pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

May 31, 2018

SUBJECT: Nockamixon TCE HSCA Site
Vapor Intrusion Investigation

TO: Regional File

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Site Background and Description

The Pennsylvania Department of Environmental Protection (DEP) is investigating groundwater and soil contaminated by the Volatile Organic Compounds (VOCs), Trichloroethene (TCE) and Tetrachloroethene (PCE) at the Nockamixon TCE Site (Site). The Site was referred to DEP by the Bucks County Health Department (BCHD) in 2009 after BCHD had discovered TCE contamination in private wells at a local restaurant and a number of nearby homes. The Site is in a rural, residential area and all residents and businesses rely on well water as a potable water supply. DEP sampled potable wells at 106 properties in the vicinity of the Site between 2009 and 2015. As a result of this sampling, more than 40 of these properties were provided point-of-entry-treatment (POET) systems designed to remove VOCs from the drinking water.

Based on a 2015 soil investigation, two distinct sources of the contamination have been confirmed along Brennan Road. A former owner of a farm at the location reportedly disposed of septic and industrial wastes on the farm prior to 1974. A site location map is attached (Figure 1). Groundwater sampling data, including monitoring well and private well sampling revealed that the contaminant plume associated with the Site affects properties located along Mountain View Drive, Cord Way, Park Drive West, Brennan Road, Durham Road, Tower Road and Easton Road. A map showing maximum detections of TCE and PCE in groundwater samples and the identified source areas is attached (Figure 2).

The primary contaminants, which have been detected in groundwater in the area and in soils on the source property, are the VOCs, TCE and PCE. These contaminants may volatilize from soil and/or groundwater, and move into occupied buildings through a process called vapor intrusion (VI). VOCs such as TCE and PCE may accumulate in indoor air after VI has occurred, resulting in residential exposure to the contaminants through inhalation. An illustration showing a conceptual model of the VI pathway is included (Figure 3). During characterization work conducted in 2015, a DEP contractor, Tetra Tech, Inc., collected passive soil gas samples on the suspected source property. Analysis of the PSG samples revealed TCE, PCE and their breakdown products in soil vapor at the Site. These results were used to guide soil characterization, but also prompted DEP to investigate the potential for vapor intrusion in the vicinity of the source areas.

Characterization activities were carried out in accordance with DEP's *Land Recycling Program TGM for Vapor Intrusion into Buildings from Groundwater and Soil under Act 2*, (Vapor Guidance). Although this guidance became effective in January 2017, it has been in development since 2014 and has formed the basis for DEP's VI assessment at the Site.

DEP's VI assessment and response has involved an iterative approach to evaluating the pathway. Steps taken in the assessment are described in detail in the following sections.

IAQ Survey

On January 22, 2016, DEP mailed Indoor Air Survey Forms the following properties at the Site:

- 77 Brennan Rd.
- 65 Brennan Rd.
- 55 Brennan Rd.
- 30 Brennan Rd.
- 44 Brennan Rd.
- 10 Brennan Rd.
- 2511 Mountain View Dr.
- 2526 Mountain View Dr.
- 324 Park Dr. West
- 338 Park Dr. West

Properties were selected for survey based upon DEP's conceptual site model (CSM). The CSM assumed that vapor intrusion at the Site would result primarily from contamination found in the shallowest groundwater beneath a residential receptor. The dense nature of TCE and PCE usually causes them to sink in groundwater and bedrock fractures. It has been observed that shallower water-bearing intervals can provide a vertical separation barrier between homes and groundwater contamination found at depth. The effect of this can be observed in contamination east of the Brennan Road source areas which exhibit influence from the Hanson Quarry, located east of Easton Road. In the MW-7 well doublet, TCE and PCE are not present in shallow (95.5 to 195.5 ft. below ground surface - BGS) groundwater, but are routinely detected at depth (267 to 297 ft. BGS). It should be noted that the distance from the source where this effect may occur is unknown.

In the Park Drive West area, the plume is not well understood. Home well data demonstrates that TCE and PCE have migrated to the area, but monitoring wells were not installed within the area of greatest impact, and depth to water is unknown.

The presence of basement sumps was considered because they may suggest the presence of shallow groundwater beneath homes and provide a conduit for vapors (or contaminated groundwater) to enter homes.

In December 2017, additional indoor air surveys were mailed the following locations, which were not surveyed in 2016:

- 91 Brennan Rd
- 252 Park Dr. West
- 268 Park Dr. West
- 282 Park Dr. West

DEP mailed surveys to homes, which had been surveyed in 2016, to gather any new or updated information for indoor air sampling. A copy of the survey form is included as Appendix A of this document.

IAQ Survey Results

DEP received completed indoor air survey forms for the following properties surveyed in 2016:

- 10 Brennan Rd.
- 30 Brennan Rd.
- 65 Brennan Rd.
- 77 Brennan Rd.
- ~~84 Brennan Rd.~~
- 2511 Mountain View Dr.
- 2526 Mountain View Dr.
- 324 Park Dr. West
- 338 Park Dr. West

The owners of properties at 44 and 55 Brennan Rd. informed DEP that they did not wish to have indoor air sampling performed at their properties via telephone.

The 2017 survey yielded completed forms from three properties (77 Brennan Rd., 2511 Mountain View Dr., and 338 Park Dr. West). Two surveys (55 Brennan Dr. and 268 Park Dr. West) were returned marked as 'Not Interested'.

A map summarizing the response to DEP's IAQ survey mailing is included as Figure 4.

Pre-Sampling Building Survey

Prior to the first indoor air sample deployment in each home, an inspection of the sampling area was conducted. DEP recorded information relating to the building layout, heating/ventilation, presence of chemicals or fuels in the sampling area, and other information (i.e., resident's smoking, use of pesticides, dry cleaning, and hobbies involving chemicals such as gun cleaning or modelling). The sampling areas were also scanned for VOCs using hand-held photo ionization detectors. This information is helpful while evaluating indoor air sample results to determine if detections of VOCs in indoor air could be attributable to background conditions, chemical storage, or home ventilation.

IAQ Sampling

Indoor air sampling was performed in accordance with a sampling and analysis plan (SAP) dated January 2016. In addition to summarizing the response to DEP's survey, Figure 2 indicates the number of sampling rounds performed at the sampled properties.

All samples were collected using evacuated SUMMA canisters and dedicated 24-hour flow controllers, provided by the analytical laboratory. Air samples were analyzed by EPA Method TO-15, for the following compounds related to the Site:

1,1,1-Trichloroethane (1,1,1-TCA)	Vinyl Chloride (Chloroethene)
1,1,2-Trichloroethane	Trichloroethene
1,2-Dichloroethane	Tetrachloroethene
1,1-Dichloroethane	trans-1,2-Dichloroethene
1,1-Dichloroethene (1,1-DCE)	cis-1,2-Dichloroethene (cis-1,2-DCE)

March/April 2016: Initial indoor air sampling was performed at the following homes:

- 30 Brennan Rd. — February 24 – 25, 2016
- 65 Brennan Rd. — February 24 – 25, 2016
- 84 Brennan Rd. — February 24 – 25, 2016
- 324 Park Dr. West — February 24 – 25, 2016
- 338 Park Dr. West — February 24 – 25, 2016
- 2511 Mountain View Dr. — February 29 – March 1, 2016
- 77 Brennan Rd. — April 5 – 6, 2016

Except for sampling performed at 77 Brennan Rd, where basement and first floor samples were collected, during the initial sampling, indoor samples were collected only from the lowest floor (i.e., basements or first-floor at stab-on grade homes). Outdoor/Ambient samples were collected at 30 Brennan Rd., 338 Park Dr. West, and 65 Brennan Rd. A duplicate sample was collected, using a laboratory provided splitter device, at 338 Park Dr. West.

DEP was unable to reach homeowners at 10 Brennan Rd. and 2526 Mountain View Dr., to arrange for indoor air sampling.

April 5 – 6, 2016: Based on results of the initial sampling, follow up indoor sampling was performed at 65 and 84 Brennan Rd. During this sampling, indoor air samples were collected at the same basement locations and in the first floor living areas at each home. An outdoor/ambient sample was collected at 65 Brennan Rd.

May 1 - 2, 2017: A third round of indoor air samples was collected by DEP's contractor Tetra Tech, in conjunction with sub slab vapor sampling at 65 Brennan Rd. Five indoor air samples were collected in the basement to help determine where vapors may be entering the home. Indoor

air samples were also collected in the first and second floor living areas. One duplicate and one ambient/outdoor air sample were also collected.

Air samples collected in 2016 and 2017 were analyzed by Eurofins-Lancaster Labs, a DEP contracted laboratory.

February 27 – 28, 2018: DEP collected indoor air samples at four properties as follows:

- 338 Park Dr. W. (Follow up/second round)
- 77 Brennan Rd (Follow up/Second round)
- 2511 Mountain View Dr. (Follow up/Second round)
- 2503 Mountain View Dr. (Initial sampling)

DEP collected two samples in the basements at 338 Park and 77 Brennan due to their size, in addition to first-floor (living area) samples.

At 2511 Mountain View Drive, which is a slab-on-grade home, samples were collected in the first and second floor living areas.

2503 Mountain View Dr. is a commercial property (Kind Earth Growers), and consists of several greenhouses with attached office and storage space. DEP collected a single indoor air sample within one of the occupied greenhouses which are comprised of a hoop style frame covered tightly with plastic sheeting. Flooring in the sampled greenhouse appeared to consist of landscape pavers placed atop fine gravel. Though not originally considered for sampling, this building construction and the indoor temperature differential to outdoor conditions, prompted DEP to collect an indoor air sample from the greenhouse.

In addition to the indoor air samples, an outdoor/ambient sample was collected at each location. A duplicate sample (co-located) was collected from one of the basement locations at 338 Park Dr. West. Air samples collected in 2018 were analyzed by DEP's Bureau of Laboratories.

Sump Sampling

Sump pits are capable of intercepting shallow groundwater in certain cases, and may provide a preferential pathway for migration of vapors into homes. As part of its evaluation of the VI pathway at the Site, DEP collected standing water samples from basement sumps at homes within the study area. All sump water samples were analyzed by DEP's Bureau of Laboratories for VOCs using EPA Method 8260C. Sump samples were collected as follows:

Address	**Date(s) Sampled**
30 Brennan Rd.	2/24/2016
55 Brennan Rd.	4/21/2011
65 Brennan Rd	2/24/2016 & 3/31/2016
77 Brennan Rd.	4/5/2016 & 2/27/2018
84 Brennan Rd.	2/24/2016 & 4/5/2016

324 Park Dr. West	2/24/2016
338 Park Dr. West	2/24/2016 & 2/27/2018

The sump sample at 55 Brennan Rd. was collected prior to the VI Investigation activities, during a routine carbon filter system monitoring event. In addition to the samples listed above, a single water supply sample was collected at 2503 Mountain View Dr., to evaluate the potential for watering within the greenhouse to act as a background source of VOCs.

Sample Results

This section is organized to categorize the results of DEP's indoor air sampling at the Site based on the detected concentrations of VOCs and resulting risk ranges as determined through the following process:

1. If no VOCs were detected, no further evaluation was performed.
2. Where VOCs were detected in indoor air, DEP compared the results to site specific screening values (1/10 of statewide health screening values) established under DEP's Vapor Guidance.
3. Compounds which exceeded the site-specific screening values were further evaluated using the most up-to-date version of EPA's Vapor Intrusion Screening Level (VISL) spreadsheet, which calculates cancer and non-cancer inhalation risks for each compound evaluated. Cumulative cancer and non-cancer risks were determined by adding risks calculated in the VISL. In accordance with Act 2, cancer risks may not exceed 1×10^{-4} (or one additional cancer in a population of ten thousand) and non-cancer risks (calculated as a Hazard Index or HI) may not exceed one.

Non-Detect Results

30 Brennan Road

- No VOCs were detected in the indoor or outdoor air sample collected from 30 Brennan Rd., in February 2016.
- Trace levels (< 1.0 µg/l) of cis-1,2-DCE and TCE were reported by the laboratory in the sump water sample. However, these detections were "B" qualified and the lab commented that the detected concentrations may be attributable to carryover from another, unrelated water sample.
- DEP mailed a second indoor air survey to the owner of 30 Brennan Rd., in December 2017, in advance of planned follow up sampling, but no response was received.

2503 Mountain View Dr.

- No VOCs were detected in the indoor or outdoor air samples collected, in February 2018, at 2503 Mountain View Dr. The indoor sample was collected from an actively used greenhouse on the property. DEP noted that the greenhouse had been ventilated during the 24-hour sampling period.

- Several VOCs were detected in the water supply used in the greenhouse. Most notably TCE was reported at 75.2 µg/l in the water sample. PCE, 1,1,1-TCA, 1,1-DCE and cis-1,2-DCE were also detected in the water supply. These compounds are associated with releases at the Site.

Results which Passed Screening Criteria

As noted above, indoor air detections were screened using site-specific screening criteria established in DEP's VI Guidance. Site-specific screening values are set at 1/10 of the statewide health screening values listed in Table 5 of the VI Guidance. If all detected VOCs in indoor air were at concentrations less than their respective site-specific screening values, no additional risk assessment was performed.

77 Brennan Rd.

- During the first round of indoor air sampling, conducted at 77 Brennan Rd., in April 2016, 1,1,1-TCA was detected at an estimated concentration of 1.2 $\mu g/m^3$ in a first floor, living area sample. The site-specific indoor air screening level for 1,1,1-TCA is 520 $\mu g/m^3$. No VOCs were detected in a sample collected in the basement on the same date. This suggests that the detected 1,1,1-TCE may not result from VI.
- No VOCs were detected in air samples from the basement, first floor, or outdoor/ambient locations sampled during the February 2018 follow up sampling.
- VOCs were not detected in sump samples from 77 Brennan Rd. collected in April 2016 and February 2018.

324 Park Dr. West

- PCE and 1,1,1-TCA were detected in the basement indoor air sample collected from 324 Park Drive West in February 2016. The PCE and 1,1,1-TCA concentrations of 1.5 and 4.6 $\mu g/m^3$, respectively did not exceed their associated screening values (4.2 and 520 $\mu g/m^3$).
- VOCs were not detected in the sump sample collected along with the indoor air sample.
- DEP mailed a second indoor air survey to the property owner in December 2017, in advance of planned follow up sampling, but no response was received.

A table summarizing indoor air detections, which did not exceed screening criteria is included as Table 1A.

Results Passing a Required Risk Evaluation

Indoor air sample results at four properties exceeded the VI indoor air screening values, and required further cancer and non-cancer risk evaluation, using the VISL Calculator. In cases where multiple VOCs were detected above the screening values, risks were added to calculate cumulative risks for comparison to the Act 2 site specific risk standards (Cancer Risk Level less

than 1X10-4 and non-cancer risk/HI less than 1). Indoor air samples from the following two properties required further risk evaluation, but did not exceed the acceptable risk levels:

2511 Mountain View Drive

- Three indoor air samples collected at 2511 Mountain View Drive, in February 2016 and February 2018 contained trans-1,2-DCE. In 2016, trans-1,2-DCE was detected in a sample from the first floor living area, of this slab-on-grade home at a concentration of 9.9 $\mu g/m^3$. The indoor air screening value for trans-1,2-DCE is 6.3 $\mu g/m^3$. Since the concentration of trans-1,2-DCE exceeded the screening value, the VISL calculator was used to determine the risk levels. Because no inhalation unit risk factor for cancer has been established, no cancer risk is calculated. The HI calculated was 0.16, which is within the acceptable non-cancer risk range (i.e., <1).
- In February 2018, the same compound was detected in samples from the first and second floors at 4.84 $\mu g/m^3$and 7.25 $\mu g/m^3$, respectively. The concentration of trans-1,2-DCE detected on the first floor passed the site-specific screening evaluation, but the sample from the second floor required risk evaluation. An updated version of the VISL calculator was used for the 2018 risk evaluation. The new calculator incorporated a change in EPA's toxicity evaluation for trans-1,2-DCE, to reflect the 2014 removal of the compound from EPA's regional screening levels, based upon inconsistencies in the supporting toxicological studies. An EPA memorandum, dated June 17, 2014, explaining this change is attached as Appendix C.
- No other VOCs were detected in the indoor or outdoor/ambient air samples from this property

The presence of trans-1,2-DCE detected in indoor air at 2511 Mountain View Drive appears to result from a background (indoor) source, rather than from VI. Trans-1,2- DCE has not been detected in any other air samples collected at the Site. Detections of trans-1,2-DCE in private wells and monitoring wells at the Site have been below the groundwater to indoor air screening value (60 $\mu g/l$) established in the Vapor Guidance. A review of available literature, revealed that trans-1,2-DCE may result from blowing agents used in spray foam insulation products, and that detection of the compounds in indoor air may persist well after the product's use. A copy of a fact sheet discussing the link between spray foam insulation and trans-1,2-DCE is attached as Appendix D.

338 Park Drive West

- In February 2016, PCE was detected in a basement indoor air sample from 338 Park Drive West at an estimated concentration of 4.7 $\mu g/m^3$. This level exceeded the indoor air screening value (4.2 $\mu g/m^3$) requiring further risk evaluation. The calculated cancer and non-cancer risks associated with the detected concentration of PCE were 5.02 X 10^{-7} and 0.11, respectively. Neither risk level exceeds the allowable risk threshold established by Act 2. In addition to PCE, 1,1,1-TCA was also detected in the 2016 basement sample at 6.0 $\mu g/m^3$. Since this level was below the screening criteria (520 $\mu g/m^3$), 1,1,1-TCA was not included in the risk evaluation.

- These same compounds were also detected in indoor air samples collected in February 2018 from the basement (PCE – 3.03 μg/m^3 and 1,1,1-TCA – 4.55 μg/m^3) and from the first-floor dining area (PCE – 2.2 μg/m^3 and 1,1,1-TCA – 3.55 μg/m^3). None of these concentrations exceeded the screening values, which would require risk evaluation.
- A trace of TCE (0.60 μg/l) was detected in the sump sample collected in 2016. A lab comment indicated that the analysis had been affected by sample carryover. No VOCs were detected in the 2018 sump water sample.
- Results of risk evaluations, including analytical results are presented in Table 1B.

Results that Failed Risk Evaluation

At two homes (65 and 84 Brennan Road) located near one of the confirmed source areas, risk levels from at least one indoor air sample exceeded the allowable criteria established by Act 2. Analytical results, including results of risk evaluations for 65 and 84 Brennan Road are presented in Table 1C. A map summarizing results of vapor intrusion risk characterization to-date is attached as Figure 6. Sample results and the resulting calculated risk evaluations are discussed in detail below.

84 Brennan Road

- An air sample collected in February 2016, from the basement at 84 Brennan Road contained cis-1,2-DCE (1.4 μg/m^3), PCE (4.0 μg/m^3) and TCE (4.0 μg/m^3). No indoor air screening value has been established for cis-1,2-DCE and the PCE screened out of the risk evaluation. TCE exceeded its indoor air screening value of 0.21 μg/m^3 in the basement air. Risk evaluation of the TCE result, using the VISL calculator, resulted in a calculated cancer risk level (9.26 X 10^{-6}) within the allowable range, however, the non-cancer (HI) risk of 1.92 exceeded the allowable HI.
- DEP collected follow up indoor air samples in April 2016 including a first floor living area sample and a duplicate basement air sample. The primary basement air sample TCE concentration (1.9 μg/m^3), which resulted in an HI of 0.91 less than the site-specific risk threshold. However, the 2.6 μg/m^3 of TCE detected in the basement duplicate air sample resulted in an HI of 1.25, which exceeds the acceptable non-cancer risk level.
- A sample collected in April 2016 from the first floor living area in the home contained 1,2-DCE at a concentration of 1.9 μg/m^3. The detection of 1,2-DCE required risk evaluation, but the calculated risks (cancer risk – 1.2 X 10^{-5} and HI value – 0.19) were within allowable risk levels. Since 1,2-DCE was not detected in basement air, it may not be attributable to VI. DEP determined that sub slab soil vapor sampling would be necessary to definitively link the indoor air detections of VOCs.

