

SITE STATUS REPORT
3rd Quarter 2018

LIBERTY OIL COMPANY #38
UST Release Site
700 N. Railroad Street
Tamaqua, PA 18252

PA DEP Facility ID #54-51586
USTIF Claim No. #2008-0122(S)

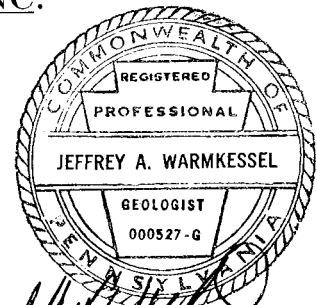
PREPARED FOR:

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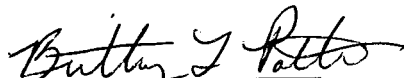
PREPARED BY:

CENTER POINT TANK SERVICES INC.

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Professional Geologist

By affixing my seal to this document, I am certifying that to the best of my knowledge the information is true and correct. I further certify that I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information.

NOVEMBER 2018

**SITE STATUS REPORT
3rd QUARTER 2018**

**LIBERTY OIL COMPANY #38
UST Release Site
700 N. Railroad Street
Tamaqua, PA 18252**

GENERAL INFORMATION

Client:	Liberty Oil Company, Inc.
Consultant:	Center Point Tank Services, Inc. (CPTS)
CPTS Project Manager:	Jeffrey A. Warmkessel, P.G.
CPTS Case Manager:	Brittany L. Potter
PA DEP Case Manager:	Sherry Carlo, P.G. – PA DEP Northeast Region
PA DEP Facility ID.#:	54-51586
USTIF Claim #:	2008-0122(S)
County:	Schuylkill County
Municipality:	Tamaqua Borough

SITE OVERVIEW

The site is a former Underground Storage Tank (UST) retail gasoline station. During UST closure, soil samples were collected and found to contain unleaded gasoline constituents at concentrations above the Statewide Health Standards (SHS). A copy of the Topographic Site Location Map is included as **Figure 1**, and a Site Plan that includes monitoring well locations and other pertinent site features is included as **Figure 2**.

SITE HISTORY

Center Point Tank Services, Inc. (CPTS) was retained by Liberty Oil Company #38 (Liberty #38) to remove and dispose of four UST systems at the Liberty #38 facility. CPTS conducted the tank removal and closure during the week of August 12, 2008, and submitted a UST Closure Report dated October 17, 2008. The Closure Report documents the UST closure activities and confirmatory soil sample results for the facility. Based on the Liberty #38 UST Closure Report, one diesel and three gasoline USTs, five dispensers, three pump islands, and their associated piping systems were permanently closed by removal at the site. Based on the tank handling summary report, none of the confirmatory soil samples from the UST excavation areas were identified with gasoline or diesel constituents at concentrations that exceeded the PA DEP SHS; however, the soil samples collected in the gasoline

dispenser and piping areas had combinations of one or more unleaded gasoline constituents at concentrations that exceeded the SHS. Maximum concentrations of benzene (32,000 micrograms per kilogram ($\mu\text{g/kg}$)), toluene (740,000 $\mu\text{g/kg}$), ethylbenzene (160,000 $\mu\text{g/kg}$), xylenes (1,800,000 $\mu\text{g/kg}$), naphthalene (110,000 $\mu\text{g/kg}$), 1,2,4-trimethylbenzene (TMB) (890,000 $\mu\text{g/kg}$), 1,3,5-TMB (520,000 $\mu\text{g/kg}$) and Methyl tertiary butyl ether (MTBE) (2,600 $\mu\text{g/kg}$) were identified in the tank closure soil samples collected from the gasoline dispenser and piping areas.

CPTS verbally notified the PA DEP of the suspected release on August 15, 2008. A follow-up written Notification of Contamination (NOC) concerning the suspected release was submitted to the PA DEP on August 20, 2008. Based on the reported impact, additional site investigation was required in accordance with the PA DEP Storage Tank regulations.

On January 13, 2009, 23 soil characterization samples were obtained from 35 soil borings installed using Geoprobe® direct-push technology. Review of the laboratory analytical results indicated that there were several exceedances of the SHS for several unleaded gasoline constituents in the soil samples collected from the borings installed in the vicinity of the former gasoline dispenser area and former gasoline product lines. A concentration of lead above the non-residential saturated SHS was also detected in the sample collected from GP-23; however no other leaded or unleaded gasoline constituents were detected in this sample. As such, the PA DEP requested that additional soil characterization work be completed on site to further delineate the extent of impact to site soils.

On January 14, 2010, CPTS installed 19 soil borings on site via Geoprobe direct-push drilling techniques to further characterize the gasoline impact to soil. Twenty three soil samples were collected at various depths from 17 of the borings. Review of the soil sample analytical results indicates that samples collected from the soil borings installed in the former fuel dispenser and piping areas exhibited exceedances of the SHS for several unleaded gasoline constituents. Lead was detected in soil at concentrations exceeding their respective (saturated or unsaturated) non-residential SHS in three samples: LO-4 (5-6'), LO-7 (14-15'), and LO-15 (3-4'). The samples collected from LO-4 and LO-7 both contained concentrations of lead exceeding the saturated SHS, lead was the only leaded or unleaded gasoline constituent present in either sample at a concentration exceeding the SHS, and neither sample exhibited PID readings greater than background. The sample from LO-15 contained several unleaded gasoline constituents and lead at concentrations exceeding the non-residential saturated SHS.

In order to characterize the presence/extent of gasoline impact to groundwater beneath the site, CPTS oversaw the installation of several monitoring wells. Monitoring wells MW-1, MW-2, and MW-3 were installed on January 19-21, 2009 by CS Garber via Air Rotary drilling techniques; monitoring wells MW4, MW-5, and MW-6 were installed on August 25, 2009 by BL Myers via Air Rotary drilling techniques; monitoring wells MW-7 and MW-8 were installed on January 14, 2010 by BL Myers utilizing Hollow Stem Auger and Air Rotary drilling techniques, and MW-9 and MW-10 were installed on April 30, 2012 in the Pennsylvania Department of Transportation (PennDOT) Right of Way in a grass island to the east of the site across Route 309 South. During monitoring well installation, soils were logged and screened with a photoionization detector (PID) for the relative presence of volatile organic compounds (VOCs) which may be indicative of petroleum impact. Each of the wells was constructed with PVC riser and slotted screen and completed with a flushmount protective casing.

CPTS mobilized to the site from May 20, 2011 to May 26, 2011 to excavate impacted soils onsite in the vicinity of the former dispenser island. CPTS excavated and transported a total of 205.85 tons of

impacted soils to Clean Earth of Hagerstown, MD. Five soil quality samples were collected from the base and sidewalls of the completed excavation. The samples were collected following USEPA Method 5035 (methanol preservation) sampling protocol, placed into laboratory supplied bottleware, preserved on ice to approximately four degrees Celsius, and relinquished with chain-of-custody documentation to ALS Global, Inc. of Middletown, Pennsylvania. Samples were analyzed for leaded and unleaded gasoline constituents.

Laboratory analysis of the five soil quality samples collected on May 25, 2011 from the base and sidewalls of the excavation area on the property indicate that three samples were identified with concentrations of unleaded gasoline constituents that exceed the SHS in soil for benzene, 1,2,4-TMB, and 1,3,5-TMB within the saturated zone above the low seasonal groundwater table.

Separate Phase Hydrocarbons (SPH) have been detected on site groundwater in four monitoring wells since 2009. In MW-4 up to 0.53 feet of SPH was present between September 2009 and May 2011. Following the soil excavation described above, no SPH has been detected. In MW-3, up to 0.14 feet of SPH has been present consistently since March 2011. In MW-7, up to 0.81 feet of SPH has been present since May 2011 (prior to the soil excavation). In MW-8, up to 0.23 feet of SPH has been present intermittently since September 2010. Oil absorbent socks have been maintained in each SPH bearing monitoring well since March of 2012 except when monitoring for SPH recharge.

On May 25, 2012 CPTS was onsite with FCC Environmental to perform interim remedial activities to address the presence of SPH in groundwater. Approximately 1,126 gallons of groundwater and SPH was removed from monitoring wells MW-3, MW-4, MW-7, and MW-8 via high vacuum extraction (HVE). Only a sheen was detected on each of the SPH bearing monitoring wells following the HVE event. CPTS did not replace the oil absorbent socks immediately following the event to facilitate monitoring SPH recharge. More than a sheen of SPH did not return to MW-3 or MW-7 until July 2012, and a sheen of SPH did not return to MW-8 until December 2012.

Due to the measureable amount of SPH detected during the 3rd quarter 2014 groundwater sampling event, CPTS was onsite on November 9, 2014 with Heritage Crystal Clean (HCC) to perform a second HVE event. Approximately 1,432 gallons of gasoline and water were purged from monitoring wells MW-3, MW-4, MW-7 and MW-8 during this event. CPTS did not replace the oil absorbent socks immediately following the event to facilitate monitoring SPH recharge over the next month. Between November 19 and December 26, 2014 no measureable amounts of SPH had recharged into the three SPH bearing wells; however, a discontinuous film was observed in MW-3, MW-7, and MW-8 and oil absorbent socks were placed in these wells.

Due to the measurable thicknesses of SPH in MW-7 during the 2nd and 3rd quarters of 2015, CPTS mobilized to the facility on November 13, 2015 with HCC to perform a third HVE event. During this event, approximately 1,038 gallons of gasoline and water were removed from monitoring wells MW-3, MW-4, MW-7 and MW-8 and disposed of off site. Oil absorbent socks were not immediately replaced in monitoring wells MW-3, MW-7, or MW-8 in order to monitor SPH recharge. By the 4th quarter 2015 groundwater sampling event <0.01 feet of SPH had recharged into each of these wells, and oil absorbent socks were installed.

CPTS was onsite on January 9, 2018 to oversee a geophysical survey of the southernmost portion of the site and the parking area of the Thorn's Cycle and ATV facility located across route 309 S from the subject facility to determine if there were buried utilities or other subsurface features or anomalies

present in the vicinity of proposed monitoring well and soil boring locations. No subsurface anomalies were detected in the southernmost portion of the site; however, two USTs were detected on the Thorn's property. The property owner was unaware of their existence, and no information is available to indicate if the USTs are empty and/or properly closed in place. Based on historic photography, the Thorn's facility also appeared to previously be a gasoline station at one time. Based on a file review conducted by CPTS in 2014, no information was present regarding these USTs. This would indicate that they were not registered and would have likely pre-dated the registration process. It is also likely based on the presumed age of the tanks that they may have contained leaded gasoline. The general location of the UST is illustrated on **Figure 2**.

CPTS was onsite on January 25 and 26, 2018 to oversee the installation of two additional offsite monitoring wells and four additional soil borings to complete the delineation of soil and groundwater impact observed both on and off site. Monitoring wells MW-12 and MW-13 are located in the parking lot of the Thorns facility. They were installed via Geoprobe direct push and hollow stem auger techniques to depths of 11.5 and 13.5 feet below grade respectively. Both wells were constructed using two-inch diameter PVC well screen and riser and were completed at grade with concrete pads and flushmount protective casings. During monitoring well drilling, the soils encountered were logged by a Professional Geologist and screened with a photoionization detector (PID) for the relative presence of Volatile Organic Compounds (VOCs) which may be indicative of hydrocarbon impact. Soil samples were collected from each monitoring well boring within the zone of highest PID readings above the presumed seasonal low water table based on existing groundwater elevation data. Soil borings SB-9 through SB-12 were installed in the southernmost portion of the subject facility property to further delineate the observed hydrocarbon impact in site soils. The soils were logged and screened as above and at least one sample was collected from each boring. The samples were collected from the zone of highest PID readings above the seasonal low water table. In the absence of PID readings, the sample was collected from the area above observed water. An additional sample was collected from SB-11 below the zone of highest PID readings to vertically delineate potential impact in that area.

The soil samples were submitted to Suburban Testing Labs in Reading, PA for analysis of leaded and unleaded gasoline via EPA methods 8260B and 6010C. Review of the laboratory analytical results indicates that no leaded or unleaded gasoline constituents were detected at concentrations exceeding their respective SHS with the exception of the soil sample collected from MW-12. 1,2,4-TMB and Lead are present at concentrations exceeding the non-residential saturated soil SHS but not the unsaturated SHS; and EDB was detected at a concentration exceeding the non-residential unsaturated SHS. Given the proximity of the monitoring well to the USTs at the Thorn's facility, the possibility exists that at least a portion of the observed impact may have originated from the Thorn's tanks.

