June 26, 2014

Ms. Margaret Pollich
Solid Waste Specialist
Pennsylvania Department of Environmental Protection
Southeast Regional office
2 East Main Street
Norristown, PA 19401

Subject: **Addendum to March 2014 Project Investigation Report**
Nockamixon TCE Site
Nockamixon Township, Bucks County, Pennsylvania
Requisition Number: GTAC5-1-222
Leidos Project No. 301567.TM.020115

Dear Ms. Pollich:

Leidos Engineering, LLC (Leidos) is pleased to present this addendum report to the Pennsylvania Department of Environmental Protection (PADEP) for activities conducted at the Nockamixon TCE Site since the submittal of the *Project Investigation Report for the Nockamixon TCE Site* (Project Investigation Report) in March 2014. The project site is located in Nockamixon Township, Bucks County, Pennsylvania (**Figure 1).**

PROJECT BACKGROUND

The PADEP Bureau of Environmental Cleanup and Brownfields (ECB) Hazardous Sites Cleanup Act (HSCA) Division requested that Leidos Engineering, LLC (Leidos), formerly SAIC, assist with a site investigation to determine the origin of chlorinated organic compounds, primarily trichloroethylene (TCE), in groundwater in private potable water wells in Nockamixon Township, Pennsylvania, under the General Technical Assistance Contract (GTAC) SAP #4000013588 and requisition number GTAC5-1-222. The PADEP requested assistance by Leidos in a letter dated December 10, 2009.

Chlorinated organic impacts to groundwater are present at numerous properties along and in close proximity to Easton Road (Route 611), Durham Road (Route 412), and Mountainview Drive (Route 563) in Nockamixon Township, Pennsylvania. Affected properties consist of businesses and residential properties along Easton and Durham Roads and scattered residential properties along Tower Road, Mountainview Drive, Cord Way, Brennan Road, Brennan Drive, and Park Drive West. A public water supply system does not exist in or nearby the area of the Site.

Between December 2009 and early 2014, Leidos performed various site investigation and technical assistance activities for the project including obtaining and reviewing historical information and PADEP files, providing bottled water to affected residents and later installing and maintaining home treatment systems at the affected properties, researching the site setting and local geology, creating and maintaining a database for home well and monitoring well sample data, installing bedrock monitoring wells and related activities, and the performance of monitoring well sampling. These activities were fully documented in the Project Investigation Report.

This addendum report summarizes additional activities performed since the submittal of the Project Investigation Report (March 2014) including the performance of a round of groundwater monitoring by PADEP personnel and the removal of investigation derived waste (IDW) and minor well maintenance activities performed by Leidos.

GROUNDWATER MONITORING AND RESULTS

PADEP representatives mobilized to the Site on March 18, 2014 to collect depth to water measurements at Site wells and install passive diffusion bag (PDB) samplers in the wells. Wells MW-1S, MW-1L, MW-2U, MW-2L, MW-3U, MW-3L, MW-4U, MW-4L, MW-5, MW-6, MW-7U, MW-7L, MW-8, MW-9, MW-10L, MW-11U, MW-11L, MW-12U, and MW-12L were included. The PDB samplers were lowered to the bottom of the wells or well screens and raised approximately ten feet from the bottom of the well for sampling duration. The PDB samplers were retrieved from the wells by PADEP on April 2, 2014. The samples were submitted to the PADEP Bureau of Laboratories (BOL) in Harrisburg, Pennsylvania for analysis of volatile organic compounds (VOCs) by USEPA Method 8260C.

Depth to water measurements and resulting groundwater elevations for the March/April 2014 monitoring event are provided in **Table 1. Figure 2** depicts groundwater elevation contours for the upper well screens and open rock wells. The groundwater elevations and flow gradients are very similar to what was previously interpreted for the area of the Site for January, May, and September 2013. As discussed in the Project Investigation Report, groundwater flow within the bedrock aquifer occurs primarily along fractures and joints and is expected to be influenced by pumping of potable water wells within the Site Area. Dewatering activities at the nearby Hanson Quarry to the east are also expected to have a significant influence on nearby water levels. Other potential influences on the potentiometric surface at the Site Area include the wastewater treatment and discharge operations that occur at the church and school along Durham Road and the Harrow Station Shopping Center along Easton Road at the intersection with Tower Road.

The PDB groundwater sample results from the March/April 2014 monitoring event and historical groundwater sampling results are provided in **Table 2**. **Figure 2** depicts the sample results for the March/April 2014 sampling event. TCE was detected above the PADEP Act 2 Statewide Health Standard Medium Specific Concentration (MSC) of 5 µg/L in wells MW-1S, MW-1L, MW-2U, MW-2L, MW-3U, MW-3L, MW-4U, MW-4L, MW-7U, MW-10L, and MW-11U. The highest TCE concentration was detected in MW-2U at a concentration of 1040 µg/L. PCE was detected above the applicable MSC of 5 µg/L in well MW-2U at a concentration of 25 µg/L. 1,1-DCE was detected above the applicable MSC of 7 µg/L in wells MW-2U and MW-2L and

cis-1,2-DCE was also detected above the applicable MSC of 70 µg/L in wells MW-2U and MW-2L.

