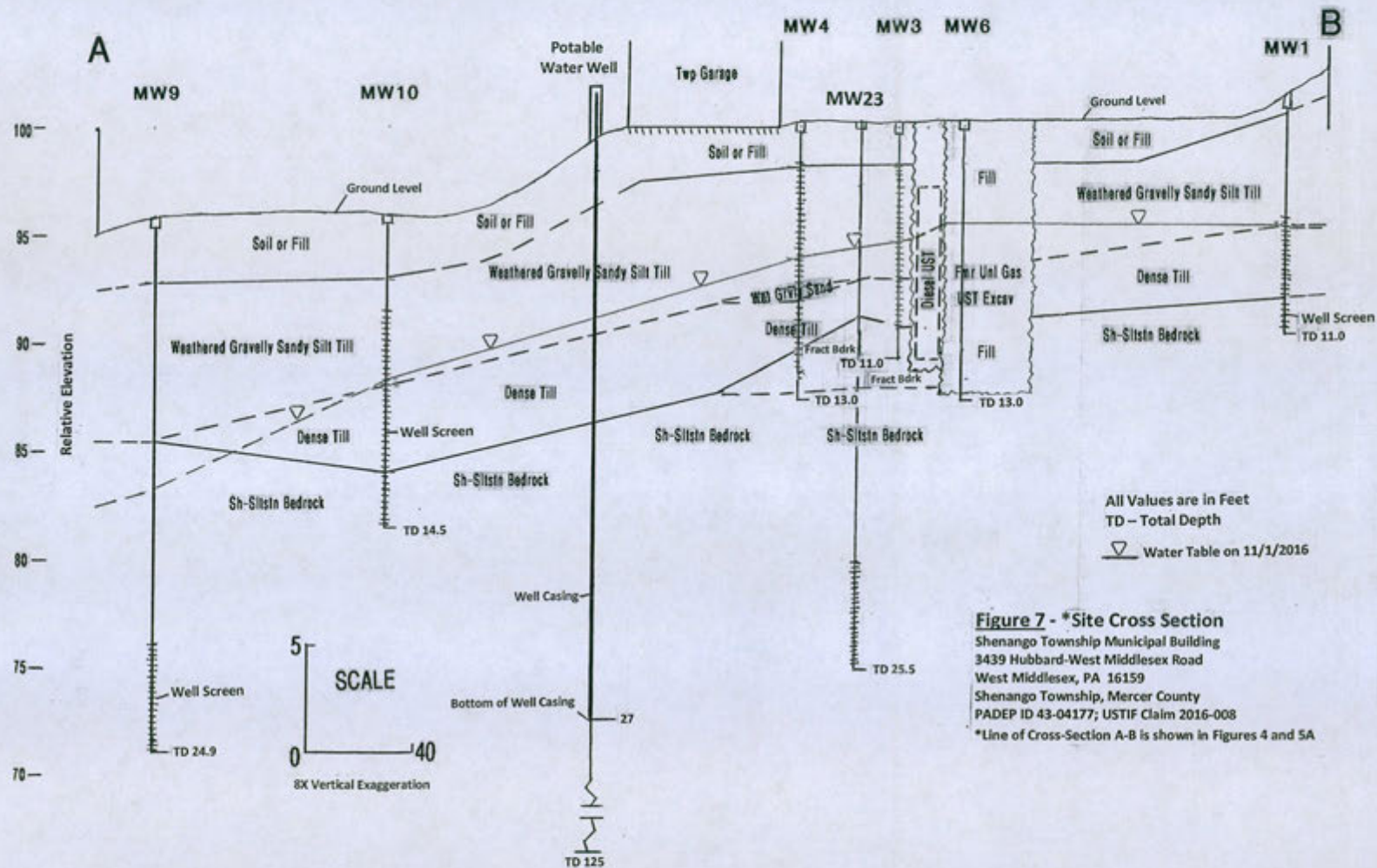
Rev By: AMR

Base Map Provided
By: Henry T. Welka
& Associates
Surveying and
Engineering
(814)833-3000

Shenango Township Municipal Building
3439 Hubbard-West Middlesex Road
West Middlesex, Pa. 16159
Shenango Twp., Mercer County
PADEP Facility No. 43-04177
USTIF Claim No. 2016-008
Mercer County Tax Map 27 184 131
9.74 Acres

Compliance Environmental Services, INC.
PO Box 186
West Middlesex, PA 16159
(724) 342-1990

MONITORING WELL ELEVATIONS					
WELL #	UID ELEV.	PVC ELEV.	WELL #	UID ELEV.	PVC ELEV.
MW-1	101.97	101.58	MW-18	99.21	98.97
MW-2	99.88	99.63	MW-19	99.21	98.93
MW-3	100.03	99.80	MW-20	98.07	97.66
MW-4	100.07	99.82	MW-21	98.05	97.78
MW-6	98.78	99.51	MW-22	98.67	98.44
MW-9	96.22	95.97	MW-23	100.23	99.97
MW-10	96.45	96.15	MW-24	98.02	97.70
MW-11	96.89	96.66	RW-1	100.13	99.33
MW-12	99.87	99.53			
Soil Boring					
SV-1	EL.Ground	SV-13	EL.Ground		
SV-1	99.98	SB-13	100.10		
SV-2	100.06	SB-14	100.19		
SB-5	99.60	SB-15	100.08		
SB-7	100.00	SB-16	99.86		
SB-8	100.25	SB-17	99.82		



GEOLOGIC ROCK UNITS

ALLEGHENY GROUP (240' Th)

Not present at Shenango Twp site.

Cyclic sequences of sandstone, shale, limestone, clay, and coal; includes valuable clay deposits and Vanport Limestone; commercially valuable Freeport, Kittanning, and Brookville-Clarion coals present; base is at bottom of Brookville-Clarion coal.

POTTSVILLE GROUP (305' Th)

Present in part at Shenango Twp site.

Predominantly gray sandstone and conglomerate; also contains thin beds of shale, claystone, limestone, and coal; includes Olean and Sharon conglomerates of northwestern Pennsylvania; thin marine limestones present in Beaver, Lawrence, and Mercer Counties; minable coals and commercially valuable high-alumina clays present locally.

SHENANGO FORMATION (160' Th)

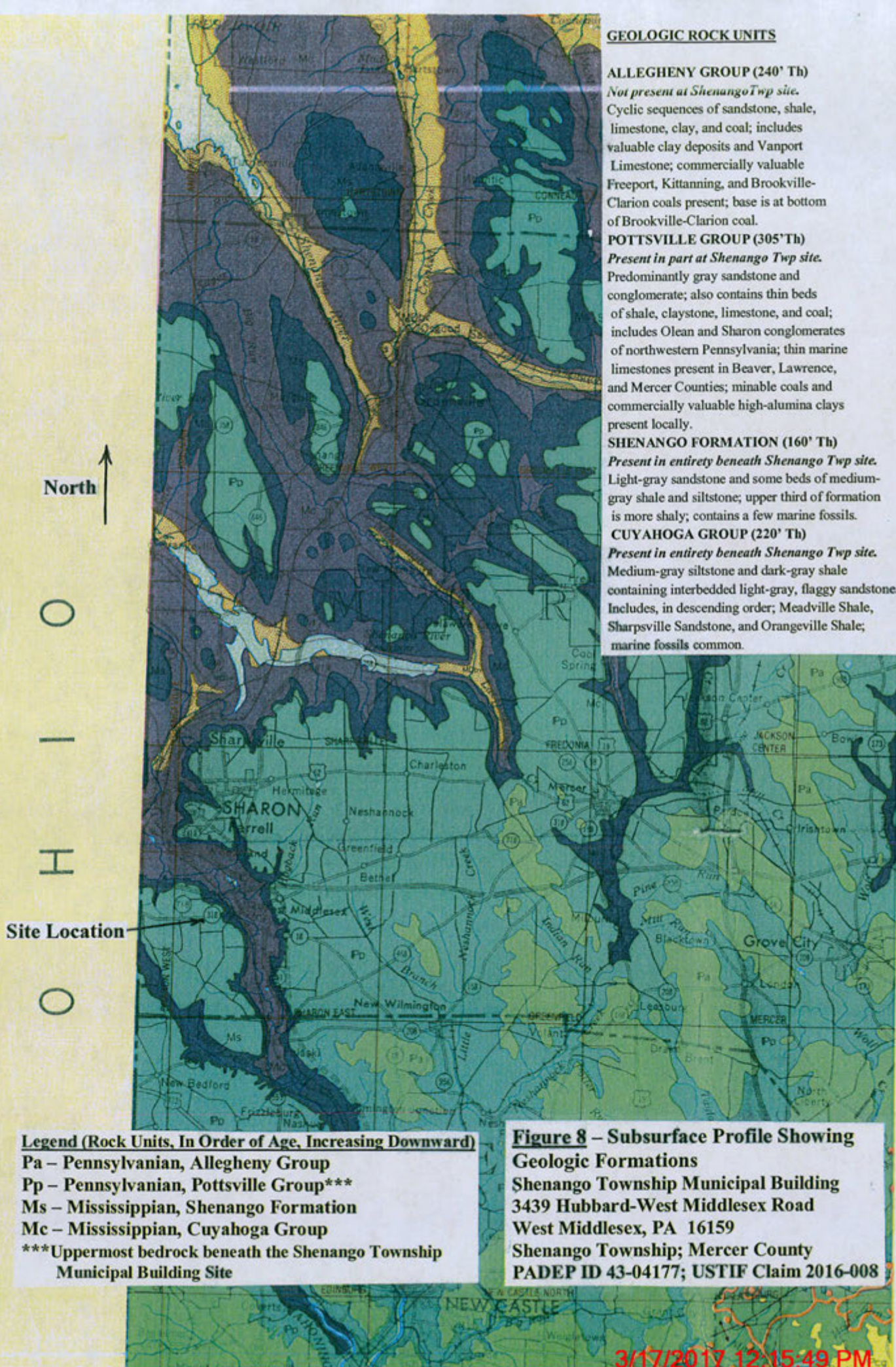
Present in entirety beneath Shenango Twp site.

Light-gray sandstone and some beds of medium-gray shale and siltstone; upper third of formation is more shaly; contains a few marine fossils.

CUYAHOGA GROUP (220' Th)

Present in entirety beneath Shenango Twp site.

Medium-gray siltstone and dark-gray shale containing interbedded light-gray, flaggy sandstone. Includes, in descending order; Meadville Shale, Sharpsville Sandstone, and Orangeville Shale; marine fossils common.



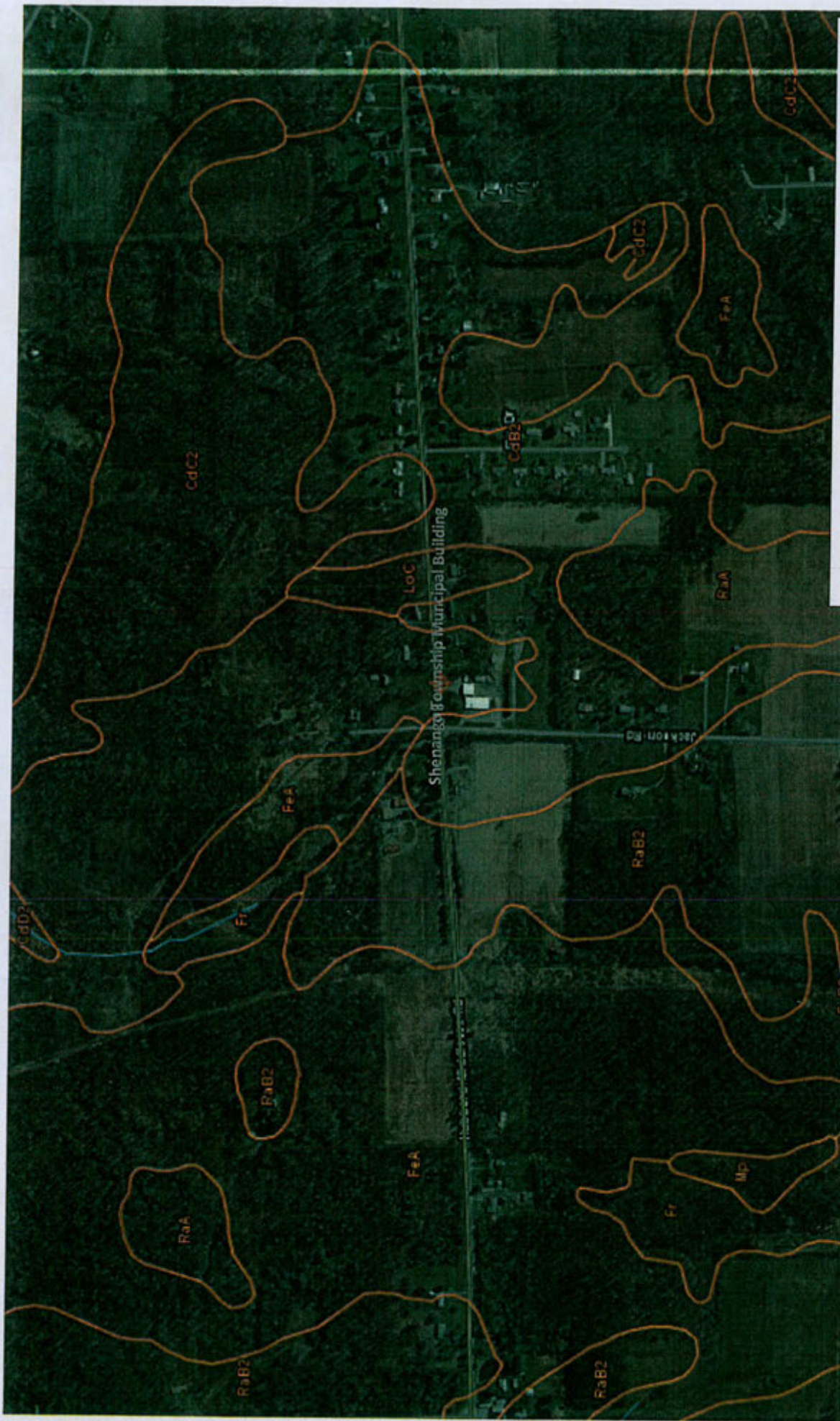


Figure 9- Soils Map

Soil Survey of Mercer County, USDA

Shenango Township Municipal Building

3439 Hubbard-West Middlesex Road, West Middlesex, Pa 16159

Shenango Twp., Mercer County

Scale: 1 inch = 1,3960 feet

TABLES

(1 THROUGH 6)

TABLE 1 - Identification of Public and Private Wells

Shenango Township Municipal Building Complex
 3439 Hubbard-West Middlesex Road, West Middlesex, Pennsylvania 16159; Shenango Township, Mercer County
 PADEP Facility ID No. 43-04177; PAUSTIF Claim No. 2016-008

PA Well ID	County	Municipality	WellAddress	Date Drilled	Type Of Activity	Latitude D	Longitude DD	Driller	Original Owner	Well Use	WaterUse	Well Depth (ft)	Top Of Casing (ft)	Bottom Of Casing (ft)	Casing Diameter (in)	Depth To Bedrock (ft)	Bedrock Not Reached	Well Yield (gpm)	Static Water Level (ft)	Formation Name
643735	MERCER	SHENANGO TWP.	3439 Hubbard Middlesex Rd.	9/13/2016	NEW WELL	41.16968	-80.4809	TERRA TESTING INC	Shenango Twp Building	WITHDRAWAL		25	0	20	2	False				
643728	MERCER	SHENANGO TWP.	3439 Hubbard Middlesex Rd.	9/13/2016	NEW WELL	41.16945	-80.4811	TERRA TESTING INC	Shenango Twp Building	WITHDRAWAL		15	0	5	2	False				
643727	MERCER	SHENANGO TWP.	3439 Hubbard Middlesex Rd.	9/14/2016	NEW WELL	41.16965	-80.48053	TERRA TESTING INC	Shenango Twp Building	WITHDRAWAL		20	0	3	2	False				
643704	MERCER	SHENANGO TWP.	3439 Hubbard Middlesex Rd.	9/14/2016	NEW WELL	41.16925	-80.48052	TERRA TESTING INC	Shenango Twp Building	WITHDRAWAL		20	0	3	2	False				
479997	MERCER		3319 Hubbard-Middlesex Rd	1/10/2012	CLEAN-OUT	41.17050	-80.47715	DILLAN WELL DRILL	Nyakana	WITHDRAWAL		120				False	15			
40097	MERCER	SHENANGO TWP.		1/1/1957		41.17056	-80.47113	UNKNOWN	FORBES ERNEST	WITHDRAWAL	DOMESTIC	65	0	17	7	False			10	POTTSVILLE GROUP
40093	MERCER	SHENANGO TWP.		1/1/1927		41.17038	-80.47944	UNKNOWN	BORDEN MICHAEL	UNKNOWN		78	0	27	6	False				POTTSVILLE GROUP
40092	MERCER	SHENANGO TWP.		1/1/1957		41.17	-80.47139	UNKNOWN	YOUNG WILLIAM	WITHDRAWAL	DOMESTIC	75	0	23	7	False	10		40	SHARON FORMATION
131774	MERCER	SHENANGO TWP.	Rogue Rd. W. Middlesex PA	5/17/1977	NEW WELL	41.56806	-80.47694	PARKER BROTHERS	Cunningham	UNKNOWN	UNKNOWN	215	0	120	6	70	False	5		
131438	MERCER	SHENANGO TWP.		10/3/1989	NEW WELL	41.56944	-80.48111	CHATFIELD DRILL	Williams	WITHDRAWAL	DOMESTIC	105	0	27	6	0	False	20	15	

Coordinates at former gasoline UST at Shenango Township Municipal Building Complex: Latitude 41°10'8.58" North; Longitude 80°28'50.29" West

PA Groundwater Information System search results from December 9, 2016 for water wells within a 0.5 mile radius of the former gasoline UST at Shenango Township Municipal Building Complex

Table 2

Summary of information for Soil Boring and Monitoring Well Installations
 Shenango Township Municipal Building Complex; PADEP Facility ID No. 43-04177; PAUSTIF Claim No. 2016-008(S)

Boring / Well ID	*Top of Casing Relative Elev. (ft)	PVC Riser Distance below Ground Surface (bgs) (ft.)	Solid PVC Riser Depth (range-ft)	PVC Screen Depth (range- ft).	Total Boring or Well Depth (ft.)	Bentonite Fill Depth (range-ft).	Sand Pack Depth (range- ft).
MW-1	101.58	0.39	0.39-5.7	5.7-10.7	10.7	0.5-3.0	3.0-10.7
MW-2	99.63	0.25	0.25-1.7	1.7-11.8	11.8	0.5-2.0	2.0-11.8
MW-3	99.80	0.23	0.23-2.0	2.0-9.5	9.5	0.5-1.6	1.6-9.5
MW-4	99.82	0.25	0.25-1.8	1.8-11.8	11.8	0.5-1.5	1.5-11.8
SB-5	99.60	N/A	N/A	N/A	8.0	N/A	N/A
MW-6	99.51	0.27	0.27-2.0	2.0-12.0	12.0	0.5-1.8	1.8-12
SB-7	100.00	N/A	N/A	N/A	10.0	N/A	N/A
SB-8	100.25	N/A	N/A	N/A	8.0	N/A	N/A
MW-9	95.97	0.25	0.25-19.9	19.9-24.9	24.9	1.0-18.0	18.0-24.9
MW-10	96.15	0.3	0.3-4.44	4.44-14.44	14.44	1.0-3.0	3.0-14.44
MW-11	96.66	0.23	0.23-2.97	2.97-9.47	9.47	1.0-2.5	2.5-9.47
MW-12	99.53	0.34	0.34-2.8	2.8-8.8	8.8	1.0-2.5	2.5-8.8
SB-13	100.10	N/A	N/A	N/A	12.0	N/A	N/A
SB-14	100.19	N/A	N/A	N/A	6.0	N/A	N/A
SB-15	100.08	N/A	N/A	N/A	6.0	N/A	N/A
SB-16	99.86	N/A	N/A	N/A	6.0	N/A	N/A
SB-17	99.82	N/A	N/A	N/A	6.0	N/A	N/A
MW-18	98.97	0.24	0.24-20.0	20.0-25.0	25.0	1.0-18.0	18.0-25.0
MW-19	98.93	0.28	0.28-4.5	4.5-12.5	12.5	1.0-2.5	2.5-12.5
MW-20	97.66	0.41	0.41-20.0	20.0-25.0	25.0	1.0-18.0	18.0-25.0
MW-21	97.78	0.27	0.27-4.5	4.5-11.5	11.5	1.0-2.5	2.5-11.5
MW-22	98.44	0.23	0.23-4.0	4.0-11.0	11.0	1.0-3.0	3.0-11.0
MW-23	99.97	0.26	0.26-20.5	20.5-25.5	25.5	1.0-18.5	18.5-25.5
MW-24	97.70	0.32	0.32-4.5	4.5-12.5	12.5	1.0-2.5	2.5-12.5
RW-1	99.33	0.80	0.80-5.5	5.5-15.5	15.5	1.0-3.0	3.0-15.5
SV-1	99.98	0	0-2.5	2.5-3.5	3.5	0.7-2.3	2.3-3.5
SV-2	100.06	0	0-3.0	3.0-4.0	4.0	0.7-2.7	2.7-4.0

N/A- Not Applicable

ND- Not Determined

All depths are relative to ground level

*Elevations are relative to a point designated as having a ground level elevation of 100.00 feet. For SBs and SVs the elevation represents ground level.

All monitoring wells are constructed of 2-inch diam. Sch. 40 PVC, except RW-1 (4-inch PVC).

bgs- below ground surface

MW - Monitoring Wells

SB - Soil Boring only. No monitoring well constructed.

SV - Soil vapor sampling installation (1-inch diameter PVC construction)

Shaded well numbers represent bedrock ("deep") wells.

Table 3
Laboratory Analytical Results for Soil

Shenango Twp

3439 Hubbard-West Middlesex Rd., West Middlesex, PA 16519 (Shenango Twp., Mercer County)

PADEP Facility ID No. 43-04177; USTIF Claim No. 2016-008(S)

Sample ID (Depth, ft.)	Date	Benzene	1,2,4-TMB	1,3,5-TMB	Toluene	Ethylbenzene	Cumene	MTBE	Naphthalene	Xylenes (total)
SB-1 (5.5-6.0)	05/18/16	<0.0016	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0080
SB-2 (3.0-3.5)	05/18/16	<0.0015	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	<0.0038	<0.0077
SB-3 (3.2-3.6)	05/18/16	1.49	1.25	<0.460	<0.460	0.696	<0.460	<0.460	0.898	1.98
SB-4 (2.7-3.2)	05/19/16	<0.0015	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0073
SB-5 (4.3-4.8)	05/19/16	<0.0019	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0095
SB-6 (2.8-3.3)	05/19/16	0.262	25.1	8.13	<0.474	<0.474	<0.474	<0.474	5.92	16.7
SB-7 (3.0-3.7)	05/19/16	0.220	0.0119	0.0364	<0.0048	<0.474	0.0106	0.0469	0.0454	0.0647
SB-8 (3.0-3.5)	05/19/16	0.731	0.0811	0.0433	0.0456	1.63	0.0150	<0.0047	<0.0047	6.80
MW-9 (2-4)	09/13/16	<0.0016	<0.0041	<0.0041	<0.0041	<0.0041	<0.0041	<0.0041	<0.0041	<0.0082
MW-10 (4-6)	09/13/16	<0.0014	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0036	<0.0072
MW-11 (2-4)	09/14/16	<0.0016	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0081
MW-12 (2-4)	09/14/16	<0.0015	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0075
SB-13 (2-4)	09/14/16	0.0438	0.0044	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0074
SB-14 (2-4)	09/14/16	0.960	1.33	<0.392	1.70	0.487	<0.392	<0.392	0.589	3.15
SB-15 (2-4)	09/14/16	0.0130	0.0779	0.0311	0.0099	0.0364	0.0238	<0.0044	<0.0044	0.0721
SB-16 (2-4)	09/14/16	0.0043	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	0.0411	<0.0040	<0.0081
SB-17 (2-4)	09/14/16	0.0016	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0037	<0.0074
SB-18 (4.0-4.5)	02/07/17	<0.0015	<0.0037	<0.0037	<0.0037	<0.0037	0.0055	<0.0037	<0.0037	<0.0075
SB-20 (5.0-7.0)	02/08/17	<0.0016	<0.0040	<0.0040	<0.0040	<0.0040	0.0071	<0.0040	<0.0040	<0.0080
SB-22 (7.0-7.5)	02/09/17	<0.0015	<0.0038	<0.0038	<0.0038	<0.0038	0.0082	<0.0038	<0.0038	<0.0076
SB-23 (3.0-4.0)	02/10/17	<0.0016	<0.0039	<0.0039	<0.0039	<0.0039	<0.0039	<0.0039	<0.0039	<0.0078
SB-24 (5.0-6.0)	02/10/17	<0.0017	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0084
*DEP Direct Contact Numeric Values		57	130	110	10,000	180	7,700	620	160	1,900
**DEP Soil to Groundwater Numeric Values		0.5	8.4	2.3	100	70	600	2	25	1,000

Soil results are reported in milligrams per kilogram (mg/kg) to significant figures as reported by the testing laboratory.
Depths are in feet.

Bold and shaded values indicate an exceedance of the Statewide Health Standard (SHS).

*Statewide Health Standard, Direct Contact, Residential

** Statewide Health Standard, Soil to Groundwater, Residential (Higher of 100xGW or Generic value).

TMB - Trimethylbenzene

SB number corresponds with MW number

Table 4
Monitoring Well Gauging and Analytical Data

Shenango Township
Shenango Twp., Mercer Co., PA
PADEP Facility ID No. 43-04117
USTIF Claim No. 2016-008(S)

Well ID	Date	Gauging Data					Analytical Data								
		* Top of Casing Elevation	Depth To Water	Depth to Hydrocarbon	Hydrocarbon Thickness	Corrected GW Elevation	Benzene	1,2,4-TMS	1,3,5-TMS	Toluene	Ethylbenzene	MTBE	Naphthalene	Xylenes (total)	Cumene (isopropylbenzene)
		feet	feet	feet	feet	feet	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
MW-1	5/26/2016	101.58	3.50	N/A	0.00	98.08	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/3/2016	101.58	3.89	N/A	0.00	97.69	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/15/2016	101.58	4.28	N/A	0.00	97.30	<1	<1	<1	<1	<1	<1	<1	<2	<1
	6/28/2016	101.58	4.68	N/A	0.00	96.90	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/7/2016	101.58	5.04	N/A	0.00	96.54	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/19/2016	101.58	5.69	N/A	0.00	95.89	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/26/2016	101.58	5.40	N/A	0.00	96.18	<1	<1	<1	<1	<1	<1	<1	<2	<1
	9/26/2016	101.58	5.38	N/A	0.00	96.20	4.32	<1	<1	<1	<1	<1	<1	<2	<1
	11/1/2016	101.58	5.36	N/A	0.00	96.22	<1	<1	<1	<1	<1	<1	<1	<2	<1
	2/17/2017	101.58	2.71	N/A	0.00	98.87	<1	<1	<1	<1	<1	<1	<1	<2	<1
MW-2	5/26/2016	99.63	3.96	N/A	0.00	95.67	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/3/2016	99.63	3.56	N/A	0.00	96.07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/15/2016	99.63	4.66	N/A	0.00	94.97	<1	<1	<1	<1	<1	1.45	<1	<2	<1
	6/28/2016	99.63	4.26	N/A	0.00	95.37	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/7/2016	99.63	4.85	N/A	0.00	94.78	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/19/2016	99.63	5.20	N/A	0.00	94.43	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/26/2016	99.63	3.63	N/A	0.00	96.01	<1	<1	<1	<1	<1	4.26	<1	<2	<1
	9/26/2016	99.63	5.03	N/A	0.00	94.60	<1	<1	<1	<1	<1	<1	<1	<2	<1
	11/1/2016	99.63	6.44	N/A	0.00	93.20	<1	<1	<1	<1	<1	<1	<1	<2	<1
	2/17/2017	99.63	2.10	N/A	0.00	97.53	<1	<1	<1	<1	<1	<1	<1	<2	<1
MW-3	5/26/2016	99.80	6.03	N/A	0.00	93.77	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/3/2016	99.80	4.17	N/A	0.00	95.63	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/15/2016	99.80	4.69	N/A	0.00	95.11	11300	933	227	4380	974	347	372	8190	80.4
	6/28/2016	99.80	4.01	N/A	0.00	95.79	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/7/2016	99.80	3.69	N/A	0.00	96.11	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/19/2016	99.80	3.99	N/A	0.00	95.81	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/26/2016	99.80	4.15	N/A	0.00	95.65	13200	1740	486	5640	1860	411	508	14300	54.5
	9/26/2016	99.80	4.87	N/A	0.00	94.93	7790	1720	436	1400	1740	242	489	8560	54.8
	11/1/2016	99.80	4.86	N/A	0.00	94.94	7600	1330	338	1880	1510	263	327	8610	52.9
	2/17/2017	99.80	2.53	N/A	0.00	97.27	9630	1440	<36.0	133	1710	194	298	3200	<46.0
MW-4	5/26/2016	99.82	5.27	N/A	0.00	94.55	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/3/2016	99.82	5.65	N/A	0.00	94.17	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/15/2016	99.82	6.03	N/A	0.00	93.79	31.6	3.91	1.93	<1	2.54	28.8	<1	<2	1.51
	6/28/2016	99.82	6.45	N/A	0.00	93.37	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/7/2016	99.82	6.75	N/A	0.00	93.07	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/19/2016	99.82	6.98	N/A	0.00	92.84	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/26/2016	99.82	6.42	N/A	0.00	93.40	13.6	<1	<1	<1	<1	20.3	<1	<2	<1
	7/26/16 D	99.82	6.42	N/A	0.00	93.40	14.0	<1	<1	<1	<1	20.9	<1	<2	<1
	9/26/2016	99.82	6.95	N/A	0.00	92.87	13.1	2.01	1.75	1.72	2.29	35.0	2.00	6.85	1.79
	11/1/2016	99.82	5.84	N/A	0.00	93.98	<1	<1	<1	<1	<1	7.43	<1	<2	<1
	2/17/2017	99.82	3.67	N/A	0.00	96.15	<1	<1	<1	<1	<1	4.36	<1	<2	<1
Used Aquifer Resid SHS		N/A	N/A	N/A	N/A	N/A	5	15	13	1,000	700	20	100	10,000	840

Table 4
Monitoring Well Gauging and Analytical Data

Shenango Township
Shenango Twp., Mercer Co., PA
PADEP Facility ID No. 43-04117
USTIF Claim No. 2016-006(S)

Well ID	Date	Gauging Data					Analytical Data								
		* Top of Casing Elevation feet	Depth To Water feet	Depth to Hydro-carbon feet	Hydrocarbon Thickness feet	Corrected GW Elevation feet	Benzene ug/l	1,2,4-TMB ug/l	1,3,5-TMB ug/l	Toluene ug/l	Ethyl-benzene ug/l	MTBE ug/l	Naphthalene ug/l	Xylenes (total) ug/l	Cumene (Isopropylbenzene) ug/l
MW-6	5/26/2016	99.51	2.64	N/A	0.00	96.88	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/3/2016	99.51	2.85	N/A	0.00	96.66	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/15/2016	99.51	2.91	N/A	0.00	96.60	131	183	12.2	55.4	221	<5	157	374	13.0
	6/15/2016 D	99.51	2.91	N/A	0.00	96.60	168	332	27.6	85.8	363	<1	171	596	33.4
	6/28/2016	99.51	2.55	N/A	0.00	96.96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/7/2016	99.51	3.13	N/A	0.00	96.38	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/19/2016	99.51	3.65	N/A	0.00	95.86	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/26/2016	99.51	3.68	N/A	0.00	95.83	529	314	13.2	308	683	18.8	227	784	40.7
	9/26/2016	99.51	4.41	N/A	0.00	95.10	747	348	<5	40.4	917	7.85	73.6	336	54.2
	9/26/16 D	99.51	4.41	N/A	0.00	95.10	802	360	<5	43.6	910	6.85	78.0	346	54.8
	11/1/2016	99.51	4.15	N/A	0.00	95.36	677	569	12.9	102	1050	<1	54.3	497	97.7
	2/17/2017	99.51	2.49	N/A	0.00	97.02	617	103	<10	<10	205	<10	10.7	127	14.5
MW-9	9/26/2016	95.97	10.13	N/A	0.00	85.84	2.46	1.60	<1	<1	<1	<1	1.88	<2	<1
	11/1/2016	95.97	12.11	N/A	0.00	83.86	<1	<1	<1	<1	<1	<1	<1	<2	<1
	2/17/2017	95.97	8.99	N/A	0.00	86.98	<1	<1	<1	<1	<1	<1	<1	<2	<1
MW-10	9/26/2016	96.15	8.87	N/A	0.00	87.28	2.34	1.44	<1	<1	<1	<1	<1	<2	<1
	11/1/2016	96.15	8.25	N/A	0.00	87.90	<1	<1	<1	<1	<1	<1	<1	<2	<1
	2/17/2017	96.15	6.83	N/A	0.00	89.32	<1	<1	<1	<1	<1	<1	<1	<2	<1
MW-11	9/26/2016	96.66	4.83	N/A	0.00	91.83	<1	<1	<1	<1	<1	<1	<1	<2	<1
	11/1/2016	96.66	3.24	N/A	0.00	93.42	<1	<1	<1	<1	<1	<1	<1	<2	<1
	2/17/2017	96.66	1.84	N/A	0.00	94.82	<1	<1	<1	<1	<1	<1	<1	<2	<1
MW-12	9/26/2016	99.53	6.72	N/A	0.00	92.81	3.75	<1	<1	<1	<1	<1	<1	<2	<1
	11/1/2016	99.53	5.40	N/A	0.00	94.13	<1	<1	<1	<1	<1	<1	<1	<2	<1
	11/1/2016 D	99.53	5.40	N/A	0.00	94.13	<1	<1	<1	<1	<1	<1	<1	<2	<1
	2/17/2017	99.53	3.41	N/A	0.00	96.12	<1	<1	<1	<1	<1	<1	<1	<2	<1
MW-18	2/17/2017	98.97	9.79	N/A	0.00	89.18	<1	<1	<1	<1	<1	7.25	<1	<2	<1
MW-19	2/17/2017	98.93	3.98	N/A	0.00	94.95	<1	212	21.3	<1	87.4	1.25	20.6	20.3	46.5
MW-20	2/17/2017	97.66	8.94	N/A	0.00	88.72	<1	<1	<1	<1	<1	2.41	<1	<2	<1
MW-21	2/17/2017	97.78	4.86	N/A	0.00	92.92	81	27.2	18.9	<5	38.8	<5	12.2	<10	22.2
MW-22	2/17/2017	98.44	5.50	N/A	0.00	92.94	<1	<1	<1	<1	<1	<1	<1	<2	<1
MW-23	2/17/2017	99.97	8.27	N/A	0.00	91.70	<1	<1	<1	<1	<1	116	<1	<2	<1
MW-24	2/17/2017	97.70	5.04	N/A	0.00	92.66	<1	<1	1.31	<1	<1	<1	<1	<2	<1
RW-1	2/17/2017	99.33	4.10	N/A	0.00	95.23	10000	2500	599	8100	3800	111	595	18500	89.9
	2/17/2017 D	99.33	4.10	N/A	0.00	95.23	10100	2160	573	1980	2320	305	372	9510	92.9
Potable Water Well	7/26/2016	NM	NM	NM	NM	NM	<1	<1	<1	<1	<1	<1	<1	<2	<1
	2/24/2017	NM	NM	NM	NM	NM	<1	<1	<1	<1	<1	<1	<1	<2	<1
Used Aquifer Resid SHS		N/A	N/A	N/A	N/A	N/A	5	15	13	1,000	700	20	100	10,000	840

NOTES:
NA - Not Analyzed
N/A - Not Applicable
NS - Not Sampled
NM - Not Monitored

Analytical Methods: EPA Method 8260B for all analytes.

SHS - Statewide Health Standards (PADEP)

Shaded values exceed Statewide Health Standards.

All results are in micrograms per liter (ug/l).

D - Indicates Duplicate Sample

< - Less than the Limit of Quantitation (LOQ). Number shown is the LOQ

Table 5
Laboratory Analytical Results for Soil Vapor (Air Matrix)
Shenango Township Municipal Complex
Shenango Twp., Mercer Co., PA
PADEP Facility ID No. 43-04117; USTIF Claim No. 2016-008(S)

Sample ID	Date	Benzene (ug/m ³)	1,2,4-TMB (ug/m ³)	1,3,5-TMB (ug/m ³)	Toluene (ug/m ³)	Ethylbenzene (ug/m ³)	Cumene (ug/m ³)	MTBE (ug/m ³)	Xylenes(tot) (ug/m ³)	Naphthalene (ug/m ³)
SV/AP- #1 (Indoor- Hallway)	07/11/16	25.7	109	36.8	187	48.2	5.7	<6.4	290.9	24.0
	08/02/16	18.2	87.7	28.5	104	26.3	<4.4	<6.4	168.4	26.2
	01/19/17	5.1	7.1	<2.4	24.5	4.5	<6.1	<9.0	21.7	<6.5
SV/AP- #2 (Outdoor)	07/11/16	4.3	10.7	3.0	26.0	6.0	<4.4	<6.4	33.2	6.0
	08/02/16	<0.59	<1.8	<1.8	<1.4	<1.6	<4.6	<6.7	<4.8	<4.9
	01/19/17	<0.62	<1.9	<1.9	3.9	<1.7	<4.8	<7.0	<5.0	<5.1
SV/AP- #3 (SV-1)	07/11/16	<0.59	10.4	4.0	14.7	128	<4.6	<6.7	457	13.0
	08/02/16	<0.62	2.2	<1.9	1.6	71.0	<4.8	<6.7	297.5	<4.9
	01/19/17	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV/AP- #4 (SV-2)	07/11/16	351	<991	<991	1,160	22,000	<2430	<3640	70,300	<2640
	08/02/16	<5160	<15900	<15900	<12200	25,100	<39700	<58200	82,800	<42200
	01/19/17	NS	NS	NS	NS	NS	NS	NS	NS	NS
SV/AP- #5 (Indoor-office)	01/19/17	3.1	<2.3	<2.3	12.3	<2.1	<5.9	<8.6	7.7	<6.3
SV/AP- #6 (Indoor-garage)	01/19/17	12.2	22.1	4.9	57.9	10.6	<4.4	<6.4	55.6	9.2
*DEP Indoor Air Criteria Nonresidential MSC (ug/m ³)		16.0	31.0	31.0	22000	49.0	1800	470	440	3.6
DEP Odor Threshold (ug/m ³)		2700	NL	NL	640	608,000	60.0	190-690	2,000	20.0

Soil vapor results are reported in micrograms per cubic meter (ug/m³).

Samples were analyzed using EPA Method TO-15

Bold and shaded values indicate an exceedance of an Indoor Air screening value.

< - Less than symbol indicates the value was reported as ND but the detection limit is above the Indoor Air Quality screening value.

*PADEP Indoor Air Criteria Nonresidential MSCs are used as screening values for comparison with analytical results.

TMB - Trimethylbenzene

NR - Not Reported

NS - Not sampled due to high groundwater level

MSC - Medium Specific Concentration

ND - Not detected

NL - Not Listed in PADEP Document Number 253-0300-100 (2004), Land Recycling Program Technical Guidance Manual - Vapor Intrusion into Buildings from Groundwater and Soil. Indoor Air Criteria and Odor Threshold values are provided in Table 3 of this document.

PADEP Indoor Air Criteria Nonresidential MSCs are from revised screening values found in PADEP Document Number 261-0300-101 (effective 1/18/2017), *Land Recycling Technical Guidance Manual for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2*. Indoor Air Criteria values are provided in Table 5 of this document.