SITE INFORMATION

Well Specifications: All wells are flush mounted

WELL ID	TOTAL DEPTH (ft)	WELL DIAMETER (in.)	SCREENED INTERVAL (ft)
MW-1	20	4	5 – 20
MW-2	20	4	2 – 20
MW-3	20	4	2 – 20
MW-4	19	4	4 – 19
MW-5	18	4	3 – 18

MW-6	17	4	2 – 17
MW-7	20	2	2 – 20
MW-8	20	2	5 – 20
MW-9	20	4	2 – 20
MW-10	20	4	2 – 20
MW-11	17	2	2 – 20
MW-12	11.5	2	4 – 11.5
MW-13	13.5	2	4 – 13.5

Based on the Pennsylvania Topographic and Geologic Survey geological maps, the site is located within an area mapped as the Llewellyn Formation (IPI). Based on published documents, the Llewellyn Formation is described as interbedded sandstone, siltstone, and conglomerate that is medium to coarse grained, and light gray to brown in color. The Llewellyn also contains coal and dark gray to black shales.

During the 3rd quarter 2018 groundwater sampling event, the depths to groundwater (**Table 1**) ranged from 2.37 ft below ground surface (bgs) in MW-1 to 15.06 ft bgs in MW-6. The surface water elevation in the Little Schuylkill River increased by 0.71 feet between the 2nd quarter 2018 sampling event and 3rd quarter 2018 sampling event.

The average measured hydraulic gradient for groundwater levels collected on September 14, 2018 is approximately 0.09 ft/ft to the northeast, which is generally consistent with historical groundwater flow data. The Groundwater Elevation Contour Map for the 3rd quarter of 2018 is included as **Figure 3**.

Groundwater quality samples are collected and analyzed quarterly. A table depicting historic groundwater elevations and SPH thicknesses is included as **Table 1**.

RISK ASSESSMENT

The site was evaluated for the potential to impact ecological receptors using the screening process described in §250.311. No additional evaluation for potential impacts to ecological receptors is required, as per §250.311(b)(1), because the only constituents on-site are those related to diesel fuel and gasoline, light petroleum products.

As the site is being evaluated for the site specific standard (SSS), CPTS conducted a sensitive receptor survey in the general area of the site to identify any potential receptors that could be impacted by petroleum hydrocarbons in the soil or groundwater. The following is a summary of CPTS's findings during the sensitive receptor survey:

- The subject site is located in a mixed use area consisting of commercial, industrial, and residential properties. The site buildings do not have basements.
- According to a search of the PA Groundwater Inventory System (PAGWIS) via the DEP's eMapPA website, no potable wells are located within one mile of the site.
- Municipal water is supplied to the site and surrounding properties by the Tamaqua Area Municipal Authority.
- The nearest surface water body to the site is the Little Schuylkill River which is located to the north and east of the site, and flows generally to the south and east in the vicinity of the site. Although

groundwater flow is generally to the northeast towards the river, surface water flow is generally to the south and east, and five consecutive quarters of samples were collected both upstream and downstream of the site, with no detections of leaded or unleaded gasoline or diesel fuel constituents.

SITE ACTIVITIES THIS REPORTING PERIOD

The 3rd quarter 2018 groundwater sampling event was conducted by CPTS on September 14, 2018. Prior to collection of groundwater samples, the depth to water in each monitoring well was measured. This data along with the total well depths and top of casing elevations were used to calculate the volume of groundwater within each well and the groundwater elevation and hydraulic gradient across the site, respectively. Each monitoring well was then purged of at least three well volumes to ensure a representative sampling matrix. During well purging, purge water was treated with granular activated carbon prior to being discharged to the ground surface. Groundwater samples were then placed into laboratory supplied bottleware and submitted to Test America Laboratories of Edison, New Jersey for laboratory analysis of PAUST unleaded and leaded gasoline constituents including benzene, ethylbenzene, toluene, xylenes, MTBE, isopropylbenzene (cumene), naphthalene, 1,2,4-TMB, 1,3,5-TMB, 1,2-Dibromoethane (EDB), 1,2-Dichloroethane (EDC), and lead via EPA Methods 200.8, 8011, and 8260B. A groundwater sample was not collected from MW-6 as an insufficient water column was present on the date of the sampling event

Groundwater was not sampled from MW-7 due to persisting SPH.

Review of the laboratory analytical results indicates the following:

- No unleaded or leaded gasoline parameters were detected in the groundwater samples collected from monitoring wells MW-1, MW-2, MW-5, and MW-11.
- Benzene was detected in the groundwater samples collected from MW-3, MW-4, MW-8, MW-10, MW-12 and MW-13 at concentrations exceeding its SHS.
- MTBE was also detected at a concentration exceeding the SHS in the groundwater samples collected from MW-3 and MW-10. This is the first time in several quarters that MTBE has exceeded the SHS in the sample collected from MW-3. This is also the first time that MTBE has not exceeded the standard in the sample collected from MW-12.
- 1,2,4 –TMB was detected at a concentration exceeding the SHS in the groundwater samples collected from MW-3, MW-8, and MW-12.
- Naphthalene was detected at a concentration equal to the SHS in the groundwater sample collected from MW-12.

Last quarter, CPTS discussed that – based on 10 consecutive quarters of groundwater monitoring at MW-3 – the impact observed in groundwater may be the result of soil impact in that the only time detectable levels of unleaded gasoline constituents are present is when groundwater levels are shallow. This conclusion is further validated with this quarter's groundwater quality data, collected during a time of shallow groundwater (3.44 ft below top-of-casing at MW-3).

No staining or sheen was observed by CPTS in the river on the date of the quarterly sampling event.

Isoconcentration contour maps were prepared for benzene, MTBE, and 1,2,4-TMB concentrations in groundwater for the 3rd quarter of 2018 and are included as **Figures 4 through 6** respectively.

Laboratory Analytical Data Sheets are included as **Appendix C**, and the groundwater laboratory analytical data is summarized in **Table 1**.

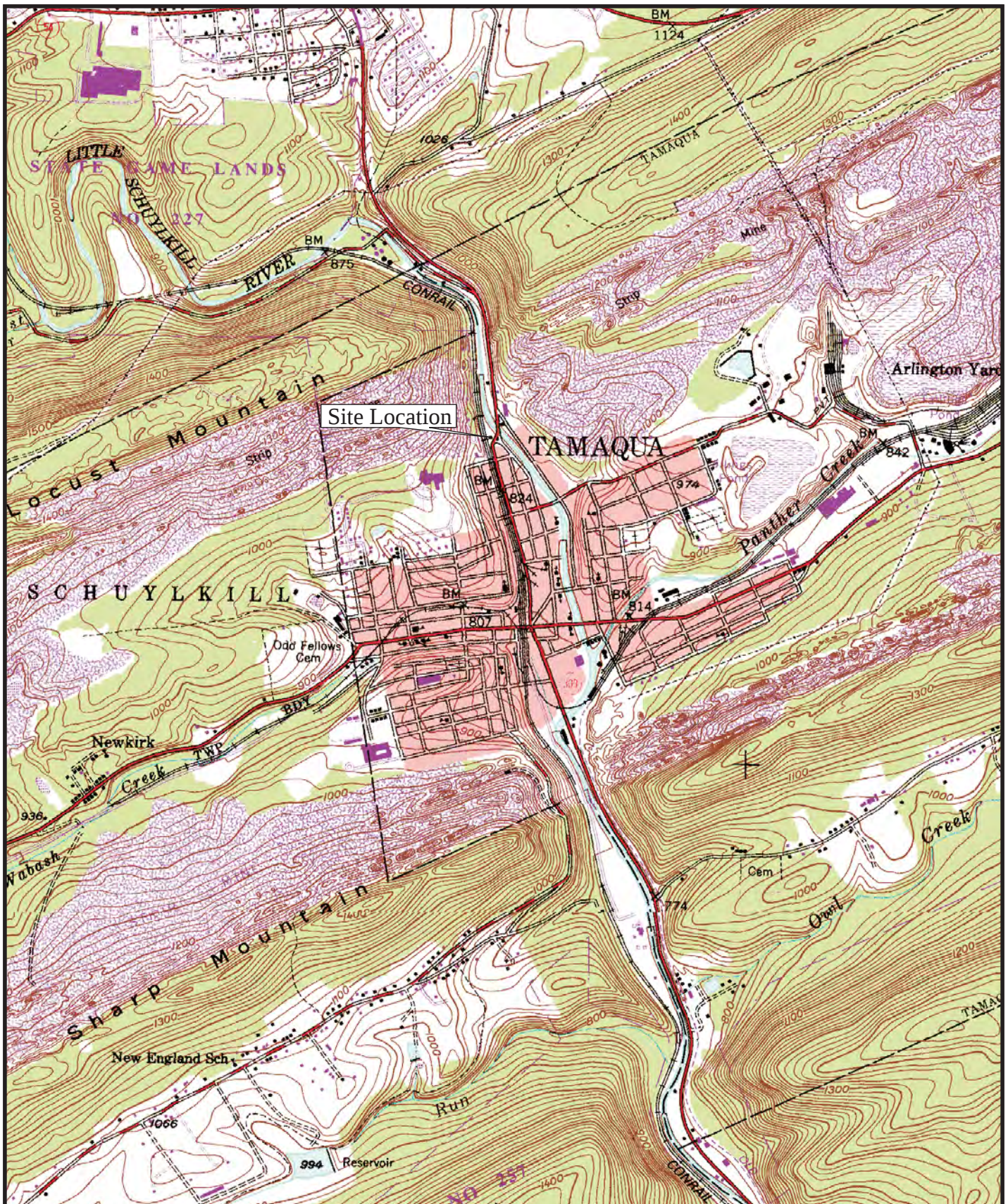
REMEDIAL GOALS

CPTS has been notified that this project is being bid by USTIF. As such CPTS will be continuing to conduct quarterly sampling events and quarterly status reports until such time that the bid is awarded. No activities beyond those described herein will be conducted by CPTS per request by USTIF.

ATTACHMENTS

Figure 1 –Topographic Site Location Map
Figure 2 – Site Plan
Figure 3 – Groundwater Elevation Contour Map, September 14, 2018
Figure 4 – Benzene Isoconcentration Contour Map
Figure 5 – MTBE Isoconcentration Contour Map
Figure 6 – 1,2,4-TMB Isoconcentration Contour Map
Table 1 – Historical Groundwater Monitoring Data Summary
Appendix A – Groundwater Laboratory Analytical Data Reports

FIGURES



**CENTER POINT TANK
SERVICES, INC.**

536 E. BENJAMIN FRANKLIN HIGHWAY
DOUGLASSVILLE, PENNSYLVANIA 19518

LIBERTY OIL COMPANY #38
700 N. RAILROAD ST.
TAMAQUA, PA 18252

JOB NO.

DATE:

11/23/09

CHECKED BY:

PSC

DRAWN BY:

WJV

SCALE:

1: 24,000

DRAWING NO.