- Sump samples were collected in February and April 2016, at 84 Brennan Road. The February sample contained cis-1,2-DCE and TCE at 1.3 μg/l. Like other samples from this event, the lab reported that this sample may have been affected by carryover during lab analysis. Tetrahydrofuran was alto detected in the February sump sample at 0.68 μg/l. No VOCs were detected in the sump sample collected in April 2016.

65 Brennan Road

- A basement indoor air sample was collected at 65 Brennan Road in February 2016. TCE and PCE were detected in the sample at 27 and 6.1 $\mu g/m^3$ respectively. These detections exceeded the indoor air screening values. The risk assessment performed on these results, using the VISL calculator, revealed a cumulative cancer risk level of 6.32 X 10-5 and a cumulative HI of 13.1. While the cancer risk was within the acceptable criteria, the non-cancer risks exceeded the allowable HI of 1. In addition to TCE and PCE, 1,1,1-TCA at 7.4 $\mu g/m^3$, 1,1-DCE at 4.2 $\mu g/m^3$, and cis-1,2-DCE at 6.1 $\mu g/m^3$. were detected in the basement air sample. These concentrations were less than the indoor air screening criteria, and were not included in the risk evaluation.
- DEP collected follow up indoor air samples from the basement and first floor living area in April 2016. The same indoor air contaminants were detected in both samples, including TCE at 31 and 16 $\mu g/m^3$ and PCE at 120 and 59 $\mu g/m^3$ in basement and first-floor air respectively. Again, calculated cumulative non-cancer risks for these indoor air concentrations, exceed allowable levels.
- Throughout the sampling efforts, DEP was aware that the home had been equipped with piping for a radon mitigation system and a vapor barrier. Construction details of the mitigation system and vapor barrier were unknown to the homeowner. Based on results of radon testing, the mitigation system had not been equipped with a fan. Additionally, chemical storage in the basement area, including gun cleaning supplies was considered a potential background source of VOCs.
- In May 2017, a DEP contractor (Tetra Tech), conducted paired indoor air and sub slab vapor sampling at 65 Brennan Road. To avoid penetrating the vapor barrier, the sub slab sample was collected through the vapor mitigation exhaust pipe. An air sample was also collected from within the sump pit. In addition to the sub slab sample, five indoor air samples were collected in the basement and air samples were collected on the first and second floors of the house. Tetra Tech's sampling plan for the paired indoor air/sub slab vapor event is included as Appendix E.
- Generally, higher concentrations of VOCs were detected in the May 2017 sampling event. Additionally, lines of evidence suggest that the detections result from vapor intrusion rather than from a background/indoor source. Among these lines of evidence are the presence of cis-1,2-DCE, a breakdown product of PCE and TCE, not used in consumer products; increasing concentrations of VOCs in the basement (i.e., nearer a vapor source); ambient/outdoor air results were non-detect for VOCs; and sub slab and sump air sample results discussed below.

Sub Slab Sampling

As discussed above, Tetra Tech assisted DEP with paired indoor air and sub slab sampling at the 65 Brennan Road home in May 2017. Air samples were collected concurrently from indoor air, outdoor/ambient air, sub slab air collected from the inactive radon mitigation system, and from within basement sump pit.

TCE was detected in the mitigation system exhaust pipe air and sump pit air at 79 and 120 $\mu g/m^3$ respectively. These concentrations were higher than any of the indoor air samples collected over the same period. Results of sub slab samples collected at 65 Brennan Road are summarized in Table 2. These results prompted DEP to upgrade and activate the preexisting indoor air mitigation system at the home. During this upgrade, additional findings were made regarding the system, which further explain the sub slab sample results. Those findings are discussed in detail below.

Vapor Mitigation

Based on the results of indoor air and sub slab sampling at 65 Brennan Road, DEP initiated a prompt interim response action.

On May 14, 2018, DEP's contractor, Tetra Tech, mobilized to activate and upgrade the preexisting radon mitigation system to address VI. A fan was installed upon the exhaust pipe, within the attic crawlspace; a pressure gauge and alarm were installed on the exhaust pipe, within the basement; and four air flow monitoring points were installed through the basement slab, near the corners.

Upon activation of the fan, pressure and air flow readings revealed that the exhaust pipe was blocked, preventing the mitigation system from functioning. The subcontractor responsible for the system upgrade (OBAR, Inc.) cut and removed the exhaust pipe from the basement slab, and determined that the pipe had been installed into a fine-grained material at the base of the foundation, rather than into the stone just below the slab. A new piece of piping was installed to the proper depth and connected to the exhaust pipe. Upon fan activation, exhaust pressure and sub slab air flow measurements verified that the mitigation system was performing as intended.

During the activation process, it was also determined that a drain vent within the home had been connected to the mitigation system exhaust pipe. This resulted in the release of vapors from the home's septic system into the home. Because of these sewer vapors, the properly functioning vapor mitigation system was deactivated pending resolution of the improper plumbing connection. A photo log of the mitigation system upgrade activities is included as Appendix H.

Conclusions

- Indoor air and sub slab sampling at 65 Brenan Road has revealed that without engineering controls (i.e., vapor mitigation), the vapor intrusion exposure pathway is open at the Site and results in an unacceptable risk to human health.

- Indoor air sampling at 84 Brennan Road suggest that vapor intrusion may be an open exposure pathway.

- Based on risk evaluation using the VISL calculator, TCE is the primary contaminant of concern for the VI pathway at the Site.

- Homes located in close proximity to and downgradient (with respect to groundwater flow) from the identified source area, near MW-1, appear to be most affected by VI.

- An area of potential VI risk has not been characterized at the Site because of the limited response to DEP's pre- sampling survey and sparse density of occupied buildings at the Site.

Recommendations

- Continue to work with the owner of the 65 Brenan Road property to address the improper connection of a household plumbing vent to the mitigation exhaust. When the problem has been resolved activate the vapor mitigation system.

- Perform additional evaluation at 84 Brennan Road to determine if vapor intrusion is responsible for previously detected concentrations of TCE in basement air.

- If indoor air at additional occupied structures is determined to contain site-related VOCs above risk-based concentrations, offer to install appropriate engineering controls (i.e., vapor mitigation) to address the open exposure pathway.

- Consider remediating contaminant source areas to eliminate the need for long-term engineering controls.

- Characterize an area of potential VI impact through additional indoor air, sub slab, soil vapor, and groundwater sampling.

- Continue community outreach to improve resident response to DEP's VI and indoor air sampling effort.

Table 1A

Indoor Air Sample Detections (No Screening Levels Exceeded)

	Indoor Air Screening Value (Residential site specific standard)	324 Park Drive West	77 BRENNAN ROAD					
		Feb-16	Apr-16		Feb-18			
		Basement	Basement	First Floor	First Foor	Basement 1	Basement 2	Outdoor
	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
1,1,1-Trichlroethane	520	4.6	ND	1.2	ND	ND	ND	ND
1,1-Dichloroethene	21	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.094	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichlroethene	None	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4.2	1.5	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	0.21	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	None	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.5	ND	ND	ND	ND	ND	ND	ND

Notes: ND - Compound not detected

Table 1B

Indoor Air Detections and Risk Evaluation (No Risk Level Exceedances)

	Indoor Air Screening Value (Residential site specific standard)	2511 MOUNTAIN VIEW DRIVE			
		Feb-16	Feb-18		
		First Floor	First Floor	Second Floor	Outdoor
	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
1,1,1-Trichlroethane	520	ND	ND	ND	ND
1,1-Dichloroethene	21	ND	ND	ND	ND
1,2-Dichloroethane	0.094	ND	ND	ND	ND
cis-1,2-Dichlroethene	None	ND	ND	ND	ND
Tetrachloroethene (PCE)	4.2	ND	ND	ND	ND
Trichloroethene (TCE)	0.21	ND	ND	ND	ND
trans-1,2-Dichloroethene	*6.3* (Withdrawn)	9.9	4.84	7.25	ND
1,1-Dichloroethane	1.5	ND	ND	ND	ND
	Risk Criteria				
Cancer Risk Level	> 1.0E-4	No IUR	NA	NA	NA
Hazard Index Value	> 1.0	0.16	NA	NA	NA

	Indoor Air Screening Value (Residential site specific standard)	338 PARK DRIVE WEST							
		Feb-16			Feb-18				
		Basement	Basement Duplicate	Outdoor	Basement 1	Basement 2	Basement 2 Duplicate	Outdoor	First Floor
	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
1,1,1-Trichlroethane	520	6	5.6	ND	4.38	4.55	4.55	ND	3.55
1,1-Dichloroethene	21	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.094	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichlroethene	None	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4.2	4.7	4.7	ND	2.48	3.03	2.96	ND	2.2
Trichloroethene (TCE)	0.21	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	*6.3* (Withdrawn)	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.5	ND	ND	ND	ND	ND	ND	ND	ND
	Risk Criteria								
Cancer Risk Level	> 1.0E-4	5.02E-07	5.02E-07	NA	NA	NA	NA	NA	NA
Hazard Index Value	> 1.0	0.11	0.11	NA	NA	NA	NA	NA	NA

Notes: ND - Compound not detected

NA- No exceedances of screening levels

No IUR - No published inhalation unit risk

Table 1C

Indoor Air Detections and Risk Evaluation (Risk Level Exceedances)

	Indoor Air Screening Value (Residential site specific standard)	84 Brennan Road				
		Feb-16		Apr-16		
		Basement	Outdoor	First Floor	Basement	Basement Duplicate
	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
1,1,1-Trichlroethane	520	ND	ND	ND	ND	ND
1,1-Dichloroethene	21	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.094	ND	ND	1.3	ND	ND
cis-1,2-Dichlroethene	None	1.4	ND	ND	ND	0.91
Tetrachloroethene (PCE)	4.2	4	ND	ND	2	**2.3**
Trichloroethene (TCE)	0.21	**4**	ND	ND	1.9	**2.6**
trans-1,2-Dichloroethene	None	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.5	ND	ND	ND	ND	ND
	Risk Criteria					
Cancer Risk Level	> 1.0E-4	9.26E-06	NA	1.20E-05	3.97E-06	5.44E-06
Hazard Index Value	> 1.0	**1.92**	NA	0.18	0.91	**1.25**

	Indoor Air Screening Value (Residential site specific standard)	65 Brennan Road											
		Feb-16	Apr-16			May-17							
		Basement	Outdoor	Basement	First Floor	Basement 1	Basement 1 Duplicate	Basement 3	Basement 4	Basement 6	First Floor	Second Floor	Outdoor
	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)	(µg/m3)
1,1,1-Trichlroethane	520	7.4	ND	7	3.8	9.2	8.8	9.1	8.1	9.2	5	4.9	ND
1,1-Dichloroethene	21	4.2	ND	4.5	2.3	12	11	11	9.6	11	3.1	3.2	ND
1,2-Dichloroethane	0.094	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichlroethene	None	6.1	ND	9.5	5	22	22	23	21	22	7.8	7.7	ND
Tetrachloroethene (PCE)	4.2	**6.3**	ND	**120**	**59**	**66**	**66**	**66**	**62**	**68**	**49**	**49**	ND
Trichloroethene (TCE)	0.21	**27**	ND	**31**	**16**	**74**	**73**	**70**	**63**	**72**	**21**	**22**	ND
trans-1,2-Dichloroethene	None	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1.5	ND	ND	ND	ND	0.91	0.64	0.99	0.88	1	ND	ND	ND
	Risk Criteria												
Cancer Risk Level	> 1.0E-4	6.32E-05	NA	7.59E-05	3.89E-05	**1.61E-04**	**1.59E-04**	**1.59E-04**	**1.37E-04**	**1.57E-04**	4.84E-05	5.05E-05	NA
Hazard Index Value	> 1.0	**13.10**	NA	**17.74**	**9.09**	**37.06**	**36.58**	**36.58**	**31.69**	**36.15**	**11.24**	**11.72**	NA

Notes: ND - Compound not detected

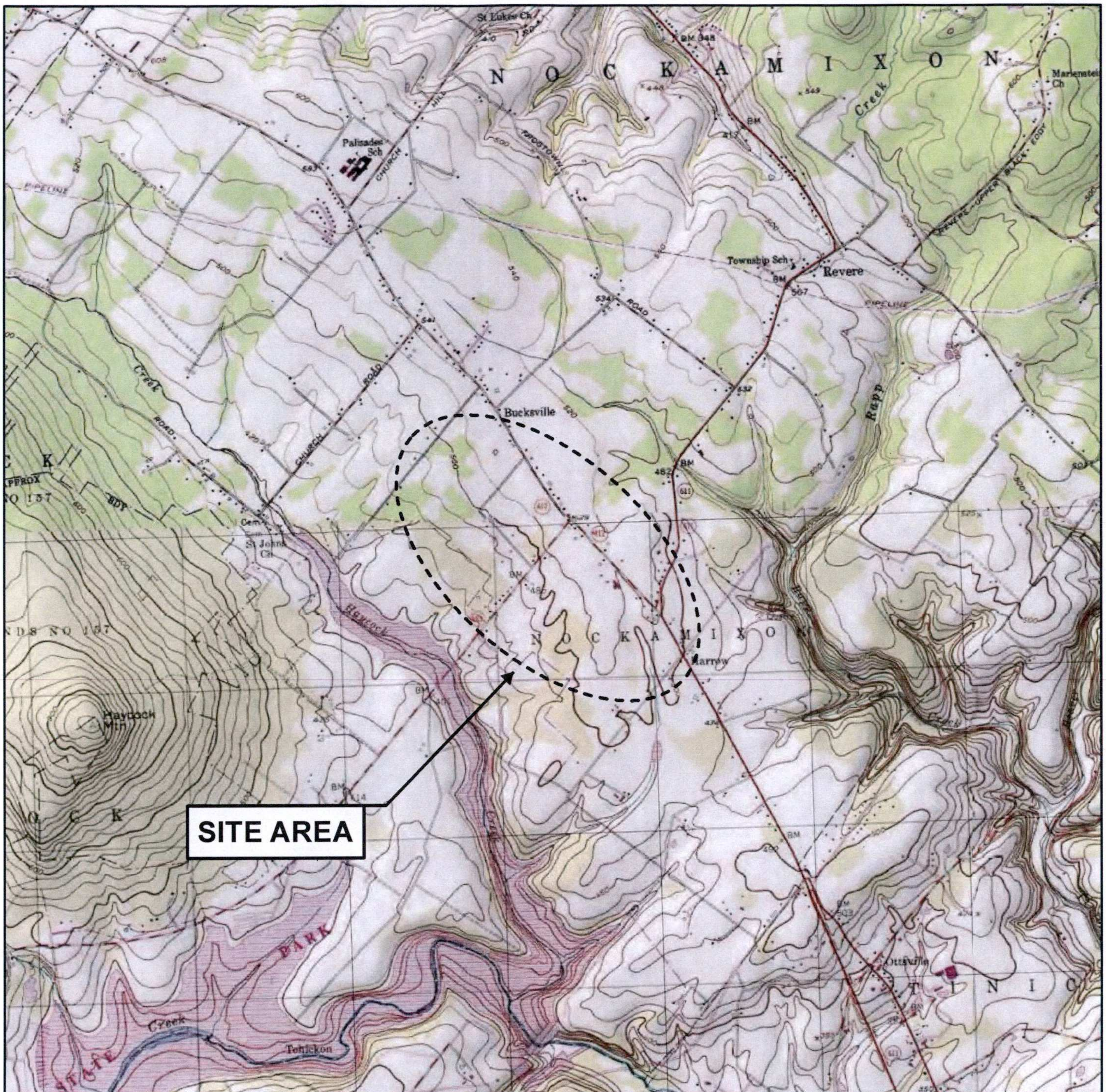
Bold text indicates an exceedance of the screening level or risk criteria

Table 2

Sub Slab Vapor Analytical Detections 65 Brennan Road

	65 Brennan Road	
	May-17	
	Mitigaiton Exhaust Pipe (µg/m3)	Inside Sump Pit (µg/m3)
1,1,1-Trichlroethane	9.8	18
1,1-Dichloroethene	11	7.6
cis-1,2-Dichlroethene	30	100
Tetrachloroethene (PCE)	59	39
Trichloroethene (TCE)	76	120
1,1-Dichloroethane	1.1	7.1

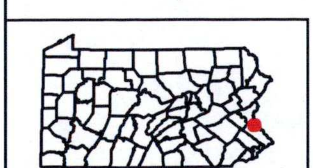
Note: DEP has determined that the sample collected from the mitigation exhaust pipe may not be representative of sub slab vapor.