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TABLE 8
Conceptual Site Model - Exposure Pathways
Shenango Township Municipal Complex
3439 Hubbard-West Middlesex Road
Shenango Township, Mercer County
PADEP Facility ID 43-04177; USTIF Claim No. 2016-008(S)

SOURCE AREAS		TRANSPORT MECHANISMS	EXPOSURE ROUTE	RECEPTOR						COMMENTS
Primary (Source)	Secondary (Impacted Media)			On-site	Off-Site	On-site	Off-Site	On-site	Off-Site	
				On-site worker	Off-site worker	On-site worker	Off-site worker	Residential (on-site)	Residential (off-site)	
				Flora and Fauna	Flora and Fauna	Flora and Fauna	Flora and Fauna	Surface or Groundwater	Surface or Groundwater	
<p>Soil and Groundwater Impacts Were Documented at the Time of Closure of the Unleaded Gasoline UST During December 2015</p> <p>No SPL has been found at any location.</p>	<p>Surface Soil (0-2')</p> <p>Hydrocarbon impacts to surface soil are not evident but test results show soil in the former UST's area (SHS) at a depth of 2'. If surface COC above SHS.</p>	<p>Wind Emission / Direct Contact</p> <p>There is no visual indication that surface soil (0-2') is exposing contaminants to wind erosion or direct contact, except possibly if shallow excavation occurs thereby providing a possibly complete pathway.</p>	<p>Soil Ingestion/Absorption</p> <p>This represents a potential complete pathway in the event of shallow digging, only within the UST's area.</p>	C	C	NA	NA	NA	NA	<p>Potential Complete Pathway: There is a potentially complete exposure pathway to on-site workers, and to construction workers by digging as the soil above 2 feet has not been tested. However, there is no staining or observation during soil boring investigation that would indicate that contamination was present from 0 to 2 feet.</p>
	<p>Subsurface Soil (> 2 ft to 10 ft)</p> <p>Soil testing was performed from samples within the unsaturated zone, above the seasonal high water table, from a depth of 6 feet and above. Three samples from the UST's area showed benzene to be slightly above the SHS and one sample was above the SHS for both TMBs. Subsurface soil is above the SHS in areas only within or immediately adjacent to the UST's cavity.</p>	<p>Volatilization</p> <p>Potential complete exposure during excavation and releases.</p>	<p>Inhalation - Indoor Air</p> <p>None of the soil testing results from within the UST's cavity area were above DEP Direct Contact Numeric Values. Residential, therefore, no potential exposure pathway exists.</p>	C	C	NA	NA	NA	NA	<p>Potential Complete Pathway: Air phase testing that shows indoor results within the garage area above DEP Indoor Air Criteria. Nonresidential could be attributed to vehicle exhaust that occurs at least twice daily. This potential exposure pathway will be further evaluated.</p>
		<p>Direct Contact</p> <p>Potential exposure only during excavation within the area identified (UST's cavity).</p>	<p>Ingestion/Dermal Contact</p> <p>None of the soil testing results from within the UST's cavity area were above DEP Direct Contact Numeric Values. Residential, therefore, no potential exposure pathway exists.</p>	NA	NA	NA	NA	NA	NA	<p>Incomplete Exposure Pathway.</p>
		<p>Soil to Groundwater</p> <p>Soil testing results show that there is a potential complete exposure pathway within and possibly 10 feet or less distance adjacent to the UST's cavity.</p>	<p>Ingestion/Dermal Contact</p> <p>Soil testing results show that there is a potential complete exposure pathway within and possibly 10 feet or less distance adjacent to the UST's cavity (only).</p>	C	C	NA	NA	NA	C	<p>Potential Complete Pathway: Groundwater analytical results show that several of the COC are above the SHS, Used Aquifer, Residential, Soil to Groundwater medium specific concentration. As of 10/15/17, concentrations of SHS Soil to Groundwater values in soil are limited to samples from within and in close proximity of the UST's area.</p>
	<p>Groundwater (Discharge)</p> <p>Based on the most recent test results for groundwater (2/17/17, Benzene: 1.2-6 TMB, 1.3-5 TMB; Toluene: 0.7-5 TMB, 0.7-5 TMB; and Naphthalene were above SHS). Used Aquifer Residential criteria, predominantly immediately adjacent to the UST's area, but contaminants have apparently migrated to a limited area at the west side of the Township Building and MHW-27 and north of the UST's shows an exceedance of MTBE. None of the other 11 downgradient bedrock wells show any HC impact.</p>	<p>Direct Contact</p> <p>Only during excavation activities within the UST's area. The monitoring well network shows no potential discharge of groundwater to the surface or potential impact to surface water.</p>	<p>Ingestion/Dermal Contact</p> <p>The only water well of concern at this time is at the west side of the Township Building. Results from two testing events showed no impact.</p>	C	C	NA	NA	NA	C	<p>Potential Complete Pathway: Dermal Contact is possible to on-site workers or construction workers excavating in the area of the UST's. Even though there was no impact to the probable water well at the Site, potential impact to water wells on-site or off-site cannot be ruled out. The Township has posted signs of water outlets to "not drink the water".</p>
		<p>Groundwater Volatilization</p> <p>A potential complete exposure pathway exists during excavation in the UST's area and possibly to indoor air quality, based on soil vapour phase test results. It now appears that contaminants have spread under the building.</p>	<p>Inhalation - Indoor</p> <p>A potential complete exposure pathway exists by means of indoor infiltration. This potential will be further evaluated with additional site characterization consisting of soil vapor/indoor air testing.</p>	C	C	NA	NA	NA	NA	<p>Potential Complete Pathway: The potential complete pathway for indoor inhalation will be further evaluated by means of additional indoor air and soil-vapour COCs testing. The indoor area contains vehicles that are regularly started indoors that could be the source of indoor air contaminants.</p>
		<p>Groundwater Transport</p> <p>The extent of the discharge groundwater plume containing COC above SHS appears to extend beneath the Township Building and a short distance beyond the building to the northeast (see Figs. M-1A-E). COC have been measured in shallow groundwater above bedrock at the west side of the building, directly down-gradient from the UST's.</p>	<p>Water Supply - Ingestion/Dermal</p> <p>No impact identified but ongoing groundwater testing will continue to evaluate the potential for impact to groundwater resources both on and off-site. Monitoring wells MW-10, MW-15, MW-20, MW-21 and MW-22 are cased within bedrock to evaluate any potential migration of fractured groundwater through bedrock before leaving the property. The Township water well will continue to be tested. There is no evidence for contact to surface water.</p>	C	C	NA	NA	NA	C	<p>Potential Complete Pathway: For reasons indicated to the left under Groundwater Transport or Water Supply-Ingestion/Dermal. At this time there appears to be a low potential for impact to on-site and off-site water wells.</p>
			<p>Diffuse Flow - Surface Water</p> <p>No impact identified but ongoing groundwater testing will continue to evaluate the potential for impact to groundwater resources both on and off-site. Monitoring wells MW-10, MW-15, MW-20, MW-21 and MW-22 are cased within bedrock to evaluate any potential migration of fractured groundwater through bedrock before leaving the property. The Township water well will continue to be tested. There is no evidence for contact to surface water.</p>	NA	NA	NA	NA	NA	NA	<p>Incomplete Pathway: The monitoring well network and depth to groundwater shows no potential impact to surface water by means of diffuse flow.</p>

NA = not applicable (incomplete pathway)
 SPL = Separate Phase Liquid (Unleaded Gasoline)

C = Potential Pathway complete
 SC = Site Characterization
 SHS = Statewide Health Standard

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APPENDIX A

Summary of Geologic Literature Search

APPENDIX A

SUMMARY OF GEOLOGIC LITERATURE SEARCH

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APPENDIX B

Test Boring and Well Records

Boring/Well ID# SB-1 / MW-1
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/18/16

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Conditions: Ptly Cldy, Dry, 50's-60's

Times: Start 11:30 am

Total Depth: 11.0 Ft
Location: Background

Depth to Water: Slight wetness in part below 7.95' to 9.5'

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0	0.6	Fill-Brn gravelly loam	Dry; crumbly; No HC odor	STS #1 (0'-4')	3.65	NA - Direct Push Used
	0.6	5.9	Gravelly sandy silt	Brown; Dry to slightly moist in part; dense firm; brittle to slightly soft in part; No HC odor	STS #2 (4'-6.8')	2.80	
	5.9	7.95	Glacial Till (Gravelly sandy silt)	Gray with brown; varying weathering; firm & dense; dry; No HC odor; minimal partings/ fractures	STS #3 (6.8'-9.8')	2.90	
					STS #4 (9.8'-11.0')	1.10	
					Refusal @ 11.0'		
	7.95	9.5	Silty Sandy Till	Brown to lt. brown; abundant rock fragments; few partings with wetness; mod dense & crumbly; No sign HCs; sharp bottom contact			
	9.5	11.0 (TD)	Bedrock (Gray shale)	Gray; dry; crumbly; No sign wetness or HCs			

Soil sample - 5.5'-6.0'

PID Measurements (ppm max.)

0-4' - 0.0 ppm
4-6.8' - 0.0 ppm
6.8-9.8' - 0.0 ppm
9.8 - 11.0' - 0.0 ppm

Well Construction

Btm slip on end cap (3/4"), then 5' of 3/4" diameter prepacked sch 40 PCC well screen (5.7'-10.7'), then, solid Sch 40 PVC casing to 0.35' below ground level.

Annular space - Coarse silica sand from 10.7' to 3.0' BGL, then bentonite chips to 0.35' BGL. Finished with 6" diameter flush mount bolt down steel manhole cover with 9" plastic skirt, surrounded by concrete apron.

Boring/Well ID# SB-2 / MW-2
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/18/16

Project No: Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Conditions: Ptly Cldy, Dry, 50's-60's

Times: Start 1:15 pm

Total Depth: 11.8' Sample Refusal

Depth to Water: WL ~3.7' at time of well construction

Location: South side of township building, west of UST

ID	From (ft)	To (ft)	Strata	Description	Sample # and Depth	Recov (ft)	Blow Counts
	0.0	0.3	Organic loam	Brown; topsoil; dry; No HC odor	STS #1 (0'-4')	2.1	NA - Used Direct Push
	0.3	9.4	Fill - variable, silty sand and gravel	Crumbly to firm; brown to light brown to gray; wet @ 7.0 to 9.4; No sign HCs	STS #2 (4'-8')	1.2	
	9.4	11.8 (TD)	Shale Bedrock	Gray with brown near top; dense to slightly brittle; dry internally; no distinct HC odor	STS #3 (8'-11.8') Refusal @ 11.8'	3.0	

Water level @ 3.98' BGL on 5/19/16 12:35 pm

Soil sample - (3.0'-3.5')
Wet @ ~7'

PID Measurements (ppm max.)

0-4' - 0.0 ppm
4-8' - 0.0 ppm
8-11.8' - 0.0 ppm

Well Construction

Btm threaded end cap then 7.6' of 2" diameter prepack Sch 40 PVC well screen, then 1.7' solid PVC casing to 0.4' BGL.

Annular space - Coarse silica sand from TD to 2.0' BGL, then bentonite chips to 0.5' BGL.

Boring/Well ID# SB-3 / MW-3
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/18/16

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Times: Start 2:40 pm Conditions: Ptly Cldy, Dry, 50's-60's

Total Depth: Sampled 11.0'
Location: North side of diesel fuel UST

Depth to Water: No water encountered during drilling

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	1.9	Fill - gravelly sandy, rocky, silt	Gray to brown; slightly loose to well packed	STS #1 (0'-4')	3.7	NA - Direct Push Used
	1.9	9.6	Gravelly sandy silt till (weathered)	Mod. Dense to dense; brown to reddish brown in part becoming gray downward; light gasoline odor;	STS #2 (4'-8')	3.6	
					STS #3 (8'-10.2')	2.2	
	9.6	11.0 (TD)	Bedrock - shale	Gray; fissile; dense; dry; No HC odor	STS #4 (10.2'-11.0') Refusal @ 11.0'		

No free water to TD

Soil sample - (3.2'-3.6') (2:50 pm)

PID Measurements (ppm max.)

0-4' - 1045 @ 3.5'
4-8' - 1860 @ 7.5'
8-10.2' - 345 @ 9.5'
10.2 - 11' - 20 @ 10.2'

Well Construction

Btm threaded end cap then 7.5' of prepacked Sch 40 PVC well screen (9.5-2.0'), then solid PVC casing to 0.4' BGL.

Annular space - Coarse silica sand from 9.5' to 1.6' BGL, then bentonite chips to 0.5' BGL.

Boring/Well ID# SB-4 / MW-4
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/19/16

Times: Start 9:40 am

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Conditions: Sunny, am 50's, pm 60's, dry

Total Depth: Sampled to 13.0'

Depth to Water: Moist @ approximately 7.6' No water encountered during drilling

Location: North of UST, near municipal building

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	2.0	Fill	Brown to gray; variable - sandy silt, gravel, brick fragments; coal fragments; dry; No HC odor	STS #1 (0'-4')	3.7	
	2.0	7.6	Gravelly sandy silt (weathered till)	Brown with gray & reddish brown mottling; dense to soft in part; slightly moist; No HC odor	STS #2 (4'-8')	3.2	
	7.6	8.1	Silty gravelly sand	Gray to dark gray; soft to loose; moist; abundant rock fragments; No HC odor	STS #3 (8'-12')	3.4	
	8.1	11.2	Variable rock fragments with sandy gravelly silt in part	Gray to dark gray; soft to loose; moist; abundant rock fragments; No HC odor	STS #4 (12'-13')	1.0	
	11.2	11.7	Coaly silty sand	Brownish gray to brown; crumbly in part; dense in part; appears dry; No HC odor	Refusal @ 13.0'		
	11.7	13.0 (TD)	Bedrock	Soft; dark gray to black; moist to wet; No HC odor			
				Gray silty shale; dry below top contact; no HC odor			

Soil sample - @ 2.7 - 3.2' (10:05)

PID Measurements (ppm max.)

0-4' - 488 @ 2.8'
4-8' - 64.0 @ 7.6'
8-12' - 190 @ 11.4'
12-13' - 0.0

Well Construction

Btm cap then 10' of prepacked 2' diameter Sch 40 PVC well screen from 11.8 to 1.8', then threaded solid casing to 0.4' BGL

Annular space - Coarse silica sand from 11.8' to 1.5' BGL, then bentonite chips to 0.5' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-5

Logged By: A. M. Richnafsky, P.G.

Client: Shenango Township

Date: 5/19/16

Project No. Shenango Twp UST investigation

Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill

Contractor: Allprobe Environmental

Conditions: Sunny, am 50's, pm 60's, dry

Times: Start 11:00 am

Total Depth: Sample to 8' refusal

Depth to Water: None

Location: Northeast of UST, near corner of fire department building & township garage

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	2.3	Fill	Variable slag with gravel & sandy silt	STS #1 (0'-4')	3.1	
	2.3	7.4	Sandy silt (weathered till)	Shale fragments abundant in bottom 1.5'; dense; traces of moisture along a few partings; overall dry appearance; mod dense to friable in bottom 1.5'; No sign HCs	STS #2 (4'-7.7') STS #3 (7.7'-8.0") Refusal @ 8.0'	3.7	
	7.4	8.0 (TD)	Bedrock silty shale	Light brown; dense; dry; No sign HCs			

Soil sample - 4.3 - 4.8' time 11:10 am

PID Measurements (ppm max.)

0-4' - 0.0

4-8' - 0.0

Well Construction

No well installed. Water entering boring appears to be from bottom to fill. No sign of HC in boring. Water stabilized in boring @ approximately 1.7' BGL. Boring back filled with bentonite chips to 0.0' BGL.

Boring/Well ID# SB-6 / MW-6
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/19/16

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Times: Start 11:40 am Conditions: Sunny, am 50's, pm 60's, dry

Total Depth: Sampled to 13.0'

Depth to Water: 2.8' in boring shortly after drilling

Location: Near CL of former unleaded gas UST - within backfill

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	No log possible due to lack of recovery. No soil recovery below 4.0'.				STS #1 (0'-4')	1.2	
	Water in boring has sheen & gasoline odor. Uniform sand found from 12' to 12.6'. Bedrock @ 12.6'				STS #2 (4'-8')	0.0	
	No distinct HC odor in bedrock. Slight gasoline odor in sand just above bedrock. Water level in boring at 2.8' BGL shortly after sampling.				STS #3 (8'-12')	0.0	
					STS #4 (12'-13')	0.7	
					Refusal @ 13.0'		

Soil sample - 2.8 - 3.3' (11:50 am)

PID Measurements (ppm max.)

0-4' -28 @ 2.8'
4-8' - No reading (no sample recov.)
8-12' - No reading (no sample recov.)
12-12.5' - Max 179 in sand fill; max @ 6.3' below top bedrock 28.5

Well Construction

Btm cap then 10' of prepacked Sch 40 PVC well screen from 12' to 2', then solid Sch 40 PVC casing to 0.4' BGL.

Annular space - Coarse silica sand from 12' to 1.8', then bentonite chips from 1.8' to 0.5'. Finish with 6" flush mount steel bolt down cover with 9" skirt surrounded by concrete apron.

Boring/Well ID# SB-7
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/19/16

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Times: Start 2:15 pm Conditions: Sunny, am 50's, pm 60's, dry

Total Depth: Sample to 10.0'

Depth to Water: No water encountered during drilling

Location: South side at former UST cavity (~4' beyond edge of UST cavity)

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	2.8	Fill	Gravel with slag & sandy silt; brown to gray; mod. packed to crumbly in part; appears dry; no distinct HC odor.	STS #1 (0'-4')	2.8	
					STS #2 (4'-8')	3.9	
	2.8	9.7	Gravelly sandy silt (till)	Variable to brown to olive gray to gray going downward; slight moist & mod soft from 4.5' to 6.8'; very dense below 7.9' with minimal weathering; no distinct HC odor; no free water observed; appears dry internally below 8.0'	STS #3 (8'-10')	1.6	
	9.7	10.0 (TD)	Bedrock	Gray shale; appears dry internally; dense but fissile; No sign HCs			

No free water encountered in boring

Soil sample - @ 3.0 - 3.7' (2:30 pm)

PID Measurements (ppm max.)

0-4' - 43.8 @ 3.6' (just below bottom fill)
4-8' - 34.8' max @ 5.8'
8-10' - 46.4 @ 9.8' (near top of bedrock)

Well Construction

Boring back filled with bentonite to 0.5' BGL.

Boring/Well ID# SB-8
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/19/16

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Conditions: Sunny, am 50's, pm 60's, dry

Times: Start 3:00 pm

Total Depth: Sampled to 8.0'
Location: Near CL of former UST

Depth to Water: Observed at ~4.0'

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	8.0 (TD)	Fill	Variable, brown to reddish brown to olive brown; gravel, sandy gravel & sandy silt; mostly loose to slightly packed; appears dry to 4.0'; slight gasoline odor in water below 4.0'; No SPL observed	STS #1 (0'-4') STS #2 (4'-8') STS #3 (No recov) due to caving TD 8.0'	2.1 0.0 1.6	

Soil sample from 3-3.5' @ 3:10 pm

PID Measurements (ppm max.)

0-4' - 116 @ 0.5', range from 35 to 89 below

Well Construction

Boring/Well ID# SB-9 / MW-9
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/13/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: Sunny, am 60's, pm 80's, dry

Total Depth: Sampled to 11.8', augered to 25'
Location: North of municipal building

Depth to Water: Slightly wet @ approximately 4'

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	3.0	Silt	Brown; soft - top soil, silt, gravel	STS #1 (0'-2')	3.7	2,4,5,8
3.0	4.0	Silt	Dark gray silt	STS #2 (2'-4')	3.2	3,3,4,4
4.0	6.0	Silt	Grayish brown silt; wet	STS #3 (4'-6')	3.4	1,1,2,3
6.0	6.5	Silt	Gray silt; wet	STS #4 (6'-8')	3.2	7,9,12,13
6.5	10.5	Gravelly silt	Dark brown gravelly silt; wet	STS #5 (8'-10')	3.0	10,12,11,16
10.5	11.8	Siltstone	Brown siltstone	STS #6 (10'-11.8')	3.0	10,12,11,16
11.8	24.9 (TD)	Siltstone	Gray siltstone (airdrilled from 11.8 - 24.9')	Refusal @ 11.8'		

Soil sample - @ 2.0 - 4.0' (10:05)

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 0.0
4-6' - 0.0
6-8' - 0.0
8-10' - 0.0
10-11.8' - 0.0
11.8-24.9' - 0.0

Well Construction

Btm cap then 5' of 2' diameter Sch 40 PVC well screen from 24.9 to 19.9', then threaded solid casing to 0.4' BGL

Annular space - Coarse silica sand from 24.9' to 18' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-10 / MW-10
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/13/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Times: Start 2:30 pm Conditions: Sunny, am 60's, pm 80's, dry

Total Depth: 14.5'

Depth to Water: Moist @ approximately 6'

Location: Northwest of municipal building

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	3.0	Silt	Brown; soft - top soil, silt, some gravel	STS #1 (0'-2')	3.7	1,3,4,4
2.0	8.0	Silt with some gravel	Dark brown silt, some gravel; slightly moist @ 6'	STS #2 (2'-4')	3.5	4,4,5,4
				STS #3 (4'-6')	3.4	4,5,10,5
8	11.9	Silt	Brown; dense; slightly moist	STS #4 (6'-8')	3.1	14,16,21,19
11.9	12.8	Siltstone	Light brown siltstone	STS #5 (8'-10')	3.2	6,8,11,13
12.8	14.5	Siltstone	Gray siltstone (augered from 12.8' to 14.5')	STS #6 (10'-12')	0.5	11,12,21,50/0.4
	(TD)			Refusal @ 12.0'		
				STS #7 (12'-12.8')	0.1	24,50/0.3
				Refusal @ 12.8'		

Soil sample - @ 4 - 6' (3:30 pm)

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 0.0
4-6' - 0.0
6-8' - 0.0
8-10' - 0.0
10-12' - 0.0
12-12.8' - 0.0
12.8-14.5' - 0.0

Well Construction

Btm cap then 10' of 2' diameter Sch 40 PVC well screen from 14.44' to 4.44', then threaded solid casing to 0.4' BGL

Annular space - Coarse silica sand from 14.44' to 3' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-11 / MW-11
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/14/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing

Times: Start 7:30 am

Conditions: Sunny, am 50's, pm 70's, afternoon showers

Total Depth: 9.47'

Depth to Water: Wet @ approximately 6'

Location: North of Fire Station section of municipal building

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	2.0	Silt	Brown; soft - top soil, silt, some gravel	STS #1 (0'-2')	3.7	3,2,3,3
	2.0	4.0	Silt	Dark gray	STS #2 (2'-4')	3.2	2,3,3,3
					STS #3 (4'-6')	3.4	2,3,7,19
	4.0	6.0	Silt	Dark brown silt with siltstone fragments below 5'	STS #4 (6'-6.9')	0.5	25,50/0.4
	6	6.9	Siltstone	Light brown siltstone	Refusal @ 6.9'		
	6.9	9.47 (TD)	Siltstone	Gray (auger from 6.9 to 9.5)			

Soil sample - @ 2-4' (8:15)

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 0.0
4-6' - 0.0
6-6.9' - 0.0
6.9-9.5' - 0.0

Well Construction

Btm cap then 6.5' of 2' diameter Sch 40 PVC well screen from 9.47 to 2.97', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 9.47' to 2.5' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-12 / MW-12
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/14/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Times: Start 10:40 am Conditions: Sunny, am 50's, pm 70's, afternoon showers

Total Depth: 8.8' Depth to Water: Wet @ approximately 4'
Location: Near the southeast corner of the Fire Station section of municipal building

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	2.0	Gravel fill	Parking lot fill	STS #1 (0'-2')	3.5	10,11,17,9
2.0	4.0	Gravelly Silt	Brown	STS #2 (2'-4')	3.5	9,9,12,11
4.0	6.0	Silt	Brown, dense, wet	STS #3 (4'-6')	3.4	4,9,11,13
6	6.9	Gravelly Silt	Brown, wet	STS #4 (6'-6.9')	0.4	16, 50/0.4
6.9	8.8 (TD)	Siltstone	Gray (auger from 6.9 to 8.8)	Refusal @ 6.9'		

Soil sample - @ 2 - 4' (11:00)

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 0.0
4-6' - 0.0
6-6.9' - 0.0
6.9-8.8' - 0.0

Well Construction

Btm cap then 6' of 2" diameter Sch 40 PVC well screen from 8.8 to 2.8', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 8.8' to 2.5' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SR-13
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/14/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: low 70's, light rain

Times: Start 1:00 pm

Total Depth: Sampled to 12.0'
Location: Northwest of former UST

Depth to Water: 8.0'

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	2.0	Gravel Fill	Parking lot fill	STS #1 (0'-2')		21,23,10,4
	2.0	10.0	Gravelly Silt	Brown; moist @ 4'	STS #2 (2'-4')		10,8,6,8
	10.0	12.0	Silt	Dark brown, dense	STS #3 (4'-6')		10,10,11,9
					STS #4 (6'-8')		9,10,10,9
					STS #5 (8'-10')		9,10,20,17
					STS #6 (10'-12')		21,26,37,54
					TD 12.0'		

Soil sample from 2-4' @ 1:30 pm

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 0.0
4-6' - 899.6
6-8' - 1500
8-10' - 277
10-12' - 3.4

Well Construction

Boring/Well ID# SB-14
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/14/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: low 70's, light rain

Times: Start 1:50 pm

Conditions: low 70's, light rain

Total Depth: Sampled to 6.0'
Location: North of former UST

Depth to Water: 4.0'

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	2.0	Gravel Fill	Parking lot fill	STS #1 (0'-2')		34,42,30,21
	2.0	6.0	Gravelly Silt	Brown; moist @ 4'	STS #2 (2'-4')		17,22,13,12
					STS #3 (4'-6')		12,11,11,10
					TD 6.0'		

Soil sample from 2-4' @ 2:20 pm

PID Measurements (ppm max.)

0-2' - 0.0
2-3' - 11.2
3-4' - 84.2
4-6' - 145.0

Well Construction

Boring/Well ID# SB-15
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/14/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: low 70's, light rain

Times: Start 2:30 pm

Total Depth: Sampled to 6.0'
Location: Near centerline of former UST

Depth to Water: 4.0'

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	2.0	Gravel Fill	Parking lot fill	STS #1 (0'-2')		13,17,17,11
	2.0	4.0	Gravelly Silt	Brown; slight HC odor	STS #2 (2'-4')		4,5,6,4
	4.0	6.0	Gravelly Silt	Dark Gray; wet; HC odor	STS #3 (4'-6')		3,1,1,2
					TD 6.0'		

Soil sample from 2-4' @ 2:45 pm

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 29.0
4-6' - 329.1

Well Construction

Boring/Well ID# SB-16
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/14/16

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: low 70's, light rain

Times: Start 2:55 pm

Total Depth: Sampled to 6.0'
Location: Near centerline of former UST

Depth to Water: 4.0'

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	1.0	Gravel Fill	Parking lot fill	STS #1 (0'-2')		13,11,10,11
	1.0	4.0	Silt and Gravel	Brown; slight HC odor	STS #2 (2'-4')		10,9,11,9
	4.0	6.0	Silt	Brown with gray mottling; wet; slight HC odor	STS #3 (4'-6')		10,7,7,10
					TD 6.0'		

Soil sample from 2'-4' @ 3:15 pm

PID Measurements (ppm max.)

0-2' - 0.0
1-2' - 0.0
2-4' - 15.6
4-6' - 5.2

Well Construction

Boring/Well ID# SB-17
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 9/14/16

Times: Start 3:25 pm

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: low 70's, light rain

Total Depth: Sampled to 6.0'

Depth to Water: 4.0'

Location: Between former UST and current diesel pump

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	0.0	1.0	Gravel Fill	Parking lot fill	STS #1 (0'-2')		13,9,9,7
	1.0	2.0	Silt and Gravel	Brown; slight HC odor	STS #2 (2'-4')		6,8,4,6
	2.0	3.0	Sand	Brown; HC odor	STS #3 (4'-6')		5,7,8,9
	3.0	4.0	Silt	Gray to black; slight HC odor	TD 6.0'		
	4.0	4.5	Silt and Sand	Black; HC odor; wet			
	4.5	5.5	Silt and Gravel	Brown; HC odor; wet			
	5.5	6.0	Silt and Gravel	Gray; HC odor; wet			

Soil sample from 2-4' @ 3:45 pm

PID Measurements (ppm max.)

0-1' - 0.0
1-2' - 1.0
2-3.5' - 1.2
3.5-4' - 229
4-4.5' - 19.2
4.5-5.5' - 408.3
5.5-6' - 533.2

Well Construction

3/17/2017 12:16:23 PM

Boring/Well ID# SB-18 / MW-18
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/7/17

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Times: Start 13:20 Conditions: 50's, cloudy, occasional showers

Total Depth: 25'

Depth to Water: slightly moist @ approximately 5'

Location: West side of municipal building, 10 feet south of siren tower

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	2.0	Silt	Brown; soft - top soil, sandy silt	STS #1 (0'-2')	3.5	1,5,5,4
2.0	5.0	Silt	Brown; soft - some gravel, orange/gray mottling	STS #2 (2'-4')	3.5	3,4,6,8
5.0	5.5	Gravelly silt	Brown silt & gravel, slightly moist	STS #3 (4'-6')	3.4	5,6,7,8
5.5	6.0	Silt	Brown; some gravel, orange/gray mottling	STS #4 (6'-8')	0.4	5,7,29,37
6	7.5	Gravelly silt	Brown gravelly silt; moist, no HC odor	Refusal @ 8.5'		
7.5	8.5	Siltstone	Tan siltstone, wet, gasoline odor from 8 to 8.5'			
8.5	25.0 (TD)	Siltstone	Gray siltstone (airdrilled from 8.5 - 25')			

Soil sample - @ 4 - 4.5'

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 0.0
4-6' - 0.0
6-8' - 0.0
8-8.5' - 44

Well Construction

Btm cap then 5' of 2" diameter Sch 40 PVC well screen from 25 to 20', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 25' to 18' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-19 / MW-19
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/8/17

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: upper 20's, cloudy

Times: Start 7:30

Total Depth: 12.5'

Depth to Water:

Location: West side of municipal building, ~7 feet south of siren tower, adjacent and north of MW-18

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
------------------	----------------	---------------	--------------------	-------------------------------	-----------------------	------------------------

Not logged, adjacent to SB-18 / MW-18

Auger to 12.5 feet. Mud on augers, gasoline odor, PID reading of 11.1 ppm

12.5
(TD)

Soil sample - not collected

PID Measurements (ppm max.)

11.1 ppm from cuttings near bottom of boring

Well Construction

Btm cap then 8' of 2" diameter Sch 40 PVC well screen from 12.5 to 4.5', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 12.5' to 2.5' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-20 / MW-20
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/8/17

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: 30's, cloudy

Times: Start 10:30

Total Depth: 25'

Depth to Water: slightly moist @ approximately 5'

Location: West side of municipal building, 30 feet west of Potable Water Well

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	1.0	Asphalt	Asphalt and gravel fill	STS #1 (1'-3')	3.4	1,3,3,2
1.0	3.0	Silt	Brown; soft - some mm sized gravel	STS #2 (3'-5')	3.5	7,11,13,11
3.0	7.0	Silt	Orangish brown silt w/ minor gravel, dry, orange/gray mottling, No HC odors	STS #3 (5'-7')	3.4	3,5,5,4
7.0	9.0	Silt	Brown silt w/ minor gravel, slightly moist, some orange/gray mottling, No HC odors	STS #4 (7'-9')	3.5	6,7,7,11
9	9.5	Silt	Dark gray silt; moist, HC odor	STS #4 (9'-10.3') Refusal @ 10.3'	0.4	14,40,50/0.3
9.5	10.3	Weathered Siltstone	Tan siltstone, moist, no HC odor			
10.3	25.0 (TD)	Siltstone	Gray siltstone (airdrilled from 10.3 - 25')			

Soil sample - @ 5 - 7'

PID Measurements (ppm max.)

1-3' - 0.0
3-5' - 0.0
5-7' - 0.0
7-9' - 0.0
9-10.3' - 2.3

Well Construction

Btm cap then 5' of 2" diameter Sch 40 PVC well screen from 25 to 20', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 25' to 18' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-21 / MW-21
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/8/17

Project No. Shenango Twp UST investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: 30's, cloudy

Times: Start 14:00

Total Depth: 11.5'

Depth to Water:

Location: West side of municipal building, 4 feet south and west of MW-20 in parking lot

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
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Not logged, adjacent to SB-20 / MW-20

Auger to 11.5 feet. Slight gasoline odor in cuttings near bottom of boring, PID reading of 4 ppm

11.5
(TD)

Soil sample - not collected

PID Measurements (ppm max.)

4 ppm from cuttings near bottom of boring

Well Construction

Btm cap then 7" of 2" diameter Sch 40 PVC well screen from 11.5 to 4.5', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 11.5' to 2.5' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-22 / MW-22
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/9/17

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: 20's with light snow

Times: Start 8:50 am

Total Depth: 11'

Depth to Water: Wet @ approximately 8.5'

Location: Near northwest corner of municipal building (20 feet northwest of building)

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	0.5	Topsoil	Brown; soft - grass, top soil, moist	STS #1 (0'-2')	3.7	2,4,5,6
0.5	7.0	Silt	Brown silt, some fine gravel, some orange mottling; little moisture, no HC	STS #2 (2'-4')	3.5	3,5,7,7
7	7.5	Sand	Brown; little moisture, no HC	STS #3 (4'-6')	3.4	4,6,10,10
7.5	8.5	Silt	Brown silt, orange/gray mottling; little moisture, no HC	STS #4 (6'-8')	3.1	7,11,13,14
8.5	9.2	Siltstone	Brownish Gray siltstone, wet, no HC odor Augered to 11'	STS #5 (8'-9.2')	3.2	4,26,50/0.2
				Refusal @ 9.2'		

Soil sample - @ 7 - 7.5'

PID Measurements (ppm max.)

0-2' - 0.0
2-4' - 0.0
4-6' - 0.0
6-8' - 0.0
8-9.2' - 0.0

Well Construction

Btm cap then 7' of 2' diameter Sch 40 PVC well screen from 11 to 4', then threaded solid casing to 0.4' BGL

Annular space - Coarse silica sand from 11' to 3' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-23 / MW-23
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/10/17

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Times: Start 10:00 Conditions: teens, forecasted high of 30, cloudy

Total Depth: 25.5' Depth to Water: moist @ approximately 7', wet @ 9'
Location: 11 feet east of municipal building, between 2 southernmost garage doors

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	3.0	Gravel fill	Gravel fill	STS #1 (1'-3')	0.7	36,24,9,12
3.0	7.0	Silt	Brown silt w/ gravel, little moisture, no HC	STS #2 (3'-5')	0.1	50/0.5
7.0	9.0	Silt	Brown silt w/ gravel, becoming more gravelly w/ depth, moist, no HC odors	STS #3 (5'-7')	3.4	7,9,13,11
9.0	11.0	Sandstone	Brown sandstone fragments, wet, No HC odors	STS #4 (7'-9')	3.6	16,17,21,23
11	12.4	Sandstone	Fractured Sandstone & sand, wet, no HC odors	STS #4 (9'-11')	3.1	4,19,19,19
12.4	25.5 (TD)	Sandstone	Brown to gray sandstone, wet (airdrilled from 12.4 - 25.5')	STS #5 (11'-12.4') Refusal @ 12.4'	1.3	

Soil sample - @ 3 - 4'

PID Measurements (ppm max.)

1-3' - 0.0
3-5' - 0.0
5-7' - 0.0
7-9' - 0.0
9-11' - 0.0
11-12.4' - 0.0

Well Construction

Btm cap then 5' of 2" diameter Sch 40 PVC well screen from 25.5 to 20.5', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 25.5' to 18.5' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SB-24 / MW-24
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/10/17

Times: Start 13:30

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: 20's, cloudy

Total Depth: 12.5'

Depth to Water: Moist @ approximately 6'

Location: 75 feet west of municipal building off of the edge of parking lot

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
0.0	1.0	Topsoil	Brown; soft - grass, top soil, moist	STS #1 (1'-3')	3.5	1,3,4,5
1.0	3.0	Silt	Brown silt, some fine gravel, some orange/gray mottling; little moisture, no HC	STS #2 (3'-5')	3.5	2,3,4,4
3.0	6.0	Silt	Brown; some fine gravel, little moisture, no HC	STS #3 (5'-7')	3.4	2,2,5,3
				STS #4 (7'-9')	3.5	6,8,9,9
6	9.0	Sand	Brown, moist, no HC	STS #5 (9'-9.5')		
9	9.5	Siltstone	Tannish Gray siltstone, wet, no HC odor Augered to 12.5'	Refusal @ 9.5'		

Soil sample - @ 5 - 6'

PID Measurements (ppm max.)

1-3' - 0.0
3-5' - 0.0
5-6' - 0.0
6-7' - 0.0
7-9' - 0.0

Well Construction

Btm cap then 8' of 2' diameter Sch 40 PVC well screen from 12.5 to 4.5', then threaded solid casing to 0.4' BGL

Annular space - Coarse silica sand from 12.5' to 2.5' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

3/17/2017 12:16:31 PM

Boring/Well ID# RW-1
Logged By: Dave Siekkinen, P.G.
Client: Shenango Township
Date: 2/10/17

Project No. Shenango Twp UST Investigation
Drill Type: CME-55 truck rig
Contractor: Terra Testing
Conditions: upper 20s, cloudy

Times: Start 15:45

Total Depth: 15.5'

Depth to Water: moist @ approximately 7'

Location: East of municipal building north of UST cavity, between building and MW-3

<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
Did not log boring due to time constraints. Augered down to 15.5 feet. Reached bedrock @ approximately 9 feet. Very strong gasoline odor during drilling						

15.5
(TD)

Soil sample - none

Well Construction

Btm cap then 10' of 4" diameter Sch 40 PVC well screen from 15.5 to 5.5', then threaded solid casing to 0.3' BGL

Annular space - Coarse silica sand from 15.5' to 3' BGL, then bentonite chips to 1' BGL. Finished with flush mount steel bolt down manhole cover, surrounded by concrete apron.

Boring/Well ID# SV-1
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/19/16

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Times: Start 3:30 pm Conditions: Mostly clear, dry 50s - 60s

Total Depth: 3.5'

Depth to Water: None encountered

Location: Southeast corner of township building

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
	Direct push boring to TD 3.5'						

PID Measurements (ppm max.)

0-3.5' -0.0

Well Construction

Location is 1.6' south of township building wall at 7.1' west of southeast corner. Well screen (3/4" diameter Sch 40 PVC) from 3.5' to 2.5' with bottom cap & top cap fitted with 1/4" diameter tubing to ground level

Annular space - Coarse silica sand from 3.5' to 2.3', then bentonite chips from 0.7' BGL (hydrated at time of construction).
Finish with 4" diameter fish mount cover with concrete apron.

Boring/Well ID# SV-2
Logged By: A. M. Richnafsky, P.G.
Client: Shenango Township
Date: 5/19/16

Project No. Shenango Twp UST Investigation
Drill Type: Takeuchi 150 w/AMS PowerProbe 9635 Drill
Contractor: Allprobe Environmental
Times: Start 3:30 pm Conditions: Mostly clear, dry 50s - 60s

Total Depth: 4.0' Depth to Water: None encountered
Location: East side of township garage & north of diesel fuel dispenser

<u>ID</u>	<u>From (ft)</u>	<u>To (ft)</u>	<u>Strata</u>	<u>Description</u>	<u>Sample # and Depth</u>	<u>Recov (ft)</u>	<u>Blow Counts</u>
Direct push boring to 4.0' TD							

PID Measurements (ppm max.)

Measured in open boring 0.6 ppm max

Well Construction

Location is 3.3' from east wall of township building and 19.6' north from southeast corner at township building. Well screen (3/4" diameter Sch 40 PVC) from 4.0' to 3.0' with bottom cap & top cap fitted with 1/4" diameter tubing

Annular space - Coarse silica sand from 4.0' to 2.7', then bentonite chips from 0.7' BGL (hydrated at time of construction). Finish with 4" diameter flush mount cover with concrete apron.