1

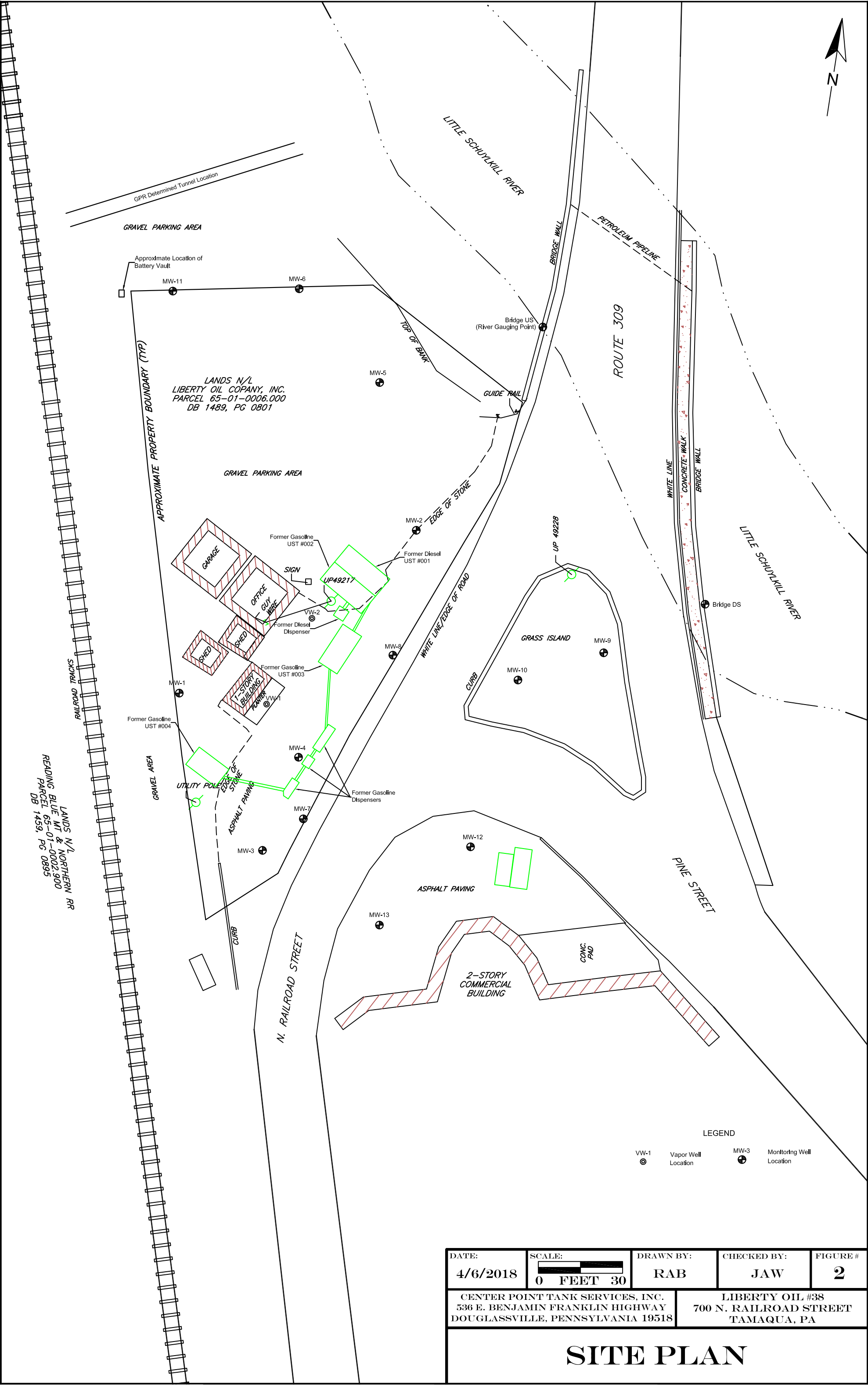
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TOPOGRAPHIC SITE LOCATION MAP

TAMAQUA, PA
7.5 MINUTE QUADRANGLE, 1983

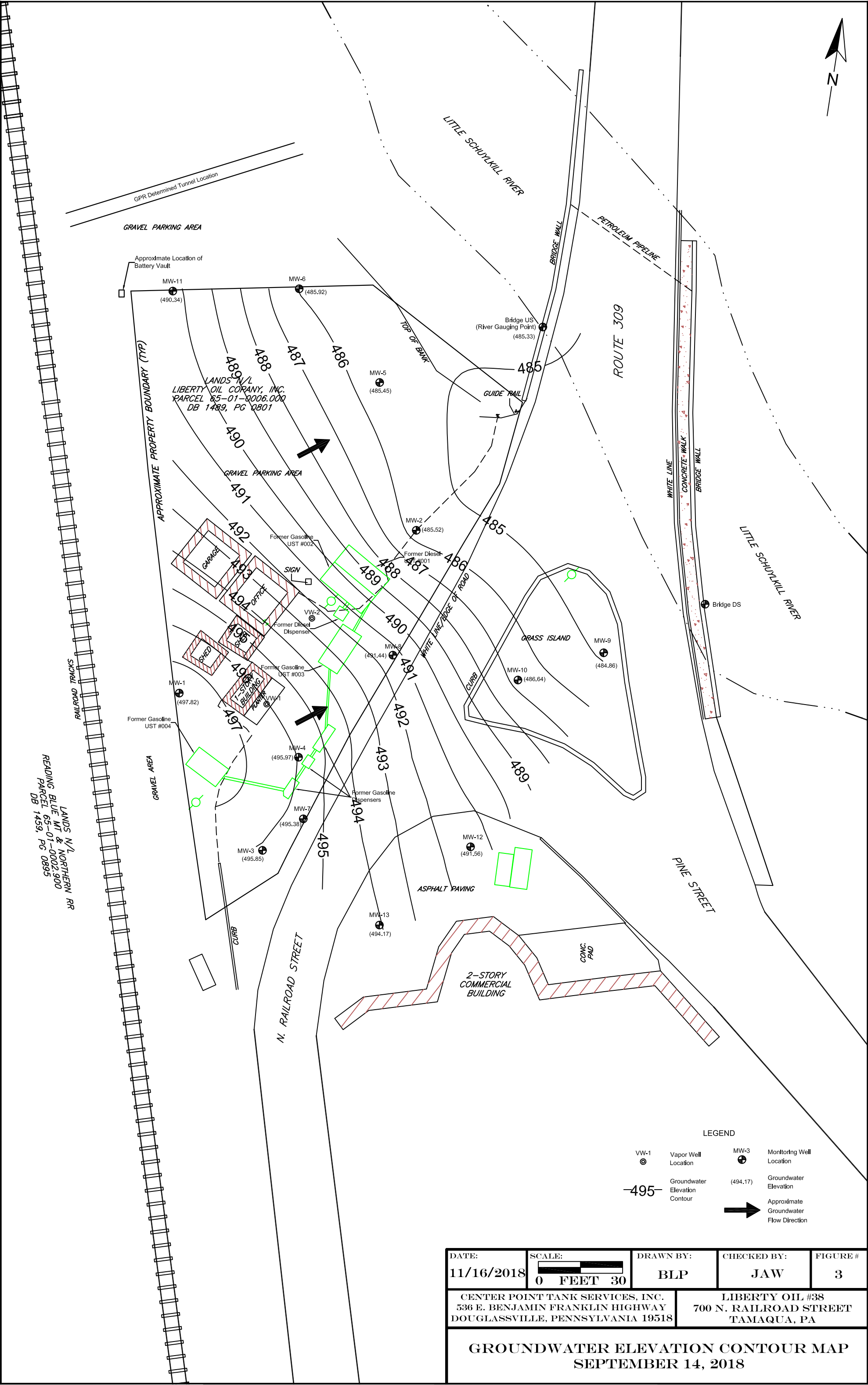
NORTH

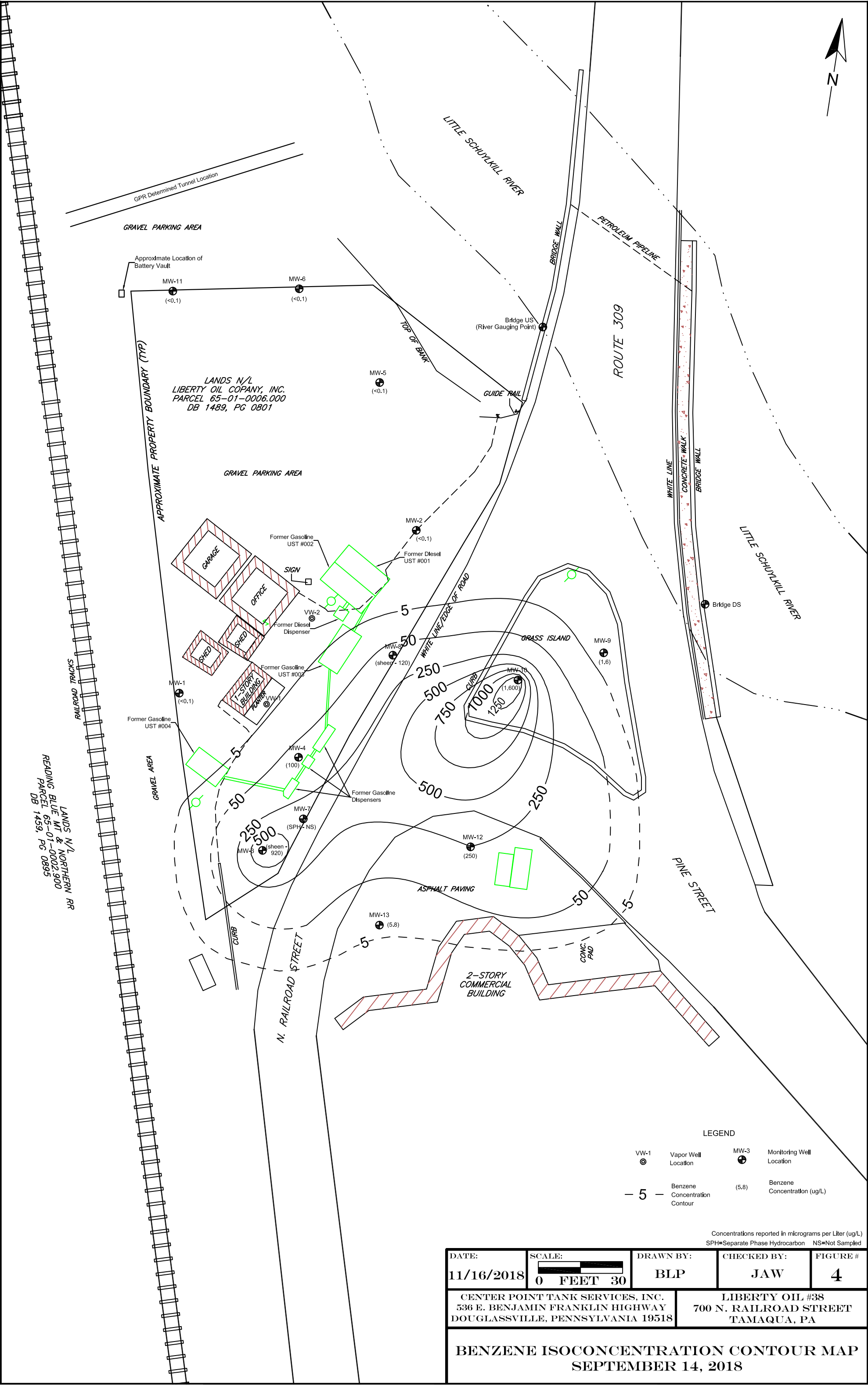




DATE:	SCALE:	DRAWN BY:	CHECKED BY:	FIGURE #
4/6/2018	0 FEET 30	RAB	JAW	2
CENTER POINT TANK SERVICES, INC. 536 E. BENJAMIN FRANKLIN HIGHWAY DOUGLASSVILLE, PENNSYLVANIA 19518			LIBERTY OIL #38 700 N. RAILROAD STREET TAMAQUA, PA	