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

0 1,500 3,000 6,000 Feet

1 inch = 3,000 ft



N

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

G:\GTAC\Nockamixon\Projects\Fig 1 - Site Location.mxd

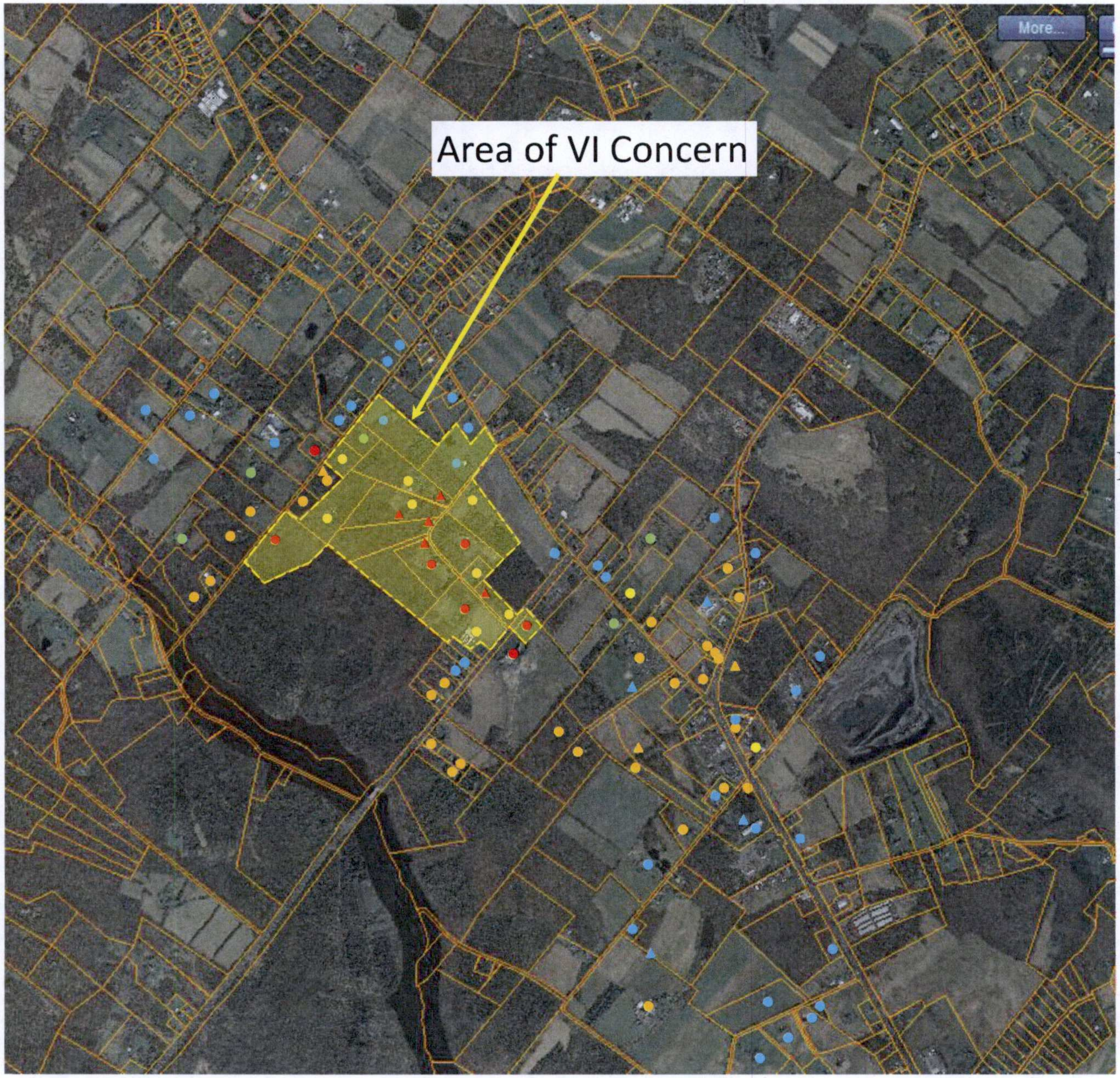


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Figure 2

Nockamixon TCE Site

Max TCE GW Detections & VI Area of Concern

Legend

▲ Monitoring Well

● Private Well

Maximum TCE Concentration

- Non Detect
- < 2 ug/L
- 2 – 5 ug/L
- 5 – 100 ug/L
- > 100 ug/L

Prepared May 17, 2018

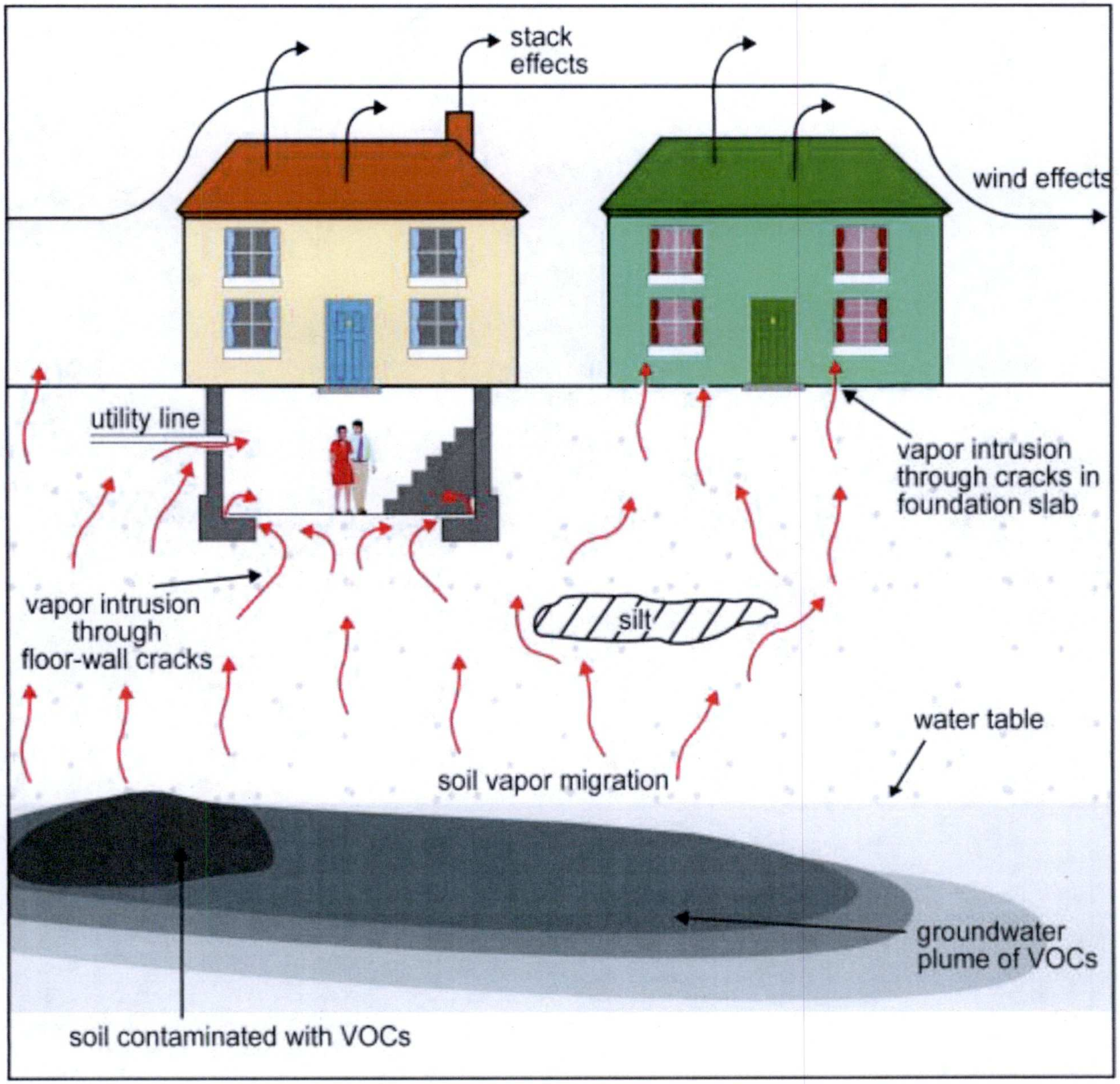

Figure 3

Conceptual Illustration of
Vapor Intrusion

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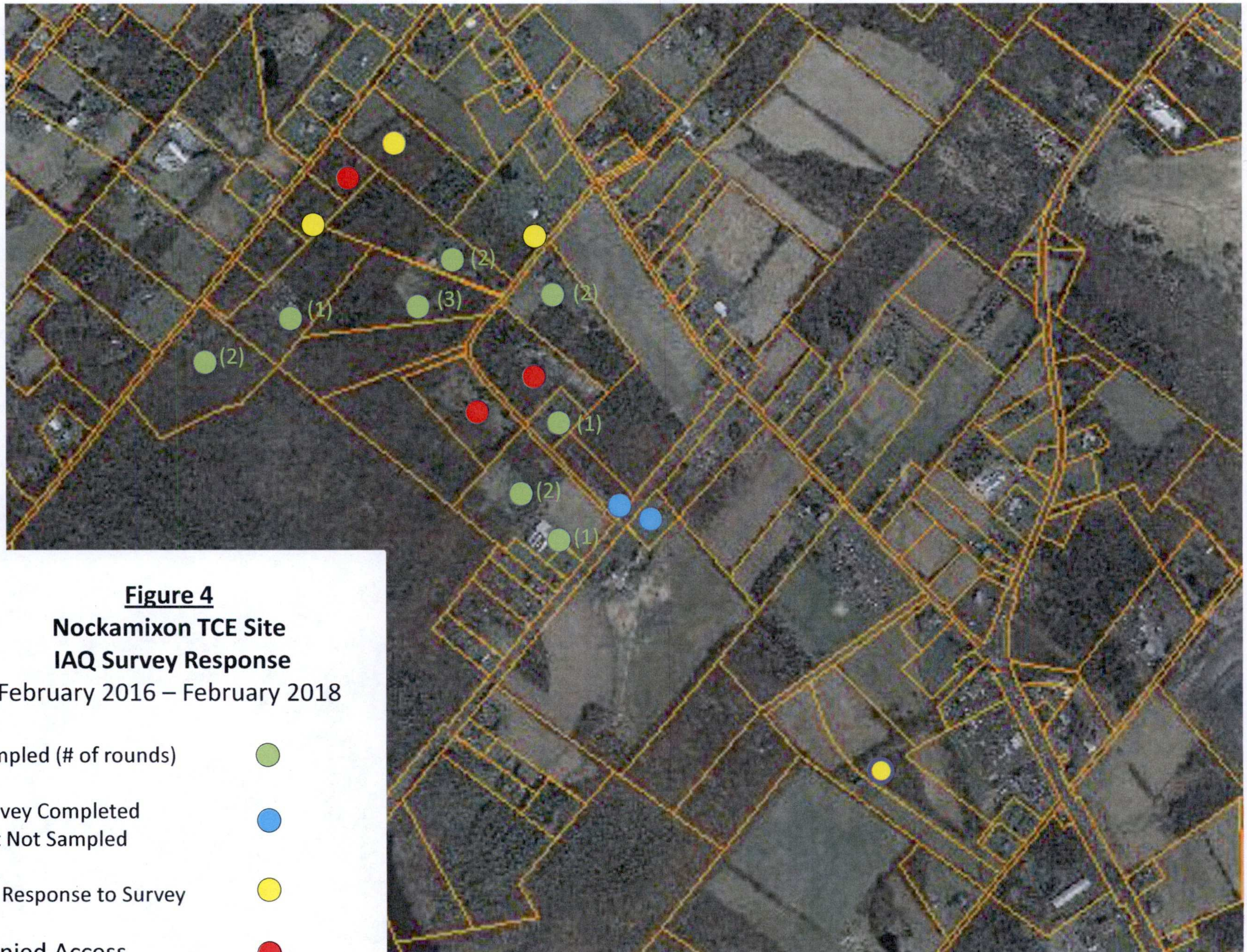

Figure 4

Nockamixon TCE Site

IAQ Survey Response

February 2016 – February 2018

Sampled (# of rounds)

Survey Completed but Not Sampled

No Response to Survey

Denied Access

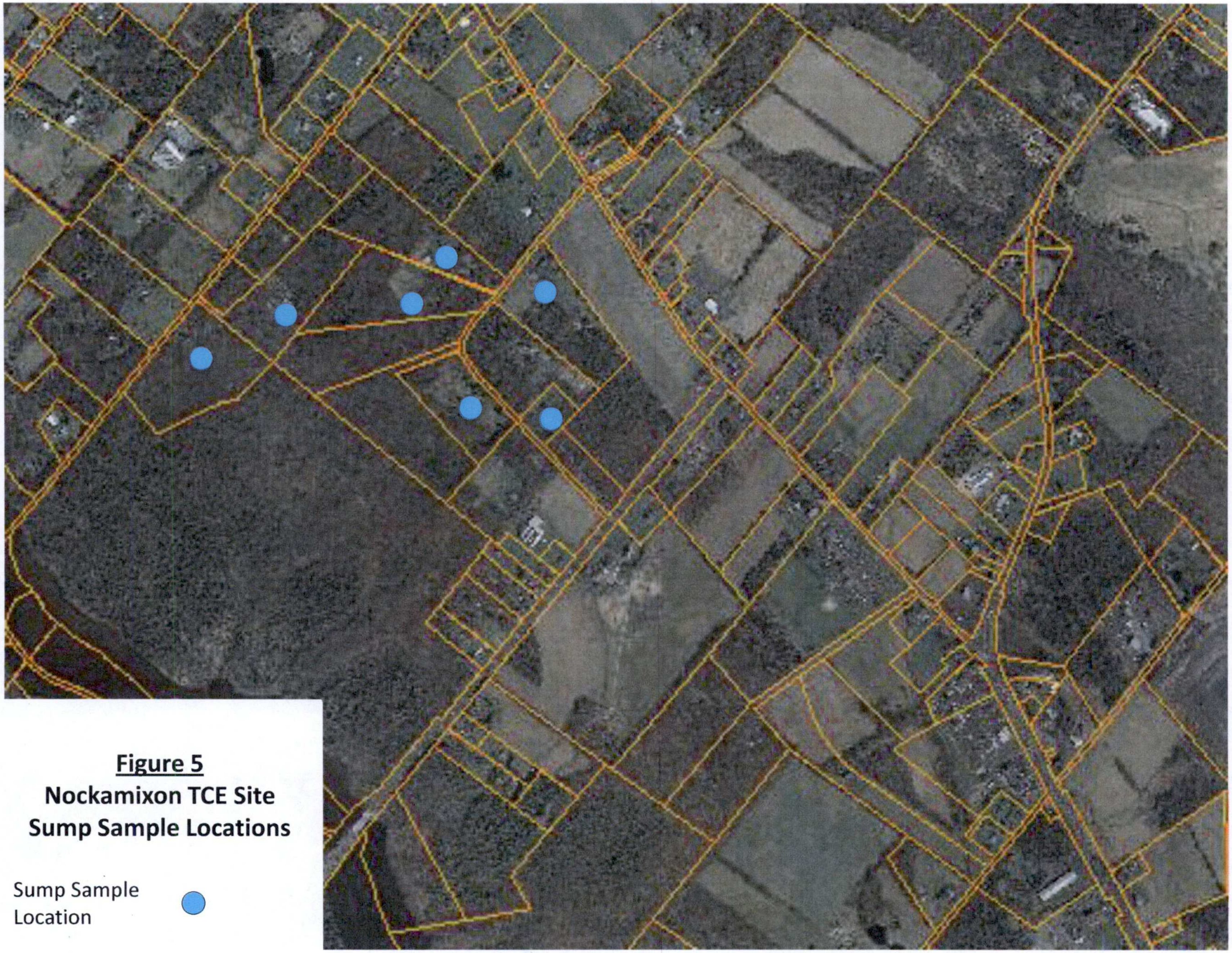

Figure 5
Nockamixon TCE Site
Sump Sample Locations

Sump Sample Location

Figure 6

Nockamixon TCE Site

IAQ Sample Results

February 2016 – February 2018

TCE/PCE Not Detected

TCE/PCE < Screening Lvl.

TCE/PCE > Screening Lvl.
but < Risk Criteria

TCE/PCE > Risk Criteria

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INDOOR AIR BUILDING SURVEY FORM

Survey Completed by: ______________________________ Date: ______________

Site Name: Nockamixon TCE Building Address: ______________________

Complete if Applicable

☐ I acknowledge that my property may be affected by vapor intrusion resulting from the above-named site and do not wish to be included in DEP's indoor air sampling activities.

Signature: ______________________

Part I - Occupants

Property Contact: ______________________ Owner / Renter / other: ______________

Contact's Phone: home ( )____________ work ( )____________ cell ( )____________

Building occupants: Children under age 13 _____ Children age 13-18 _____ Adults _____

Part II – Building Characteristics

Building type: single-family residential / multi-family residential / office / strip mall / commercial / industrial

Describe building: ______________________________

Number of floors - below grade: _____ (full basement / crawl space / slab) at or above grade: ________

Basement size: _______ ft^2 Basement floor: concrete / dirt / floating / other (specify): __________

Foundation type: poured concrete / cinder blocks / stone / other (specify) ______________

Type of ground cover around outside of building: grass / concrete / asphalt / other (specify) ______________

Basement sump present? *Yes / No* Sump pump? *Yes / No*

Type of heating system (circle all that apply):

hot air circulation hot air radiation wood steam radiation hot water radiation
kerosene heater electric baseboard heat pump other (specify): ______________

Type of ventilation system (circle all that apply):

central air conditioning mechanical fans bathroom ventilation fans
individual air conditioning units kitchen range hood fan other (specify): ______________

Type of fuel utilized (circle all that apply):

Natural gas / electric / fuel oil / wood / coal / solar / kerosene / outside (fresh) air intake

Septic system? *Yes / Yes (but not used) / No* Irrigation/private well? *Yes / Yes (but not used) / No*

Existing subsurface depressurization (radon) system in place? *Yes / No* and running? *Yes / No*

Part III - Outside Contaminant Sources

Other stationary sources nearby (gas stations, emission stacks, etc.): ______________________

Heavy vehicular traffic nearby (or other mobile sources): ______________________

NOCKAMIXON TCE
NOCKAMIXON TOWNSHIP
BUCKS COUNTY, PA

INDOOR AIR
SAMPLING AND ANALYSIS PLAN

JANUARY 2016

Prepared by
Dustin A. Armstrong
Project Officer

I. Introduction

The Department is conducting an investigation of Trichloroethene (TCE) and Tetrachloroethene (PCE) contaminated groundwater and soil in Nockamixon Township, Bucks County, PA. The Nockamixon TCE Site (site) was referred to the Department by the Bucks County Health Department (BCHD) in 2009 after BCHD had discovered TCE contamination at a local restaurant and a number of nearby homes. The site is in a rural, residential area and all residents and businesses rely on well water as a potable water supply. Based on sampling performed between 2009 and 2015 at approximately one hundred-six homes, more than forty homes have been provided point-of-entry-treatment (POET) water treatment systems.

Based on a 2015 soil investigation, a source of the contamination has been confirmed along Brennan Road. A former owner of a farm at the location reportedly disposed of septic and industrial wastes on the farm prior to 1974. A site location map is attached (Figure 1).

The primary contaminants, which have been detected in groundwater in the area and in soils on the source property, are the volatile organic compounds (VOCs) TCE and PCE. These contaminants may volatilize from soil and/or groundwater, and move into occupied buildings through a process called vapor intrusion (VI). VOCs such as TCE and PCE may accumulate in indoor air after VI has occurred, resulting in residential exposure to the contaminants through inhalation.

The Department will begin its investigation of the VI exposure pathway at the site as outlined in this document.

II. Objective

This Sampling and Analysis Plan (SAP) is intended to document the procedures to be used by Department field staff, and to ensure that this evaluation provides useful and reproducible information. Data gathered from sampling events will be used to evaluate the VI exposure pathway, and determine if additional HSCA response action is required to address public health risks associated with VI.

III. Sampling Plan

In order to assess the VI exposure pathway at the site, indoor air samples will be collected. The Department will first sample occupied homes located in close proximity to the source area. A list and location map of properties recommended for the initial sampling is attached as Table 1 and Figure 2, respectively. If necessary, the Department will expand its vapor intrusion investigation based on the results of the initial testing round. Follow up sampling at additional properties will be performed in accordance with this SAP (with a new or revised sample list and figure).

Prior to sampling the Department will send letters to owners and/or tenants listed in Table 1 requesting access to sample indoor air. An Indoor Air Sampling Instructions/Questionnaire will be enclosed for completion by each resident/homeowner. The purpose of the instructions/questionnaire is to evaluate and minimize potential background sources of VOCs, which may result from activities such as chemical storage, use of pesticides, or smoking. In addition to the questionnaire, Department field staff with evaluate the building to be sampled, and note conditions which may result in background occurrence of VOCs.

VI and indoor air concentrations of VOCs tend to be greatest during the heating season, when outdoor and indoor temperature differences are greatest and doors and windows are sealed for higher efficiency. To obtain samples in these 'worst-case' conditions, the indoor temperature should average 15° F higher than outdoor temperature.

If a basement sump is present and sufficient water is available for sampling, a sump sample should also be collected for VOC analysis. The sump may act as a direct vapor source, if shallow groundwater entering it contains VOCs.

Sampling Equipment

Indoor air samples will be collected using Summa canisters prepared and provided by a Department contract laboratory. A dedicated regulator (set for the appropriate sample duration- 24 hour collection time) will be provided for each sample.

Clean 500 ml sample jars will be used to transfer sump water to vials where sump sampling is performed.

Analytical Requirements

Indoor air samples will be analyzed by a Department contract laboratory, using EPA Method TO-15, for the following site-related contaminants: PCE, TCE, 1,1,1-Trichloroethane, 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichlorethene, 1,2-Dichloroethane, Methylene Chloride, and Vinyl Chloride.

Sump samples will be analyzed by the DEP Bureau of Laboratories (BOL) for the VOA SW analytical suite.

Sampling Procedures

For the initial sampling event samples will be collected at the lowest level of the structure (i.e., first floor for slab-on-grade or basement). Canisters will be placed in the breathing zone if possible.

Sample regulators will be set for a 24-hour sample duration. Pressure gauge readings will be recorded at the time of sampler deployment and recovery.

DEP personnel will wear nitrile sample gloves while handling sample equipment. Care must be taken to avoid introducing VOCs into the area of the sample canister during the sampling period. For example labels, field notes and chain of custody forms should be completed using ball-point pen, rather than permanent marker and fueling of the vehicle should avoided prior to sampler deployment and collection.

Sump samples will be collected into pre-preserved 40 ml sample vials using a dedicated, clean sample transfer glass jar.

Duplicate samples (see below) will be collected through a T-fitting to assure that the air is collected from a single point. The ambient/outdoor sampler will be fitted with a 'candy-cane' sample tube to prevent water from entering the regulator or canister.

Record-Keeping

Field observations should be noted in the log book, including wet or damp areas on the basement floor, conditions which may result in background levels of VOCs noted in the pre-sampling inspection, and the indoor temperature (thermostat setting). Information regarding the depth to water (below slab) in a sump (if present) should be noted.

Weather conditions including temperature, precipitation, barometric pressure, and wind speed from the closest National Weather Service station (Quakertown, PA), should be collected for the sampling date/period.