Figures 3 and **4** provide a perspective on the historical TCE and PCE contaminant distributions at the Site between 2009 and 2014. The figures present the historical TCE and PCE concentrations within specific ranges at home wells and the monitoring wells.

IDW REMOVAL

On June 11, 2014, Leidos mobilized to the Site to manage the removal of remaining IDW in the form of well water and residual, fine particulate solids that had settled out of the water in two, 275-gallon poly totes that had initially been used contain the well water. The poly totes were stored at the 8410 Easton Road property (location of MW-5). The poly totes each contained less than 50 gallons of materials. The remaining water and settled solids were removed from the poly totes and put into 55-gallon drums. The poly totes were then further cleaned out by Leidos personnel by use of a pressure washer. The water used to clean the totes was captured, along with remaining residual sediment in the poly totes, and contained in the drums. One drum of solids and two drums of mixed liquids and fine solids were generated. Lewis Environmental Inc. of Royersford, Pennsylvania removed the drummed IDW and cleaned poly totes from the Site on June 11, 2014. The IDW and poly totes were properly disposed at Environmental Recovery Corporation in Lancaster, Pennsylvania. A copy of the disposal documentation is included with this report as an **Attachment**.

MINOR WELL MAINTENANCE WORK

Leidos personnel performed minor maintenance work at the monitoring wells on June 11, 2014. The work included cutting down the PVC riser pipes at certain wells (MW-2, MW-3, MW-4, MW-7) where the pipes had not been adequately cut down at the time of well installation and fitting them with compression caps. Identification tags were also installed on all wells and the well screens to enable easy identification of the well number and depth and/or screen interval, as applicable.

Should you have any questions or require additional information, please contact Rich Merhar at (610) 594-4326.

Respectfully submitted,

Leidos Engineering, LLC

Rich Merhar, P.G.
Project Manager

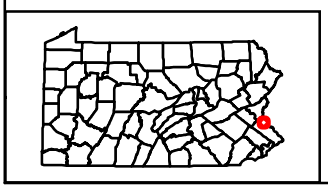
lac/RLM

Figures

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

0 1,500 3,000 6,000 Feet

1 inch = 3,000 ft



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GTAC-5
Nockamixon TCE Site
Nockamixon Township, PA

Site Location Map

drawn TAY	checked RLM	approved RLM	figure no.
date 01/13/2014	date 01/13/2014	date 01/13/2014	1
job no. 4501020115/2070		file no. Fig 1 - Site Location	

initials	date	revision

leidos

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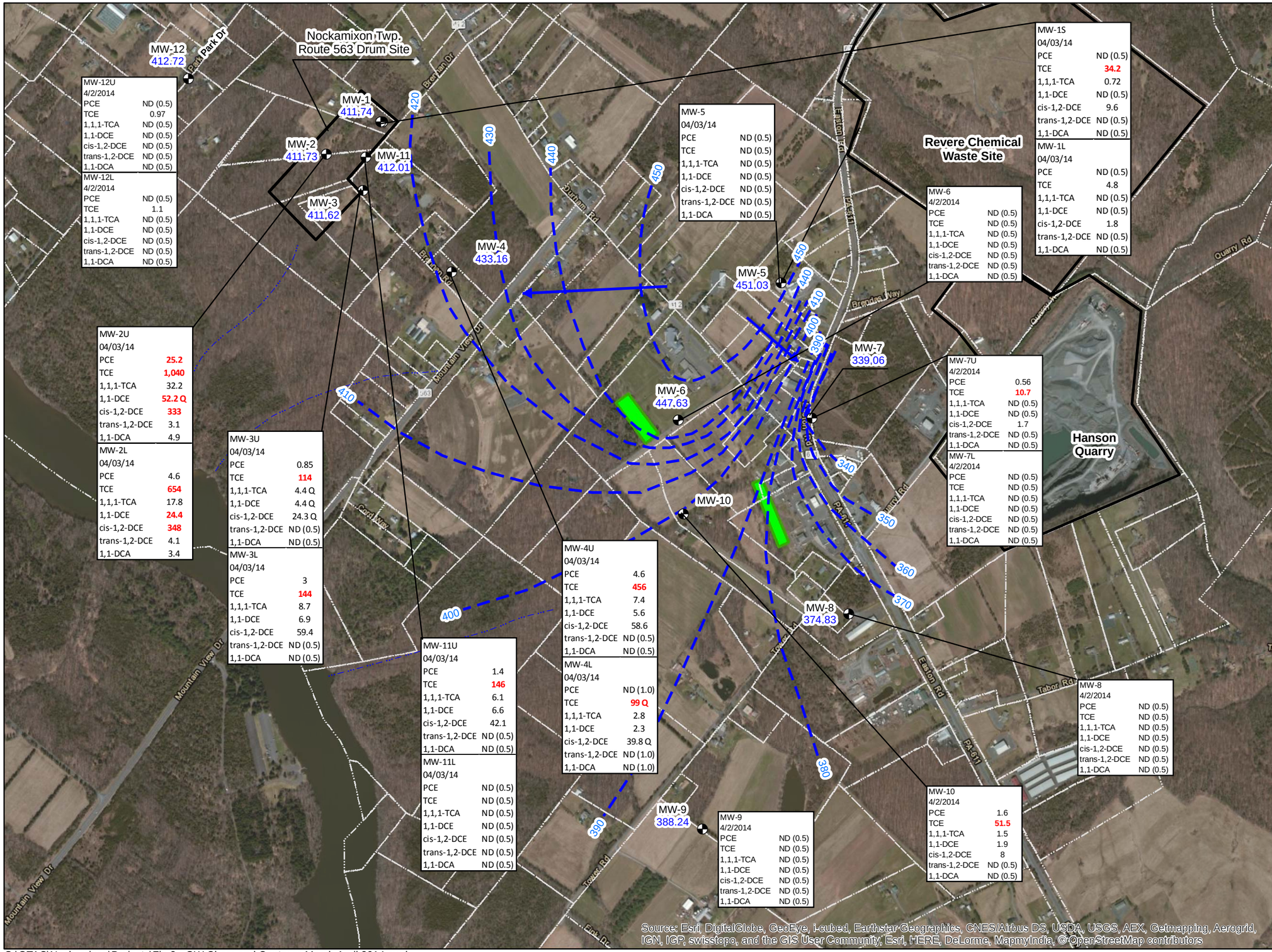


Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

Legend

- Monitoring Well Location
- Groundwater Elevation Contours for Upper Screen Interval in feet AMSL (inferred)
- Groundwater Flow
- Ephemeral Streams
- Parcel Boundaries
- Large Scale Wastewater Treatment/ Discharge Device

46 - Bold red text indicates concentrations that exceed the PADEP Act 2 Non-Residential, Used Aquifer

Groundwater elevation data from March 18, 2014

Groundwater chemistry data from April 2, 2014

MW-10 not used in contouring

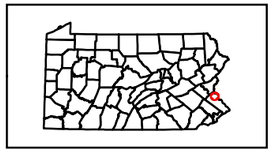
All results in µg/L (micrograms per liter)

MW-12U - upper screen groundwater value

389.43 - Groundwater Elevation in feet above mean sea level (AMSL)

ND - Non Detect

Abbreviation	Analyte	GW MCL
PCE	Tetrachloroethylene	5
TCE	Trichloroethene	5
1,1,1-TCA	1,1,1-Trichloroethane	200
1,1-DCE	1,1-Dichloroethylene	7
cis-1,2-DCE	cis-1,2-Dichloroethylene	70
Trans-1,2-DCE	Trans-1,2-Dichloroethylene	100
1,1-DCA	1,1-Dichloroethane	31



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0 400 800 1,600 Feet

1" = 800 feet

GTAC5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Groundwater Chemistry and Contour Map – March and April 2014

drawn TAY	checked LAC	approved RLM	figure no. 2
date 05/23/2014	date	date	
job no. 301576.TM.020115.2070.0207		file no. Fig 2 - GW Chem and Contours March April 2014	

initials	date	revision

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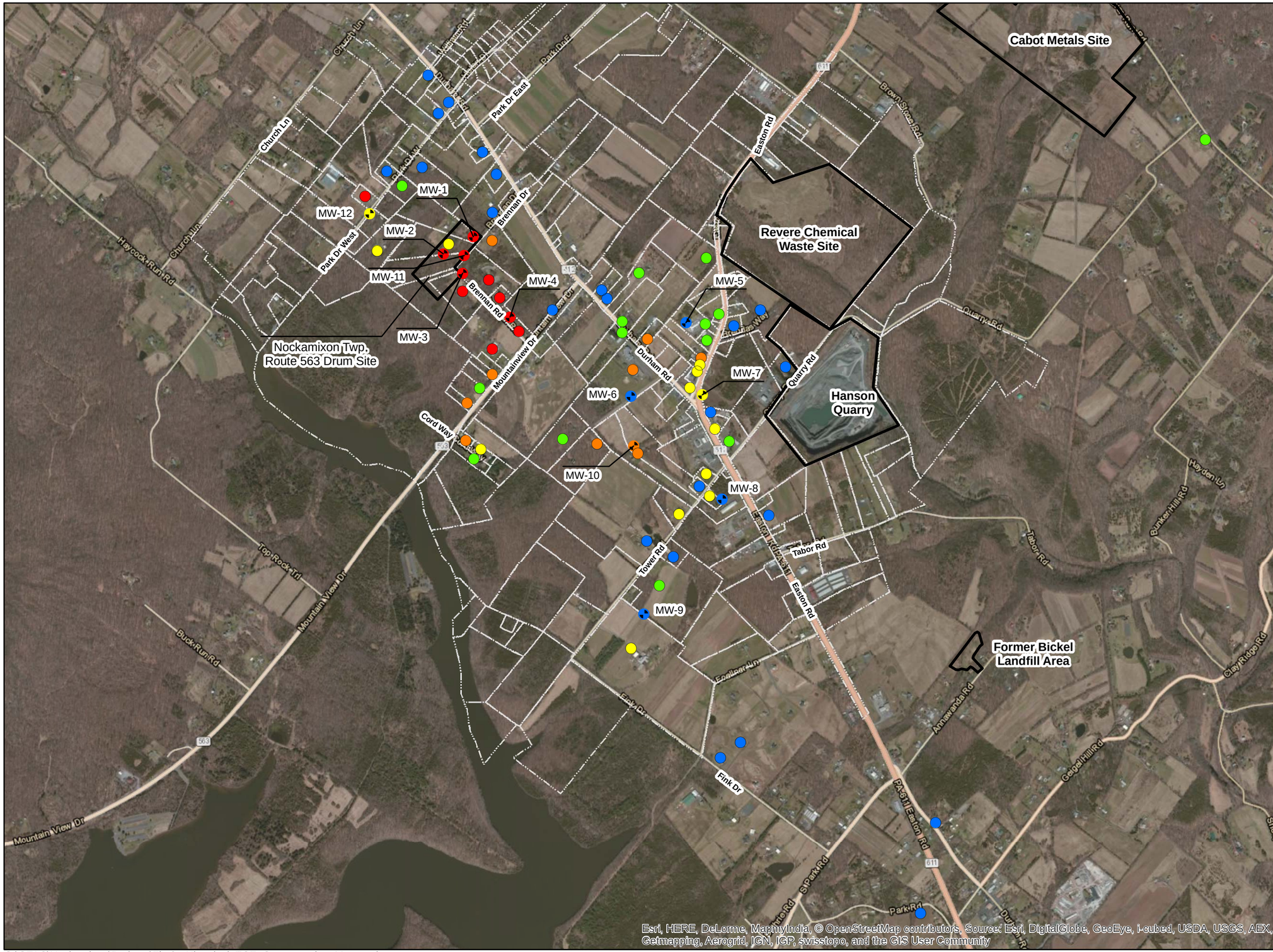