SITE PLAN





LEGEND

- 

VW-1
Vapor Well
Location
- 

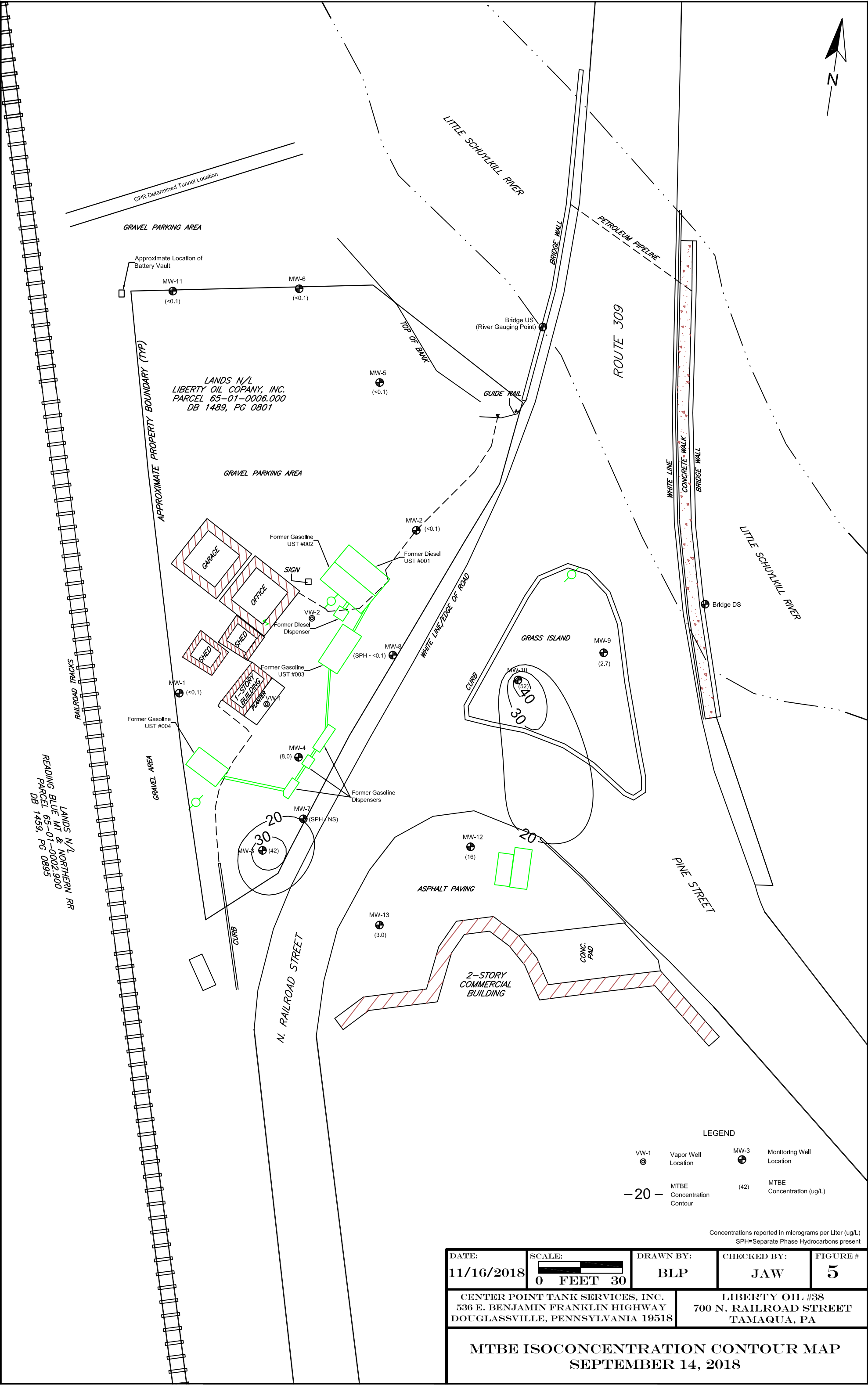
MW-3
Monitoring Well
Location
- 

5
Benzene
Concentration
Contour
- 

(5.8)
Benzene
Concentration (ug/L)

Concentrations reported in micrograms per Liter (ug/L)
SPH=Separate Phase Hydrocarbon NS=Not Sampled

DATE:	SCALE:	DRAWN BY:	CHECKED BY:	FIGURE #
11/16/2018	 0 FEET 30	BLP	JAW	4
CENTER POINT TANK SERVICES, INC. 536 E. BENJAMIN FRANKLIN HIGHWAY DOUGLASSVILLE, PENNSYLVANIA 19518			LIBERTY OIL #38 700 N. RAILROAD STREET TAMAQUA, PA	
BENZENE ISOCONCENTRATION CONTOUR MAP SEPTEMBER 14, 2018				



DATE: 11/16/2018	SCALE: 0 FEET 30	DRAWN BY: BLP	CHECKED BY: JAW	FIGURE # 5
CENTER POINT TANK SERVICES, INC. 536 E. BENJAMIN FRANKLIN HIGHWAY DOUGLASSVILLE, PENNSYLVANIA 19518			LIBERTY OIL #38 700 N. RAILROAD STREET TAMAQUA, PA	

TABLES

TABLE 1
HISTORICAL GROUNDWATER MONITORING DATA SUMMARY

**LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA**

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)	
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5	
MW-2	2/16/09	99.93	15.39	84.54	ND	-	-	1.4	2.0	<2.0	<2.0	<6.0	<2.0	<5.0	11	<2.0	<1.0	<0.05	<0.36	
	3/25/09	99.93	15.64	84.29	ND	-	-	5.7	12	8.0	<2.0	<6.0	<2.0	9.7	110	<2.0	<1.0	<0.05	<0.36	
	9/24/09	99.93	15.69	84.24	ND	-	-	2.9	5.8	3.8	<2.0	<6.0	<2.0	<8.0	44	<2.0	<1.0	<0.05	<0.36	
	11/12/09	99.93	15.43	84.50	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.05	<0.36	
	3/26/10	100.07	14.99	85.08	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.021	<2.0	
	6/2/10	100.07	15.60	84.47	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	<2.0	
	9/1/10	100.07	15.71	84.36	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	1.3	<1.0	<1.0	<0.021	<4.0	
	12/2/10	100.07	13.06	87.01	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.021	<2.0	
	3/4/11	100.07	14.98	85.09	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	6.0	<2.0	<1.0	<1.0	<1.0	<0.019	<2.0	
	5/6/11	100.07	15.83	84.24	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	6.7	<2.0	<1.0	<1.0	<1.0	<0.021	<2.0	
	9/9/11	100.07	15.83	84.24	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.050	<0.48	
	12/8/11	100.07	13.87	86.20	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.051	<0.48	
	3/27/12	100.07	15.62	84.45	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.049	<0.48	
	6/8/12	500.05	14.98	485.07	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.038	<0.48	
	9/6/12	500.05	15.67	484.38	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.020	<1.5	
	12/4/12	500.05	15.64	484.41	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.020	<1.5	
	3/15/13	500.05	14.75	485.30	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	6/25/13	500.05	15.65	484.40	ND	-	-	<0.080	<0.10	<0.080	<0.15	<0.13	<0.14	<0.29	<0.13	<0.15	<0.19	<0.020	<1.5	
	9/13/13	500.05	15.42	484.63	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	12/11/13	500.05	15.56	484.49	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	3/20/14	500.05	15.32	484.73	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	5/27/14	500.05	15.14	484.91	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	9/19/14	500.05	15.78	484.27	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	12/26/14	500.05	15.17	484.88	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	3/13/15	500.05	15.30	484.75	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	6/29/15	500.05	15.21	484.84	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	9/18/15	500.05	15.98	484.07	ND	-	-	<1.0	<1.0	1.8	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	12/11/15	500.05	15.65	484.40	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	4/8/16	500.05	15.05	485.00	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	6/15/16	500.05	15.90	484.15	ND	-	-	<1.0	<1.0	1.4	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	9/22/16	500.05	16.01	484.04	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	12/14/16	500.05	15.83	484.22	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	3/29/17	500.05	14.94	485.11	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	6/22/17	500.05	15.47	484.58	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	9/20/17	500.05	15.90	484.15	ND	-	-	<1.0	<1.0	1.1	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	12/22/17	500.05	15.96	484.09	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
	3/6/18	500.05	14.35	485.70	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/18	500.05	15.49	484.56	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	4/26/18	500.05	14.85	485.20	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/18	500.05	15.24	484.81	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
6/19/18	500.05	15.66	484.39	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
9/14/18	500.05	14.53	485.52	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	

TABLE 1
HISTORICAL GROUNDWATER MONITORING DATA SUMMARY

LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5
MW-3	2/16/09	99.13	5.05	94.08	ND	-	-	240	54	5.6	97	170	330	7.5	40	14	<1.0	<0.05	<0.36
	3/25/09	99.13	5.80	93.33	ND	-	-	130	28	6.3	6.9	31	120	13	9.9	9.1	<1.0	<0.05	<0.36
	9/24/09	99.13	5.03	94.10	ND	-	-	280	52	6.1	84	160	160	16	81	29	<1.0	<0.05	<0.36
	11/12/09	99.13	4.60	94.53	ND	-	-	770	250	26	490	820	390	38	270	88	<1.0	<0.05	<0.36
	3/26/10	99.31	4.31	95.00	ND	-	-	511	379	51.9	359	1,470	231	77.4	628	205	<5.0	<0.020	<2.0
	6/2/10	99.31	5.69	93.62	ND	-	-	96.9	23.2	3.5	24.7	68.3	58.8	5.1	39.4	14.5	<1.0	<0.020	<2.0
	9/1/10	99.31	7.43	91.88	ND	-	-	18.6	2.1	<1.0	5.7	26.9	18.4	<2.0	10.8	3.8	<1.0	<0.021	<2.0
	12/2/10	99.31	4.04	95.27	ND	-	-	101	25.6	<1.0	35.0	135	37.6	<2.0	26.6	18.1	<1.0	<0.021	<2.0
	3/4/11	99.31	4.58	94.73	4.54	0.04	94.76	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	5/6/11	99.31	4.24	95.07	4.10	0.14	95.17	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	9/9/11	99.31	2.81	96.50	2.79	0.02	96.51	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/8/11	99.31	3.55	95.76	3.49	0.06	95.80	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/27/12	99.31	6.73	92.58	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	6/8/12	499.29	3.82	495.47	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/6/12	499.29	6.13	493.16	6.11	0.02	493.17	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/4/12	499.29	5.50	493.79	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/15/13	499.29	3.80	495.49	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	6/25/13	499.29	4.80	494.49	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/13/13	499.29	6.26	493.03	6.25	0.01	493.04	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/11/13	499.29	6.24	493.05	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	3/20/14	499.29	4.36	494.93	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	5/27/14	499.29	3.71	495.58	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	9/19/14	499.29	6.65	492.64	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	12/26/14	499.29	5.77	493.52	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	3/13/15	499.29	6.16	493.13	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	6/29/15	499.29	4.37	494.92	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	9/18/15	499.29	6.20	493.09	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	12/11/15	499.29	5.98	493.31	5.98	<0.01	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	4/8/16	499.29	4.46	494.83	ND	-	-	100	85	21	8.4	29	13	11	91	6.1	<1.0	<0.020	<1.5
+	6/15/16	499.29	5.52	493.77	ND	-	-	13	1.7	1.3	<1.0	2.4	2.1	<1.0	1.4	<1.0	<1.0	<0.020	<1.5
+	9/22/16	499.29	6.92	492.37	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
+	12/14/16	499.29	6.74	492.55	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
+	3/29/17	499.29	4.39	494.90	ND	-	-	81	34	6.4	7.0	24	9.6	2.8	34	<1.0	<1.0	<0.020	<1.5
+	6/22/17	499.29	4.76	494.53	ND	-	-	67	14	2.8	11	17	5.4	1.4	9.1	1.4	<1.0	<0.020	<1.5
+	9/20/17	499.29	5.81	493.48	ND	-	-	33	<1.0	<1.0	1.4	<2.0	3.5	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
+	12/22/17	499.29	6.93	492.36	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
+	3/6/18	499.29	3.40	495.89	sheen	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
+	3/27/18	499.29	4.54	494.75	sheen	-	-	85	26	5.8	2.2	17	9.8	3.4	37	1.3	1.8	<0.020	<1.5
+	4/26/18	499.29	3.95	495.34	sheen	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
+	5/4/18	499.29	4.23	495.06	sheen	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
+	6/19/18	499.29	4.86	494.43	sheen	-	-	60	17	4.7	1.8	5.1	6.4	<1.0	9.5	<1.0	<1.0	<0.020	<1.5
+	9/14/18	499.29	3.44	495.85	sheen	-	-	920	350	40	320	680	42	85	540	23	<1.0	<0.020	<1.5

