



Joe Robert
Project Manager

December 31, 2019

Mr. Jason Sewell
On-Scene Coordinator
U.S. Environmental Protection Agency, Region 5
2525 North Shadeland Avenue, Suite 100
Indianapolis, Indiana 46219

Subject: **Site Assessment Report, Revision 1**
Newton Avenue Vapor Intrusion (VI) Site
EPA Contract No. 68-HE-0519-D0005
Task Order-Task Order Line Item No. F0069-0002AI038
Document Tracking No. 0089a

Dear Mr. Sewell:

Under the Superfund Technical Assessment and Response Team (START) Contract, Tetra Tech, Inc. (Tetra Tech) prepared the enclosed site assessment report (Revision 1) for your review and comment. This revised report incorporates U.S. Environmental Protection Agency (EPA) comments on the previous version of the report. The report summarizes site assessment activities that were conducted at the Newton Avenue Vapor Intrusion (VI) site located in Indianapolis, Marion County, Indiana. Tetra Tech conducted assessment activities from August 1 to October 31, 2019.

If you have any questions regarding this report, please contact me at (317) 847-5020 or via e-mail at Joe.Robert@tetrattech.com.

Respectfully,

A handwritten signature in black ink that reads 'Joe Robert'.

Joe Robert
Project Manager

Enclosure

cc: Kevin Scott, Tetra Tech Program Manager
TO-TOLIN File

**SITE ASSESSMENT REPORT
NEWTON AVENUE VAPOR INTRUSION SITE
INDIANAPOLIS, MARION COUNTY, INDIANA**



Revision 1

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY

Region 5
Emergency Response Branch
Region 5
2525 North Shadeland Avenue, Suite 100
Indianapolis, Indiana 46219



TASK ORDER-TASK ORDER LINE ITEM NO.:	F0069-0002AI038	
EPA ON-SCENE COORDINATOR (OSC):	Jason Sewell	
SITE NAME:	Newton Avenue Vapor Intrusion Site	
SITE LOCATION:	Indianapolis, Marion County, Indiana	
SITE ASSESSMENT REPORT PREPARER:	Joe Robert	
SIGNATURE/DATE:		11/21/19
QUALITY CONTROL REVIEWER:	Joseph Gawarzewski	
SIGNATURE/DATE:		12/30/19
EPA OSC APPROVAL SIGNATURE/DATE:		
DOCUMENT TRACKING NO.:	0089a	

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1.0 INTRODUCTION

Under the Superfund Technical Assessment and Response Team (START) Contract No. 68-HE-0519-D0005, Task Order-Task Order Line Item No. (TO-TOLIN) F0069-0002AI038, the U.S. Environmental Protection Agency (EPA) tasked Tetra Tech, Inc. (Tetra Tech) to perform a site assessment at the Newton Avenue Vapor Intrusion (VI) site, located in Indianapolis, Marion County, Indiana. EPA requested that Tetra Tech START conduct field sampling activities, as presented in the approved Sampling and Analysis Plan (SAP), submitted to EPA on October 28, 2019 (Tetra Tech 2019). The purpose of the sampling was to determine the presence or absence of Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) hazardous substances at the site; document concentrations of the substances present; and conduct a removal site evaluation for residential vapor intrusion at the site.

To proceed with the site assessment, Tetra Tech START examined reports documenting previous site investigations conducted at 2802 Newton Avenue. Tetra Tech also coordinated with the 8-1-1 public utility location service and a separate private utility location service prior to conducting assessment activities at the site, and recorded site conditions and assessment activities in a field logbook and through photographic documentation. Under the direction of EPA On-Scene Coordinator (OSC) Jason Sewell, Tetra Tech conducted the site assessment activities from August 1 to October 31, 2019.

This site assessment report is organized into the following sections:

- Introduction – Section 1.0 provides a brief description of the objectives and scope of site assessment activities.
- Site Background – Section 2.0 summarizes the site description and history.
- Field Investigation – Section 3.0 discusses the methods and procedures used during the site assessment.
- Analytical Results – Section 4.0 presents the analytical results for the samples collected during the site assessment.
- Conclusions – Section 5.0 provides a summary of the site assessment findings.
- References – Section 6.0 lists references cited in the report.

In addition, this site assessment report contains six appendices and one attachment. Appendix A includes site figures. Appendix B provides the photographic documentation log of site conditions during the site assessment. Appendix C provides summary tables of the analytical results, along with the data validation report. Appendix D includes information on environmentally preferred practices used during this project. Appendix E contains field notes. Soil boring logs are included in Appendix F. The laboratory analytical reports for the collected samples are included in Attachment 1.

2.0 SITE BACKGROUND

The site is located at Newton Avenue in Indianapolis, Marion County, Indiana, and lies in the northern portion of Section 8, Township 15 North, Range 4, of the Indianapolis East topographic quadrangle (Appendix A, Figure 1). The site is located at approximately 750 feet above mean sea level. The parcel identification (ID) number of the area of concern is 49-10-08-135-123.000-101. The geographic coordinates of the approximate center of the site are latitude 39.7380452° north and longitude -86.0828777° west.

The site is situated within a mixed commercial, residential, and industrial area. The area of concern is bordered by residential and commercial properties to the immediate east, south, and west, and a railroad track to the north. Additional residential properties are located north of the railroad track (Appendix A, Figure 2).

A discontinuous surface layer of fill material, up to 3 feet thick, was observed in some areas of the site. Based on visual inspection of the site, native soil on site consists predominantly of silty clay to a depth of approximately 20 feet below ground surface (bgs). Layers of sand, sandy silt, or silt, up to 3 feet thick, were observed at depths between approximately 13 and 18 feet bgs (Ramboll Environ 2017).

Service Products Corporation manufactured industrial fans at the site property located at 2802 Newton Avenue from the late 1910s until 1985. After 1985, part of the site was used for warehousing and storage.

From 1987 to 2013, Aaron York's Quality Air Conditioning (Aaron York) operated at the site. Aaron York leased a portion of the 2802 Newton Avenue building to Youth for Christ's City Life Wheels (City Life Wheels) to teach nearby eastside youth basic auto maintenance and repair skills.

In May 2013, Aaron York donated the site to Shepherd Warehouse Facility (Shepherd). Shepherd was obligated to continue the lease to City Life Wheels, and also used the site to house The Crossing School (an alternative High School) as well as a storage warehouse. Sustainable Local Foods, Inc. acquired the site in January 2016 and operated from this location as a hydroponic grower of fresh produce.

The Heartland Phase I ESA report (Heartland 2015) identified historical site operations and the potential presence of cleaning solvents and metals related to former industrial fan production as a recognized environmental condition (REC) to the site.

3.0 FIELD INVESTIGATION

EPA and Tetra Tech START performed the site field investigation from August 1 to October 31, 2019. The EPA OSC consulted with an EPA toxicologist to establish site screening levels, and the EPA Environmental Response Team (ERT) geologist for technical support on the vapor intrusion investigation design and evaluation. Field investigation activities included sampling existing on-site groundwater wells; drilling and recovering subsurface soil; field screening soil using a photoionization detector (PID); installing temporary piezometers and soil gas ports; and collecting soil gas samples.

The following sections describe the site reconnaissance, site observations documented during the investigation, and the sampling activities conducted during the site assessment.

3.1 SITE RECONNAISSANCE

Leading up to August 1, 2019, the EPA OSC and Tetra Tech START project manager obtained and reviewed previous technical documents from the Indiana Department of Environmental Management (IDEM) Virtual Filing Cabinet (VFC) that describes the previous investigations performed at 2802 Newton Avenue. The EPA OSC and Tetra Tech project manager developed a plan investigate the presence of volatile organic compounds (VOC) at the site and vapor intrusion in homes nearby the site.

On August 1, 2019, the EPA OSC and Tetra Tech START mobilized to 2802 Newton Avenue. The EPA OSC and Tetra Tech START conducted a site reconnaissance in an effort to duplicate some previous sampling locations established to investigate a past release; to compare the data obtained from the previous sampling locations with data from the current assessment; and to confirm the groundwater flow direction. During the site reconnaissance, written and photographic documentation of the current site conditions were recorded and potential environmental threats and sampling locations were noted.

3.2 SITE OBSERVATIONS

During the site reconnaissance, the groundwater flow direction was confirmed to flow west-southwest. The EPA OSC and Tetra Tech START identified residential properties surrounding the property at 2802 Newton Avenue that are at potential risk of off-site migration of contaminants. Tetra Tech START observed that some nearby homes were vacant or abandoned. State utility locator 8-1-1, marked utilities surrounding the site and at the proposed drilling locations. Tetra Tech START subcontracted Ground Penetrating Radar Systems, LLC (GPRS) to locate any underground utilities or interferences that may not have been captured by the state locators.

3.3 SAMPLING ACTIVITIES

On September 5 and 6, 2019, Tetra Tech START collected investigative environmental samples. Tetra Tech START personnel donned Level D personal protective equipment (PPE) for all field operations and sampling activities. Sampling activities related to soil borings, soil gas sampling, and groundwater sampling are outlined in the sections below.

3.3.1 Soil Borings

Tetra Tech completed 15 soil borings from 6.5 to 16 feet bgs, depending on where the drilling subcontractor encountered groundwater (Appendix F, Soil Boring Logs). Tetra Tech installed soil gas sampling ports at 10 of the 15 soil boring locations and developed piezometers at the remaining 5 boring locations. The five temporary piezometers were co-located with soil gas ports, for a total of ten sampling locations surrounding the site. All soil borings were advanced using direct-push technology. Tetra Tech START personnel recorded the soil boring information for each location and simultaneously screened the soil with the PID; no PID readings were higher than 0.54 parts per million.

3.3.2 Soil Gas Sampling

Tetra Tech START collected soil gas samples from ten borings, five of which were co-located with piezometer borings, as shown in Appendix A, Figure 3. An example label of co-located temporary piezometers and soil gas borings in Figure 3 is TP-01/SG-01. Tetra Tech collected two blind duplicates. Soil gas probes were installed approximately 1 foot above the water table. Teflon tubing was inserted into the borehole within a sand pack that extends 6 inches above the probe and grouted to the surface with hydrated bentonite. The location was allowed to equilibrate for 24 hours. After checking for leaks with a shroud, a helium detector, and helium gas, soil gas samples were collected over 30 minutes into 6-liter SUMMA® canisters, in accordance with Tetra Tech Standard Operating Procedure (SOP) 074-2, “Soil Gas Sampling Methods.” The samples were shipped under a signed chain-of-custody form for VOC analysis by EPA Method TO-15 to ALS Environmental in Simi Valley, California.

3.3.3 Groundwater Sampling

During the site reconnaissance, Tetra Tech START collected five groundwater samples from five of the six the existing 2-inch monitoring wells located at 2802 Newton Avenue to confirm the presence of a groundwater plume. An example label of existing 2-inch monitoring wells in Figure 3 is MW-1. Because of low water volume, Tetra Tech START was unable to collect a sample from MW-6 (Appendix A, Figure 3). Prior to sampling, each monitoring well was purged, and its field parameters were recorded. The

groundwater samples were collected via micro-purge, or low-flow, sampling in accordance with Tetra Tech SOP Number 015-2, “Groundwater Sample Collection Using Low-Flow Sampling Methodology.” A bladder pump was used to achieve discharge rates, not to exceed 0.5 liter per minute (0.13 gallon per minute). A YSI 556 Multiprobe multi-parameter water quality meter was used to stabilize the water quality parameters prior to sample collection. The groundwater samples were appropriately preserved and shipped under a signed chain-of-custody form to CT Laboratories in Baraboo, Wisconsin. Each sample was analyzed for a target list of VOCs and polycyclic aromatic hydrocarbons (PAH), previously identified by Ramboll Environ in 2017 as reported in the sampling and analysis plan (Tetra Tech 2019).

After allowing the five 1-inch temporary piezometers to charge for 1 week, Tetra Tech START examined the groundwater productivity. Because of dry weather conditions, low mobility in soil of predominantly tightly packed silty clay, and diameter of the casings, the piezometers produced very little water volume. Tetra Tech START attempted to develop the temporary piezometers further by removing silty sediment in the column and attempting to flush the well screens with disposable bailers. Recovery was low, with two dried piezometers.

4.0 ANALYTICAL RESULTS

The analytical results for the collected samples are summarized below, and presented in the tables and data validation report provided in Appendix C. The laboratory analytical reports are included as an attachment to this report (Attachment 1). Results that exceeded the selected state and/or federal screening levels are discussed below, according to sample medium.

Soil Gas Results

The soil gas sampling results were compared to residential screening levels by using EPA’s May 2019 Resident Vapor Intrusion Screening Levels (VISL) Calculator, for Target Sub-Slab and Near-Source Soil Gas Concentration at Target Risk (TR) 10E-4 for carcinogens and Hazard Quotient (HQ) of 3 for non-carcinogens (HQ 1 for Trichloroethylene [TCE]). Results from all ten soil gas samples collected were non-detect or below the EPA Resident VISL. The validated results for 1,1,2-Trichloroethane in samples NA-SG01-190904, NA-SG02-190904, NA-SG03-190904, NA-SG06-190904, and NA-SG07-190904 had reporting limits that were above the regulatory criteria.

The soil gas sampling results were also compared to residential screening levels by using IDEM’s Remediation Closure Guide (RCG) for Soil Gas. Screening levels were back calculated by dividing the IDEM RCG Residential Indoor Air Vapor Intrusion Exposure Screening Levels by the appropriate Attenuation Factor. Results from all ten soil gas samples collected were non-detect or below the IDEM’s

Resident Soil Gas Screening Levels. The validated results for 1,1,2-Trichloroethane in samples NA-SG01-190904, NA-SG02-190904, NA-SG03-190904, NA-SG06-190904, and NA-SG07-190904 had reporting limits that were above the regulatory criteria. This contaminant was only found in MW-4 at the north side of the area of concern. Monitoring wells down gradient to the southwest are absent of this contaminant, suggesting immobility of the plume. Summary tables of soil gas results are provided in Appendix C, Table 3 and Table 4.

Groundwater Results

The site reconnaissance groundwater sampling results were compared to EPA's May 2019 Target Groundwater Concentrations, calculated using the VISL Calculator at TR 10E-4 for carcinogens and HQ 3 for non-carcinogens (HQ 1 for TCE), and the IDEM's March 2019 RCG Screening Levels for Residential Groundwater Vapor Exposure (IDEM 2019). The laboratory results identified 8 exceedances of IDEM's Residential Groundwater Vapor Exposure Screening Levels and 6 exceedances of the groundwater VISLs. Samples that exceeded groundwater VISLs are reflected in Appendix C, Table 1, and briefly described below:

- NA-GW-MW4-190801—TCE was detected at 370 micrograms per liter (µg/L), above the VISL of 5.18 µg/L. Trichloroethane,1,1,1 was detected at 30,000 µg/L, above the VISL of 22,200 µg/L. Vinyl chloride was detected at 17 µg/L, above the VISL of 14.7 µg/L. Dichloroethane,1,1- was detected at 5,700 µg/L, above the VISL of 764 µg/L. Trichloroethane,1,1,2 was detected at 88 µg/L, above the VISL of 18.6 µg/L.
- NA-GW-MW5-190801—TCE was detected at 260 µg/L, above the VISL of 5.18 µg/L.

Analytical results for groundwater samples exceeded IDEM's RCG Residential Groundwater Vapor Exposure Screening Levels at MW-4 and MW-5 reconnaissance groundwater sampling locations and included VOCs and PAHs. The screening level for trimethylbenzene,1,2,4- was back calculated by dividing the IDEM RCG Residential Indoor Air Vapor Intrusion Exposure Screening Level by the appropriate Attenuation Factor. A summary table of groundwater results is provided in Appendix C, Table 2. Groundwater sampling locations are shown in Appendix A, Figure 3.

5.0 CONCLUSIONS

To conduct a removal site evaluation for residential vapor intrusion at the site, Tetra Tech START collected fifteen investigative samples, including five groundwater and ten soil gas samples, for laboratory analysis, from the Newton Avenue VI site between August 1 and October 31, 2019. The results from the groundwater samples collected at 2802 Newton Avenue confirmed the presence of some of the target list of VOCs and PAHs of concern above the IDEM RCG for Residential Groundwater Vapor Exposure Screening Levels

and EPA VISLs for Target Groundwater Concentrations. Results from the ten soil gas samples collected were non-detect or were below the EPA Resident VISLs for Target Sub-Slab and Soil Gas Concentrations and IDEM Residential Groundwater Vapor Exposure screening levels. The validated results for 1,1,2-Trichloroethane in samples NA-SG01-190904, NA-SG02-190904, NA-SG03-190904, NA-SG06-190904, and NA-SG07-190904 had reporting limits that were above the EPA Resident VISL regulatory criteria. This contaminant was only found in groundwater from MW-4 at the north edge of the area of concern. Monitoring wells downgradient to the southwest were absent of this contaminant. This suggests the plume is not migrating with shallow groundwater (Figure 4). Consistent with EPA guidance on VI investigation, the soil gas results indicated non-detect or concentrations below screening levels indicating an incomplete exposure pathway; therefore, the site investigation was concluded.