Legend

Home Well Historical TCE Results

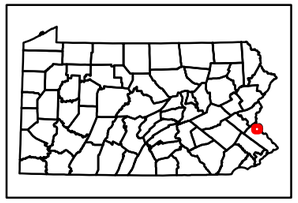
- Non-detect
- 0.1-4.9 µg/L
- 5.0-19.9 µg/L
- 20.0-99.9 µg/L
- 100+ µg/L

Monitoring Well Historical TCE Results

- Non-detect
- 5.0-19.9 µg/L
- 20.0-99.9 µg/L
- 100+ µg/L
- Parcel Boundary

Home well samples collected between 2009 and 2013. The highest reported result for TCE at each location was used.

Monitoring Well samples collected between 2013 and 2014. The highest reported result for TCE at each location was used.



N

Source Imagery:
USGS Ortho Aerial
c. 2005 Bedminster PA Quadrangle PA
Projection: NAD 1983, UTM Zone 18

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Historical TCE Concentration Map

drawn TAY	checked LAC	approved RLM	figure no.
date 06/16/2014	date 06/16/2014	date 06/16/2014	3
job no. 301575.TM.020115.2070		file no. Fig 3 - Historical_TCE_Concentration_Map	

initials	date	revision

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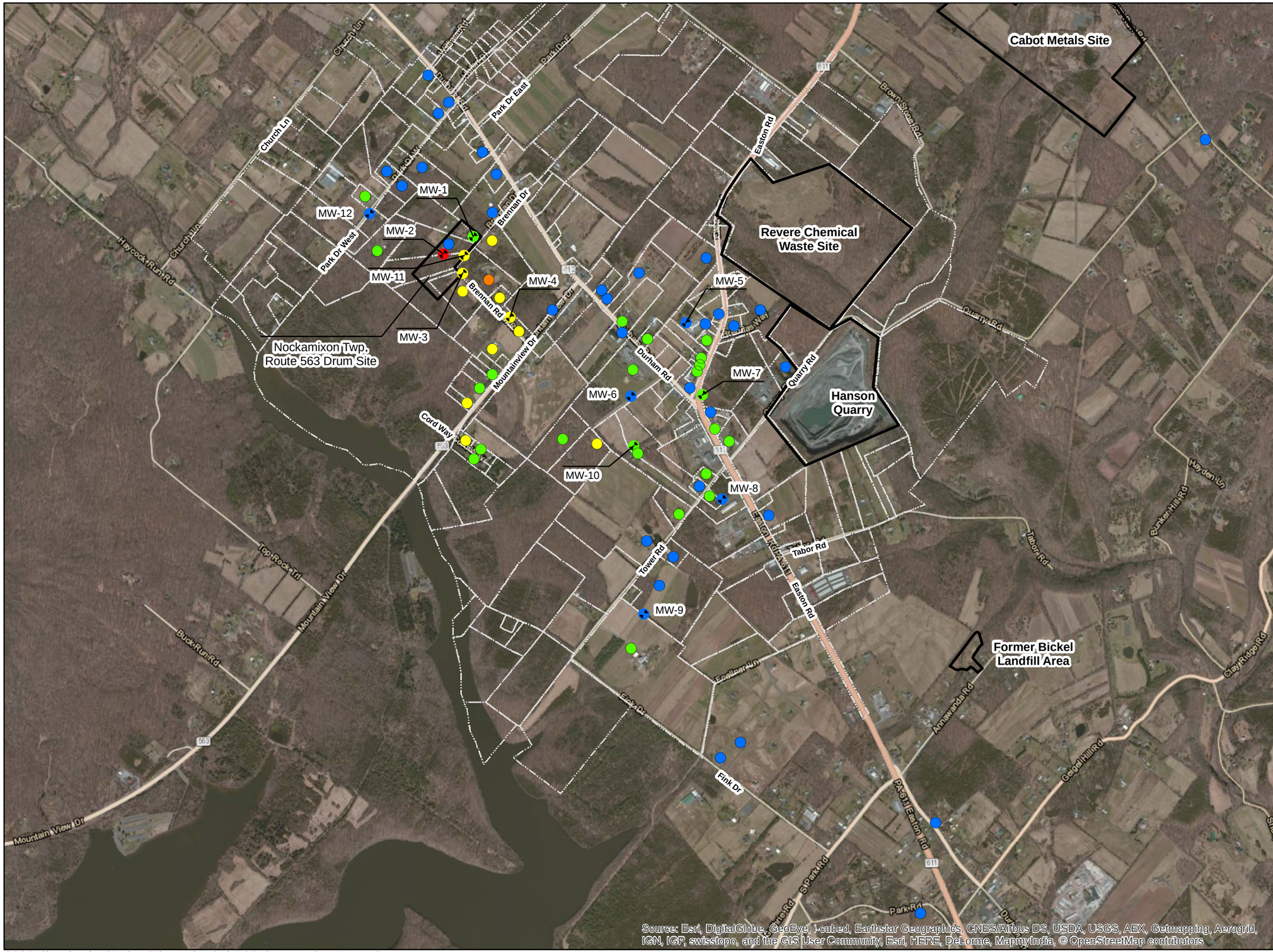