All sample information, field readings and notes from the sampling event will be recorded in the Nockamixon TCE log book, which is maintained by the project officer. Sample information will also be recorded on the laboratory chain of custody forms

provided by the Department's contract laboratory. Chain of custody forms will be copied and placed in the site file or scanned into the site file folder on the server.

Air and water samples will be shipped to the lab via courier pickup from the regional office by the contract lab courier and BOL courier services respectively.

<u>QA/QC Sampling</u>

The following QA/QC samples will be collected:

- At least one ambient/outdoor air sample for each sampling day. Depending on the proximity of the homes to be sampled and local conditions (i.e., other potential VOC sources in a specific area), additional ambient samples should be considered. (Ambient sample locations are listed on Table 1)
- One duplicate of an in-field sample for each sample delivery group
- One trip blank water sample will be sent with each day's water (sump) samples to the BOL.

IV. Data Management

Upon receipt of analytical results, the Department will prepare a summary of the results in tabular format. Data will be compared to DEP and EPA screening criteria to determine if further action and/or risk assessment is needed. All residential results will be forwarded to property owners with a comparison of results to the screening criteria. A brief summary report will be prepared after each indoor air sampling event.

MEMORANDUM

DATE: June 17, 2014

SUBJECT: Removal of the *trans*-1,2-Dichloroethylene (CASRN 156-60-5) Provisional Peer-Reviewed Toxicity Value (PPRTV) assessment from the Electronic Library

FROM: Scott Wesselkamper
Director, Superfund Health Risk Technical Support Center (STSC)
EPA/ORD/NCEA

TO: Michele Burgess (OSWER/OSRTI)
Lynn Flowers (NCEA)
Teresa Shannon (NCEA)
The File

It was brought to the attention of the STSC that there is an inconsistency in the conclusions regarding the derivation of a reference concentration (RfC) for *trans*-1,2-Dichloroethylene (DCE) between the 2006 PPRTV assessment and the 2010 IRIS assessment (http://www.epa.gov/iris/toxreviews/0418tr.pdf) for this chemical. The 2006 PPRTV assessment derived a chronic p-RfC of 0.06 mg/m^3 based on pulmonary and liver effects observed in the principal study by Freundt et al. (1977). No subchronic p-RfC was derived. The 2010 IRIS assessment found Freundt et al. (1977), a study by the National Toxicology Program (NTP, 2002), and an unpublished study by DuPont (1998) to be insufficient to support derivation of an RfC value for *trans*-1,2-DCE. Thus, there appears to be a fundamental difference in how the principal study and critical effect(s) used to derive the chronic p-RfC in the 2006 PPRTV assessment were evaluated compared to what was more recently done by IRIS. It is important to note that there are some differences in the respective decision-making processes for developing PPRTV and IRIS assessments, specifically with the IRIS Program having a more extensive review process (e.g., agency and interagency review steps, a public comment period, etc.) than that utilized for developing PPRTV assessments.

Pertinent information from the 2010 IRIS Toxicological Review on *trans*-1,2-DCE that outlines why the Freundt et al. (1977) study was discounted and no RfC value was derived is excerpted and italicized below:

"The finding of lung effects in the Freundt et al. (1977) study is difficult to interpret as this study is the only report of lung pathology in animals exposed to trans-1,2-DCE, a small number of animals were examined, several of the controls also developed this effect, and the upper respiratory tract was not examined for pathology."

"For each of the exposure durations, there was no statistically significant difference between the controls and the exposed groups with respect to the incidence of liver effects (fat accumulation). In general, however, the incidence and severity of fat accumulation increased with increasing exposure duration. Although Freundt et al. (1977) reported histopathologic changes in the liver of rats, the DuPont (1998) study did not corroborate the Freundt et al. (1977) study findings. DuPont (1998) reported relatively small increases in relative and absolute liver weight (1–8%) and no gross or microscopic changes of the liver attributable to trans-1,2-DCE at an exposure concentration 20-fold higher than that

used in the Freundt et al. (1977) study. NTP (2002a) similarly found no histopathologic changes in the liver when trans-1,2-DCE was administered for 90 days by the oral route at dietary concentrations as high as 50,000 ppm. In light of the results of DuPont (1998) and NTP (2002a), it is difficult to explain the liver findings in the single-exposure concentration study by Freundt et al. (1977). Given the limitations of the Freundt et al. (1977) study (i.e., small sample size, use of only one exposure concentration, and observation of fatty accumulation in the liver lobules and Kupffer cells in control animals at some exposure durations) and lack of corroboration from other studies, the Freundt et al. (1977) study was not used as the basis for deriving an RfC for trans-1,2-DCE."

"In summary, the available inhalation data from DuPont (1998) and Freundt et al. (1977) were considered insufficient to support reference value derivation and, therefore, an RfC for trans-1,2-DCE was not derived."

Current practice by the PPRTV Program states that once an IRIS assessment becomes available for any given chemical, the PPRTV assessment for that chemical is removed from the PPRTV electronic library. Thus, based on this practice and the rationale outlined above, it is recommended that the conclusions presented in the IRIS assessment for *trans*-1,2-DCE be presently adhered to, and the *trans*-1,2-DCE PPRTV assessment has been removed from the electronic library. Any additional questions regarding *trans*-1,2-DCE should be directed to the IRIS Hotline at (202) 566-1676 or http://www.epa.gov/iris/contact_hotline.htm.

References:

Freundt, K.J., G.P. Liebaldt and E. Lieberwirth. 1977. Toxicity studies on trans-1,2-dichloroethylene. Toxicology. 7: 141-153.

NTP (2002). NTP technical report on the toxicity studies of trans-1,2-dichloroethylene (CAS No. 156-60-5) administered in microcapsules in feed to F344/N rats and B6C3F1 mice. Public Health Service, U.S. Department of Health and Human Services; NTP TR 55. Available from the National Institute of Environmental Health Sciences, Research Triangle Park, NC and online at http://ntp.niehs.nih.gov/ntp/htdocs/ST_rpts/tox055.pdf

PRISM
Analytical Technologies
The Consultative Air Testing Company

Steve Froelicher
Senior Chemist
August 2015

VOCs From Spray Foam Insulation

Many questions are asked regarding VOCs that result from the installation of spray foam insulation (SFI). The common misconception is that methylene diisocyanate (MDI; CAS 101-68-8) is a VOC that lingers in the home after SFI installation. This is not the case. MDI is involatile at room temperature and is consumed in the polymerization reaction. Instead, the VOCs that are most prevalent in indoor air are the blowing agents that help to cause the SFI to expand or "foam" during polymerization.

A compendium of blowing agents currently acceptable for use with SFI and other foam polymers is listed at the EPA website http://www.epa.gov/spdpublc/snap/foams/index.html. Many of the blowing agents listed are hydrochlorofluorocarbons (HCFCs), which are routinely observed in indoor air samples. Recently, HFC-245fa, which is 1,1,1,3,3-pentafluoropropane (CAS 460-73-1), has been observed in air samples with more frequency. Vendors have added trans-1,2-dichloroethene (CAS 156-60-5) to the pentafluoropropane to enhance the HCFC solubility and to enhance the flame retardancy of the blowing agent mix. However, high levels of trans-1,2-dichloroethene have been observed in indoor air samples months after SFI application, leading to concerns regarding indoor air quality. In addition to HCFC blowing agents, hydrocarbons such as pentane (CAS 109-66-0), isopentane (CAS 78-78-4), and cyclopentane (CAS 287-92-3) are being increasingly used as blowing agents for SFI because they have lower environmental greenhouse impact. In general, blowing agents linger in indoor air well beyond the time of spray foam insulation installation.

Tetra Tech Sampling Approach
May 2017 65 Brennan Rd

Armstrong, Dustin

From: Armstrong, Dustin
Sent: Tuesday, April 04, 2017 11:33 AM
To: Staron, Richard; Patel, Ragesh; Mcclennen, Bonnie
Subject: RE: Uhl Property

Agreed

The basement temperature is relatively constant and lower than the living space. Our sampling last year was done on 3/31 – 4/1 when temps were mild (60's according to my field book), and we still had exceedances of the criteria. If sampling outside the heating season this year has similar results, and we confirm it's not due to indoor chemical storage, we should consider taking a response action or at least recommending installation of a fan on the radon system.

Rich – Do you think we need this many samples in the basement?
- Also wondering if they should do some kind of leak check and/or tracer test on the sample from the radon system?

--DA

Dustin A. Armstrong | Environmental Protection Specialist
Department of Environmental Protection | Southeast Regional Office
2 East Main Street | Norristown, PA 19401
Phone: 484.250.5723 | Fax: 484.250.5961
www.dep.pa.gov

From: Staron, Richard
Sent: Tuesday, April 04, 2017 10:21 AM
To: Patel, Ragesh <rapatel@pa.gov>; Mcclennen, Bonnie <bmcclennen@pa.gov>; Armstrong, Dustin <darmstrong@pa.gov>
Subject: RE: Uhl Property

Our new guidance recommends "multiple" samples over "multiple" sampling events. Multiple means 2 or more (obviously). So we will likely be going out again in the winter anyway. It is still good to know what is going on in the non-heating season as well. The heating season is obviously the best time to get it because the house is buttoned up, and the dry hot air acts as a sink for the sub-slab gasses. But the soil gas should be evaluated to see current exposures.

Richard M. Staron, P.G. | Licensed Professional Geologist
Department of Environmental Protection | Southeast Regional Office
2 E. Main Street | Norristown, PA 19401
Phone: 484.250.5780 | Fax: 484.250.5961
www.depweb.state.pa.us

From: Patel, Ragesh
Sent: Tuesday, April 04, 2017 9:51 AM
To: Armstrong, Dustin <darmstrong@pa.gov>
Cc: Staron, Richard <rstaron@pa.gov>; Mcclennen, Bonnie <bmcclennen@pa.gov>
Subject: RE: Uhl Property

Deploy Indoor Air Sampling (24-hour sampling test)

How effective will be the test given the temperature outside?

Ragesh R Patel | Environmental Group Manager
Department of Environmental Protection | Southeast Regional Office
2 E. Main Street | Norristown, PA 19401
Phone: 484.250.5719 | Fax: 484.250.5961
www.dep.pa.gov

From: Dziekan, Jonathan [mailto:Jonathan.Dziekan@tetratech.com]
Sent: Tuesday, April 04, 2017 9:41 AM
To: Armstrong, Dustin <darmstrong@pa.gov>
Cc: Staron, Richard <rstaron@pa.gov>; Valli, Alex <Alex.Valli@tetratech.com>; Mcclennen, Bonnie <bmcclennen@pa.gov>; Patel, Ragesh <rapatel@pa.gov>
Subject: RE: Uhl Property

Dustin;

Our approach for the next step of indoor air assessment at 65 Brennan Road is the following:

Based on the fact that we understand the home has a vapor and/or moisture barrier under the concrete foundation we don't recommend drilling through it at this time. It could be done if determined necessary at a later date but Tetra Tech (Tt) suggests the following less intrusive approach at this time. Dependent on analytical results from the below sampling, Tt could see soil gas sampling conducted adjacent to the property as a next step. Our recommendations are as follows:

Step 1 - Chemical Inventory and Sampling Prep

- Approx. 4 hours Labor for Alex Valli to visit property, inventory chemicals and other materials at the residence, determine if anything needs to be moved before sampling, etc.
- Complete Vapor Intrusion questionnaire
- Prep / retrofit existing passive radon system for sampling
  - Cut 3" long section of PVC tube out of the radon system and remove
  - Cap both ends with a rubber Fernco
  - Install tubing to allow for future air sampling
- Materials needed (approximately $250):
  - Approximately 20' of Teflon lined tubing
  - Ferrells (compression fittings)
  - Ball valve

- Modeling putty
- 3" x 4" fernco coupling
- 3" fernco cap
- Misc. supplies

Step 2 – Deploy Indoor Air Sampling (24-hour sampling test)

- Approximately one week after Step 1
- 4 hours labor each for 2 Tt staff to setup canisters, install 24-hour regulators, document locations, lab paperwork, etc.
- Evacuate air from radon tube using small air pump. Vent that air out of basement door using Teflon tubing.
- Recommend placing a total of 10 SUMA canisters at following locations
  - 1 – tubing placed in air above sump in gun room
  - 1 – another location in gun room
  - 1 – in line with radon pipe
  - 1 – near radon pipe but not-inline
  - 3 – 2 other areas of basement and a 1 duplicate (locations will be away from walls and based on field conditions)
  - 1 – main floor – location to be determined
  - 1 – upstairs – location to be determined
  - 1 – outside front door (ambient)
- Run 24-hour test, check regulators to make sure canisters functioning properly

Step 3 – Retrieve Summa Canisters

- 4 hours labor for 2 Tt staff to retrieve canisters the following day. Chain of custody, DARs, work with DEP to get samples to appropriate Laboratory.

Step 4 – Review Analytical and Determine Follow-up Actions

- 4 hours labor to tabulate results, review and determine what actions are needed next.

Please review and provide any comments, suggestions, etc.

Regards,
Jon

Jonathan Dziekan | Civil Engineer – Senior Project Manager
Direct: 215.702.4023 | Cell: 267.688.9964 | Fax: 215.702.4045

Tetra Tech, Inc. CES Group
One Oxford Valley, Suite 200 | Langhorne, PA 19047 | www.tetratech.com

From: Armstrong, Dustin [mailto:darmstrong@pa.gov]
Sent: Monday, April 03, 2017 3:33 PM
To: Dziekan, Jonathan <Jonathan.Dziekan@tetratech.com>

Cc: Staron, Richard <rstaron@pa.gov>; Valli, Alex <Alex.Valli@tetratech.com>; Mcclennen, Bonnie <bmcclennen@pa.gov>; Patel, Ragesh <rapatel@pa.gov>
Subject: RE: Uhl Property

Email is fine at this point.

Dustin A. Armstrong | Environmental Protection Specialist
Department of Environmental Protection | Southeast Regional Office
2 East Main Street | Norristown, PA 19401
Phone: 484.250.5723 | Fax: 484.250.5961
www.dep.pa.gov

From: Dziekan, Jonathan [mailto:Jonathan.Dziekan@tetratech.com]
Sent: Monday, April 03, 2017 3:05 PM
To: Armstrong, Dustin <darmstrong@pa.gov>
Cc: Staron, Richard <rstaron@pa.gov>; Valli, Alex <Alex.Valli@tetratech.com>
Subject: Uhl Property

Dustin;

Alex and I have come up with our recommended next step(s) for the Uhl Property. Essentially what we discussed at the property – traditional indoor air with extra samples tied into radon and sump. Can I put something together via email outlining what we recommend and approximate costs to get your approval? That would be my preference. If you wanted a more detailed work plan we could do that but I'm not sure this warrants that.

Thanks,
Jon

Jonathan Dziekan | Civil Engineer – Project Manager
Direct: 215.702.4023 | Cell: 267.688.9964 | Fax: 215.702.4045

Tetra Tech, Inc. CES Group
One Oxford Valley Suite 200 | Langhorne, PA 19047 | www.tetratech.com

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Analysis Report

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ANALYTICAL RESULTS

Prepared by:	Prepared for:
Eurofins Lancaster Laboratories Environmental 2425 New Holland Pike Lancaster, PA 17601	PA Dept. of Env. Protection Env Cleanup & Brownfields PO Box 8471 Harrisburg PA 17105-8471

Report Date: April 22, 2016

Project: 1-290 Nockamixon

Submittal Date: 04/07/2016
Group Number: 1648311
SDG: PDY22
PO Number: 4000016590
Release Number: 1-290
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
65 Brennan - Basement Air	8322830
65 Brennan - First Floor Air	8322831
65 Brennan - Ambient Air	8322832
77 Brennan - First Floor Air	8322833
84 Brennan - Basement Air	8322834
84 Brennan - Basement Dup Air	8322835
84 Brennan - First Floor Air	8322836
77 Brennan - Basement Air	8322837
Trip Blank Air	8322838

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	PA Dept. of Env. Protection	Attn: Ellen Davies
Electronic Copy To	PA Dept. of Env. Protection	Attn: Ann Asbury
Electronic Copy To	PA Dept. of Env. Protection	Attn: Dustin Armstrong

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Sample Description: 65 Brennan - Basement Air
SummaCan# 1295
1-290 Nockamixon

LL Sample # AQ 8322830
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 03/31/2016 10:40 by DA
through 04/01/2016 10:42
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD221 SDG#: PDY22-01

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb (v)	ppb (v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	4.5	0.79	1.1	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	9.5	0.79	2.4	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	120	1.4	18	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	7.0	1.1	1.3	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	31	1.1	5.8	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611030AA	04/20/2016 04:24	Jacob E Bailey	1

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Analysis Report

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Sample Description: 65 Brennan - First Floor Air
SummaCan# 1339
1-290 Nockamixon

LL Sample # AQ 8322831
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 03/31/2016 10:37 by DA
through 04/01/2016 10:41
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD222 SDG#: PDY22-02

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	2.3 J	0.79	0.57 J	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	5.0	0.79	1.3	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	59	1.4	8.7	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	3.8 J	1.1	0.70 J	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	16	1.1	2.9	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611030AA	04/20/2016 04:56	Jacob E Bailey	1

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Analysis Report

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Sample Description: 65 Brennan - Ambient Air
SummaCan# 1341
1-290 Nockamixon

LL Sample # AQ 8322832
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 03/31/2016 10:53 by DA
through 04/01/2016 10:40
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD223 SDG#: PDY22-03AB

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611030AA	04/20/2016 05:30	Jacob E Bailey	1

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Analysis Report

Sample Description: 77 Brennan - First Floor Air
SummaCan# 888
1-290 Nockamixon

LL Sample # AQ 8322833
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 04/05/2016 10:20 by DA
through 04/06/2016 09:55
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD224 SDG#: PDY22-04

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	EPA TO-15		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	1.2 J	1.1	0.22 J	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611130AA	04/20/2016 20:04	Jacob E Bailey	1

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Analysis Report

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Sample Description: 84 Brennan - Basement Air
SummaCan# 540
1-290 Nockamixon

LL Sample # AQ 8322834
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 04/05/2016 10:00 by DA
through 04/06/2016 09:42
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD225 SDG#: PDY22-05

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	EPA TO-15		ug/m3		ug/m3	ppb (v)		ppb (v)	
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.		0.79	N.D.		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	2.0	J	1.4	0.29	J	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	1.9	J	1.1	0.35	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611130AA	04/20/2016 21:07	Jacob E Bailey	1

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Analysis Report

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Sample Description: 84 Brennan - Basement Dup Air
SummaCan# 876
1-290 Nockamixon

LL Sample # AQ 8322835
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 04/05/2016 10:00 by DA
through 04/06/2016 09:42
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD226 SDG#: PDY22-06FD

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.		0.79	N.D.		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	0.91	J	0.79	0.23	J	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	2.3	J	1.4	0.33	J	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.		1.1	N.D.		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	2.6	J	1.1	0.48	J	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611130AA	04/20/2016 21:40	Jacob E Bailey	1

Sample Description: 84 Brennan - First Floor Air
SummaCan# 1342
1-290 Nockamixon

LL Sample # AQ 8322836
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 04/05/2016 09:55 by DA
through 04/06/2016 09:40
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD227 SDG#: PDY22-07

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	1.3 J	0.81	0.33 J	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	1.3 J	1.1	0.23 J	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611130AA	04/20/2016 22:11	Jacob E Bailey	1

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Analysis Report

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Sample Description: 77 Brennan - Basement Air
SummaCan# 1151
1-290 Nockamixon

LL Sample # AQ 8322837
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 04/05/2016 10:15 by DA
through 04/06/2016 09:57
Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD228 SDG#: PDY22-08

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611130AA	04/20/2016 22:47	Jacob E Bailey	1

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: Trip Blank Air
SummaCan# 1201
1-290 Nockamixon

LL Sample # AQ 8322838
LL Group # 1648311
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 03/31/2016

Submitted: 04/07/2016 15:15
Reported: 04/22/2016 17:06

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

PD229 SDG#: PDY22-09TB

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1611130AA	04/20/2016 23:15	Jacob E Bailey	1