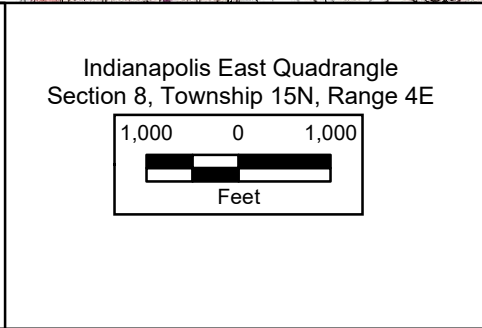
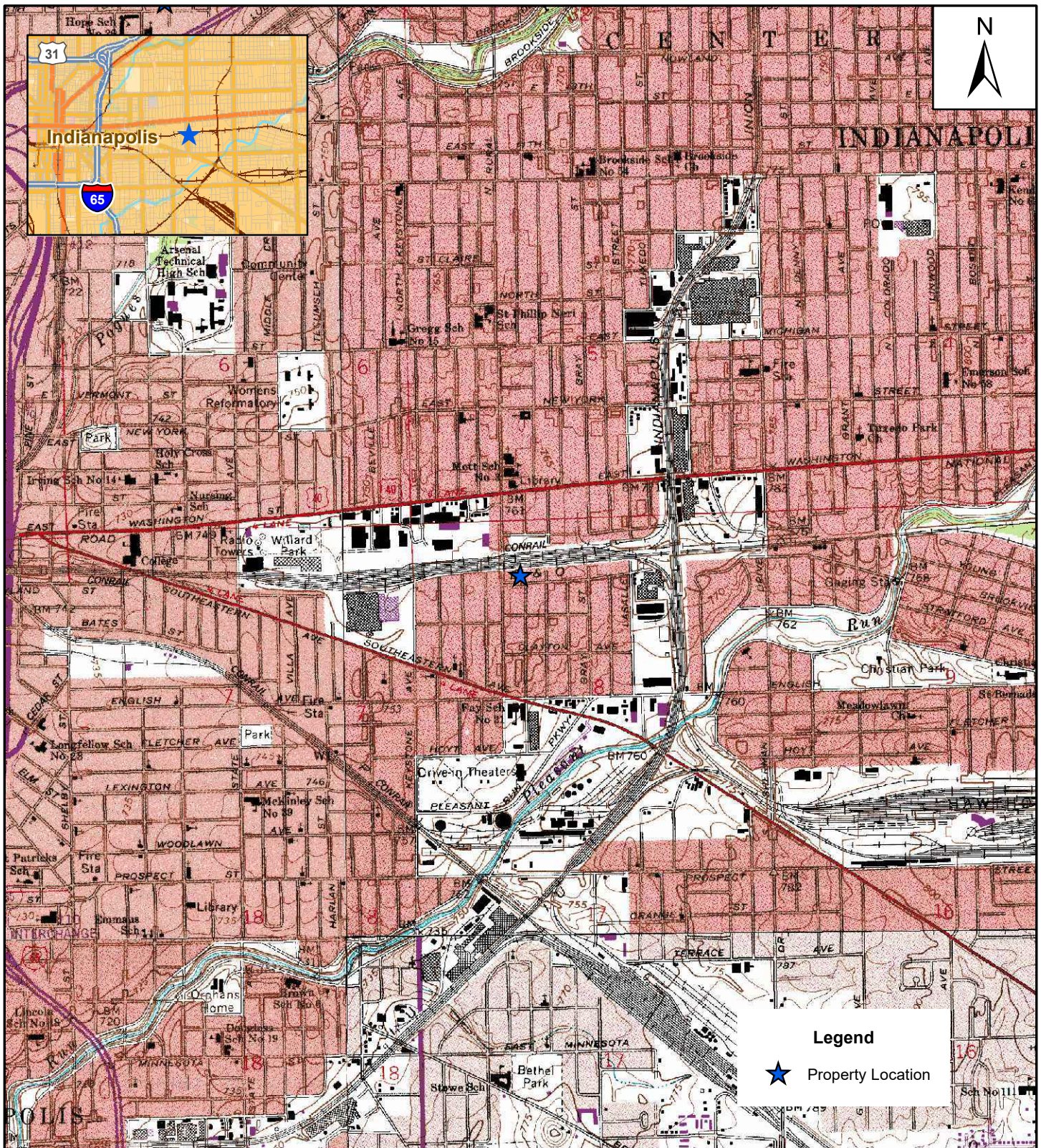
6.0 REFERENCES

- Heartland Environmental Associates, Inc. (Heartland). 2015. Phase I Environmental Site Assessment, Shepherd Warehouse Facility, 201 South Rural Street & 2802 Newton Ave, Indianapolis, Indiana. June 25.
- Indiana Department of Environmental Management (IDEM). 2016. Comfort Letter-Bona Fide Prospective Purchaser, Shepherd Warehouse Facility, 201 South Rural Street & 2802 Newton Ave, Marion County, Indianapolis, Indiana, State Cleanup #0000517, Brownfield #4151103. April 15.
- IDEM. 2019. "Remediation Closure Guide." March 4.
- Ramboll Environ. 2017. "Initial Site Investigation and Vapor Mitigation Report." July.
- Tetra Tech, Inc. (Tetra Tech). 2019. "Sampling and Analysis Plan, Revision 0." Prepared for U.S. Environmental Protection Agency (EPA) under Contract No. 68-HE-0519-D0005. October 28.

APPENDIX A

FIGURES

- 1 – SITE LOCATION MAP
- 2 – SITE LAYOUT MAP
- 3 – SAMPLING LOCATION MAP
- 4 – CONCEPTUAL SITE MODEL

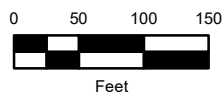


2802 Newton Avenue Indianapolis, Marion County, Indiana	
Figure 1 Site Location Map	
Prepared For: EPA	Prepared By: QEPI



Legend

- Area of Concern
- Site Boundary



Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Figure 2
Site Layout Map



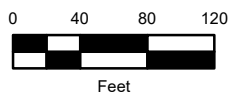
Prepared For: EPA

Prepared By: QEPI



Legend

- Temporary Well/Soil Gas Location
- Soil Gas Sample Location
- Monitoring Well
- Area of Concern
- Site Boundary



Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Figure 3
Sampling Location Map



Prepared For: EPA

Prepared By: QEPI



NEWTON AVENUE VI SITE
INDIANAPOLIS, MARION COUNTY, INDIANA

FIGURE 4
CONCEPTUAL SITE MODEL

PREPARED FOR:
U.S. EPA



PREPARED BY:



APPENDIX B
PHOTOGRAPHIC DOCUMENTATION LOG



Photographic Documentation Log

Client: U.S. EPA Region 5
Site Name: Newton Avenue VI Site
Location: Indianapolis, Marion County, Indiana

Prepared by: Tetra Tech, Inc. (Joe Robert)
TO-TOLIN Number: F0069-0002AI038
Dates: August 1 – September 29, 2019

Photograph: 1

Description:

West side of the warehouse from which the plume originated.

Orientation:

Facing east

Date:

8/2/2019



Photograph: 2

Description:

Equipment used for conducting the low-flow reconnaissance groundwater sampling in the existing monitoring wells.

Orientation:

Facing north

Date:

8/2/2019





Photographic Documentation Log

Client: U.S. EPA Region 5
Site Name: Newton Avenue VI Site
Location: Indianapolis, Marion County, Indiana

Prepared by: Tetra Tech, Inc. (Joe Robert)
TO-TOLIN Number: F0069-0002AI038
Dates: August 1 – September 29, 2019

Photograph: 3

Description:

GPRS subcontractor investigating the proposed sampling locations for the underground anomalies that may have not been detected by the state utility locator.

Orientation:

Facing northwest

Date:

8/3/2019



Photograph: 4

Description:

Earth Explorations collecting soil borings by using direct-push technologies to install temporary piezometers and soil gas ports.

Orientation:

Facing west

Date:

9/4/2019







Photographic Documentation Log

Client: U.S. EPA Region 5
Site Name: Newton Avenue VI Site
Location: Indianapolis, Marion County, Indiana

Prepared by: Tetra Tech, Inc. (Joe Robert)
TO-TOLIN Number: F0069-0002AI038
Dates: August 1 – September 29, 2019



<p>Photograph: 5</p> <p>Description: Successful installation of the 1-inch temporary piezometer and soil gas sampling port near a residential property.</p> <p>Orientation: Facing east</p> <p>Date: 9/4/2019</p>	
<p>Photograph: 6</p> <p>Description: An active soil gas sampling train using a 6-liter Summa® canister over a time span of 30 minutes.</p> <p>Orientation: Facing southwest</p> <p>Date: 9/6/2019</p>	



Photographic Documentation Log

Client: U.S. EPA Region 5
Site Name: Newton Avenue VI Site
Location: Indianapolis, Marion County, Indiana

Prepared by: Tetra Tech, Inc. (Joe Robert)
TO-TOLIN Number: F0069-0002AI038
Dates: August 1 – September 29, 2019

<p>Photograph: 7</p> <p>Description: Low volume of silty water purged from the temporary piezometers during an attempted development.</p> <p>Orientation: Facing north</p> <p>Date: 9/13/2019</p>	
<p>Photograph: 8</p> <p>Description: Property restored by filling the borings with sand, bentonite, and grass seed, after removing the temporary piezometers and soil gas ports.</p> <p>Orientation: Facing west</p> <p>Date: 9/24/2019</p>	

APPENDIX C

SUMMARY ANALYTICAL RESULTS TABLES AND DATA VALIDATION REPORT

TABLE 1 – ANALYTICAL GROUNDWATER RESULTS
COMPARED TO EPA VISL

TABLE 2 – ANALYTICAL GROUNDWATER RESULTS
COMPARED TO IDEM RCG RESIDENTIAL
GROUNDWATER VAPOR EXPOSURE SCREENING
LEVELS

TABLE 3 – ANALYTICAL SOIL GAS RESULTS COMPARED TO
EPA VISL TARGET SUB-SLAB AND SOIL GAS
CONCENTRATIONS

TABLE 4 – ANALYTICAL SOIL GAS RESULTS COMPARED TO
IDEM RCG RESIDENTIAL SOIL GAS SCREENING
LEVELS
DATA VALIDATION REPORT

Table 1
Analytical Groundwater Results Compared to EPA VISL
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-GW-MW1-190802	8/2/2019 9:45	Naphthalene	0.30 U	459	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trichloroethylene	0.30 U	5.18	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Tetrachloroethylene	0.27 U	173	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Methylnaphthalene, 1-	0.14	NA	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethane, 1,2-	0.24 U	224	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trichloroethane, 1,1,1-	4.5 J	22,200	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Methylnaphthalene, 2-	0.12 UJ	NA	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethylene, 1,2-cis-	0.30 U	NA	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trimethylbenzene, 1,2,4-	0.29 U	745	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Vinyl Chloride	0.14 U	14.7	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethane, 1,1-	0.30 U	764	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trichloroethane, 1,1,2-	0.30 U	18.6	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethylene, 1,1-	0.40 U	586	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Naphthalene	0.69 J	459	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trichloroethylene	2.5	5.18	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Tetrachloroethylene	0.27 U	173	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Methylnaphthalene, 1-	0.55 J+	NA	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethane, 1,2-	0.24 U	224	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trichloroethane, 1,1,1-	36	22,200	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Methylnaphthalene, 2-	0.47 UJ	NA	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethylene, 1,2-cis-	0.87 J	NA	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trimethylbenzene, 1,2,4-	0.60 J	745	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Vinyl Chloride	0.14 U	14.7	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethane, 1,1-	3.2	764	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trichloroethane, 1,1,2-	0.30 U	18.6	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethylene, 1,1-	0.86 J	586	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Naphthalene	0.66 J	459	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Trichloroethylene	0.79 J	5.18	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Tetrachloroethylene	0.27 U	173	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Methylnaphthalene, 1-	1.0 U	NA	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethane, 1,2-	0.24 U	224	µg/L

Table 1
Analytical Groundwater Results Compared to EPA VISL
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-GW-MW3-190801	8/1/2019 16:00	Trichloroethane, 1,1,1-	34	22,200	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Methylnaphthalene, 2-	0.86 J	NA	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethylene, 1,2-cis-	0.30 J	NA	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Trimethylbenzene, 1,2,4-	0.78 J	745	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Vinyl Chloride	0.14 U	14.7	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethane, 1,1-	2.4	764	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Trichloroethane, 1,1,2-	0.30 U	18.6	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethylene, 1,1-	0.81 J	586	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Naphthalene	34 J	459	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trichloroethylene	370	5.18	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Tetrachloroethylene	14 U	173	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Methylnaphthalene, 1-	55 U	NA	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethane, 1,2-	16 J	224	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trichloroethane, 1,1,1-	30,000	22,200	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Methylnaphthalene, 2-	50 J	NA	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethylene, 1,2-cis-	750 U	NA	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trimethylbenzene, 1,2,4-	44 J	745	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Vinyl Chloride	17 J	14.7	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethane, 1,1-	5,700	764	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trichloroethane, 1,1,2-	88	18.6	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethylene, 1,1-	530	586	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Naphthalene	0.30 U	459	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trichloroethylene	260	5.18	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Tetrachloroethylene	0.49 J	173	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Methylnaphthalene, 1-	0.016 J	NA	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethane, 1,2-	0.24 U	224	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trichloroethane, 1,1,1-	38	22,200	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Methylnaphthalene, 2-	0.075 UJ	NA	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethylene, 1,2-cis-	93 U	NA	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trimethylbenzene, 1,2,4-	0.29 U	745	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Vinyl Chloride	8.4	14.7	µg/L

Table 1
Analytical Groundwater Results Compared to EPA VISL
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethane, 1,1-	11	764	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trichloroethane, 1,1,2-	0.30 U	18.6	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethylene, 1,1-	2.2	586	µg/L
Dup-01	NA	Naphthalene	0.30 U	459	µg/L
Dup-01	NA	Trichloroethylene	0.30 U	5.18	µg/L
Dup-01	NA	Tetrachloroethylene	0.27 U	173	µg/L
Dup-01	NA	Methylnaphthalene, 1-	0.12	NA	µg/L
Dup-01	NA	Dichloroethane, 1,2-	0.24 U	224	µg/L
Dup-01	NA	Trichloroethane, 1,1,1-	1.7 J	22,200	µg/L
Dup-01	NA	Methylnaphthalene, 2-	0.12 J+	NA	µg/L
Dup-01	NA	Dichloroethylene, 1,2-cis-	0.30 U	NA	µg/L
Dup-01	NA	Trimethylbenzene, 1,2,4-	0.29 U	745	µg/L
Dup-01	NA	Vinyl Chloride	0.14 U	14.7	µg/L
Dup-01	NA	Dichloroethane, 1,1-	0.30 U	764	µg/L
Dup-01	NA	Trichloroethane, 1,1,2-	0.30 U	18.6	µg/L
Dup-01	NA	Dichloroethylene, 1,1-	0.40 U	586	µg/L

Notes:

	Highlighted orange cells indicate the value exceeds regulatory criteria.
µg/L	micrograms per liter
EPA	U.S. Environmental Protection Agency
J Qualifier	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+ Qualifier	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high due to deficiencies in one or more quality control criteria.
NA	not applicable
U Qualifier	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ Qualifier	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.
VISL	Vapor Intrusion Screening Levels
VISL Target Groundwater Concentrations have a Target Risk (TR) = 1E-04 and a Hazard Quotient (HQ) = 3, HQ 1 for Trichloroethylene	