TABLE 1
HISTORICAL GROUNDWATER MONITORING DATA SUMMARY

LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5
MW-4	9/24/09	99.34	5.43	93.91	4.90	0.53	94.30	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	11/12/09	99.34	4.70	94.64	ND	-	-	4,500	2,100	120	8,400	9,400	970	440	2,000	620	<1.0	<0.05	0.41
	3/26/10	99.66	4.83	94.83	ND	-	-	5,560	1,770	74.2	11,200	9,900	1,620	343	2,060	465	<5.0	<0.021	<2.0
	6/2/10	99.66	6.22	93.44	6.18	0.04	93.47	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/1/10	99.66	8.19	91.47	8.02	0.17	91.59	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/2/10	99.66	4.46	95.20	4.43	0.03	95.22	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/4/11	99.66	5.29	94.37	5.20	0.09	94.44	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	5/6/11	99.66	4.58	95.08	4.48	0.10	95.15	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/9/11	99.66	3.50	96.16	ND	-	-	350	360	27	200	480	40	68	380	140	<1.0	<0.050	<0.48
	12/8/11	99.66	4.36	95.30	ND	-	-	560	310	43	120	260	180	93	300	38	<1.0	<0.051	<0.48
	3/27/12	99.66	9.14	90.52	ND	-	-	960	420	33	520	820	200	94	350	100	<1.0	<0.050	<0.48
	6/8/12	499.65	4.17	495.48	ND	-	-	480	240	21	30	150	89	30	140	<20	<10	<0.038	<0.48
	9/6/12	499.65	6.18	493.47	ND	-	-	340	300	41	430	1,000	92	120	410	130	<1.0	<0.020	<1.5
	12/4/12	499.65	5.95	493.70	ND	-	-	500	360	31	320	950	140	77	340	110	<1.0	<0.020	<1.5
	3/15/13	499.65	4.48	495.17	ND	-	-	300	68	2.6	220	290	100	11	86	19	<1.0	<0.020	<1.5
	6/25/13	499.65	5.12	494.53	ND	-	-	300	220	18	19	52	80	7.0	110	3.7	<0.19	<0.020	<1.5
	9/13/13	499.65	6.79	492.86	ND	-	-	230	230	18	170	720	51	47	350	84	<2.0	<0.020	<1.5
	12/11/13	499.65	6.70	492.95	ND	-	-	260	160	13	240	420	49	29	220	50	<2.0	<0.020	<1.5
	3/20/14	499.65	4.90	494.75	ND	-	-	160	160	11	170	350	40	17	110	25	<1.0	<0.020	<1.5
	5/27/14	499.65	3.39	496.26	ND	-	-	240	110	10	3.0	46	29	7.6	90	4.7	<1.0	<0.020	<1.5
	9/19/14	499.65	7.06	492.59	ND	-	-	54	89	12	28	130	<1.0	16	130	28	<1.0	<0.020	<1.5
	12/26/14	499.65	6.38	493.27	ND	-	-	160	100	9.9	100	170	28	7.6	83	18	<1.0	<0.020	<1.5
	3/13/15	499.65	6.82	492.83	ND	-	-	160	160	13	160	230	32	13	100	27	<1.0	<0.020	<1.5
	6/29/15	499.65	4.57	495.08	ND	-	-	120	130	12	17	57	22	6.2	34	1.3	<1.0	<0.020	<1.5
	9/18/15	499.65	6.37	493.28	ND	-	-	42	44	8.3	15	58	19	6.7	52	11	<1.0	<0.020	<1.5
	12/11/15	499.65	6.25	493.40	ND	-	-	270	140	16	190	250	28	19	80	17	<1.0	<0.020	<1.5
	4/8/16	499.65	4.98	494.67	ND	-	-	260	190	13	54	110	29	13	31	5.0	<2.0	<0.020	<1.5
	6/15/16	499.65	5.66	493.99	ND	-	-	71	39	6.9	10	45	34	2.9	19	2.9	<1.0	<0.020	<1.5
	9/22/16	499.65	7.25	492.40	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/16	499.65	7.00	492.65	ND	-	-	97	50	14	75	150	12	21	67	18	<1.0	<0.020	<1.5
	3/29/17	499.65	4.92	494.73	ND	-	-	230	140	16	160	260	23	9.9	57	13	<1.0	<0.020	<1.5
	6/22/17	499.65	4.92	494.73	ND	-	-	41	2.8	2.7	<1.0	<2.0	13	1.4	1.3	<1.0	<2.0	<0.020	<1.5
	9/20/17	499.65	5.81	493.84	ND	-	-	66	17	3.4	26	23	7.1	2	6.9	<1.0	<1.0	<0.020	<1.5
	12/22/17	499.65	7.19	492.46	ND	-	-	53	24	13	19	65	8.0	25	47	9.9	<1.0	<0.020	<1.5
	3/6/18	499.65	3.54	496.11	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/18	499.65	4.55	495.10	ND	-	-	240	140	17	24	220	12	16	170	50	<1.0	<0.020	<1.5
	4/26/18	499.65	4.29	495.36	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/18	499.65	4.22	495.43	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	499.65	4.72	494.93	ND	-	-	39	5.5	2.1	<1.0	<2.0	8.5	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/14/18	499.65	3.68	495.97	ND	-	-	100	22	4.5	100	98	8.0	3.1	20	6.2	<1.0	<0.020	<1.5

LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

Monitoring Well		Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)	
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5	
MW-5	9/24/09	100.00	15.59	84.41	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.05	<0.36	
	11/12/09	100.00	15.37	84.63	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.05	<0.36	
	3/26/10	100.00	14.93	85.07	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	<2.0	
	6/2/10	100.00	15.53	84.47	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	<2.0	
	9/1/10	100.00	15.64	84.36	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	<2.0	
	12/2/10	100.00	13.07	86.93	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	<2.0	
	3/4/11	100.00	14.97	85.03	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.019	<2.0	
	5/6/11	100.00	14.81	85.19	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	<2.0	
	9/9/11	100.00	12.73	87.27	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	2.1	<2.0	<1.0	<0.050	<0.48	
	12/8/11	100.00	13.90	86.10	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.050	<0.48	
	3/27/12	100.00	15.55	84.45	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.050	<0.48	
	6/8/12	499.96	14.92	485.04	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.038	<0.48	
	9/6/12	499.96	15.62	484.34	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.020	<1.5	
	12/4/12	499.96	15.55	484.41	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.020	<1.5	
	3/15/13	499.96	14.75	485.21	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/25/13	499.96	15.56	484.40	ND	-	-	<0.080	<0.10	<0.080	<0.15	<0.13	<0.14	<0.29	<0.13	<0.15	<0.19	<0.020	<1.5	
	9/13/13	499.96	15.40	484.56	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/11/13	499.96	15.47	484.49	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/20/14	499.96	15.24	484.72	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	5/27/14	499.96	15.06	484.90	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/19/14	499.96	15.69	484.27	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/26/14	499.96	15.11	484.85	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/13/15	499.96	NM	NM	NM	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/29/15	499.96	15.17	484.79	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/18/15	499.96	15.85	484.11	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/11/15	499.96	15.54	484.42	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	4/8/16	499.96	15.01	484.95	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/15/16	499.96	15.78	484.18	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/22/16	499.96	15.88	484.08	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/16	499.96	15.71	484.25	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/29/17	499.96	14.85	485.11	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/22/17	499.96	15.38	484.58	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
9/20/17	499.96	15.76	484.20	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
12/22/17	499.96	15.83	484.13	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
3/6/18	499.96	14.39	485.57	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
3/27/18	499.96	15.38	484.58	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	1.3	<1.0	<1.0	<0.020	<1.5	
4/26/18	499.96	14.80	485.16	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
5/4/18	499.96	15.10	484.86	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
6/19/18	499.96	15.50	484.46	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	
9/14/18	499.96	14.51	485.45	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5	

TABLE 1
HISTORICAL GROUNDWATER MONITORING DATA SUMMARY

**LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA**

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)	
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5	
MW-6	9/24/09	99.41	16.15	83.26	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.05	<0.36	
	11/12/09	99.41	15.92	83.49	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.05	0.64	
	3/26/10	100.59	15.49	85.10	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.021	<2.0	
	6/2/10	100.59	16.11	84.48	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	40	
	9/1/10	100.59	16.21	84.38	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.021	65	
	12/2/10	100.59	13.62	86.97	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	2.5	
	3/4/11	100.59	15.53	85.06	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.019	<2.0	
	5/6/11	100.59	15.36	85.23	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<0.020	4.6	
	9/9/11	100.59	13.18	87.41	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.050	2.4	
	12/8/11	100.59	14.40	86.19	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.050	5.0	
	3/27/12	100.59	16.11	84.48	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.051	44	
	6/8/12	500.98	15.48	485.50	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.038	12	
	9/6/12	500.98	16.19	484.79	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.020	16	
	12/4/12	500.98	16.12	484.86	ND	-	-	<1.0	<2.0	<2.0	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.020	12	
	3/15/13	500.98	15.32	485.66	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	5.1
	6/25/13	500.98	16.13	484.85	ND	-	-	<0.080	484.10	<0.080	<0.15	<0.13	<0.14	<0.29	<0.13	<0.15	<0.19	<0.020	27	
	9/13/13	500.98	15.96	485.02	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	52	
	12/11/13	500.98	16.03	484.95	ND	-	-	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	35	
	3/20/14	500.98	15.79	485.19	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	18	
	5/27/14	500.98	15.61	485.37	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	3.9	
	9/19/14	500.98	16.25	484.73	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	13	
	12/26/14	500.98	15.67	485.31	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	11	
	3/13/15	500.98	15.77	485.21	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	28	
	6/29/15	500.98	15.74	485.24	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	38	
	9/18/15	500.98	16.43	484.55	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/11/15	500.98	16.12	484.86	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	39	
	4/8/16	500.98	15.56	485.42	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	11	
	6/15/16	500.98	16.35	484.63	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	9/22/16	500.98	16.45	484.53	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/14/16	500.98	16.28	484.70	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	40	
	3/29/17	500.98	15.40	485.58	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	15	
	6/22/17	500.98	15.94	485.04	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	22	
	9/20/17	500.98	16.33	484.65	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	12/22/17	500.98	16.39	484.59	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	3/6/18	500.98	14.81	486.17	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
	3/27/18	500.98	15.92	485.06	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	5.3	
4/26/18	500.98	15.34	485.64	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
5/4/18	500.98	15.65	485.33	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
6/19/18	500.98	16.06	484.92	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
9/14/18	500.98	15.06	485.92	ND	-	-	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<0.020	10		

LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

[illegible]

TABLE 1
HISTORICAL GROUNDWATER MONITORING DATA SUMMARY

LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5
MW-8	3/26/10	99.31	8.31	91.00	ND	-	-	865	510	44.1	758	1,850	96.6	110	843	252	<5.0	<0.020	<2.0
	6/2/10	99.31	9.41	89.90	ND	-	-	820	473	43.9	709	1,810	119	110	701	211	<5.0	<0.020	<2.0
	9/1/10	99.31	10.64	88.67	10.41	0.23	88.84	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/2/10	99.31	8.35	90.96	ND	-	-	198	147	5.2	623	730	8.0	19.2	180	46.4	<5.0	0.090	<2.0
	3/4/11	99.31	8.99	90.32	ND	-	-	781	579	45.6	796	2,380	67.1	80.2	841	236	<5.0	0.10	<2.0
	5/6/11	99.31	8.73	90.58	ND	-	-	674	377	37.1	308	1,240	79.5	65.9	539	160	<5.0	0.035	<2.0
	9/9/11	99.31	7.78	91.53	ND	-	-	210	160	19	42	460	39	39	220	66	<1.0	<0.050	<0.48
	12/8/11	99.31	8.44	90.87	ND	-	-	380	290	33	79	770	26	59	430	120	<1.0	<0.051	<0.48
	3/27/12	99.31	9.64	89.67	9.64	<0.01	89.67	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	6/8/12	499.26	8.78	490.48	ND	-	-	450	370	46	360	1,200	<40	190	580	160	<20	<0.038	<0.48
	9/6/12	499.26	10.05	489.21	ND	-	-	350	450	59	150	1,100	12	130	790	270	<1.0	<0.020	<1.5
	12/4/12	499.26	9.60	489.66	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/15/13	499.26	8.68	490.58	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	6/25/13	499.26	9.18	490.08	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/13/13	499.26	9.80	489.46	9.77	0.03	489.48	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/11/13	499.26	9.74	489.52	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/20/14	499.26	8.85	490.41	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	5/27/14	499.26	8.51	490.75	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/19/14	499.26	10.00	489.26	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/26/14	499.26	9.24	490.02	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/13/15	499.26	9.58	489.68	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	6/29/15	499.26	8.70	490.56	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/18/15	499.26	9.66	489.60	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/11/15	499.26	9.20	490.06	9.20	<0.01	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
+	4/8/16	499.26	8.62	490.64	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	6/15/16	499.26	9.36	489.90	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	9/22/16	499.26	9.99	489.27	sheen	-	-	230	380	60	20	670	<5.0	110	840	240	<5.0	<0.020	<1.5
	12/14/16	499.26	9.81	489.45	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/29/17	499.26	5.56	493.70	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	6/22/17	499.26	8.81	490.45	sheen	-	-	41	58	10	4.8	120	<1.0	17	150	43	<1.0	<0.020	<1.5
	9/20/17	499.26	9.27	489.99	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	12/22/17	499.26	9.89	489.37	sheen	-	-	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
	3/6/18	499.26	7.93	491.33	sheen	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/18	499.26	8.68	490.58	sheen	-	-	270	360	53	69	790	<5.0	96	620	180	<5.0	<0.020	<1.5
	4/26/18	499.26	8.30	490.96	sheen	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/18	499.26	8.44	490.82	sheen	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	499.26	8.79	490.47	sheen	-	-	330	590	93	150	2000	<5.0	240	1,600	480	<5.0	<0.020	1.8
	9/14/18	499.26	7.82	491.44	sheen	-	-	120	190	28	42	570	<5.0	55	390	120	<5.0	<0.020	<1.5