APPENDIX C

Laboratory Analytical Results

C1 – Soil Results

05/18-19/2016

09/13-14/2016

02/07-10/2017

C2 – Groundwater Results

06/15/2016

07/26/2016

09/26/2016

11/01/2016

02/17/2017

02/24/2017

C3 – Soil Vapor / Air Matrix Results

07/11/2016

08/02/2016

01/19/2017



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PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
SB-1 (5.5-6.0)	6E26046-01	Solid	Grab	05/18/16 12:00	05/26/16 11:50
SB-2 (3.0-3.5)	6E26046-02	Solid	Grab	05/18/16 13:30	05/26/16 11:50
SB-3 (3.2-3.6)	6E26046-03	Solid	Grab	05/18/16 14:50	05/26/16 11:50
SB-4 (2.7-3.2)	6E26046-04	Solid	Grab	05/19/16 10:05	05/26/16 11:50
SB-5 (4.3-4.8)	6E26046-05	Solid	Grab	05/19/16 11:10	05/26/16 11:50
SB-6 (2.8-3.3)	6E26046-06	Solid	Grab	05/19/16 11:50	05/26/16 11:50
SB-7 (3.0-3.7)	6E26046-07	Solid	Grab	05/19/16 14:30	05/26/16 11:50
SB-8 (3.0-3.5)	6E26046-08	Solid	Grab	05/19/16 15:10	05/26/16 11:50
INVESTIGATION SAMPLE	6E26046-09	Solid	Composite	05/19/16 10:20	05/26/16 11:50

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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(814) 946-4306
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89 Kristi Road
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(570) 494-6380
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2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-1 (5.5-6.0)

Date/Time Sampled: 05/18/16 12:00

Laboratory Sample ID: 6E26046-01 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		9c
1,2,4-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Benzene	<0.0016	0.0016	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Toluene	<0.0040	0.0040	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Ethylbenzene	<0.0040	0.0040	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Xylenes (total)	<0.0080	0.0080	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Isopropylbenzene	<0.0040	0.0040	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Methyl tert-butyl ether	<0.0040	0.0040	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Naphthalene	<0.0040	0.0040	mg/kg dry	06/01/16 18:19	EPA 8260B	mtc		
Surrogate: 4-Bromofluorobenzene	93 %	70-130		06/01/16 18:19	EPA 8260B	mtc		
Surrogate: 1,2-Dichloroethane-d4	131 %	70-130		06/01/16 18:19	EPA 8260B	mtc		2n
Surrogate: Fluorobenzene	103 %	70-130		06/01/16 18:19	EPA 8260B	mtc		
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	87.2	0.100	%	05/26/16 20:55	SM 2540 G-97	arr		3c

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89 Kristi Road
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Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-2 (3.0-3.5)

Date/Time Sampled: 05/18/16 13:30

Laboratory Sample ID: 6E26046-02 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.0038	0.0038	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
1,2,4-Trimethylbenzene	<0.0038	0.0038	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Benzene	<0.0015	0.0015	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Toluene	<0.0038	0.0038	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Ethylbenzene	<0.0038	0.0038	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Xylenes (total)	<0.0077	0.0077	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Isopropylbenzene	<0.0038	0.0038	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Methyl tert-butyl ether	<0.0038	0.0038	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Naphthalene	<0.0038	0.0038	mg/kg dry	06/01/16 18:47	EPA 8260B	mtc		
Surrogate: 4-Bromofluorobenzene	93 %	70-130		06/01/16 18:47	EPA 8260B	mtc		
Surrogate: 1,2-Dichloroethane-d4	126 %	70-130		06/01/16 18:47	EPA 8260B	mtc		
Surrogate: Fluorobenzene	100 %	70-130		06/01/16 18:47	EPA 8260B	mtc		
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	91.7	0.100	%	05/26/16 20:55	SM 2540 G-97	arr		3c

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Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-3 (3.2-3.6)

Date/Time Sampled: 05/18/16 14:50

Laboratory Sample ID: 6E26046-03 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.460		0.460	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	1.25		0.460	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Benzene	1.49		0.184	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Toluene	<0.460		0.460	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Ethylbenzene	0.696		0.460	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Xylenes (total)	1.98		0.920	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Isopropylbenzene	<0.460		0.460	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.460		0.460	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Naphthalene	0.898		0.460	mg/kg dry	06/01/16 15:03	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	97 %		70-130		06/01/16 15:03	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	105 %		70-130		06/01/16 15:03	EPA 8260B	mtc	
Surrogate: Fluorobenzene	103 %		70-130		06/01/16 15:03	EPA 8260B	mtc	

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	87.6		0.100	%	05/26/16 20:55	SM 2540 G-97	arr	3c
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2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-4 (2.7-3.2)

Date/Time Sampled: 05/19/16 10:05

Laboratory Sample ID: 6E26046-04 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								9c
1,3,5-Trimethylbenzene	<0.0037	0.0037	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
1,2,4-Trimethylbenzene	<0.0037	0.0037	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
Benzene	<0.0015	0.0015	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
Toluene	<0.0037	0.0037	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
Ethylbenzene	<0.0037	0.0037	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
Xylenes (total)	<0.0073	0.0073	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
Isopropylbenzene	<0.0037	0.0037	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
Methyl tert-butyl ether	<0.0037	0.0037	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		
Naphthalene	<0.0037	0.0037	mg/kg dry	06/02/16 10:10	EPA 8260B	mtc		2e
Surrogate: 4-Bromofluorobenzene	102 %	70-130		06/02/16 10:10	EPA 8260B	mtc		
Surrogate: 1,2-Dichloroethane-d4	127 %	70-130		06/02/16 10:10	EPA 8260B	mtc		
Surrogate: Fluorobenzene	105 %	70-130		06/02/16 10:10	EPA 8260B	mtc		
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	84.9	0.100	%	05/26/16 20:55	SM 2540 G-97	arr		

Fairway Laboratories, Inc.

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(570) 494-6380
PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafskey

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-5 (4.3-4.8)

Date/Time Sampled: 05/19/16 11:10

Laboratory Sample ID: 6E26046-05 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<0.0047	0.0047	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
1,2,4-Trimethylbenzene	<0.0047	0.0047	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Benzene	<0.0019	0.0019	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Toluene	<0.0047	0.0047	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Ethylbenzene	<0.0047	0.0047	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Xylenes (total)	<0.0095	0.0095	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Isopropylbenzene	<0.0047	0.0047	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Methyl tert-butyl ether	<0.0047	0.0047	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Naphthalene	<0.0047	0.0047	mg/kg dry	06/01/16 19:43	EPA 8260B	mtc
Surrogate: 4-Bromofluorobenzene	99 %	70-130		06/01/16 19:43	EPA 8260B	mtc
Surrogate: 1,2-Dichloroethane-d4	127 %	70-130		06/01/16 19:43	EPA 8260B	mtc
Surrogate: Fluorobenzene	102 %	70-130		06/01/16 19:43	EPA 8260B	mtc

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	90.4	0.100	%	05/26/16 20:55	SM 2540 G-97	arr
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PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-6 (2.8-3.3)

Date/Time Sampled: 05/19/16 11:50

Laboratory Sample ID: 6E26046-06 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	8.13		0.474	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	25.1		4.74	mg/kg dry	06/02/16 20:07	EPA 8260B	mtc	
Benzene	0.262		0.190	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	
Toluene	<0.474		0.474	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	
Ethylbenzene	<0.474		0.474	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	
Xylenes (total)	16.7		0.948	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	
Isopropylbenzene	<0.474		0.474	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.474		0.474	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	
Naphthalene	5.92		0.474	mg/kg dry	06/02/16 01:48	EPA 8260B	mtc	2e
Surrogate: 4-Bromofluorobenzene	102 %		70-130		06/02/16 01:48	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	101 %		70-130		06/02/16 01:48	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		06/02/16 01:48	EPA 8260B	mtc	
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	94.2		0.100	%	05/26/16 20:55	SM 2540 G-97	arr	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-7 (3.0-3.7)

Date/Time Sampled: 05/19/16 14:30

Laboratory Sample ID: 6E26046-07 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	0.220	0.190	mg/kg dry	06/02/16 18:44	EPA 8260B	mtc		
Ethylbenzene	<0.474	0.474	mg/kg dry	06/02/16 18:44	EPA 8260B	mtc		
1,3,5-Trimethylbenzene	0.0364	0.0048	mg/kg dry	06/01/16 20:11	EPA 8260B	mtc		
1,2,4-Trimethylbenzene	0.0119	0.0048	mg/kg dry	06/01/16 20:11	EPA 8260B	mtc		
Toluene	<0.0048	0.0048	mg/kg dry	06/01/16 20:11	EPA 8260B	mtc		
Xylenes (total)	0.0647	0.0095	mg/kg dry	06/01/16 20:11	EPA 8260B	mtc		
Isopropylbenzene	0.0106	0.0048	mg/kg dry	06/01/16 20:11	EPA 8260B	mtc		
Methyl tert-butyl ether	0.0469	0.0048	mg/kg dry	06/01/16 20:11	EPA 8260B	mtc		
Naphthalene	0.0454	0.0048	mg/kg dry	06/01/16 20:11	EPA 8260B	mtc		
Surrogate: 4-Bromofluorobenzene	105 %	70-130		06/01/16 20:11	EPA 8260B	mtc		
Surrogate: 1,2-Dichloroethane-d4	122 %	70-130		06/01/16 20:11	EPA 8260B	mtc		
Surrogate: Fluorobenzene	105 %	70-130		06/01/16 20:11	EPA 8260B	mtc		
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	88.7	0.100	%	05/26/16 20:55	SM 2540 G-97	arr		

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2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: SB-8 (3.0-3.5)

Date/Time Sampled: 05/19/16 15:10

Laboratory Sample ID: 6E26046-08 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	0.731	0.207		mg/kg dry	06/02/16 19:11	EPA 8260B	mtc	
Ethylbenzene	1.63	0.516		mg/kg dry	06/02/16 19:11	EPA 8260B	mtc	
Xylenes (total)	6.80	1.03		mg/kg dry	06/02/16 19:11	EPA 8260B	mtc	
1,3,5-Trimethylbenzene	0.0433	0.0047		mg/kg dry	06/01/16 21:07	EPA 8260B	mtc	2a
1,2,4-Trimethylbenzene	0.0811	0.0047		mg/kg dry	06/01/16 21:07	EPA 8260B	mtc	2a
Toluene	0.0456	0.0047		mg/kg dry	06/01/16 21:07	EPA 8260B	mtc	
Isopropylbenzene	0.0150	0.0047		mg/kg dry	06/01/16 21:07	EPA 8260B	mtc	2a
Methyl tert-butyl ether	<0.0047	0.0047		mg/kg dry	06/01/16 21:07	EPA 8260B	mtc	
Naphthalene	<0.0047	0.0047		mg/kg dry	06/01/16 21:07	EPA 8260B	mtc	2a
Surrogate: 4-Bromofluorobenzene	102 %		70-130		06/01/16 21:07	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	120 %		70-130		06/01/16 21:07	EPA 8260B	mtc	
Surrogate: Fluorobenzene	106 %		70-130		06/01/16 21:07	EPA 8260B	mtc	
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	90.5	0.100		%	05/26/16 20:55	SM 2540 G-97	arr	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Client Sample ID: INVESTIGATION SAMPLE

Date/Time Sampled: 05/19/16 10:20

Laboratory Sample ID: 6E26046-09 (Solid/Composite)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	0.0338		0.0053	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	2b
1,2,4-Trimethylbenzene	0.0963		0.0053	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	2b
Benzene	0.0213		0.0021	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	
Toluene	0.0192		0.0053	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	
Ethylbenzene	0.0190		0.0053	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	2b
Xylenes (total)	0.127		0.0106	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	2b
Isopropylbenzene	<0.0053		0.0053	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0053		0.0053	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	
Naphthalene	0.0295		0.0053	mg/kg dry	06/01/16 22:03	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	107 %		70-130		06/01/16 22:03	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	118 %		70-130		06/01/16 22:03	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		06/01/16 22:03	EPA 8260B	mtc	
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	91.9		0.100	%	05/26/16 20:55	SM 2540 G-97	arr	

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PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Notes

- 2a The RPD result exceeded the QC control limits for the duplicate, LCSD or MSD sample analyzed. Data accepted based on additional batch QC.
- 2b The spike recovery was outside acceptance limits for the MS and/or MSD for the noted analyte. Data accepted based on acceptable LCS recovery.
- 2e CCV was outside the QC range for the noted analyte. Data accepted based on additional batch QC.
- 2n The noted surrogate value is not within the indicated range, results are considered to be estimated.
- 3c This sample was analyzed outside the EPA recommended holding time.
- 9e Vial contained more than the EPA recommended amount of soil.



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2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 36

Reported:

06/10/16 09:23

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.



2019 9th Ave.
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Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

Client Page # 1 of 1

Client Name: CE
Address: 2700 Kirila Blvd
Hermitage, PA 16148
Contact: Bert Richnatfsky
Phone #: 724-342-1990
Fax #: 724-342-1990
Project Name: Shenango Township
Quote/PO #: _____

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.

Date Required: / /

Sample Description/Location

1 SB-1 (5.5-6.0)
2 SB-2 (3.0-3.5)
3 SB-3 (3.2-3.6)
4 SB-4 (2.7-3.2)
5 SB-5 (4.3-4.8)
6 SB-6 (2.8-3.3)
7 SB-7 (3.0-3.7)
8 SB-8 (3.0-3.5)
9 Investigation sample

GRAB
Composite

X
X
X
X
X
X
X
X
X

Received on ice? ☒ N

Sample Temp: 4.8

PWSID # _____

Reportable to PADEP? yes

Matrix PA DEP Shortlist

Other unleaded gasoline

Water _____

Solid _____

of Containers 1

GRAB

-or- Composite

End

Start Date

End Date

End Time

Start Date

End Date

End Time

Start Date

End Date

End Time

Start Date

End Date

End Time

Start Date

End Date

End Time

Start Date

End Date

End Time

Start Date

End Date

End Time

Start Date

End Date

End Time

Start Date

End Date

End Time

Sampled by: Robert M. Richnatfsky

Relinquished by: Tony Miller

Relinquished by: _____

Relinquished by: _____

Date

Date

Date

Date

Date

Date

Received by: Tony Miller

Received by: _____

Received by: _____

Received by: _____

Received by: B. Baradus

Received by: _____

Received by: _____

Received by: _____

Received by: _____

Received by: _____

Date

Date

Date

Date

Date

Date

Date

Date

Date

Date

Date

Remarks

FEDEX - 8087 1488 3972

Remarks

Remarks

Remarks

Remarks

Remarks

Remarks

Remarks

Remarks

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Chain of Custody Receiving Document

Receiver: B. B. Scales

Page 7 of 8

Date/Time of this check: 5-26-11 12:15 Client: CCS

Lab # 10526046

Received on ICE? ☐ * Sample Temperature when delivered to the Lab: 4.8 Acceptable? ☒ * or In cool down process? ☐ *

Custody Seals? ✓ Intact? ✓

COC/Labels on bottles agree? ☒ * Correct containers for all the analysis requested? ☒ * Matrix: *sediment*

[illegible]

*** DEVIATION PRESENT:**

- ☐ No Ice
☐ Not at Proper Temperature
☐ Wrong Container
☐ Missing Information:

CLIENT CALLED:

YES ()

By Whom:

Date:

CLIENT RESPONSE:

- Proceed with analysis; qualify data ()
Will Resample ()
Provided Information ()
No Response; Proceed and qualified ()

Client Contact: _____ **Date:** _____

*** Comments:**



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(814) 946-4306
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(570) 494-6380
PaDEP: PA 41-04684



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State Certifications: MD 275, WV 364

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 37
Reported: 10/04/16 12:59

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-9 (2-4)	6I16066-01	Solid	Grab	09/13/16 10:05	09/16/16 14:05
MW-10 (4-6)	6I16066-02	Solid	Grab	09/13/16 15:30	09/16/16 14:05
MW-11 (2-4)	6I16066-03	Solid	Grab	09/14/16 08:15	09/16/16 14:05
MW-12 (2-4)	6I16066-04	Solid	Grab	09/14/16 11:00	09/16/16 14:05
SB-13 (2-4)	6I16066-05	Solid	Grab	09/14/16 13:30	09/16/16 14:05
SB-14 (2-4)	6I16066-06	Solid	Grab	09/14/16 14:20	09/16/16 14:05
SB-15 (2-4)	6I16066-07	Solid	Grab	09/14/16 14:45	09/16/16 14:05
SB-16 (2-4)	6I16066-08	Solid	Grab	09/14/16 15:15	09/16/16 14:05
SB-17 (2-4)	6I16066-09	Solid	Grab	09/14/16 15:45	09/16/16 14:05
TRIP BLANK	6I16066-10	Water	Trip Blank	09/14/16 00:00	09/16/16 14:05

Refer to receiving document. CB

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 37
Reported: 10/04/16 12:59

Client Sample ID: MW-9 (2-4)

Date/Time Sampled: 09/13/16 10:05

Laboratory Sample ID: 6116066-01 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.0041	0.0041		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<0.0041	0.0041		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Benzene	<0.0016	0.0016		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Toluene	<0.0041	0.0041		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Ethylbenzene	<0.0041	0.0041		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Xylenes (total)	<0.0082	0.0082		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Isopropylbenzene	<0.0041	0.0041		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0041	0.0041		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Naphthalene	<0.0041	0.0041		mg/kg dry	09/17/16 08:07	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	101 %	70-130			09/17/16 08:07	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	124 %	70-130			09/17/16 08:07	EPA 8260B	mtc	
Surrogate: Fluorobenzene	103 %	70-130			09/17/16 08:07	EPA 8260B	mtc	

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	78.8	0.100	%	09/19/16 15:12	SM 2540 G-97	arr	
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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 37
Reported: 10/04/16 12:59

Client Sample ID: MW-10 (4-6)

Date/Time Sampled: 09/13/16 15:30

Laboratory Sample ID: 6116066-02 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
9c								
1,3,5-Trimethylbenzene	<0.0036	0.0036		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<0.0036	0.0036		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Benzene	<0.0014	0.0014		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Toluene	<0.0036	0.0036		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Ethylbenzene	<0.0036	0.0036		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Xylenes (total)	<0.0072	0.0072		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Isopropylbenzene	<0.0036	0.0036		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0036	0.0036		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Naphthalene	<0.0036	0.0036		mg/kg dry	09/17/16 08:35	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	99 %	70-130			09/17/16 08:35	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	123 %	70-130			09/17/16 08:35	EPA 8260B	mtc	
Surrogate: Fluorobenzene	103 %	70-130			09/17/16 08:35	EPA 8260B	mtc	

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	87.0	0.100	%	09/19/16 15:12	SM 2540 G-97	arr
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CES Hermitage PA

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Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

10/04/16 12:59

Client Sample ID: MW-11 (2-4)

Date/Time Sampled: 09/14/16 08:15

Laboratory Sample ID: 6I16066-03 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
1,2,4-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Benzene	<0.0016	0.0016	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Toluene	<0.0040	0.0040	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Ethylbenzene	<0.0040	0.0040	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Xylenes (total)	<0.0081	0.0081	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Isopropylbenzene	<0.0040	0.0040	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Methyl tert-butyl ether	<0.0040	0.0040	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Naphthalene	<0.0040	0.0040	mg/kg dry	09/17/16 09:03	EPA 8260B	mtc		
Surrogate: 4-Bromofluorobenzene	101 %	70-130		09/17/16 09:03	EPA 8260B	mtc		
Surrogate: 1,2-Dichloroethane-d4	127 %	70-130		09/17/16 09:03	EPA 8260B	mtc		
Surrogate: Fluorobenzene	106 %	70-130		09/17/16 09:03	EPA 8260B	mtc		

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	76.9	0.100	%	09/19/16 15:12	SM 2540 G-97	arr
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Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 37
Reported: 10/04/16 12:59

Client Sample ID: MW-12 (2-4)

Date/Time Sampled: 09/14/16 11:00

Laboratory Sample ID: 6I16066-04 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

9c

1,3,5-Trimethylbenzene	<0.0037	0.0037	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
1,2,4-Trimethylbenzene	<0.0037	0.0037	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Benzene	<0.0015	0.0015	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Toluene	<0.0037	0.0037	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Ethylbenzene	<0.0037	0.0037	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Xylenes (total)	<0.0075	0.0075	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Isopropylbenzene	<0.0037	0.0037	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Methyl tert-butyl ether	<0.0037	0.0037	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Naphthalene	<0.0037	0.0037	mg/kg dry	09/17/16 09:31	EPA 8260B	mtc
Surrogate: 4-Bromofluorobenzene	99 %	70-130		09/17/16 09:31	EPA 8260B	mtc
Surrogate: 1,2-Dichloroethane-d4	128 %	70-130		09/17/16 09:31	EPA 8260B	mtc
Surrogate: Fluorobenzene	104 %	70-130		09/17/16 09:31	EPA 8260B	mtc

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	87.3	0.100	%	09/19/16 15:12	SM 2540 G-97	arr
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Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 37
Reported: 10/04/16 12:59

Client Sample ID: SB-13 (2-4)

Date/Time Sampled: 09/14/16 13:30

Laboratory Sample ID: 6I16066-05 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.0037	0.0037		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	2a
1,2,4-Trimethylbenzene	0.0044	0.0037		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	2a
Benzene	0.0438	0.0015		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	2a
Toluene	<0.0037	0.0037		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	
Ethylbenzene	<0.0037	0.0037		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	2a
Xylenes (total)	<0.0074	0.0074		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	
Isopropylbenzene	<0.0037	0.0037		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0037	0.0037		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	
Naphthalene	<0.0037	0.0037		mg/kg dry	09/17/16 09:59	EPA 8260B	mtc	2a
Surrogate: 4-Bromofluorobenzene	100 %		70-130		09/17/16 09:59	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	118 %		70-130		09/17/16 09:59	EPA 8260B	mtc	
Surrogate: Fluorobenzene	103 %		70-130		09/17/16 09:59	EPA 8260B	mtc	
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	87.0		0.100	%	09/19/16 15:12	SM 2540 G-97	arr	

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Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 37
Reported: 10/04/16 12:59

Client Sample ID: SB-14 (2-4)

Date/Time Sampled: 09/14/16 14:20

Laboratory Sample ID: 6I16066-06 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

9c

1,3,5-Trimethylbenzene	<0.392	0.392	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
1,2,4-Trimethylbenzene	1.33	0.392	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
Benzene	0.960	0.157	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
Toluene	1.70	0.392	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
Ethylbenzene	0.487	0.392	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
Xylenes (total)	3.15	0.783	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
Isopropylbenzene	<0.392	0.392	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
Methyl tert-butyl ether	<0.392	0.392	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc
Naphthalene	0.589	0.392	mg/kg dry	09/17/16 04:21	EPA 8260B	mtc

Surrogate: 4-Bromofluorobenzene 100 % 70-130 09/17/16 04:21 EPA 8260B mtc

Surrogate: 1,2-Dichloroethane-d4 102 % 70-130 09/17/16 04:21 EPA 8260B mtc

Surrogate: Fluorobenzene 100 % 70-130 09/17/16 04:21 EPA 8260B mtc

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	89.6	0.100	%	09/19/16 15:12	SM 2540 G-97	arr
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Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 37
Reported: 10/04/16 12:59

Client Sample ID: SB-15 (2-4)

Date/Time Sampled: 09/14/16 14:45

Laboratory Sample ID: 6I16066-07 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

9c

Benzene	0.0130	0.0030	mg/kg dry	09/20/16 00:47	EPA 8260B	mtc	
Toluene	0.0099	0.0074	mg/kg dry	09/20/16 00:47	EPA 8260B	mtc	
Ethylbenzene	0.0364	0.0074	mg/kg dry	09/20/16 00:47	EPA 8260B	mtc	
Xylenes (total)	0.0721	0.0148	mg/kg dry	09/20/16 00:47	EPA 8260B	mtc	
1,3,5-Trimethylbenzene	0.0311	0.0044	mg/kg dry	09/17/16 10:55	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	0.0779	0.0044	mg/kg dry	09/17/16 10:55	EPA 8260B	mtc	
Isopropylbenzene	0.0238	0.0044	mg/kg dry	09/17/16 10:55	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0044	0.0044	mg/kg dry	09/17/16 10:55	EPA 8260B	mtc	
Naphthalene	<0.0044	0.0044	mg/kg dry	09/17/16 10:55	EPA 8260B	mtc	2b
Surrogate: 4-Bromofluorobenzene	108 %	70-130		09/17/16 10:55	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	116 %	70-130		09/17/16 10:55	EPA 8260B	mtc	
Surrogate: Fluorobenzene	101 %	70-130		09/17/16 10:55	EPA 8260B	mtc	

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	93.4	0.100	%	09/19/16 15:12	SM 2540 G-97	arr	
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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

10/04/16 12:59

Client Sample ID: SB-16 (2-4)

Date/Time Sampled: 09/14/16 15:15

Laboratory Sample ID: 6I16066-08 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.0040		0.0040	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<0.0040		0.0040	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	2b
Benzene	0.0043		0.0016	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	
Toluene	<0.0040		0.0040	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	
Ethylbenzene	<0.0040		0.0040	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	
Xylenes (total)	<0.0081		0.0081	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	
Isopropylbenzene	<0.0040		0.0040	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	
Methyl tert-butyl ether	0.0411		0.0040	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	
Naphthalene	<0.0040		0.0040	mg/kg dry	09/20/16 01:15	EPA 8260B	mtc	2b
Surrogate: 4-Bromofluorobenzene	104 %		70-130		09/20/16 01:15	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	129 %		70-130		09/20/16 01:15	EPA 8260B	mtc	
Surrogate: Fluorobenzene	106 %		70-130		09/20/16 01:15	EPA 8260B	mtc	
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	88.5		0.100	%	09/19/16 15:12	SM 2540 G-97	arr	

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Pennssdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

10/04/16 12:59

Client Sample ID: SB-17 (2-4)

Date/Time Sampled: 09/14/16 15:45

Laboratory Sample ID: 6116066-09 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<0.0037		0.0037	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<0.0037		0.0037	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	
Benzene	0.0016		0.0015	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	2a
Toluene	<0.0037		0.0037	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	2a
Ethylbenzene	<0.0037		0.0037	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	2a
Xylenes (total)	<0.0074		0.0074	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	2a
Isopropylbenzene	<0.0037		0.0037	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0037		0.0037	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	
Naphthalene	<0.0037		0.0037	mg/kg dry	09/20/16 01:43	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	103 %		70-130		09/20/16 01:43	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	132 %		70-130		09/20/16 01:43	EPA 8260B	mtc	2n
Surrogate: Fluorobenzene	107 %		70-130		09/20/16 01:43	EPA 8260B	mtc	
Conventional Chemistry Parameters by SM/EPA Methods								
% Solids	92.9		0.100	%	09/19/16 15:12	SM 2540 G-97	arr	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

10/04/16 12:59

Client Sample ID: TRIP BLANK

Date/Time Sampled: 09/14/16 00:00

Laboratory Sample ID: 6116066-10 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	--------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
1,2,4-Trimethylbenzene	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Benzene	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Toluene	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Ethylbenzene	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Xylenes (total)	<2.00	2.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Isopropylbenzene	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Methyl tert-butyl ether	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Naphthalene	<1.00	1.00	ug/l	09/17/16 06:18	EPA 8260B	sap
Surrogate: 4-Bromofluorobenzene	96.2 %	70-130		09/17/16 06:18	EPA 8260B	sap
Surrogate: 1,2-Dichloroethane-d4	107 %	70-130		09/17/16 06:18	EPA 8260B	sap
Surrogate: Fluorobenzene	100 %	70-130		09/17/16 06:18	EPA 8260B	sap

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Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

10/04/16 12:59

Notes

- 2a The RPD result exceeded the QC control limits for the duplicate, LCSD or MSD sample analyzed. Data accepted based on additional batch QC.
- 2b The spike recovery was outside acceptance limits for the MS and/or MSD for the noted analyte. Data accepted based on acceptable LCS recovery.
- 2n The noted surrogate value is not within the indicated range, results are considered to be estimated.
- 9c Vial contained more than the EPA recommended amount of soil.



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Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

10/04/16 12:59

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.



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Project: SHENANGO TOWNSHIP

Project Number: [none]

Reported:

Collector: CLIENT

10/04/16 12:59

Number of Containers: 37

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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Please print. See back of COC for instructions/terms and conditions.



FAIRWAY LABORATORIES
Environmental Laboratory

Fax: (814) 946-8791

Page 15 of 16

- n m z b o n d s

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

Chain of Custody Receiving Document

Page 2 of 2

Lab # 6516066 #2

Date/Time of this check: 9/16/16 14:10 Client: CES

Received on ICE? ☒ * Sample Temperature when delivered to the Lab: 7.4 Acceptable? ☒ * or In cool down process? ☐ *Custody Seals? ☒ Intact? ☒ * (Not applicable for WV compliance) *COC/Labels on bottles agree? ☒ * Correct containers for all the analysis requested? ☒ * Matrix: Solid

COC #	Number and Type of BOTTLES							Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other
1							meth	
2							2-ethyl 402gr	
3								
4								
5								
6								
7								
8								
9								
TS								

* DEVIATION PRESENT: <input checked="" type="checkbox"/> No Ice <input type="checkbox"/> Not at Proper Temperature <input type="checkbox"/> Wrong Container <input type="checkbox"/> Missing Information:	CLIENT CALLED: YES () By Whom: CINDY Date: 9/19/16	CLIENT RESPONSE: Proceed with analysis; qualify data <input checked="" type="checkbox"/> Will Resample () Provided Information () No Response; Proceed and qualified () Client Contact: DAVID Date: 9/19/16
--	---	--

* Comments: High temp



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State Certifications: MD 275, WV 364

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Reported:

Collector: CLIENT

02/23/17 09:56

Number of Containers: 20

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
SB-18 (4.0-4.5)	7B15036-01	Solid	Grab	02/07/17 13:50	02/15/17 11:20
SB-20 (5.0-7.0)	7B15036-02	Solid	Grab	02/08/17 11:50	02/15/17 11:20
SB-22 (7.0-7.5)	7B15036-03	Solid	Grab	02/09/17 09:20	02/15/17 11:20
SB-23 (3.0-4.0)	7B15036-04	Solid	Grab	02/10/17 10:20	02/15/17 11:20
SB-24 (5.0-6.0)	7B15036-05	Solid	Grab	02/10/17 14:30	02/15/17 11:20

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 20

Reported:

02/23/17 09:56

Client Sample ID: SB-18 (4.0-4.5)

Date/Time Sampled: 02/07/17 13:50

Laboratory Sample ID: 7B15036-01 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	-------------------	-----------	------

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	87.0	0.100	%	02/15/17 15:28	SM 2540 G-97	ark	B1
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<0.0037	0.0037	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	15
1,2,4-Trimethylbenzene	<0.0037	0.0037	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Benzene	<0.0015	0.0015	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Toluene	<0.0037	0.0037	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Ethylbenzene	<0.0037	0.0037	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Xylenes (total)	<0.0075	0.0075	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Isopropylbenzene	0.0055	0.0037	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0037	0.0037	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Naphthalene	<0.0037	0.0037	mg/kg dry	02/15/17 20:02	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	99 %	70-130		02/15/17 20:02	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	115 %	70-130		02/15/17 20:02	EPA 8260B	mtc	
Surrogate: Fluorobenzene	100 %	70-130		02/15/17 20:02	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 20

Reported:

02/23/17 09:56

Client Sample ID: SB-20 (5.0-7.0)

Date/Time Sampled: 02/08/17 11:50

Laboratory Sample ID: 7B15036-02 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	-------------------	-----------	------

Conventional Chemistry Parameters by SM/EPA Methods

% Solids	85.2	0.100	%	02/15/17 15:28	SM 2540 G-97	ark	
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Volatile Organic Compounds by EPA Method 8260B

15

1,3,5-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<0.0040	0.0040	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Benzene	<0.0016	0.0016	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Toluene	<0.0040	0.0040	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Ethylbenzene	<0.0040	0.0040	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Xylenes (total)	<0.0080	0.0080	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Isopropylbenzene	0.0071	0.0040	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Methyl tert-butyl ether	<0.0040	0.0040	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Naphthalene	<0.0040	0.0040	mg/kg dry	02/15/17 21:19	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	100 %	70-130		02/15/17 21:19	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	113 %	70-130		02/15/17 21:19	EPA 8260B	mtc	
Surrogate: Fluorobenzene	102 %	70-130		02/15/17 21:19	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 20

Reported:

02/23/17 09:56

Client Sample ID: SB-22 (7.0-7.5)

Date/Time Sampled: 02/09/17 09:20

Laboratory Sample ID: 7B15036-03 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Conventional Chemistry Parameters by SM/EPA Methods

% Solids	85.8	0.100	%	02/15/17 15:28	SM 2540 G-97	ark	
----------	------	-------	---	----------------	--------------	-----	--

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<0.0038	0.0038	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<0.0038	0.0038	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
Benzene	<0.0015	0.0015	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
Toluene	<0.0038	0.0038	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
Ethylbenzene	<0.0038	0.0038	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
Xylenes (total)	<0.0076	0.0076	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
Isopropylbenzene	0.0082	0.0038	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	K
Methyl tert-butyl ether	<0.0038	0.0038	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
Naphthalene	<0.0038	0.0038	mg/kg dry	02/15/17 20:22	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	99 %	70-130		02/15/17 20:22	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	124 %	70-130		02/15/17 20:22	EPA 8260B	mtc	
Surrogate: Fluorobenzene	105 %	70-130		02/15/17 20:22	EPA 8260B	mtc	

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State Certifications: MD 275, WV 364

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 20
Reported: 02/23/17 09:56

Client Sample ID: SB-23 (3.0-4.0)

Date/Time Sampled: 02/10/17 10:20

Laboratory Sample ID: 7B15036-04 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Conventional Chemistry Parameters by SM/EPA Methods

% Solids	91.2	0.100	%	02/15/17 15:28	SM 2540 G-97	ark
----------	------	-------	---	----------------	--------------	-----

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<0.0039	0.0039	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
1,2,4-Trimethylbenzene	<0.0039	0.0039	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Benzene	<0.0016	0.0016	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Toluene	<0.0039	0.0039	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Ethylbenzene	<0.0039	0.0039	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Xylenes (total)	<0.0078	0.0078	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Isopropylbenzene	<0.0039	0.0039	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Methyl tert-butyl ether	<0.0039	0.0039	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Naphthalene	<0.0039	0.0039	mg/kg dry	02/15/17 21:38	EPA 8260B	mtc
Surrogate: 4-Bromofluorobenzene	104 %	70-130		02/15/17 21:38	EPA 8260B	mtc
Surrogate: 1,2-Dichloroethane-d4	125 %	70-130		02/15/17 21:38	EPA 8260B	mtc
Surrogate: Fluorobenzene	104 %	70-130		02/15/17 21:38	EPA 8260B	mtc

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(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennssdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 20

Reported:

02/23/17 09:56

Client Sample ID: SB-24 (5.0-6.0)

Date/Time Sampled: 02/10/17 14:30

Laboratory Sample ID: 7B15036-05 (Solid/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Conventional Chemistry Parameters by SM/EPA Methods

% Solids	84.0	0.100	%	02/15/17 15:28	SM 2540 G-97	ark
----------	------	-------	---	----------------	-----------------	-----

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<0.0042	0.0042	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
1,2,4-Trimethylbenzene	<0.0042	0.0042	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Benzene	<0.0017	0.0017	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Toluene	<0.0042	0.0042	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Ethylbenzene	<0.0042	0.0042	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Xylenes (total)	<0.0084	0.0084	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Isopropylbenzene	<0.0042	0.0042	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Methyl tert-butyl ether	<0.0042	0.0042	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Naphthalene	<0.0042	0.0042	mg/kg dry	02/15/17 22:17	EPA 8260B	mtc
Surrogate: 4-Bromofluorobenzene	102 %	70-130		02/15/17 22:17	EPA 8260B	mtc
Surrogate: 1,2-Dichloroethane-d4	127 %	70-130		02/15/17 22:17	EPA 8260B	mtc
Surrogate: Fluorobenzene	105 %	70-130		02/15/17 22:17	EPA 8260B	mtc

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2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 20

Reported:

02/23/17 09:56

Notes

- B1 This sample was received outside the EPA holding time.
- I5 The received vial contained the amount of preservative for 5 grams of sample; however, the vial contained greater than 20% of that amount of sample.
- K The RPD result exceeded the quality control limits for the duplicate, Laboratory Control Sample Duplicate (LCSD), or Matrix Spike Duplicate (MSD) sample analyzed with the preparation batch.



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Project Number: [none]
Collector: CLIENT
Number of Containers: 20

Reported:
02/23/17 09:56

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

- # The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory; and should be considered as analyzed outside the EPA holding time.
- * P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
- < Represents "less than" - indicates that the result was less than the reporting limit.
- MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.
- RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.
- [CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.