Table 2
Analytical Groundwater Results Compared to IDEM RCG Residential Groundwater Vapor Exposure Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-GW-MW1-190802	8/2/2019 9:45	Naphthalene	0.30 U	110	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trichloroethylene	0.30 U	9.1	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Tetrachloroethylene	0.27 U	110	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Methylnaphthalene, 1-	0.14	NL	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethane, 1,2-	0.24 U	50	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trichloroethane, 1,1,1-	4.5 J	13,000	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Methylnaphthalene, 2-	0.12 UJ	NL	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethylene, 1,2-cis-	0.30 U	NL	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trimethylbenzene, 1,2,4-	0.29 U	63,000*	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Vinyl Chloride	0.14 U	2.1	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethane, 1,1-	0.30 U	130	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Trichloroethane, 1,1,2-	0.30 U	11	µg/L
NA-GW-MW1-190802	8/2/2019 9:45	Dichloroethylene, 1,1-	0.40 U	300	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Naphthalene	0.69 J	110	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trichloroethylene	2.5	9.1	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Tetrachloroethylene	0.27 U	110	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Methylnaphthalene, 1-	0.55 J+	NL	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethane, 1,2-	0.24 U	50	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trichloroethane, 1,1,1-	36	13,000	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Methylnaphthalene, 2-	0.47 UJ	NL	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethylene, 1,2-cis-	0.87 J	NL	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trimethylbenzene, 1,2,4-	0.60 J	63,000*	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Vinyl Chloride	0.14 U	2.1	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethane, 1,1-	3.2	130	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Trichloroethane, 1,1,2-	0.30 U	11	µg/L
NA-GW-MW2-190802	8/2/2019 11:00	Dichloroethylene, 1,1-	0.86 J	300	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Naphthalene	0.66 J	110	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Trichloroethylene	0.79 J	9.1	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Tetrachloroethylene	0.27 U	110	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Methylnaphthalene, 1-	1.0 U	NL	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethane, 1,2-	0.24 U	50	µg/L

Table 2
Analytical Groundwater Results Compared to IDEM RCG Residential Groundwater Vapor Exposure Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-GW-MW3-190801	8/1/2019 16:00	Trichloroethane, 1,1,1-	34	13,000	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Methylnaphthalene, 2-	0.86 J	NL	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethylene, 1,2-cis-	0.30 J	NL	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Trimethylbenzene, 1,2,4-	0.78 J	63,000*	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Vinyl Chloride	0.14 U	2.1	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethane, 1,1-	2.4	130	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Trichloroethane, 1,1,2-	0.30 U	11	µg/L
NA-GW-MW3-190801	8/1/2019 16:00	Dichloroethylene, 1,1-	0.81 J	300	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Naphthalene	34 J	110	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trichloroethylene	370	9.1	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Tetrachloroethylene	14 U	110	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Methylnaphthalene, 1-	55 U	NL	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethane, 1,2-	16 J	50	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trichloroethane, 1,1,1-	30,000	13,000	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Methylnaphthalene, 2-	50 J	NL	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethylene, 1,2-cis-	750 U	NL	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trimethylbenzene, 1,2,4-	44 J	63,000*	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Vinyl Chloride	17 J	2.1	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethane, 1,1-	5,700	130	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Trichloroethane, 1,1,2-	88	11	µg/L
NA-GW-MW4-190801	8/1/2019 13:45	Dichloroethylene, 1,1-	530	300	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Naphthalene	0.30 U	110	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trichloroethylene	260	9.1	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Tetrachloroethylene	0.49 J	110	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Methylnaphthalene, 1-	0.016 J	NL	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethane, 1,2-	0.24 U	50	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trichloroethane, 1,1,1-	38	13,000	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Methylnaphthalene, 2-	0.075 UJ	NL	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethylene, 1,2-cis-	93 U	NL	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trimethylbenzene, 1,2,4-	0.29 U	63,000*	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Vinyl Chloride	8.4	2.1	µg/L

Table 2
Analytical Groundwater Results Compared to IDEM RCG Residential Groundwater Vapor Exposure Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethane, 1,1-	11	130	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Trichloroethane, 1,1,2-	0.30 U	11	µg/L
NA-GW-MW5-190801	8/1/2019 12:00	Dichloroethylene, 1,1-	2.2	300	µg/L
Dup-01	NA	Naphthalene	0.30 U	110	µg/L
Dup-01	NA	Trichloroethylene	0.30 U	9.1	µg/L
Dup-01	NA	Tetrachloroethylene	0.27 U	110	µg/L
Dup-01	NA	Methylnaphthalene, 1-	0.12	NL	µg/L
Dup-01	NA	Dichloroethane, 1,2-	0.24 U	50	µg/L
Dup-01	NA	Trichloroethane, 1,1,1-	1.7 J	13,000	µg/L
Dup-01	NA	Methylnaphthalene, 2-	0.12 J+	NL	µg/L
Dup-01	NA	Dichloroethylene, 1,2-cis-	0.30 U	NL	µg/L
Dup-01	NA	Trimethylbenzene, 1,2,4-	0.29 U	63,000*	µg/L
Dup-01	NA	Vinyl Chloride	0.14 U	2.1	µg/L
Dup-01	NA	Dichloroethane, 1,1-	0.30 U	130	µg/L
Dup-01	NA	Trichloroethane, 1,1,2-	0.30 U	11	µg/L
Dup-01	NA	Dichloroethylene, 1,1-	0.40 U	300	µg/L

Notes:

	Highlighted orange cells indicate the value exceeds regulatory criteria.
*	Screening level back calculated by dividing the IDEM RCG Residential Indoor Air Vapor Exposure Screening Level by the appropriate RCG Attenuation Factor.
µg/L	micrograms per liter
IDEM	Indiana Department of Environmental Management
J Qualifier	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+ Qualifier	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
NA	Not applicable
NL	No listed Vapor Exposure Screening Level criteria in IDEM RCG.
RCG	Remediation Closure Guide
Regulation Criteria	IDEM RCG Residential Groundwater Vapor Exposure Screening Levels
U Qualifier	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ Qualifier	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.

Table 3
Analytical Soil Gas Results Compared to EPA VISL Target Sub-Slab and Soil Gas Concentrations
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG01-190904	9/5/2019 15:01	Naphthalene	25 U	275	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trichloroethylene	26 U	69.5	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Tetrachloroethylene	26 U	4,170	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethane, 1,2-	26 U	360	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trichloroethane, 1,1,1-	260	521,000	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethylene, 1,2-cis-	26 U	NA	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trimethylbenzene, 1,2,4-	26 U	6,260	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Vinyl Chloride	26 U	559	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethane, 1,1-	26 U	5,850	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trichloroethane, 1,1,2-	27 U	20.9	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethylene, 1,1-	27 U	20,900	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Naphthalene	25 U	275	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trichloroethylene	26 U	69.5	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Tetrachloroethylene	26 U	4,170	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethane, 1,2-	26 U	360	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trichloroethane, 1,1,1-	27 U	521,000	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethylene, 1,2-cis-	26 U	NA	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trimethylbenzene, 1,2,4-	26 U	6,260	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Vinyl Chloride	26 U	559	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethane, 1,1-	26 U	5,850	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trichloroethane, 1,1,2-	27 U	20.9	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethylene, 1,1-	27 U	20,900	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Naphthalene	32 U	275	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Trichloroethylene	33 U	69.5	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Tetrachloroethylene	33 U	4,170	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethane, 1,2-	33 U	360	µg/m ³

Table 3
Analytical Soil Gas Results Compared to EPA VISL Target Sub-Slab and Soil Gas Concentrations
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG03-190904	9/6/2019 9:55	Trichloroethane, 1,1,1-	33 U	521,000	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethylene, 1,2-cis-	33 U	NA	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Trimethylbenzene, 1,2,4-	33 U	6,260	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Vinyl Chloride	33 U	559	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethane, 1,1-	32 U	5,850	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Trichloroethane, 1,1,2-	33 U	20.9	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethylene, 1,1-	33 U	20,900	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Naphthalene	19 U	275	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trichloroethylene	20 U	69.5	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Tetrachloroethylene	20 U	4,170	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethane, 1,2-	20 U	360	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trichloroethane, 1,1,1-	180	521,000	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethylene, 1,2-cis-	20 U	NA	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trimethylbenzene, 1,2,4-	20 U	6,260	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Vinyl Chloride	20 U	559	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethane, 1,1-	19 U	5,850	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trichloroethane, 1,1,2-	20 U	20.9	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethylene, 1,1-	20 U	20,900	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Naphthalene	4.1 U	275	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trichloroethylene	1.5 U	69.5	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Tetrachloroethylene	1.5 U	4,170	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Dichloroethane, 1,2-	1.5 U	360	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trichloroethane, 1,1,1-	2.3	521,000	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Dichloroethylene, 1,2-cis-	1.5 U	NA	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trimethylbenzene, 1,2,4-	15	6,260	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Vinyl Chloride	1.5 U	559	µg/m ³

Table 3
Analytical Soil Gas Results Compared to EPA VISL Target Sub-Slab and Soil Gas Concentrations
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG05-190905	9/6/2019 14:28	Dichloroethane, 1,1-	1.5 U	5,850	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trichloroethane, 1,1,2-	1.5 U	20.9	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Dichloroethylene, 1,1-	1.5 U	20,900	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Naphthalene	37 U	275	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trichloroethylene	39 U	69.5	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Tetrachloroethylene	39 U	4,170	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethane, 1,2-	39 U	360	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trichloroethane, 1,1,1-	61	521,000	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethylene, 1,2-cis-	39 U	NA	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trimethylbenzene, 1,2,4-	39 U	6,260	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Vinyl Chloride	39 U	559	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethane, 1,1-	38 U	5,850	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trichloroethane, 1,1,2-	39 U	20.9	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethylene, 1,1-	39 U	20,900	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Naphthalene	22 U	275	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trichloroethylene	23 U	69.5	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Tetrachloroethylene	23 U	4,170	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethane, 1,2-	23 U	360	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trichloroethane, 1,1,1-	24 U	521,000	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethylene, 1,2-cis-	23 U	NA	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trimethylbenzene, 1,2,4-	23 U	6,260	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Vinyl Chloride	23 U	559	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethane, 1,1-	23 U	5,850	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trichloroethane, 1,1,2-	24 U	20.9	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethylene, 1,1-	24 U	20,900	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Naphthalene	16 U	275	µg/m ³

Table 3
Analytical Soil Gas Results Compared to EPA VISL Target Sub-Slab and Soil Gas Concentrations
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG08-190904	9/6/2019 9:09	Trichloroethylene	16 U	69.5	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Tetrachloroethylene	16 U	4,170	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethane, 1,2-	16 U	360	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Trichloroethane, 1,1,1-	17 U	521,000	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethylene, 1,2-cis-	16 U	NA	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Trimethylbenzene, 1,2,4-	16 U	6,260	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Vinyl Chloride	16 U	559	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethane, 1,1-	16 U	5,850	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Trichloroethane, 1,1,2-	17 U	20.9	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethylene, 1,1-	17 U	20,900	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Naphthalene	13 U	275	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trichloroethylene	13 U	69.5	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Tetrachloroethylene	21	4,170	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethane, 1,2-	13 U	360	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trichloroethane, 1,1,1-	49	521,000	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethylene, 1,2-cis-	13 U	NA	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trimethylbenzene, 1,2,4-	18	6,260	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Vinyl Chloride	13 U	559	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethane, 1,1-	13 U	5,850	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trichloroethane, 1,1,2-	14 U	20.9	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethylene, 1,1-	14 U	20,900	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Naphthalene	0.85	275	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trichloroethylene	0.75 U	69.5	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Tetrachloroethylene	0.75 U	4,170	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Dichloroethane, 1,2-	0.75 U	360	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trichloroethane, 1,1,1-	0.77 U	521,000	µg/m ³

Table 3
Analytical Soil Gas Results Compared to EPA VISL Target Sub-Slab and Soil Gas Concentrations
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG10-190905	9/6/2019 15:18	Dichloroethylene, 1,2-cis-	0.75 U	NA	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trimethylbenzene, 1,2,4-	13	6,260	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Vinyl Chloride	0.75 U	559	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Dichloroethane, 1,1-	0.74 U	5,850	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trichloroethane, 1,1,2-	0.77 U	20.9	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Dichloroethylene, 1,1-	0.77 U	20,900	µg/m ³
Dup-02	NA	Naphthalene	15 U	275	ug/m ³

Table 3
Analytical Soil Gas Results Compared to EPA VISL Target Sub-Slab and Soil Gas Concentrations
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
Dup-02	NA	Trichloroethylene	15 U	69.5	µg/m ³
Dup-02	NA	Tetrachloroethylene	21	4,170	µg/m ³
Dup-02	NA	Dichloroethane, 1,2-	15 U	360	µg/m ³
Dup-02	NA	Trichloroethane, 1,1,1-	49	521,000	µg/m ³
Dup-02	NA	Dichloroethylene, 1,2-cis-	15 U	NA	µg/m ³
Dup-02	NA	Trimethylbenzene, 1,2,4-	16	6,260	µg/m ³
Dup-02	NA	Vinyl Chloride	15 U	559	µg/m ³
Dup-02	NA	Dichloroethane, 1,1-	15 U	5,850	µg/m ³
Dup-02	NA	Trichloroethane, 1,1,2-	16 U	20.9	µg/m ³
Dup-02	NA	Dichloroethylene, 1,1-	16 U	20,900	µg/m ³
Dup-03	NA	Naphthalene	3.6 U	275	µg/m ³
Dup-03	NA	Trichloroethylene	1.6 U	69.5	µg/m ³
Dup-03	NA	Tetrachloroethylene	1.6 U	4,170	µg/m ³
Dup-03	NA	Dichloroethane, 1,2-	1.6 U	360	µg/m ³
Dup-03	NA	Trichloroethane, 1,1,1-	2.3	521,000	µg/m ³
Dup-03	NA	Dichloroethylene, 1,2-cis-	1.6 U	NA	µg/m ³
Dup-03	NA	Trimethylbenzene, 1,2,4-	19	6,260	µg/m ³
Dup-03	NA	Vinyl Chloride	1.6 U	559	µg/m ³
Dup-03	NA	Dichloroethane, 1,1-	1.6 U	5,850	µg/m ³
Dup-03	NA	Trichloroethane, 1,1,2-	1.7 U	20.9	µg/m ³
Dup-03	NA	Dichloroethylene, 1,1-	1.7 U	20,900	µg/m ³

Notes:

µg/m³ micrograms per cubic meter
EPA Environmental Protection Agency
EPA VISL Target Sub-Slab and Soil Gas Concentrations have a Target Risk (TR) = 1E-04 and a Hazard Quotient (HQ) = 3, HQ 1 for Trichloroethylene
NA not applicable

Table 3
Analytical Soil Gas Results Compared to EPA VISL Target Sub-Slab and Soil Gas Concentrations
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
U Qualifier VISL	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit). Vapor Intrusion Screening Levels				

Table 4
Analytical Soil Gas Results Compared to IDEM RCG Residential Soil Gas Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG01-190904	9/5/2019 15:01	Naphthalene	25 U	83	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trichloroethylene	26 U	210	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Tetrachloroethylene	26 U	4,200	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethane, 1,2-	26 U	110	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trichloroethane, 1,1,1-	260	520,000	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethylene, 1,2-cis-	26 U	NL	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trimethylbenzene, 1,2,4-	26 U	6,300	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Vinyl Chloride	26 U	170	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethane, 1,1-	26 U	1,800	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Trichloroethane, 1,1,2-	27 U	21	µg/m ³
NA-SG01-190904	9/5/2019 15:01	Dichloroethylene, 1,1-	27 U	21,000	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Naphthalene	25 U	83	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trichloroethylene	26 U	210	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Tetrachloroethylene	26 U	4,200	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethane, 1,2-	26 U	110	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trichloroethane, 1,1,1-	27 U	520,000	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethylene, 1,2-cis-	26 U	NL	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trimethylbenzene, 1,2,4-	26 U	6,300	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Vinyl Chloride	26 U	170	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethane, 1,1-	26 U	1,800	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Trichloroethane, 1,1,2-	27 U	21	µg/m ³
NA-SG02-190904	9/5/2019 16:00	Dichloroethylene, 1,1-	27 U	21,000	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Naphthalene	32 U	83	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Trichloroethylene	33 U	210	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Tetrachloroethylene	33 U	4,200	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethane, 1,2-	33 U	110	µg/m ³