Quality Control Summary

Client Name: PA Dept. of Env. Protection   Group Number: 1648311
Reported: 04/22/2016 17:06

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/m3	MDL ug/m3
Batch number: E1611030AA	Sample number(s): 8322830-8322832	
1,1-Dichloroethane	N.D.	0.81
1,2-Dichloroethane	N.D.	0.81
1,1-Dichloroethene	N.D.	0.79
cis-1,2-Dichloroethene	N.D.	0.79
trans-1,2-Dichloroethene	N.D.	0.79
Tetrachloroethene	N.D.	1.4
1,1,1-Trichloroethane	N.D.	1.1
1,1,2-Trichloroethane	N.D.	1.1
Trichloroethene	N.D.	1.1
Vinyl Chloride	N.D.	0.51
Batch number: E1611130AA	Sample number(s): 8322833-8322838	
1,1-Dichloroethane	N.D.	0.81
1,2-Dichloroethane	N.D.	0.81
1,1-Dichloroethene	N.D.	0.79
cis-1,2-Dichloroethene	N.D.	0.79
trans-1,2-Dichloroethene	N.D.	0.79
Tetrachloroethene	N.D.	1.4
1,1,1-Trichloroethane	N.D.	1.1
1,1,2-Trichloroethane	N.D.	1.1
Trichloroethene	N.D.	1.1
Vinyl Chloride	N.D.	0.51

LCS/LCSD

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: E1611030AA	Sample number(s): 8322830-8322832								
1,1-Dichloroethane	40.47	40.9	40.47	41.04	101	101	67-124	0	25
1,2-Dichloroethane	40.47	40.74	40.47	40.57	101	100	70-130	0	25
1,1-Dichloroethene	39.65	38.04	39.65	39.2	96	99	61-128	3	25
cis-1,2-Dichloroethene	39.65	40.96	39.65	41.92	103	106	65-121	2	25
trans-1,2-Dichloroethene	39.65	41.3	39.65	41.62	104	105	66-121	1	25
Tetrachloroethene	67.82	66.52	67.82	66.45	98	98	70-130	0	25
1,1,1-Trichloroethane	54.56	53.05	54.56	53.12	97	97	70-130	0	25
1,1,2-Trichloroethane	54.56	54.8	54.56	55.01	100	101	59-131	0	25
Trichloroethene	53.74	51.92	53.74	51.94	97	97	70-130	0	25
Vinyl Chloride	25.56	26.06	25.56	25.9	102	101	70-130	1	25

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

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Analysis Report

Quality Control Summary

Client Name: PA Dept. of Env. Protection   Group Number: 1648311
Reported: 04/22/2016 17:06

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: E1611130AA	Sample number(s): 8322833-8322838								
1,1-Dichloroethane	40.47	42.15	40.47	42.72	104	106	67-124	1	25
1,2-Dichloroethane	40.47	42.59	40.47	44.17	105	109	70-130	4	25
1,1-Dichloroethene	39.65	38.94	39.65	40	98	101	61-128	3	25
cis-1,2-Dichloroethene	39.65	42.32	39.65	42.94	107	108	65-121	1	25
trans-1,2-Dichloroethene	39.65	42.14	39.65	42.58	106	107	66-121	1	25
Tetrachloroethene	67.82	67.12	67.82	66.15	99	98	70-130	1	25
1,1,1-Trichloroethane	54.56	53.27	54.56	54.09	98	99	70-130	2	25
1,1,2-Trichloroethane	54.56	57.43	54.56	56.55	105	104	59-131	2	25
Trichloroethene	53.74	53.07	53.74	54.63	99	102	70-130	3	25
Vinyl Chloride	25.56	26.5	25.56	27.32	104	107	70-130	3	25

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Summa Canister Field Test Data/Chain of Custody

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Acct. # 6195 Group # 1648311 Sample # 8322830-8 Bottle Order (SCR) # ____

Client Information

Client: PA DEP - SERO	Account #
Project Name/#: Mockamixon I-290	
Project Manager: D. Armstrong	P.O. #
Sampler: D. Armstrong / E. Davies	Quote #
Name of state where samples were collected: PA	

Turnaround Time Requested (TAT) (circle one)

Standard Rush (specify) ____

Data Package Required?		EDD Required?	
Yes	No	Yes	No

	Temperature (F) Start	Temperature (F) Stop	Pressure ("Hg) Start	Pressure ("Hg) Stop
Ambient				
Maximum				
Minimum				

Analyses Requested

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO-15	EPA 18 ☐ BTEX ☐ MTBE	EPA 25 (select range below)	Helium as tracer	O2/CO2	Library Search	
65 Brennan-Basement	3/31/16 - 1042	4/1/16 1042	-29	-10.5	65	65	399368	1295	6	3.5	X						
65 Brennan-First Floor	3/31/16 1037	4/1/16 1041	-30	-9.5	70	70	342357	1339	6	3.5	X						
65 Brennan-Ambient	3/31/16 1053	4/1/16 1040	-30	-12	67	67	710626	1341	6	3.5	X						
77 Brennan-First Floor	4/5/16 1020	4/6/16 0955	-29	-9	68	68	337701	888	6	3.5	X						
84 Brennan-Basement	4/5/16 1000	4/6/16 0942	-29	-11	60	60	303934	540	6	3.5	X						
84 Brennan-Basement Dup	4/5/16 1000	4/6/16 0942	-20	0	60	60	710537	876	6	3.5	X						
84 Brennan-First Floor	4/5/16 0955	4/6/16 0940	-29.5	-11	67	67	399388	1342	6	3.5	X						
77 Brennan-Basement	4/5/16 1015	4/6/16 0957	-30	-18	62	62	415324	1151	6	3.5	X						
—	—	—	—	—	—	—	710584	1196	6	3.5	—						
Trip Blank								1201	6		X						

Instructions/QC Requirements & Comments

Can 876 - Lost pressure @ start - Tightened regulator - registered 0 at end.

Can ID 1196 - not used - do not analyze

EPA 25 (check one)

☐ C1 - C4 ☐ C2 - C10
☐ C1 - C10 ☐ C4 - C10 (GRO)
☐ C2 - C4

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature] 15:24	3/29/16	[signature] PM	3/30/16	[signature]	4-7-16	[signature]	
Relinquished by: [signature]	**Date/Time:** 4/1/16 1310	**Received by:** [signature] PM	**Date/Time:** 4/1/16 13:10	**Relinquished by:**	**Date/Time:**	**Received by:** [signature]	**Date/Time:**
Relinquished by: [signature]	**Date/Time:** 4/7/16 10:45	**Received by:** [signature]	**Date/Time:** 4/7/16 1045	**Relinquished by:** [signature]	**Date/Time:**	**Received by:** [signature]	**Date/Time:** 4/7/16 1515

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Sample Administration
Receipt Documentation Log

Doc Log ID: 142081

Group Number(s): 1648311

Client: PADEP

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	04/07/2016 15:15
Number of Packages:	4	Number of Projects:	1
State/Province of Origin:	PA		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	N/A	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	1
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	Yes
Extra Samples:	No	Air Quality Flow Controllers Present:	Yes
Discrepancy in Container Qty on COC:	No	Flow Controller Quantity:	9
		Air Quality Returns:	Yes
		Summa Canisters:	1196

Trip Blank Type(s): 6L Summa Canister

Unpacked by Patrick Engle (3472) at 17:24 on 04/07/2016

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight' concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

Report Date: March 16, 2016

Project: 1-290 Nockamixon

Submittal Date: 03/03/2016
Group Number: 1636971
SDG: PDY10
PO Number: 4000016590
Release Number: 1-290
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
2511 Mountain View Air	8269261
Trip Blank Air	8269262

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ .

Electronic Copy To	PA Dept. of Env. Protection	Attn: Ellen Davies
Electronic Copy To	PA Dept. of Env. Protection	Attn: Ann Asbury
Electronic Copy To	PA Dept. of Env. Protection	Attn: Dustin Armstrong

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

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Analysis Report

Sample Description: 2511 Mountain View Air
SummaCan# 1184
1-290 Nockamixon

LL Sample # AQ 8269261
LL Group # 1636971
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 02/29/2016 18:37 by SR
through 03/01/2016 18:31
Submitted: 03/03/2016 16:00
Reported: 03/16/2016 12:43

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

P102M SDG#: PDY10-01

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	9.9	0.79	2.5	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1606930BA	03/10/2016 09:03	Jacob E Bailey	1

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: Trip Blank Air
SummaCan# 1295
1-290 Nockamixon

LL Sample # AQ 8269262
LL Group # 1636971
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 02/29/2016
through 03/01/2016
Submitted: 03/03/2016 16:00
Reported: 03/16/2016 12:43

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

P10TB SDG#: PDY10-02TB

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/17.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	12.22 TO-15 VOA Extended List	EPA TO-15	1	E1606930BA	03/10/2016 10:03	Jacob E Bailey	1

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Quality Control Summary

Client Name: PA Dept. of Env. Protection Group Number: 1636971
Reported: 03/16/2016 12:43

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/m3	MDL ug/m3
Batch number: E1606930BA	Sample number(s): 8269261-8269262	
1,1-Dichloroethane	N.D.	0.81
1,2-Dichloroethane	N.D.	0.81
1,1-Dichloroethene	N.D.	0.79
cis-1,2-Dichloroethene	N.D.	0.79
trans-1,2-Dichloroethene	N.D.	0.79
Tetrachloroethene	N.D.	1.4
1,1,1-Trichloroethane	N.D.	1.1
1,1,2-Trichloroethane	N.D.	1.1
Trichloroethene	N.D.	1.1
Vinyl Chloride	N.D.	0.51

LCS/LCSD

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: E1606930BA	Sample number(s): 8269261-8269262								
1,1-Dichloroethane	40.88	46.13	40.88	45.53	113	111	67-124	1	25
1,2-Dichloroethane	42.09	51.71	42.09	51.15	123	122	70-130	1	25
1,1-Dichloroethene	39.65	45.34	39.65	44.7	114	113	61-128	1	25
cis-1,2-Dichloroethene	41.63	47.07	41.63	46.25	113	111	65-121	2	25
trans-1,2-Dichloroethene	39.65	45.34	39.65	44.21	114	111	66-121	3	25
Tetrachloroethene	72.57	64.75	72.57	63.91	89	88	70-130	1	25
1,1,1-Trichloroethane	56.2	55.35	56.2	55.13	98	98	70-130	0	25
1,1,2-Trichloroethane	57.83	60.61	57.83	58.97	105	102	59-131	3	25
Trichloroethene	55.35	51.9	55.35	52.78	94	95	70-130	2	25
Vinyl Chloride	25.82	29.16	25.82	28.49	113	110	70-130	2	25

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Summa Canister Field Test Data/Chain of Custody

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Acct. # 6195 Group # 1636971 Sample # 8269261-2 Bottle Order (SCR) #

Client Information

Client: PADEP
Account #: 06195
Project Name/#: Nockamixon 1-290
Project Manager: Dustin Armstrong
P.O. #:
Sampler: Stephen Ryan
Quote #:
Name of state where samples were collected: PA

Turnaround Time Requested (TAT) (circle one)

Standard (circled) Rush (specify) ______

Data Package Required?		EDD Required?	
Yes	No	Yes	No

	Temperature (F) Start	Temperature (F) Stop	Pressure ("Hg) Start	Pressure ("Hg) Stop
Ambient				
Maximum				
Minimum				

Analyses Requested

EPA TO-15 Site Specific List; EPA 18 ☐ MTBE ☐ BTEX; EPA 25 (select range below); Helium as tracer; O2/CO2; Library Search

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO-15	EPA 18	EPA 25	Helium as tracer	O2/CO2	Library Search
Not Used	N/A	N/A					415335	1191	6	3.58						
2511 Mountain View	2/29/16 1037	3/1/16 1831	-30	-10.5	69	69	415324	1184	6	3.49	X					
Trip Blank							—	1295	6	—	X					

Instructions/QC Requirements & Comments

EPA 25 (check one) ☐ C1 - C4 ☐ C2 - C10 ☐ C1 - C10 ☐ C4 - C10 (GRO) ☐ C2 - C4

	Date/Time:		Date/Time:		Date/Time:		Date/Time:
Canisters Shipped by: [signature]	3/3/16 1020	Canisters Received by: [signature]	3-3-16 1020	Relinquished by:		Received by:	
Relinquished by: Stephen Ryan	3/2/16 1505	Received by: [signature]	3/2/16 1505	Relinquished by:		Received by:	
Relinquished by: [signature]	3-3-16 1800	Received by:		Relinquished by:		Received by: [signature]	3/3/16 1600

Summa Canister Field Test Data/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only
Acct. # 6195 Group # 1636971 Sample # 8269261-2 Bottle Order (SCR) #

Client Information	
Client: PADEP	Account #: 06195
Project Name/#: Nockamixon I-290	
Project Manager: Dustin Armstrong	P.O. #:
Sampler: —	Quote #:
Name of state where samples were collected:	

Turnaround Time Requested (TAT) (circle one): Standard Rush (specify) ______

Data Package Required? Yes No

EDD Required? Yes No

	Temperature (F) Start	Temperature (F) Stop	Pressure ("Hg) Start	Pressure ("Hg) Stop
Ambient				
Maximum				
Minimum				

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO-15	EPA 18 ☐ BTEX ☐ MTBE	EPA 25 (select range below)	Helium as tracer	O2/CO2	Library Search	
Not Used							338049	1263	6	3.66							
							339240	1282	6	3.50							
							236795	824	6	3.54							
							217753	1221	6	3.49							
							329354	882	6	3.50							

Instructions/QC Requirements & Comments

Do not analyze - Not used in sampling event

EPA 25 (check one)
☐ C1 - C4 ☐ C2 - C10
☐ C1 - C10 ☐ C4 - C10 (GRO)
☐ C2 - C4

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature]	3/3/16 1020	[signature]	3-3-16 1020				
Relinquished by: [signature]	**Date/Time:** 3-3-16 1600	**Received by:**	**Date/Time:**	**Relinquished by:**	**Date/Time:**	**Received by:**	**Date/Time:**
Relinquished by:	**Date/Time:**	**Received by:**	**Date/Time:**	**Relinquished by:**	**Date/Time:**	**Received by:** [signature]	**Date/Time:** 3/3/16 1600

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Sample Administration Receipt Documentation Log

Doc Log ID: 138229

Group Number(s): 1630971

Client: PADEP

Delivery and Receipt Information

Delivery Method:	ELLE Courier	Arrival Timestamp:	03/03/2016 16:00
Number of Packages:	3	Number of Projects:	1
State/Province of Origin:	PA		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	N/A	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	1
Samples Intact:	Yes	Trip Blank Type:	See Below
Missing Samples:	No	Air Quality Samples Present:	Yes
Extra Samples:	No	Air Quality Flow Controllers Present:	Yes
Discrepancy in Container Qty on COC:	No	Flow Controller Quantity:	7
		Air Quality Returns:	Yes
		Summa Canisters:	See Below

Trip Blank Type(s): 6L Summa Canister

Summa Canister Returns: 1191,1263,1282,824,1221,882

Unpacked by Patrick Engle (3472) at 16:17 on 03/03/2016

General Comments: Received a bag of Swage Lock Tubing Pieces with Samples.

2425 New Holland Pike
Lancaster, PA 17605-2425

T : 717-656-2300
F : 717-656-2681
www.LancasterLabs.com

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

B - Analyte detected in the blank
C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

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ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

Report Date: June 02, 2017

Project: 1-290 Nockamixon

Submittal Date: 05/03/2017
Group Number: 1796593
SDG: PDZ55
PO Number: 4000020806
Release Number: 1-290
State of Sample Origin: PA

Client Sample Description	Lancaster Labs (LL) #
BS-06 Air	8972327
BS-03 Air	8972328
DUP-01 Air	8972329
BS-02 Air	8972330
BS-04 Air	8972331
SF-01 Air	8972332
BS-01 Air	8972333
BS-05 Air	8972334
FF-01 Air	8972335
AA-01 Air	8972336
TB Air	8972337

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	PA Dept. of Env. Protection	Attn: SERO Resource Account
Electronic Copy To	PA Dept. of Env. Protection	Attn: Ann Asbury
Electronic Copy To	PA Dept. of Env. Protection	Attn: Dustin Armstrong

Respectfully Submitted,

Katherine A. Klinefelter

Katherine A. Klinefelter
Principal Specialist

(717) 556-7256

Case Narrative

Project Name: 1-290 Nockamixon
LL Group #: 1796593

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

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Analysis Report

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Sample Description: BS-06 Air
SummaCan# 520
1-290 Nockamixon

LL Sample # AQ 8972327
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 11:12 by AV
through 05/02/2017 11:27
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

BS-06 SDG#: PDZ55-01

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	1,1-Dichloroethane	75-34-3	1.0	J	0.81	0.25	J	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	11		0.79	2.8		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	22		0.79	5.6		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	68		1.4	10		0.20	1
05298	1,1,1-Trichloroethane	71-55-6	9.2		1.1	1.7		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	72		1.1	13		0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 16:57	Jacob E Bailey	1

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Analysis Report

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Sample Description: BS-03 Air
SummaCan# 527
1-290 Nockamixon

LL Sample # AQ 8972328
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:47 by AV
through 05/02/2017 11:28
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

BS-03 SDG#: PDZ55-02

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	EPA TO-15		ug/m3	ug/m3	ppb (v)	ppb (v)	
05298	1,1-Dichloroethane	75-34-3	0.99 J	0.81	0.25 J	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	11	0.79	2.8	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	23	0.79	5.8	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	66	1.4	9.7	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	9.1	1.1	1.7	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	70	1.1	13	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 18:12	Jacob E Bailey	1

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Analysis Report

Sample Description: DUP-01 Air
SummaCan# 825
1-290 Nockamixon

LL Sample # AQ 8972329
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:46 by AV
through 05/02/2017 10:24
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

NOCFD SDG#: PDZ55-03FD

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	EPA TO-15		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	1,1-Dichloroethane	75-34-3	0.84	J	0.81	0.21	J	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	11		0.79	2.8		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	22		0.79	5.6		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	66		1.4	9.8		0.20	1
05298	1,1,1-Trichloroethane	71-55-6	8.8		1.1	1.6		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	73		1.1	14		0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 18:56	Jacob E Bailey	1

Sample Description: BS-02 Air
SummaCan# 897
1-290 Nockamixon

LL Sample # AQ 8972330
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:48 by AV
through 05/02/2017 10:27
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

BS-02 SDG#: PDZ55-04

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
	Volatiles in Air EPA TO-15		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	7.1	0.81	1.8	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	7.6	0.79	1.9	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	100	0.79	26	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	39	1.4	5.8	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	18	1.1	3.2	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	120	1.1	22	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 19:41	Jacob E Bailey	1

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Analysis Report

Sample Description: BS-04 Air
SummaCan# 856
1-290 Nockamixon

LL Sample # AQ 8972331
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:47 by AV
through 05/02/2017 08:24
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

BS-04 SDG#: PDZ55-05

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	1,1-Dichloroethane	75-34-3	0.88	J	0.81	0.22	J	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	9.6		0.79	2.4		0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	21		0.79	5.2		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	62		1.4	9.2		0.20	1
05298	1,1,1-Trichloroethane	71-55-6	8.3		1.1	1.5		0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	63		1.1	12		0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 20:32	Jacob E Bailey	1

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Lancaster Laboratories Environmental

Analysis Report

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Sample Description: SF-01 Air
SummaCan# 1182
1-290 Nockamixon

LL Sample # AQ 8972332
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:40 by AV
through 05/02/2017 10:23
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

SF-01 SDG#: PDZ55-06

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	3.2 J	0.79	0.81 J	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	7.7	0.79	1.9	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	49	1.4	7.2	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	4.9 J	1.1	0.90 J	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	22	1.1	4.0	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 21:59	Jacob E Bailey	1

Lancaster Laboratories Environmental

Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: BS-01 Air
SummaCan# 1345
1-290 Nockamixon

LL Sample # AQ 8972333
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:43 by AV
through 05/02/2017 10:24
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