Legend

Home Well Historical PCE Results

- Non-detect
- 0.1-4.9 µg/L
- 5.0-19.9 µg/L
- 20.0-99.9 µg/L

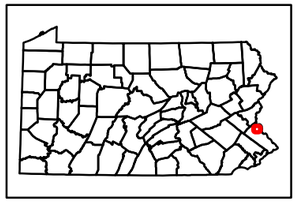
Monitoring Well Historical PCE Results

- Non-detect
- 0.1-4.9 µg/L
- 5.0-19.9 µg/L
- 100+ µg/L

Parcel Boundary

Home well samples collected between 2009 and 2013. The highest reported result for PCE at each location was used.

Monitoring Well samples collected between 2013 and 2014. The highest reported result for PCE at each location was used.



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Source Imagery:
USGS Ortho Aerial
c. 2005 Bedminster PA Quadrangle PA
Projection: NAD 1983, UTM Zone 18

0 750 1,500 3,000 Feet

1 inch = 1,500 feet

GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Historical PCE Concentration Map

drawn TAY	checked LAC	approved RLM	figure no.
date 06/16/2014	date 06/16/2014	date 06/16/2014	4
job no. 301575.TM.020115.2070		file no. Fig 4 - Historical_PCE_Concentration_Map	

initials	date	revision

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Tables

Table 1
Monitoring Well Construction Details
GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Well	Install Date	Well Diameter (inches)	Steel Casing Length (fbg)	Well Depth (fbg)	Screen Length (feet)	Screened Interval (fbg)	Latitude	Longitude	Ground Surface Elevation (ft amsl)	TOSC Elevation (ft amsl)	DTW 3/18/2014 (ft below TOSC)	Groundwater Elevation 3/18/2014 (ft amsl)	Notes
MW-1	04/30/12	6	40	300	--	--	40.501783	-75.188379	502.71	504.76	--	--	Original Boring
MW-1U	12/18/12	2	--	143	30	113-143				--	--	--	Bentonite in screen at 114'. No longer usable.
MW-1L	12/18/12	2	--	230	70	170-230				--	80.81	423.95	Opening: 0.040 Slot
MW-1S	05/16/13	6	40	145	--	--	40.501782	-75.188434	501.58	504.15	92.41	411.74	Open Borehole. MW-1-Upper replacement.
MW-2	05/02/12	6	40	250	--	--	40.501080	-75.190104	479.39	481.42	--	--	Original Boring
MW-2U	01/10/13	2	--	154	20	134-154				--	69.69	411.73	Opening: 0.040 Slot
MW-2L	01/10/13	2	--	190.5	20	170.5-190.5				--	94.49	386.93	Opening: 0.040 Slot
MW-3	05/10/12	6	40	250	--	--	40.500218	-75.189037	478.58	480.70	--		Original Boring
MW-3U	01/09/13	2	--	119	30	89-119				--	69.08	411.62	Opening: 0.040 Slot
MW-3L	12/17/12	2	--	187	20	167-187				--	94.03	386.67	Opening: 0.040 Slot
MW-4	05/16/12	6	40	300	--	--	40.498283	-75.186434	480.06	482.95	--	--	Original Boring
MW-4U	3/8/2013	2	--	129	80	49-129				--	49.79	433.16	Opening: 0.020 Slot
MW-4L	3/8/2013	2	--	248	80	168-248				--	50.01	432.94	Opening: 0.020 Slot
MW-5	05/07/12	6	40	300	--	--	40.497808	-75.176507	510.42	512.96	61.93	451.03	Open Borehole
MW-6	05/09/12	6	40	300	--	--	40.494727	-75.179733	506.95	509.27	61.64	447.63	Open Borehole
MW-7	05/08/12	6	40	300	--	--	40.494684	-75.175704	502.72	504.35	--	--	Original Boring
MW-7U	01/02/13	2	--	195.5	100	95.5-195.5				--	165.29	339.06	Opening: 0.040 Slot
MW-7L	12/20/12	2	--	297	30	267-297				--	113.53	390.82	Opening: 0.040 Slot
MW-8	05/12/12	6	40	300	--	--	40.490165	-75.174763	487.81	489.65	114.82	374.83	Open Borehole
MW-9	05/11/12	6	40	250	--	--	40.485319	-75.179371	478.28	480.48	92.24	388.24	Open Borehole (partial obstruction at 93')
MW-10	05/15/12	6	40	300	--	--	40.492570	-75.179665	506.39	508.47	--	--	Original Boring
MW-10U	12/20/12	2	--	149	40	109-149				--	--	--	Bentonite in screen at 127'. No longer usable.
MW-10L	12/18/12	2	--	215	40	175-215				--	145.54	362.93	Opening: 0.040 Slot
MW-11	05/15/13	6	40	250	--	--	40.50098	-75.188923	485.18	487.68	--	--	Original Boring
MW-11U	08/23/13	2	--	145	50	95-145				--	75.67	412.01	Opening: 0.020 Slot
MW-11L	08/23/13	2	--	204	40	164-204				--	100.53	387.15	Opening: 0.020 Slot
MW-12	05/14/13	6	40	300	--	--	40.50292	-75.194193	458.00	460.05	--	--	Original Boring
MW-12U	08/22/13	2	--	155	90	65-155				--	47.33	412.72	Opening: 0.020 Slot
MW-12L	08/22/13	2	--	225	35	190-225				--	73.39	386.66	Opening: 0.020 Slot