Table 4
Analytical Soil Gas Results Compared to IDEM RCG Residential Soil Gas Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG03-190904	9/6/2019 9:55	Trichloroethane, 1,1,1-	33 U	520,000	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethylene, 1,2-cis-	33 U	NL	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Trimethylbenzene, 1,2,4-	33 U	6,300	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Vinyl Chloride	33 U	170	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethane, 1,1-	32 U	1,800	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Trichloroethane, 1,1,2-	33 U	21	µg/m ³
NA-SG03-190904	9/6/2019 9:55	Dichloroethylene, 1,1-	33 U	21,000	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Naphthalene	19 U	83	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trichloroethylene	20 U	210	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Tetrachloroethylene	20 U	4,200	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethane, 1,2-	20 U	110	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trichloroethane, 1,1,1-	180	520,000	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethylene, 1,2-cis-	20 U	NL	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trimethylbenzene, 1,2,4-	20 U	6,300	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Vinyl Chloride	20 U	170	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethane, 1,1-	19 U	1,800	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Trichloroethane, 1,1,2-	20 U	21	µg/m ³
NA-SG04-190905	9/6/2019 13:45	Dichloroethylene, 1,1-	20 U	21,000	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Naphthalene	4.1 U	83	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trichloroethylene	1.5 U	210	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Tetrachloroethylene	1.5 U	4,200	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Dichloroethane, 1,2-	1.5 U	110	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trichloroethane, 1,1,1-	2.3	520,000	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Dichloroethylene, 1,2-cis-	1.5 U	NL	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trimethylbenzene, 1,2,4-	15	6,300	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Vinyl Chloride	1.5 U	170	µg/m ³

Table 4
Analytical Soil Gas Results Compared to IDEM RCG Residential Soil Gas Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG05-190905	9/6/2019 14:28	Dichloroethane, 1,1-	1.5 U	1,800	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Trichloroethane, 1,1,2-	1.5 U	21	µg/m ³
NA-SG05-190905	9/6/2019 14:28	Dichloroethylene, 1,1-	1.5 U	21,000	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Naphthalene	37 U	83	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trichloroethylene	39 U	210	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Tetrachloroethylene	39 U	4,200	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethane, 1,2-	39 U	110	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trichloroethane, 1,1,1-	61	520,000	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethylene, 1,2-cis-	39 U	NL	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trimethylbenzene, 1,2,4-	39 U	6,300	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Vinyl Chloride	39 U	170	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethane, 1,1-	38 U	1,800	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Trichloroethane, 1,1,2-	39 U	21	µg/m ³
NA-SG06-190904	9/5/2019 14:00	Dichloroethylene, 1,1-	39 U	21,000	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Naphthalene	22 U	83	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trichloroethylene	23 U	210	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Tetrachloroethylene	23 U	4,200	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethane, 1,2-	23 U	110	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trichloroethane, 1,1,1-	24 U	520,000	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethylene, 1,2-cis-	23 U	NL	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trimethylbenzene, 1,2,4-	23 U	6,300	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Vinyl Chloride	23 U	170	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethane, 1,1-	23 U	1,800	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Trichloroethane, 1,1,2-	24 U	21	µg/m ³
NA-SG07-190904	9/6/2019 10:55	Dichloroethylene, 1,1-	24 U	21,000	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Naphthalene	16 U	83	µg/m ³

Table 4
Analytical Soil Gas Results Compared to IDEM RCG Residential Soil Gas Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG08-190904	9/6/2019 9:09	Trichloroethylene	16 U	210	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Tetrachloroethylene	16 U	4,200	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethane, 1,2-	16 U	110	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Trichloroethane, 1,1,1-	17 U	520,000	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethylene, 1,2-cis-	16 U	NL	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Trimethylbenzene, 1,2,4-	16 U	6,300	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Vinyl Chloride	16 U	170	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethane, 1,1-	16 U	1,800	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Trichloroethane, 1,1,2-	17 U	21	µg/m ³
NA-SG08-190904	9/6/2019 9:09	Dichloroethylene, 1,1-	17 U	21,000	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Naphthalene	13 U	83	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trichloroethylene	13 U	210	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Tetrachloroethylene	21	4,200	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethane, 1,2-	13 U	110	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trichloroethane, 1,1,1-	49	520,000	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethylene, 1,2-cis-	13 U	NL	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trimethylbenzene, 1,2,4-	18	6,300	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Vinyl Chloride	13 U	170	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethane, 1,1-	13 U	1,800	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Trichloroethane, 1,1,2-	14 U	21	µg/m ³
NA-SG09-190905	9/6/2019 11:42	Dichloroethylene, 1,1-	14 U	21,000	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Naphthalene	0.85	83	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trichloroethylene	0.75 U	210	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Tetrachloroethylene	0.75 U	4,200	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Dichloroethane, 1,2-	0.75 U	110	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trichloroethane, 1,1,1-	0.77 U	520,000	µg/m ³

Table 4
Analytical Soil Gas Results Compared to IDEM RCG Residential Soil Gas Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
NA-SG10-190905	9/6/2019 15:18	Dichloroethylene, 1,2-cis-	0.75 U	NL	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trimethylbenzene, 1,2,4-	13	6,300	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Vinyl Chloride	0.75 U	170	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Dichloroethane, 1,1-	0.74 U	1,800	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Trichloroethane, 1,1,2-	0.77 U	21	µg/m ³
NA-SG10-190905	9/6/2019 15:18	Dichloroethylene, 1,1-	0.77 U	21,000	µg/m ³
Dup-02	NA	Naphthalene	15 U	83	ug/m ³

Table 4
Analytical Soil Gas Results Compared to IDEM RCG Residential Soil Gas Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
Dup-02	NA	Trichloroethylene	15 U	210	µg/m ³
Dup-02	NA	Tetrachloroethylene	21	4,200	µg/m ³
Dup-02	NA	Dichloroethane, 1,2-	15 U	110	µg/m ³
Dup-02	NA	Trichloroethane, 1,1,1-	49	520,000	µg/m ³
Dup-02	NA	Dichloroethylene, 1,2-cis-	15 U	NL	µg/m ³
Dup-02	NA	Trimethylbenzene, 1,2,4-	16	6,300	µg/m ³
Dup-02	NA	Vinyl Chloride	15 U	170	µg/m ³
Dup-02	NA	Dichloroethane, 1,1-	15 U	1,800	µg/m ³
Dup-02	NA	Trichloroethane, 1,1,2-	16 U	21	µg/m ³
Dup-02	NA	Dichloroethylene, 1,1-	16 U	21,000	µg/m ³
Dup-03	NA	Naphthalene	3.6 U	83	µg/m ³
Dup-03	NA	Trichloroethylene	1.6 U	210	µg/m ³
Dup-03	NA	Tetrachloroethylene	1.6 U	4,200	µg/m ³
Dup-03	NA	Dichloroethane, 1,2-	1.6 U	110	µg/m ³
Dup-03	NA	Trichloroethane, 1,1,1-	2.3	520,000	µg/m ³
Dup-03	NA	Dichloroethylene, 1,2-cis-	1.6 U	NL	µg/m ³
Dup-03	NA	Trimethylbenzene, 1,2,4-	19	6,300	µg/m ³
Dup-03	NA	Vinyl Chloride	1.6 U	170	µg/m ³
Dup-03	NA	Dichloroethane, 1,1-	1.6 U	1,800	µg/m ³
Dup-03	NA	Trichloroethane, 1,1,2-	1.7 U	21	µg/m ³
Dup-03	NA	Dichloroethylene, 1,1-	1.7 U	21,000	µg/m ³

Notes:

- µg/m³ micrograms per cubic meter
- EPA Environmental Protection Agency
- NA not applicable
- NL No listed Vapor Exposure Screening Level criteria in IDEM RCG.

Table 4
Analytical Soil Gas Results Compared to IDEM RCG Residential Soil Gas Screening Levels
Newton Avenue Vapor Intrusion Site
Indianapolis, Marion County, Indiana

Sample ID	Date and Time of Collection	Analyte	Validated Results	Regulatory Criteria	Results/Regulatory Units
Regulation Criteria	IDEM RCG Soil Gas Screening Level back calculated by dividing IDEM RCG Residential Indoor Air Vapor Intrusion Exposure Screening Levels by the appropriate Attenuation Factor.				
U Qualifier	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).				



November 20, 2019

Mr. Jason Sewell
On-Scene Coordinator
U.S. Environmental Protection Agency Region 5
2525 N. Shadeland Avenue, Suite 100
Indianapolis, Indiana 46219-1787

**Subject: Data Validation Report
Newton Avenue VI Site
EPA Contract No.: 68HE0519D0005
Task Order/Task Order Line Item No.: 68HE0519F0069/0002AI038
Document Tracking No. 0030**

Dear Mr. Sewell:

Tetra Tech, Inc. (Tetra Tech) is submitting this data validation report for six groundwater samples (including one field duplicate groundwater sample) and twelve air samples (including two field duplicate air samples) collected at the Newton Avenue VI Site. The samples were collected on between August 1 and September 6, 2019 and were analyzed for select volatile organic compounds and select polycyclic aromatic hydrocarbons. Groundwater samples were analyzed by CT Laboratories LLC and air samples were analyzed by ALS Environmental Laboratories. The last laboratory data package was received on September 19, 2019.

Analytical data were evaluated in general accordance with the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (January 2017).

No rejection of results was required for these data packages. The results may be used as qualified based on the findings of this validation effort.

If you have any questions regarding this data validation report, please call me at (678) 775-3109.

Sincerely,

A handwritten signature in cursive script that reads 'Shanna Davis'.

Environmental Scientist

Enclosure

cc: Kevin Scott, Tetra Tech Program Manager
Joe Robert, Tetra Tech Project Manager
Connie Rodriguez, Tetra Tech Document Control Coordinator
TDD File

Tetra Tech, Inc.
1 South Wacker Dr. Suite 3700, Chicago, IL 60606
Tel 312.201.7479 | Fax 312.201.0031
www.tetrattech.com

ATTACHMENT 1

**DATA VALIDATION REPORT
CT LABORATORIES LLC REPORT NO. 147082 AND
ALS ENVIRONMENTAL REPORT NO. P1905371**

**DATA VALIDATION CHECKLIST – STAGE 4
EPA REGION 5 START CONTRACT**

Site Name	Newton Avenue VI Site - RS	TDD No.	68HE0519F0069/0002AI038
Document Tracking No.	0030A	Technical Reviewer (signature and date)	<i>Jessica A. Dickens</i> November 11, 2019
Data Reviewer (signature and date)	<i>Shanna Davis</i> October 30, 2019	Laboratory	CT Laboratories LLC/Baraboo, WI
Laboratory Report No.	147082		
Analyses	Select volatile organic compounds (VOCs) by SW-846 Method 8260C and select polycyclic aromatic hydrocarbons (PAHs) by SW-846 Method 8270D with selected ion monitoring (SIM)		
Samples and Matrix	Six groundwater samples, including one field duplicate groundwater sample		
Field Duplicate Pairs	NA-GW-MW1-190802/Dup-01		
Field Blanks	None		

INTRODUCTION

This checklist summarizes the Stage 4 validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (January 2017).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	



DATA VALIDATION CHECKLIST – STAGE 4

EPA REGION 5 START CONTRACT

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	<p>The chain of custody does not list a sample date or time for sample Dup-01; therefore, the laboratory arbitrarily logged the sample date as 08/01/2019. The actual sample date is 08/02/2019. No qualifications were applied.</p> <p>One VOA vial for sample NA-GW-MW5-190801 was received broken. The laboratory conducted the VOC analysis using the remaining two VOC vials.</p> <p>Two 1-liter amber glass jars for sample NA-GW-NW4-190801 were received broken. However, enough volume was present in the remaining glass jars to perform the PAH and quality control (QC) analyses.</p>

Instrument Performance Checks:

Within Criteria	Exceedance/Notes
Y	

Initial Calibration:

Within Criteria	Exceedance/Notes
Y	

Continuing Calibration:

Within Criteria	Exceedance/Notes
Y	



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

Calibration Verification:

Within Criteria	Exceedance/Notes
N	PAHs: The initial calibration verification conducted on August 12, 2019 at 15:29 yielded a percent difference value greater than the acceptance limit for 2-methylnaphthalene. The 2-methylnaphthalene results for all samples were qualified as estimated (J), unless superseded by a more specific qualifier.

Method blanks:

Within Criteria	Exceedance/Notes
N	PAHs: The method blank contained 2-methylnaphthalene. After application of target analyte qualifications, the 2-methylnaphthalene result for sample Dup-01 was qualified as estimated, possibly biased high (J+). The 2-methylnaphthalene result for NA-GW-MW5-190801 was raised to the reporting limit and qualified as non-detect (U).

Field blanks:

Within Criteria	Exceedance/Notes
NA	

Interference Check Samples (ICS) (ICP metals only):

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

System monitoring compounds (surrogates and labeled compounds):

Within Criteria	Exceedance/Notes
N	PAH surrogate nitrobenzene-d ₅ yielded a recovery above acceptance limits for NA-GW-MW2-190802. After application of target analyte qualifications, the 1-methylnaphthalene result for sample NA-GW-MW2-190802 was qualified as estimated, possibly biased high (J+). PAH surrogate recoveries could not be determined for sample NA-GW-MW4-190801 due to dilution. No qualifications were applied.

MS/MSD:

Within Criteria	Exceedance/Notes
N	NA-GW-MW4-190801 (VOC analysis): The MSD recovery for 1,1,1-trichloroethane was below laboratory specified acceptance limits. No qualification was applied because the average recovery was within laboratory limits. NA-GW-MW4-190801 (PAH analysis): Recoveries and relative percent difference (RPD) could not be determined because the unspiked sample contained more than four times the amount of the spike. No qualifications were applied.

Post digestion spikes:

Within Criteria	Exceedance/Notes
NA	

Serial dilutions:

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	

Field duplicates:

Within Criteria	Exceedance/Notes
N	NA-GW-MW1-190802/Dup-01: The RPD value for 1,1,1-trichloroethane was above the QAPP acceptance limit ($\leq 50\%$). The 1,1,1-trichloroethane results for both samples were qualified as estimated (J).

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	VOCs cis-1,2-dichloroethene and trichloroethene were analyzed at 5-fold dilutions for sample NA-GW-MW5-190801. VOCs except 1,1,1-trichloroethane and 1,1-dichloroethane were analyzed at 50-fold dilutions for sample NA-GW-MW4-190801. VOCs 1,1,1-trichloroethane and 1,1-dichloroethane were analyzed at 500-fold dilutions for sample NA-GW-MW4-190801. PAHs 1-methylnaphthalene and 2-methylnaphthalene were analyzed at 40-fold dilutions for sample NA-GW-MW4-190801.

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4
EPA REGION 5 START CONTRACT

Second column confirmation (GC and HPLC analyses only):

Within Criteria	Exceedance/Notes
NA	

Internal Standards:

Within Criteria	Exceedance/Notes
Y	

Target analyte identification:

Within Criteria	Exceedance/Notes
N	<p>Sample mass spectra indicated ion ratios outside established criteria for the following:</p> <ul style="list-style-type: none"> • NA-GW-MW1-190802 and NA-GW-MW2-190802: 2-methylnaphthalene • NA-GW-MW3-190801 and NA-GW-MW4-190801: 1-methylnaphthalene • NA-GW-MW4-190801 and NA-GW-MW5-190801: cis-1,2-dichloroethene <p>The results for these analytes in their associated samples were qualified as non-detect (U) at the reported value.</p>

Analyte quantitation and MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Results below the sample-specific reporting limit were qualified as estimated (J) by the laboratory. Method detection limits and reporting limits are listed in the attached qualified data table.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

System performance and instrument stability:

Within Criteria	Exceedance/Notes
Y	

Other [specify]:

Within Criteria	Exceedance/Notes
NA	

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.