TABLE 1
HISTORICAL GROUNDWATER MONITORING DATA SUMMARY

LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5
MW-9	6/8/12	499.82	15.41	484.41	ND	-	-	150	44	19	9.0	62	13	41	37	7.4	<1.0	<0.038	<0.48
	9/6/12	499.82	16.12	483.70	ND	-	-	14	4.1	8.1	<2.0	<6.0	<2.0	<8.0	<2.0	<2.0	<1.0	<0.020	<1.5
	12/4/12	499.82	16.05	483.77	ND	-	-	34	9.6	13	<2.0	<6.0	3.2	<8.0	<2.0	<2.0	<1.0	<0.020	<1.5
	3/15/13	499.82	15.22	484.60	ND	-	-	33	1.1	<1.0	<1.0	<3.0	8.6	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/25/13	499.82	16.08	483.74	ND	-	-	170	17	19	1.4	1.9 J	17	0.67 J	0.66 J	<0.15	<0.19	<0.020	<1.5
	9/13/13	499.82	15.89	483.93	ND	-	-	18	<1.0	8.1	<1.0	<3.0	5.1	1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/11/13	499.82	15.42	484.40	ND	-	-	11	<1.0	7.9	<1.0	<3.0	2.5	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/20/14	499.82	15.69	484.13	ND	-	-	47	2.2	8.5	<1.0	<2.0	7.4	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	5/27/14	499.82	15.60	484.22	ND	-	-	65	5.3	11	<1.0	<2.0	8.6	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/19/14	499.82	16.14	483.68	ND	-	-	1.9	<1.0	5.1	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/26/14	499.82	15.51	484.31	ND	-	-	5.5	<1.0	5.0	<1.0	<2.0	3.8	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/13/15	499.82	15.56	484.26	ND	-	-	15	<1.0	6.4	<1.0	<2.0	3.8	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/29/15	499.82	15.63	484.19	ND	-	-	17	<1.0	8.9	<1.0	<2.0	8.8	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/18/15	499.82	16.29	483.53	ND	-	-	1.5	<1.0	4.6	<1.0	<2.0	2.5	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/11/15	499.82	15.99	483.83	ND	-	-	1.5	<1.0	4.0	<1.0	<2.0	2.2	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	4/8/16	499.82	15.44	484.38	ND	-	-	5.0	<1.0	4.3	<1.0	<2.0	4.9	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/15/16	499.82	16.22	483.60	ND	-	-	6.0	<1.0	6.6	<1.0	<2.0	5.1	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/22/16	499.82	16.31	483.51	ND	-	-	2.0	<1.0	2.9	<1.0	<2.0	1.6	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/14/16	499.82	16.14	483.68	ND	-	-	1.7	<1.0	2.4	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/29/17	499.82	15.26	484.56	ND	-	-	8.5	<1.0	6.8	<1.0	<2.0	3.4	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/22/17	499.82	15.84	483.98	ND	-	-	11	<1.0	10	<1.0	<2.0	5.9	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/20/17	499.82	16.23	483.59	ND	-	-	1.9	<1.0	2.6	<1.0	<2.0	2.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/22/17	499.82	16.24	483.58	ND	-	-	<1.0	<1.0	1.2	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/6/18	499.82	14.96	484.86	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/18	499.82	15.85	483.97	ND	-	-	18	<1.0	10	<1.0	<2.0	3.1	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	4/26/18	499.82	15.22	484.60	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/18	499.82	15.55	484.27	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	499.82	15.98	483.84	ND	-	-	2.5	<1.0	5.4	<1.0	<2.0	2.6	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/14/18	499.82	14.96	484.86	ND	-	-	1.6	<1.0	3.5	<1.0	<2.0	2.7	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5

TABLE 1
HISTORICAL GROUNDWATER MONITORING DATA SUMMARY

LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5
MW-10	6/8/12	499.64	13.05	486.59	ND	-	-	1,700	840	93	350	2,000	100	270	1,500	350	<5.0	<0.038	0.88
	9/6/12	499.64	14.31	485.33	ND	-	-	4,800	1,500	140	1,200	4,100	230	300	1,700	430	<20	<0.020	<1.5
	12/4/12	499.64	14.24	485.40	ND	-	-	2,200	810	89	710	1,900	120	200	490	250	<1.0	<0.020	<1.5
	3/15/13	499.64	13.36	486.28	ND	-	-	1,500	410	41	100	720	120	130	590	150	<5.0	<0.020	<1.5
	6/25/13	499.64	14.07	485.57	ND	-	-	2,800	840	90	34	630	160	210	990	150	<1.9	<0.020	<1.5
	9/13/13	499.64	14.10	485.54	ND	-	-	2,900	770	68	48	750	160	180	780	170	<10	<0.020	<1.5
	12/11/13	499.64	14.09	485.55	ND	-	-	2,900	850	70	24	370	130	210	630	20	<10	<0.020	<1.5
	3/20/14	499.64	13.66	485.98	ND	-	-	2,000	610	52	110	490	130	120	440	41	<10	<0.020	<1.5
	5/27/14	499.64	13.20	486.44	ND	-	-	1,300	400	37	83	550	74	120	390	70	<5.0	<0.020	<1.5
	9/19/14	499.64	14.21	485.43	ND	-	-	2,900	950	98	94	1,000	140	220	640	110	<10	<0.020	<1.5
	12/26/14	499.64	13.53	486.11	ND	-	-	1,700	660	71	9.6	140	89	84	350	11	<5.0	<0.020	<1.5
	3/13/15	499.64	13.52	486.12	ND	-	-	630	260	29	25	120	43	56	170	20	<2.0	<0.020	<1.5
	6/29/15	499.64	13.40	486.24	ND	-	-	2,200	670	60	18	340	110	83	460	<10	<10	<0.020	<1.5
	9/18/15	499.64	14.08	485.56	ND	-	-	2,100	490	64	51	220	100	120	170	45	<10	<0.020	<1.5
	12/11/15	499.64	13.71	485.93	ND	-	-	1,000	300	43	<10	37	54	39	69	<10	<10	<0.020	<1.5
	4/8/16	499.64	13.42	486.22	ND	-	-	1,300	280	30	38	150	77	30	58	13	<10	<0.020	<1.5
	6/15/16	499.64	13.99	485.65	ND	-	-	2,200	530	60	50	260	130	80	170	29	<10	<0.020	<1.5
	9/22/16	499.64	14.23	485.41	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/14/16	499.64	14.11	485.53	ND	-	-	3,300	530	55	31	120	95	27	34	<10	<10	<0.020	<1.5
	3/29/17	499.64	13.28	486.36	ND	-	-	810	130	26	6.1	22	60	5.9	13	<5.0	<5.0	<0.020	<1.5
	6/22/17	499.64	13.58	486.06	ND	-	-	330	61	5.7	9.0	42	13	12	29	2.2	<1.0	<0.020	<1.5
	9/20/17	499.64	13.95	485.69	ND	-	-	2,500	550	65	20.0	85	68	46	71	14	50	<0.020	<1.5
	12/22/17	499.64	14.21	485.43	ND	-	-	2,000	490	70	13	24	58	27	23	<5.0	<5.0	<0.020	<1.5
	3/6/18	499.64	12.96	486.68	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/18	499.64	13.75	485.89	ND	-	-	1,300	130	19	36	240	77	34	76	8.2	<5.0	<0.020	<1.5
	4/26/18	499.64	13.28	486.36	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/18	499.64	13.51	486.13	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	499.64	13.82	485.82	ND	-	-	2,400	370	35	66	390	120	72	140	20	<20	<0.020	<1.5
	9/14/18	499.64	13.00	486.64	ND	-	-	1,600	270	31	22	63	52	21	37	<5.0	<5.0	<0.020	<1.5
MW-11	4/8/16	501.37	11.91	489.46	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/15/16	501.37	12.89	488.48	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/22/16	501.37	13.88	487.49	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/14/16	501.37	13.91	487.46	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/29/17	501.37	12.23	489.14	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	6/22/17	501.37	12.26	489.11	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/20/17	501.37	12.92	488.45	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/22/17	501.37	13.76	487.61	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/6/18	501.37	10.89	490.48	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/27/18	501.37	12.00	489.37	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	4/26/18	501.37	11.60	489.77	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/18	501.37	11.77	489.60	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	501.37	12.24	489.13	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/14/18	501.37	11.03	490.34	ND	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
MW-12	3/6/18	497.04	5.53	491.51	ND	-	-	460	520	78	120	720	25	160	550	180	<2.0	<0.020	<1.5
	3/27/18	497.04	5.89	491.15	ND	-	-	560	470	79	150	550	29	160	490	150	<2.0	<0.020	<1.5
	4/26/18	497.04	5.76	491.28	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/4/18	497.04	5.74	491.30	ND	-	-	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/19/18	497.04	5.84	491.20	ND	-	-	490	580	78	46	710	22	190	560	160	<2.0	<0.020	<1.5
	9/14/18	497.04	5.48	491.56	sheen	-	-	250	250	63	14	190	16	100	280	81	<2.0	<0.020	<1.5

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LIBERTY OIL COMPANY #38
700 N. RAILROAD STREET
TAMAQUA, PA

Monitoring Well	Date	Top of Casing (ft)	Depth to Water (ft)	GW Elevation (ft)	Depth to Product (ft)	Product Thickness (ft)	Corrected Groundwater Elevation (ft)	Benzene (µg/L)	Ethyl benzene (µg/L)	Isopropyl benzene (µg/L)	Toluene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	EDC (µg/L)	EDB (µg/L)	Lead (µg/L)
MSCs for Used, Non-Residential Aquifer								5	700	3,500	1,000	10,000	20	100	62	1,200	5	0.05	5
Bridge DS	3/20/14	NM	NM	NM	NM	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	5/27/14	NM	NM	NM	NM	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	9/19/14	NM	NM	NM	NM	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	12/26/14	NM	NM	NM	NM	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5
	3/13/15	NM	NM	NM	NM	-	-	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.020	<1.5

Notes:

Statewide Health Standard values as per revisions effective August, 2016

MTBE = Methyl tertiary butyl ether

TMB = Trimethylbenzene

EDC = 1,2-Dichloroethane

EDB = 1,2-Dibromoethane

µg/L = Micrograms/liter (parts per billion)

4.24 = Groundwater elevation above the screened interval / indicates concentration exceeds PADEP Statewide Health Standard

ND = Not detected

<# = Less than the detection limit of #

SPH = Separate Phase Hydrocarbons

+ = Oil Absorbent socks present in wells

SPH = Separate Phase Hydrocarbon

NM = Not measured

NS = Not sampled

Corrected groundwater elevation = measured groundwater elevation+[product thickness x (density of gasoline/density of water)]

ρ of gasoline = 0.729 grams per milliliter

ρ of water = 1.000 grams per milliliter

Source = How to Effectively Recover Free Product at Leaking Underground Storage Tank Sites: A Guide for State Regulators,

EPA 510-R-96-001, United States Environmental Protection Agency, Office of Underground Storage Tanks, September 1996.

J = Result is greater than the Method Detection Limit but less than the Reporting Limit and is an estimated value

APPENDICIES

APPENDIX A

GROUNDWATER LABORATORY ANALYTICAL DATA

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Edison

777 New Durham Road

Edison, NJ 08817

Tel: (732)549-3900

TestAmerica Job ID: 460-164759-1

Client Project/Site: Liberty Oil #38

Revision: 1

For:

Center Point Tank Service

536 E Benjamin Franklin

Douglassville, Pennsylvania 19518

Attn: Rachel Burkart



Authorized for release by:

9/24/2018 1:43:33 PM

Jill Miller, Project Manager II

(484)685-0871

jill.miller@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

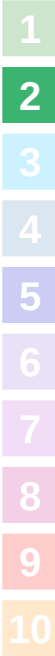


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Sample Summary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-164759-1	MW-11	Water	09/14/18 15:25	09/17/18 10:10
460-164759-2	MW-1	Water	09/14/18 11:35	09/17/18 10:10
460-164759-3	MW-2	Water	09/14/18 13:25	09/17/18 10:10
460-164759-4	MW-3	Water	09/14/18 15:34	09/17/18 10:10
460-164759-5	MW-4	Water	09/14/18 15:02	09/17/18 10:10
460-164759-6	MW-5	Water	09/14/18 13:13	09/17/18 10:10
460-164759-7	MW-6	Water	09/14/18 13:40	09/17/18 10:10
460-164759-8	MW-8	Water	09/14/18 16:08	09/17/18 10:10
460-164759-9	MW-9	Water	09/14/18 14:06	09/17/18 10:10
460-164759-10	MW-10	Water	09/14/18 14:26	09/17/18 10:10

Definitions/Glossary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Job ID: 460-164759-1

Laboratory: TestAmerica Edison

Narrative

Job Narrative
460-164759-1
Revision(1)

Revision(1)

Client requested samples split as COC indicated.