Notes:
fbg - feet below grade
TOSC - top of steel casing

Table 2
Monitoring Well Sampling Results
GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Sample Location	Date	Dup/PDB	PCE	1,1,1,2-PCA	1,1,2,2-PCA	TCE	1,1,1-TCA	1,1,2-TCA	1,1-DCE	cis-1,2-DCE	Trans-1,2-DCE	1,1-DCA	1,2-DCA	VC
MCL or SHS			5	70	0.84	5	200	5	7	70	100	31	5	2
MW-1U	01/14/13		ND (5.0)	ND (5.0)	ND (5.0)	509	10.8	ND (5.0)	5	186	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
MW-1S	09/10/13		2.2	ND (0.5)	ND (0.5)	295	3.9	ND (0.5)	1.6	67.2	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/11/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	23.9	0.53	ND (0.5)	ND (0.5)	6.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/03/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	34.2	0.72	ND (0.5)	ND (0.5)	9.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-1L	01/14/13		ND (1.0)	ND (1.0)	ND (1.0)	13.6	ND (1.0)	ND (1.0)	ND (1.0)	3.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
	09/09/13		ND (0.5)	ND (0.5)	ND (0.5)	11.2	ND (0.5)	ND (0.5)	0.68	4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/11/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	7	ND (0.5)	ND (0.5)	ND (0.5)	2.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/03/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	4.8	ND (0.5)	ND (0.5)	ND (0.5)	1.8	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-2U	01/16/13		105	ND (0.5)	ND (0.5)	2110	97.3	ND (0.5)	112	518	3.8	3.5	ND (0.5)	ND (0.5)
	09/12/13		33.1	ND (0.5)	ND (0.5)	562	28.7	ND (0.5)	26.8	114	1.4	0.96	ND (0.5)	ND (0.5)
	12/11/13	PDB	21	ND (0.5)	ND (0.5)	772	36.9	ND (0.5)	57.4	254	3	4.8	ND (0.5)	ND (0.5)
	04/03/14	PDB	25.2	ND (0.5)	ND (0.5)	1040	32.2	ND (0.5)	52.2 Q	333	3.1	4.9	ND (0.5)	ND (0.5)
MW-2L	01/16/13		42.4 Q	ND (0.5)	ND (0.5)	822	37.1 Q	ND (0.5)	42 Q	203 Q	2.6	1.5	ND (0.5)	ND (0.5)
	01/16/13	Dup	42 Q	ND (0.5)	ND (0.5)	875	39.2 Q	ND (0.5)	43.8 Q	204 Q	2.8	1.3	ND (0.5)	ND (0.5)
	09/12/13		15.1	ND (0.5)	ND (0.5)	414	18.6	ND (0.5)	17.8	95.2	1.3	0.88	ND (0.5)	ND (0.5)
	09/12/13	Dup	14.7	ND (1)	ND (1)	537	16.7	ND (1)	16.7	91.4 Q	1.3	ND (1)	ND (1)	ND (1)
	12/11/13	PDB	3.9	ND (0.5)	ND (0.5)	499	18.7	ND (0.5)	30.2	279	2.4	2.6	ND (0.5)	ND (0.5)
	04/03/14	PDB	4.6	ND (0.5)	ND (0.5)	654	17.8	ND (0.5)	24.4	348	4.1	3.4	ND (0.5)	ND (0.5)
MW-3U	01/15/13		10.6 Q	ND (0.5)	ND (0.5)	277	12.6 Q	ND (0.5)	12.4 Q	74	0.8	ND (0.5)	ND (0.5)	ND (0.5)
	01/15/13	Dup	11.2 Q	ND (0.5)	ND (0.5)	291	13.4 Q	ND (0.5)	13.4 Q	72.7	1.2	0.55	ND (0.5)	ND (0.5)
	09/11/13		10.6 Q	ND (1.0)	ND (1.0)	266 Q	12.2 Q	ND (1.0)	10.6 Q	51.4 Q	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
	12/11/13	PDB	1.3	ND (0.5)	ND (0.5)	198	4.4	ND (0.5)	5.4	56 Q	0.85	ND (0.5)	ND (1.0)	ND (0.5)
	04/03/14	PDB	0.85	ND (0.5)	ND (0.5)	114	4.4 Q	ND (0.5)	4.4 Q	24.3 Q	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)
MW-3L	01/15/13		9.9 Q	ND (0.5)	ND (0.5)	244	10.7 Q	ND (0.5)	9.8 Q	55.3 Q	0.66	ND (0.5)	ND (0.5)	ND (0.5)
	09/11/13		19.4	ND (1.0)	ND (1.0)	441	19.1	ND (1.0)	15.6	92.8 Q	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
	12/11/13	PDB	2.4	ND (0.5)	ND (0.5)	150	7.8	ND (0.5)	7.2	55.1	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)
	04/03/14	PDB	3	ND (0.5)	ND (0.5)	144	8.7	ND (0.5)	6.9	59.4	ND (0.5)	ND (0.5)	ND (1.0)	ND (0.5)