NEWTON AVENUE VI SITE GROUNDWATER ANALYTICAL RESULTS SUMMARY
CT LABORATORIES REPORT NO. 147082

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NA-GW-MW1-190802	SW8260C	1,1,1-Trichloroethane	4.5		0.29	1.0 ug/L		4.5 J	
NA-GW-MW1-190802	SW8260C	1,1,2-Trichloroethane	0.30	U	0.30	1.0 ug/L		0.30 U	
NA-GW-MW1-190802	SW8260C	1,1-Dichloroethane	0.30	U	0.30	1.0 ug/L		0.30 U	
NA-GW-MW1-190802	SW8260C	1,1-Dichloroethene	0.40	U	0.40	2.0 ug/L		0.40 U	
NA-GW-MW1-190802	SW8260C	1,2,4-Trimethylbenzene	0.29	U	0.29	1.0 ug/L		0.29 U	
NA-GW-MW1-190802	SW8260C	1,2-Dichloroethane	0.24	U	0.24	1.0 ug/L		0.24 U	
NA-GW-MW1-190802	SW8260C	cis-1,2-Dichloroethene	0.30	U	0.30	1.0 ug/L		0.30 U	
NA-GW-MW1-190802	SW8260C	Naphthalene	0.30	U	0.30	1.0 ug/L		0.30 U	
NA-GW-MW1-190802	SW8260C	Tetrachloroethene	0.27	U	0.27	1.0 ug/L		0.27 U	
NA-GW-MW1-190802	SW8260C	Trichloroethene	0.30	U	0.30	1.0 ug/L		0.30 U	
NA-GW-MW1-190802	SW8260C	Vinyl chloride	0.14	U	0.14	0.60 ug/L		0.14 U	
NA-GW-MW1-190802	SW8270SIM	1-Methylnaphthalene	0.14		0.015	0.076 ug/L		0.14	
NA-GW-MW1-190802	SW8270SIM	2-Methylnaphthalene	0.12	B	0.014	0.076 ug/L		0.12 UJ	
DUP-01	SW8260C	1,1,1-Trichloroethane	1.7		0.29	1.0 ug/L		1.7 J	
DUP-01	SW8260C	1,1,2-Trichloroethane	0.30	U	0.30	1.0 ug/L		0.30 U	
DUP-01	SW8260C	1,1-Dichloroethane	0.30	U	0.30	1.0 ug/L		0.30 U	
DUP-01	SW8260C	1,1-Dichloroethene	0.40	U	0.40	2.0 ug/L		0.40 U	
DUP-01	SW8260C	1,2,4-Trimethylbenzene	0.29	U	0.29	1.0 ug/L		0.29 U	
DUP-01	SW8260C	1,2-Dichloroethane	0.24	U	0.24	1.0 ug/L		0.24 U	
DUP-01	SW8260C	cis-1,2-Dichloroethene	0.30	U	0.30	1.0 ug/L		0.30 U	
DUP-01	SW8260C	Naphthalene	0.30	U	0.30	1.0 ug/L		0.30 U	
DUP-01	SW8260C	Tetrachloroethene	0.27	U	0.27	1.0 ug/L		0.27 U	
DUP-01	SW8260C	Trichloroethene	0.30	U	0.30	1.0 ug/L		0.30 U	
DUP-01	SW8260C	Vinyl chloride	0.14	U	0.14	0.60 ug/L		0.14 U	
DUP-01	SW8270SIM	1-Methylnaphthalene	0.12		0.014	0.072 ug/L		0.12	
DUP-01	SW8270SIM	2-Methylnaphthalene	0.12	B	0.013	0.072 ug/L		0.12 J+	
NA-GW-MW2-190802	SW8260C	1,1,1-Trichloroethane	36		0.29	1.0 ug/L		36	
NA-GW-MW2-190802	SW8260C	1,1,2-Trichloroethane	0.30	U	0.30	1.0 ug/L		0.30 U	
NA-GW-MW2-190802	SW8260C	1,1-Dichloroethane	3.2		0.30	1.0 ug/L		3.2	
NA-GW-MW2-190802	SW8260C	1,1-Dichloroethene	0.86	J	0.40	2.0 ug/L		0.86 J	
NA-GW-MW2-190802	SW8260C	1,2,4-Trimethylbenzene	0.60	J	0.29	1.0 ug/L		0.60 J	
NA-GW-MW2-190802	SW8260C	1,2-Dichloroethane	0.24	U	0.24	1.0 ug/L		0.24 U	
NA-GW-MW2-190802	SW8260C	cis-1,2-Dichloroethene	0.87	J	0.30	1.0 ug/L		0.87 J	
NA-GW-MW2-190802	SW8260C	Naphthalene	0.69	J	0.30	1.0 ug/L		0.69 J	

NEWTON AVENUE VI SITE GROUNDWATER ANALYTICAL RESULTS SUMMARY
CT LABORATORIES REPORT NO. 147082



Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NA-GW-MW2-190802	SW8260C	Tetrachloroethene	0.27	U	0.27	1.0	ug/L	0.27	U
NA-GW-MW2-190802	SW8260C	Trichloroethene	2.5		0.30	1.0	ug/L	2.5	
NA-GW-MW2-190802	SW8260C	Vinyl chloride	0.14	U	0.14	0.60	ug/L	0.14	U
NA-GW-MW2-190802	SW8270SIM	1-Methylnaphthalene	0.55		0.021	0.11	ug/L	0.55	J+
NA-GW-MW2-190802	SW8270SIM	2-Methylnaphthalene	0.47		0.020	0.11	ug/L	0.47	UJ
NA-GW-MW3-190801	SW8260C	1,1,1-Trichloroethane	34		0.29	1.0	ug/L	34	
NA-GW-MW3-190801	SW8260C	1,1,2-Trichloroethane	0.30	U	0.30	1.0	ug/L	0.30	U
NA-GW-MW3-190801	SW8260C	1,1-Dichloroethane	2.4		0.30	1.0	ug/L	2.4	
NA-GW-MW3-190801	SW8260C	1,1-Dichloroethene	0.81	J	0.40	2.0	ug/L	0.81	J
NA-GW-MW3-190801	SW8260C	1,2,4-Trimethylbenzene	0.78	J	0.29	1.0	ug/L	0.78	J
NA-GW-MW3-190801	SW8260C	1,2-Dichloroethane	0.24	U	0.24	1.0	ug/L	0.24	U
NA-GW-MW3-190801	SW8260C	cis-1,2-Dichloroethene	0.30	J	0.30	1.0	ug/L	0.30	J
NA-GW-MW3-190801	SW8260C	Naphthalene	0.66	J	0.30	1.0	ug/L	0.66	J
NA-GW-MW3-190801	SW8260C	Tetrachloroethene	0.27	U	0.27	1.0	ug/L	0.27	U
NA-GW-MW3-190801	SW8260C	Trichloroethene	0.79	J	0.30	1.0	ug/L	0.79	J
NA-GW-MW3-190801	SW8260C	Vinyl chloride	0.14	U	0.14	0.60	ug/L	0.14	U
NA-GW-MW3-190801	SW8270SIM	1-Methylnaphthalene	1.0		0.014	0.072	ug/L	1.0	U
NA-GW-MW3-190801	SW8270SIM	2-Methylnaphthalene	0.86		0.013	0.072	ug/L	0.86	J
NA-GW-MW4-190801	SW8260C	1,1,1-Trichloroethane	30000	M	150	500	ug/L	30000	
NA-GW-MW4-190801	SW8260C	1,1,2-Trichloroethane	88		15	50	ug/L	88	
NA-GW-MW4-190801	SW8260C	1,1-Dichloroethane	5700		150	500	ug/L	5700	
NA-GW-MW4-190801	SW8260C	1,1-Dichloroethene	530		20	100	ug/L	530	
NA-GW-MW4-190801	SW8260C	1,2,4-Trimethylbenzene	44	J	15	50	ug/L	44	J
NA-GW-MW4-190801	SW8260C	1,2-Dichloroethane	16	J	12	50	ug/L	16	J
NA-GW-MW4-190801	SW8260C	cis-1,2-Dichloroethene	750		15	50	ug/L	750	U
NA-GW-MW4-190801	SW8260C	Naphthalene	34	J	15	50	ug/L	34	J
NA-GW-MW4-190801	SW8260C	Tetrachloroethene	14	U	14	50	ug/L	14	U
NA-GW-MW4-190801	SW8260C	Trichloroethene	370		15	50	ug/L	370	
NA-GW-MW4-190801	SW8260C	Vinyl chloride	17	J	7.0	30	ug/L	17	J
NA-GW-MW4-190801	SW8270SIM	1-Methylnaphthalene	55		0.58	2.9	ug/L	55	U
NA-GW-MW4-190801	SW8270SIM	2-Methylnaphthalene	50		0.54	2.9	ug/L	50	J
NA-GW-MW5-190801	SW8260C	1,1,1-Trichloroethane	38		0.29	1.0	ug/L	38	
NA-GW-MW5-190801	SW8260C	1,1,2-Trichloroethane	0.30	U	0.30	1.0	ug/L	0.30	U
NA-GW-MW5-190801	SW8260C	1,1-Dichloroethane	11		0.30	1.0	ug/L	11	

NEWTON AVENUE VI SITE GROUNDWATER ANALYTICAL RESULTS SUMMARY

CT LABORATORIES REPORT NO. 147082

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NA-GW-MW5-190801	SW8260C	1,1-Dichloroethene	2.2		0.40	2.0	ug/L	2.2	
NA-GW-MW5-190801	SW8260C	1,2,4-Trimethylbenzene	0.29	U	0.29	1.0	ug/L	0.29	U
NA-GW-MW5-190801	SW8260C	1,2-Dichloroethane	0.24	U	0.24	1.0	ug/L	0.24	U
NA-GW-MW5-190801	SW8260C	cis-1,2-Dichloroethene	93		1.5	5.0	ug/L	93	U
NA-GW-MW5-190801	SW8260C	Naphthalene	0.30	U	0.30	1.0	ug/L	0.30	U
NA-GW-MW5-190801	SW8260C	Tetrachloroethene	0.49	J	0.27	1.0	ug/L	0.49	J
NA-GW-MW5-190801	SW8260C	Trichloroethene	260		1.5	5.0	ug/L	260	
NA-GW-MW5-190801	SW8260C	Vinyl chloride	8.4		0.14	0.60	ug/L	8.4	
NA-GW-MW5-190801	SW8270SIM	1-Methylnaphthalene	0.016	J	0.015	0.075	ug/L	0.016	J
NA-GW-MW5-190801	SW8270SIM	2-Methylnaphthalene	0.038	JB	0.014	0.075	ug/L	0.075	UJ

**DATA VALIDATION CHECKLIST – STAGE 4
EPA REGION 5 START CONTRACT**

Site Name	Newton Avenue VI Site	TO/TOLIN No.	68HE0519F0069/0002AI038
Document Tracking No.	0030B	Technical Reviewer (signature and date)	 November 11, 2019
Data Reviewer (signature and date)	 October 4, 2019	Laboratory	ALS Environmental/Simi Valley, CA
Laboratory Report No.	P1905371		
Analyses	Select volatile organic compounds (VOCs) by EPA Method TO-15 with selected ion monitoring (SIM)		
Samples and Matrix	Twelve air samples, including two field duplicate air samples		
Field Duplicate Pairs	NA-SG05-190905/Dup-03 and NA-SG09-190905/Dup-02		
Field Blanks	None		

INTRODUCTION

This checklist summarizes the Stage 4 validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (January 2017).

OVERALL EVALUATION

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

Data completeness:

Within Criteria	Exceedance/Notes
Y	

Sample preservation, receipt, and holding times:

Within Criteria	Exceedance/Notes
Y	The laboratory reported that custody seals were not present on the outside of the containers within which the samples were shipped. No qualifications were applied for this omission.



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

Instrument Performance Checks:

Within Criteria	Exceedance/Notes
Y	

Initial Calibration:

Within Criteria	Exceedance/Notes
Y	

Continuing Calibration:

Within Criteria	Exceedance/Notes
Y	

Calibration Verification:

Within Criteria	Exceedance/Notes
Y	

Method blanks:

Within Criteria	Exceedance/Notes
Y	

Field blanks:

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4
EPA REGION 5 START CONTRACT

Interference Check Samples (ICS) (ICP metals only):

Within Criteria	Exceedance/Notes
NA	

System monitoring compounds (surrogates and labeled compounds):

Within Criteria	Exceedance/Notes
Y	

MS/MSD:

Within Criteria	Exceedance/Notes
NA	

Post digestion spikes:

Within Criteria	Exceedance/Notes
NA	

Serial dilutions:

Within Criteria	Exceedance/Notes
NA	

Laboratory duplicates:

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

Field duplicates:

Within Criteria	Exceedance/Notes
Y	

LCSs/LCSDs:

Within Criteria	Exceedance/Notes
Y	

Sample dilutions:

Within Criteria	Exceedance/Notes
Y	<p>Dilution factors inherent in the sample's residual vacuum (called "container dilution factor") ranged from 1.40 to 1.55. The following additional dilutions were performed:</p> <ul style="list-style-type: none"> • NG-SG01-190904 and NG-SG02-190914 were analyzed using a 0.030-liter subsample, which equals a 33.3-fold dilution. • NG-SG03-190904 was analyzed using a 0.025-liter subsample, which equals a 40-fold dilution. • NG-SG04-190905 was analyzed using a 0.040-liter subsample, which equals a 25-fold dilution. • NG-SG05-190905 and Dup-03 were analyzed using a 0.50-liter subsample, which equals a 2-fold dilution. • NG-SG06-190904 was analyzed using a 0.020-liter subsample, which equals a 50-fold dilution. • NG-SG07-191904 was analyzed using a 0.035-liter subsample, which equals a 28.6-fold dilution. • NG-SG08-190904 was analyzed using a 0.045-liter subsample, which equals a 22.2-fold dilution. • NG-SG09-190905 was analyzed using a 0.060-liter subsample, which equals a 16.7-fold dilution. • Dup-02 was analyzed using a 0.050-liter subsample, which equals a 20-fold dilution.

Re-extraction and reanalysis:

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

Second column confirmation (GC and HPLC analyses only):

Within Criteria	Exceedance/Notes
NA	

Internal Standards:

Within Criteria	Exceedance/Notes
Y	

Target analyte identification:

Within Criteria	Exceedance/Notes
N	Sample mass spectra indicated ion ratios outside established criteria for naphthalene for NG-SG05-190905, NG-SG10-190905, and Dup-03. The results for these analytes in their associated samples were qualified as non-detect (U) at the reported value.

Analyte quantitation and MDLs/RLs:

Within Criteria	Exceedance/Notes
Y	Positive results below the reporting limits (if they occurred) were not reported by the laboratory. Reporting limits and method detection limits are provided in the attachment.

Tentatively identified compounds:

Within Criteria	Exceedance/Notes
NA	



DATA VALIDATION CHECKLIST – STAGE 4 EPA REGION 5 START CONTRACT

System performance and instrument stability:

Within Criteria	Exceedance/Notes
Y	

Other [specify]:

Within Criteria	Exceedance/Notes
NA	

Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.



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Sample ID	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NG-SG01-190904	1,1,1-Trichloroethane	48		0.6	4.9	ppbV	48	
NG-SG01-190904	1,1,2-Trichloroethane	4.9 U		0.49	4.9	ppbV	4.9 U	
NG-SG01-190904	1,1-Dichloroethane	6.4 U		0.96	6.4	ppbV	6.4 U	
NG-SG01-190904	1,1-Dichloroethene	6.8 U		0.93	6.8	ppbV	6.8 U	
NG-SG01-190904	1,2,4-Trimethylbenzene	5.4 U		0.75	5.4	ppbV	5.4 U	
NG-SG01-190904	1,2-Dichloroethane	6.5 U		0.72	6.5	ppbV	6.5 U	
NG-SG01-190904	cis-1,2-Dichloroethene	6.6 U		0.94	6.6	ppbV	6.6 U	
NG-SG01-190904	Naphthalene	4.8 U		1.2	4.8	ppbV	4.8 U	
NG-SG01-190904	Tetrachloroethene	3.9 U		0.51	3.9	ppbV	3.9 U	
NG-SG01-190904	Trichloroethene	4.9 U		0.67	4.9	ppbV	4.9 U	
NG-SG01-190904	Vinyl Chloride	10 U		1.1	10	ppbV	10 U	
NG-SG01-190904	1,1,1-Trichloroethane	260		3.3	27	UG/M3	260	
NG-SG01-190904	1,1,2-Trichloroethane	27 U		2.7	27	UG/M3	27 U	
NG-SG01-190904	1,1-Dichloroethane	26 U		3.9	26	UG/M3	26 U	
NG-SG01-190904	1,1-Dichloroethene	27 U		3.7	27	UG/M3	27 U	
NG-SG01-190904	1,2,4-Trimethylbenzene	26 U		3.7	26	UG/M3	26 U	
NG-SG01-190904	1,2-Dichloroethane	26 U		2.9	26	UG/M3	26 U	
NG-SG01-190904	cis-1,2-Dichloroethene	26 U		3.7	26	UG/M3	26 U	
NG-SG01-190904	Naphthalene	25 U		6.5	25	UG/M3	25 U	
NG-SG01-190904	Tetrachloroethene	26 U		3.4	26	UG/M3	26 U	
NG-SG01-190904	Trichloroethene	26 U		3.6	26	UG/M3	26 U	
NG-SG01-190904	Vinyl Chloride	26 U		2.8	26	UG/M3	26 U	
NG-SG02-190904	1,1,1-Trichloroethane	4.9 U		0.6	4.9	ppbV	4.9 U	
NG-SG02-190904	1,1,2-Trichloroethane	4.9 U		0.49	4.9	ppbV	4.9 U	
NG-SG02-190904	1,1-Dichloroethane	6.3 U		0.95	6.3	ppbV	6.3 U	
NG-SG02-190904	1,1-Dichloroethene	6.7 U		0.92	6.7	ppbV	6.7 U	
NG-SG02-190904	1,2,4-Trimethylbenzene	5.3 U		0.74	5.3	ppbV	5.3 U	
NG-SG02-190904	1,2-Dichloroethane	6.5 U		0.72	6.5	ppbV	6.5 U	
NG-SG02-190904	cis-1,2-Dichloroethene	6.6 U		0.93	6.6	ppbV	6.6 U	
NG-SG02-190904	Naphthalene	4.8 U		1.2	4.8	ppbV	4.8 U	
NG-SG02-190904	Tetrachloroethene	3.9 U		0.5	3.9	ppbV	3.9 U	
NG-SG02-190904	Trichloroethene	4.9 U		0.66	4.9	ppbV	4.9 U	
NG-SG02-190904	Vinyl Chloride	10 U		1.1	10	ppbV	10 U	
NG-SG02-190904	1,1,1-Trichloroethane	27 U		3.3	27	UG/M3	27 U	
NG-SG02-190904	1,1,2-Trichloroethane	27 U		2.7	27	UG/M3	27 U	
NG-SG02-190904	1,1-Dichloroethane	26 U		3.8	26	UG/M3	26 U	
NG-SG02-190904	1,1-Dichloroethene	27 U		3.7	27	UG/M3	27 U	
NG-SG02-190904	1,2,4-Trimethylbenzene	26 U		3.7	26	UG/M3	26 U	
NG-SG02-190904	1,2-Dichloroethane	26 U		2.9	26	UG/M3	26 U	
NG-SG02-190904	cis-1,2-Dichloroethene	26 U		3.7	26	UG/M3	26 U	
NG-SG02-190904	Naphthalene	25 U		6.4	25	UG/M3	25 U	
NG-SG02-190904	Tetrachloroethene	26 U		3.4	26	UG/M3	26 U	
NG-SG02-190904	Trichloroethene	26 U		3.6	26	UG/M3	26 U	
NG-SG02-190904	Vinyl Chloride	26 U		2.8	26	UG/M3	26 U	
NG-SG03-190904	1,1,1-Trichloroethane	6.1 U		0.75	6.1	ppbV	6.1 U	
NG-SG03-190904	1,1,2-Trichloroethane	6.1 U		0.61	6.1	ppbV	6.1 U	