Receipt

The samples were received on 9/17/2018 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

GC/MS VOA

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-3 (460-164759-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-10 (460-164759-10) and MW-12 (460-164759-11). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) 8011: A trip blank was not provided for this job.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Client Sample ID: MW-11

Date Collected: 09/14/18 15:25

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-1

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/19/18 03:34	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 03:34	1
Ethylbenzene	ND		1.0		ug/L			09/19/18 03:34	1
Isopropylbenzene	ND		1.0		ug/L			09/19/18 03:34	1
Naphthalene	ND		1.0		ug/L			09/19/18 03:34	1
Toluene	ND		1.0		ug/L			09/19/18 03:34	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/19/18 03:34	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/19/18 03:34	1
Xylenes, Total	ND		2.0		ug/L			09/19/18 03:34	1
Methyl tert-butyl ether	ND		1.0		ug/L			09/19/18 03:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	103		77 - 124		09/19/18 03:34	1
Dibromofluoromethane (Surr)	104		72 - 131		09/19/18 03:34	1
1,2-Dichloroethane-d4 (Surr)	111		74 - 132		09/19/18 03:34	1
Toluene-d8 (Surr)	99		80 - 120		09/19/18 03:34	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 15:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	99		60 - 140	09/20/18 09:11	09/20/18 15:03	1
1,1,1,2-Tetrachloroethane	96		60 - 140	09/20/18 09:11	09/20/18 15:03	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:23	09/20/18 15:05	5

Client Sample ID: MW-1

Date Collected: 09/14/18 11:35

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-2

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/19/18 03:57	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 03:57	1
Ethylbenzene	ND		1.0		ug/L			09/19/18 03:57	1
Isopropylbenzene	ND		1.0		ug/L			09/19/18 03:57	1
Naphthalene	ND		1.0		ug/L			09/19/18 03:57	1
Toluene	ND		1.0		ug/L			09/19/18 03:57	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/19/18 03:57	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/19/18 03:57	1
Xylenes, Total	ND		2.0		ug/L			09/19/18 03:57	1
Methyl tert-butyl ether	ND		1.0		ug/L			09/19/18 03:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	101		77 - 124		09/19/18 03:57	1
Dibromofluoromethane (Surr)	106		72 - 131		09/19/18 03:57	1
1,2-Dichloroethane-d4 (Surr)	112		74 - 132		09/19/18 03:57	1
Toluene-d8 (Surr)	95		80 - 120		09/19/18 03:57	1

TestAmerica Edison

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 15:28	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	102		60 - 140				09/20/18 09:11	09/20/18 15:28	1
1,1,1,2-Tetrachloroethane	94		60 - 140				09/20/18 09:11	09/20/18 15:28	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:23	09/20/18 15:10	5

Client Sample ID: MW-2

Date Collected: 09/14/18 13:25

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-3

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/19/18 04:21	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 04:21	1
Ethylbenzene	ND		1.0		ug/L			09/19/18 04:21	1
Isopropylbenzene	ND		1.0		ug/L			09/19/18 04:21	1
Naphthalene	ND		1.0		ug/L			09/19/18 04:21	1
Toluene	ND		1.0		ug/L			09/19/18 04:21	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/19/18 04:21	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/19/18 04:21	1
Xylenes, Total	ND		2.0		ug/L			09/19/18 04:21	1
Methyl tert-butyl ether	ND		1.0		ug/L			09/19/18 04:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Bromofluorobenzene	100		77 - 124					09/19/18 04:21	1
Dibromofluoromethane (Surr)	106		72 - 131					09/19/18 04:21	1
1,2-Dichloroethane-d4 (Surr)	117		74 - 132					09/19/18 04:21	1
Toluene-d8 (Surr)	96		80 - 120					09/19/18 04:21	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 15:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	93		60 - 140				09/20/18 09:11	09/20/18 15:53	1
1,1,1,2-Tetrachloroethane	94		60 - 140				09/20/18 09:11	09/20/18 15:53	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:23	09/20/18 15:13	5

Client Sample ID: MW-3

Date Collected: 09/14/18 15:34

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	920		2.0		ug/L			09/20/18 00:32	2
1,2-Dichloroethane	ND		2.0		ug/L			09/20/18 00:32	2
Ethylbenzene	350		2.0		ug/L			09/20/18 00:32	2
Isopropylbenzene	40		2.0		ug/L			09/20/18 00:32	2

TestAmerica Edison

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Client Sample ID: MW-3

Date Collected: 09/14/18 15:34

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-4

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	85		2.0		ug/L			09/20/18 00:32	2
Toluene	320		2.0		ug/L			09/20/18 00:32	2
1,2,4-Trimethylbenzene	540		2.0		ug/L			09/20/18 00:32	2
1,3,5-Trimethylbenzene	23		2.0		ug/L			09/20/18 00:32	2
Xylenes, Total	680		4.0		ug/L			09/20/18 00:32	2
Methyl tert-butyl ether	42		2.0		ug/L			09/20/18 00:32	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	103		77 - 124		09/20/18 00:32	2
Dibromofluoromethane (Surr)	95		72 - 131		09/20/18 00:32	2
1,2-Dichloroethane-d4 (Surr)	107		74 - 132		09/20/18 00:32	2
Toluene-d8 (Surr)	98		80 - 120		09/20/18 00:32	2

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 16:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	93		60 - 140				09/20/18 09:11	09/20/18 16:18	1
1,1,1,2-Tetrachloroethane	87		60 - 140				09/20/18 09:11	09/20/18 16:18	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:23	09/20/18 15:16	5

Client Sample ID: MW-4

Date Collected: 09/14/18 15:02

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-5

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	100		1.0		ug/L			09/19/18 12:11	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 12:11	1
Ethylbenzene	22		1.0		ug/L			09/19/18 12:11	1
Isopropylbenzene	4.5		1.0		ug/L			09/19/18 12:11	1
Naphthalene	3.1		1.0		ug/L			09/19/18 12:11	1
Toluene	100		1.0		ug/L			09/19/18 12:11	1
1,2,4-Trimethylbenzene	20		1.0		ug/L			09/19/18 12:11	1
1,3,5-Trimethylbenzene	6.2		1.0		ug/L			09/19/18 12:11	1
Xylenes, Total	98		2.0		ug/L			09/19/18 12:11	1
Methyl tert-butyl ether	8.0		1.0		ug/L			09/19/18 12:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	107		77 - 124		09/19/18 12:11	1
Dibromofluoromethane (Surr)	100		72 - 131		09/19/18 12:11	1
1,2-Dichloroethane-d4 (Surr)	107		74 - 132		09/19/18 12:11	1
Toluene-d8 (Surr)	97		80 - 120		09/19/18 12:11	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 16:43	1

TestAmerica Edison

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Client Sample ID: MW-4

Date Collected: 09/14/18 15:02

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-5

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	92		60 - 140	09/20/18 09:11	09/20/18 16:43	1
1,1,1,2-Tetrachloroethane	86		60 - 140	09/20/18 09:11	09/20/18 16:43	1

Method: 200.8 - Metals (ICP/MS) - Dissolved									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:23	09/20/18 15:18	5

Client Sample ID: MW-5

Date Collected: 09/14/18 13:13

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-6

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/19/18 11:00	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 11:00	1
Ethylbenzene	ND		1.0		ug/L			09/19/18 11:00	1
Isopropylbenzene	ND		1.0		ug/L			09/19/18 11:00	1
Naphthalene	ND		1.0		ug/L			09/19/18 11:00	1
Toluene	ND		1.0		ug/L			09/19/18 11:00	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/19/18 11:00	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/19/18 11:00	1
Xylenes, Total	ND		2.0		ug/L			09/19/18 11:00	1
Methyl tert-butyl ether	ND		1.0		ug/L			09/19/18 11:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	100		77 - 124		09/19/18 11:00	1
Dibromofluoromethane (Surr)	108		72 - 131		09/19/18 11:00	1
1,2-Dichloroethane-d4 (Surr)	111		74 - 132		09/19/18 11:00	1
Toluene-d8 (Surr)	96		80 - 120		09/19/18 11:00	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 17:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	94		60 - 140	09/20/18 09:11	09/20/18 17:08	1
1,1,1,2-Tetrachloroethane	94		60 - 140	09/20/18 09:11	09/20/18 17:08	1

Method: 200.8 - Metals (ICP/MS) - Dissolved									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:23	09/20/18 15:24	5

Client Sample ID: MW-6

Date Collected: 09/14/18 13:40

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-7

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/19/18 05:55	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 05:55	1
Ethylbenzene	ND		1.0		ug/L			09/19/18 05:55	1
Isopropylbenzene	ND		1.0		ug/L			09/19/18 05:55	1

TestAmerica Edison

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Client Sample ID: MW-6

Date Collected: 09/14/18 13:40

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-7

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		1.0		ug/L			09/19/18 05:55	1
Toluene	ND		1.0		ug/L			09/19/18 05:55	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/19/18 05:55	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/19/18 05:55	1
Xylenes, Total	ND		2.0		ug/L			09/19/18 05:55	1
Methyl tert-butyl ether	ND		1.0		ug/L			09/19/18 05:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	95		77 - 124		09/19/18 05:55	1
Dibromofluoromethane (Surr)	108		72 - 131		09/19/18 05:55	1
1,2-Dichloroethane-d4 (Surr)	111		74 - 132		09/19/18 05:55	1
Toluene-d8 (Surr)	92		80 - 120		09/19/18 05:55	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 17:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	102		60 - 140				09/20/18 09:11	09/20/18 17:33	1
1,1,1,2-Tetrachloroethane	102		60 - 140				09/20/18 09:11	09/20/18 17:33	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	10		1.5		ug/L		09/20/18 09:23	09/20/18 15:45	5

Client Sample ID: MW-8

Date Collected: 09/14/18 16:08

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-8

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	120		1.0		ug/L			09/20/18 00:08	1
1,2-Dichloroethane	ND		1.0		ug/L			09/20/18 00:08	1
Ethylbenzene	190		1.0		ug/L			09/20/18 00:08	1
Isopropylbenzene	28		1.0		ug/L			09/20/18 00:08	1
Naphthalene	55		1.0		ug/L			09/20/18 00:08	1
Toluene	42		1.0		ug/L			09/20/18 00:08	1
1,2,4-Trimethylbenzene	390		1.0		ug/L			09/20/18 00:08	1
1,3,5-Trimethylbenzene	120		1.0		ug/L			09/20/18 00:08	1
Xylenes, Total	570		2.0		ug/L			09/20/18 00:08	1
Methyl tert-butyl ether	ND		1.0		ug/L			09/20/18 00:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	99		77 - 124		09/20/18 00:08	1
Dibromofluoromethane (Surr)	94		72 - 131		09/20/18 00:08	1
1,2-Dichloroethane-d4 (Surr)	114		74 - 132		09/20/18 00:08	1
Toluene-d8 (Surr)	97		80 - 120		09/20/18 00:08	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 17:58	1

TestAmerica Edison

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Client Sample ID: MW-8

Date Collected: 09/14/18 16:08

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-8

Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	108		60 - 140	09/20/18 09:11	09/20/18 17:58	1
1,1,1,2-Tetrachloroethane	99		60 - 140	09/20/18 09:11	09/20/18 17:58	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:23	09/20/18 15:47	5

Client Sample ID: MW-9

Date Collected: 09/14/18 14:06

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-9

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.6		1.0		ug/L			09/19/18 06:19	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 06:19	1
Ethylbenzene	ND		1.0		ug/L			09/19/18 06:19	1
Isopropylbenzene	3.5		1.0		ug/L			09/19/18 06:19	1
Naphthalene	ND		1.0		ug/L			09/19/18 06:19	1
Toluene	ND		1.0		ug/L			09/19/18 06:19	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/19/18 06:19	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/19/18 06:19	1
Xylenes, Total	ND		2.0		ug/L			09/19/18 06:19	1
Methyl tert-butyl ether	2.7		1.0		ug/L			09/19/18 06:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	102		77 - 124		09/19/18 06:19	1
Dibromofluoromethane (Surr)	104		72 - 131		09/19/18 06:19	1
1,2-Dichloroethane-d4 (Surr)	117		74 - 132		09/19/18 06:19	1
Toluene-d8 (Surr)	96		80 - 120		09/19/18 06:19	1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	88		60 - 140	09/20/18 09:11	09/20/18 18:23	1
1,1,1,2-Tetrachloroethane	88		60 - 140	09/20/18 09:11	09/20/18 18:23	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:24	09/20/18 15:50	5