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CES Hermitage PA	Project:	SHENANGO TOWNSHIP
2700 Kirila Blvd	Project Number:	[none]
Hermitage PA, 16148	Collector:	CLIENT
Project Manager: Bert Richnafsky	Number of Containers:	20
	Reported:	02/23/17 09:56

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAP requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

Client Name: Compliance Env. Serv.
Address: 2700 Kiriola Blvd.
Hermi Taje, PA 16148
Contact: Dave Siekkinen
Phone #: 724-342-1990
Fax #: dsiekkinen@com-ens.com
Project Name: Shenango Township
Quote/PO #:

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: / /

Sample Description/Location

SB-18 (4.0-4.5) X
SB-20 (5.0-7.0) X
SB-22 (7.0-7.5) X
SB-23 (3.0-4.0) X
SB-24 (5.0-6.0) X



2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

Client Page # 1 of 1

Received on ice? <input checked="" type="checkbox"/> N		Reportable to PADEP? <input checked="" type="checkbox"/> No		Analyses Requested		LAB USE ONLY	
Sample Temp: <u>5.4</u>		PWSID #				Work Order # <u>7B15036</u>	
						Attach # <u>1</u>	
						FLI Page # <u>1</u> of <u>2</u>	
						Tracking # <u>PA 04</u>	
						<u>8107 0045 7670</u>	
						Bottle Type/Comments	

Sampled by: (Signature) <u>Dave Siekkinen</u>	Date	Time	Received by: <u>Dave Siekkinen</u>	Date	Time	Remarks
	2/17/17	4:30		2/17/17	11:00	
Relinquished by: <u>Angie Miller</u>	Date	Time	Received by: <u>Angie Miller</u>	Date	Time	
	2/17/17	4:30		2/17/17	11:00	
Relinquished by:	Date	Time	Received by:	Date	Time	
Relinquished by:	Date	Time	Received by:	Date	Time	

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Receiver: 

Date/Time of this check: 2/15/17 11:55 Client: CES

Page 2 of 2

Lab # 1B15036

Received on ICE? ☒ * Sample Temperature when delivered to the Lab: 5.4 Acceptable? ☒ * or In cool down process? ☐ *

Custody Seals?	Intact?	$\frac{n}{N}$
N		

COC/Labels on bottles agree? ☒ * Correct containers for all the analysis requested? ☒ * Matrix: solid

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCs (Head space?)	Other	Properly Preserved	Bacti	
1						250055	17/09/11		<input type="checkbox"/> *		<input type="checkbox"/> * Internal notification completed for deviations.
2								4/2	<input checked="" type="checkbox"/> *		
3											
4											
5								17.5 2-12/04/11	<input checked="" type="checkbox"/> *		
								</			

*** DEVIATION PRESENT:**

- | | |
|---|-----|
| <input type="radio"/> No Ice | () |
| <input type="radio"/> Not at Proper Temperature | () |
| <input type="radio"/> Wrong Container | () |
| <input type="radio"/> Missing Information: | () |

CLIENT CALLED:

YES ()
By Whom:

Date: _____

CLIENT RESPONSE:

- Proceed with analysis; quality data ()
Will Resample ()
Provided Information ()
No Response-Proceed and qualified ()

Client Contact: _____ **Date:** _____

* Comments:



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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-1	6F21023-01	Water	Grab	06/15/16 11:50	06/20/16 18:10
MW-4	6F21023-02	Water	Grab	06/15/16 12:15	06/20/16 18:10
MW-2	6F21023-03	Water	Grab	06/15/16 12:35	06/20/16 18:10
MW-3	6F21023-04	Water	Grab	06/15/16 12:55	06/20/16 18:10
MW-6	6F21023-05	Water	Grab	06/15/16 13:15	06/20/16 18:10
MW-6 DUPLICATE	6F21023-06	Water	Grab	06/15/16 13:15	06/20/16 18:10
QA/QC	6F21023-07	Water	Grab	06/15/16 11:00	06/20/16 18:10

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Client Sample ID: MW-1

Date/Time Sampled: 06/15/16 11:50

Laboratory Sample ID: 6F21023-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	--------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	06/21/16 22:50	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	111 %		70-130		06/21/16 22:50	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	118 %		70-130		06/21/16 22:50	EPA 8260B	mtc	
Surrogate: Fluorobenzene	98.4 %		70-130		06/21/16 22:50	EPA 8260B	mtc	

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2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 14
Reported: 07/07/16 12:28

Client Sample ID: MW-4

Date/Time Sampled: 06/15/16 12:15

Laboratory Sample ID: 6F21023-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	--------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	1.93		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	3.91		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Benzene	31.6		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Ethylbenzene	2.54		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Isopropylbenzene	1.51		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Methyl tert-butyl ether	28.8		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	06/21/16 23:28	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	112 %		70-130		06/21/16 23:28	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	117 %		70-130		06/21/16 23:28	EPA 8260B	mtc	
Surrogate: Fluorobenzene	97.0 %		70-130		06/21/16 23:28	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Client Sample ID: MW-2

Date/Time Sampled: 06/15/16 12:35

Laboratory Sample ID: 6F21023-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
---------	--------	-----	----	-------	-------------------------	--------	--------------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
1,2,4-Trimethylbenzene	<1.00	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Benzene	<1.00	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Toluene	<1.00	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Ethylbenzene	<1.00	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Xylenes (total)	<2.00	2.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Isopropylbenzene	<1.00	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Methyl tert-butyl ether	1.45	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Naphthalene	<1.00	1.00	ug/l	06/22/16 00:06	EPA 8260B	mtc
Surrogate: 4-Bromofluorobenzene	113 %	70-130		06/22/16 00:06	EPA 8260B	mtc
Surrogate: 1,2-Dichloroethane-d4	117 %	70-130		06/22/16 00:06	EPA 8260B	mtc
Surrogate: Fluorobenzene	97.6 %	70-130		06/22/16 00:06	EPA 8260B	mtc

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State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Client Sample ID: MW-3

Date/Time Sampled: 06/15/16 12:55

Laboratory Sample ID: 6F21023-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	227		25.0	ug/l	06/29/16 20:17	EPA 8260B	bag	
1,2,4-Trimethylbenzene	933		25.0	ug/l	06/29/16 20:17	EPA 8260B	bag	
Benzene	11300		25.0	ug/l	06/29/16 20:17	EPA 8260B	bag	2i
Toluene	4880		25.0	ug/l	06/29/16 20:17	EPA 8260B	bag	2i
Ethylbenzene	974		25.0	ug/l	06/29/16 20:17	EPA 8260B	bag	
Xylenes (total)	8190		50.0	ug/l	06/29/16 20:17	EPA 8260B	bag	2i
Isopropylbenzene	80.4		1.00	ug/l	06/25/16 09:27	EPA 8260B	bag	
Methyl tert-butyl ether	347		25.0	ug/l	06/29/16 20:17	EPA 8260B	bag	
Naphthalene	372		25.0	ug/l	06/29/16 20:17	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	94.9 %		70-130		06/25/16 09:27	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	77.3 %		70-130		06/25/16 09:27	EPA 8260B	bag	
Surrogate: Fluorobenzene	91.1 %		70-130		06/25/16 09:27	EPA 8260B	bag	

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Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

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Pennsdale, PA 17756
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PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Client Sample ID: MW-6

Date/Time Sampled: 06/15/16 13:15

Laboratory Sample ID: 6F21023-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	12.2		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
1,2,4-Trimethylbenzene	183		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
Benzene	131		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
Toluene	55.4		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
Ethylbenzene	221		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
Xylenes (total)	374		10.0	ug/l	06/29/16 13:26	EPA 8260B	bag	
Isopropylbenzene	13.0		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
Methyl tert-butyl ether	<5.00		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
Naphthalene	157		5.00	ug/l	06/29/16 13:26	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	98.9 %		70-130		06/29/16 13:26	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	110 %		70-130		06/29/16 13:26	EPA 8260B	bag	
Surrogate: Fluorobenzene	93.8 %		70-130		06/29/16 13:26	EPA 8260B	bag	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Client Sample ID: MW-6 DUPLICATE

Date/Time Sampled: 06/15/16 13:15

Laboratory Sample ID: 6F21023-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	27.6		1.00	ug/l	06/29/16 13:57	EPA 8260B	bag	
1,2,4-Trimethylbenzene	332		10.0	ug/l	06/29/16 22:14	EPA 8260B	bag	
Benzene	168		10.0	ug/l	06/29/16 22:14	EPA 8260B	bag	
Toluene	85.8		1.00	ug/l	06/29/16 13:57	EPA 8260B	bag	
Ethylbenzene	363		10.0	ug/l	06/29/16 22:14	EPA 8260B	bag	
Xylenes (total)	596		20.0	ug/l	06/29/16 22:14	EPA 8260B	bag	
Isopropylbenzene	33.4		1.00	ug/l	06/29/16 13:57	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	06/29/16 13:57	EPA 8260B	bag	
Naphthalene	171		10.0	ug/l	06/29/16 22:14	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	98.9 %		70-130		06/29/16 13:57	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	108 %		70-130		06/29/16 13:57	EPA 8260B	bag	
Surrogate: Fluorobenzene	93.2 %		70-130		06/29/16 13:57	EPA 8260B	bag	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Client Sample ID: QA/QC

Date/Time Sampled: 06/15/16 11:00

Laboratory Sample ID: 6F21023-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Toluene	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	06/24/16 19:24	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	97.8 %		70-130		06/24/16 19:24	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	113 %		70-130		06/24/16 19:24	EPA 8260B	bag	
Surrogate: Fluorobenzene	96.0 %		70-130		06/24/16 19:24	EPA 8260B	bag	

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Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Notes

2i This result was above the calibration range; therefore it is an estimated value.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.



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Project Manager: Bert Richnafsky

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 14

Reported:

07/07/16 12:28

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.



2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

Client Page # of

Client Name: LES
Address: 2700 Kiriak Rd
Contact: Helen T. S. M. 16148
Phone #: 714 342 1446
Fax #: 714 342 1446
Project Name: Shenango Twp
Quote/PO #: _____

TAT: Normal ☐ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ____/____/____

Sample Description/Location	GRAB	Composite
MW-1	X	
MW-4		
MW-2		
MW-3		
MW-6		
MW-6 Duplicate		
QA/QC		

Received on ice? Y N
Sample Temp: _____
Reportable to PADEP? Yes ☐ No ☐
PWSID # _____

Composite Start	GRAB -or- Composite End	Matrix			# of Containers
		Solid	Water	Other	
Start Date	Start Time	End Date	End Time		
		6-16-16	11:50	X	2
			11:15		
			11:35		
			11:55		
			1:15		
			1:15		
			11:00		

Analyses Requested	LAB USE ONLY
PA DEP SW-1 (ML) <u>unlabeled building</u>	Work Order # <u>6F21023</u>
	Attach # <u>1</u>
	FLI Page # <u>1</u> of <u>2</u>
	Tracking # _____
	Bottle Type/Comments _____

Sampled by: [Signature]
Relinquished by: [Signature]
Relinquished by: [Signature]
Relinquished by: _____

Received by: _____
Received by: [Signature]
Received by: [Signature]
Received by: _____

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy



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State Certifications: MD 275, WV 364

CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-1	6H01011-01	Water	Grab	07/26/16 11:25	07/29/16 17:40
MW-2	6H01011-02	Water	Grab	07/26/16 12:00	07/29/16 17:40
MW-3	6H01011-03	Water	Grab	07/26/16 13:15	07/29/16 17:40
MW-4	6H01011-04	Water	Grab	07/26/16 12:40	07/29/16 17:40
MW-4 DUPLICATE	6H01011-05	Water	Grab	07/26/16 12:40	07/29/16 17:40
MW-6	6H01011-06	Water	Grab	07/26/16 14:15	07/29/16 17:40
QA/QC	6H01011-07	Water	Grab	07/26/16 11:00	07/29/16 17:40
WARWE WELL	6H01011-08	Water	Grab	07/26/16 14:00	07/29/16 17:40

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Client Sample ID: MW-1

Date/Time Sampled: 07/26/16 11:25

Laboratory Sample ID: 6H01011-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/01/16 17:16	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	98.9 %		70-130		08/01/16 17:16	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	103 %		70-130		08/01/16 17:16	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		08/01/16 17:16	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Client Sample ID: MW-2

Date/Time Sampled: 07/26/16 12:00

Laboratory Sample ID: 6H01011-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Methyl tert-butyl ether	4.26		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/01/16 17:53	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	97.3 %		70-130		08/01/16 17:53	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	103 %		70-130		08/01/16 17:53	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		08/01/16 17:53	EPA 8260B	mtc	

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Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Client Sample ID: MW-3

Date/Time Sampled: 07/26/16 13:15

Laboratory Sample ID: 6H01011-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	486		50.0	ug/l	08/02/16 23:12	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	1740		50.0	ug/l	08/02/16 23:12	EPA 8260B	mtc	
Benzene	13200		500	ug/l	08/03/16 17:03	EPA 8260B	mtc	
Toluene	5640		50.0	ug/l	08/02/16 23:12	EPA 8260B	mtc	
Ethylbenzene	1880		50.0	ug/l	08/02/16 23:12	EPA 8260B	mtc	
Xylenes (total)	14300		100	ug/l	08/02/16 23:12	EPA 8260B	mtc	
Isopropylbenzene	54.5		50.0	ug/l	08/02/16 23:12	EPA 8260B	mtc	
Methyl tert-butyl ether	411		50.0	ug/l	08/02/16 23:12	EPA 8260B	mtc	2c
Naphthalene	508		50.0	ug/l	08/02/16 23:12	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	101 %		70-130		08/02/16 23:12	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	109 %		70-130		08/02/16 23:12	EPA 8260B	mtc	
Surrogate: Fluorobenzene	110 %		70-130		08/02/16 23:12	EPA 8260B	mtc	

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(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Client Sample ID: MW-4

Date/Time Sampled: 07/26/16 12:40

Laboratory Sample ID: 6H01011-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Benzene	13.6		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Methyl tert-butyl ether	20.3		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/01/16 18:30	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	98.4 %		70-130		08/01/16 18:30	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	102 %		70-130		08/01/16 18:30	EPA 8260B	mtc	
Surrogate: Fluorobenzene	103 %		70-130		08/01/16 18:30	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Client Sample ID: MW-4 DUPLICATE

Date/Time Sampled: 07/26/16 12:40

Laboratory Sample ID: 6H01011-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Benzene	14.0		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Methyl tert-butyl ether	20.9		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/01/16 19:08	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	99.3 %		70-130		08/01/16 19:08	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	103 %		70-130		08/01/16 19:08	EPA 8260B	mtc	
Surrogate: Fluorobenzene	105 %		70-130		08/01/16 19:08	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Reported:

Collector: CLIENT

08/08/16 10:42

Number of Containers: 16

Client Sample ID: MW-6

Date/Time Sampled: 07/26/16 14:15

Laboratory Sample ID: 6H01011-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	13.2		5.00	ug/l	08/02/16 22:35	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	314		5.00	ug/l	08/02/16 22:35	EPA 8260B	mtc	
Benzene	529		5.00	ug/l	08/02/16 22:35	EPA 8260B	mtc	
Toluene	308		5.00	ug/l	08/02/16 22:35	EPA 8260B	mtc	
Ethylbenzene	683		25.0	ug/l	08/03/16 17:41	EPA 8260B	mtc	
Xylenes (total)	784		10.0	ug/l	08/02/16 22:35	EPA 8260B	mtc	
Isopropylbenzene	40.7		5.00	ug/l	08/02/16 22:35	EPA 8260B	mtc	
Methyl tert-butyl ether	18.8		5.00	ug/l	08/02/16 22:35	EPA 8260B	mtc	2e
Naphthalene	227		5.00	ug/l	08/02/16 22:35	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	100 %		70-130		08/02/16 22:35	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	109 %		70-130		08/02/16 22:35	EPA 8260B	mtc	
Surrogate: Fluorobenzene	110 %		70-130		08/02/16 22:35	EPA 8260B	mtc	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Client Sample ID: QA/QC

Date/Time Sampled: 07/26/16 11:00

Laboratory Sample ID: 6H01011-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/01/16 19:45	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	98.6 %		70-130		08/01/16 19:45	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	104 %		70-130		08/01/16 19:45	EPA 8260B	mtc	
Surrogate: Fluorobenzene	105 %		70-130		08/01/16 19:45	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Client Sample ID: WARWE WELL

Date/Time Sampled: 07/26/16 14:00

Laboratory Sample ID: 6H01011-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	08/01/16 20:23	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	97.8 %		70-130		08/01/16 20:23	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	104 %		70-130		08/01/16 20:23	EPA 8260B	mtc	
Surrogate: Fluorobenzene	105 %		70-130		08/01/16 20:23	EPA 8260B	mtc	

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Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Notes

2e CCV was outside the QC range for the noted analyte. Data accepted based on additional batch QC.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RI. Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 16

Reported:

08/08/16 10:42

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.



2019 9th Ave.
P.O. Box 1925
Allouana, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

Client Page # 1 of 1

Client Name: <u>CES</u>		Reportable to PADEP? Yes <input type="checkbox"/> No <input type="checkbox"/>		Analyses Requested		LAB USE ONLY	
Address: <u>2700 Kiriola Dr.</u>		PWSD #		PADEP Shortlist (MW) <u>Unleaded Gasoline</u>		Work Order # <u>6401011</u>	
Contact: <u>Hermitage, PA 16148</u>						Attach # <u>1</u>	
Phone #: <u>724-342-1990</u>		GRAB				FLI Page # <u>1</u> of <u>2</u>	
Fax #: <u>724-981-9030</u>		Composite				Tracking #	
Project Name: <u>Shenango Twp.</u>		Start Date				Bottle Type/Comments	
Quote/PO #:		End Date					
TAT: Normal <input checked="" type="checkbox"/> Rush <input type="checkbox"/>		End Time					
Rush TAT subject to pre-approval and surcharge.		Solid					
Date Required: <u>7-26-16</u>		Water					
Sample Description/Location		Other					
<u>MW-1</u>		# of Containers					
<u>MW-2</u>							
<u>MW-3</u>							
<u>MW-4</u>							
<u>MW-4 Duplicate</u>							
<u>MW-6</u>							
<u>BA/OC</u>							
<u>Water well</u>							
Received by: <u>Pauline</u>		Date: <u>7/27/16</u>		Time: <u>1100</u>		Remarks	
Relinquished by: <u>Pauline</u>		Date: <u>7/27/16</u>		Time: <u>1100</u>			
Relinquished by: <u>Pauline</u>		Date: <u>7/27/16</u>		Time: <u>1100</u>			
Relinquished by: <u>Pauline</u>		Date: <u>7/27/16</u>		Time: <u>1100</u>			

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Chain of Custody Receiving Document

Page 7 of 7Receiver: NRDate/Time of this check: 8/1/16 805 Client: CES Lab # 6H 01011Received on ICE? ☒ * Sample Temperature when delivered to the Lab: 0 Acceptable? ☒ * or In cool down process? ☐ *

(Not applicable for WV compliance)

Custody Seals? Y Intact? YCOC/Labels on bottles agree? ☒ * Correct containers for all the analysis requested? ☒ * Matrix: WV

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other	Property Preserved	Bacti	
1							2-HCl		<input type="checkbox"/> *		
2									<input checked="" type="checkbox"/>		
3											
4											
5											
6											
7											
8											

* DEVIATION PRESENT: <input type="checkbox"/> No Ice <input type="checkbox"/> Not at Proper Temperature <input type="checkbox"/> Wrong Container <input type="checkbox"/> Missing Information:	CLIENT CALLED: By Whom: _____ Date: _____	CLIENT RESPONSE: <input type="checkbox"/> Proceed with analysis; qualify data <input type="checkbox"/> Will Resample <input type="checkbox"/> Provided Information <input type="checkbox"/> No Response; Proceed and qualified Client Contact: _____ Date: _____
---	--	--

* Comments: _____



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State Certifications: MD 275, WV 364

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-1	6I28032-01	Water	Grab	09/26/16 10:45	09/27/16 17:05
MW-2	6I28032-02	Water	Grab	09/26/16 11:10	09/27/16 17:05
MW-3	6I28032-03	Water	Grab	09/26/16 12:00	09/27/16 17:05
MW-4	6I28032-04	Water	Grab	09/26/16 12:25	09/27/16 17:05
MW-6	6I28032-05	Water	Grab	09/26/16 11:35	09/27/16 17:05
MW-9	6I28032-06	Water	Grab	09/26/16 14:00	09/27/16 17:05
MW-10	6I28032-07	Water	Grab	09/26/16 13:25	09/27/16 17:05
MW-11	6I28032-08	Water	Grab	09/26/16 14:35	09/27/16 17:05
MW-12	6I28032-09	Water	Grab	09/26/16 12:50	09/27/16 17:05
MW-6 DUPLICATE	6I28032-10	Water	Grab	09/26/16 11:35	09/27/16 17:05
QA/QC (TRIP BLANK)	6I28032-11	Water	Trip Blank	09/26/16 09:00	09/27/16 17:05

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 10/07/16 09:58

Client Sample ID: MW-1

Date/Time Sampled: 09/26/16 10:45

Laboratory Sample ID: 6128032-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Benzene	4.32		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Toluene	<1.00		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Ethylbenzene	<1.00		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Xylenes (total)	<2.00		2.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Isopropylbenzene	<1.00		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Naphthalene	<1.00		1.00	ug/l	10/04/16 06:13	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	95.1 %		70-130		10/04/16 06:13	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	101 %		70-130		10/04/16 06:13	EPA 8260B	sap	
Surrogate: Fluorobenzene	101 %		70-130		10/04/16 06:13	EPA 8260B	sap	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: MW-2

Date/Time Sampled: 09/26/16 11:10

Laboratory Sample ID: 6I28032-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
Benzene	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
Toluene	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	2e, AA
Ethylbenzene	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
Xylenes (total)	<2.00		2.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
Isopropylbenzene	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
Naphthalene	<1.00		1.00	ug/l	10/01/16 06:16	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	96.7 %		70-130		10/01/16 06:16	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	106 %		70-130		10/01/16 06:16	EPA 8260B	sap	
Surrogate: Fluorobenzene	99.3 %		70-130		10/01/16 06:16	EPA 8260B	sap	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: MW-3

Date/Time Sampled: 09/26/16 12:00

Laboratory Sample ID: 6128032-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	486		25.0	ug/l	10/04/16 18:54	EPA 8260B	sap	
1,2,4-Trimethylbenzene	1720		25.0	ug/l	10/04/16 18:54	EPA 8260B	sap	
Benzene	7790		250	ug/l	10/05/16 19:11	EPA 8260B	sap	
Toluene	1400		25.0	ug/l	10/04/16 18:54	EPA 8260B	sap	
Ethylbenzene	1740		25.0	ug/l	10/04/16 18:54	EPA 8260B	sap	
Xylenes (total)	8560		500	ug/l	10/05/16 19:11	EPA 8260B	sap	
Isopropylbenzene	54.8		25.0	ug/l	10/04/16 18:54	EPA 8260B	sap	
Methyl tert-butyl ether	242		25.0	ug/l	10/04/16 18:54	EPA 8260B	sap	
Naphthalene	489		25.0	ug/l	10/04/16 18:54	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	97.0 %		70-130		10/04/16 18:54	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	100 %		70-130		10/04/16 18:54	EPA 8260B	sap	
Surrogate: Fluorobenzene	101 %		70-130		10/04/16 18:54	EPA 8260B	sap	

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Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: MW-4

Date/Time Sampled: 09/26/16 12:25

Laboratory Sample ID: 6128032-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	1.75		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	2.01		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
Benzene	13.1		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
Toluene	1.72		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
Ethylbenzene	2.29		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
Xylenes (total)	6.85		2.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
Isopropylbenzene	1.79		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
Methyl tert-butyl ether	35.0		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	2e
Naphthalene	2.00		1.00	ug/l	10/05/16 02:34	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	98.2 %		70-130		10/05/16 02:34	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	123 %		70-130		10/05/16 02:34	EPA 8260B	mtc	
Surrogate: Fluorobenzene	112 %		70-130		10/05/16 02:34	EPA 8260B	mtc	

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Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 10/07/16 09:58

Client Sample ID: MW-6

Date/Time Sampled: 09/26/16 11:35

Laboratory Sample ID: 6128032-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<5.00		5.00	ug/l	10/04/16 20:09	EPA 8260B	sap	
1,2,4-Trimethylbenzene	348		5.00	ug/l	10/04/16 20:09	EPA 8260B	sap	
Benzene	747		50.0	ug/l	10/05/16 20:26	EPA 8260B	sap	
Toluene	40.4		5.00	ug/l	10/04/16 20:09	EPA 8260B	sap	
Ethylbenzene	917		50.0	ug/l	10/05/16 20:26	EPA 8260B	sap	
Xylenes (total)	336		10.0	ug/l	10/04/16 20:09	EPA 8260B	sap	
Isopropylbenzene	54.2		5.00	ug/l	10/04/16 20:09	EPA 8260B	sap	
Methyl tert-butyl ether	7.85		5.00	ug/l	10/04/16 20:09	EPA 8260B	sap	
Naphthalene	73.6		5.00	ug/l	10/04/16 20:09	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	96.2 %		70-130		10/04/16 20:09	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	99.2 %		70-130		10/04/16 20:09	EPA 8260B	sap	
Surrogate: Fluorobenzene	99.2 %		70-130		10/04/16 20:09	EPA 8260B	sap	

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Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 10/07/16 09:58

Client Sample ID: MW-9

Date/Time Sampled: 09/26/16 14:00

Laboratory Sample ID: 6I28032-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	1.60		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
Benzene	2.46		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	2e
Naphthalene	1.88		1.00	ug/l	10/05/16 03:04	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	101 %		70-130		10/05/16 03:04	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	123 %		70-130		10/05/16 03:04	EPA 8260B	mtc	
Surrogate: Fluorobenzene	108 %		70-130		10/05/16 03:04	EPA 8260B	mtc	

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2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: MW-10

Date/Time Sampled: 09/26/16 13:25

Laboratory Sample ID: 6128032-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	1.44		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Benzene	2.34		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	10/04/16 14:31	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	95.5 %		70-130		10/04/16 14:31	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	107 %		70-130		10/04/16 14:31	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		10/04/16 14:31	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: MW-11

Date/Time Sampled: 09/26/16 14:35

Laboratory Sample ID: 6128032-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	*Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	10/04/16 15:02	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	94.9 %		70-130		10/04/16 15:02	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	106 %		70-130		10/04/16 15:02	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		10/04/16 15:02	EPA 8260B	mtc	

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2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: MW-12

Date/Time Sampled: 09/26/16 12:50

Laboratory Sample ID: 6128032-09 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
Benzene	3.75		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	10/02/16 14:07	EPA 8260B	mtc	2c
Surrogate: 4-Bromofluorobenzene	103 %		70-130		10/02/16 14:07	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	112 %		70-130		10/02/16 14:07	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		10/02/16 14:07	EPA 8260B	mtc	

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2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684



www.fairwaylaboratories.com

State Certifications: MD 275, WV 364

CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: MW-6 DUPLICATE

Date/Time Sampled: 09/26/16 11:35

Laboratory Sample ID: 6128032-10 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	--------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<5.00		5.00	ug/l	10/04/16 20:46	EPA 8260B	sap	
1,2,4-Trimethylbenzene	360		5.00	ug/l	10/04/16 20:46	EPA 8260B	sap	
Benzene	802		50.0	ug/l	10/05/16 21:03	EPA 8260B	sap	
Toluene	43.6		5.00	ug/l	10/04/16 20:46	EPA 8260B	sap	
Ethylbenzene	910		50.0	ug/l	10/05/16 21:03	EPA 8260B	sap	
Xylenes (total)	346		10.0	ug/l	10/04/16 20:46	EPA 8260B	sap	
Isopropylbenzene	54.8		5.00	ug/l	10/04/16 20:46	EPA 8260B	sap	
Methyl tert-butyl ether	6.85		5.00	ug/l	10/04/16 20:46	EPA 8260B	sap	
Naphthalene	78.0		5.00	ug/l	10/04/16 20:46	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	95.7 %		70-130		10/04/16 20:46	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	98.2 %		70-130		10/04/16 20:46	EPA 8260B	sap	
Surrogate: Fluorobenzene	99.3 %		70-130		10/04/16 20:46	EPA 8260B	sap	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Client Sample ID: QA/QC (TRIP BLANK)

Date/Time Sampled: 09/26/16 09:00

Laboratory Sample ID: 6128032-11 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	--------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	10/04/16 14:01	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	93.9 %		70-130		10/04/16 14:01	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	105 %		70-130		10/04/16 14:01	EPA 8260B	mtc	
Surrogate: Fluorobenzene	102 %		70-130		10/04/16 14:01	EPA 8260B	mtc	

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Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58

Notes

- 2c This analyte was detected in the method blank. Sample results may be biased high.
- 2e CCV was outside the QC range for the noted analyte. Data accepted based on additional batch QC.
- AA Toluene was detected in the method blank, data may be biased high. Samples were non-detect for toluene, therefore data was not impacted.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

- * P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
- < Represents "less than" - indicates that the result was less than the reporting limit.
- MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.
- RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.
- [CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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CES Hermitage PA

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Hermitage PA, 16148

Project Manager: Dave Sielckinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

10/07/16 09:58



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CES Hermitage PA	Project:	SHENANGO TOWNSHIP
2700 Kirila Blvd	Project Number:	[none]
Hermitage PA, 16148	Collector:	CLIENT
Project Manager: Dave Sielckinen	Number of Containers:	22
	Reported:	10/07/16 09:58

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.



FAIRWAY LABORATORIES
Environmental Laboratory

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

Client Page # 1 of 1

Client Name: CES
Address: 2700 Kithila Rd
Herm. Page, PA 16148
Contact: Dave Siedlke
Phone #: 724-342-1990
Fax #: email: dsiedlke@ces-env.com
Project Name: Shenango Twp 3rd Qtr
Quote/PO #: _____

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: / /

Sample Description/Location	GRAB	Composite	Start Date	Start Time	End Date	End Time	GRAB -or- Composite End	Matrix		Reportable to PADEP? Yes <input type="checkbox"/> No <input type="checkbox"/>	PWSID #	Received on ice? Y N	Received by: <u>Jim Wozniak</u>	Date	Time	Remarks	LAB USE ONLY Work Order # <u>6528032</u> Attach # <u>1</u> FLI Page # <u>2</u> of <u>2</u> Tracking # _____ Bottle Type/Comments
								Solid	Other								
MW-1			9-26-16	1045		1110		X						9/26/16	4:00		
MW-2						1200											
MW-3						1225											
MW-4						1135											
MW-6						1400											
MW-9						1325											
MW-10						1435											
MW-11						1250											
MW-12						1135											
MW-6 Duplicate						900		X									
QA/QC (trip blank)																	

Sampled by: Dave Siedlke
Relinquished by: Dave Siedlke
Relinquished by: Jim Wozniak
Relinquished by: Jim Wozniak

Received by: B. Bauer
Date: 9/27/16
Time: 1705

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Chain of Custody Receiving Document 275

Receiver: BBPage of ✓

Lab # 6I26032 #2

Date/Time of this check: 4/24/12 Client: CES

Received on ICE? ☒ * Sample Temperature when delivered to the Lab: LL Acceptable? ☒ * or In cool down process? ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? y ☐ * Correct containers for all the analysis requested? y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCs (Head space?)	Other	Properly Preserved	Bacti	
								<input type="checkbox"/> *	<input type="checkbox"/> *		
1							2HCl		NA		
2									↓		
11											

<p>* DEVIATION PRESENT:</p> <p><input type="checkbox"/> No Ice</p> <p><input type="checkbox"/> Not at Proper Temperature</p> <p><input type="checkbox"/> Wrong Container</p> <p><input type="checkbox"/> Missing Information:</p>	<p>CLIENT CALLED:</p> <p>YES ()</p> <p>By Whom: _____</p> <p>Date: _____</p>	<p>CLIENT RESPONSE:</p> <p>Proceed with analysis; qualify data ()</p> <p>Will Resample ()</p> <p>Provided Information ()</p> <p>No Response; Proceed and qualified ()</p> <p>Client Contact: _____ Date: _____</p>
--	--	---

* Comments:



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State Certifications: MD 275, WV 364

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

11/16/16 10:04

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-1	6K07088-01	Water	Grab	11/01/16 10:20	11/07/16 17:25
MW-2	6K07088-02	Water	Grab	11/01/16 10:45	11/07/16 17:25
MW-3	6K07088-03	Water	Grab	11/01/16 11:50	11/07/16 17:25
MW-4	6K07088-04	Water	Grab	11/01/16 12:20	11/07/16 17:25
MW-6	6K07088-05	Water	Grab	11/01/16 11:15	11/07/16 17:25
MW-9	6K07088-06	Water	Grab	11/01/16 14:20	11/07/16 17:25
MW-10	6K07088-07	Water	Grab	11/01/16 13:40	11/07/16 17:25
MW-11	6K07088-08	Water	Grab	11/01/16 13:00	11/07/16 17:25
MW-12	6K07088-09	Water	Grab	11/01/16 12:55	11/07/16 17:25
MW-12 DUPLICATE	6K07088-10	Water	Grab	11/01/16 12:55	11/07/16 17:25
Q/A/Q/C TRIP BLANK	6K07088-11	Water	Trip Blank	11/01/16 00:00	11/07/16 17:25

Sample temperature exceeded the acceptable level, refer to receiving document. CB

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

11/16/16 10:04

Client Sample ID: MW-1

Date/Time Sampled: 11/01/16 10:20

Laboratory Sample ID: 6K07088-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	-------------------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	11/09/16 17:14	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	103 %		70-130		11/09/16 17:14	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	107 %		70-130		11/09/16 17:14	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		11/09/16 17:14	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

11/16/16 10:04

Client Sample ID: MW-2

Date/Time Sampled: 11/01/16 10:45

Laboratory Sample ID: 6K07088-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	11/09/16 17:52	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	103 %		70-130		11/09/16 17:52	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	108 %		70-130		11/09/16 17:52	EPA 8260B	mtc	
Surrogate: Fluorobenzene	105 %		70-130		11/09/16 17:52	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

11/16/16 10:04

Client Sample ID: MW-3

Date/Time Sampled: 11/01/16 11:50

Laboratory Sample ID: 6K07088-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	338		50.0	ug/l	11/10/16 21:52	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	1380		50.0	ug/l	11/10/16 21:52	EPA 8260B	mtc	
Benzene	7600		250	ug/l	11/12/16 07:49	EPA 8260B	mtc	
Toluene	1880		50.0	ug/l	11/10/16 21:52	EPA 8260B	mtc	
Ethylbenzene	1510		50.0	ug/l	11/10/16 21:52	EPA 8260B	mtc	
Xylenes (total)	8610		100	ug/l	11/10/16 21:52	EPA 8260B	mtc	
Isopropylbenzene	52.9		1.00	ug/l	11/09/16 18:30	EPA 8260B	mtc	
Methyl tert-butyl ether	263		50.0	ug/l	11/10/16 21:52	EPA 8260B	mtc	
Naphthalene	327		50.0	ug/l	11/10/16 21:52	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	104 %		70-130		11/09/16 18:30	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	99.6 %		70-130		11/09/16 18:30	EPA 8260B	mtc	
Surrogate: Fluorobenzene	101 %		70-130		11/09/16 18:30	EPA 8260B	mtc	

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(570) 494-6380
PaDEP: PA 41-04684



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State Certifications: MD 275, WV 364

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 11/16/16 10:04

Client Sample ID: MW-4

Date/Time Sampled: 11/01/16 12:20

Laboratory Sample ID: 6K07088-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Methyl tert-butyl ether	7.43		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	11/10/16 17:27	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	99.3 %		70-130		11/10/16 17:27	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	102 %		70-130		11/10/16 17:27	EPA 8260B	mtc	
Surrogate: Fluorobenzene	103 %		70-130		11/10/16 17:27	EPA 8260B	mtc	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

11/16/16 10:04

Client Sample ID: MW-6

Date/Time Sampled: 11/01/16 11:15

Laboratory Sample ID: 6K07088-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	12.9		1.00	ug/l	11/09/16 19:45	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	569		25.0	ug/l	11/10/16 22:29	EPA 8260B	mtc	
Benzene	677		25.0	ug/l	11/10/16 22:29	EPA 8260B	mtc	
Toluene	102		1.00	ug/l	11/09/16 19:45	EPA 8260B	mtc	
Ethylbenzene	1050		25.0	ug/l	11/10/16 22:29	EPA 8260B	mtc	
Xylenes (total)	497		50.0	ug/l	11/10/16 22:29	EPA 8260B	mtc	
Isopropylbenzene	97.7		1.00	ug/l	11/09/16 19:45	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/16 19:45	EPA 8260B	mtc	
Naphthalene	54.3		1.00	ug/l	11/09/16 19:45	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	104 %		70-130		11/09/16 19:45	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	99.5 %		70-130		11/09/16 19:45	EPA 8260B	mtc	
Surrogate: Fluorobenzene	104 %		70-130		11/09/16 19:45	EPA 8260B	mtc	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 11/16/16 10:04

Client Sample ID: MW-9

Date/Time Sampled: 11/01/16 14:20

Laboratory Sample ID: 6K07088-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	11/10/16 18:05	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	96.8 %		70-130		11/10/16 18:05	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	102 %		70-130		11/10/16 18:05	EPA 8260B	mtc	
Surrogate: Fluorobenzene	103 %		70-130		11/10/16 18:05	EPA 8260B	mtc	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 11/16/16 10:04

Client Sample ID: MW-10

Date/Time Sampled: 11/01/16 13:40

Laboratory Sample ID: 6K07088-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	11/09/16 21:01	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	104 %		70-130		11/09/16 21:01	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	105 %		70-130		11/09/16 21:01	EPA 8260B	mtc	
Surrogate: Fluorobenzene	107 %		70-130		11/09/16 21:01	EPA 8260B	mtc	

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Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 11/16/16 10:04

Client Sample ID: MW-11

Date/Time Sampled: 11/01/16 13:00

Laboratory Sample ID: 6K07088-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Toluene	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Ethylbenzene	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Naphthalene	<1.00		1.00	ug/l	11/09/16 22:16	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	103 %		70-130		11/09/16 22:16	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	109 %		70-130		11/09/16 22:16	EPA 8260B	mtc	
Surrogate: Fluorobenzene	106 %		70-130		11/09/16 22:16	EPA 8260B	mtc	

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 22

Reported:

11/16/16 10:04

Client Sample ID: MW-12

Date/Time Sampled: 11/01/16 12:55

Laboratory Sample ID: 6K07088-09 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	2e
Toluene	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	2e
Ethylbenzene	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	2e
Naphthalene	<1.00		1.00	ug/l	11/10/16 03:19	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	106 %		70-130		11/10/16 03:19	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	114 %		70-130		11/10/16 03:19	EPA 8260B	mtc	
Surrogate: Fluorobenzene	108 %		70-130		11/10/16 03:19	EPA 8260B	mtc	

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2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 11/16/16 10:04

Client Sample ID: MW-12 DUPLICATE

Date/Time Sampled: 11/01/16 12:55

Laboratory Sample ID: 6K07088-10 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	2e
Toluene	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	2e
Ethylbenzene	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	2e
Naphthalene	<1.00		1.00	ug/l	11/10/16 03:57	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	104 %		70-130		11/10/16 03:57	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	116 %		70-130		11/10/16 03:57	EPA 8260B	mtc	
Surrogate: Fluorobenzene	108 %		70-130		11/10/16 03:57	EPA 8260B	mtc	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148
Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP
Project Number: [none]
Collector: CLIENT
Number of Containers: 22
Reported: 11/16/16 10:04

Client Sample ID: Q/A/Q/C TRIP BLANK

Date/Time Sampled: 11/01/16 00:00

Laboratory Sample ID: 6K07088-11 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	
Benzene	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	2e
Toluene	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	2e
Ethylbenzene	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	
Xylenes (total)	<2.00		2.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	
Isopropylbenzene	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	2e
Naphthalene	<1.00		1.00	ug/l	11/10/16 04:35	EPA 8260B	mtc	
Surrogate: 4-Bromofluorobenzene	104 %		70-130		11/10/16 04:35	EPA 8260B	mtc	
Surrogate: 1,2-Dichloroethane-d4	117 %		70-130		11/10/16 04:35	EPA 8260B	mtc	
Surrogate: Fluorobenzene	110 %		70-130		11/10/16 04:35	EPA 8260B	mtc	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Reported:

Collector: CLIENT

11/16/16 10:04

Number of Containers: 22

Notes

2e CCV was outside the QC range for the noted analyte. Data accepted based on additional batch QC.

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory; and should be considered as analyzed outside the EPA holding time.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.

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CES Hermitage PA	Project: SHENANGO TOWNSHIP	
2700 Kirila Blvd	Project Number: [none]	Reported:
Hermitage PA, 16148	Collector: CLIENT	11/16/16 10:04
Project Manager: Dave Siekkinen	Number of Containers: 22	

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

Fairway Laboratories, Inc.

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Fax: (814) 946-8791



**CHAIN OF CUSTODY/
REQUEST FOR ANALYSIS**

Please print. See back of COC for instructions/terms and conditions.