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Sample ID	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NG-SG03-190904	1,1-Dichloroethane	8 U		1.2	8	ppbV	8 U	
NG-SG03-190904	1,1-Dichloroethene	8.4 U		1.2	8.4	ppbV	8.4 U	
NG-SG03-190904	1,2,4-Trimethylbenzene	6.7 U		0.93	6.7	ppbV	6.7 U	
NG-SG03-190904	1,2-Dichloroethane	8.1 U		0.9	8.1	ppbV	8.1 U	
NG-SG03-190904	cis-1,2-Dichloroethene	8.3 U		1.2	8.3	ppbV	8.3 U	
NG-SG03-190904	Naphthalene	6 U		1.5	6	ppbV	6 U	
NG-SG03-190904	Tetrachloroethene	4.8 U		0.63	4.8	ppbV	4.8 U	
NG-SG03-190904	Trichloroethene	6.1 U		0.83	6.1	ppbV	6.1 U	
NG-SG03-190904	Vinyl Chloride	13 U		1.4	13	ppbV	13 U	
NG-SG03-190904	1,1,1-Trichloroethane	33 U		4.1	33	UG/M3	33 U	
NG-SG03-190904	1,1,2-Trichloroethane	33 U		3.3	33	UG/M3	33 U	
NG-SG03-190904	1,1-Dichloroethane	32 U		4.8	32	UG/M3	32 U	
NG-SG03-190904	1,1-Dichloroethene	33 U		4.6	33	UG/M3	33 U	
NG-SG03-190904	1,2,4-Trimethylbenzene	33 U		4.6	33	UG/M3	33 U	
NG-SG03-190904	1,2-Dichloroethane	33 U		3.7	33	UG/M3	33 U	
NG-SG03-190904	cis-1,2-Dichloroethene	33 U		4.7	33	UG/M3	33 U	
NG-SG03-190904	Naphthalene	32 U		8.1	32	UG/M3	32 U	
NG-SG03-190904	Tetrachloroethene	33 U		4.3	33	UG/M3	33 U	
NG-SG03-190904	Trichloroethene	33 U		4.5	33	UG/M3	33 U	
NG-SG03-190904	Vinyl Chloride	33 U		3.5	33	UG/M3	33 U	
NG-SG04-190905	1,1,1-Trichloroethane	34		0.45	3.7	ppbV	34	
NG-SG04-190905	1,1,2-Trichloroethane	3.7 U		0.37	3.7	ppbV	3.7 U	
NG-SG04-190905	1,1-Dichloroethane	4.8 U		0.71	4.8	ppbV	4.8 U	
NG-SG04-190905	1,1-Dichloroethene	5 U		0.69	5	ppbV	5 U	
NG-SG04-190905	1,2,4-Trimethylbenzene	4 U		0.56	4	ppbV	4 U	
NG-SG04-190905	1,2-Dichloroethane	4.8 U		0.54	4.8	ppbV	4.8 U	
NG-SG04-190905	cis-1,2-Dichloroethene	4.9 U		0.7	4.9	ppbV	4.9 U	
NG-SG04-190905	Naphthalene	3.6 U		0.92	3.6	ppbV	3.6 U	
NG-SG04-190905	Tetrachloroethene	2.9 U		0.38	2.9	ppbV	2.9 U	
NG-SG04-190905	Trichloroethene	3.7 U		0.5	3.7	ppbV	3.7 U	
NG-SG04-190905	Vinyl Chloride	7.7 U		0.83	7.7	ppbV	7.7 U	
NG-SG04-190905	1,1,1-Trichloroethane	180		2.4	20	UG/M3	180	
NG-SG04-190905	1,1,2-Trichloroethane	20 U		2.0	20	UG/M3	20 U	
NG-SG04-190905	1,1-Dichloroethane	19 U		2.9	19	UG/M3	19 U	
NG-SG04-190905	1,1-Dichloroethene	20 U		2.7	20	UG/M3	20 U	
NG-SG04-190905	1,2,4-Trimethylbenzene	20 U		2.7	20	UG/M3	20 U	
NG-SG04-190905	1,2-Dichloroethane	20 U		2.2	20	UG/M3	20 U	
NG-SG04-190905	cis-1,2-Dichloroethene	20 U		2.8	20	UG/M3	20 U	
NG-SG04-190905	Naphthalene	19 U		4.8	19	UG/M3	19 U	
NG-SG04-190905	Tetrachloroethene	20 U		2.6	20	UG/M3	20 U	
NG-SG04-190905	Trichloroethene	20 U		2.7	20	UG/M3	20 U	
NG-SG04-190905	Vinyl Chloride	20 U		2.1	20	UG/M3	20 U	
NG-SG05-190905	1,1,1-Trichloroethane	0.43		0.034	0.28	ppbV	0.43	
NG-SG05-190905	1,1,2-Trichloroethane	0.28 U		0.028	0.28	ppbV	0.28 U	
NG-SG05-190905	1,1-Dichloroethane	0.37 U		0.055	0.37	ppbV	0.37 U	
NG-SG05-190905	1,1-Dichloroethene	0.39 U		0.053	0.39	ppbV	0.39 U	

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Sample ID	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NG-SG05-190905	1,2,4-Trimethylbenzene	3		0.043	0.31	ppbV	3	
NG-SG05-190905	1,2-Dichloroethane	0.37	U	0.041	0.37	ppbV	0.37	U
NG-SG05-190905	cis-1,2-Dichloroethene	0.38	U	0.054	0.38	ppbV	0.38	U
NG-SG05-190905	Naphthalene	0.78		0.07	0.28	ppbV	0.78	U
NG-SG05-190905	Tetrachloroethene	0.22	U	0.029	0.22	ppbV	0.22	U
NG-SG05-190905	Trichloroethene	0.28	U	0.038	0.28	ppbV	0.28	U
NG-SG05-190905	Vinyl Chloride	0.59	U	0.063	0.59	ppbV	0.59	U
NG-SG05-190905	1,1,1-Trichloroethane	2.3		0.19	1.5	UG/M3	2.3	
NG-SG05-190905	1,1,2-Trichloroethane	1.5	U	0.15	1.5	UG/M3	1.5	U
NG-SG05-190905	1,1-Dichloroethane	1.5	U	0.22	1.5	UG/M3	1.5	U
NG-SG05-190905	1,1-Dichloroethene	1.5	U	0.21	1.5	UG/M3	1.5	U
NG-SG05-190905	1,2,4-Trimethylbenzene	15		0.21	1.5	UG/M3	15	
NG-SG05-190905	1,2-Dichloroethane	1.5	U	0.17	1.5	UG/M3	1.5	U
NG-SG05-190905	cis-1,2-Dichloroethene	1.5	U	0.21	1.5	UG/M3	1.5	U
NG-SG05-190905	Naphthalene	4.1		0.37	1.4	UG/M3	4.1	U
NG-SG05-190905	Tetrachloroethene	1.5	U	0.20	1.5	UG/M3	1.5	U
NG-SG05-190905	Trichloroethene	1.5	U	0.20	1.5	UG/M3	1.5	U
NG-SG05-190905	Vinyl Chloride	1.5	U	0.16	1.5	UG/M3	1.5	U
Dup-03	1,1,1-Trichloroethane	0.43		0.037	0.3	ppbV	0.43	
Dup-03	1,1,2-Trichloroethane	0.3	U	0.03	0.3	ppbV	0.3	U
Dup-03	1,1-Dichloroethane	0.4	U	0.059	0.4	ppbV	0.4	U
Dup-03	1,1-Dichloroethene	0.42	U	0.058	0.42	ppbV	0.42	U
Dup-03	1,2,4-Trimethylbenzene	3.8		0.046	0.33	ppbV	3.8	
Dup-03	1,2-Dichloroethane	0.4	U	0.045	0.4	ppbV	0.4	U
Dup-03	cis-1,2-Dichloroethene	0.41	U	0.058	0.41	ppbV	0.41	U
Dup-03	Naphthalene	0.68		0.076	0.3	ppbV	0.68	U
Dup-03	Tetrachloroethene	0.24	U	0.031	0.24	ppbV	0.24	U
Dup-03	Trichloroethene	0.3	U	0.041	0.3	ppbV	0.3	U
Dup-03	Vinyl Chloride	0.64	U	0.069	0.64	ppbV	0.64	U
Dup-03	1,1,1-Trichloroethane	2.3		0.20	1.7	UG/M3	2.3	
Dup-03	1,1,2-Trichloroethane	1.7	U	0.17	1.7	UG/M3	1.7	U
Dup-03	1,1-Dichloroethane	1.6	U	0.24	1.6	UG/M3	1.6	U
Dup-03	1,1-Dichloroethene	1.7	U	0.23	1.7	UG/M3	1.7	U
Dup-03	1,2,4-Trimethylbenzene	19		0.23	1.6	UG/M3	19	
Dup-03	1,2-Dichloroethane	1.6	U	0.18	1.6	UG/M3	1.6	U
Dup-03	cis-1,2-Dichloroethene	1.6	U	0.23	1.6	UG/M3	1.6	U
Dup-03	Naphthalene	3.6		0.40	1.6	UG/M3	3.6	U
Dup-03	Tetrachloroethene	1.6	U	0.21	1.6	UG/M3	1.6	U
Dup-03	Trichloroethene	1.6	U	0.22	1.6	UG/M3	1.6	U
Dup-03	Vinyl Chloride	1.6	U	0.18	1.6	UG/M3	1.6	U
NG-SG06-190904	1,1,1-Trichloroethane	11		0.88	7.2	ppbV	11	
NG-SG06-190904	1,1,2-Trichloroethane	7.2	U	0.72	7.2	ppbV	7.2	U
NG-SG06-190904	1,1-Dichloroethane	9.4	U	1.4	9.4	ppbV	9.4	U
NG-SG06-190904	1,1-Dichloroethene	9.9	U	1.4	9.9	ppbV	9.9	U
NG-SG06-190904	1,2,4-Trimethylbenzene	7.9	U	1.1	7.9	ppbV	7.9	U
NG-SG06-190904	1,2-Dichloroethane	9.6	U	1.1	9.6	ppbV	9.6	U

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Sample ID	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NG-SG06-190904	cis-1,2-Dichloroethene	9.8 U		1.4	9.8	ppbV	9.8 U	
NG-SG06-190904	Naphthalene	7.1 U		1.8	7.1	ppbV	7.1 U	
NG-SG06-190904	Tetrachloroethene	5.7 U		0.74	5.7	ppbV	5.7 U	
NG-SG06-190904	Trichloroethene	7.2 U		0.98	7.2	ppbV	7.2 U	
NG-SG06-190904	Vinyl Chloride	15 U		1.6	15	ppbV	15 U	
NG-SG06-190904	1,1,1-Trichloroethane	61		4.8	39	UG/M3	61	
NG-SG06-190904	1,1,2-Trichloroethane	39 U		3.9	39	UG/M3	39 U	
NG-SG06-190904	1,1-Dichloroethane	38 U		5.7	38	UG/M3	38 U	
NG-SG06-190904	1,1-Dichloroethene	39 U		5.4	39	UG/M3	39 U	
NG-SG06-190904	1,2,4-Trimethylbenzene	39 U		5.4	39	UG/M3	39 U	
NG-SG06-190904	1,2-Dichloroethane	39 U		4.3	39	UG/M3	39 U	
NG-SG06-190904	cis-1,2-Dichloroethene	39 U		5.5	39	UG/M3	39 U	
NG-SG06-190904	Naphthalene	37 U		9.5	37	UG/M3	37 U	
NG-SG06-190904	Tetrachloroethene	39 U		5.0	39	UG/M3	39 U	
NG-SG06-190904	Trichloroethene	39 U		5.3	39	UG/M3	39 U	
NG-SG06-190904	Vinyl Chloride	39 U		4.2	39	UG/M3	39 U	
NG-SG07-190904	1,1,1-Trichloroethane	4.3 U		0.53	4.3	ppbV	4.3 U	
NG-SG07-190904	1,1,2-Trichloroethane	4.3 U		0.43	4.3	ppbV	4.3 U	
NG-SG07-190904	1,1-Dichloroethane	5.6 U		0.84	5.6	ppbV	5.6 U	
NG-SG07-190904	1,1-Dichloroethene	6 U		0.82	6	ppbV	6 U	
NG-SG07-190904	1,2,4-Trimethylbenzene	4.7 U		0.66	4.7	ppbV	4.7 U	
NG-SG07-190904	1,2-Dichloroethane	5.7 U		0.64	5.7	ppbV	5.7 U	
NG-SG07-190904	cis-1,2-Dichloroethene	5.8 U		0.83	5.8	ppbV	5.8 U	
NG-SG07-190904	Naphthalene	4.3 U		1.1	4.3	ppbV	4.3 U	
NG-SG07-190904	Tetrachloroethene	3.4 U		0.44	3.4	ppbV	3.4 U	
NG-SG07-190904	Trichloroethene	4.3 U		0.59	4.3	ppbV	4.3 U	
NG-SG07-190904	Vinyl Chloride	9.1 U		0.98	9.1	ppbV	9.1 U	
NG-SG07-190904	1,1,1-Trichloroethane	24 U		2.9	24	UG/M3	24 U	
NG-SG07-190904	1,1,2-Trichloroethane	24 U		2.4	24	UG/M3	24 U	
NG-SG07-190904	1,1-Dichloroethane	23 U		3.4	23	UG/M3	23 U	
NG-SG07-190904	1,1-Dichloroethene	24 U		3.2	24	UG/M3	24 U	
NG-SG07-190904	1,2,4-Trimethylbenzene	23 U		3.2	23	UG/M3	23 U	
NG-SG07-190904	1,2-Dichloroethane	23 U		2.6	23	UG/M3	23 U	
NG-SG07-190904	cis-1,2-Dichloroethene	23 U		3.3	23	UG/M3	23 U	
NG-SG07-190904	Naphthalene	22 U		5.7	22	UG/M3	22 U	
NG-SG07-190904	Tetrachloroethene	23 U		3.0	23	UG/M3	23 U	
NG-SG07-190904	Trichloroethene	23 U		3.1	23	UG/M3	23 U	
NG-SG07-190904	Vinyl Chloride	23 U		2.5	23	UG/M3	23 U	
NG-SG08-190904	1,1,1-Trichloroethane	3.1 U		0.38	3.1	ppbV	3.1 U	
NG-SG08-190904	1,1,2-Trichloroethane	3.1 U		0.31	3.1	ppbV	3.1 U	
NG-SG08-190904	1,1-Dichloroethane	4 U		0.6	4	ppbV	4 U	
NG-SG08-190904	1,1-Dichloroethene	4.2 U		0.58	4.2	ppbV	4.2 U	
NG-SG08-190904	1,2,4-Trimethylbenzene	3.4 U		0.47	3.4	ppbV	3.4 U	
NG-SG08-190904	1,2-Dichloroethane	4.1 U		0.45	4.1	ppbV	4.1 U	
NG-SG08-190904	cis-1,2-Dichloroethene	4.2 U		0.59	4.2	ppbV	4.2 U	
NG-SG08-190904	Naphthalene	3 U		0.77	3	ppbV	3 U	