BS-01 SDG#: PDZ55-07

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	0.91 J	0.81	0.23 J	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	12	0.79	2.9	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	22	0.79	5.6	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	66	1.4	9.8	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	9.2	1.1	1.7	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	74	1.1	14	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 22:43	Jacob E Bailey	1

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Analysis Report

2425 New Holland Pike, Lancaster, PA 17601 • 717-656-2300 • Fax: 717-656-2681 • www.LancasterLabs.com

Sample Description: BS-05 Air
SummaCan# 1410
1-290 Nockamixon

LL Sample # AQ 8972334
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 11:12 by AV
through 05/02/2017 11:28
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

BS-05 SDG#: PDZ55-08

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	1.1 J	0.81	0.28 J	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	11	0.79	2.8	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	30	0.79	7.6	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	59	1.4	8.8	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	9.8	1.1	1.8	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	76	1.1	14	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/04/2017 23:27	Jacob E Bailey	1

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Analysis Report

Sample Description: FF-01 Air
SummaCan# 1496
1-290 Nockamixon

LL Sample # AQ 8972335
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:42 by AV
through 05/02/2017 10:23
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

FF-01 SDG#: PDZ55-09

CAT No.	Analysis Name	CAS Number	Final Result		MDL	Final Result		MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3		ug/m3	ppb(v)		ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.		0.81	N.D.		0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.		0.81	N.D.		0.20	1
05298	1,1-Dichloroethene	75-35-4	3.1	J	0.79	0.79	J	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	7.8		0.79	2.0		0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.		0.79	N.D.		0.20	1
05298	Tetrachloroethene	127-18-4	49		1.4	7.2		0.20	1
05298	1,1,1-Trichloroethane	71-55-6	5.0	J	1.1	0.91	J	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.		1.1	N.D.		0.20	1
05298	Trichloroethene	79-01-6	21		1.1	4.0		0.20	1
05298	Vinyl Chloride	75-01-4	N.D.		0.51	N.D.		0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/05/2017 00:11	Jacob E Bailey	1

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Analysis Report

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Sample Description: AA-01 Air
SummaCan# 333
1-290 Nockamixon

LL Sample # AQ 8972336
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 10:39 by AV
through 05/02/2017 10:20
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

AA-01 SDG#: PDZ55-10AB

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/05/2017 00:55	Jacob E Bailey	1

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Analysis Report

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Sample Description: TB Air
SummaCan# 1427
1-290 Nockamixon

LL Sample # AQ 8972337
LL Group # 1796593
Account # 06195

Project Name: 1-290 Nockamixon

Collected: 05/01/2017 09:30
through 05/02/2017 11:30
Submitted: 05/03/2017 13:45
Reported: 06/02/2017 01:01

PA Dept. of Env. Protection
Env Cleanup & Brownfields
PO Box 8471
Harrisburg PA 17105-8471

NOCTB SDG#: PDZ55-11TB

CAT No.	Analysis Name	CAS Number	Final Result	MDL	Final Result	MDL	DF
Volatiles in Air	**EPA TO-15**		ug/m3	ug/m3	ppb(v)	ppb(v)	
05298	1,1-Dichloroethane	75-34-3	N.D.	0.81	N.D.	0.20	1
05298	1,2-Dichloroethane	107-06-2	N.D.	0.81	N.D.	0.20	1
05298	1,1-Dichloroethene	75-35-4	N.D.	0.79	N.D.	0.20	1
05298	cis-1,2-Dichloroethene	156-59-2	N.D.	0.79	N.D.	0.20	1
05298	trans-1,2-Dichloroethene	156-60-5	N.D.	0.79	N.D.	0.20	1
05298	Tetrachloroethene	127-18-4	N.D.	1.4	N.D.	0.20	1
05298	1,1,1-Trichloroethane	71-55-6	N.D.	1.1	N.D.	0.20	1
05298	1,1,2-Trichloroethane	79-00-5	N.D.	1.1	N.D.	0.20	1
05298	Trichloroethene	79-01-6	N.D.	1.1	N.D.	0.20	1
05298	Vinyl Chloride	75-01-4	N.D.	0.51	N.D.	0.20	1

MDL = Method Detection Limit

Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/18.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
05298	TO 15 VOA Ext. List	EPA TO-15	1	E1712430AA	05/05/2017 01:28	Jacob E Bailey	1

Quality Control Summary

Client Name: PA Dept. of Env. Protection Group Number: 1796593
Reported: 06/02/2017 01:01

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result ug/m3	MDL ug/m3	Result ppb (v)	MDL ppb (v)
Batch number: E1712430AA	Sample number(s): 8972327-8972337			
1,1-Dichloroethane	N.D.	0.81	N.D.	0.20
1,2-Dichloroethane	N.D.	0.81	N.D.	0.20
1,1-Dichloroethene	N.D.	0.79	N.D.	0.20
cis-1,2-Dichloroethene	N.D.	0.79	N.D.	0.20
trans-1,2-Dichloroethene	N.D.	0.79	N.D.	0.20
Tetrachloroethene	N.D.	1.4	N.D.	0.20
1,1,1-Trichloroethane	N.D.	1.1	N.D.	0.20
1,1,2-Trichloroethane	N.D.	1.1	N.D.	0.20
Trichloroethene	N.D.	1.1	N.D.	0.20
Vinyl Chloride	N.D.	0.51	N.D.	0.20

LCS/LCSD

Analysis Name	LCS Spike Added ug/m3	LCS Conc ug/m3	LCSD Spike Added ug/m3	LCSD Conc ug/m3	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: E1712430AA	Sample number(s): 8972327-8972337								
1,1-Dichloroethane	40.47	44.28	40.47	43.48	109	107	74-129	2	25
1,2-Dichloroethane	40.47	42.12	40.47	42.86	104	106	72-138	2	25
1,1-Dichloroethene	39.65	44.74	39.65	45.45	113	115	70-129	2	25
cis-1,2-Dichloroethene	39.65	43.29	39.65	42.46	109	107	76-126	2	25
trans-1,2-Dichloroethene	39.65	43.91	39.65	44.11	111	111	77-128	0	25
Tetrachloroethene	67.82	69.41	67.82	69.27	102	102	68-123	0	25
1,1,1-Trichloroethane	54.56	57.66	54.56	57.28	106	105	74-122	1	25
1,1,2-Trichloroethane	54.56	58.11	54.56	57.48	107	105	76-127	1	25
Trichloroethene	53.74	57.32	53.74	57.29	107	107	76-118	0	25
Vinyl Chloride	25.56	28.07	25.56	28.06	110	110	75-130	0	25

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: PA Dept. of Env. Protection   Group Number: 1796593
Reported: 06/02/2017 01:01

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

SENT VIA FEDEX

Summa Canister Field Test Data/Chain of Custody

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Acct. # 6195 Group # 1790593 Sample # 8972327-37 Bottle Order (SCR) # 205079

For Eurofins Lancaster Laboratories Environmental use only

Client Information

Client: PADEP 1-290 Account #:

Project Name/#: NOCKAMIXON TCE SITE

Project Manager: DUSTIN ARMSTRONG P.O. #:

Sampler: A. VALLI Quote #:

Name of state where samples were collected: PENNSYLVANIA

Turnaround Time Requested (TAT) (circle one)

Standard (circled) Rush (specify) ____________

Data Package Required?		EDD Required?	
Yes (circled)	No	Yes (circled)	No

	Temperature (F) Start	Temperature (F) Stop	Pressure ("Hg) Start	Pressure ("Hg) Stop
Ambient	52°	68°	29.94	29.64
Maximum	80°			
Minimum	49°			

Analyses Requested

EPA TO-15 (☐ BTEX ☐ MTBE), EPA 18, EPA 25 (select range below), Helium as tracer, O2/CO2, Library Search

Sample Identification	Start Date/Time (24-hour clock)	Stop Date/Time (24-hour clock)	Canister Pressure in Field ("Hg) (Start)	Canister Pressure in Field ("Hg) (Stop)	Interior Temp. (F) (Start)	Interior Temp. (F) (Stop)	Flow Reg. ID	Can ID	Can Size (L)	Controller Flowrate (mL/min)	EPA TO-15	EPA 18	EPA 25	Helium as tracer	O2/CO2	Library Search	
BS-06	5/1/17 1112	5/2/17 1127	-30	-6	70	70	339179	520	6	3.5	X						
BS-03	5/1/17 1047	5/2/17 1128	-30	-14	70	70	329155	527	6	3.5	X						
DUP-01	5/1/17 1046	5/2/17 1024	-29.5	-6.5	70	70	105810	825	6	3.3	X						
BS-02	5/1/17 1048	5/2/17 1027	-30	-5	70	70	958102	897	6	3.5	X						
BS-04	5/1/17 1047	5/2/2017 0824	-29	-3	70	70	415276	856	6	3.5	X						
SF-01	5/1/17 1040	5/2/17 1023	-29	-5	70	70	507743	182	6	3.4	X						
BS-01	5/1/17 1043	5/2/17 1024	-29.5	-4	70	70	248253	1345	6	3.6	X						
BS-05	5/1/17 1112	5/2/17 1128	-29	-7.5	70	70	399365	1410	6	3.6	X						
FF-01	5/1/17 1042	5/2/17 1023	-29	-5	70	70	309001	1496	6	3.4	X						
AA-01	5/1/17 1039	5/2/17 1020	-28.5	-4	55	68	234839	333	6	3.4	X						
TB	5/1/17 0930	5/2/17 1130*			70	70		1427	6		X						

Instructions/QC Requirements & Comments: *KAK 1885, 5/4/17 per D. Armstrong.

EPA 25 (check one): ☐ C1 - C4 ☐ C2 - C10 ☐ C1 - C10 ☐ C4 - C10 (GRO) ☐ C2 - C4

Canisters Shipped by:	Date/Time:	Canisters Received by:	Date/Time:	Relinquished by:	Date/Time:	Received by:	Date/Time:
[signature] 16:00	4/26/17						
Relinquished by: [signature]	5/2/17 1330	Received by:		Relinquished by:		Received by:	
Relinquished by:		Received by:		Relinquished by:		Received by: [signature]	5/3/17 1346

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The white copy should accompany samples to Eurofins Lancaster Laboratories Environmental. The yellow copy should be retained by the client.

7056 1015

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Sample Administration Receipt Documentation Log

Doc Log ID: 182574

Group Number(s): 1796593

Client: PADEP

Delivery and Receipt Information

Delivery Method:	Fed Ex	Arrival Timestamp:	05/03/2017 13:45
Number of Packages:	1	Number of Projects:	1
State/Province of Origin:	PA		

Arrival Condition Summary

Shipping Container Sealed:	No	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	No	Sample Date/Times match COC:	Yes
Samples Chilled:	N/A	VOA Vial Headspace ≥ 6mm:	N/A
Paperwork Enclosed:	Yes	Total Trip Blank Qty:	0
Samples Intact:	Yes	Air Quality Samples Present:	Yes
Missing Samples:	No	Air Quality Flow Controllers Present:	Yes
Extra Samples:	No	Flow Controller Quantity:	10
Discrepancy in Container Qty on COC:	No	Air Quality Returns:	No

Unpacked by Karen Diem (3060) at 17:32 on 05/03/2017

2425 New Holland Pike
Lancaster, PA 17605-2425

T | 717-656-2300
F | 717-656-2681
www.LancasterLabs.com

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

< less than

> greater than

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference...
W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Additional Data Qualifiers

Qualifier	Definition
B	Detection in the Blank
Q0	LCS/LCSD Low
Q1	LCS/LCSD High
Q4	MS/MSD Out of Range
Q7	LCS/LCSD RPD
Q8	DUP RPD
Q9	MS/MSD RPD

Nockamixon TCE Vapor Intrusion Sampling Details
May 1 - 2, 2017

Sample ID	Location	PID (ppm)	Canister ID	Canister Size	Regulator ID	Reg. Time	Start Time	Start Pressure	Final Time	Final Pressure
BS-01	SE corner of Basment - Indoor air ear piping from well.	0.5	1345	6L	245753	24hr	1043	-29.5	1024	-4
BS-02	NW corner of basement at Sump - Tubing to opening in Sump	0.8	897	6L	958102	24hr	1048	-30	1027	-5
BS-03	North end of basement, indoor air on Desk in Gun Shop (basement)	0.5	527	6L	329159	24hr	1047	-30	1128	-14
BS-04	North East of basement - indoor across from furnace.	0.3	856	6L	415276	24hr	1047	-29	824	-3
BS-05	West side of basement - sub-slab air, tubing into radon pipe.	31.7	1410	6L	399268	24hr	1410	-29	1128	-7.5
BS-06	West side of basement - indoor air next to radon pipe.	0.3	520	6L	339179	24hr	1112	-30	1127	-6
FF-01	NW side of first floor - indoor air next to couch.	0.3	1496	6L	309001	24hr	1042	-29	1023	-5
SF-01	Center house, second floor, indoor air.	0.3	1182	6L	507743	24hr	1040	-29	1023	-5
AA-01	Ambient air - front porch,	0	933	6L	234839	24hr	1039	-28.5	1020	-4
DUP-01	Duplicate sample - connected to sample BS-01	0.5	825	6L	105810	24hr	1046	-29.5	1024	-6.5
TB	Trip Blank	NA	1427	6L	NA	NA	NA	NA	NA	NA

Date of Issue: 03/15/2018 04:06:46

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 001 **Date Collected:** 02/28/2018 10:00:00 AM **Lab Sample ID:** O2018000909 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
77 BRENNAN ROAD

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 77 Brennan - Basement 1 (Near POET)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556	1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
71556	1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 001 **Date Collected:** 02/28/2018 10:00:00 AM **Lab Sample ID:** O2018000909 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	12.40000 PSIA	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

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B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/13/2018 04:06:27

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/28/2018 09:55:00 AM **Lab Sample ID:** O2018000910 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
77 BRENNAN ROAD

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 77 Brennan - Basement 2 (near sump/oil tank)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556	1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
71556	1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/28/2018 09:55:00 AM **Lab Sample ID:** O2018000910 **Status:** Completed

Test Codes / CAS #.- Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	14.70000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
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X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/13/2018 04:15:12

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 **Date Collected:** 02/28/2018 10:03:00 AM **Lab Sample ID:** O2018000911 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
77 BRENNAN ROAD

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 77 Brenan - First Foor (Hall near bedrooms)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
71556 1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 **Date Collected:** 02/28/2018 10:03:00 AM **Lab Sample ID:** O2018000911 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	01302018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	12.50000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Taru Upadhyay, Technical Director, Bureau of Laboratories

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Date of Issue: 03/13/2018 04:13:09

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Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For Environmental Cleanup

Sample ID: 2128 004 **Date Collected:** 02/28/2018 09:47:00 AM **Lab Sample ID:** O2018000912 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
77 BRENNAN ROAD

Sample Medium: Ambient Air
Sample Medium Type: Air (Gas)

Location: 77 Brennan Outdoor (near chimney)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Outdoor Ambient Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
71556 1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 004 **Date Collected:** 02/28/2018 09:47:00 AM **Lab Sample ID:** O2018000912 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	12.50000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/13/2018 04:15:14

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Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For Environmental Cleanup

Sample ID: 2128 005 **Date Collected:** 02/28/2018 10:42:00 AM **Lab Sample ID:** O2018000913 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
338 PARK DRIVE WEST

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 338 Park - Basement 1 (near NE corner)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24 Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	4.38 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
71556 1,1,1-Trichloroethane	0.79 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 005 **Date Collected:** 02/28/2018 10:42:00 AM **Lab Sample ID:** O2018000913 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	01302018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	9.90000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	2.48 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.36 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

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X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/29/2018 04:07:47

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 006 **Date Collected:** 02/28/2018 10:45:00 AM **Lab Sample ID:** O2018000914 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
338 PARK DRIVE WEST

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 338 Park - Basement 2 (near stairs)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA
Sample Lab Comment: This is a revised report

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
71556	1,1,1-Trichloroethane	0.82 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 006 **Date Collected:** 02/28/2018 10:45:00 AM **Lab Sample ID:** O2018000914 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	4.55 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	13.20000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.44 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	3.03 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/29/2018 04:04:37

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 Date Collected: 02/28/2018 10:47:00 AM Lab Sample ID: O2018000922 Status: Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks State:
Municipality: Nockamixon Twp

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: Duplicate
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24 Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA
Sample Lab Comment: This is a revised report

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
71556 1,1,1-Trichloroethane	0.82 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X71556 1,1,1-Trichloroethane	4.55 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/28/2018 10:47:00 AM **Lab Sample ID:** O2018000922 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	12.50000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.43 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	2.96 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/29/2018 04:06:37

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For Environmental Cleanup

Sample ID: 2128 007 **Date Collected:** 02/28/2018 10:37:00 AM **Lab Sample ID:** O2018000915 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
338 PARK DRIVE WEST

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 338 Park - Upstairs (Dining Room Bench)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA
Sample Lab Comment: This is a revised report

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
71556	1,1,1-Trichloroethane	0.64 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 007 **Date Collected:** 02/28/2018 10:37:00 AM **Lab Sample ID:** O2018000915 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	3.55 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	01302018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	12.80000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.32 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	2.20 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Date of Issue: 03/15/2018 04:02:42

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 008 **Date Collected:** 02/28/2018 10:53:00 AM **Lab Sample ID:** O2018000916 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
338 PARK DRIVE WEST

Sample Medium: Ambient Air
Sample Medium Type: Air (Gas)

Location: 338 Park - Outdoor/Ambient (Front Porch)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Outdoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556	1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
71556	1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 008 **Date Collected:** 02/28/2018 10:53:00 AM **Lab Sample ID:** O2018000916 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	12.50000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Date of Issue: 03/15/2018 04:02:53

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Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 012 **Date Collected:** 02/28/2018 01:07:00 PM **Lab Sample ID:** O2018000920 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
2503 MOUNTAIN VIEW DRIVE

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 2503 Mtn. View - Greenhouse
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.) Well (untreated) is used for watering inside the greenhouse
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
71556 1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 012 **Date Collected:** 02/28/2018 01:07:00 PM **Lab Sample ID:** O2018000920 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02012018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	12.90000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
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Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

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E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/15/2018 04:02:24

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 013 **Date Collected:** 02/28/2018 01:13:00 PM **Lab Sample ID:** O2018000921 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
2503 MOUNTAIN VIEW DRIVE

Sample Medium: Ambient Air
Sample Medium Type: Air (Gas)

Location: 2503 Mtn. View - Outdoor/Ambient (behind sampled greenhouse)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Outdoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
71556	1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X71556	1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 013 **Date Collected:** 02/28/2018 01:13:00 PM **Lab Sample ID:** O2018000921 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	01312018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	13.30000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
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Taru Upadhyay, Technical Director, Bureau of Laboratories

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Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/29/2018 04:06:53

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 009 **Date Collected:** 02/28/2018 12:42:00 PM **Lab Sample ID:** O2018000917 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
2511 MOUNTAIN VIEW DRIVE

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 2511 Mtn. View - First Floor (living room)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA
Sample Lab Comment: This is a revised report

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
71556	1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 009 **Date Collected:** 02/28/2018 12:42:00 PM **Lab Sample ID:** O2018000917 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	8.50000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	1.2 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	4.84 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Taru Upadhyay, Technical Director, Bureau of Laboratories

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Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/15/2018 04:03:51

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 011 **Date Collected:** 02/28/2018 12:48:00 PM **Lab Sample ID:** O2018000919 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
2511 MOUNTAIN VIEW DRIVE

Sample Medium: Ambient Air
Sample Medium Type: Air (Gas)

Location: 2511 Mtn. View - Outdoor/Ambient (Porch bench near driveway)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Outdoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
71556 1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 011 **Date Collected:** 02/28/2018 12:48:00 PM **Lab Sample ID:** O2018000919 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02142018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	10.90000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	0.403 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/07/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Taru Upadhyay, Technical Director, Bureau of Laboratories

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X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/29/2018 04:02:10

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 010 Date Collected: 02/28/2018 12:45:00 PM Lab Sample ID: O2018000918 Status: Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 03/06/2018