Table 2
Monitoring Well Sampling Results
GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Sample Location	Date	Dup/PDB	PCE	1,1,1,2-PCA	1,1,2,2-PCA	TCE	1,1,1-TCA	1,1,2-TCA	1,1-DCE	cis-1,2-DCE	Trans-1,2-DCE	1,1-DCA	1,2-DCA	VC
MCL or SHS			5	70	0.84	5	200	5	7	70	100	31	5	2
MW-4U	01/15/13		**2.8**	ND (0.5)	ND (0.5)	**132**	**5**	ND (0.5)	**3.5**	**26.8 Q**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/11/13		**19.4**	ND (0.5)	ND (0.5)	**700**	**20.7**	ND (0.5)	**14.2**	**96.1**	**1.4**	**0.56**	ND (0.5)	ND (0.5)
	12/11/13	PDB	**5**	ND (0.5)	ND (0.5)	**373**	**8.2**	ND (0.5)	**6.6**	**57.6 Q**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/03/14	PDB	**4.6**	ND (0.5)	ND (0.5)	**456**	**7.4**	ND (0.5)	**5.6**	**58.6**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-4L	09/11/13		**7**	ND (1.0)	ND (1.0)	**306**	**10.2**	ND (1.0)	**6.3**	**51.4 Q**	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
	12/11/13	PDB	**1.1**	ND (0.5)	ND (0.5)	**118**	**5.7**	ND (0.5)	**4.4**	**56.1**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/03/14	PDB	ND (1.0)	ND (1.0)	ND (1.0)	**99 Q**	**2.8**	ND (1.0)	**2.3**	**39.8 Q**	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
MW-5	01/14/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/09/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/03/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-6	01/14/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/09/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/11/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-7U	01/23/13		ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
	09/09/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	**8.5**	ND (0.5)	ND (0.5)	ND (0.5)	**1.3**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	**0.56**	ND (0.5)	ND (0.5)	**10.7**	ND (0.5)	ND (0.5)	ND (0.5)	**1.7**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-7L	01/14/13		ND (0.5)	ND (0.5)	ND (0.5)	**5.7**	ND (0.5)	ND (0.5)	ND (0.5)	**0.71**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/09/13		ND (0.5)	ND (0.5)	ND (0.5)	**7.3**	ND (0.5)	ND (0.5)	ND (0.5)	**1.2**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-8	01/14/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/09/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