NEWTON AVENUE VI SITE RS AIR ANALYTICAL RESULTS SUMMARY
ALS ENVIRONMENTAL REPORT NO. P1905371

Sample ID	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
NG-SG08-190904	Tetrachloroethene	2.4 U		0.32	2.4	ppbV	2.4 U	
NG-SG08-190904	Trichloroethene	3.1 U		0.42	3.1	ppbV	3.1 U	
NG-SG08-190904	Vinyl Chloride	6.5 U		0.69	6.5	ppbV	6.5 U	
NG-SG08-190904	1,1,1-Trichloroethane	17 U		2.1	17	UG/M3	17 U	
NG-SG08-190904	1,1,2-Trichloroethane	17 U		1.7	17	UG/M3	17 U	
NG-SG08-190904	1,1-Dichloroethane	16 U		2.4	16	UG/M3	16 U	
NG-SG08-190904	1,1-Dichloroethene	17 U		2.3	17	UG/M3	17 U	
NG-SG08-190904	1,2,4-Trimethylbenzene	16 U		2.3	16	UG/M3	16 U	
NG-SG08-190904	1,2-Dichloroethane	16 U		1.8	16	UG/M3	16 U	
NG-SG08-190904	cis-1,2-Dichloroethene	16 U		2.3	16	UG/M3	16 U	
NG-SG08-190904	Naphthalene	16 U		4.0	16	UG/M3	16 U	
NG-SG08-190904	Tetrachloroethene	16 U		2.1	16	UG/M3	16 U	
NG-SG08-190904	Trichloroethene	16 U		2.2	16	UG/M3	16 U	
NG-SG08-190904	Vinyl Chloride	16 U		1.8	16	UG/M3	16 U	
NG-SG09-190905	1,1,1-Trichloroethane	9		0.3	2.5	ppbV	9	
NG-SG09-190905	1,1,2-Trichloroethane	2.5 U		0.25	2.5	ppbV	2.5 U	
NG-SG09-190905	1,1-Dichloroethane	3.2 U		0.49	3.2	ppbV	3.2 U	
NG-SG09-190905	1,1-Dichloroethene	3.4 U		0.47	3.4	ppbV	3.4 U	
NG-SG09-190905	1,2,4-Trimethylbenzene	3.6		0.38	2.7	ppbV	3.6	
NG-SG09-190905	1,2-Dichloroethane	3.3 U		0.37	3.3	ppbV	3.3 U	
NG-SG09-190905	cis-1,2-Dichloroethene	3.4 U		0.48	3.4	ppbV	3.4 U	
NG-SG09-190905	Naphthalene	2.4 U		0.62	2.4	ppbV	2.4 U	
NG-SG09-190905	Tetrachloroethene	3.2		0.26	2	ppbV	3.2	
NG-SG09-190905	Trichloroethene	2.5 U		0.34	2.5	ppbV	2.5 U	
NG-SG09-190905	Vinyl Chloride	5.2 U		0.56	5.2	ppbV	5.2 U	
NG-SG09-190905	1,1,1-Trichloroethane	49		1.7	14	UG/M3	49	
NG-SG09-190905	1,1,2-Trichloroethane	14 U		1.4	14	UG/M3	14 U	
NG-SG09-190905	1,1-Dichloroethane	13 U		2.0	13	UG/M3	13 U	
NG-SG09-190905	1,1-Dichloroethene	14 U		1.9	14	UG/M3	14 U	
NG-SG09-190905	1,2,4-Trimethylbenzene	18		1.9	13	UG/M3	18	
NG-SG09-190905	1,2-Dichloroethane	13 U		1.5	13	UG/M3	13 U	
NG-SG09-190905	cis-1,2-Dichloroethene	13 U		1.9	13	UG/M3	13 U	
NG-SG09-190905	Naphthalene	13 U		3.3	13	UG/M3	13 U	
NG-SG09-190905	Tetrachloroethene	21		1.7	13	UG/M3	21	
NG-SG09-190905	Trichloroethene	13 U		1.8	13	UG/M3	13 U	
NG-SG09-190905	Vinyl Chloride	13 U		1.4	13	UG/M3	13 U	
Dup-02	1,1,1-Trichloroethane	9		0.35	2.9	ppbV	9	
Dup-02	1,1,2-Trichloroethane	2.9 U		0.29	2.9	ppbV	2.9 U	
Dup-02	1,1-Dichloroethane	3.7 U		0.56	3.7	ppbV	3.7 U	
Dup-02	1,1-Dichloroethene	4 U		0.54	4	ppbV	4 U	
Dup-02	1,2,4-Trimethylbenzene	3.3		0.44	3.1	ppbV	3.3	
Dup-02	1,2-Dichloroethane	3.8 U		0.42	3.8	ppbV	3.8 U	
Dup-02	cis-1,2-Dichloroethene	3.9 U		0.55	3.9	ppbV	3.9 U	
Dup-02	Naphthalene	2.8 U		0.72	2.8	ppbV	2.8 U	
Dup-02	Tetrachloroethene	3.1		0.3	2.3	ppbV	3.1	
Dup-02	Trichloroethene	2.9 U		0.39	2.9	ppbV	2.9 U	

NEWTON AVENUE VI SITE RS AIR ANALYTICAL RESULTS SUMMARY
ALS ENVIRONMENTAL REPORT NO. P1905371

Sample ID	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
Dup-02	Vinyl Chloride	6	U	0.65		6 ppbV	6	U
Dup-02	1,1,1-Trichloroethane	49		1.9		16 UG/M3	49	
Dup-02	1,1,2-Trichloroethane	16	U	1.6		16 UG/M3	16	U
Dup-02	1,1-Dichloroethane	15	U	2.3		15 UG/M3	15	U
Dup-02	1,1-Dichloroethene	16	U	2.1		16 UG/M3	16	U
Dup-02	1,2,4-Trimethylbenzene	16		2.1		15 UG/M3	16	
Dup-02	1,2-Dichloroethane	15	U	1.7		15 UG/M3	15	U
Dup-02	cis-1,2-Dichloroethene	15	U	2.2		15 UG/M3	15	U
Dup-02	Naphthalene	15	U	3.8		15 UG/M3	15	U
Dup-02	Tetrachloroethene	21		2.0		15 UG/M3	21	
Dup-02	Trichloroethene	15	U	2.1		15 UG/M3	15	U
Dup-02	Vinyl Chloride	15	U	1.7		15 UG/M3	15	U
NG-SG10-190905	1,1,1-Trichloroethane	0.14	U	0.017		0.14 ppbV	0.14	U
NG-SG10-190905	1,1,2-Trichloroethane	0.14	U	0.014		0.14 ppbV	0.14	U
NG-SG10-190905	1,1-Dichloroethane	0.18	U	0.027		0.18 ppbV	0.18	U
NG-SG10-190905	1,1-Dichloroethene	0.19	U	0.027		0.19 ppbV	0.19	U
NG-SG10-190905	1,2,4-Trimethylbenzene	2.6		0.021		0.15 ppbV	2.6	
NG-SG10-190905	1,2-Dichloroethane	0.19	U	0.021		0.19 ppbV	0.19	U
NG-SG10-190905	cis-1,2-Dichloroethene	0.19	U	0.027		0.19 ppbV	0.19	U
NG-SG10-190905	Naphthalene	0.16		0.035		0.14 ppbV	0.16	U
NG-SG10-190905	Tetrachloroethene	0.11	U	0.014		0.11 ppbV	0.11	U
NG-SG10-190905	Trichloroethene	0.14	U	0.019		0.14 ppbV	0.14	U
NG-SG10-190905	Vinyl Chloride	0.29	U	0.032		0.29 ppbV	0.29	U
NG-SG10-190905	1,1,1-Trichloroethane	0.77	U	0.094		0.77 UG/M3	0.77	U
NG-SG10-190905	1,1,2-Trichloroethane	0.77	U	0.077		0.77 UG/M3	0.77	U
NG-SG10-190905	1,1-Dichloroethane	0.74	U	0.11		0.74 UG/M3	0.74	U
NG-SG10-190905	1,1-Dichloroethene	0.77	U	0.11		0.77 UG/M3	0.77	U
NG-SG10-190905	1,2,4-Trimethylbenzene	13		0.11		0.75 UG/M3	13	
NG-SG10-190905	1,2-Dichloroethane	0.75	U	0.084		0.75 UG/M3	0.75	U
NG-SG10-190905	cis-1,2-Dichloroethene	0.75	U	0.11		0.75 UG/M3	0.75	U
NG-SG10-190905	Naphthalene	0.85		0.18		0.72 UG/M3	0.85	U
NG-SG10-190905	Tetrachloroethene	0.75	U	0.098		0.75 UG/M3	0.75	U
NG-SG10-190905	Trichloroethene	0.75	U	0.10		0.75 UG/M3	0.75	U
NG-SG10-190905	Vinyl Chloride	0.75	U	0.081		0.75 UG/M3	0.75	U

APPENDIX D
ENVIRONMENTALLY PREFERRED PRACTICES

START implemented environmentally preferred practices to maximize sustainability; reduce energy, water use, and toxic air emissions; promote carbon neutrality; and encourage industrial material reuse and recycling. In accordance with contract requirements, U.S. Environmental Protection Agency (EPA) policies, and relevant guidance, START documented project-specific environmentally preferred practices and available metrics in the Environmental Field Practices Checklist, Environmental Office Practices Checklist, and Green Metrics Table (ASTM International 2016; EPA 2012a, 2012b, and 2016).

References:

- ASTM International (ASTM). 2016. “Standard Guide for Greener Cleanups.” E2893-16. April 1.
- EPA. 2012a. “Methodology for Understanding and Reducing a Project’s Environmental Footprint.” Office of Solid Waste and Emergency Response, Office of Superfund Remediation and Technology Innovation. EPA 542-R-12-002. February.
- EPA. 2012b. “U.S. EPA Region 5 Superfund Greener Cleanup Implementation Strategy.” March 16.
- EPA. 2016. Memorandum Regarding Consideration of Greener Cleanup Activities in the Superfund Cleanup Process. From Woolford, James, Director, *et. al.* To Regional Superfund National Program Managers and Regional Counsels, Regions 1 – 10. August 2.

TO-TOLIN #:	F0069-0002AI038
Site Name:	Newton Avenue VI Site
Site City, State:	Indianapolis, Indiana
Site Project Manager:	Joe Robert
EPA OSC:	Jason Sewell

Green Metrics		
Metric	Amount	Unit of Measure
Diesel Fuel Used		gallons
Distance Traveled ¹	88.00	Miles
Unleaded Fuel Used ²	3.34	gallons
Alternative/E-85 Fuel Used		gallons
Electricity from Coal		kW
Electricity from Natural Gas		kW
Electricity from solar/wind		kW
Electricity from grid/mix		kW
Solid waste reused		lbs
Solid waste recycled		lbs
Water Used		gallons

Greenhouse Gas Emissions (Site Specific)					
Source	Amount Used	Unit of Measure	Methane (CH ₄) (Grams) ³	Nitrous Oxide (N ₂ O) (Grams) ³	Carbon Dioxide (CO ₂) (Kilograms) ³
Gasoline	3.34	X gallons	0.58	1.43	29.76
Diesel		X gallons			
E-85		X gallons			
Electricity Office		X Kilowatts			
Natural Gas		X Therms			
Solid Waste		X lbs			
Other		X Unit of Measure			

Note:

¹ Distance traveled based on number of trips between the Newton Avenue VI site in Indianapolis, and QEPI's Indianapolis Office (5.5 miles) in a large sport utility vehicle, which was required for cargo space. A total of 16 trips were made by Joe Robert Tetra Tech personnel totaling 88 miles.

² Fuel consumption based on distance traveled in a large sport utility vehicle. An average fuel efficiency of 26.3 miles per gallon was assumed based on 2014 light duty truck fuel efficiency from "Average Fuel Efficiency of U.S. Light Duty Vehicles," U.S. Department of Transportation, Bureau of Statistics Table 4-23 (Accessed online at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_04_23.html on December 9, 2016).

³ Methane and nitrous oxide emissions based on emission factors of 0.0066 and 0.0163 grams per mile for EPA Tier 2 light duty gasoline trucks from "Voluntary Reporting of Greenhouse Gases Program, Fuel Emission Coefficients, Table 5" (Accessed online at <http://205.254.135.7/oiaf/1605/coefficients.html> on December 9, 2016)

⁴ Carbon dioxide emissions based on emission factors of 8.91 kilograms carbon dioxide per gallon of gasoline and 10.15 kilograms carbon dioxide per gallon of diesel fuel from "Voluntary Reporting of Greenhouse Gases Program, Fuel Emission Coefficients, Table 2" (Accessed online at <http://205.254.135.7/oiaf/1605/coefficients.html> on November 14, 2016).

TO-TOLIN #:	F0069-0002AI038
Site Name:	Newton Avenue VI Site
Site City, State:	Indianapolis, Indiana
Site Project Manager:	Joe Robert
EPA OSC:	Jason Sewell

Environmentally Preferred General Office Practices				
If a general category is not applicable, then check N/A for the category box, not for each subcategory.	N= Not Used	N/A= Not Applicable	Y = Yes Implemented	Comments Section Justify in the comments for each BMP field as to why the practice was not used, not applicable, or implemented.
Energy				
Use of Energy Efficient Equipment				
Programmable Thermostats			Y	Office used
CFL or LED lights on Equipment	N			Office not equipped
Heating, Cooling, & Fans (FEMP/Energy Star)			Y	Office equipped
Computer Equipment (FEMP/Energy Star)			Y	Computers were energy efficient
Reduce Carbon Emissions from Transportation				
Use Internet Based Meetings/Conferences			Y	Discussed site plans via internet
Maximize Carpooling/Public Transportation	N			Commuted to office
Use of Local Labor/Suppliers (50 mile radius)			Y	Used local office vendors
Email Small Files (less than 8 MB)			Y	Emailed site documents
Reusable Electronic Storage Media or the Cloud			Y	Stored documents on Sharepoint
Water				
Use of Eco Friendly Toilets and Faucets	N			Old office construction
Waste				
Reusable/Recyclable Packaging	N			Employer had no recycling program
Minimize Packaging Material			Y	Bought in bulk
Recycle CFL and LED lights	N			Office not equipped
Use of Local Recycling Programs	N			Employer had no recycling program
Use of Rechargeable Batteries			Y	Rechargeable office equipment
Materials				
Printing when Required				
Double-sided Printing			Y	Used for physical documents
100% post-consumer recycled paper			Y	Employer supplied
Use of Bio-Based Materials				
Bio-Based Ink		N/A		Unsure
Bio-Degradable Cleaning Products		N/A		Third party cleaned office

Environmentally Preferred General Office Practices				
<p>If a general category is not applicable, then check N/A for the category box, not for each subcategory.</p>	N = Not Used	N/A= Not Applicable	Y = Yes Implemented	<p>Comments Section</p> <p>Justify in the comments for each BMP field as to why the practice was not used, not applicable, or implemented.</p>
Environmentally Preferred				
Green Procurement				
Environmentally Preferred Vendors		N/A		Unsure of office vendors
Purchase Supplies in Bulk			Y	Supplies bought in bulk
Liquids in Concentrated Form		N/A		Not Applicable

TO-TOLIN #:	F0069-0002AI038
Site Name:	Newton Avenue VI Site
Site City, State:	Indianapolis, Indiana
Site Project Manager:	Joe Robert
EPA OSC:	Jason Sewell

Environmentally Preferred General Field Practices				
If a general category is not applicable, then check N/A for the category box, not for each subcategory.	N= Not Used	N/A= Not Applicable	Y = Yes Implemented	Comments Section Justify in the comments for each BMP field as to why the practice was not used, not applicable, or implemented.
Energy				
Use of Energy Efficient Equipment				
Computer Equipment (FEMP/Energy Star)		N/A		No computer usage in the field
Installation of Electric Service		N/A		No electrical service needed
Reduce Carbon Emissions from Transportation				
Use Internet Based Meetings/Conferences			Y	Discussed site plans offsite
Maximize Carpooling	N			Only one day with two field members with separate travel tasks
Use of Local Labor/Suppliers/Waste Disposal Facilities (50 mile radius)			Y	Local supplies and waste disposal used
No idling, except for extreme weather conditions			Y	No need to idle
Use of Alternative Fuels, if available within 10 miles		N/A		Vehicle not compatible
Properly Inflated Tires			Y	Tires maintained
Email Small Files (less than 8MB)			Y	Emailed pertinent documents
Reusable Electronic Storage Media or the Cloud			Y	Stored documents on Sharepoint
Water				
Use of Low Flow Sampling Pumps			Y	Used low flow pump for GW sampling
Waste				
Use of Local Recycling Programs		N/A		No recycling needed
Use of Rechargeable Batteries			Y	Rechargeable car battery and PID battery
Recycling – Other		N/A		No recycling needed
Plastic Reduction			Y	Reusable water bottle
Reuse of Resources	N			Resources primarily single use
Direct Push Boring			Y	Used for temporary wells and soil gas ports
Materials				
Printing when Required				
Double-sided Printing			Y	Used for field documents
100% post-consumer recycled paper			Y	Supplied by employer

Environmentally Preferred General Field Practices				
If a general category is not applicable, then check N/A for the category box, not for each subcategory.	N = Not Used	N/A = Not Applicable	Y = Yes Implemented	Comments Section Justify in the comments for each BMP field as to why the practice was not used, not applicable, or implemented.
Land & Ecosystems				
Minimize Disruption to Natural Vegetation			Y	Restored boring locations
Use of Non-invasive Investigation Techniques			Y	Very low impact upon investigation techniques
Environmentally Preferred				
Green Procurement				
Environmentally Preferred Vendors			Y	Used Pine Environmental
Green Lodging/Hotels		N/A		Commuted to site
Use of Green Laboratories			Y	Used CT Labs

APPENDIX E
FIELD NOTES

[illegible]

Project / Client Newton Ave. VI-RS

Personnel: Joe Robert

Wx: Sunny. High around 85°F. Winds light + variable.