County: Bucks State:
Municipality: Nockamixon Twp
2511 MOUNTAIN VIEW DRIVE

Sample Medium: Indoor Air
Sample Medium Type: Air (Gas)

Location: 2511 Mtn. View - Second Floor (landing at top of steps)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: CVOCA
Matrix: Summa Canister

Stream Condition:

Sample Comment: Indoor Air (24-Hr.)
Sample Standard Comment: Accredited by NJ only - accreditation not available from PA
Sample Lab Comment: This is a revised report

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
71556	1,1,1-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

Analytical Report For
Environmental Cleanup

Sample ID: 2128 010 **Date Collected:** 02/28/2018 12:45:00 PM **Lab Sample ID:** O2018000918 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
X71556 1,1,1-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79005 1,1,2-Trichloroethane	0.555 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79005 1,1,2-Trichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75343 1,1-Dichloroethane	0.407 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75343 1,1-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75354 1,1-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75354 1,1-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
107062 1,2-Dichloroethane	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X107062 1,2-Dichloroethane	0.411 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X75014 Chloroethene	0.260 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
75014 Chloroethene (vinyl chloride)	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156592 cis-1,2-Dichloroethene	0.403 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156592 cis-1,2-Dichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
CLEAN SUMMA	02132018 Day	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
Summa Press	11.40000 PSIA	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X127184 Tetrachloroethene	0.689 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
127184 Tetrachloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X156605 trans-1,2-Dichloroethene	7.25 UG/M3	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
156605 trans-1,2-Dichloroethene	1.8 PPBV	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
X79016 Trichloroethene	0.546 UG/M3 (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15
79016 Trichloroethene	0.10 PPBV (U)	03/02/2018 02:00 AM	DACLEMENS	EPA TO15

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Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2128 010 **Date Collected:** 02/28/2018 12:45:00 PM **Lab Sample ID:** O2018000918 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

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Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 04/19/2016 04:07:45

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 016 **Date Collected:** 04/05/2016 10:15:00 AM **Lab Sample ID:** O2016002309 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 04/06/2016

County: Bucks **State:**
Municipality: Nockamixon Twp

Sample Medium: Ground Water
Sample Medium Type: Water

Location: 77 Brennan - Sump
Reason: Routine Sampling
Project: NOT INDICATED
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
71556 1,1,1-Trichloroethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
79345 1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
79005 1,1,2-Trichloroethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75343 1,1-Dichloroethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 016 **Date Collected:** 04/05/2016 10:15:00 AM **Lab Sample ID:** O2016002309 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
75354	1,1-Dichloroethene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
67641	Acetone	5.0 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
71432	Benzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
108907	Chlorobenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
156592	cis-1,2-Dichloroethene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
74953	Dibromomethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75718	Dichlorodifluoromethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 016 **Date Collected:** 04/05/2016 10:15:00 AM **Lab Sample ID:** O2016002309 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
100414	Ethylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
	EXTRACTED DATE		04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
	EXTRACTED TIME		04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
87683	Hexachlorobutadiene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
98828	Isopropylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
108383	m/p-Xylene	1.0 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
78933	MEK	2.5 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
1634044	Methyl Tert-Butyl Ether	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75092	Methylene Chloride	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
108101	MIBK	2.5 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
91203	Naphthalene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
104518	n-Butylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
103651	n-Propylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
95498	o-Chlorotoluene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
95476	o-Xylene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
106434	p-Chlorotoluene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
98566	PCTFB	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
135988	Sec-Butylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
100425	Styrene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75650	t-Butyl alcohol	10.0 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
540885	tert-Butyl Acetate	2.5 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
98066	Tert-Butylbenzene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
127184	Tetrachloroethene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
109999	Tetrahydrofuran	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
108883	Toluene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
156605	trans-1,2-Dichloroethene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
10061026	trans-1,3-Dichloropropene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
79016	Trichloroethene	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
75694	Trichlorofluoromethane	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C
108054	Vinyl Acetate	0.50 UG/L (U)	04/07/2016 02:00 AM	SSPUHLER	EPA 8260C

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for
** Laboratory is accredited by NJ NELAP, parameter not offered by PA LAP

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 04/14/2016 04:04:16

DEP Bureau of Laboratories - Harrisburg
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2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 006 **Date Collected:** 03/31/2016 10:45:00 AM **Lab Sample ID:** O2016002267 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 04/01/2016

County: Bucks **State:**
Municipality: Nockamixon Twp
65 BRENNAN ROAD

Sample Medium: Pit Water
Sample Medium Type: Water

Location: 65 Brennan Rd. - Sump(2)
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
630206	1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
71556	1,1,1-Trichloroethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
79345	1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
79005	1,1,2-Trichloroethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 006 **Date Collected:** 03/31/2016 10:45:00 AM **Lab Sample ID:** O2016002267 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
75343	1,1-Dichloroethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75354	1,1-Dichloroethene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
67641	Acetone	2.5 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
71432	Benzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
108907	Chlorobenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
156592	cis-1,2-Dichloroethene	2.9 UG/L (B)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
74953	Dibromomethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 006 **Date Collected:** 03/31/2016 10:45:00 AM **Lab Sample ID:** O2016002267 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
75718 Dichlorodifluoromethane	0.50 (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED DATE		04/06/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED TIME		04/06/2016 02:00 AM	CLIAO	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
78933 MEK	2.5 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75092 Methylene Chloride	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
108101 MIBK	2.5 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
100425 Styrene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75650 t-Butyl alcohol	5.0 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
540885 tert-Butyl Acetate	2.5 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
127184 Tetrachloroethene	1.5 UG/L (B)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
109999 Tetrahydrofuran	1.0 UG/L	04/06/2016 02:00 AM	CLIAO	EPA 8260C
108883 Toluene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
79016 Trichloroethene	1.4 UG/L (B)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
75694 Trichlorofluoromethane	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C
108054 Vinyl Acetate	0.50 UG/L (U)	04/06/2016 02:00 AM	CLIAO	EPA 8260C

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for
** Laboratory is accredited by NJ NELAP, parameter not offered by PA LAP

Taru Upadhyay, Technical Director, Bureau of Laboratories

Sample ID: 2128 006 **Date Collected:** 03/31/2016 10:45:00 AM **Lab Sample ID:** O2016002267 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/18/2016 04:02:32

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/24/2016 07:30:00 AM **Lab Sample ID:** O2016001178 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/25/2016

County: Bucks **State:**
Municipality: Nockamixon Twp

Sample Medium: Artificial
Sample Medium Type: Water

Location: Rinse Blank #1
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Sample Comment: Rinse blank collected from 125 ml Nalgene transfer bottle

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
71556 1,1,1-Trichloroethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
79345 1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
79005 1,1,2-Trichloroethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/24/2016 07:30:00 AM **Lab Sample ID:** O2016001178 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
75343 1,1-Dichloroethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75354 1,1-Dichloroethene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
563586 1,1-Dichloropropene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
87616 1,2,3-Trichlorobenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
96184 1,2,3-Trichloropropane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
120821 1,2,4-Trichlorobenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
95636 1,2,4-Trimethylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
96128 1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
106934 1,2-Dibromoethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
95501 1,2-Dichlorobenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
107062 1,2-Dichloroethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
78875 1,2-Dichloropropane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
108678 1,3,5-Trimethylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
541731 1,3-Dichlorobenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
142289 1,3-Dichloropropane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
106467 1,4-Dichlorobenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
594207 2,2-Dichloropropane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
591786 2-Hexanone	2.5 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
99876 4-Isopropyltoluene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
67641 Acetone	2.5 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
71432 Benzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
108861 Bromobenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75274 Bromodichloromethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75252 Bromoform	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
74839 Bromomethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75150 Carbon Disulfide	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
56235 Carbon Tetrachloride	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
108907 Chlorobenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75003 Chloroethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75014 Chloroethene (vinyl chloride)	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
67663 Chloroform	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
74873 Chloromethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
156592 cis-1,2-Dichloroethene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
10061015 cis-1,3-Dichloropropene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
124481 Dibromochloromethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
74953 Dibromomethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/24/2016 07:30:00 AM **Lab Sample ID:** O2016001178 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
75718 Dichlorodifluoromethane	Cancelled	03/17/2016 10:51 AM	CLIAO	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED DATE		03/01/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED TIME		03/01/2016 02:00 AM	CLIAO	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
78933 MEK	2.5 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75092 Methylene Chloride	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
108101 MIBK	2.5 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
100425 Styrene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75650 t-Butyl alcohol	5.0 UG/L	03/01/2016 02:00 AM	CLIAO	EPA 8260C
The second source standard recovery was high. Results may be biased high.				
540885 tert-Butyl Acetate	2.5 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
127184 Tetrachloroethene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
109999 Tetrahydrofuran	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
108883 Toluene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
79016 Trichloroethene	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
75694 Trichlorofluoromethane	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C
108054 Vinyl Acetate	0.50 UG/L (U)	03/01/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/24/2016 07:30:00 AM **Lab Sample ID:** O2016001178 **Status:** Completed

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for
** Laboratory is accredited by NJ NELAP, parameter not offered by PA LAP

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/22/2016 04:01:15

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For Environmental Cleanup

Sample ID: 2128 004 **Date Collected:** 02/24/2016 11:30:00 AM **Lab Sample ID:** O2016001182 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/25/2016

County: Bucks **State:**
Municipality: Nockamixon Twp
338 PARK DRIVE WEST

Sample Medium: Water
Sample Medium Type: Water

Location: 338 Park Dr. W. - Sump
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
630206	1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71556	1,1,1-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79345	1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79005	1,1,2-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 004 **Date Collected:** 02/24/2016 11:30:00 AM **Lab Sample ID:** O2016001182 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
75343 1,1-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75354 1,1-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
563586 1,1-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
87616 1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96184 1,2,3-Trichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
120821 1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95636 1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96128 1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106934 1,2-Dibromoethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95501 1,2-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
107062 1,2-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78875 1,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108678 1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
541731 1,3-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
142289 1,3-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106467 1,4-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
594207 2,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
591786 2-Hexanone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
99876 4-Isopropyltoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67641 Acetone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71432 Benzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108861 Bromobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75274 Bromodichloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75252 Bromoform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74839 Bromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75150 Carbon Disulfide	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
56235 Carbon Tetrachloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108907 Chlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75003 Chloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75014 Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67663 Chloroform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74873 Chloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156592 cis-1,2-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
10061015 cis-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
124481 Dibromochloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74953 Dibromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Sample ID: 2128 004 **Date Collected:** 02/24/2016 11:30:00 AM **Lab Sample ID:** O2016001182 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
75718 Dichlorodifluoromethane	Cancelled	03/15/2016 12:41 PM	CLIAO	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED DATE		02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED TIME		02/26/2016 02:00 AM	CLIAO	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78933 MEK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75092 Methylene Chloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108101 MIBK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
100425 Styrene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75650 t-Butyl alcohol	5.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
540885 tert-Butyl Acetate	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
127184 Tetrachloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
109999 Tetrahydrofuran	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108883 Toluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79016 Trichloroethene	0.50 UG/L	02/26/2016 02:00 AM	CLIAO	EPA 8260C
System carryover, as indicated by a cleanout blank run before this sample, may contribute as much as 0.44 ¿g/L to the reported concentration.				
75694 Trichlorofluoromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108054 Vinyl Acetate	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Sample ID: 2128 004 **Date Collected:** 02/24/2016 11:30:00 AM **Lab Sample ID:** O2016001182 **Status:** Completed

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for
** Laboratory is accredited by NJ NELAP, parameter not offered by PA LAP

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/18/2016 04:14:16

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 005 **Date Collected:** 02/24/2016 11:55:00 AM **Lab Sample ID:** O2016001183 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/25/2016

County: Bucks **State:**
Municipality: Nockamixon Twp
324 PARK DRIVE WEST

Sample Medium: Water
Sample Medium Type: Water

Location: 324 Park Dr. W - Sump
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71556 1,1,1-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79345 1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79005 1,1,2-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 005 **Date Collected:** 02/24/2016 11:55:00 AM **Lab Sample ID:** O2016001183 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
75343	1,1-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75354	1,1-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67641	Acetone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71432	Benzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108907	Chlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156592	cis-1,2-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74953	Dibromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 005 **Date Collected:** 02/24/2016 11:55:00 AM **Lab Sample ID:** O2016001183 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
75718	Dichlorodifluoromethane	Cancelled	03/15/2016 12:41 PM	CLIAO	EPA 8260C
100414	Ethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
	EXTRACTED DATE		02/26/2016 02:00 AM	CLIAO	EPA 8260C
	EXTRACTED TIME		02/26/2016 02:00 AM	CLIAO	EPA 8260C
87683	Hexachlorobutadiene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98828	Isopropylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108383	m/p-Xylene	1.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78933	MEK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
1634044	Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75092	Methylene Chloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108101	MIBK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
91203	Naphthalene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
104518	n-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
103651	n-Propylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95498	o-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95476	o-Xylene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106434	p-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98566	PCTFB	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
135988	Sec-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
100425	Styrene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75650	t-Butyl alcohol	5.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
540885	tert-Butyl Acetate	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98066	Tert-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
127184	Tetrachloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
109999	Tetrahydrofuran	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108883	Toluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156605	trans-1,2-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
10061026	trans-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79016	Trichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75694	Trichlorofluoromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108054	Vinyl Acetate	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for
** Laboratory is accredited by NJ NELAP, parameter not offered by PA LAP

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/22/2016 04:02:36

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/24/2016 10:10:00 AM **Lab Sample ID:** O2016001180 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/25/2016

County: Bucks **State:**
Municipality: Nockamixon Twp
84 BRENNAN ROAD

Sample Medium: Water
Sample Medium Type: Water

Location: 84 Brennan - Sump
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
630206	1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71556	1,1,1-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79345	1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79005	1,1,2-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/24/2016 10:10:00 AM **Lab Sample ID:** O2016001180 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
75343	1,1-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75354	1,1-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67641	Acetone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71432	Benzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108907	Chlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156592	cis-1,2-Dichloroethene	1.3 UG/L (B)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
System carryover, as indicated by a cleanout blank run before this sample, may contribute as much as 1.2 ¿g/L to the reported concentration.					
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/24/2016 10:10:00 AM **Lab Sample ID:** O2016001180 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
74953 Dibromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75718 Dichlorodifluoromethane	Cancelled	03/15/2016 12:40 PM	CLIAO	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED DATE		02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED TIME		02/26/2016 02:00 AM	CLIAO	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78933 MEK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75092 Methylene Chloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108101 MIBK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
100425 Styrene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75650 t-Butyl alcohol	5.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
540885 tert-Butyl Acetate	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
127184 Tetrachloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
109999 Tetrahydrofuran	0.68 UG/L	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108883 Toluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79016 Trichloroethene	1.3 UG/L (B)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
System carryover, as indicated by a cleanout blank run before this sample, may contribute as much as 0.73 ¿g/L to the reported concentration.				
75694 Trichlorofluoromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108054 Vinyl Acetate	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Sample ID: 2128 002 **Date Collected:** 02/24/2016 10:10:00 AM **Lab Sample ID:** O2016001180 **Status:** Completed

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for
** Laboratory is accredited by NJ NELAP, parameter not offered by PA LAP

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/22/2016 04:02:46

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 **Date Collected:** 02/24/2016 10:40:00 AM **Lab Sample ID:** O2016001181 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/25/2016

County: Bucks **State:**
Municipality: Nockamixon Twp
65 BRENNAN ROAD

Sample Medium: Water
Sample Medium Type: Water

Location: 65 Brennan - Sump
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
630206	1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71556	1,1,1-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79345	1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79005	1,1,2-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 **Date Collected:** 02/24/2016 10:40:00 AM **Lab Sample ID:** O2016001181 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
75343	1,1-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75354	1,1-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67641	Acetone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71432	Benzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108907	Chlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156592	cis-1,2-Dichloroethene	0.84 UG/L (B)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
System carryover, as indicated by a cleanout blank run before this sample, may contribute as much as 0.5 ¿g/L to the reported concentration.					
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 | **Date Collected:** 02/24/2016 10:40:00 AM | **Lab Sample ID:** O2016001181 | **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
74953 Dibromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75718 Dichlorodifluoromethane	Cancelled	03/15/2016 12:41 PM	CLIAO	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED DATE		02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED TIME		02/26/2016 02:00 AM	CLIAO	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78933 MEK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75092 Methylene Chloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108101 MIBK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
100425 Styrene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75650 t-Butyl alcohol	7.8 UG/L	02/26/2016 02:00 AM	CLIAO	EPA 8260C
The second source standard recovery was low. Results and/or reportinglimits may be biased low.				
540885 tert-Butyl Acetate	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
127184 Tetrachloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
109999 Tetrahydrofuran	5.0 UG/L	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108883 Toluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79016 Trichloroethene	0.76 UG/L (B)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
System carryover, as indicated by a cleanout blank run before this sample, may contribute as much as 0.44 ¿g/L to the reported concentration.				
75694 Trichlorofluoromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108054 Vinyl Acetate	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Sample ID: 2128 003 **Date Collected:** 02/24/2016 10:40:00 AM **Lab Sample ID:** O2016001181 **Status:** Completed

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/22/2016 04:01:48

DEP Bureau of Laboratories - Harrisburg
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2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 001 **Date Collected:** 02/24/2016 09:30:00 AM **Lab Sample ID:** O2016001179 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/25/2016

County: Bucks **State:**
Municipality: Nockamixon Twp
30 BRENNAN ROAD

Sample Medium: Water
Sample Medium Type: Water

Location: 30 Brennan - Sump
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71556 1,1,1-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79345 1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79005 1,1,2-Trichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 001 **Date Collected:** 02/24/2016 09:30:00 AM **Lab Sample ID:** O2016001179 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Analyst	Test Method
75343	1,1-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75354	1,1-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67641	Acetone	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
71432	Benzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108907	Chlorobenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156592	cis-1,2-Dichloroethene	0.82 UG/L (B)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
System carryover, as indicated by a cleanout blank run before this sample, may contribute as much as 1.2 ¿g/L to the reported concentration.					
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 001 **Date Collected:** 02/24/2016 09:30:00 AM **Lab Sample ID:** O2016001179 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Analyst	Test Method
74953 Dibromomethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75718 Dichlorodifluoromethane	Cancelled	03/15/2016 12:40 PM	CLIAO	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED DATE		02/26/2016 02:00 AM	CLIAO	EPA 8260C
EXTRACTED TIME		02/26/2016 02:00 AM	CLIAO	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
78933 MEK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75092 Methylene Chloride	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108101 MIBK	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
100425 Styrene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
75650 t-Butyl alcohol	5.0 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
540885 tert-Butyl Acetate	2.5 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
127184 Tetrachloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
109999 Tetrahydrofuran	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108883 Toluene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
79016 Trichloroethene	0.60 UG/L (B)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
System carryover, as indicated by a cleanout blank run before this sample, may contribute as much as 0.73 ¿g/L to the reported concentration.				
75694 Trichlorofluoromethane	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C
108054 Vinyl Acetate	0.50 UG/L (U)	02/26/2016 02:00 AM	CLIAO	EPA 8260C

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 25% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/10/2018 04:06:13

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/27/2018 07:30:00 AM **Lab Sample ID:** O2018000858 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/28/2018

County: Bucks **State:**
Municipality: Nockamixon Twp

Sample Medium: Artificial
Sample Medium Type: Water

Location: Trip Blank
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
71556 1,1,1-Trichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79345 1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79005 1,1,2-Trichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75343 1,1-Dichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/27/2018 07:30:00 AM **Lab Sample ID:** O2018000858 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
75354	1,1-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
67641	Acetone	5.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
71432	Benzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74975	Bromochloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108907	Chlorobenzene	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
156592	cis-1,2-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74953	Dibromomethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 100 **Date Collected:** 02/27/2018 07:30:00 AM **Lab Sample ID:** O2018000858 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
75718 Dichlorodifluoromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
EXTRACTED DATE		02/28/2018 02:00 AM	DLY	EPA 8260C
EXTRACTED TIME		02/28/2018 02:00 AM	DLY	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
78933 MEK	5.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75092 Methylene Chloride	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108101 MIBK	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
100425 Styrene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75650 t-Butyl alcohol	10.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
540885 tert-Butyl Acetate	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
127184 Tetrachloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
109999 Tetrahydrofuran	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108883 Toluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
1330207 Total Xylenes	0 UG/L	02/28/2018 02:00 AM	DLY	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79016 Trichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75694 Trichlorofluoromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108054 Vinyl Acetate	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/10/2018 04:05:04