Client Page # 1 of 1

Client Name: CES Address: 2700 Kicila Drive Hermitage, PA 16148 Contact: Dave Siekkinen Phone #: 724-342-1990 Fax #: dsiekkinen@cesenv.com Project Name: Shenango Twp. Quote/PO #:				Received on ice? Y N Sample Temp:		Reportable to PADEP? Yes <input type="checkbox"/> No <input type="checkbox"/> PWSID #		Analyses Requested PADEP Short List (New) Unleaded Gasoline		LAB USE ONLY Work Order # 607088 Attach # 1 FLI Page # 1 of 2 Tracking # Bottle Type/Comments		
Sample Description/Location	Date Required	TAT: Normal <input checked="" type="checkbox"/> Rush <input type="checkbox"/> <small>Rush TAT subject to pre-approval and surcharge.</small>	Composite		Composite Start		Composite End		Matrix		# of Containers	Remarks
			GRAB	Composite	Start Date	Start Time	End Date	End Time	GRAB	Composite		
MW-1					11-1-14	1020			X		2	
MW-2						1045						
MW-3						1150						
MW-4						1220						
MW-6						1115						
MW-9						1420						
MW-10						1340						
MW-11						1300						
MW-12						1255						
MW-12 Duplicate						1255						
QA/QC (Trip Blank)												
Sampled by: David E. Siekkinen Date: 11-7-16 Time: 11:38 AM			Received by: Date: 11-7-16 Time: 10:58 AM			Remarks						
Relinquished by: David E. Siekkinen Date: 11-7-16 Time: 11:38 AM			Received by: Date: 11-7-16 Time: 10:58 AM									
Relinquished by: David E. Siekkinen Date: 11-7-16 Time: 11:38 AM			Received by: Date: 11-7-16 Time: 10:58 AM									
Relinquished by: David E. Siekkinen Date: 11-7-16 Time: 11:38 AM			Received by: Date: 11-7-16 Time: 10:58 AM									

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Page 2 of 2

of 2 Lab # 6K07088 #2

Date/Time of this check: 11-7-76 2:35 Client: CES

Date/Time of this check: 11-7-6 2:135 Client: UES Lab # 6K07088
Received on ICE? Y ☐ * Sample Temperature when delivered to the Lab: 74 Acceptable? Y ☐ * or In cool down process? ☐ *
(Not applicable for WV compliance)

Custody Seals? y Intact? y

COC/Labels on bottles agree? ☒ * Correct containers for all the analysis requested? ☒ * Matrix: *brk*

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other	Property Preserved	Bacteri	
							✓		<input checked="" type="checkbox"/>		
							2-H ₂ O				
							✓				
			</								

*** DEVIATION PRESENT:**

- ☒ No Ice
☒ Not at Proper Temperature
☒ Wrong Container
☒ Missing Information:

CLIENT CALLED:

By Whom:

End

DAVE

Date: 11/8/14

Date: 11/8/14

CLIENT RESPONSE:

Proceed with analysis; qualify data

Will Resample

Provided Information

No Response; Proceed and qualified

Client Contact: DAJ Date: 11/18

Client Contact: DAJ Date: 11/18

* Comments:

High Temp



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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-1	7B21003-01	Water	Grab	02/17/17 13:20	02/20/17 17:30
MW-2	7B21003-02	Water	Grab	02/17/17 13:40	02/20/17 17:30
MW-3	7B21003-03	Water	Grab	02/17/17 15:50	02/20/17 17:30
MW-4	7B21003-04	Water	Grab	02/17/17 15:10	02/20/17 17:30
MW-6	7B21003-05	Water	Grab	02/17/17 16:10	02/20/17 17:30
MW-9	7B21003-06	Water	Grab	02/17/17 10:30	02/20/17 17:30
MW-10	7B21003-07	Water	Grab	02/17/17 10:10	02/20/17 17:30
MW-11	7B21003-08	Water	Grab	02/17/17 10:55	02/20/17 17:30
MW-12	7B21003-09	Water	Grab	02/17/17 14:40	02/20/17 17:30
MW-18	7B21003-10	Water	Grab	02/17/17 12:15	02/20/17 17:30
MW-19	7B21003-11	Water	Grab	02/17/17 11:55	02/20/17 17:30
MW-20	7B21003-12	Water	Grab	02/17/17 12:35	02/20/17 17:30
MW-21	7B21003-13	Water	Grab	02/17/17 12:55	02/20/17 17:30
MW-22	7B21003-14	Water	Grab	02/17/17 11:15	02/20/17 17:30
MW-23	7B21003-15	Water	Grab	02/17/17 15:30	02/20/17 17:30
MW-24	7B21003-16	Water	Grab	02/17/17 11:35	02/20/17 17:30
RW-1	7B21003-17	Water	Grab	02/17/17 16:30	02/20/17 17:30
RW-1 DUP	7B21003-18	Water	Grab	02/17/17 16:30	02/20/17 17:30

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Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
TRIP BLANK	7B21003-19	Water	Trip Blank	02/17/17 00:00	02/20/17 17:30



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Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-1

Date/Time Sampled: 02/17/17 13:20

Laboratory Sample ID: 7B21003-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
1,2,4-Trimethylbenzene	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Benzene	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Toluene	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Ethylbenzene	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Xylenes (total)	<2.00	2.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Isopropylbenzene	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Methyl tert-butyl ether	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Naphthalene	<1.00	1.00	ug/l	02/23/17 00:37	EPA 8260B	bag
Surrogate: 4-Bromofluorobenzene	92.1 %	70-130		02/23/17 00:37	EPA 8260B	bag
Surrogate: 1,2-Dichloroethane-d4	97.6 %	70-130		02/23/17 00:37	EPA 8260B	bag
Surrogate: Fluorobenzene	106 %	70-130		02/23/17 00:37	EPA 8260B	bag

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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-2

Date/Time Sampled: 02/17/17 13:40

Laboratory Sample ID: 7B21003-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Toluene	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/23/17 01:08	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	93.6 %		70-130		02/23/17 01:08	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	98.5 %		70-130		02/23/17 01:08	EPA 8260B	bag	
Surrogate: Fluorobenzene	108 %		70-130		02/23/17 01:08	EPA 8260B	bag	



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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-3

Date/Time Sampled: 02/17/17 15:50

Laboratory Sample ID: 7B21003-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<38.0		38.0	ug/l	02/23/17 17:37	EPA 8260B	sap	S
1,2,4-Trimethylbenzene	1440		100	ug/l	02/23/17 17:37	EPA 8260B	sap	
Benzene	9630		100	ug/l	02/23/17 17:37	EPA 8260B	sap	
Toluene	133		100	ug/l	02/23/17 17:37	EPA 8260B	sap	
Ethylbenzene	1710		100	ug/l	02/23/17 17:37	EPA 8260B	sap	
Xylenes (total)	3200		200	ug/l	02/23/17 17:37	EPA 8260B	sap	
Isopropylbenzene	<46.0		46.0	ug/l	02/23/17 17:37	EPA 8260B	sap	S
Methyl tert-butyl ether	194		100	ug/l	02/23/17 17:37	EPA 8260B	sap	
Naphthalene	298		100	ug/l	02/23/17 17:37	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	99.3 %		70-130		02/23/17 17:37	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	100 %		70-130		02/23/17 17:37	EPA 8260B	sap	
Surrogate: Fluorobenzene	102 %		70-130		02/23/17 17:37	EPA 8260B	sap	



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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-4

Date/Time Sampled: 02/17/17 15:10

Laboratory Sample ID: 7B21003-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
1,2,4-Trimethylbenzene	<1.00	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Benzene	<1.00	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Toluene	<1.00	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Ethylbenzene	<1.00	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Xylenes (total)	<2.00	2.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Isopropylbenzene	<1.00	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Methyl tert-butyl ether	4.36	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Naphthalene	<1.00	1.00	ug/l	02/23/17 02:12	EPA 8260B	bag
Surrogate: 4-Bromofluorobenzene	93.0 %	70-130		02/23/17 02:12	EPA 8260B	bag
Surrogate: 1,2-Dichloroethane-d4	99.9 %	70-130		02/23/17 02:12	EPA 8260B	bag
Surrogate: Fluorobenzene	107 %	70-130		02/23/17 02:12	EPA 8260B	bag

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2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-6

Date/Time Sampled: 02/17/17 16:10

Laboratory Sample ID: 7B21003-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<10.0	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
1,2,4-Trimethylbenzene	103	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Benzene	617	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Toluene	<10.0	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Ethylbenzene	205	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Xylenes (total)	127	20.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Isopropylbenzene	14.5	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Methyl tert-butyl ether	<10.0	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Naphthalene	10.7	10.0	ug/l	02/22/17 18:47	EPA 8260B	bag
Surrogate: 4-Bromofluorobenzene	94.3 %	70-130		02/22/17 18:47	EPA 8260B	bag
Surrogate: 1,2-Dichloroethane-d4	96.9 %	70-130		02/22/17 18:47	EPA 8260B	bag
Surrogate: Fluorobenzene	109 %	70-130		02/22/17 18:47	EPA 8260B	bag

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CES Hermitage PA

2700 Kirila Blvd

Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-9

Date/Time Sampled: 02/17/17 10:30

Laboratory Sample ID: 7B21003-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
Benzene	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
Toluene	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
Ethylbenzene	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
Xylenes (total)	<2.00	2.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
Isopropylbenzene	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	
Naphthalene	<1.00	1.00	ug/l	02/22/17 09:43	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	95.7 %	70-130		02/22/17 09:43	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	99.8 %	70-130		02/22/17 09:43	EPA 8260B	bag	
Surrogate: Fluorobenzene	107 %	70-130		02/22/17 09:43	EPA 8260B	bag	

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-10

Date/Time Sampled: 02/17/17 10:10

Laboratory Sample ID: 7B21003-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
Toluene	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/22/17 10:47	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	93.6 %		70-130		02/22/17 10:47	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	100 %		70-130		02/22/17 10:47	EPA 8260B	bag	
Surrogate: Fluorobenzene	107 %		70-130		02/22/17 10:47	EPA 8260B	bag	

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PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-11

Date/Time Sampled: 02/17/17 10:55

Laboratory Sample ID: 7B21003-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	D
Toluene	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/23/17 08:39	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/23/17 08:39	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	93.9 %		70-130		02/23/17 08:39	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	97.9 %		70-130		02/23/17 08:39	EPA 8260B	bag	
Surrogate: Fluorobenzene	107 %		70-130		02/23/17 08:39	EPA 8260B	bag	

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Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-12

Date/Time Sampled: 02/17/17 14:40

Laboratory Sample ID: 7B21003-09 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	D
Toluene	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/23/17 09:11	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/23/17 09:11	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	93.0 %		70-130		02/23/17 09:11	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	98.4 %		70-130		02/23/17 09:11	EPA 8260B	bag	
Surrogate: Fluorobenzene	109 %		70-130		02/23/17 09:11	EPA 8260B	bag	

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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-18

Date/Time Sampled: 02/17/17 12:15

Laboratory Sample ID: 7B21003-10 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	D
Toluene	<1.00		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/23/17 09:43	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	
Methyl tert-butyl ether	7.25		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/23/17 09:43	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	90.9 %		70-130		02/23/17 09:43	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	99.6 %		70-130		02/23/17 09:43	EPA 8260B	bag	
Surrogate: Fluorobenzene	108 %		70-130		02/23/17 09:43	EPA 8260B	bag	

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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-19

Date/Time Sampled: 02/17/17 11:55

Laboratory Sample ID: 7B21003-11 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	21.3		1.00	ug/l	02/23/17 10:15	EPA 8260B	bag	
1,2,4-Trimethylbenzene	212		10.0	ug/l	02/24/17 07:08	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 10:15	EPA 8260B	bag	D
Toluene	<1.00		1.00	ug/l	02/23/17 10:15	EPA 8260B	bag	
Ethylbenzene	87.4		1.00	ug/l	02/23/17 10:15	EPA 8260B	bag	
Xylenes (total)	20.3		2.00	ug/l	02/23/17 10:15	EPA 8260B	bag	
Isopropylbenzene	46.5		1.00	ug/l	02/23/17 10:15	EPA 8260B	bag	
Methyl tert-butyl ether	1.25		1.00	ug/l	02/23/17 10:15	EPA 8260B	bag	
Naphthalene	20.6		1.00	ug/l	02/23/17 10:15	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	96.4 %		70-130		02/23/17 10:15	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	98.0 %		70-130		02/23/17 10:15	EPA 8260B	bag	
Surrogate: Fluorobenzene	107 %		70-130		02/23/17 10:15	EPA 8260B	bag	

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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-20

Date/Time Sampled: 02/17/17 12:35

Laboratory Sample ID: 7B21003-12 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	D
Toluene	<1.00		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/23/17 10:47	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	
Methyl tert-butyl ether	2.41		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/23/17 10:47	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	92.3 %		70-130		02/23/17 10:47	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	96.6 %		70-130		02/23/17 10:47	EPA 8260B	bag	
Surrogate: Fluorobenzene	106 %		70-130		02/23/17 10:47	EPA 8260B	bag	



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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-21

Date/Time Sampled: 02/17/17 12:55

Laboratory Sample ID: 7B21003-13 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
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Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	18.9		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
1,2,4-Trimethylbenzene	27.2		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
Benzene	81.0		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
Toluene	<5.00		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
Ethylbenzene	38.8		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
Xylenes (total)	<10.0		10.0	ug/l	02/23/17 20:07	EPA 8260B	sap	
Isopropylbenzene	22.2		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
Methyl tert-butyl ether	<5.00		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
Naphthalene	12.2		5.00	ug/l	02/23/17 20:07	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	97.7 %		70-130		02/23/17 20:07	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	102 %		70-130		02/23/17 20:07	EPA 8260B	sap	
Surrogate: Fluorobenzene	101 %		70-130		02/23/17 20:07	EPA 8260B	sap	



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Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-22

Date/Time Sampled: 02/17/17 11:15

Laboratory Sample ID: 7B21003-14 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	D
Toluene	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/23/17 11:19	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/23/17 11:19	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	91.5 %		70-130		02/23/17 11:19	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	96.3 %		70-130		02/23/17 11:19	EPA 8260B	bag	
Surrogate: Fluorobenzene	108 %		70-130		02/23/17 11:19	EPA 8260B	bag	

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Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-23

Date/Time Sampled: 02/17/17 15:30

Laboratory Sample ID: 7B21003-15 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 11:51	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/23/17 11:51	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/23/17 11:51	EPA 8260B	bag	D
Toluene	<1.00		1.00	ug/l	02/23/17 11:51	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/23/17 11:51	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/23/17 11:51	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/23/17 11:51	EPA 8260B	bag	
Methyl tert-butyl ether	116		5.00	ug/l	02/24/17 07:40	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/23/17 11:51	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	91.6 %		70-130		02/23/17 11:51	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	97.3 %		70-130		02/23/17 11:51	EPA 8260B	bag	
Surrogate: Fluorobenzene	108 %		70-130		02/23/17 11:51	EPA 8260B	bag	

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2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: MW-24

Date/Time Sampled: 02/17/17 11:35

Laboratory Sample ID: 7B21003-16 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
1,3,5-Trimethylbenzene	1.31		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
Benzene	<1.00		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
Toluene	<1.00		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
Ethylbenzene	<1.00		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
Xylenes (total)	<2.00		2.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
Isopropylbenzene	<1.00		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	
Naphthalene	<1.00		1.00	ug/l	02/24/17 08:12	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	93.6 %		70-130		02/24/17 08:12	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	99.4 %		70-130		02/24/17 08:12	EPA 8260B	bag	
Surrogate: Fluorobenzene	109 %		70-130		02/24/17 08:12	EPA 8260B	bag	



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PaDEP: PA 41-04684



www.fairwaylaboratories.com

CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: RW-1

Date/Time Sampled: 02/17/17 16:30

Laboratory Sample ID: 7B21003-17 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	-------------------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	599		10.0	ug/l	02/22/17 19:18	EPA 8260B	bag	
1,2,4-Trimethylbenzene	2500		100	ug/l	02/24/17 06:04	EPA 8260B	bag	
Benzene	10000		1000	ug/l	02/24/17 11:54	EPA 8260B	bag	
Toluene	8100		100	ug/l	02/24/17 06:04	EPA 8260B	bag	
Ethylbenzene	3800		100	ug/l	02/24/17 06:04	EPA 8260B	bag	
Xylenes (total)	19500		200	ug/l	02/24/17 06:04	EPA 8260B	bag	
Isopropylbenzene	89.9		10.0	ug/l	02/22/17 19:18	EPA 8260B	bag	
Methyl tert-butyl ether	111		10.0	ug/l	02/22/17 19:18	EPA 8260B	bag	
Naphthalene	595		10.0	ug/l	02/22/17 19:18	EPA 8260B	bag	
Surrogate: 4-Bromofluorobenzene	99.0 %		70-130		02/22/17 19:18	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	97.1 %		70-130		02/22/17 19:18	EPA 8260B	bag	
Surrogate: Fluorobenzene	112 %		70-130		02/22/17 19:18	EPA 8260B	bag	

Fairway Laboratories, Inc.

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2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennssdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684



State Certifications: MD 275, WV 364

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CES Hermitage PA
2700 Kirila Blvd
Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: RW-1 DUP

Date/Time Sampled: 02/17/17 16:30

Laboratory Sample ID: 7B21003-18 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	-------------------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	573		10.0	ug/l	02/23/17 19:30	EPA 8260B	sap	
1,2,4-Trimethylbenzene	2160		100	ug/l	02/23/17 18:14	EPA 8260B	sap	
Benzene	10100		1000	ug/l	02/24/17 17:33	EPA 8260B	sap	
Toluene	1980		100	ug/l	02/23/17 18:14	EPA 8260B	sap	
Ethylbenzene	2320		100	ug/l	02/23/17 18:14	EPA 8260B	sap	
Xylenes (total)	9510		200	ug/l	02/23/17 18:14	EPA 8260B	sap	
Isopropylbenzene	92.9		10.0	ug/l	02/23/17 19:30	EPA 8260B	sap	
Methyl tert-butyl ether	305		10.0	ug/l	02/23/17 19:30	EPA 8260B	sap	
Naphthalene	372		10.0	ug/l	02/23/17 19:30	EPA 8260B	sap	
Surrogate: 4-Bromofluorobenzene	99.8 %		70-130		02/23/17 19:30	EPA 8260B	sap	
Surrogate: 1,2-Dichloroethane-d4	101 %		70-130		02/23/17 19:30	EPA 8260B	sap	
Surrogate: Fluorobenzene	102 %		70-130		02/23/17 19:30	EPA 8260B	sap	



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Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Client Sample ID: TRIP BLANK

Date/Time Sampled: 02/17/17 00:00

Laboratory Sample ID: 7B21003-19 (Water/Trip Blank)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	-------------------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
1,2,4-Trimethylbenzene	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
Benzene	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
Toluene	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
Ethylbenzene	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
Xylenes (total)	<2.00	2.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
Isopropylbenzene	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
Methyl tert-butyl ether	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	
Naphthalene	<1.00	1.00	ug/l	02/24/17 08:44	EPA 8260B	bag	E
Surrogate: 4-Bromofluorobenzene	92.8 %	70-130		02/24/17 08:44	EPA 8260B	bag	
Surrogate: 1,2-Dichloroethane-d4	99.4 %	70-130		02/24/17 08:44	EPA 8260B	bag	
Surrogate: Fluorobenzene	109 %	70-130		02/24/17 08:44	EPA 8260B	bag	



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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Notes

- D A Continuing Calibration Verification (CCV) analyzed with the analytical batch recovered above the acceptance range for the noted analyte.
- E A Continuing Calibration Verification (CCV) analyzed with the analytical batch recovered below the acceptance range for the noted analyte.
- S This analysis has been reported to the MDL; therefore it is an estimated value.



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Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 37

Reported:

03/06/17 07:13

Definitions

If surrogate values are not within the indicated range, then the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

MBAS, calculated as LAS, mol wt 348

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

Unless otherwise noted, all results for solids are reported on a dry weight basis.

Samples collected by Fairway Laboratories' personnel are done so in accordance with Standard Operating Procedures established by Fairway Laboratories.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen, filtration for ortho phosphorus, and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory; and should be considered as analyzed outside the EPA holding time.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than the reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the RL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

[CALC] Indicates a calculated result. Calculations use results from other analyses performed under accredited methods.



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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Reported:

Collector: CLIENT

03/06/17 07:13

Number of Containers: 37

Terms & Conditions

Services provided by Fairway Laboratories Inc. are limited to the terms and conditions stated herein, unless otherwise agreed to in a formal contract.

CHAIN OF CUSTODY Fairway Laboratories Inc. ("Fairway," "us" or "we") will initiate a chain-of-custody/request for analysis upon sample receipt unless the client includes a completed form with the received sample(s). Upon request, Fairway will provide chain-of-custody forms for use.

CONFIDENTIALITY Fairway maintains confidentiality in all of our client interactions. The client's consent will be required before releasing information about the services provided.

CONTRACTS All contracts are subject to review and approval by Fairway's legal council. Each contract must be signed by a corporate officer.

PAYMENT/BILLING Unless otherwise set forth in a signed contract or purchase order, terms of payment are "NET 30 Days." The time allowed for payment shall begin based on the invoice date. A 1.5% per month service charge may be added to all unpaid balances beyond the initial 30 days. In its sole discretion, Fairway reserves the right to request payment before services and hold sample results for payment of due balances. We will not bill a third party without prior agreement among all parties acknowledging and accepting responsibility for payment.

SAMPLE COLLECTION AND SUBMISSION Clients not requesting collection services from Fairway are responsible for proper collection, preservation, packaging, and delivery of samples to the laboratory in accordance with current law and commercial practice. Fairway shall have no responsibility for sample integrity prior to the receipt of the sample(s) and/or for any inaccuracy in test or analyses results as a result of the failure of the client or any third party to maintain the integrity of samples prior to delivery to Fairway. All samples submitted must be accompanied by a completed chain of custody or similar document clearly noting the requested analyses, dates/time sampled, client contact information, and trail of custody.

SUBCONTRACTING Some analyses may require subcontracting to another laboratory. Unless the client indicates otherwise, this decision will be made by Fairway. Subcontracted work will be identified on the final report in accordance with NELAC requirements.

RETURN OF RESULTS Fairway routinely provides faxed or verbal results within 10 working days of receipt of sample(s) and a hard copy of the data results is routinely received via US Postal Service within 15 working days. At the request of the client, Fairway may offer expedited return of sample results. Surcharges may apply to rush requests. All rush requests must be pre-approved by Fairway. We reserve the right to charge an archive retrieval fee for results older than one (1) year from the date of the request. All records will be maintained by Fairway for 5 years, after which, they will be destroyed.

SAMPLE DISPOSAL Fairway will maintain samples for four (4) weeks after the sample receipt date. Fairway will dispose of samples which are not and/or do not contain hazardous wastes (as such term is defined by applicable federal or state law), unless prior arrangements have been made for long-term storage. Fairway reserves the right to charge a disposal fee for the proper disposal of samples found or suspected to contain hazardous waste. A return shipping charge will be invoiced for samples returned to the client at their request.

HAZARD COMMUNICATION The client has the responsibility to inform the laboratory of any hazardous characteristics known or suspected about the sample, and to provide information on hazard prevention and personal protection as necessary or otherwise required by applicable law.

WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

Fairway Laboratories, Inc.

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.



2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

Client Page # 1 of 2

Client Name: CES
Address: 2700 Kiriya Drive
Hermiston, PA 16148
Contact: Dave Siekkinen
Phone #: 724-342-1990
Fax #: dsiekkinen@ces-env.com
Project Name: Shenango Twp
Quote/PO #: _____

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ____/____/____

Sample Description/Location	GRAB	Composite
MW-1	X	
MW-2		
MW-3		
MW-4		
MW-6		
MW-9		
MW-10		
MW-11		
MW-12		
MW-18		
MW-19		

Sampled by: Dave Siekkinen
(Signature)
Relinquished by: Tim Miller Date 2-20-17 Time 11:25
Relinquished by: Steve Burt Date 2-20-17 Time 17:30
Relinquished by: Ch Date 2-20-17 Time 17:30

Received on ice? Y N
Sample Temp: _____
Reportable to PADEP? Yes ☐ No ☐
PWSID # _____

GRAB -or- Composite End	Composite Start	Start Date	Start Time	End Date	End Time	Matrix		# of Containers
						Solid	Water	
				2-17-17	1320			2
					1340			
					1550			
					1510			
					1610			
					1030			
					1010			
					1055			
					1440			
					1215			
					1155			

Analyses Requested	LAB USE ONLY
PADEP Short List (New) Unleaded Gasoline	Work Order # 7821 003
	Attach # 1
	FLI Page # 1 of 3
	Tracking #
	Bottle Type/Comments

Received by:	Date	Time	Remarks
Tim Miller	2-17-17	1700	
Steve Burt	2-20-17	11:25	
Ch	2-20-17	17:30	

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Receiver: CB

Chain of Custody Receiving Document 3 of 3

Date/Time of this check: 2/21/17 6:55 Client: CEs

子

Received on ICE? ☒ * Sample Temperature when delivered to the Lab. 0.5 Acceptable? ☒ * or In cool down process? ☐ *

Custody Seals?	Intact?
<u>✓</u>	<u>✓</u>

COC/Labels on bottles agree? ☒ * Correct containers for all the analysis requested? ☒ * Matrix: WATER

[illegible]

*** DEVIATION PRESENT:**

- ☐ No Ice
☐ Not at Proper Temperature
☐ Wrong Container
☐ Missing Information:

* Comments:

CLIENT CALLED:

YES ()
By Whom:

Date:

CLIENT RESPONSE:

- Proceed with analysis; qualify data ()
Will Resample ()
Provided Information ()
No Response; Proceed and qualified ()

Client Contact: _____ **Date:** _____

This is a date sensitive document and may not be current after February 13, 2017.



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CES Hermitage PA

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Hermitage PA, 16148

Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

Project Number: [none]

Collector: CLIENT

Number of Containers: 2

Reported:

03/03/17 14:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
WATER WELL	7B28017-01	Water	Grab	02/24/17 15:00	02/28/17 12:20

Client Sample ID: WATER WELL

Date/Time Sampled: 02/24/17 15:00

Laboratory Sample ID: 7B28017-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Analytical Method	* Analyst	Note
---------	--------	-----	----	-------	----------------------	-------------------	-----------	------

Volatile Organic Compounds by EPA Method 8260B

1,3,5-Trimethylbenzene	<1.00	1.00	ug/l	03/01/17 22:19	EPA 8260B	sap
1,2,4-Trimethylbenzene	<1.00	1.00	ug/l	03/01/17 22:19	EPA 8260B	sap
Benzene	<1.00	1.00	ug/l	03/01/17 22:19	EPA 8260B	sap
Toluene	<1.00	1.00	ug/l	03/01/17 22:19	EPA 8260B	sap
Ethylbenzene	<1.00	1.00	ug/l	03/01/17 22:19	EPA 8260B	sap
Xylenes (total)	<2.00	2.00	ug/l	03/01/17 22:19	EPA 8260B	sap
Isopropylbenzene	<1.00	1.00	ug/l	03/01/17 22:19	EPA 8260B	sap
Methyl tert-butyl ether	<1.00	1.00	ug/l	03/01/17 22:19	EPA 8260B	sap
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Surrogate: 4-Bromofluorobenzene	95.7 %	70-130		03/01/17 22:19	EPA 8260B	sap
Surrogate: 1,2-Dichloroethane-d4	104 %	70-130		03/01/17 22:19	EPA 8260B	sap
Surrogate: Fluorobenzene	98.9 %	70-130		03/01/17 22:19	EPA 8260B	sap

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Project Manager: Dave Siekkinen

Project: SHENANGO TOWNSHIP

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03/03/17 14:37

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WARRANTY AND LIMITATION OF LIABILITY For services rendered, Fairway warrants that it will apply its best scientific knowledge and judgment and to employ its best level of effort consistent with professional standards within the environmental testing industry in performing the analytical services requested by its clients. We disclaim any other warranties, expressed or implied by law. Fairway does not accept any legal responsibility for the purposes for which client uses the test results.

LITIGATION All costs associated with compliance to any subpoena for documents, for testimony in a court of law, or for any other purpose relating to work performed by Fairway Laboratories, Inc. shall be invoiced by Fairway and paid by client. These costs shall include, but are not limited to, hourly charges for the persons involved, travel, mileage, and accommodations and for any and all other expenses associated with said litigation.

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Client Page # of

Client Name: CES
Address: 2700 Kiriila Drive
Hermifage, PA 16148
Contact: Dave Siekkinen
Phone #: 724-342-1990
Fax #: dsiekkinen@ces-env.com
Project Name: Shenango Township
Quote/PO #: _____

TAT: Normal ☐ Rush ☒
Rush TAT subject to pre-approval and surcharge.
Date Required: 3/10/17

Sample Description/Location
Water well

Received on ice? ☒ N
Sample Temp: 5.0
PWSID # _____

Reportable to PADEP? Yes ☐
Matrix _____
GRAB -or- Composite End
Composite Start

Start Date Time End Date Time
2-24-17 1500

Solid ☒ Water ☐ Other ☐

of Containers 2

PADEP Short List (New) ☒ Unleaded Gasoline

LAB USE ONLY
Work Order # 7828017
Attach # 1
FLI Page # 1 of 2
Tracking # FLD EX
810700457859

Bottle Type/Comments

Sampled by: Dave Siekkinen
Relinquished by: Dave Siekkinen
Relinquished by: _____
Relinquished by: _____

Received by: Dave Siekkinen
Received by: _____
Received by: _____
Received by: _____

Date Time Date Time Date Time Date Time
2-27-17 1630 2/28/17 12:20

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original • FLI File Canary • FLI Copy Pink • Customer Receipt Copy

Chain of Custody Receiving Document

Receiver: Page 2 of 2

Date/Time of this check: 2/20/17 12:25 Client: CES Lab # 1B28017

Received on ICE? ☒ * Sample Temperature when delivered to the Lab: 5.0 Acceptable? ☒ * or In cool down process? ☐ *

Custody Seals?	Intact?	✓/A
2		

COC/Labels on bottles agree? Y ☒ * Matrix: WAR

[illegible]

*** DEVIATION PRESENT:**

☐ No Ice
☐ Not at Proper Temperature
☐ Wrong Container
☐ Missing Information:

CLIENT CALLED:

YES ()

By Whom:

Date:

CLIENT RESPONSE:

Proceed with analysis; qualify data ()
Will Resample ()
Provided Information ()
No Response; Proceed and qualified ()

Client Contact: _____ **Date:** _____

* Comments:

This is a date sensitive document and may not be current after February 24, 2017.



Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

July 22, 2016

Bert Richnafsky
Compliance Environmental Services
2700 Kirila Blvd.
Hermitage, PA 16148

RE: Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

Dear Bert Richnafsky:

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,

Nathan Boberg
nathan.boberg@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
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 Envl. Protection - DW #90062
Kentucky Dept of Envl. 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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10355321001	SV/AP-#1 (Indoor)	Air	07/11/16 12:05	07/13/16 09:40
10355321002	SV/AP-#2 (Outdoor)	Air	07/11/16 12:15	07/13/16 09:40
10355321003	SV/AP-#3 (SV-1)	Air	07/11/16 12:27	07/13/16 09:40
10355321004	SV/AP-#4 (SV-2)	Air	07/11/16 12:25	07/13/16 09:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10355321001	SV/AP-#1 (Indoor)	TO-15	MLS	10
10355321002	SV/AP-#2 (Outdoor)	TO-15	MLS	10
10355321003	SV/AP-#3 (SV-1)	TO-15	MLS	10
10355321004	SV/AP-#4 (SV-2)	TO-15	MLS	10

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

Sample: SV/AP-#1 (Indoor)		Lab ID: 10355321001	Collected: 07/11/16 12:05		Received: 07/13/16 09:40		Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	25.7	ug/m3	0.57	1.75		07/18/16 14:02	71-43-2	
Ethylbenzene	48.2	ug/m3	1.5	1.75		07/18/16 14:02	100-41-4	
Isopropylbenzene (Cumene)	5.7	ug/m3	4.4	1.75		07/18/16 14:02	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	6.4	1.75		07/18/16 14:02	1634-04-4	
Naphthalene	24.0	ug/m3	4.7	1.75		07/18/16 14:02	91-20-3	
Toluene	187	ug/m3	1.3	1.75		07/18/16 14:02	108-88-3	
1,2,4-Trimethylbenzene	109	ug/m3	1.7	1.75		07/18/16 14:02	95-63-6	
1,3,5-Trimethylbenzene	36.8	ug/m3	1.7	1.75		07/18/16 14:02	108-67-8	
m&p-Xylene	218	ug/m3	3.1	1.75		07/18/16 14:02	179601-23-1	
o-Xylene	72.9	ug/m3	1.5	1.75		07/18/16 14:02	95-47-6	

Sample: SV/AP-#2 (Outdoor)		Lab ID: 10355321002	Collected: 07/11/16 12:15		Received: 07/13/16 09:40		Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	4.3	ug/m3	0.57	1.75		07/18/16 14:33	71-43-2	
Ethylbenzene	6.0	ug/m3	1.5	1.75		07/18/16 14:33	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.4	1.75		07/18/16 14:33	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	6.4	1.75		07/18/16 14:33	1634-04-4	
Naphthalene	6.0	ug/m3	4.7	1.75		07/18/16 14:33	91-20-3	
Toluene	26.0	ug/m3	1.3	1.75		07/18/16 14:33	108-88-3	
1,2,4-Trimethylbenzene	10.7	ug/m3	1.7	1.75		07/18/16 14:33	95-63-6	
1,3,5-Trimethylbenzene	3.0	ug/m3	1.7	1.75		07/18/16 14:33	108-67-8	
m&p-Xylene	24.8	ug/m3	3.1	1.75		07/18/16 14:33	179601-23-1	
o-Xylene	8.4	ug/m3	1.5	1.75		07/18/16 14:33	95-47-6	

Sample: SV/AP-#3 (SV-1)		Lab ID: 10355321003	Collected: 07/11/16 12:27		Received: 07/13/16 09:40		Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	ND	ug/m3	0.59	1.83		07/18/16 15:05	71-43-2	
Ethylbenzene	128	ug/m3	1.6	1.83		07/18/16 15:05	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.6	1.83		07/18/16 15:05	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	6.7	1.83		07/18/16 15:05	1634-04-4	
Naphthalene	13.0	ug/m3	4.9	1.83		07/18/16 15:05	91-20-3	
Toluene	14.7	ug/m3	1.4	1.83		07/18/16 15:05	108-88-3	
1,2,4-Trimethylbenzene	10.4	ug/m3	1.8	1.83		07/18/16 15:05	95-63-6	
1,3,5-Trimethylbenzene	4.0	ug/m3	1.8	1.83		07/18/16 15:05	108-67-8	
m&p-Xylene	335	ug/m3	3.2	1.83		07/18/16 15:05	179601-23-1	
o-Xylene	122	ug/m3	1.6	1.83		07/18/16 15:05	95-47-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

Sample: SV/AP-#4 (SV-2)		Lab ID: 10355321004	Collected: 07/11/16 12:25	Received: 07/13/16 09:40	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	351	ug/m3	322	992		07/18/16 15:34	71-43-2	
Ethylbenzene	22000	ug/m3	873	992		07/18/16 15:34	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	2480	992		07/18/16 15:34	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	3640	992		07/18/16 15:34	1634-04-4	
Naphthalene	ND	ug/m3	2640	992		07/18/16 15:34	91-20-3	
Toluene	1160	ug/m3	764	992		07/18/16 15:34	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/m3	991	992		07/18/16 15:34	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	991	992		07/18/16 15:34	108-67-8	
m&p-Xylene	58400	ug/m3	1760	992		07/18/16 15:34	179601-23-1	
o-Xylene	11900	ug/m3	873	992		07/18/16 15:34	95-47-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

QC Batch: 425900 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10355321001, 10355321002, 10355321003, 10355321004

METHOD BLANK: 2319312 Matrix: Air
Associated Lab Samples: 10355321001, 10355321002, 10355321003, 10355321004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	07/18/16 11:34	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	07/18/16 11:34	
Benzene	ug/m3	ND	0.32	07/18/16 11:34	
Ethylbenzene	ug/m3	ND	0.88	07/18/16 11:34	
Isopropylbenzene (Cumene)	ug/m3	ND	2.5	07/18/16 11:34	
m&p-Xylene	ug/m3	ND	1.8	07/18/16 11:34	
Methyl-tert-butyl ether	ug/m3	ND	3.7	07/18/16 11:34	
Naphthalene	ug/m3	ND	2.7	07/18/16 11:34	
o-Xylene	ug/m3	ND	0.88	07/18/16 11:34	
Toluene	ug/m3	ND	0.77	07/18/16 11:34	

LABORATORY CONTROL SAMPLE: 2319313

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	58.9	118	57-143	
1,3,5-Trimethylbenzene	ug/m3	50	62.1	124	54-147	
Benzene	ug/m3	32.5	36.1	111	62-141	
Ethylbenzene	ug/m3	44.2	54.3	123	59-149	
Isopropylbenzene (Cumene)	ug/m3	50	57.8	116	65-150	
m&p-Xylene	ug/m3	88.3	103	117	59-146	
Methyl-tert-butyl ether	ug/m3	91.6	92.9	101	64-135	
Naphthalene	ug/m3	53.3	54.4	102	46-146	
o-Xylene	ug/m3	44.2	51.6	117	54-149	
Toluene	ug/m3	38.3	43.6	114	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.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Shenango Twp. Shenango Twp.
Pace Project No.: 10355321

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10355321001	SV/AP-#1 (Indoor)	TO-15	425900		
10355321002	SV/AP-#2 (Outdoor)	TO-15	425900		
10355321003	SV/AP-#3 (SV-1)	TO-15	425900		
10355321004	SV/AP-#4 (SV-2)	TO-15	425900		

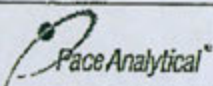
REPORT OF LABORATORY ANALYSIS

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AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

[illegible]

	Document Name: Air Sample Condition Upon Receipt	Document Revised: 26AFR2016 Page 1 of 1
	Document No.: F-MN-A-106-rev.11	Issuing Authority: Pace Minnesota Quality Office

**Air Sample Condition
Upon Receipt**

Client Name:

Compliance Environ.