Table 2
Monitoring Well Sampling Results
GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Sample Location	Date	Dup/PDB	PCE	1,1,1,2-PCA	1,1,2,2-PCA	TCE	1,1,1-TCA	1,1,2-TCA	1,1-DCE	cis-1,2-DCE	Trans-1,2-DCE	1,1-DCA	1,2-DCA	VC
MCL or SHS			5	70	0.84	5	200	5	7	70	100	31	5	2
MW-9	01/14/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/09/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	Dup	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-10L	01/15/13		**2**	ND (0.5)	ND (0.5)	**64.9**	**2.6**	ND (0.5)	**3.2**	**10.3 Q**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/11/13		**3.4**	ND (1.0)	ND (1.0)	**72.6 Q**	**2.7**	ND (1.0)	**2.6**	**8.5 Q**	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
	12/12/13	PDB	**2.5**	ND (0.5)	ND (0.5)	**47.9**	**2**	ND (0.5)	**2.3**	**7.9 Q**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	**1.6**	ND (0.5)	ND (0.5)	**51.5**	**1.5**	ND (0.5)	**1.9**	**8**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-11U	09/12/13		**5.9**	ND (0.5)	`	**146**	**10**	ND (0.5)	**9.2**	**43.4**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/11/13	PDB	**3.7**	ND (0.5)	ND (0.5)	**135**	**6.9**	ND (0.5)	**6.9**	**36.4**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/03/14	PDB	**1.4**	ND (0.5)	ND (0.5)	**146**	**6.1**	ND (0.5)	**6.6**	**42.1**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-11L	09/12/13		**3**	ND (0.5)	ND (0.5)	**57.2**	**3.4**	ND (0.5)	**2.8**	**13.8Q**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/11/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/03/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-12U	09/10/13		ND (0.5)	ND (0.5)	ND (0.5)	**7.8**	ND (0.5)	ND (0.5)	ND (0.5)	**0.81**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	09/10/13	Dup	ND (0.5)	ND (0.5)	ND (0.5)	**8.2**	ND (0.5)	ND (0.5)	ND (0.5)	**0.78**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	**0.71**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	**0.97**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
MW-12L	09/10/13		ND (0.5)	ND (0.5)	ND (0.5)	**4.8**	ND (0.5)	ND (0.5)	ND (0.5)	**0.68**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	12/12/13	PDB	ND (0.5)	ND (0.5)	ND (0.5)	**0.57**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	04/02/14	PDB	ND (0.5)	ND (0.5)	ND (0.5)	**1.1**	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

Table 2
Monitoring Well Sampling Results
GTAC 5-1-222
Nockamixon TCE Site
Nockamixon Township, PA

Sample Location	Date	Dup/PDB	PCE	1,1,1,2-PCA	1,1,2,2-PCA	TCE	1,1,1-TCA	1,1,2-TCA	1,1-DCE	cis-1,2-DCE	Trans-1,2-DCE	1,1-DCA	1,2-DCA	VC
MCL or SHS			5	70	0.84	5	200	5	7	70	100	31	5	2
Trip Blank	01/14/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank	01/15/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank	01/16/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank	01/23/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank 2	09/10/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank 2A	09/10/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank 3	09/11/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank 4	09/12/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank	12/12/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.25)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.25)
Trip Blank	12/11/13		--	--	ND (0.25)	--	--	ND (0.5)	--	ND (0.25)	--	--	--	--
Trip Blank	04/02/14		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trip Blank	04/03/14		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Rinse Blank	01/15/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Rinse Blank	09/12/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Rinse Blank 1	09/10/13		ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)

Notes:

All results in µg/L
µg/L = micrograms per liter
BOLD = Contaminant Concentration Detected Above Laboratory Detection Limit
BOLD WITH SHADING = Contaminant Concentration Exceeds the Identified Screening Criteria
MCL = EPA Drinking Water Criteria Maximum Contaminant Level
ND = Compound Not Detected at Listed Laboratory Detection Limit
Q = Contaminant Concentration reported from multiple analyses
SHS = Statewide Health Standard
-- = Not Available
* = Medium Specific Concentration is a Secondary Contaminant
Dup = Duplicate Sample
PDB = Passive Diffusion Bag

PCE = Tetrachloroethene
PCA = Tetrachloroethane
TCE = Trichloroethene
TCA = Trichloroethane
DCE = Dichloroethene
DCA = Dichloroethane
VC = Vinyl Chloride
MTBE = 2-Methoxy- 2-methylpropane
MIBK = 4-Methyl-2- pentanone

Attachment

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 800-258-5585	4. Waste Tracking Number 0002215

GENERATOR

5. Generator's Name and Mailing Address
PA DEP Southeast Region
2 East Main Street
Norristown, PA 19401
Generator's Phone: 484-250-5731

Generator's Site Address (if different than mailing address)
Easton Road & Durham Road
Ottsville, PA 18942

6. Transporter 1 Company Name: Lewis Environmental, Inc.
U.S. EPA ID Number: PAD987378940

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address
Environmental Recovery Corporation
1076 Old Manheim Pike
Lancaster, PA 17601
Facility's Phone: 717-393-2627

U.S. EPA ID Number: PAD987266749

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non Hazardous Waste Solid Non-DOT Regulated / Non-RCRA Hazardous (Soil Cuttings)	002	DM	1000	P	
2.	Non Hazardous Waste Liquid Non-DOT Regulated / Non-RCRA Hazardous (Impacted groundwater)	001	DM	0055	G	
3.	Non Hazardous Waste Solid Non-DOT Regulated / Non-RCRA Hazardous (Empty Tote)	002	TP			
4.						

13. Special Handling Instructions and Additional Information

Job # 14114PL
PO # 5888

1) 1206-1320-LPT
2) 1206-1321-LWT
3) 1406-02448-MT

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: MARGARET POLLICH
Signature: Margaret Pollich
Month 06 Day 05 Year 14

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: SCOTT R
Signature:
Month 6 Day 11 Year 14

Transporter 2 Printed/Typed Name: James Stoll
Signature:
Month 6 Day 16 Year 14

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator)
Month Day Year

Lancaster Oil Company has received the materials described above; acceptance is pending lab analysis

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest exc[illegible] in Item 17a

Printed/Typed Name
Signature
Month 6 Day 16 Year 14

169-BLC-O 5 11977 (Rev. 9/09)

TRANSPORTER #2