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 001 **Date Collected:** 02/27/2018 10:20:00 AM **Lab Sample ID:** O2018000859 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/28/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
77 BRENNAN ROAD

Sample Medium: Pit Water
Sample Medium Type: Water

Location: 77 Brennan - Sump
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
71556 1,1,1-Trichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79345 1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79005 1,1,2-Trichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 001 **Date Collected:** 02/27/2018 10:20:00 AM **Lab Sample ID:** O2018000859 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
75343	1,1-Dichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75354	1,1-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
67641	Acetone	5.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
71432	Benzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74975	Bromochloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108907	Chlorobenzene	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
156592	cis-1,2-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

Sample ID: 2128 001 **Date Collected:** 02/27/2018 10:20:00 AM **Lab Sample ID:** O2018000859 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
74953 Dibromomethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75718 Dichlorodifluoromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
EXTRACTED DATE		02/28/2018 02:00 AM	DLY	EPA 8260C
EXTRACTED TIME		02/28/2018 02:00 AM	DLY	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
78933 MEK	5.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75092 Methylene Chloride	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108101 MIBK	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
100425 Styrene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75650 t-Butyl alcohol	10.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
540885 tert-Butyl Acetate	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
127184 Tetrachloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
109999 Tetrahydrofuran	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108883 Toluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
1330207 Total Xylenes	0 UG/L	02/28/2018 02:00 AM	DLY	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79016 Trichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75694 Trichlorofluoromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108054 Vinyl Acetate	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/10/2018 04:02:22

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/27/2018 11:00:00 AM **Lab Sample ID:** O2018000860 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/28/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
338 PARK DRIVE WEST

Sample Medium: Pit Water
Sample Medium Type: Water

Location: 338 Park - Sump
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
630206	1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
71556	1,1,1-Trichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79345	1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79005	1,1,2-Trichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/27/2018 11:00:00 AM **Lab Sample ID:** O2018000860 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
75343 1,1-Dichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75354 1,1-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
563586 1,1-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
87616 1,2,3-Trichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
96184 1,2,3-Trichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
120821 1,2,4-Trichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95636 1,2,4-Trimethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
96128 1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106934 1,2-Dibromoethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95501 1,2-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
107062 1,2-Dichloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
78875 1,2-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108678 1,3,5-Trimethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
541731 1,3-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
142289 1,3-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106467 1,4-Dichlorobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
594207 2,2-Dichloropropane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
591786 2-Hexanone	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
99876 4-Isopropyltoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
67641 Acetone	5.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
71432 Benzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108861 Bromobenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74975 Bromochloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75274 Bromodichloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75252 Bromoform	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74839 Bromomethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75150 Carbon Disulfide	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
56235 Carbon Tetrachloride	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108907 Chlorobenzene	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75003 Chloroethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75014 Chloroethene (vinyl chloride)	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
67663 Chloroform	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
74873 Chloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
156592 cis-1,2-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
10061015 cis-1,3-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
124481 Dibromochloromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 002 **Date Collected:** 02/27/2018 11:00:00 AM **Lab Sample ID:** O2018000860 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
74953	Dibromomethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75718	Dichlorodifluoromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
100414	Ethylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
	EXTRACTED DATE		02/28/2018 02:00 AM	DLY	EPA 8260C
	EXTRACTED TIME		02/28/2018 02:00 AM	DLY	EPA 8260C
87683	Hexachlorobutadiene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98828	Isopropylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108383	m/p-Xylene	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
78933	MEK	5.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
1634044	Methyl Tert-Butyl Ether	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75092	Methylene Chloride	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108101	MIBK	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
91203	Naphthalene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
104518	n-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
103651	n-Propylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95498	o-Chlorotoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
95476	o-Xylene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
106434	p-Chlorotoluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98566	PCTFB	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
135988	Sec-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
100425	Styrene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75650	t-Butyl alcohol	10.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
540885	tert-Butyl Acetate	2.5 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
98066	Tert-Butylbenzene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
127184	Tetrachloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
109999	Tetrahydrofuran	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108883	Toluene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
1330207	Total Xylenes	0 UG/L	02/28/2018 02:00 AM	DLY	EPA 8260C
156605	trans-1,2-Dichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
10061026	trans-1,3-Dichloropropene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
79016	Trichloroethene	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
75694	Trichlorofluoromethane	0.50 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C
108054	Vinyl Acetate	1.0 UG/L (U)	02/28/2018 02:00 AM	DLY	EPA 8260C

Sample ID: 2128 002 **Date Collected:** 02/27/2018 11:00:00 AM **Lab Sample ID:** O2018000860 **Status:** Completed

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

U - Indicates analysis was performed for the compound but it was not detected. The sample quantitation limit is reported.

J - Indicates an estimated value, below the quantitation limit, but above the method detection limit.

N - Indicates presumptive evidence of a compound.

B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

Date of Issue: 03/10/2018 04:06:15

DEP Bureau of Laboratories - Harrisburg
P.O. Box 1467
2575 Interstate Drive
Harrisburg, PA 17105-1467

Contact Phone Number: (717) 346-7200

NELAP - accredited by

NJ DEP - Laboratory Number: PA059
PA DEP LAP - DEP Lab ID: 22-00223

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 **Date Collected:** 02/27/2018 01:15:00 PM **Lab Sample ID:** O2018000861 **Status:** Completed

Name of Sample Collector: Dustin Armstrong
Date Received: 02/28/2018

County: Bucks **State:**
Municipality: Nockamixon Twp
2503 MOUNTAIN VIEW DRIVE

Sample Medium: Ground Water
Sample Medium Type: Water

Location: 2503 Mtn. View - Supply Well
Reason: Routine Sampling
Project: NOCK TCE Nockamixon TCE HSCA SITE
Suite: VOASW
Matrix: Water

Stream Condition:

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
630206 1,1,1,2-Tetrachloroethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
71556 1,1,1-Trichloroethane	2.2 UG/L	03/01/2018 02:00 AM	DLY	EPA 8260C
79345 1,1,2,2-Tetrachloroethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
79005 1,1,2-Trichloroethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 **Date Collected:** 02/27/2018 01:15:00 PM **Lab Sample ID:** O2018000861 **Status:** Completed

Test Codes / CAS # - Description		Reported Results	Date And Time Analyzed	Approved by	Test Method
75343	1,1-Dichloroethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75354	1,1-Dichloroethene	2.1 UG/L	03/01/2018 02:00 AM	DLY	EPA 8260C
563586	1,1-Dichloropropene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
87616	1,2,3-Trichlorobenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
96184	1,2,3-Trichloropropane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
120821	1,2,4-Trichlorobenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
95636	1,2,4-Trimethylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
96128	1,2-Dibromo-3-chloropropane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
106934	1,2-Dibromoethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
95501	1,2-Dichlorobenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
107062	1,2-Dichloroethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
78875	1,2-Dichloropropane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
108678	1,3,5-Trimethylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
541731	1,3-Dichlorobenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
142289	1,3-Dichloropropane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
106467	1,4-Dichlorobenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
594207	2,2-Dichloropropane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
591786	2-Hexanone	2.5 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
99876	4-Isopropyltoluene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
67641	Acetone	5.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
71432	Benzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
108861	Bromobenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
74975	Bromochloromethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75274	Bromodichloromethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75252	Bromoform	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
74839	Bromomethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75150	Carbon Disulfide	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
56235	Carbon Tetrachloride	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
108907	Chlorobenzene	1.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75003	Chloroethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75014	Chloroethene (vinyl chloride)	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
67663	Chloroform	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
74873	Chloromethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
156592	cis-1,2-Dichloroethene	11.2 UG/L (Q)	03/01/2018 02:00 AM	DLY	EPA 8260C
10061015	cis-1,3-Dichloropropene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
124481	Dibromochloromethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C

Analytical Report For
Environmental Cleanup

Sample ID: 2128 003 **Date Collected:** 02/27/2018 01:15:00 PM **Lab Sample ID:** O2018000861 **Status:** Completed

Test Codes / CAS # - Description	Reported Results	Date And Time Analyzed	Approved by	Test Method
74953 Dibromomethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75718 Dichlorodifluoromethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
100414 Ethylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
EXTRACTED DATE		03/01/2018 02:00 AM	DLY	EPA 8260C
EXTRACTED TIME		03/01/2018 02:00 AM	DLY	EPA 8260C
87683 Hexachlorobutadiene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
98828 Isopropylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
108383 m/p-Xylene	1.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
78933 MEK	5.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
1634044 Methyl Tert-Butyl Ether	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75092 Methylene Chloride	1.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
108101 MIBK	2.5 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
91203 Naphthalene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
104518 n-Butylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
103651 n-Propylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
95498 o-Chlorotoluene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
95476 o-Xylene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
106434 p-Chlorotoluene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
98566 PCTFB	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
135988 Sec-Butylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
100425 Styrene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
75650 t-Butyl alcohol	10.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
540885 tert-Butyl Acetate	2.5 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
98066 Tert-Butylbenzene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
127184 Tetrachloroethene	3.2 UG/L	03/01/2018 02:00 AM	DLY	EPA 8260C
109999 Tetrahydrofuran	1.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
108883 Toluene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
1330207 Total Xylenes	0 UG/L	03/01/2018 02:00 AM	DLY	EPA 8260C
156605 trans-1,2-Dichloroethene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
10061026 trans-1,3-Dichloropropene	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
79016 Trichloroethene	75.2 UG/L	03/01/2018 02:00 AM	DLY	EPA 8260C
75694 Trichlorofluoromethane	0.50 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C
108054 Vinyl Acetate	1.0 UG/L (U)	03/01/2018 02:00 AM	DLY	EPA 8260C

Sample ID: 2128 003 **Date Collected:** 02/27/2018 01:15:00 PM **Lab Sample ID:** O2018000861 **Status:** Completed

The results of the analyses provided in this laboratory report relate only to the sample(s) identified therein. Unless otherwise noted, the results presented on this laboratory report meet all requirements of the 2009 TNI standard. Sample was in acceptable condition when received by the Laboratory. Any exceptions are noted in the report.
* denotes tests that the laboratory is not accredited for

Taru Upadhyay, Technical Director, Bureau of Laboratories

ORGANICS LABORATORY QUALIFIERS

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B - This flag is used when the analyte is found in the associated blank as well as in the sample.

E - This flag identifies compounds whose concentrations exceed the calibration range of the instrument for that specific analysis.

P - This flag is used with a target analyte when there is greater than a 40% difference between the results obtained from the primary and confirmation columns for dual column analysis methods (e.g. pesticides, triazines, PCBs, etc)

Q - This flag identifies the average of multiple results from multiple analyses, or the average of the averages of dual column analysis methods.

X - Non-target analytes co-elute with compound. Identification unable to be confirmed.

HSCA
DIGITAL PHOTOS

Pennsylvania Department of Environmental Protection
Southeast Regional Office - Environmental Cleanup Program

Site Name	Nockamixon TCE	**Date Photos Taken**	05/14/2018
Address	65 Brennan Rd.	**Municipality**	Nockamixon Twp.
		County	Bucks

Image 001: Sub slab air flow monitoring point with bolt and washer.

Image 002: OBAR personnel inspecting blocked sub slab mitigation vent pipe

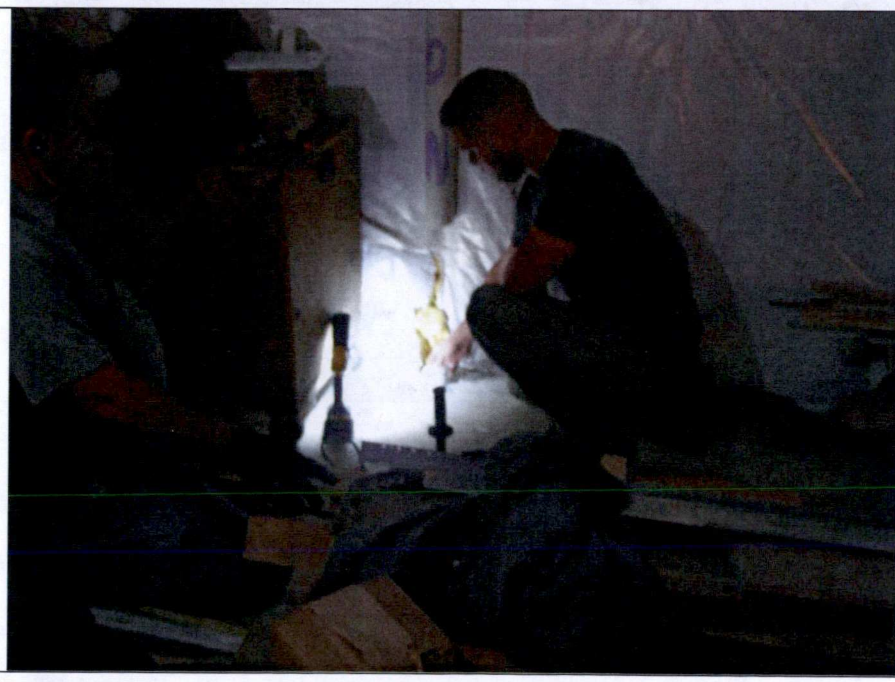


Image 003: OBAR personnel penetrating slab at blocked mitigation vent pipe

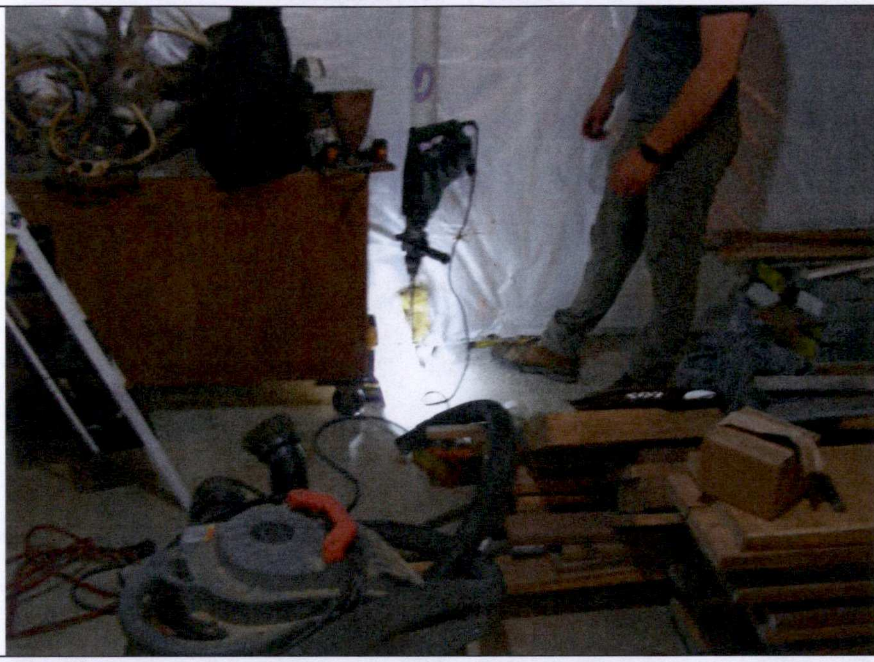



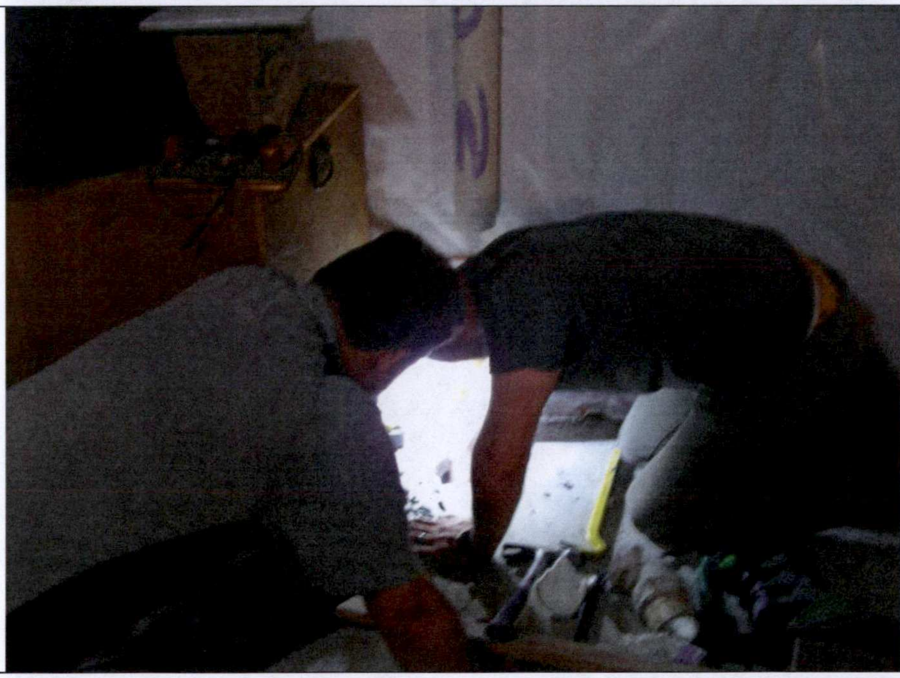
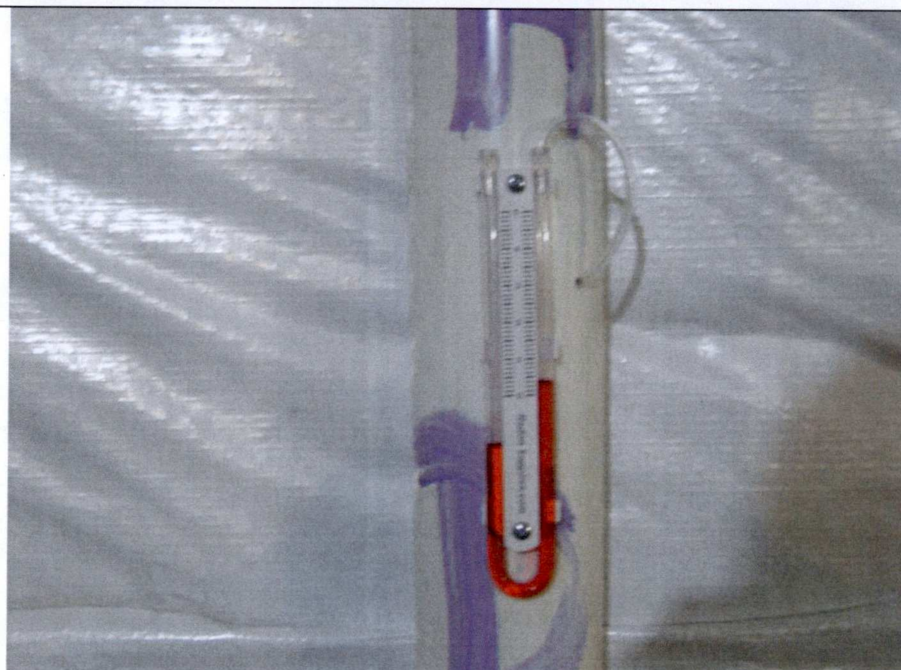
Image 004: OBAR personnel removing blocked sub slab mitigation vent pipe


Image 005: Completed reinstalled sub slab mitigation vent pipe

Image 006: Mitigation exhaust gauge reading (0.4” water) after vent pipe reinstallation.



DEP Photographer **Dustin A. Armstrong, EPS**	**Signature**	**Phone #**	484-250-**5723**
		Date Signed:	5/15/2018