Project #:

WO#: 10355321



Courier: ☒ Fed Ex ☐ UPS ☐ Speedee ☐ Client
☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 663750376442 663750376453

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No Seals Intact? ☐ Yes ☒ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Tin Can ☐ Other:

Temp Blank rec: ☐ Yes ☒ No

Temp. (TO17 and TO18 samples only) (°C): 10 Corrected Temp (°C): 10

Thermom. Used: ☐ 88SA912167504

☐ 151401163

Temp should be above freezing to 6°C Correction Factor: 0

☐ 88AD143310098

☐ 151401164

Date & Initials of Person Examining Contents:

7/13/16

Type of ice Received ☐ Blue ☐ Wet ☒ None

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Media: <u>Air Can</u> Airbag Filter TDT Passive		11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Samples Received:

Canisters			Canisters		
Sample Number	Can ID	Flow Controller ID	Sample Number	Can ID	Flow Controller ID
	0679	0967			
	1722	0662			
	0074	2848			
	1762	0964			

CLIENT NOTIFICATION/RESOLUTION

Person Contacted:

Field Data Required? ☐ Yes ☐ No

Date/Time:

Comments/Resolution:

Project Manager Review:

William Boberg

Date: 7/13/16

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)

August 18, 2016

Bert Richnafsky
Compliance Environmental Services
2700 Kirila Blvd.
Hermitage, PA 16148


RE: Project: Shenango TWP. Shenango TWP.
Pace Project No.: 10357851

Dear Bert Richnafsky:

Enclosed are the analytical results for sample(s) received by the laboratory on August 04, 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,



Nathan Boberg
nathan.boberg@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Shenango TWP. Shenango TWP.
Pace Project No.: 10357851

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Shenango TWP, Shenango TWP.
Pace Project No.: 10357851

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10357851001	SV/AP-#1 (Indoor)	Air	08/02/16 10:41	08/04/16 09:40
10357851002	SV/AP-#2 (Outdoor)	Air	08/02/16 10:37	08/04/16 09:40
10357851003	SV/AP-#3 (SV-1)	Air	08/02/16 10:22	08/04/16 09:40
10357851004	SV/AP-#4 (SV-2)	Air	08/02/16 10:30	08/04/16 09:40

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Shenango TWP, Shenango TWP.
Pace Project No.: 10357851

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10357851001	SV/AP-#1 (Indoor)	TO-15	NCK	10
10357851002	SV/AP-#2 (Outdoor)	TO-15	NCK	10
10357851003	SV/AP-#3 (SV-1)	TO-15	NCK	10
10357851004	SV/AP-#4 (SV-2)	TO-15	NCK	10

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Shenango TWP. Shenango TWP.
Pace Project No.: 10357851

Sample: SV/AP-#1 (Indoor)		Lab ID: 10357851001	Collected: 08/02/16 10:41		Received: 08/04/16 09:40		Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	18.2	ug/m3	0.57	1.75		08/15/16 12:15	71-43-2	
Ethylbenzene	26.3	ug/m3	1.5	1.75		08/15/16 12:15	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.4	1.75		08/15/16 12:15	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	6.4	1.75		08/15/16 12:15	1634-04-4	
Naphthalene	26.2	ug/m3	4.7	1.75		08/15/16 12:15	91-20-3	
Toluene	104	ug/m3	1.3	1.75		08/15/16 12:15	108-88-3	
1,2,4-Trimethylbenzene	87.7	ug/m3	1.7	1.75		08/15/16 12:15	95-63-6	
1,3,5-Trimethylbenzene	28.5	ug/m3	1.7	1.75		08/15/16 12:15	108-67-8	
m&p-Xylene	126	ug/m3	3.1	1.75		08/15/16 12:15	179601-23-1	
o-Xylene	42.4	ug/m3	1.5	1.75		08/15/16 12:15	95-47-6	

Sample: SV/AP-#2 (Outdoor)		Lab ID: 10357851002	Collected: 08/02/16 10:37		Received: 08/04/16 09:40		Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	ND	ug/m3	0.59	1.83		08/15/16 12:56	71-43-2	
Ethylbenzene	ND	ug/m3	1.6	1.83		08/15/16 12:56	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.6	1.83		08/15/16 12:56	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	6.7	1.83		08/15/16 12:56	1634-04-4	
Naphthalene	ND	ug/m3	4.9	1.83		08/15/16 12:56	91-20-3	
Toluene	ND	ug/m3	1.4	1.83		08/15/16 12:56	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/m3	1.8	1.83		08/15/16 12:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	1.8	1.83		08/15/16 12:56	108-67-8	
m&p-Xylene	ND	ug/m3	3.2	1.83		08/15/16 12:56	179601-23-1	
o-Xylene	ND	ug/m3	1.6	1.83		08/15/16 12:56	95-47-6	

Sample: SV/AP-#3 (SV-1)		Lab ID: 10357851003	Collected: 08/02/16 10:22		Received: 08/04/16 09:40		Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	ND	ug/m3	0.62	1.92		08/15/16 13:27	71-43-2	
Ethylbenzene	71.0	ug/m3	1.7	1.92		08/15/16 13:27	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.8	1.92		08/15/16 13:27	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	7.0	1.92		08/15/16 13:27	1634-04-4	
Naphthalene	ND	ug/m3	5.1	1.92		08/15/16 13:27	91-20-3	
Toluene	1.6	ug/m3	1.5	1.92		08/15/16 13:27	108-88-3	
1,2,4-Trimethylbenzene	2.2	ug/m3	1.9	1.92		08/15/16 13:27	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	1.9	1.92		08/15/16 13:27	108-67-8	
m&p-Xylene	220	ug/m3	3.4	1.92		08/15/16 13:27	179601-23-1	
o-Xylene	77.5	ug/m3	1.7	1.92		08/15/16 13:27	95-47-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Shenango TWP. Shenango TWP.
Pace Project No.: 10357851

Sample: SV/AP-#4 (SV-2)		Lab ID: 10357851004	Collected: 08/02/16 10:30		Received: 08/04/16 09:40	Matrix: Air		
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	ND	ug/m3	5160	15872		08/16/16 23:46	71-43-2	A3,D3
Ethylbenzene	25100	ug/m3	14000	15872		08/16/16 23:46	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	39700	15872		08/16/16 23:46	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	58200	15872		08/16/16 23:46	1634-04-4	
Naphthalene	ND	ug/m3	42200	15872		08/16/16 23:46	91-20-3	
Toluene	ND	ug/m3	12200	15872		08/16/16 23:46	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/m3	15900	15872		08/16/16 23:46	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	15900	15872		08/16/16 23:46	108-67-8	
m&p-Xylene	64100	ug/m3	28100	15872		08/16/16 23:46	179601-23-1	
o-Xylene	18700	ug/m3	14000	15872		08/16/16 23:46	95-47-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Shenango TWP. Shenango TWP.
Pace Project No.: 10357851

QC Batch: 430660 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10357851001, 10357851002, 10357851003

METHOD BLANK: 2342992 Matrix: Air
Associated Lab Samples: 10357851001, 10357851002, 10357851003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	08/15/16 10:16	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	08/15/16 10:16	
Benzene	ug/m3	ND	0.32	08/15/16 10:16	
Ethylbenzene	ug/m3	ND	0.88	08/15/16 10:16	
Isopropylbenzene (Cumene)	ug/m3	ND	2.5	08/15/16 10:16	
m&p-Xylene	ug/m3	ND	1.8	08/15/16 10:16	
Methyl-tert-butyl ether	ug/m3	ND	3.7	08/15/16 10:16	
Naphthalene	ug/m3	ND	2.7	08/15/16 10:16	
o-Xylene	ug/m3	ND	0.88	08/15/16 10:16	
Toluene	ug/m3	ND	0.77	08/15/16 10:16	

LABORATORY CONTROL SAMPLE: 2342993

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	57.0	114	57-143	
1,3,5-Trimethylbenzene	ug/m3	50	53.5	107	54-147	
Benzene	ug/m3	32.5	32.9	101	62-141	
Ethylbenzene	ug/m3	44.2	47.8	108	59-149	
Isopropylbenzene (Cumene)	ug/m3	50	52.9	106	65-150	
m&p-Xylene	ug/m3	88.3	95.0	108	59-146	
Methyl-tert-butyl ether	ug/m3	91.6	89.6	98	64-135	
Naphthalene	ug/m3	53.3	45.5	85	46-146	
o-Xylene	ug/m3	44.2	47.5	108	54-149	
Toluene	ug/m3	38.3	39.0	102	61-138	

SAMPLE DUPLICATE: 2344511

Parameter	Units	10357824001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	1860	865	73	25	E,R1
1,3,5-Trimethylbenzene	ug/m3	977	547	56	25	E,R1
Benzene	ug/m3	3.2	2.3	31	25	R1
Ethylbenzene	ug/m3	30.9	27.6	11	25	
Isopropylbenzene (Cumene)	ug/m3	12.7	12.3	3	25	
m&p-Xylene	ug/m3	387	381	2	25	
Methyl-tert-butyl ether	ug/m3	ND	ND		25	
Naphthalene	ug/m3	154	156	1	25	
o-Xylene	ug/m3	626	421	39	25	E,R1
Toluene	ug/m3	40.3	41.9	4	25	

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

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Shenango TWP, Shenango TWP.
Pace Project No.: 10357851

QC Batch: 430937 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10357851004

METHOD BLANK: 2344118 Matrix: Air
Associated Lab Samples: 10357851004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	08/16/16 13:04	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	08/16/16 13:04	
Benzene	ug/m3	ND	0.32	08/16/16 13:04	
Ethylbenzene	ug/m3	ND	0.88	08/16/16 13:04	
Isopropylbenzene (Cumene)	ug/m3	ND	2.5	08/16/16 13:04	
m&p-Xylene	ug/m3	ND	1.8	08/16/16 13:04	
Methyl-tert-butyl ether	ug/m3	ND	3.7	08/16/16 13:04	
Naphthalene	ug/m3	ND	2.7	08/16/16 13:04	
o-Xylene	ug/m3	ND	0.88	08/16/16 13:04	
Toluene	ug/m3	ND	0.77	08/16/16 13:04	

LABORATORY CONTROL SAMPLE: 2344119

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	50	60.1	120	57-143	
1,3,5-Trimethylbenzene	ug/m3	50	57.9	116	54-147	
Benzene	ug/m3	32.5	33.4	103	62-141	
Ethylbenzene	ug/m3	44.2	51.2	116	59-149	
Isopropylbenzene (Cumene)	ug/m3	50	56.3	113	65-150	
m&p-Xylene	ug/m3	88.3	102	115	59-146	
Methyl-tert-butyl ether	ug/m3	91.6	87.7	96	64-135	
Naphthalene	ug/m3	53.3	47.3	89	46-146	
o-Xylene	ug/m3	44.2	50.4	114	54-149	
Toluene	ug/m3	38.3	39.7	104	61-138	

SAMPLE DUPLICATE: 2345805

Parameter	Units	1272560002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	25300	24900	2	25	
1,3,5-Trimethylbenzene	ug/m3	12900	12900	0	25	
Benzene	ug/m3	11400	10900	5	25	
Ethylbenzene	ug/m3	78500	77700	1	25	
Isopropylbenzene (Cumene)	ug/m3	ND	5950J		25	
m&p-Xylene	ug/m3	85700	85000	1	25	
Methyl-tert-butyl ether	ug/m3	ND	ND		25	
Naphthalene	ug/m3	ND	ND		25	
o-Xylene	ug/m3	ND	3000J		25	
Toluene	ug/m3	ND	2160J		25	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Shenango TWP. Shenango TWP.

Pace Project No.: 10357851

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.

ANALYTE QUALIFIERS

- | | |
|----|--|
| A3 | The sample was analyzed by serial dilution. |
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference. |
| E | Analyte concentration exceeded the calibration range. The reported result is estimated. |
| R1 | RPD value was outside control limits. |

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Shenango TWP. Shenango TWP.

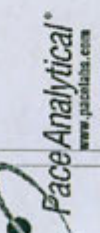
Pace Project No.: 10357851

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10357851001	SV/AP-#1 (Indoor)	TO-15	430660		
10357851002	SV/AP-#2 (Outdoor)	TO-15	430660		
10357851003	SV/AP-#3 (SV-1)	TO-15	430660		
10357851004	SV/AP-#4 (SV-2)	TO-15	430937		

REPORT OF LABORATORY ANALYSIS

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10357851



AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information: Company: CES Address: 2700 Kirila Rd Hermitage, PA 16148 Email To: dsiekkien@ces-env.com Phone: 724-342-1990 Requested Due Date/TAT:		Section B Required Project Information: Report To: Dave Siekkien Copy To: Purchase Order No.: Project Name: Shenango Twp. Project Number: Shenango Twp.		Section C Invoice Information: Attention: Jan Mozzocio Company Name: CES, 2700 Kirila Rd Address: Hermitage, PA 16148 Pace Quote Reference: Pace Project Manager/Sales Rep. Pace Profile #:		20123 Page: of				
Section D Required Client Information AIR SAMPLE ID Sample IDs MUST BE UNIQUE		COLLECTED MEDIA CODE PID Reading (Client only) COMPOSITE START DATE TIME COMPOSITE DATE TIME		Flow Control Number Summa Can Number Canister Pressure (Initial Field - psig) Canister Pressure (Final Field - psig)		Method: TO-15 TO-14 TO-13 (PM) TO-12 (PM) TO-11 (PM) TO-10 (PM) TO-9 (PM) TO-8 (PM) TO-7 (PM) TO-6 (PM) TO-5 (PM) TO-4 (PM) TO-3 (PM) TO-2 (PM) TO-1 (PM) TO-0 (PM) TO-16 Short List Pace Lab ID				
1	SV/AP-#1 (Indoor)	GLC	8/2/16	1011	-	1041	296	1600	12675	001
2										
3	SV/AP-#2 (Outdoor)	GLC	8/2/16	1007	-	1037	288	2417	12695	002
4										
5	SV/AP-#3 (SV-1)	GLC	8/2/16	952	-	1022	285	0044	12655	003
6										
7	SV/AP-#4 (SV-2)	GLC	8/2/16	1000	-	1030	255	1705	12685	004
8										
9										
10										
11										
12										


Comments:
 COC - RADEP Short List
 for unleaded gasoline
 including Naphthalene

ORIGINAL

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Dave Siekkien / CES	8/2/16	1200	Dave Siekkien / CES	8/4/16	0940	Temp in °C Received on Ice Custody Sealed Cooler Samples Intact

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: **Dave Siekkien**
 SIGNATURE OF SAMPLER: *Dave Siekkien*
 DATE Signed (MM/DD/YYYY): **08/02/16**

Temp in °C
 Received on Ice
 Custody Sealed Cooler
 Samples Intact

	Document Name:	Document Revised: 26APR2016
	Air Sample Condition Upon Receipt	Page 1 of 1
	Document No.: F-MN-A-106-rev.11	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt	Client Name: <u>CES</u>	Project #: <u>WO# : 10357851</u>
	Courier: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> UPS <input type="checkbox"/> Speedee <input type="checkbox"/> Client <input type="checkbox"/> Commercial <input type="checkbox"/> Pace <input type="checkbox"/> Other: _____	
Tracking Number: <u>6637 5038 1371</u>		
Custody Seal on Cooler/Box Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Seals Intact? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Packing Material: <input type="checkbox"/> Bubble Wrap <input type="checkbox"/> Bubble Bags <input checked="" type="checkbox"/> Foam <input type="checkbox"/> None <input type="checkbox"/> Tin Can <input type="checkbox"/> Other: _____ Temp Blank rec: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Temp. (TO17 and TO13 samples only) (°C): <u>X</u> Corrected Temp (°C): <u>X</u> Thermom. Used: <input type="checkbox"/> B88A912167504 <input type="checkbox"/> B88A0143310098		
Temp should be above freezing to 6°C Correction Factor: <u>X</u> Date & Initials of Person Examining Contents: <u>8/4/16</u>		
Type of ice Received <input type="checkbox"/> Blue <input type="checkbox"/> Wet <input checked="" type="checkbox"/> None		

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Media: <u>Air Can</u> Airbag Filter TDT Passive		11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Samples Received:			Canisters		
Sample Number	Can ID	Flow Controller ID	Sample Number	Can ID	Flow Controller ID
# 1		6 1122			
# 2		1210			
# 3		1221			
# 4		0924			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review:

Date: 08/04/16

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)

February 06, 2017

Bert Richnafsky
Compliance Environmental Services
2700 Kirila Blvd.
Hermitage, PA 16148

RE: Project: Shenango Twp
Pace Project No.: 10377039

Dear Bert Richnafsky:

Enclosed are the analytical results for sample(s) received by the laboratory on January 24, 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,



Nathan Boberg
nathan.boberg@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Shenango Twp
Pace Project No.: 10377039

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Shenango Twp
Pace Project No.: 10377039

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10377039001	SV/AP-#1 (indoor-Hallway)	Air	01/19/17 11:45	01/24/17 09:50
10377039002	SV/AP-#2 (outdoor)	Air	01/19/17 11:40	01/24/17 09:50
10377039003	SV/AP-#3 (SV-1)	Air	01/19/17 13:00	01/24/17 09:50
10377039004	SV/AP-#4 (SV-2)	Air	01/19/17 13:00	01/24/17 09:50
10377039005	SV/AP-#5 (Indoor-office)	Air	01/19/17 12:03	01/24/17 09:50
10377039006	SV/AP-#6 (indoor-garage office	Air	01/19/17 12:05	01/24/17 09:50

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Shenango Twp
Pace Project No.: 10377039

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10377039001	SV/AP-#1 (indoor-Hallway)	TO-15	MJL	9
10377039002	SV/AP-#2 (outdoor)	TO-15	MJL	9
10377039005	SV/AP-#5 (indoor-office)	TO-15	MJL	9
10377039006	SV/AP-#6 (indoor-garage office)	TO-15	MJL	9

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ANALYTICAL RESULTS

Project: Shenango Twp
Pace Project No.: 10377039

Sample: SV/AP-#1 (indoor-Hallway)		Lab ID: 10377039001	Collected: 01/19/17 11:45	Received: 01/24/17 09:50	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	5.1	ug/m3	0.80	2.45		01/27/17 23:20	71-43-2	
Ethylbenzene	4.5	ug/m3	2.2	2.45		01/27/17 23:20	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	6.1	2.45		01/27/17 23:20	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	9.0	2.45		01/27/17 23:20	1634-04-4	
Naphthalene	ND	ug/m3	6.5	2.45		01/27/17 23:20	91-20-3	
Toluene	24.5	ug/m3	1.9	2.45		01/27/17 23:20	108-88-3	
1,2,4-Trimethylbenzene	7.1	ug/m3	2.4	2.45		01/27/17 23:20	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	2.4	2.45		01/27/17 23:20	108-67-8	
Xylene (Total)	21.7	ug/m3	6.5	2.45		01/27/17 23:20	1330-20-7	

Sample: SV/AP-#2 (outdoor)		Lab ID: 10377039002	Collected: 01/19/17 11:40	Received: 01/24/17 09:50	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	ND	ug/m3	0.62	1.9		01/27/17 22:24	71-43-2	
Ethylbenzene	ND	ug/m3	1.7	1.9		01/27/17 22:24	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.8	1.9		01/27/17 22:24	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	7.0	1.9		01/27/17 22:24	1634-04-4	
Naphthalene	ND	ug/m3	5.1	1.9		01/27/17 22:24	91-20-3	
Toluene	3.9	ug/m3	1.5	1.9		01/27/17 22:24	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/m3	1.9	1.9		01/27/17 22:24	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	1.9	1.9		01/27/17 22:24	108-67-8	
Xylene (Total)	ND	ug/m3	5.0	1.9		01/27/17 22:24	1330-20-7	

Sample: SV/AP-#5 (indoor-office)		Lab ID: 10377039005	Collected: 01/19/17 12:03	Received: 01/24/17 09:50	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	3.1	ug/m3	0.76	2.35		01/28/17 00:16	71-43-2	
Ethylbenzene	ND	ug/m3	2.1	2.35		01/28/17 00:16	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	5.9	2.35		01/28/17 00:16	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	8.6	2.35		01/28/17 00:16	1634-04-4	
Naphthalene	ND	ug/m3	6.3	2.35		01/28/17 00:16	91-20-3	
Toluene	12.3	ug/m3	1.8	2.35		01/28/17 00:16	108-88-3	
1,2,4-Trimethylbenzene	ND	ug/m3	2.3	2.35		01/28/17 00:16	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	2.3	2.35		01/28/17 00:16	108-67-8	
Xylene (Total)	7.7	ug/m3	6.2	2.35		01/28/17 00:16	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Shenango Twp
Pace Project No.: 10377039

Sample: SV/AP-#6 (indoor-garage office) Lab ID: 10377039006 Collected: 01/19/17 12:05 Received: 01/24/17 09:50 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Benzene	12.2	ug/m3	0.57	1.75		01/28/17 00:42	71-43-2	
Ethylbenzene	10.6	ug/m3	1.5	1.75		01/28/17 00:42	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/m3	4.4	1.75		01/28/17 00:42	98-82-8	
Methyl-tert-butyl ether	ND	ug/m3	6.4	1.75		01/28/17 00:42	1634-04-4	
Naphthalene	9.2	ug/m3	4.7	1.75		01/28/17 00:42	91-20-3	
Toluene	57.9	ug/m3	1.3	1.75		01/28/17 00:42	108-88-3	
1,2,4-Trimethylbenzene	22.1	ug/m3	1.7	1.75		01/28/17 00:42	95-63-6	
1,3,5-Trimethylbenzene	4.9	ug/m3	1.7	1.75		01/28/17 00:42	108-67-8	
Xylene (Total)	55.6	ug/m3	4.6	1.75		01/28/17 00:42	1330-20-7	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Shenango Twp
Pace Project No.: 10377039

QC Batch: 457588 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10377039001, 10377039002, 10377039005, 10377039006

METHOD BLANK: 2505086 Matrix: Air
Associated Lab Samples: 10377039001, 10377039002, 10377039005, 10377039006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	01/27/17 14:22	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	01/27/17 14:22	
Benzene	ug/m3	ND	0.32	01/27/17 14:22	
Ethylbenzene	ug/m3	ND	0.88	01/27/17 14:22	
Isopropylbenzene (Cumene)	ug/m3	ND	2.5	01/27/17 14:22	
Methyl-tert-butyl ether	ug/m3	ND	3.7	01/27/17 14:22	
Naphthalene	ug/m3	ND	2.7	01/27/17 14:22	
Toluene	ug/m3	ND	0.77	01/27/17 14:22	
Xylene (Total)	ug/m3	ND	2.6	01/27/17 14:22	

LABORATORY CONTROL SAMPLE: 2505087

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/m3	51.5	62.0	120	57-143	
1,3,5-Trimethylbenzene	ug/m3	51.5	60.2	117	54-147	
Benzene	ug/m3	34.7	35.8	103	62-141	
Ethylbenzene	ug/m3	47.7	49.8	104	59-149	
Isopropylbenzene (Cumene)	ug/m3	51.5	55.0	107	65-150	
Methyl-tert-butyl ether	ug/m3	38.8	40.5	104	64-135	
Naphthalene	ug/m3	56	72.0	129	46-146	
Toluene	ug/m3	41.4	41.9	101	61-138	
Xylene (Total)	ug/m3	94.9	101	106	66-146	

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

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Shenango Twp

Pace Project No.: 10377039

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Shenango Twp
Pace Project No.: 10377039

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10377039001	SV/AP-#1 (indoor-Hallway)	TO-15	457588		
10377039002	SV/AP-#2 (outdoor)	TO-15	457588		
10377039005	SV/AP-#5 (indoor-office)	TO-15	457588		
10377039006	SV/AP-#6 (indoor-garage office)	TO-15	457588		

REPORT OF LABORATORY ANALYSIS

Date: 02/06/2017 01:16 PM

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3/17/2017 12:19:44 PM



AIR: CHAIN-OF-CUSTODY / Analytical Request Document

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

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:		Section D Required Client Information	
Company:	CES	Report To:	Dave Siekkinen	Attention:	Jan Mozzocio	Program	22726
Address:	2700 Kiriila Drive	Copy To:		Company Name:	CES	Location of Sampling by State	PA
Email To:	Herm. Tagz, PA 16148	Purchase Order No.:		Address:	Herm. Tagz, PA 16148	Reporting Unit	RCRA
Phone:	724-342-1990	Project Name:	Shenango Twp	Pace Quota Reference:		Other	
Requested Due Date/TAT:	Normal TAT	Project Number:		Pace Project Manager/Sales Rep.		Report Level	II
AIR SAMPLE ID		MEDIA CODE		COLLECTED		Flow Control Number	
Sample IDs MUST BE UNIQUE		P10 Reading (Client only)		DATE		Summa Can Number	
1 SV/AP-#1 (Indoor-Hallway)		6LC		1-19-17 1115		8 0278	
2 SV/AP-#2 (outdoor)		6LC		1-19-17 1110		6.8 1185	
3 SV/AP-#3 (SV-1)		6LC		1-19-17 1050		29 2850	
4 SV/AP-#4 (SV-2)		6LC		1-19-17 1100		29.5 285	
5 SV/AP-#5 (Indoor-office)		6LC		1-19-17 1133		29 0797	
6 SV/AP-#6 (Indoor-Garage office)		6LC		1-19-17 1135		29 0148	
7 SV/AP-#7 (Indoor-Hallway)		6LC		1-19-17 1145		28 0278	
8 SV/AP-#8 (Indoor-Hallway)		6LC		1-19-17 1140		29 1185	
9 SV/AP-#9 (Indoor-Hallway)		6LC		1-19-17 1300		29 2850	
10 SV/AP-#10 (Indoor-Hallway)		6LC		1-19-17 1300		29.5 285	
11 SV/AP-#11 (Indoor-Hallway)		6LC		1-19-17 1203		29 0797	
12 SV/AP-#12 (Indoor-Hallway)		6LC		1-19-17 1205		29 0148	
Comments:		RELINQUISHED BY / AFFILIATION		DATE		TIME	
COC - PADEP Short List		Dave Siekkinen		1-19-17		1630	
For unleaded gasoline,							
including naphthalene,							
SV/AP-#3 and #4 drew very little							
air (see canister pressures)							
ORIGINAL							
SAMPLER NAME AND SIGNATURE		Dave Siekkinen		DATE SIGNED (MM/DD/YY)		01/19/17	
PRINT NAME OF SAMPLER		Dave Siekkinen					
SIGNATURE OF SAMPLER		Dave Siekkinen					
Temp in °C				1/24/17		0950	
Received on							
Sealed Cooler							
Custody							
Samples Intact							

	Document Name:	Document Revised: 25APR2016
	Air Sample Condition Upon Receipt	Page 1 of 1
	Document No.: F-MN-A-106-rev.11	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name:

Project #:

WO#: 10377039



Courier: ☒ Fed Ex ☐ UPS ☐ Speedee ☐ Client
☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 663750410224, 663750410235

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No Seals Intact? ☐ Yes ☒ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Tin Can ☐ Other:

Temp Blank rec: ☐ Yes ☒ No

Temp. (TO17 and TO13 samples only) (°C): 1 Corrected Temp (°C): 1 Thermom. Used: ☐ B88A912167504 ☐ 151401163

Temp should be above freezing to 6°C Correction Factor: 1 ☐ B88A0143310098 ☐ 151401164

Date & Initials of Person Examining Contents: 1/24/17

Type of Ice Received ☐ Blue ☐ Wet ☒ None

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Media: <u>Air Can</u> Airbag Filter TDT Passive		11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Samples Received:			Canisters		
Sample Number	Can ID	Flow Controller ID	Sample Number	Can ID	Flow Controller ID
	0278	2804			
	1185	0965			
	0146	0963			
	1662	2058			
	0797	0989			
	0148	0684			

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Sample 003 arrived with over 1L of water collected inside of the canister and sample 004 arrived with full vacuum. Both cans were canceled due to minimal volume collected

Project Manager Review:

Nathan Poberg

Date: 1/25/17

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)

APPENDIX D

Site Specific Plans Prepared and Implemented

Health and Safety Plan

MSDS for Unleaded Gasoline

PNDI Review

Policies and Procedures

- A) Limited QA/QC**
- B) Soil Description**
- C) Well Gauging with Electronic Interface Probe**
- D) Soil Sample Collection**
- E) Jar Headspace Screening Procedure**
- F) Preparation of a Chain of Custody Form (COC)**
- G) Equipment Decontamination**
- H) Soil Vapor and Air Phase Testing**

HEALTH AND SAFETY INFORMATION

Facility: Shenango Township Municipal Building

Location: 3439 Hubbard – West Middlesex Road, West Middlesex, PA 16159;

Shenango Township, Mercer County

Facility Phone Number: (724)-658-4460

First Contact: Bert Richnafsky, Compliance Environmental Services (CES)

Cell: (814) 547-2848

Office: (724) 342-1990

Contaminants: Unleaded Gasoline

- High to Moderate Volatility (strong to moderate odor)
- Use Level D protective work attire, hard hat, safety shoes, gloves and eye protection (unless advised otherwise);
- No free phase product is expected to be encountered during Site operations;
- Low combustion or fire hazard is expected from contaminants at the low expected concentration (Benzene < 10 ppb and MTBE \leq 200 ppb in water)
- Avoid skin/eye contact and ingestion;
- Please inform the CES supervisor immediately if conditions not discussed herein are observed (such as encountering free gasoline liquid or strong vapor odor);
- Read accompanying Material Safety Data Sheet (MSDS) prior to working on-site.

Other Potential Hazards

- Heat or cold exposure (stop work if overheating or numbing cold to the skin occurs);
- Vehicle Traffic (the facility has extensive traffic so bright colored/fluorescent clothing is recommended in traffic areas and be alert in all directions when working or walking within the facility). Work looking toward traffic and establish proper traffic control to re-route traffic away from work areas;
- Potential insect bites (take appropriate measures);
- Thunderstorms – suspend drilling until the threat of lightning and thunderstorms clears;
- Underground and overhead piping and utilities – Inspect all work areas for overhead utility lines and consult the CES supervisor for approval prior to conducting any borings or excavations. See special precautions below;
- Hand clear all boring locations as directed by the attending Health and Safety supervisor;
- Keep hands and feet away from all moving equipment, work slowly and in a safe manner.

Nearest Emergency Facility:

UPMC Horizon- Shenango Valley, 2200 Memorial Dr,
Farrell, PA 16121 Phone: (724) 981-3500;

See attached map and driving directions – From the Site, Head west on PA-318 W and turn right on PA-718 N. Continue to Council St and Mercer Ave. Turn right onto Farrell Terrace and right onto Sharon New Castle Road. Continue to Memorial Dr to destination.

Special Precautions:

All boring and excavation locations are required to be cleared by hand to the depth instructed by the attending CES supervisor to minimize potential contact with underground piping and utilities.

Daily Safety Meeting:

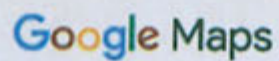
The CES site supervisor will conduct a daily safety meeting for increased awareness of potential safety hazards. Questions should be discussed of any potential concerns.

Material Safety Data Sheet (MSDS):

The accompanying MSDS discusses the characteristics, safety hazards and response options for unleaded gasoline releases. All personnel working on site are responsible for reviewing the MSDS before beginning work. The MSDS will be located as designated by the site supervisor.

Reporting Incidents:

All incidents requiring medical attention or resulting in a delay of work must be reported to the CES supervisor.



3439 Hubbard-Middlesex Rd to UPMC Horizon - Drive 4.6 miles, 9 min
Shenango Valley



Map data ©2016 Google 2000 ft

via PA-718 N

Fastest route, the usual traffic

9 min

4.6 miles

via PA-318 E and PA-18 N

9 min

4.4 miles

SAFETY DATA SHEET

CITGO Gasolines, All Grades Unleaded



Section 1. Identification

GHS product identifier	: CITGO Gasolines, All Grades Unleaded
Synonyms	: Unleaded Gasolines; Conventional Unleaded Gasoline with Ethanol; Unleaded Gasoline with Ethanol; Reformulated Unleaded Gasoline with Ethanol; Motor Gasolines; Petrol; Automobile Motor Fuels; Finished Gasolines; Gasoline, Regular Unleaded; Gasoline, Mid-grade Unleaded; Gasoline, Premium Unleaded; Reformulated Gasolines (RFG); Reformulated Motor Fuels; Oxygenated Motor Spirits; Gasoline, Regular Reformulated; Gasoline, Mid-grade Reformulated; Gasoline, Premium Reformulated; RBOB; GTAB; Arizona Clean Burning Gasoline (CBG); CARB Gasoline with Ethanol.
Material uses	: Fuel.
Code	: Various
MSDS #	: UNLEAD
Supplier's details	: CITGO Petroleum Corporation P.O. Box 4689 Houston, TX 77210 sdsvend@citgo.com
Emergency telephone number	: Technical Contact: (832) 486-4000 Medical Emergency: (832) 486-4700 CHEMTREC Emergency: (800) 424-9300 (United States Only)

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE LIQUIDS - Category 2 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B GERM CELL MUTAGENICITY - Category 1B CARCINOGENICITY - Category 1B TOXIC TO REPRODUCTION [Fertility] - Category 2 TOXIC TO REPRODUCTION [Unborn child] - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [central nervous system (CNS)] - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) [Respiratory tract irritation and Narcotic effects] - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 ASPIRATION HAZARD - Category 1

GHS label elements

Hazard pictograms



Signal word

Hazard statements

- : Danger
- : Highly flammable liquid and vapor.
Causes skin and eye irritation.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
May be fatal if swallowed and enters airways.
May cause damage to organs. (central nervous system (CNS))
May cause respiratory irritation.
May cause drowsiness and dizziness.

Date of issue/Date of revision

: 5/19/2015.

1/19

3/17/2017 12:19:52 PM

Section 2. Hazards identification

Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention

: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Wear protective gloves. Wear eye or face protection. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Response

: Get medical attention if you feel unwell. IF exposed or if you feel unwell: Call a POISON CENTER or physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing. If skin irritation occurs: Get medical attention.

Storage

: Store locked up. Store in a well-ventilated place. Keep cool.

Disposal

: Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

: Avoid contact with skin and clothing. Wash thoroughly after handling.

Hazards not otherwise classified

: Prolonged or repeated contact may dry skin and cause irritation.

Section 3. Composition/information on ingredients

Substance/mixture

: Substance

Other means of identification

: Unleaded Gasolines; Conventional Unleaded Gasoline with Ethanol; Unleaded Gasoline with Ethanol; Reformulated Unleaded Gasoline with Ethanol; Motor Gasolines; Petrol; Automobile Motor Fuels; Finished Gasolines; Gasoline, Regular Unleaded; Gasoline, Mid-grade Unleaded; Gasoline, Premium Unleaded; Reformulated Gasolines (RFG); Reformulated Motor Fuels; Oxygenated Motor Spirits; Gasoline, Regular Reformulated; Gasoline, Mid-grade Reformulated; Gasoline, Premium Reformulated; RBOB; GTAB; Arizona Clean Burning Gasoline (CBG); CARB Gasoline with Ethanol.

Ingredient name	%	CAS number
Toluene	<20	108-88-3
Pentane, all isomers	<20	109-66-0
Xylenes, mixed isomers	<20	1330-20-7
Hexane, other isomers	<15	*
Heptane, all isomers	<15	142-82-5
Ethanol	0 - 10	64-17-5
Butane	0 - 10	106-97-8
Benzene	<4.9	71-43-2
Cumene	<4	98-82-8
Ethylbenzene	<4	100-41-4
n-Hexane	<3	110-54-3
Cyclohexane	<3	110-82-7
1,2,4-Trimethylbenzene	<2	95-63-6
Naphthalene	<2	91-20-3

* = Various ** = Mixture *** = Proprietary

Any concentration shown as a range is to protect confidentiality or is due to process variation.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- | | |
|---------------------|---|
| Eye contact | : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. |
| Inhalation | : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| Skin contact | : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| Ingestion | : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |

Most important symptoms/effects, acute

Potential acute health effects

- | | |
|---------------------|---|
| Eye contact | : Causes eye irritation. |
| Inhalation | : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation. Breathing high concentrations can cause irregular heartbeats which can be fatal. |
| Skin contact | : Causes skin irritation. Defatting to the skin. |
| Ingestion | : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach. |

Over-exposure signs/symptoms

- | | |
|---------------------|---|
| Eye contact | : Adverse symptoms may include the following:
pain or irritation
watering
redness |
| Inhalation | : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
Breathing high concentrations can cause irregular heartbeats which can be fatal. |
| Skin contact | : Adverse symptoms may include the following:
irritation
redness
dryness
cracking |
| Ingestion | : Adverse symptoms may include the following:
nausea or vomiting |

Indication of immediate medical attention and special treatment needed, if necessary

Section 4. First aid measures

- Notes to physician** : This material (or a component) may sensitize the heart to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.
- Specific treatments** : Treat symptomatically and supportively.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that gas or vapor is still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

- Specific hazards arising from the chemical** : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Extinguishing media**
- Suitable extinguishing media** : Use dry chemical, carbon dioxide (CO₂), water spray (fog) or foam. SMALL FIRE: Steam, CO₂, dry chemical or inert gas (e.g., nitrogen). LARGE FIRE: Use foam, water fog or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, ignition or explosion.
- Unsuitable extinguishing media** : Do not use water jet.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flames, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Use only as a motor fuel. Do not syphon by mouth. Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container. Non equilibrium conditions may increase the fire hazard associated with this product. Always bond receiving containers to the fill pipe before and during loading. Always confirm that receiving container is properly grounded. Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards. Carefully review operations that may increase the risks such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. In addition to bonding and grounding, efforts to mitigate the hazards may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep nozzle in contact with the container throughout the loading process. Do NOT fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously contained a dissimilar product).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental

Section 7. Handling and storage

contamination.

Bulk Storage Conditions: Maintain all storage tanks in accordance with applicable regulations. Use necessary controls to monitor tank inventories. Inspect all storage tanks on a periodic basis. Test tanks and associated piping for tightness. Maintain the automatic leak detection devices to assure proper working condition.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Pentane, all isomers	ACGIH TLV (United States, 4/2014). TWA: 1000 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 2950 mg/m ³ 8 hours.
Toluene	OSHA PEL Z2 (United States, 2/2013). TWA: 200 ppm 8 hours. CEIL: 300 ppm AMP: 500 ppm 10 minutes. ACGIH TLV (United States, 4/2014). TWA: 20 ppm 8 hours.
Xylenes, mixed isomers	ACGIH TLV (United States, 4/2014). TWA: 100 ppm 8 hours. TWA: 434 mg/m ³ 8 hours. STEL: 150 ppm 15 minutes. STEL: 651 mg/m ³ 15 minutes. OSHA PEL (United States, 2/2013). TWA: 100 ppm 8 hours. TWA: 435 mg/m ³ 8 hours.
Hexane, other isomers	ACGIH (United States). TWA: 500 ppm 8 hours. STEL: 1000 ppm 15 minutes.
Heptane, all isomers	ACGIH TLV (United States, 4/2014). TWA: 400 ppm 8 hours. TWA: 1640 mg/m ³ 8 hours. STEL: 500 ppm 15 minutes. STEL: 2050 mg/m ³ 15 minutes. OSHA PEL (United States, 2/2013). TWA: 500 ppm 8 hours. TWA: 2000 mg/m ³ 8 hours.
Ethanol	ACGIH (United States). TWA: 1000 ppm 8 hours. OSHA (United States). TWA: 1000 ppm 8 hours. ACGIH TLV (United States, 4/2014). STEL: 1000 ppm 15 minutes. OSHA PEL (United States, 2/2013). TWA: 1000 ppm 8 hours. TWA: 1900 mg/m ³ 8 hours.
Butane	ACGIH (United States). TWA: 800 ppm 8 hours. ACGIH TLV (United States, 4/2014). STEL: 1000 ppm 15 minutes.
Benzene	ACGIH TLV (United States, 4/2014). Absorbed through skin. TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m ³ 8 hours. STEL: 2.5 ppm 15 minutes. STEL: 8 mg/m ³ 15 minutes.

Section 8. Exposure controls/personal protection

Cumene	<p>OSHA PEL (United States, 2/2013). TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes. OSHA PEL Z2 (United States, 2/2013). TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes. ACGIH TLV (United States, 4/2014). TWA: 50 ppm 8 hours. OSHA PEL (United States, 2/2013). Absorbed through skin. TWA: 50 ppm 8 hours. TWA: 245 mg/m³ 8 hours. ACGIH TLV (United States, 4/2014). TWA: 20 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 100 ppm 8 hours. TWA: 435 mg/m³ 8 hours. ACGIH TLV (United States, 4/2014). Absorbed through skin. TWA: 50 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 500 ppm 8 hours. TWA: 1800 mg/m³ 8 hours. ACGIH TLV (United States, 4/2014). TWA: 100 ppm 8 hours. OSHA PEL (United States, 2/2013). TWA: 300 ppm 8 hours. TWA: 1050 mg/m³ 8 hours. ACGIH TLV (United States, 4/2014). TWA: 25 ppm 8 hours. TWA: 123 mg/m³ 8 hours. ACGIH (United States). Absorbed through skin. TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. OSHA (United States). TWA: 10 ppm 8 hours. ACGIH TLV (United States, 4/2014). Absorbed through skin. TWA: 10 ppm 8 hours. TWA: 52 mg/m³ 8 hours. OSHA PEL (United States, 2/2013). TWA: 10 ppm 8 hours. TWA: 50 mg/m³ 8 hours.</p>
Ethylbenzene	
n-Hexane	
Cyclohexane	
1,2,4-Trimethylbenzene	
Naphthalene	

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, vapor controls, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Section 8. Exposure controls/personal protection

Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	: Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles. Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If inhalation hazards exist, a full-face respirator may be required instead.
Skin protection	
Hand protection	: Avoid skin contact with liquid. Chemical-resistant gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: Heavy duty, industrial grade chemically resistant gloves constructed of nitrile, neoprene, polyethylene, fluoroelastomer rubber or polyvinyl chloride as approved by glove manufacturer. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. Leather gloves are not protective for liquid contact.
Body protection	: Avoid skin contact with liquid. Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	: Avoid skin contact with liquid. Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Leather boots are not protective for liquid contact.
Respiratory protection	: Avoid inhalation of gases, vapors, mists or dusts. Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If an air purifying respirator is appropriate, use one equipped with cartridges rated for organic vapors.

Section 9. Physical and chemical properties

Physical state	: Liquid.
Color	: Transparent, clear to amber or red.
Odor	: Pungent, characteristic gasoline.
pH	: Not applicable
Boiling point/boiling range	: 38 to 204°C (100.4 to 399.2°F)
Flash point	: Closed cup: -43°C (-45.4°F) [Tagliabue [ASTM D-56]]
Evaporation rate	: 7.5 (n-butyl acetate. = 1)
Lower and upper explosive (flammable) limits	: Lower: 1.4% Upper: 7.6%
Vapor pressure	: 29.3 to 60 kPa (220 to 450 mm Hg) [room temperature]
Vapor density	: 3 to 4 [Air = 1]
Relative density	: 0.72 to 0.77
Solubility	: Very slightly soluble in the following materials: cold water.
Auto-ignition temperature	: 280°C (536°F)
Viscosity	: Kinematic (room temperature): <0.01 cm ² /s (<1 cSt)

Section 10. Stability and reactivity

Reactivity	: Not expected to be Explosive, Self-Reactive, Self-Heating, or an Organic Peroxide under US GHS Definition(s).
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Toluene	LC50 Inhalation Vapor	Rat	>20 mg/l	4 hours
	LD50 Dermal	Rabbit	12267 mg/kg	-
	LD50 Oral	Rat - Male	5580 mg/kg	-
	TDLo Oral	Rat	1000 mg/kg	-
Xylenes, mixed isomers	LC50 Inhalation Vapor	Rat	5000 ppm	4 hours
	LC50 Inhalation Vapor	Rat	6700 ppm	4 hours
	LD50 Oral	Mouse	2119 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
	LD50 Oral	Rat	4300 mg/kg	-
Hexane, other isomers	LC50 Inhalation Gas.	Rat	48000 ppm	4 hours
Heptane, all isomers	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
Ethanol	LC50 Inhalation Vapor	Mouse	>40000 ppm	10 minutes
	LC50 Inhalation Vapor	Rat	124700 mg/m ³	4 hours
	LD50 Oral	Guinea pig	5560 mg/kg	-
	LD50 Oral	Rabbit	6300 mg/kg	-
Butane	LD50 Oral	Rat	7060 mg/kg	-
	LC50 Inhalation Vapor	Mouse	680000 mg/m ³	2 hours
	LC50 Inhalation Vapor	Rat	658000 mg/m ³	4 hours
Benzene	LC50 Inhalation Vapor	Rat	10000 ppm	7 hours
	LD50 Oral	Mammal - species unspecified	5700 mg/kg	-
	LD50 Oral	Mouse	4700 mg/kg	-
	LD50 Oral	Rat	6400 mg/kg	-
Cumene	LC50 Inhalation Vapor	Mouse	10 g/m ³	7 hours
	LD50 Dermal	Rabbit	12300 uL/kg	-
	LD50 Oral	Rat	2.9 g/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
Ethylbenzene	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	3500 mg/kg	-
n-Hexane	LC50 Inhalation Vapor	Rat	48000 ppm	4 hours
	LD50 Oral	Rat	15840 mg/kg	-
Cyclohexane	LC50 Inhalation Vapor	Mouse	70000 mg/m ³	2 hours
	LD50 Oral	Rat	6240 mg/kg	-
	LD50 Oral	Rat	12705 mg/kg	-

Section 11. Toxicological information

1,2,4-Trimethylbenzene	LD50 Oral	Rat	>5000 mg/kg	-
	LDLo Oral	Rabbit	5500 mg/kg	-
	LC50 Inhalation Vapor	Rat	18000 mg/m ³	4 hours
	LD50 Oral	Mouse	6900 mg/kg	-
Naphthalene	LD50 Oral	Rat	5 g/kg	-
	LD50 Oral	Rat	490 mg/kg	-

Conclusion/Summary

Pentane, all isomers: Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

Toluene: Deliberate inhalation of toluene at high concentrations (e.g., glue sniffing and solvent abuse) can cause CNS depression, cardiac arrhythmias and death.