Client Sample ID: MW-10

Date Collected: 09/14/18 14:26

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-10

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1600		5.0		ug/L			09/19/18 07:31	5
1,2-Dichloroethane	ND		5.0		ug/L			09/19/18 07:31	5
Ethylbenzene	270		5.0		ug/L			09/19/18 07:31	5
Isopropylbenzene	31		5.0		ug/L			09/19/18 07:31	5

TestAmerica Edison

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Client Sample ID: MW-10

Date Collected: 09/14/18 14:26

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-10

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	21		5.0		ug/L			09/19/18 07:31	5
Toluene	22		5.0		ug/L			09/19/18 07:31	5
1,2,4-Trimethylbenzene	37		5.0		ug/L			09/19/18 07:31	5
1,3,5-Trimethylbenzene	ND		5.0		ug/L			09/19/18 07:31	5
Xylenes, Total	63		10		ug/L			09/19/18 07:31	5
Methyl tert-butyl ether	52		5.0		ug/L			09/19/18 07:31	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	101		77 - 124		09/19/18 07:31	5
Dibromofluoromethane (Surr)	97		72 - 131		09/19/18 07:31	5
1,2-Dichloroethane-d4 (Surr)	105		74 - 132		09/19/18 07:31	5
Toluene-d8 (Surr)	95		80 - 120		09/19/18 07:31	5

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 18:48	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	100		60 - 140				09/20/18 09:11	09/20/18 18:48	1
1,1,1,2-Tetrachloroethane	94		60 - 140				09/20/18 09:11	09/20/18 18:48	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:24	09/20/18 15:53	5

TestAmerica Edison

Accreditation/Certification Summary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Laboratory: TestAmerica Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0200	09-30-18
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-18
New Jersey	NELAP	2	12028	06-30-19
New York	NELAP	2	11452	04-01-19
Pennsylvania	NELAP	3	68-00522	02-28-19
Rhode Island	State Program	1	LAO00132	12-30-18
USDA	Federal		NJCA-003-08	06-13-20

Laboratory: TestAmerica Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19
Connecticut	State Program	1	PH-0688	09-30-18
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-19
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-19
North Carolina (WW/SW)	State Program	4	434	12-31-18
Oregon	NELAP	10	PA-2151	01-28-19
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19
Texas	NELAP	6	T104704528-15-2	03-31-19
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19
Virginia	NELAP	3	460189	09-14-18 *
West Virginia DEP	State Program	3	142	01-31-19
Wisconsin	State Program	5	998027800	08-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Edison

Method Summary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL PIT
200.8	Metals (ICP/MS)	EPA	TAL EDI
200.8	Preparation, Total Recoverable Metals	EPA	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI
8011	Microextraction	SW846	TAL PIT
FILTRATION	Sample Filtration	None	TAL EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CHAIN OF CUSTODY / ANALYSIS REQUEST

1.9
KOP Page 1 of 1

777 New Durham Road
Edison, New Jersey 08817
Phone: (732) 549-3900 Fax: (732) 549-3679

Name (for report and invoice) Rachel Burkart		Samplers Name (Printed) Rachel Burkart		Site/Project Identification Liberty 0.1 #35	
Company Center Point Tank Services, Inc		P.O. # 08-12-4292		State (Location of site): NJ: ☐ NY: ☐ Other: PA	
Address 630 E. Benjamin Franklin Hwy		Analysis Turnaround Time Standard ☒ Rush Charges Authorized For: 2 Week ☐ 1 Week ☒ Other ☐		Regulatory Program: UST	
City Pasquessville		State PA		LAB USE ONLY Project No: 1104759	
Phone 610 385 4977		Fax		Sample Numbers	
Sample Identification	Date	Time	Matrix	No. of Cont.	ANALYSIS REQUESTED (ENTER X BELOW TO INDICATE REQUEST)
MMU-11	9/14/18	1525	GL	6	X
MMU-1	9/14/18	1135	GL	6	X
MMU-2		125		6	X
MMU-3		1534		6	X
MMU-4		1502		6	X
MMU-5		1343		6	X
MMU-6		1340		6	X
MMU-8		1608		6	X
MMU-9		1406		6	X
MMU-10		1426		6	X

Leaded gasoline
unleaded gasoline

Preservation Used: 1 = ICE, 2 = HCl, 3 = H₂SO₄, 4 = HNO₃, 5 = NaOH
Soil: ☐ Water: ☐

6 = Other ☐ 7 = Other ☐



460-164759 Chain of Custody

Special Instructions		Water Metals Filtered (Yes/No)?	
Relinquished by Rachel Blane	Company EPS	Date / Time 9/18/18 1400	Received by [Signature]
Relinquished by [Signature]	Company to kcp	Date / Time 9-17-18 1800	Received by [Signature]
Relinquished by [Signature]	Company Testa	Date / Time 9-17-18 1440	Received by [Signature]
Relinquished by [Signature]	Company Testa	Date / Time [Signature]	Received by [Signature]

Laboratory Certifications: New Jersey (12028), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).
Massachusetts (M-NJ312), North Carolina (No. 578)

Login Sample Receipt Checklist

Client: Center Point Tank Service

Job Number: 460-164759-1

Login Number: 164759

List Number: 1

Creator: Gilmore, Julie L

List Source: TestAmerica Edison

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	IR KOP#1
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Center Point Tank Service

Job Number: 460-164759-1

Login Number: 164759

List Number: 2

Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

List Creation: 09/18/18 01:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Edison

777 New Durham Road

Edison, NJ 08817

Tel: (732)549-3900

TestAmerica Job ID: 460-164759-1

Client Project/Site: Liberty Oil #38

Revision: 1

For:

Center Point Tank Service

536 E Benjamin Franklin

Douglassville, Pennsylvania 19518

Attn: Rachel Burkart



Authorized for release by:

9/24/2018 1:46:27 PM

Jill Miller, Project Manager II

(484)685-0871

jill.miller@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

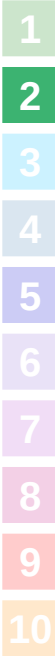


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Sample Summary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-164759-11	MW-12	Water	09/14/18 12:08	09/17/18 10:10
460-164759-12	MW-13	Water	09/14/18 11:30	09/17/18 10:10

1

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Definitions/Glossary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Job ID: 460-164759-1

Laboratory: TestAmerica Edison

Narrative

Job Narrative
460-164759-1
Revision(1)

Revision(1)

Client requested samples split as COC indicated.

Receipt

The samples were received on 9/17/2018 10:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

GC/MS VOA

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method(s) 8011: A trip blank was not provided for this job.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Client Sample ID: MW-12

Date Collected: 09/14/18 12:08

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-11

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	250		2.0		ug/L			09/19/18 06:43	2
1,2-Dichloroethane	ND		2.0		ug/L			09/19/18 06:43	2
Ethylbenzene	250		2.0		ug/L			09/19/18 06:43	2
Isopropylbenzene	63		2.0		ug/L			09/19/18 06:43	2
Naphthalene	100		2.0		ug/L			09/19/18 06:43	2
Toluene	14		2.0		ug/L			09/19/18 06:43	2
1,2,4-Trimethylbenzene	280		2.0		ug/L			09/19/18 06:43	2
1,3,5-Trimethylbenzene	81		2.0		ug/L			09/19/18 06:43	2
Xylenes, Total	190		4.0		ug/L			09/19/18 06:43	2
Methyl tert-butyl ether	16		2.0		ug/L			09/19/18 06:43	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	104		77 - 124		09/19/18 06:43	2
Dibromofluoromethane (Surr)	96		72 - 131		09/19/18 06:43	2
1,2-Dichloroethane-d4 (Surr)	118		74 - 132		09/19/18 06:43	2
Toluene-d8 (Surr)	99		80 - 120		09/19/18 06:43	2

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 19:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	94		60 - 140	09/20/18 09:11	09/20/18 19:13	1
1,1,1,2-Tetrachloroethane	92		60 - 140	09/20/18 09:11	09/20/18 19:13	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:24	09/20/18 15:55	5

Client Sample ID: MW-13

Date Collected: 09/14/18 11:30

Date Received: 09/17/18 10:10

Lab Sample ID: 460-164759-12

Matrix: Water

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	5.8		1.0		ug/L			09/19/18 14:09	1
1,2-Dichloroethane	ND		1.0		ug/L			09/19/18 14:09	1
Ethylbenzene	19		1.0		ug/L			09/19/18 14:09	1
Isopropylbenzene	3.9		1.0		ug/L			09/19/18 14:09	1
Naphthalene	ND		1.0		ug/L			09/19/18 14:09	1
Toluene	ND		1.0		ug/L			09/19/18 14:09	1
1,2,4-Trimethylbenzene	ND		1.0		ug/L			09/19/18 14:09	1
1,3,5-Trimethylbenzene	ND		1.0		ug/L			09/19/18 14:09	1
Xylenes, Total	ND		2.0		ug/L			09/19/18 14:09	1
Methyl tert-butyl ether	3.0		1.0		ug/L			09/19/18 14:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Bromofluorobenzene	99		77 - 124		09/19/18 14:09	1
Dibromofluoromethane (Surr)	104		72 - 131		09/19/18 14:09	1
1,2-Dichloroethane-d4 (Surr)	113		74 - 132		09/19/18 14:09	1
Toluene-d8 (Surr)	94		80 - 120		09/19/18 14:09	1

TestAmerica Edison

Client Sample Results

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Method: 8011 - EDB, DBCP, and 1,2,3-TCP (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane	ND		0.020		ug/L		09/20/18 09:11	09/20/18 19:38	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	96		60 - 140				09/20/18 09:11	09/20/18 19:38	1
1,1,1,2-Tetrachloroethane	93		60 - 140				09/20/18 09:11	09/20/18 19:38	1

Method: 200.8 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		1.5		ug/L		09/20/18 09:24	09/20/18 15:58	5

Accreditation/Certification Summary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Laboratory: TestAmerica Edison

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Connecticut	State Program	1	PH-0200	09-30-18
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	N/A	12-31-18
New Jersey	NELAP	2	12028	06-30-19
New York	NELAP	2	11452	04-01-19
Pennsylvania	NELAP	3	68-00522	02-28-19
Rhode Island	State Program	1	LAO00132	12-30-18
USDA	Federal		NJCA-003-08	06-13-20

Laboratory: TestAmerica Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19
Connecticut	State Program	1	PH-0688	09-30-18
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-19
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-19
North Carolina (WW/SW)	State Program	4	434	12-31-18
Oregon	NELAP	10	PA-2151	01-28-19
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19
Texas	NELAP	6	T104704528-15-2	03-31-19
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19
Virginia	NELAP	3	460189	09-14-18 *
West Virginia DEP	State Program	3	142	01-31-19
Wisconsin	State Program	5	998027800	08-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Edison

Method Summary

Client: Center Point Tank Service
Project/Site: Liberty Oil #38

TestAmerica Job ID: 460-164759-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8011	EDB, DBCP, and 1,2,3-TCP (GC)	SW846	TAL PIT
200.8	Metals (ICP/MS)	EPA	TAL EDI
200.8	Preparation, Total Recoverable Metals	EPA	TAL EDI
5030C	Purge and Trap	SW846	TAL EDI
8011	Microextraction	SW846	TAL PIT
FILTRATION	Sample Filtration	None	TAL EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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THE LEADER IN ENVIRONMENTAL TESTING

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K581

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[illegible]

Water Metals Filtered (Yes/No)? No

Relinquished by	Company	Date / Time	Received by	Company
Relinquished by <i>Rachel Stone</i>	Company <i>CP75</i>	Date / Time <i>9/17/18, 1010</i>	Received by <i>[Signature]</i>	Company <i>to / lcp</i>
Relinquished by <i>[Signature]</i>	Company <i>to / lcp</i>	Date / Time <i>9-17-18 1800</i>	Received by <i>[Signature]</i>	Company <i>Test /</i>
Relinquished by <i>[Signature]</i>	Company <i>Test /</i>	Date / Time <i>9-17-18 1940</i>	Received by <i>[Signature]</i>	Company <i>PAEds</i>
Relinquished by <i>[Signature]</i>	Company	Date / Time <i>1</i>	Received by <i>[Signature]</i>	Company <i>PAEds</i>

TAL-0016 (0715)

Login Sample Receipt Checklist

Client: Center Point Tank Service

Job Number: 460-164759-1

Login Number: 164759

List Source: TestAmerica Edison

List Number: 1

Creator: Gilmore, Julie L

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	IR KOP#1
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Center Point Tank Service

Job Number: 460-164759-1

Login Number: 164759

List Number: 2

Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

List Creation: 09/18/18 01:07 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	