Xylenes, mixed isomers: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, CNS damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross over-exposure.

Heptane, all isomers: Heptane is a CNS depressant and narcosis at elevated concentrations.

Ethanol: Inhalation exposure to ethanol vapor at concentrations above applicable workplace exposure levels is expected to produce eye and mucus membrane irritation. Human exposure at concentrations from 1000 to 5000 ppm produced symptoms of narcosis, stupor and unconsciousness. Subjects exposed to ethanol vapor in concentrations between 500 and 10,000 ppm experienced coughing and smarting of the eyes and nose. At 15,000 ppm there was continuous lacrimation and coughing. While extensive acute and chronic effects can be expected with ethanol consumption, ingestion is not expected to be a significant route of exposure to this product.

Butane: Studies in laboratory animals indicate exposure to extremely high levels of butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

Cumene: Overexposure to cumene may cause upper respiratory tract irritation and CNS depression.

n-Hexane: n-Hexane is a CNS depressant and narcosis at elevated concentrations.

Cyclohexane: Cyclohexane is a CNS depressant and narcosis at elevated concentrations.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Pig	-	870 Micrograms	-
	Skin - Mild irritant	Rabbit	-	24 hours 250 microliters	-
	Skin - Moderate irritant	Rabbit	-	435 milligrams	-
Xylenes, mixed isomers	Skin - Mild irritant	Rat	-	500 milligrams	-
	Skin - Moderate irritant	Rabbit	-	8 hours 60 microliters	-
	Skin - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
Ethanol	Eyes - Mild irritant	Rabbit	-	100 Percent	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-

Section 11. Toxicological information

Benzene	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
Cumene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
	Eyes - Mild irritant	Rabbit	-	86 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 10 milligrams	-
Ethylbenzene	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
n-Hexane	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
1,2,4-Trimethylbenzene	Skin - Edema	Rabbit	3	-	-
Naphthalene	Skin - Mild irritant	Rabbit	-	495 milligrams	-

Skin

: **Xylenes, mixed isomers:** May cause skin irritation.

Cyclohexane: Cyclohexane can cause eye, skin and mucous membrane irritation.

Eyes

: **Xylenes, mixed isomers:** May cause eye irritation.

Respiratory

: No additional information.

Sensitization

Skin

: **Toluene:** Non-sensitizer to skin.

Respiratory

: **Toluene:** Non-sensitizer to lungs.

Mutagenicity

Conclusion/Summary

: **Heptane, all isomers:** n-heptane was not mutagenic in the Salmonella/microsome (Ames) assay.

Benzene: Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes.

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Benzene	Positive - Inhalation - TD	Rat - Female	-	-

Conclusion/Summary

: **Ethanol:** IARC Monograph 96 (2010) identified Ethanol in alcoholic beverages as a Group 1 carcinogen.

Benzene: Studies of workers exposed to benzene show clear evidence that over-exposure can cause cancer of the blood forming organs (acute myelogenous leukemia) and aplastic anemia. Also, studies suggest over-exposure to benzene may be associated with other types of leukemia and other blood disorders. Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems.

Ethylbenzene: Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). Also, the incidence of tumors was elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B).

Cumene: Studies in laboratory animals indicate evidence of adverse effects on the kidney and adrenal glands following high level exposure. The relevance of these findings to humans is not clear at this time. IARC has classified cumene as "possibly carcinogenic to humans" (Group 2B). In addition, NTP has determined cumene is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in experimental animals.

Classification

Section 11. Toxicological information

Product/ingredient name	OSHA	IARC	NTP
Toluene	-	3	-
Xylenes, mixed isomers	-	3	-
Ethanol	-	1	-
Benzene	+	1	Known to be a human carcinogen.
Ethylbenzene	-	2B	-
Cumene	-	2B	Reasonably anticipated to be a human carcinogen.
Naphthalene	-	2B	Reasonably anticipated to be a human carcinogen.

Reproductive toxicity

Conclusion/Summary

Toluene: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Several studies of workers suggest long-term exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals were largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high levels of maternal exposure.

Benzene: One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of aplastic anemia have been reported in the offspring of persons severely over-exposed to benzene. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and skeletal variations.

Ethylbenzene: Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time.

n-Hexane: In laboratory studies, prolonged exposure to elevated concentrations of n-hexane was associated with decreased sperm count and degenerative changes in the testicles of rats.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Benzene	Negative - Inhalation	Rat	-	-

Conclusion/Summary : No additional information.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Toluene	Category 3	Not applicable.	Narcotic effects
Pentane, all isomers	Category 3	Not applicable.	Narcotic effects
Hexane, other isomers	Category 3	Not applicable.	Narcotic effects
Heptane, all isomers	Category 3	Not applicable.	Narcotic effects
Ethanol	Category 3	Not applicable.	Respiratory tract irritation
Butane	Category 2	Not determined	central nervous system (CNS)
Cumene	Category 3	Not applicable.	Respiratory tract irritation
Ethylbenzene	Category 3	Not applicable.	Respiratory tract irritation
n-Hexane	Category 3	Not applicable.	Narcotic effects
Cyclohexane	Category 3	Not applicable.	Narcotic effects

Section 11. Toxicological information

1,2,4-Trimethylbenzene	Category 3	Not applicable.	Respiratory tract irritation
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Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Toluene	Category 2	Inhalation	kidneys
Benzene	Category 1	Inhalation	blood system
n-Hexane	Category 2	Inhalation	peripheral nervous system

Aspiration hazard

Name	Result
CITGO Gasolines, All Grades Unleaded	ASPIRATION HAZARD - Category 1
Pentane, all isomers	ASPIRATION HAZARD - Category 1
Toluene	ASPIRATION HAZARD - Category 1
Hexane, other isomers	ASPIRATION HAZARD - Category 1
Heptane, all isomers	ASPIRATION HAZARD - Category 1
Benzene	ASPIRATION HAZARD - Category 1
Cumene	ASPIRATION HAZARD - Category 1
Ethylbenzene	ASPIRATION HAZARD - Category 1
n-Hexane	ASPIRATION HAZARD - Category 1
Cyclohexane	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness. May cause respiratory irritation. Breathing high concentrations can cause irregular heartbeats which can be fatal.

Skin contact : Causes skin irritation. Defatting to the skin.

Ingestion : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways. Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
Breathing high concentrations can cause irregular heartbeats which can be fatal.

Skin contact : Adverse symptoms may include the following:
irritation
redness
dryness
cracking

Ingestion : Adverse symptoms may include the following:
nausea or vomiting

Potential chronic health effects

Section 11. Toxicological information

General	: Causes damage to organs through prolonged or repeated exposure. Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.
Carcinogenicity	: May cause cancer. Risk of cancer depends on duration and level of exposure.
Mutagenicity	: May cause genetic defects.
Teratogenicity	: Suspected of damaging the unborn child.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: Suspected of damaging fertility.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Toluene	Acute EC50 433 ppm Marine water	Algae - Skeletonema costatum	96 hours
	Acute EC50 12500 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
Xylenes, mixed isomers	Chronic NOEC 500000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Acute EC50 90 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute LC50 8.5 ppm Marine water	Crustaceans - Palaemonetes pugio - Adult	48 hours
	Acute LC50 8500 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
	Acute LC50 15700 µg/l Fresh water	Fish - Lepomis macrochirus - Juvenile (Fledgling, Hatchling, Weanling)	96 hours
	Acute LC50 19000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Acute LC50 13400 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 16940 µg/l Fresh water	Fish - Carassius auratus	96 hours
	Acute EC50 1.5 mg/l	Daphnia - Daphnia magna	48 hours
Heptane, all isomers	Acute LC50 4 mg/l	Fish - Carassius auratus	24 hours
	Acute LC50 375000 µg/l Fresh water	Fish - Oreochromis mossambicus	96 hours
	Acute LC50 4924 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
Ethanol	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
		Algae - Pseudokirchneriella subcapitata	72 hours
Benzene	Acute EC50 29000 µg/l Fresh water	Algae - Scenedesmus abundans	96 hours
	Acute EC50 1360000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute EC50 9230 µg/l Fresh water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 21000 µg/l Marine water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
	Acute LC50 5.28 µl/L Fresh water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks
	Chronic NOEC 1.5 to 5.4 µl/L Marine water		

Section 12. Ecological information

Cumene	Acute EC50 2600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 7400 µg/l Fresh water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute EC50 10600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Ethylbenzene	Acute LC50 2700 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 4600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 3600 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 2930 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 5200 µg/l Marine water	Crustaceans - Americamysis bahia	48 hours
	Acute LC50 4200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
n-Hexane	Chronic NOEC 1000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 2500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 4530 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Cyclohexane	Acute LC50 17000 µg/l Marine water	Crustaceans - Cancer magister - Zoea	48 hours
	Acute LC50 4910 µg/l Marine water	Crustaceans - Elasmopus pecteniscus - Adult	48 hours
	Acute LC50 7720 µg/l Fresh water	Fish - Pimephales promelas	96 hours
1,2,4-Trimethylbenzene	Acute LC50 22.4 mg/l Fresh water	Fish - Tilapia zillii	96 hours
	Acute EC50 1.6 ppm Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 2350 µg/l Marine water	Crustaceans - Palaemonetes pugio	48 hours
Naphthalene	Acute LC50 213 µg/l Fresh water	Fish - Melanotaenia fluviatilis - Larvae	96 hours
	Chronic NOEC 0.67 ppm Fresh water	Fish - Oncorhynchus kisutch	40 days

Conclusion/Summary : Not available.

Persistence and degradability

Conclusion/Summary : **Toluene**: Rapidly biodegradable in aerobic conditions.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Pentane, all isomers	3.45	171	low
Toluene	2.73	8.3	low
Xylenes, mixed isomers	3.12	8.1 to 25.9	low
Heptane, all isomers	4.66	552	high
Ethanol	-0.35	-	low
Butane	2.89	-	low
Benzene	2.13	4.27	low
Cumene	3.55	94.69	low
Ethylbenzene	3.6	-	low
n-Hexane	4	501.187	high
Cyclohexane	3.44	167	low
1,2,4-Trimethylbenzene	3.63	243	low
Naphthalene	3.4	36.5 to 168	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations





Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA classification : D001, D018

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Xylenes, mixed isomers	1330-20-7	Listed	U239
Toluene	108-88-3	Listed	U220
Benzene	71-43-2	Listed	U019
Cumene	98-82-8	Listed	U055
Cyclohexane	110-82-7	Listed	U056

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN1203	UN 1203	UN1203
UN proper shipping name	UN 1203, Gasoline, 3 PG II.	UN 1203, Gasoline, 3 PG II.	UN 1203, Gasoline, 3 PG II.
Transport hazard class(es)	3 	3  	3 
Packing group	II	II	II
Environmental hazards	Yes.	Yes.	Yes.
Additional information	Packaging instruction Passenger aircraft Quantity limitation: 5 L Cargo aircraft Quantity limitation: 60 L	-	Cargo Aircraft Only Quantity limitation: 60 L Limited Quantities - Passenger Aircraft Quantity limitation: 5 L

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.
Clean Water Act (CWA) 307: Toluene; Benzene; Ethylbenzene; Naphthalene
Clean Water Act (CWA) 311: Xylenes, mixed isomers; Toluene; Benzene; Ethylbenzene; Cyclohexane; Naphthalene
 This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
Clean Air Act (CAA) 112 regulated flammable substances: Pentane; Butane

SARA 302/304

Composition/information on ingredients

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
 Immediate (acute) health hazard
 Delayed (chronic) health hazard

Composition/information on ingredients

Name	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Octanes, all isomers	Yes.	No.	No.	Yes.	No.
Pentane	Yes.	No.	No.	Yes.	No.
Toluene	Yes.	No.	No.	Yes.	Yes.
Hexane, other isomers	Yes.	No.	No.	Yes.	Yes.
Heptane	Yes.	No.	No.	Yes.	No.
Xylenes, mixed isomers	Yes.	No.	No.	Yes.	No.
Ethanol	Yes.	No.	No.	Yes.	Yes.
Butane	Yes.	Yes.	No.	Yes.	No.
Nonane, all isomers	Yes.	No.	No.	Yes.	No.
Benzene	Yes.	No.	No.	Yes.	Yes.
n-hexane	Yes.	No.	No.	Yes.	Yes.
Cumene	Yes.	No.	No.	Yes.	Yes.
Methylcyclohexane	Yes.	No.	No.	Yes.	No.
Trimethylbenzene, all isomers	Yes.	No.	No.	Yes.	Yes.
Ethylbenzene	Yes.	No.	No.	Yes.	Yes.
2,2,4-Trimethylpentane	Yes.	No.	No.	Yes.	No.
1,2,4-Trimethylbenzene	Yes.	No.	No.	Yes.	No.
Cyclohexane	Yes.	No.	No.	Yes.	No.
Cyclopentane	Yes.	No.	No.	Yes.	No.
Naphthalene	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Toluene	108-88-3	<20
	Xylenes, mixed isomers	1330-20-7	<20
	Benzene	71-43-2	<5
	Ethylbenzene	100-41-4	<4
	Cumene	98-82-8	<4
	n-Hexane	110-54-3	<3
	Cyclohexane	110-82-7	<3
	1,2,4-Trimethylbenzene	95-63-6	<2
	Naphthalene	91-20-3	<2

Section 15. Regulatory information

Supplier notification	Toluene	108-88-3	<20
	Xylenes, mixed isomers	1330-20-7	<20
	Benzene	71-43-2	<5
	Ethylbenzene	100-41-4	<4
	Cumene	98-82-8	<4
	n-Hexane	110-54-3	<3
	Cyclohexane	110-82-7	<3
	1,2,4-Trimethylbenzene	95-63-6	<2
	Naphthalene	91-20-3	<2

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts

: The following components are listed: HEPTANE (N-HEPTANE); Xylenes, mixed isomers; Toluene; Octanes, all isomers; PENTANE; ETHYL ALCOHOL; BENZENE; Butane; Cumene; Ethylbenzene; Trimethylbenzene, all isomers; Methylcyclohexane; n-Hexane; Ethyltoluene; Cyclohexane; 2,2,4-Trimethylpentane; PSEUDOCUMENE; Cyclopentane

New York

: The following components are listed: Toluene; Benzene; Cumene; Benzene, 1-methylethyl-; Ethylbenzene; Hexane; Cyclohexane; Benzene, hexahydro-; 2,2,4-Trimethylpentane; Naphthalene

New Jersey

: The following components are listed: Gasoline

Pennsylvania

: The following components are listed: Gasoline

California Prop. 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	%	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Gasoline engine exhaust (condensates / extracts)	100	Yes.	No.	No.	No.
Toluene	<20	No.	Yes.	No.	7000 µg/day (ingestion)
Ethanol	<10	Yes.	Yes.	No.	No.
Benzene	<5	Yes.	Yes.	6.4 µg/day (ingestion) 13 µg/day (inhalation)	24 µg/day (ingestion) 49 µg/day (inhalation)
Ethylbenzene	<5	Yes.	No.	41 µg/day (ingestion) 54 µg/day (inhalation)	No.
Cumene	<5	Yes.	No.	No.	No.
Naphthalene	<2	Yes.	No.	Yes.	No.

International regulations

International lists

: **Australia inventory (AICS):** All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): All components are listed or exempted.

Canada inventory

: All components are listed or exempted.

EU Inventory

: All components are listed or exempted.

WHMIS (Canada)

: Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

Section 16. Other information

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of issue/Date of revision : 5/19/2015.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

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1. PROJECT INFORMATION

Project Name: **Shenago Township**

Date of Review: **12/15/2016 12:18:57 PM**

Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation, Spill (e.g., oil, chemical)**

Project Area: **502.57 acres**

County(s): **Mercer**

Township/Municipality(s): **SHENANGO**

ZIP Code: **16159**

Quadrangle Name(s): **SHARON EAST**

Watersheds HUC 8: **Shenango**

Watersheds HUC 12: **Hogback Run-Shenango River; McCullough Run-Shenango River**

Decimal Degrees: **41.169050, -80.480636**

Degrees Minutes Seconds: **41° 10' 8.5803" N, 80° 28' 50.2899" 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.

Shenago Township



- ☐ 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
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Shenago Township



- ☐ 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



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>.

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
Fax: (717) 772-0271

PA Fish and Boat Commission

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

Name: Albert M. Richnatsky
Company/Business Name: Compliance Environmental Services, Inc.
Address: 2700 Kirila Blvd.
City, State, Zip: Hermitage, PA 16148
Phone: (724) 348-1990 Fax: (724) 981-9030
Email: brichnatsky@ces-env.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 answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

Albert M. Richnatsky
applicant/project proponent signature

December 15, 2016
date

A) Limited QA/QC

- Sampling and Preservation
 - Soil: placed in sample containers provided by lab, labels, stored on ice
 - Handling kept at a minimum while using gloves and sampling equipment
 - Container size, type and sample volume, preservation methods and holding times followed by EPA Publication SW-846
 - Groundwater: samples collected following "Monitoring Well Sampling with a Bucket-Type Bailer" or a low flow procedure using a peristaltic pump
 - Container size, type and sample volume, preservation methods and holding times followed by EPA Publication SW-846
 - If using "low flow" procedure, collect physical data (such as temperature, conductivity, oxygen content, etc.)
- Well Gauging Procedure
 - Per "Electronic Interface Probe Well Gauging (EIP)"
- Equipment Decontamination Procedures
 - Per "Sampling Equipment Decontamination"
 - From Sec. 6.5, DEP Publication #WSC-310-41, Decontamination Procedures
- Equipment
 - CES Field Logbook, Forms and Site Plans
 - CES Health & Safety Plan and Standard Operating Procedures (SOP)
 - CES Standard Decontamination Kit
 - Disposable Polyethylene Bailers (1 liter)
 - Sample Labels, Containers and Transport Coolers as provided by lab
 - CES Standard Tool Kit
 - Electronic Interface Probe and Manual
 - Photoionization Detector
 - Additional equipment as needed
- Calibration of Field Equipment
 - According to manufactures instructions in Field Manual and CES Standard Operating Procedures
- Data Validation
 - Per CES Document Quality Assurance Program

B) Soil Description

- Purpose
 - Formalize process CES employees field classify soil samples
- Equipment
 - Project Task Assignment (PTA)
 - Soil handling equipment (e.g. spatula, spoon, knife, etc., should be stainless steel or non-reactive plastic)
 - Hand lens
 - Personal Protection Equipment (PPE)
 - Field book
 - Health and Safety Plan
- Procedure
 - Color-Color noted first based on Munsell Soil Color Chart
 - Moisture-Describe moisture content by using terms:
 - Dry: dry, absence of moisture, dry to touch
 - Damp; no visible water, grains stick together slightly
 - Moist: little visible water, wet to touch
 - Wet: some free water, visible water
 - Saturated: free water implies 100% saturation and below water table
 - Components (Burnister System)-Describe and evaluate grain size

Name	Size	Example
Boulders	>30cm	Basketball
Cobble	30cm to 7.5cm	Softball
Coarse Gravel	7.5cm to 2.5cm	Baseball
Fine Gravel	2.5cm to 2.5mm	Pea
Coarse Sand	2.5mm to 0.65mm	Rock Salt
Medium Sand	0.65mm to 0.25mm	Sugar or Table Salt
Fine Sand	0.25mm to 0.075mm	Powdered Sugar
Silt	0.075mm to 2μm	Coarse Flour - cannot see grains, gritty
Clay	<2μm	Fine Flour - cannot see grains, smooth
 - Descriptors- use following terminology

Burmister	Descriptors	Example
and -	35% to 50%	SILT and CLAY
some -	20% to 35%	SILT and clay
little -	10% to 20%	SILT little clay
trace -	0% to 10%	SILT trace clay
 - Additional descriptions-noted in parentheses after items 1, 2, and , for example
 - Graduation designation: well sorted, poorly sorted, bi-modal, etc.
 - Density: based on blow counts
 - Particle angularity: rounded, subangular, angular, subangular
 - Structure: homogenous, stratified, laminated, banded, lens, heterogeneous, etc.
 - Geologic name: Glacial Till, Loess, Lacustrine, Fluvial, etc
 - When soil classification, field testing, and lab splits are completed, remaining soil should be properly handled according to CES, client, and regulatory agency procedures.

C) Well Gauging with an Electronic Interface Probe (EIP)

- Purpose
- EIP used to gauge the depth to groundwater and/or separate phase hydrocarbons within monitoring wells, tanks, and drums
- Equipment
- Electronic Interface Probe (EIP)
- Project Task Assignment (PTA)
- Personal Protective Equipment (PPE)
- Health and Safety Plan (HASP)
- Tools to access monitoring wells/points
- Decontamination Supplies
- Safety Cones
- Procedure
- Before work, field technician and project manager should review HASP and PTA for specific site activities. Indicated measures of the HASP should be enacted before sampling activities.
- Before arriving to site inspect probe and check battery level.
- Remove well caps at all locations to be monitored to permit water level to stabilize.
- Monitor water levels at all locations prior to disturbing groundwater at the site.
- When using an EIP or water level meter in multiple wells at a site, review historical groundwater analytical data to determine which wells are least and most impacted. Gauging should be completed from least to most impacted well to minimize potential risk of cross-contamination between wells.
- Decontaminate the EIP following the procedure for Equipment Decontamination.
- Lower probe into well or tank until solid or beeping tone is heard. Recorded depth to nearest 0.001 feet at assigned reference point (i.e. lip of casing or well cover). Solid tone indicates separate phase hydrocarbons and beeping tone indicates water.
- Continue to lower probe and record depth to each change in tone. If dense non-aqueous phase liquids (DNAPLs) are suspected, lower probe to bottom of well and record thickness of any solid tone yielding zones.
- Record measurements into field notes.
- Thoroughly decontaminate EIP after each well following Equipment Decontamination procedure.

D) Soil Sample Collection

- Purpose
 - Formalize approach to the collection of soil samples once sampling protocol is established by Project Manager and client
 - Sampling performed in order to determine if there is contamination in soil; delineation of subsurface materials; extent of contamination; evaluation of the possibility of groundwater contamination; and confirmation of removed contamination
 - Procedure depends on purpose of soil investigation
 - Procedure include Hand Auger Soil Sampling; Split Tube Sampling; Soil Stockpile Sampling; and Shelby Push Tube Sampling
- Equipment
 - Project Task Assignment (PTA)
 - Personal Protection Equipment (PPE)
 - Field book
 - Chain of Custody for appropriate lab
 - Health and Safety plan (HASP)
 - Photo-ionization Detector (PID)
 - Decontamination equipment
 - Tape measure
 - Appropriate sample containers
 - Cooler(s)
 - Nitrile gloves
- Procedure
 - Review assigned PTA; at arrival of site CES field personnel notify a site representative of work to be performed, complete HASP pre-entry briefing and associated protocols, prepare to collect soil samples
 - Review other relevant SOPs
 - 1. Put on new pair of gloves
 - 2. Open correct soil sampler container
 - 3. Use stainless steel, decontaminated soil handling device pack soil sample into open container-minimizing headspace
 - 4. Close lid tightly
 - 5. Affix completed sample label on sample container
 - 6. Copy sample label information into field book
 - 7. Put sample jar into cooler with sufficient amount of ice. Temperature should be maintained at 40°F or below and keep cooler away from work activities and out of direct sunlight
 - 8. Remove and dispose of gloves
 - 9. Repeat steps for each sample
 - Some sample protocols require preservation of 5 grams of sample with methanol before transportation to lab
 - State-specific protocols for collection and preservation soil samples with methanol or other methods should be followed

E) Jar Headspace Screening Procedure

- Purpose
 - Used for qualitative screening of petroleum hydrocarbon impacted soils using a portable Photoionization Detector (PID) or Flame Ionization Detector (FID) or Hot Wire Meter
- Equipment
 - Soil screening jars
 - Aluminum foil
 - PID, FID, or Hot Wire Meter
- Procedure
 1. Field instruments operated and calibrated to yield "total organic vapors" in ppm (v/v) as benzene. PID operated with 10.0 eV (+/-) lamp source. Operation, maintenance, and calibration performed according to manufacturer's specification. For jar headspace analysis, instrument calibration should be checked/adjusted no less than every 10 analyses or on a daily basis.
 2. Place a representative sample into a clean 16 oz jar, halfway filling the jar. Cover opening with 1 or 2 sheets of clean aluminum foil and tightly screw the cap onto the jar.
 3. Allow headspace to develop for at least 10 minutes. Moderately shake jar for 10 seconds at beginning and end of headspace development period. If ambient temperatures are below 32°F (0°C), then headspace development should be completed within a heated vehicle or building.
 4. After headspace is developed, remove jar lid and puncture aluminum foil with instrument sampling probe to about halfway into headspace. Avoid uptake of water droplets or soil particulates into field screening meter.
 5. Allow meter sufficient time to register a reading and record highest meter response as jar headspace concentration. Maximum response may occur at high organic vapor concentration or concentrations of elevated headspace moisture while using foil seal/probe insertion method, in which case data should be discounted.
 6. Recorded results into field book.

F) Preparation of a Chain of Custody Form (COC)

- Purpose
 - Ensure integrity of sample through collection to lab analysis
 - Sample traceable from collection to analysis and final disposition
 - Documentation of handling history
- Equipment
 - Appropriate sample containers
 - Sample packing/shipping container
 - Sample labels
 - Chain of Custody
 - Custody seals
- Procedure
 - Label containers before collection preventing misidentification
 - Including sample designation, exact date, time, and location of collection
 - Name of sampler
 - Analysis required
 - CES project/client number
 - Chain of Custody forms
 - All pertinent data included
 - List each sample to be analyzed at time of collection
 - Exact dates and times on each container must be identical to entries on Chain of Custody Form and in field notes
 - COC accompany every sample collected by CES personnel establishing necessary documentation to track possession from time of collection to relinquishment to analytical lab
 - Forms must contain at least
 - Project name, number, location
 - CES office name, address, phone number
 - Analytical lab name, address, phone number
 - Sampling matrix (e.g. water, soil, vapor)
 - Sampling date/time
 - Sampling preservation if applicable
 - Analyses to be completed for each sample
 - Any comments/special instructions
 - Dated signature of sampler noting that samples were relinquished/received by
 - COC accompanies the samples delivered to lab placed with sampling containers in packing/shipping container
 - Samples in cooler over ice for shipping, COC sealed in its own Ziplock bag at the top

- Packing/shipping container properly sealed (typically with packing tape) and must be relinquished to a secure area at the appropriate CES facility pending delivery to lab
- Some instances packing/shipping container picked at CES facility by lab courier and delivered directly to lab by courier
- If packing/shipping containers are transported by "third party" shipper (post office or overnight shipping company)
 - Container must be sealed to enable detection of unauthorized tampering using a Custody seal placed on container so it is impossible to open container without breaking the seal
 - If seal has lines for sample collection date and sampler's name/signature this information is provided
 - Seal is placed on container immediately after container has been prepared for shipping

G) Equipment Decontamination

- Purpose
 - Standardized process that equipment is decontaminated prior to re-use
 - Prevent cross-contamination
- Equipment
 - Personal Protective Equipment (PPE)
 - Alconox
 - Methanol or other state-approved cleaning agent
 - 10% nitric acid solution
 - Distilled or deionized water
 - Brushes for scrubbing
 - Paper towels
 - Clean aluminum
 - 5 gallon buckets (3)
- Procedure
 - Performed prior to use
 - If not immediately used allowed to air dry and wrapped in aluminum foil
 - Any sampling device/equipment been in contact with water/soil must be cleaned or disposed and replaced before re-use
 - 1. Item is washed (scrubbed with brushes if needed) with mixture of Alconox and water
 - 2. Item is rinsed thoroughly with clean (potable or deionized) water
 - 3. If sampling for metals: item rinsed with 10% nitric acid solution
 - 4. Item is rinsed thoroughly with clean deionized water
 - 5. Item rinsed with reagent grade methanol or other state-approved cleaning agent
 - 6. Item given final rinse with distilled/deionized water
 - 7. Item allowed to air dry
 - Steps 1 and 2 may be replaced with steam cleaning if equipment will not be damaged in process

H) Soil Vapor and Air Phase Testing

- Purpose
 - Used for the collection of soil vapor and indoor air quality samples
 - Details sampling procedure to ensure delivery of reliable soil vapor samples to the laboratory that will produce consistent results that represent actual conditions
- Equipment
 - Project Task Assignment (PTA)
 - Personal Protection Equipment (PPE)
 - Chain of Custody
 - Health and Safety Plan (HASP)
 - Summa™ sample containers
 - Nitrile Gloves
 - Purging Equipment
 - PID Meter
 - Field Vacuum Gauge
 - Proper tubing and fittings
- Procedure
 1. The Summa Canister from the laboratory controls the sampling flow rate to approximately 200 ml/min or appropriate rate. The Summa Canister must be per-cleaned and certified for cleanliness for field use by the testing laboratory.
 2. If needed, a vacuum gauge can be used to verify the pressure inside the canisters before sampling in order to ensure the can has the proper vacuum. To prevent cross contamination, the vacuum gauge should be used just before field sampling, and the same gauge should not be used after sample collection.
 3. The sampling system should be connected as follows:
 - i. Top of the Probe
 - ii. Tubing
 - iii. Moisture Filter
 - iv. Purging pump, followed by Summa Canister
 4. Purge the tubing connecting the sample port to the canister using the purge pump for approximately 5 minutes or until VOC values are detected on the PID meter.
 5. Check tightness of the probe, valve on top of the probe, and all tubing connections.
 6. Record in field notes sample location; Canister ID No.; start time; flow control number; and initial pressure (vacuum) on canister gauge. Upon completion of sampling, record the final pressure and time.
 7. Open valves and turn on the pump at appropriate flow rate. Securely connect the canister to intake tubing, open canister valve, and allow to fill for the appropriate time (commonly 30 minutes for a 6 liter Summa Canister).
 8. Upon completion of sampling, close the valve then disconnect the canister from sampling system, and complete sample label.
 9. Collect background/outdoor air sample from upwind and as close as possible to probe location.
 10. Summa containers should be properly packaged to laboratory and should be analyzed within 30 days.

APPENDIX E

Aquifer Testing and Groundwater Modeling Information

Aquifer Testing Data

Aqtesolv (Hydraulic Conductivity) Model

Bioscreen (Attenuation – Migration) Model – This Model has not been included with this report as not enough data has been gathered from the recently installed monitoring wells (February 2017) to produce a meaningful model. A Bioscreen (Attenuation-Migration) Model, or equivalent, will be provided after at least 3 quarters of groundwater testing has been conducted at the wells installed during February 2017. A Bioscreen Model generated prior to installation of the new wells showed that COC in groundwater above SHSs would not leave the property.

PUMP TEST DATA

Shenango Township
Shenango Twp., Mercer Co., PA
PADEP Facility ID No. 43-04117; USTIF Claim No. 2016-008(S)

Date: September 23, 2016

Weather / Precipitation: / Sunny, 70s in morning, 80s in afternoon
No significant precipitation past 120 hrs - mod. Heavy precipitation ended 120 hrs prior to testing.

Water levels prior to disturbance

Pumps Used

Well No.	Depth	Time
MW-2	4.64	8:55
MW-3	4.82	8:50
MW-4	6.46	9:00
MW-12	6.02	8:45

Initial level of pumping well

Calculated - gals water/vertical foot
Well Screen in saturated zone - Approx
Max well yield - 3.0 gals/min
Total water extracted - 367 gallons

WL in MW-4 (10 min after install of intake hoses) - 6.028

Pumping Well: MW-4

Intake hoses set @ ~11' BGL

Pump On Pump Off
9:00:00 15:00:00

Water level values are measured in feet from the top of the PVC well pipe.

**Elapsed Time* values are in minutes

** Cumulative water level change (ft)

Numbers in red indicate measurements after the pump was shut off.

Total amount pumped - 367 gallons

Well	Flow Rate (GPM) & Comments	Water Level (ft)	Time	Elapsed Time	*Elapsed Time, Minutes	**WL Change
MW-4	Pump On	6.46	9:00:00	0:00	0:00	0.00
	0.63	6.48	9:01:00	0:01:00	1:00	0.02
		6.49	9:01:30	0:01:30	1:30	0.03
		6.50	9:02:00	0:02:00	2:00	0.04
		6.51	9:03:00	0:03:00	3:00	0.05
		6.53	9:04:00	0:04:00	4:00	0.07
		6.55	9:05:00	0:05:00	5:00	0.09
		6.56	9:06:00	0:06:00	6:00	0.10
	1.2	6.57	9:07:00	0:07:00	7:00	0.11
		6.58	9:08:00	0:08:00	8:00	0.12
		6.59	9:09:00	0:09:00	9:00	0.13
	1.30	6.60	9:10:00	0:10:00	10:00	0.14
		6.61	9:11:00	0:11:00	11:00	0.15
		6.62	9:12:00	0:12:00	12:00	0.16
	1.3	6.63	9:13:00	0:13:00	13:00	0.17
		6.65	9:14:00	0:14:00	14:00	0.19
		6.68	9:15:00	0:15:00	15:00	0.22
		6.69	9:18:00	0:18:00	18:00	0.23
		6.720	9:21:00	0:21:00	21:00	0.26
		6.74	9:24:00	0:24:00	24:00	0.28
	2.20	6.80	9:27:00	0:27:00	27:00	0.34
		6.83	9:30:00	0:30:00	30:00	0.37
		6.90	9:35:00	0:35:00	35:00	0.44
	3.00	7.10	9:40:00	0:40:00	40:00	0.44
		7.21	9:45:00	0:45:00	45:00	0.75
	3.00	7.70	9:50:00	0:50:00	50:00	1.24
		9.95	9:53:00	0:53:00	53:00	3.49
	2.00	9.90	10:00:00	1:00:00	60:00	3.44
	2.00	10.00	10:05:00	1:05:00	65:00	3.54
		10.30	10:10:00	1:10:00	70:00	3.84
	1.40	10.30	10:15:00	1:15:00	75:00	3.84
		10.30	10:20:00	1:20:00	80:00	3.84
		10.30	10:25:00	1:25:00	85:00	3.84
	1.25	10.30	10:30:00	1:30:00	90:00	3.84
	1.25	9.90	10:35:00	1:35:00	95:00	3.44
	1.10	10.28	10:40:00	1:40:00	100:00	3.82
		9.45	10:45:00	1:45:00	105:00	2.99
		9.00	10:50:00	1:50:00	110:00	2.54
		9.47	10:55:00	1:55:00	115:00	3.01
		9.55	11:00:00	2:00:00	120:00	3.09
		9.65	11:15:00	2:15:00	135:00	3.19
		9.60	11:30:00	2:30:00	150:00	3.14
	1.00	10.13	11:45:00	2:45:00	165:00	3.67
	1.00	9.90	12:00:00	3:00:00	180:00	3.44
	1.00	10.09	12:15:00	3:15:00	195:00	3.63
	0.80	10.15	12:30:00	3:30:00	210:00	3.69
	0.80	10.15	12:45:00	3:45:00	225:00	3.69
	0.77	10.30	13:00:00	4:00:00	240:00	3.84
	0.70	10.01	13:15:00	4:15:00	255:00	3.55
	0.70	9.910	13:30:00	4:30:00	270:00	3.45
	0.70	9.90	13:45:00	4:45:00	285:00	3.44
	0.67	9.95	14:00:00	5:00:00	300:00	3.49
	0.67	10.09	14:15:00	5:15:00	315:00	3.63
	0.67	9.72	14:30:00	5:30:00	330:00	3.26
	0.63	9.98	14:45:00	5:45:00	345:00	3.52
		9.95	15:00:00	6:00:00	360:00	3.49
	Pump off		15:05:00	6:05:00	365:00	
		8.00	15:05:30	6:05:30	365.50	1.54
		7.45	15:06:00	6:06:00	366.00	0.99
		7.43	15:06:30	6:06:30	366.50	0.97
		7.42	15:07:00	6:07:00	367.00	0.96
		7.42	15:07:30	6:07:30	367.50	0.96
		7.41	15:08:00	6:08:00	368.00	0.95
		7.41	15:08:30	6:08:30	368.50	0.95
		7.40	15:09:00	6:09:00	369.00	0.94
		7.40	15:09:30	6:09:30	369.50	0.94
		7.39	15:10:00	6:10:00	370.00	0.93
		7.39	15:11:00	6:11:00	371.00	0.93
		7.38	15:12:00	6:12:00	372.00	0.92
		7.38	15:13:00	6:13:00	373.00	0.92
		7.37	15:14:00	6:14:00	374.00	0.91
		7.37	15:15:00	6:14:00	375.00	0.91
		7.36	15:17:00	6:15:30	377.00	0.90
		7.36	15:19:00	6:17:00	379.00	0.90
		7.35	15:21:00	6:18:00	381.00	0.89
		7.35	15:23:00	6:19:00	383.00	0.89
		7.34	15:25:00	6:20:00	385.00	0.88
		7.33	15:30:00	6:24:00	390.00	0.87
		7.32	15:35:00	6:28:00	395.00	0.86
		7.31	15:40:00	6:32:00	400.00	0.85
		7.30	15:45:00	6:36:00	405.00	0.84
		7.29	15:50:00	6:40:00	410.00	0.83
		7.28	15:55:00	6:44:00	415.00	0.82
		7.27	16:00:00	6:48:00	420.00	0.81
		7.26	16:05:00	6:52:00	425.00	0.80

Well	Water Level (ft)	Time	Elapsed Time	*Elapsed Time, Minutes	**WL Change
MW-2	4.64	9:00	0:00	0	0.000
	4.65	12:30	3:30	210	0.010
	4.65	14:10	5:10	310	0.010
	4.67	15:25	6:25	385	0.030
MW-3	4.82	9:00	0:00	0	0.000
	4.82	10:00	1:00	60	0.000
	4.82	11:00	2:00	120	0.000
	4.82	11:30	2:30	150	0.000
	4.82	12:30	3:30	210	0.000
	4.82	14:10	5:10	310	0.000
MW-12	4.82	15:25	6:25	385	0.000
	4.82	15:53	6:53	413	0.000
	6.02	9:00	0:00	0	0.000
	6.10	10:00	1:00	60	0.080
	6.12	10:45	1:45	105	0.100
	6.14	11:20	2:20	140	0.120
	6.14	11:30	2:30	150	0.120
	6.16	12:00	3:00	180	0.140
	6.17	12:30	3:30	210	0.150
	6.21	13:30	4:30	270	0.190
	6.22	14:10	5:10	310	0.200
	6.24	14:55	5:55	355	0.220
	6.25	15:15	6:15	375	0.230
	6.24	15:25	6:25	385	0.220
	6.25	15:53	6:53	414	0.230

Pump Off 14:05:00

AQTESOLV for Windows

Data Set
Date: 12/09/16
Time: 15:25:58

PROJECT INFORMATION

Company: CES
Client: Shenango Twp
Test Date: 9/23/2016
Test Well: MW-4

AQUIFER DATA

Saturated Thickness: 8. ft
Anisotropy Ratio (Kz/Ky): 1.

PUMPING WELL DATA

No. of pumping wells: 1

Pumping Well No. 1: MW-4

X Location: 44. ft
Y Location: 83. ft

Casing Radius: 0.167 ft
Well Radius: 0.688 ft

Partially Penetrating Well
Depth to Top of Screen: 1.8 ft
Depth to Bottom of Screen: 13.6 ft

No. of pumping periods: 20

Pumping Period Data			
Time (min)	Rate (gal/min)	Time (min)	Rate (gal/min)
0.	0.	60.	2.
2.	0.63	80.	1.4
4.	1.	90.	1.25
7.	1.2	100.	1.1
10.	1.3	155.	1.
13.	1.3	170.	0.8
15.	1.7	180.	0.77
21.	2.2	195.	0.7
40.	3.	240.	0.67
50.	3.	285.	0.63

OBSERVATION WELL DATA

No. of observation wells: 3

Observation Well No. 1: MW-2

X Location: 55. ft
Y Location: 85. ft

Radial distance from MW-4: 11.18033989 ft

Partially Penetrating Well
Depth to Top of Screen: 2.1 ft
Depth to Bottom of Screen: 11.8 ft

No. of Observations: 3

12/09/16

1

15:25:58

AQTESOLV for Windows

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
60.	0.	150.	0.
120.	0.		

Observation Well No. 2: MW-3

X Location: 40. ft
Y Location: 75. ft

Radial distance from MW-4: 8.94427191 ft

Partially Penetrating Well

Depth to Top of Screen: 2. ft

Depth to Bottom of Screen: 11.5 ft

No. of Observations: 1

Observation Data	
Time (min)	Displacement (ft)
60.	0.

Observation Well No. 3: MW-12

X Location: 39. ft
Y Location: 79. ft

Radial distance from MW-4: 6.403124237 ft

Partially Penetrating Well

Depth to Top of Screen: 2.8 ft

Depth to Bottom of Screen: 11.6 ft

No. of Observations: 6

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
60.	0.08	150.	0.12
105.	0.1	180.	0.14
140.	0.12	210.	0.15

SOLUTION

Pumping Test

Aquifer Model: Unconfined

Solution Method: Tartakovsky-Neuman

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	ft^2/min
T	1.	
S	0.	
Sy	0.	
Kz/Kr	1.	
kD	0.	

$K = T/b = 0.125 \text{ ft/min (0.0635 cm/sec)}$

$Ss = S/b = 0.1/\text{ft}$

APPENDIX F

Field Parameters During Groundwater Sampling

Field Parameters							
Well ID	Date	Temp ©	Ms/cm	TDS g/L	DO mg/L	pH	ORP/mv
MW-1	6/15/2016	15.69	0.719	0.468	5.61	6.37	-37.5
MW-2	6/15/2016	17.04	1.365	0.888	2.1	7.05	-60.1
MW-3	6/15/2016	18.04	5.733	3.726	1.48	7.02	-36.8
MW-4	6/15/2016	16.99	3.886	2.476	2.29	6.80	-69.2
MW-6	6/15/2016	19.08	1.398	0.908	1.29	7.59	-140.7

Sampled by TP and MM

Field Parameters							
Well ID	Date	Temp ©	Ms/cm	TDS g/L	DO mg/L	pH	ORP/mv
MW-1	7/26/2016	18.65	0.617	0.550	2.2	6.32	155.1
MW-2	7/26/2016	19.89	1.364	1.232	0.45	7.02	-29.3
MW-3	7/26/2016	22.35	6.441	6.017	0.58	6.75	-63.9
MW-4	7/26/2016	19.08	2.371	4.400	0.4	5.91	32.7
MW-6	7/26/2016	21.40	1.912	1.781	1.81	7.42	-147.7

Sampled by DS and MM

Field Parameters							
Well ID	Date	Temp ©	Ms/cm	TDS g/L	DO mg/L	pH	ORP/mv
MW-1	9/26/2016	19.52	0.828	0.705	2.79	6.29	6.5
MW-2	9/26/2016	20.86	1.317	1.214	0.75	6.77	-43.6
MW-3	9/26/2016	21.24	5.408	5.025	0.47	6.67	-57
MW-4	9/26/2016	20.32	2.436	2.220	0.44	5.88	46.8
MW-6	9/26/2016	20.58	2.135	1.955	0.29	7.19	-112.4
MW-9	9/26/2016	14.77	1.747	1.410	4.15	NR	NR
MW-10	9/26/2016	17.09	1.172	0.995	5.59	NR	NR
MW-11	9/26/2016	17.62	0.359	0.308	0.46	NR	NR
MW-12	9/26/2016	18.56	1.499	1.314	1.21	7.36	-8.4

Sampled by DS

Field Parameters							
Well ID	Date	Temp ©	Ms/cm	TDS g/L	DO mg/L	pH	ORP/mv
MW-1	11/1/2016	16.84	0.489	413	3.2	6.50	100.3
MW-2	11/1/2016	17.90	1.167	1009	1.78	7.11	132.8
MW-3	11/1/2016	18.68	5.285	4666	0.38	7.02	-68.1
MW-4	11/1/2016	18.39	1.722	1504	0.33	5.99	18.2
MW-6	11/1/2016	17.95	1.391	1203	0.22	7.51	-91.7
MW-9	11/1/2016	14.60	1.682	1348	0.23	5.89	35.7
MW-10	11/1/2016	16.76	1.323	1115	0.42	5.94	78.7
MW-11	11/1/2016	15.72	0.504	415	0.19	6.26	-9.2
MW-12	11/1/2016	17.00	1.413	1198	1.2	6.6	3.5

Sampled by DS

APPENDIX G

Waste Disposal / Re-use Documents

Drill cuttings and liquids from monitoring well development and purge water since the most recent drilling and sampling conducted during 2017 are located on Site awaiting disposal, expected to occur within the next 60 days.



1000 Andrews Ave.
Youngstown, Ohio 44505

Phone: (330) 746-8174 / Toll Free (888) 331-3443
Fax: (330) 746-8175 www.esrecycling.com



164365

CI 1/17/2017

Name SHENANGO TWP BLDG- COMPLIANCE

Address 3439 HUBBARD ROAD

City/State/Zip WEST MIDDLESEX / PA / 16159

Phone 724-342-1990

U.S.E.P.A. ID#

Name COMPLIANCE ENVIRONMENTAL SERVI

Address 2700 KIRILA BLVD

City/State/Zip HERMITAGE / PA / 16148

P.O. Number

Sales Rep. ID DL Pick-up Date 1-20-17

Total Payment Due	Payment Received	Applied To
100.00	100.00	

☐ Cash ☐ Check No.

DO NOT PAY FROM THIS DOCUMENT
INVOICE TO FOLLOW

Amount: P/R

1. DA (initials) I certify that our used oil has not been mixed with listed hazardous waste as specified in 40 CFR part 261 and that it contains \leq 1000 ppm total Halogens and no amount of PCBs.

This certification is based on Generator Knowledge ☒ Analysis ☐ Generator Status ☐ CESQG ☐ SQG ☐ LOG ☐

Note: Used oil containing > 1000 ppm total Halogens must have a successful rebuttal on file and attached to this service document before collecting.

Non Hazardous Waste Information and/or Bill of Lading

Transporter: Environmental Specialists, Inc., OHD000816868, Phone (888) 331-3443

Destination Facility: Environmental Specialists, Inc., 1101 Andrews Avenue, Youngstown, Ohio 44505

OHD000816868, Phone (330) 746-8174, 24 Hour Emergency Response Phone (800) 633-8253.

Charge to my account the amount shown for this transaction unless payment is noted by the payment received. All invoices not paid within 30 days will be subject to an interest rate of 1-1/2% per month. (18% per annum) on unpaid invoices. In the event of default, Environmental Specialist, Inc. Shall be entitled to recover the cost of collection and reasonable attorney's fee. I certify that the materials described in the "Bill of Lading" section and/or the accompanying manifest have been properly classified, packaged and labeled according to all local, State and Federal regulations. I further agree to the terms and conditions on the reverse side.

Don Hoover Jr

Customer **31171**

Customer Signature **3/17/2017 12:20:40 PM**

APPENDIX H

The Department's Written Determination That Groundwater is Not Used or Currently Planned to be Used

**This is not applicable to the Site as groundwater is used for water
supplies at the Site and in the surrounding area.**

APPENDIX I

Risk Assessment Report

There is no “stand alone” Risk Assessment Report as Risk Assessment is covered in the Site Characterization Report

APPENDIX J

Site Photographs

1) Looking East Toward Former UST Area.



2) Looking N-NW Toward Former UST Area.

3) Looking West Toward Former UST Area.



4) Looking West, N Edge of UST Excavation and Dispenser(s).

5) Looking West, South Side of Former UST Area.



6) North Edge of Property Looking West.

7) North Property Boundary Looking East (from NW corner of property).



8) Removed Unleaded Gasoline UST.

9) Shenango Twp Municipal Bldg Water Well (W Side).



10) West Property Boundary Looking North.

Appendix K
UST System Closure Report
Form and Related Documents



Commonwealth of Pennsylvania
Department of Environmental Protection

Bureau of Environmental Cleanup and Brownfields
Division of Storage Tanks
Rachel Carson State Office Building
P.O. Box 8762
Harrisburg, Pennsylvania 17105-8762
In Pa: 1-800-42-TANKS
Outside Pa: 717-772-5599



All tank owners shall have the current valid Storage Tank Registration/Permit Certificate available, at the facility where the tank(s) is located, for inspection by the Department, certified storage tank inspector or installer and product distributor. At Retail Sales Facilities, the certificate (or copy) shall be publicly displayed at the facility where the tank(s) is located.

VERIFY PRESENCE OF WATERMARKED

HOLD TO LIGHT TO VIEW

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Environmental Cleanup and Brownfields

STORAGE TANK REGISTRATION/PERMIT CERTIFICATE
EXPIRATION: DEC-04-2016

SEQ#	CAPACITY	SUBST	PERMIT TYPE	PERMIT STATUS	AST IN-SVC INSP DUE	AST OUT-OF-SVC INSP DUE	UST OPERATIONS INSP DUE	LINING INSP DUE
001	10,000	GAS	PBR	Withdrawn	*****	*****	05/22/2018	*****
002	10,000	DIESEL	PBR	Approved	*****	*****	05/22/2018	*****
****	****	****	****	****	*****	*****	*****	*****
****	****	****	****	****	*****	*****	*****	*****
****	****	****	****	****	*****	*****	*****	*****
****	****	****	****	****	*****	*****	*****	*****
****	****	****	****	****	*****	*****	*****	*****
****	****	****	****	****	*****	*****	*****	*****
****	****	****	****	****	*****	*****	*****	*****
****	****	****	****	****	*****	*****	*****	*****

Client ID: 78785
Owner: SHENANGO TWP MERCER CNTY
Id: 43-04177
LYNNETT R BECK
SHENANGO TWP SPVR
3439 HUBBARD MIDDLESEX RD
WEST MIDDLESEX PA 16159

Site ID: 582349
Facility Kind: PADMN
Facility Id: 43-04177
SHENANGO TWP MUNI BLDG
3439 HUBBARD W MIDDLESEX RD
WEST MIDDLESEX PA 16159

WARNING:

THIS DOCUMENT IS PRINTED ON SECURITY WATERMARK PAPER AND CONTAINS SECURITY FIBERS.
DO NOT ACCEPT WITHOUT VERIFYING THE PRESENCE OF THE WATERMARK.

3/17/2017 12:20:53 PM



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

**STORAGE SYSTEM REPORT FORM
NARRATIVE INFORMATION**

Storage Tank Facility ID Number 43-04177		Facility Name Shenango Twp Mercer County	
Facility Location (911) Address 3439 Hubbard W. Middlesex West Middlesex, PA 16159		Municipality Shenango Twp	County Mercer
Owner Name Shenango Twp Mercer County		Owner/Contact Address Shenango Twp Mercer County 3439 Hubbard W. Middlesex Rd West Middlesex, PA 16159-2547	
Owner Telephone Number 724-528-9571 (voice/cell) (fax)		(e-mail)	

Narrative: Link 6 program on site performing removal of 10K gal SW Steel UST which contained gasoline.
Tank out at 1:00pm - heavy dark staining + odors to 12' depth.
Observed staining across top of tank on west end.
~~From~~ this is where the fill for the tank came in and
also where the serving point for the SW fiberglass
line goes out to the dispenser at the building.
R-1318

No soil was stockpiled.

Informed David Barnett Twp Supervisor
to request refund of tank reg fees.

V
E
R
I
F
Y

Face
OG

Harvest
contaminated

DEP Representative Name (Print) Andrew Sepos	DEP Representative Signature 	Title WQS	Date 12/4/15 Telephone
Signature by the person interviewed does not necessarily imply concurrence with the findings on this report, but does acknowledge that the person was shown the report or that a copy was left with the person.			
Name of Person Interviewed (Print) Lynnett Beck	Signature of Person Interviewed 	Title Sec/Treas.	Date 12/4/15 Telephone 724-528-9571

☐ White - DEP

☐ Yellow - Facility

☐ Pink - Inspector

Page ___ of ___



APPENDIX D

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

UNDERGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

43 - 04177

Facility I.D.

SHENANGO TWP MUNI BLDG

Facility Name

SHENANGO

Municipality

MERCER

County

1-7-16

Date Prepared

LUKE GRAZIANI

Name of Person Submitting Report
 (Please Print)

A GRAZIANI & CO INC

Company Name
 (If Applicable)

PRESIDENT

Title

Closure Method (Check all that apply):

- ☒ Removal
- ☐ Closure-In-Place
- ☐ Change-In-Service

Site Assessment Results (Check all that apply):

- ☐ No Obvious Contamination - Sample Results Meet Standards/Levels
- ☐ No Obvious Contamination - Sample Results Do Not Meet Standards/Levels
- ☐ Obvious, Localized Contamination - Sample Results Meet Standards/Levels
- ☒ Obvious, Localized Contamination - Sample Results Do Not Meet Standards/Levels
- ☐ Obvious, Extensive Contamination

DATE RECEIVED: _____

UNDERGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

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 43 - 04177
2. Facility Name SHENANGO TWP MUNI BLDG
3. Facility County MERCER
4. Facility Municipality SHENANGO
5. Facility Address 3439 HUBBARD MIDDESEX RD
6. Facility Contact Person LYNETTE BECK
7. Facility Telephone Number (724) 528 - 9571
8. Owner Name SHENANGO TWP
9. Owner Mailing Address 3439 HUBBARD MIDDESEX RD
10. Description of Underground Storage Tanks (Complete for each tank closed)

DATE OF TANK CLOSURE (Month/Day/Year)		12- 04 -2015	- -	- -	- -
Tank Registration Number		1			
Estimated Total Capacity (Gallons)		10,000			
Substance(s) Stored Throughout Operating Life of Tank (Check All That Apply)	a. Petroleum				
	Unleaded Gasoline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other, Please Specify				
NOTE: If Hazardous Substance Block is Checked, Attach Material Safety Data Sheets (MSDS)	b. Hazardous Substance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Name of Principal CERCLA Substance				
	AND Chemical Abstract Service (CAS) No.				
	c. Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closure Method (Check Only One)	a. Removal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-In-Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)		NO			

DATE OF TANK CLOSURE (Month/Day/Year)		- -	- -	- -	- -
Tank Registration Number					
Estimated Total Capacity (Gallons)					
Substance(s) Stored Throughout Operating Life of Tank (Check All That Apply) NOTE: If Hazardous Substance Block is Checked, Attach Material Safety Data Sheets (MSDS)	a. Petroleum				
	Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other, Please Specify				
b. Hazardous Substance					
Name of Principal CERCLA Substance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
AND					
Chemical Abstract Service (CAS) No.					
c. Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Closure Method (Check Only One)	a. Removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-in-Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-In-Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)					

Yes N/A

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:**

The facility is a main fuel station for the townships fleet.

- ☒ ☐ 12. A site location and sampling map of the site, drawn to scale, is attached. See page 11 of 11.
- ☒ ☐ 13. Original, color photographs of the closure process are attached (i.e., inside of excavation/piping runs, pit water, tanks showing condition).
- ☒ ☐ 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: 12-8-2015

- ☒ ☐ 15. If a reportable release was confirmed, the appropriate regional office of DEP was notified by the owner or operator.

Date: 12 - 04 - 2015

Office: MEADVILLE

Yes N/A



16. If tanks were cleaned on-site:

- a. Briefly describe the disposition of usable product: None The tank was pumped empty by the owner

- 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):

The tank was defumed dry

- c. If tank contents were determined/deemed to be hazardous waste, provide:

(1) Generator ID Number: _____

(2) Licensed Hazardous Waste Transporter Name and ID Number: _____



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 tank looked in good shape. The fiberglass supply line looked good. The metel supply fittings look rusty



19. If contaminated soil is excavated:

- a. Briefly describe the disposition and amount _____ (tons) of contaminated soil. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):

- 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: _____

Yes N/A

- ☐ ☒ 20. Briefly describe the disposition of and amount _____ (tons) of uncontaminated soil (attach analyses):
All soil was placed back into the excavation

I, Lynnett Beck, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904
(Print Name)

(relating to unsworn falsification to authorities) that I am the owner of the above referenced storage tank(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.

Lynnett Beck
Signature of Tank Owner

1/18/16
Date

Sherango Township-Mercer Co.
Company Name
(If Applicable)

Secretary/Treasurer
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

Facility ID Number 43 - 04177

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil:
All soil was removed by our excavator. It was placed next to the excavation. After the tank was removed all soil was placed back into the excavation.
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 20' of fiberglass piping was removed. The fiberglass pipe looked in good condition. The metal piping was rusty
3. Briefly describe the condition of the tanks and any problems encountered during tank removal:
Tank was in good condition
4. Briefly describe the method used to purge the tanks of and monitor for explosive vapors:
We used the Difussed air blower method. Checked by an explosive meter.
- ☒ ☐ 5. If tanks were cleaned on-site:
 - a. Briefly describe the tank cleaning process: The tank was emptied by owner prior to our arrival to site. tank was blown dry
 - b. If subcontracted, name and address of company that performed the tank cleaning:

- ☐ ☒ 6. If tanks were closed-in-place, briefly describe the tank fill material: _____
- ☒ ☐ 7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

SECTION II. (continued)

I, Luke Graziani _____, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904
(relating to unsworn falsification to authorities) that I am the certified installer who performed the tank handling activities
(Print Name)
associated with the closure of the above referenced storage tank(s) and that the information provided by me in this
closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.


Signature of Certified Installer
1120
Installer Certification Number

01 / 07 / 2016
Date

29
Company Certification Number

A Graziani & Co Inc
Company Name

1057 Butler Ave
Street

New Castle, PA 16101
City/Town, State, Zip

724 - 654 - 5535
Phone

UNDERGROUND STORAGE TANK CLOSURE REPORT FORM

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 43 - 04177

- A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A" if NOT encountered).

Bedrock N/A feet below land surface

Water 7' feet below land surface

- B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).
Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND

- 1). Was obvious contamination observed while excavating?

☐ NO → Conduct confirmatory sampling → See end of this section for options on submission and maintenance of closure records → Do not complete item C.2. below.

☒ YES → Report release to DEP within 2 hours → Describe contamination observed and likely source(s) tank, piping, dispenser, spills, overfills):

There was discolored sand (darker than the rest) with a gas odor

→ Complete item C.2. below.

- 2). Was contamination localized (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. TANK 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 → Describe contamination observed and likely source(s) tank, piping, dispenser, spills, overfills):

Continue with corrective action → See end of this section for options on submission and maintenance of closure records → Call Indemnification Fund (717-787-0763).

- E. If the answer to C.1. is "no", the answer to C.2. if "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

- (a) By the owners and operators who took the UST system out of service;
- (b) By the current owners and operators of the UST system site; or
- (c) By mailing these records to the implementing agency if they cannot be maintained at the closed facility.

At least one option must be chosen. If option (c) is chosen, the closure report form should be sent to the DEP regional office responsible for the county in which the tank is located.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the CAP regulation requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Luke Graziani, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.


Signature of Person Performing Site Assessment

01 / 07 / 2016
Date

Certified contractor
Title of Person Performing Site Assessment

A Graziani & Co Inc
Name of Company Performing Site Assessment

724-654-5535
Telephone Number of Person Performing Site Assessment

UNDERGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number 43 - 04177[illegible]

SEE ATTACHED



P.O. Box 706, 179 West Broadway, Dover, OH 44622
 TEL: (330) 343-3711 FAX: (330) 343-9858
 Email: rhlab@rhlab.us
 Ohio Laboratory Certification # 893

**- Certificate of Analysis -
for**

A. GRAZIANI CO., Inc.
 1057 BUTLER AVENUE
 NEW CASTLE, PA 16101

Final Report

Report Date: 12/30/2015

Report Number: 39011-0

Chain of Custody #: 118993

Project Name: WEST MEDDLESON PA

Lab ID: 15120938

Sample Type: Soil

Your Sample ID: TANK WEST

Date Sampled: 12/4/2015 3:00:00PM

Date Received: 12/9/2015

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
5035/8260B	Benzene	<5.00	µg/Kg	5	12/17/15	SUB
	Toluene	<5.00	µg/Kg	5	12/17/15	SUB
	Ethylbenzene	517	µg/Kg	5	12/17/15	SUB
	Xylene (Total)	4450	µg/Kg	15	12/17/15	SUB
	1,3,5-Trimethylbenzene	4150	µg/Kg	5	12/17/15	SUB
	1,2,4-Trimethylbenzene	16000	µg/Kg	5	12/17/15	SUB
	Naphthalene	7380	µg/Kg	5	12/17/15	SUB
	MTBE	<5.00	µg/Kg	5	12/17/15	SUB

Lab ID: 15120939

Sample Type: Soil

Your Sample ID: TANK EAST

Date Sampled: 12/4/2015 3:05:00PM

Date Received: 12/9/2015

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
5035/8260B	Benzene	<5.00	µg/Kg	5	12/17/15	SUB
	Toluene	910	µg/Kg	5	12/17/15	SUB
	Ethylbenzene	2200	µg/Kg	5	12/17/15	SUB
	Xylene (Total)	37200	µg/Kg	15	12/17/15	SUB
	1,3,5-Trimethylbenzene	26100	µg/Kg	5	12/17/15	SUB
	1,2,4-Trimethylbenzene	103000	µg/Kg	5	12/17/15	SUB

Client: A. GRAZIANI CO., Inc.

Final Report

Report Date: 12/30/2015

Report Number: 39011-0

Lab ID: 15120939

Date Sampled: 12/4/2015 3:05:00PM

Sample Type: Soil

Date Received: 12/9/2015

Your Sample ID: TANK EAST

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
5035/8260B	Naphthalene	38500	µg/Kg	5	12/17/15	SUB
	MTBE	<5.00	µg/Kg	5	12/17/15	SUB

Lab ID: 15120940

Date Sampled: 12/4/2015 3:10:00PM

Sample Type: Soil

Date Received: 12/9/2015

Your Sample ID: TANK BACKFILL

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
5035/8260B	Benzene	<5.00	µg/Kg	5	12/17/15	SUB
	Toluene	<5.00	µg/Kg	5	12/17/15	SUB
	Ethylbenzene	5340	µg/Kg	5	12/17/15	SUB
	Xylene (Total)	4870	µg/Kg	15	12/17/15	SUB
	1,3,5-Trimethylbenzene	27100	µg/Kg	5	12/17/15	SUB
	1,2,4-Trimethylbenzene	102000	µg/Kg	5	12/17/15	SUB
	Naphthalene	25900	µg/Kg	5	12/17/15	SUB
	MTBE	<5.00	µg/Kg	5	12/17/15	SUB

Lab ID: 15120941

Date Sampled: 12/4/2015 3:15:00PM

Sample Type: Wastewater

Date Received: 12/9/2015

Your Sample ID: WEST TANK PIT

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
SW846_8260B	Methyl Tertiary-butyl Ether	231	µg/L	5	12/17/15	SUB
	Benzene	18600	µg/L	5	12/17/15	SUB
	Toluene	66200	µg/L	5	12/17/15	SUB
	Ethylbenzene	26800	µg/L	5	12/17/15	SUB
	Xylene (Total)	164000	µg/L	15	12/17/15	SUB
	1,3,5-Trimethylbenzene	33900	µg/L	5	12/17/15	SUB
	1,2,4-Trimethylbenzene	113000	µg/L	5	12/17/15	SUB
	Naphthalene	63800	µg/L	5	12/17/15	SUB

Client: A. GRAZIANI CO., Inc.

Final Report

Report Date: 12/30/2015

Report Number: 39011-0

Lab ID: 15120942

Date Sampled: 12/4/2015 3:20:00PM

Sample Type: Wastewater

Date Received: 12/9/2015

Your Sample ID: EAST TANK PIT

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
SW846_8260B	Methyl Tertiary-butyl Ether	318	µg/L	5	12/17/15	SUB
	Benzene	15000	µg/L	5	12/17/15	SUB
	Toluene	38400	µg/L	5	12/17/15	SUB
	Ethylbenzene	10500	µg/L	5	12/17/15	SUB
	Xylene (Total)	64300	µg/L	15	12/17/15	SUB
	1,3,5-Trimethylbenzene	8480	µg/L	5	12/17/15	SUB
	1,2,4-Trimethylbenzene	29300	µg/L	5	12/17/15	SUB
	Naphthalene	21900	µg/L	5	12/17/15	SUB

Lab ID: 15120943

Date Sampled: 12/7/2015 1:30:00PM

Sample Type: Soil

Date Received: 12/9/2015

Your Sample ID: UNDER PIPING

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
5035/8260B	Benzene	<5.00	µg/Kg	5	12/17/15	SUB
	Toluene	<5.00	µg/Kg	5	12/17/15	SUB
	Ethylbenzene	<5.00	µg/Kg	5	12/17/15	SUB
	Xylene (Total)	<15.0	µg/Kg	15	12/17/15	SUB
	1,3,5-Trimethylbenzene	<5.00	µg/Kg	5	12/17/15	SUB
	1,2,4-Trimethylbenzene	775	µg/Kg	5	12/17/15	SUB
	Naphthalene	<5.00	µg/Kg	5	12/17/15	SUB
	MTBE	<5.00	µg/Kg	5	12/17/15	SUB

Lab ID: 15120944

Date Sampled: 12/7/2015 2:00:00PM

Sample Type: Soil

Date Received: 12/9/2015

Your Sample ID: UNDER PUMP

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
5035/8260B	Benzene	<5.00	µg/Kg	5	12/17/15	SUB
	Toluene	<5.00	µg/Kg	5	12/17/15	SUB
	Ethylbenzene	<5.00	µg/Kg	5	12/17/15	SUB

Client:

A. GRAZIANI CO., Inc.

Final Report

Report Date: 12/30/2015

Report Number: 39011-0

Lab ID: 15120944

Date Sampled: 12/7/2015 2:00:00PM

Sample Type: Soil

Date Received: 12/9/2015

Your Sample ID: UNDER PUMP

Collection: GRAB

Method	Analyte	Result	Units	MDL/PQL	Analysis Date	Analyst
5035/8260B	Xylene (Total)	<15.0	µg/Kg	15	12/17/15	SUB
	Cumene	<5.00	µg/Kg	5	12/17/15	SUB
	1,3,5-Trimethylbenzene	<5.00	µg/Kg	5	12/17/15	SUB
	1,2,4-Trimethylbenzene	420	µg/Kg	5	12/17/15	SUB
	Naphthalene	<5.00	µg/Kg	5	12/17/15	SUB
	MTBE	<5.00	µg/Kg	5	12/17/15	SUB

QA/QC Manager

Results relate only to items tested. Samples tested as received. This report may not be reproduced except in full with the approval of Ream and Hauger Laboratory, Inc.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large scale map of the site where tanks were closed. Scales between 1" = 10 and 1" = 100 feet frequently work out well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tanks removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

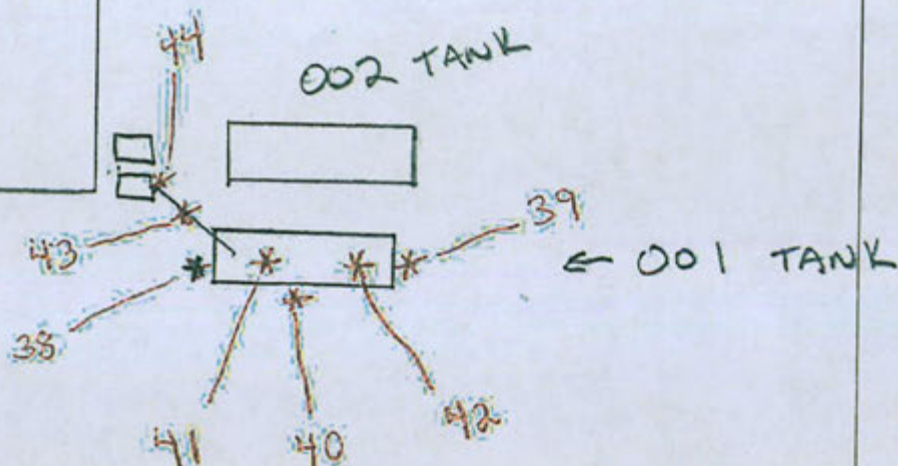
Facility Name and ID: SHENANGO TWP MUNI BLDG 43 - 04177

County: MERCER

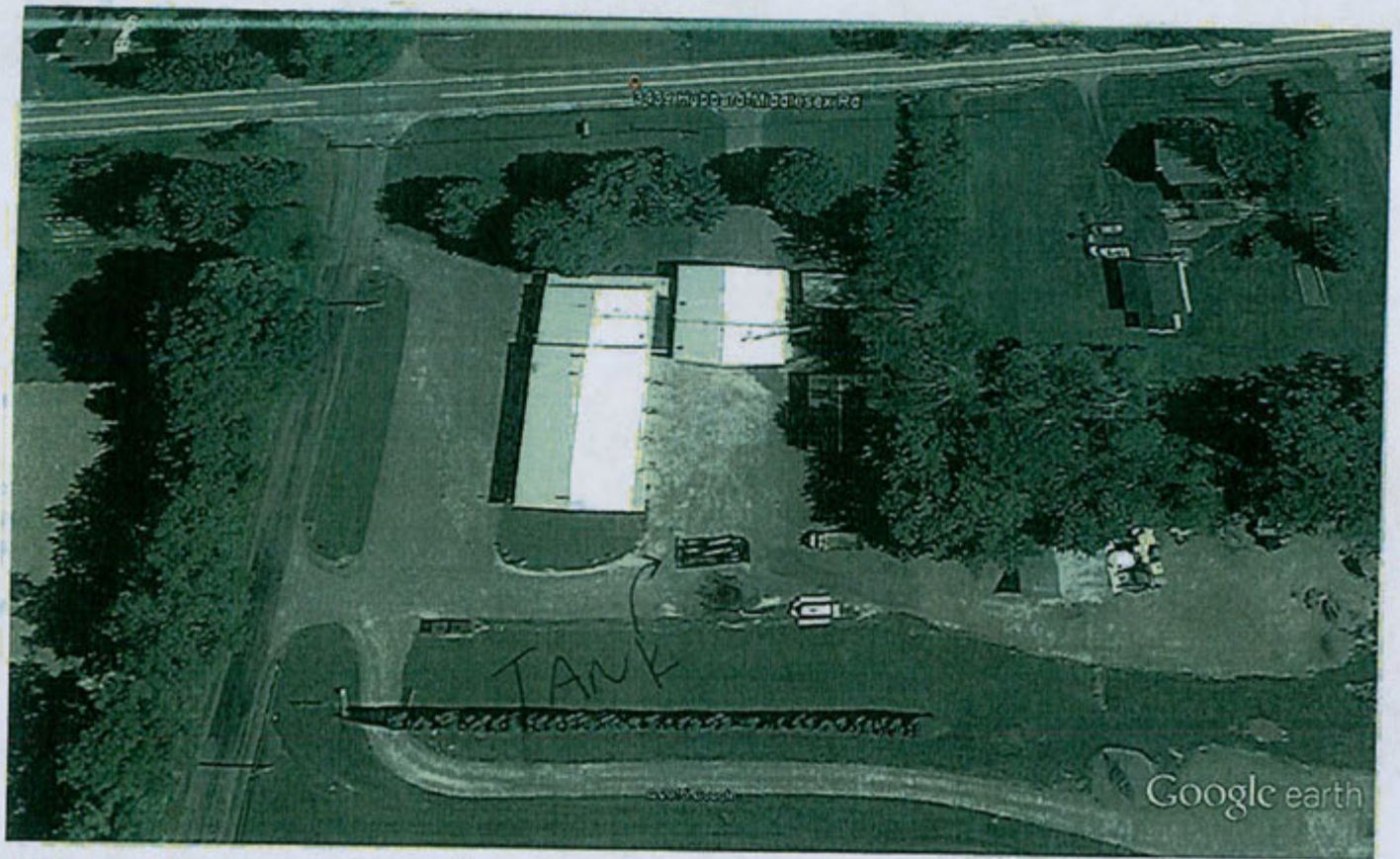
Township/Borough: SHENANGO TWP MUNI BLDG

↑
NORTH

--- HUBBARD MIDDLESEX RD ---



RED INDICATES WHERE SOIL & WATER SAMPLES WERE TAKEN
WATER @ 8' DEEP



Google earth

feet
meters



Views looking West



Views looking West



Views looking East

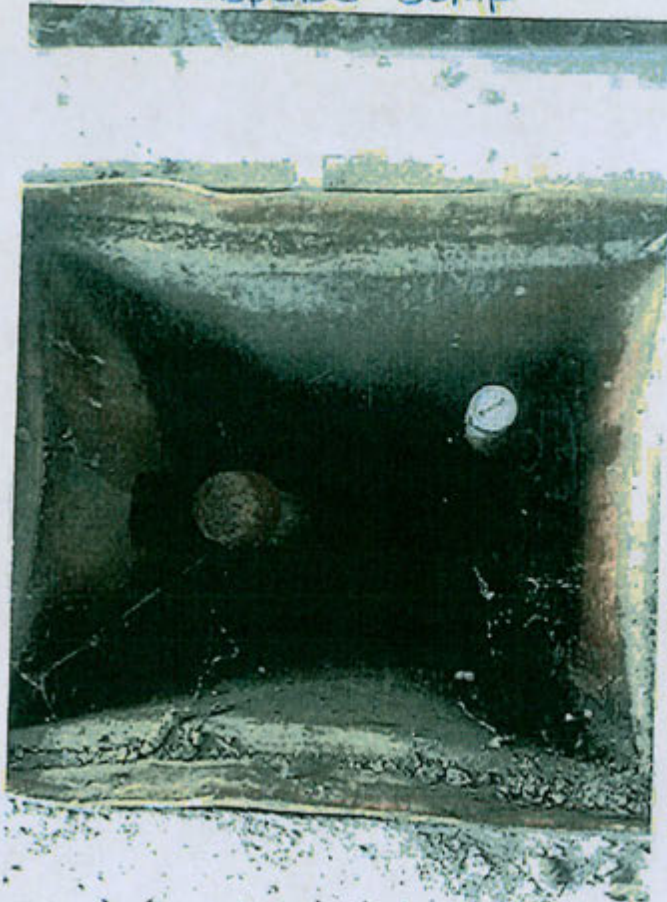


Views looking East

View looking East



Dispenser Sump



Dispenser Sump



View looking West

View looking East



mailed 12/7/15

FACILITY I.D. NUMBER 43-04177

I. FACILITY INFORMATION (Both O/O and I/I)

Facility Name Shenango Twp Muni Bldg Facility I.D. Number 43-04177
 Street Address (P.O. Box not acceptable) 3439 Hubbard W Middlesex Rd.
 City West Middlesex State PA Zip Code 16159-2547
 County Mercer Municipality Shenango Twp
 Contact Person Lynnette Beck Phone Number (724) 528-9571

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Owner Name Shenango Twp Mercer Cty.
 Address 3439 Hubbard W. Middlesex Rd.
 City West Middlesex State PA Zip Code 16159-2547
 Phone Number (724) 528-9571
 Operator Name Lynnette Beck Phone Number (724) 528-9571

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved
(Mark All That Apply ☒):
Both O/O and I/IB. Quantity (Gallons) of Product(s) Released:
O/O OnlyC. Contamination Suspected [S] or
Confirmed [C] (Mark All That Apply ☒):
I/I Only

Leaded Gasoline	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Unleaded Gasoline	<input checked="" type="checkbox"/>	30	<input checked="" type="checkbox"/> [S]	<input type="checkbox"/> [C]
Aviation Gasoline	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Kerosene	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Jet Fuel	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Diesel Fuel	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
New Motor Oil	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Used Motor Oil	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Fuel Oil No. 1	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Fuel Oil No. 2	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Fuel Oil No. 4	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Fuel Oil No. 5	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Fuel Oil No. 6	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Other (Specify)	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]
Unknown	<input type="checkbox"/>		<input type="checkbox"/> [S]	<input type="checkbox"/> [C]

IV. REPORTABLE RELEASE INFORMATION (O/O Only)

Date Reportable Release was Confirmed: 12/4/15

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:

Date Owner/Operator Verbally Notified Appropriate Regional Office of Reportable Release and Office Notified:

Date: 12/4/15 Municipality Shenango TwpDate: 12/4/15 Office Meadville - FryDate: 12/4/15 Municipality Shenango TwpSource (Mark All That Apply ☒):How Discovered (Mark All That Apply ☒):Environmental Media Affected and Impacts
(Mark All That Apply ☒):

Tank (DEP Assigned Nos.)	<input type="checkbox"/>	During Closure	<input checked="" type="checkbox"/>	Soil	<input checked="" type="checkbox"/>
Piping System (Aboveground Regulated)	<input type="checkbox"/>	Lining Installation	<input type="checkbox"/>	Sediment	<input checked="" type="checkbox"/>
Piping System (Underground Regulated)	<input checked="" type="checkbox"/>	Routine Leak Detection	<input type="checkbox"/>	Surface Water	<input checked="" type="checkbox"/>
Piping System (Non-Regulated)	<input type="checkbox"/>	Third Party Inspection	<input type="checkbox"/>	Ground Water	<input type="checkbox"/>
Dispenser/Dispensing Equipment	<input type="checkbox"/>	Tightness Testing Activities	<input type="checkbox"/>	Bedrock	<input type="checkbox"/>
Spill Catchment Basin	<input type="checkbox"/>	Visible Product or Odor Reports	<input type="checkbox"/>	Water Supplies	<input type="checkbox"/>
Accident/Natural Disaster	<input type="checkbox"/>	Water in Tank	<input type="checkbox"/>	Vapors/Product in Buildings	<input type="checkbox"/>
Submersible Turbine Pump Head/Fittings	<input type="checkbox"/>	Construction	<input type="checkbox"/>	Vapors/Product in Sewer/Utility Lines	<input type="checkbox"/>
Containment/Sump Failure	<input type="checkbox"/>	Upgrade/Repair	<input type="checkbox"/>	Ecological Receptors	<input type="checkbox"/>
Other (Specify)	<input type="checkbox"/>	Supply Well Sample Results	<input type="checkbox"/>		
Unknown	<input type="checkbox"/>	Monitoring Well Sample Results	<input type="checkbox"/>		
		Property Transfer	<input type="checkbox"/>		
		Other (Specify)	<input type="checkbox"/>		
		Unknown	<input type="checkbox"/>		

Cause (Mark All That Apply ☒):

Faulty Installation ☐
 Corrosion ☒
 Physical/Mechanical Failure ☐
 Spill During Delivery ☐
 Overfill at Delivery ☐
 Vehicle Gas Tank Overfill ☐
 Product Delivery Hose Rupture ☐
 Other (Specify) ☐
 Unknown ☐

V. INTERIM REMEDIAL ACTIONS (O/O Only)

(Mark All That Apply ☒):

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

VI. SUSPECTED / CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date of Observation of Suspected/Confirmed Contamination: 12 / 4 / 15
m d yIndication of Suspected Contamination (Mark All That Apply ☒):

- Unusual Level of Vapors ☐
- Erratic Behavior of Product Dispensing Equipment ☐
- Release Detection Results Indicate a Release ☐
- Discovery of Holes in the Storage Tank ☐
- Other (Specify) Discolored soil w/ gas odor ☒

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

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

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

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

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

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

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

Lynnett Beck Sect New
Signature of Owner or Operator

12 17 15
Date

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

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

[Signature]
Signature of Certified Installer

12, 7, 15
Date

1120
Installer Certification Number

29
Company Certification Number

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

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

Signature of Certified Inspector

-1 -1
Date

Inspector Certification Number

Company Certification Number