0800 START picked up equipment from
Fine Equipment rental for low-flow
GW sampling

0900 START on site w/ OSC Jason Sewell. Owner of site allowed us on site to sample MW-5.

1000 Well water column to low to sample with the submersible bladder pump.

1025 Owner took START + OSC to basement. START used the multiRAE to screen for VOCs. No detections observed.

1145 START began collecting samples from MW-5.

1250 Break for lunch.

1345 START Began low-flow sampling
MW-4, (MS/MSD collected)

1530 START began low-flow GW sampling
at MW-3 at the NE corner of site.

Rite in the Rain

1620 START finished sampling MW-3.
 1625 START stored a drum for investigative
 derived waste (IDW) on site with
 property owners permission. START
 disposed of sampling waste in non-
 hazardous labeled drum.
 1635 START off site.

Joe Robert
 8/1/19

Purpose: Low-flow Groundwater Investigation
 Personnel: Joe Robert
 Weather: Plentiful sunshine. High near 87°F.
 Winds ENE @ 5-10 mph.
 0830 START on site H+Sheeting.
 0910 START set up + began sampling
 MW-1.
 1015 START finished sampling MW-1.
 1030 START began sampling MW-2.
 1150 START allowed well MW-2 to recharge
 due to drawdown.
 1200 START + EPA calibrated EPA's MultiRAE
 Pro. All sensors passed fresh air
 calibration. All sensors passed
 span gas calibration except H₂S.
 1220 START observed 200ppb VOC in the
 combined sewer at the SW corner
 of the building. 1645 252.01N
 201685.22E.
 1330 START off site.

Joe Robert

Location Newton Ave. VI Date 8/30/19
 Project / Client Indianapolis, IN

Purpose: Ground Penetrating Radar Utility locate.

Personnel: Joe Robert, Jason Sewell, GPRS

Wx: Scattered clouds, possible storms in the afternoon with wind gusts. High 82°F.

0800 START on site. EPA OC & GPRS on site. Brief H+S meeting.

0815 START conducted a site walk through.

0930 GPRS began clearing areas safe to drill.

0930 GPRS completed the utility locating.

0945 START off site.

~~Joe Robert
8/30/19~~

Location Newton Ave. VI Date 9/4/19
 Project / Client Indianapolis, IN

Purpose: Temp. Piezometer + soil gas port installation

Personnel: Joe Robert, Joe Brodowski

Wx: Mostly sunny. High around 80°F. Wind NNW at 5-10 mph.

0900 START on site. Terracon drillers on site. Jason Sewell on site

0930 H+S meeting. START + Drillers prepared to begin drilling.

1000 NA-SG06 190904 installed

1045 Began installation of NA-GW-TP01-190904. at 15ft

1100 Began installation of NA-SG01-190904

1130 SG01 installed at 10ft.

1140 Began drilling of GW-TP02

1200 GW-TP02 complete at 15ft

1210 Began installing SG-02 at 10ft

1230 Break for lunch

1345 Began to install SG-07 at 10ft

1410 Completed SG-07 instal.

1445 Began install of SG-08

1505 Completed SG-08 install at 6'

1535 Began installation of GW-TP03.

1615 Completed SG-03 + GW-TP03.

1630 START off site. Joe Robert

Location Newton Ave VI Date 9/5/19Project / Client Indianapolis, IN

Purpose: Installation & Sample of temp. wells and soil gas ports.

Personnel: Joe Robert, Joe Browdowski

Wx: Sunny. High 77F. Winds NNE at 5-10 mph.

0815 START on site. H+S meeting.

0915 Began installing soil gas port SG09

0945 Installed SG09 at 6.5'

1000 Began installing TP04 & SG04

1100 Finished installing TP04 @ 15' & SG04 @ 10'

1205 Completed installation of TP05 @ 12' & SG05 @ 7'

1210 Break for lunch...

1320 START oversaw installation of SG-10

1321 START initiated helium test on SG-06. Passed.

1330 START initiated soil gas sampling of NA-SG06-190904 @ -29psi

1400 START collected sample NA-SG06-190904 @ -4PSI

1431 START initiated NA-SG01-190904. Drillers off site, and took 3-5 gallon

Location _____

Date _____

Project / Client _____

buckets of soil for disposal.

1501 START collected NA-SG01-190904 @ -4psi.

1530 After passing helium leak test, START began sampling NA-SG02-190904 @ -29psi.

1600 START collected NA-SG02-190904 @ -4

1630 START off site.

Joe Robert

Location Newton Avenue Date 9/6/89
 Project / Client Indianapolis, IN

Purpose: Soil gas sampling
 Personnel: Joe Robert
 Wx: Mix of clouds + sun. High
 near 80°F. Winds WSW at 5-10 mph
 0800 START on site.
 0839 START initiated sampling of
 NA-SG08-190904 @ -29psi
 0909 START collected sample
 NA-SG08-190904 @ -4psi
 0925 START initiated sampling of
 NA-SG03-190904 @ -30psi
 0955 START ~~initiated~~ collected
 NA-SG03-190904 @ -5psi
 1025 START initiated sampling of
 NA-SG07-190904 after passing
 the helium test, -29psi
 1055 START collected NA-SG07-190904
 @ -5psi.
 1112 After completing the helium test,
 START initiated sampling of
 NA-SG09-190905 + Dup-02⁻³⁰
 1142 START collected NA-SG09-190905
 + Dup-02 @ -5 each.
 1210 Break for lunch

Location _____ Date _____
 Project / Client _____

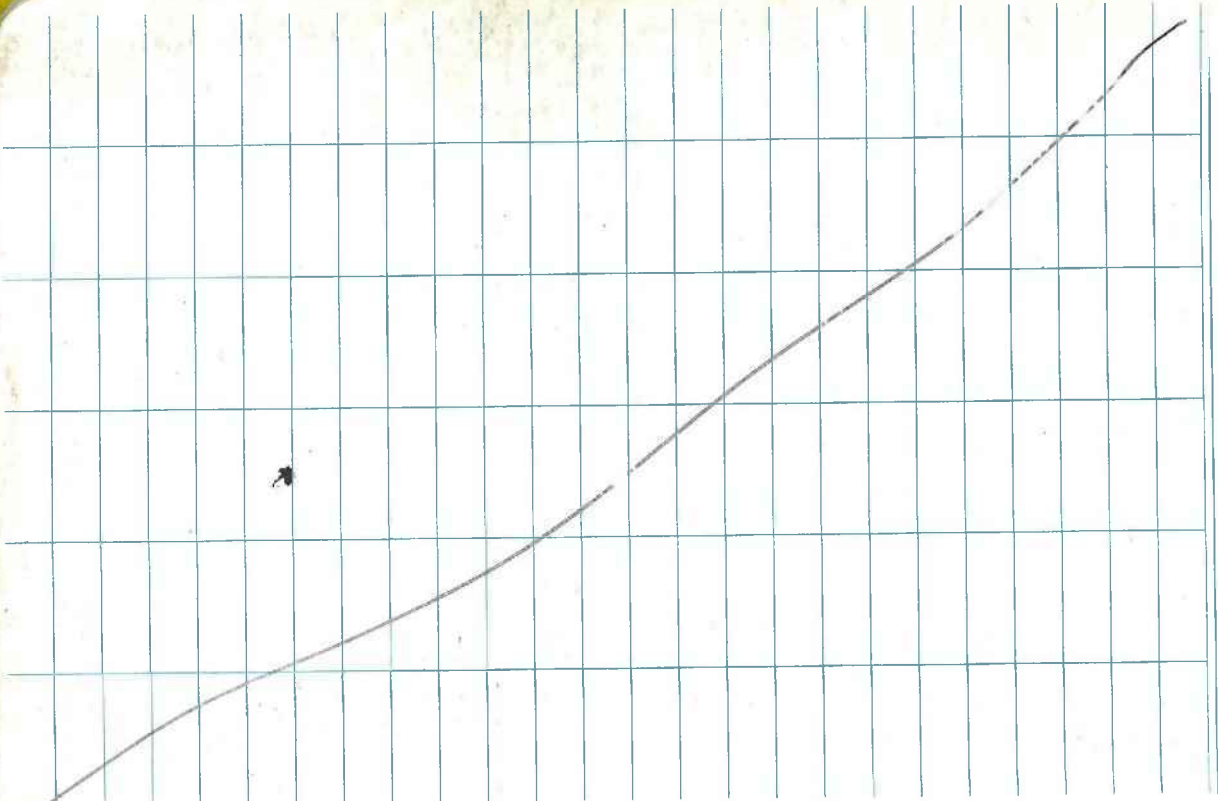
1315 START initiated sampling
 NA-SG04-190905 @ -31
 1345 START collected sample
 NA-SG04-190905 @ -6psi
 1358 START completed helium test and
 initiated sampling NA-SG05-190905
 and Dup-03.
 1428 START completed sampling
 NA-SG05-190905 + Dup-03 @ -3 + -7.
 1448 START initiated sampling of
 NA-SG10-190905 @ -29psi.
 1518 START collected sample from
 NA-SG10-190905 @ -2
 1630 START off site.

Joe Robert

Location _____

Date _____

Project / Client _____



Date _____

Project / Client _____

Newton Ave VI

9/13/19

Indianapolis, IN

Purpose: Well development/bailing
 Personnel: Joe Robert +

Wx: Mixed clouds + sun, High 89°

Wind WSW @ 10-30 mph.

1000 START onsite.

Well	DTW	DTB
TP01	15.56	16.31
TP02	—	15.69
TP03	17.11	17.41
TP05	11.12	11.87
TP04	—	17.19

1030 START used 1" bailers to

attempt to remove sediment
 from wells + debris screens.

Recovery was silty + low; dirty

Wells,

1210 START off site

Joe Robert

APPENDIX F
FIELD SOIL BORING LOGS



1611 South Franklin Road
Indianapolis, IN 46239
Ph: 317.351.4255
Fax: 317.351.4265

Boring Log

Boring Number

NA-1901
NA-GW-TP01-190904

Project #:		Logged By:	Joe Brodowski
Site Name:	Newton Ave VI site	Drilling co.:	EarthX
Site Address:	2802 Newton Ave	Drillers:	
City, State:	Indianapolis, IN	Drilling Method:	Direct Push
Client:	EPA	Sampling Method:	
Date Drilled:	1100 9/4/19	Weather:	Sunny, Clear, 80°F

Soil Description

(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	0-6" Topsoil - black								
				1	Silty clay w/ sand - light brown - non-slight plastic grey wet w/ strong dry								
				5	4- light brown/grey (trace) - silty clay - sl. plastic trace gravel (s) - dry								
				6	6- gravel w/ increase s+G(s) - dry/sl. moist - plastic								
				10	11- Sandy Clay w/ trace gravel - sl/moist light brown plastic Firm								
				13	13- gravel dry/sl. moist w/ trace s+G								
				15									
				20	EOD - 15'								

Temp Well

PID - 540ppb

Soil GWS Ol adjacent - 10'



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Boring Log

Boring Number

NA-GW-TPO2-190904

Project #:		Logged By:	Joe Robert
Site Name:		Drilling co.:	
Site Address:		Drillers:	
City, State:		Drilling Method:	
Client:		Sampling Method:	
Date Drilled:	1140 9/4/19	Weather:	

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Soil Description								
					(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)								
					Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	0-8" Topsoil								
					8"-2', light brown, non/slight plastic, very hard, dry, silty clay, small gravel								
				5	2-4' sandy silty clay, h. brown, rest same as above								
					4-8' clay loam, h brown, very plastic, soft, moist, small to medium gravel								
				10	8'-12' grades w/ less gravel								
					11' ^{grades} slightly moist, firm, less gravel								
				15	13.5' clayey sand, saturated, fine grained, trace gravel								
					24' dark brown, silt + loam, firm, nonplastic, dry								
				20	EOB 15'								

PID -70PPB

Soil gas port installed at 10' depth adjacent to well.



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Boring Log

Boring Number

NA-GW-TPO3-190904

Project #:		Logged By:	Joe Roberg
Site Name:		Drilling co.:	
Site Address:		Drillers:	
City, State:		Drilling Method:	
Client:		Sampling Method:	
Date Drilled:	1535 9/4/19	Weather:	

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Soil Description								
					(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)								
					Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	6" Topsoil								
					6"-3' = light Brown, silty clay, hard, non plastic, dry, dark ^{Bⁿ} mottling								
					4' grading darker red brown								
				5	5' grades more plastic, slightly moist, trace small gravel								
					12' same as above								
					13' medium gravel lens								
				10	14' grades more plastic								
					15' sand and medium gravel								
					16' EOB								
				15									
				20									

PID = 110 ppb
14' - Soil Gas



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Boring Log

Boring Number

NA-BW-TPOH-190905

Project #:		Logged By:	JoeRobert
Site Name:		Drilling co.:	
Site Address:		Drillers:	
City, State:		Drilling Method:	
Client:		Sampling Method:	
Date Drilled:	1100 9/5/19	Weather:	

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Soil Description								
					(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)								
					Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	1' Topsoil until thin coal layer 1/4"								
					Below 1' - gray/Light brown, hard dry, nonplastic, red mottling, silty/clay								
					3' grades darker brown w/+trace SM - med gravel								
				5	7' grades less trace gravel,								
					10' grades moist, more trace small gravel, grades slightly plastic								
					12' silty/sandy clay light brown, trace small gravel, hard, slight moist,								
				10	13' Sandy clay, Light brown, +trace small gravel, moist, plastic								
					Trace silt								
					14' grades more med gravel								
				15	15' Same as 13'								
					4' EOB								
				20	56 Probe adjacent								

PID - 40 ppb

10'-12'

SG probe @ 10'



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Boring Log

Boring Number

NA-GW-TP05-190905

Project #:		Logged By:	NTB
Site Name:		Drilling co.:	Earth X
Site Address:		Drillers:	
City, State:		Drilling Method:	Geoprobe
Client:		Sampling Method:	
Date Drilled:	9-5-19 1205	Weather:	Overcast 70's

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Soil Description								
					(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)								
					Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	0-6" Topsoil/Fill material								
					6" Sandy Clay - trace gravel(s), dr/damp, plastic, Firm								
					5' - grades w/ more sand(fine) + gravel(s) damp/moist								
				5	8' Sandy Clay / Clayey Sand - (fine med) v. moist / sat light								
					8.5' - 5'g seam 3" - fine - medium v. moist / sat								
				10	10' - grades Fine sand - damp/moist +								
					11' Silty Clay - hard, dry, non-plastic, trace gravel gray								
				15									
		</											



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Boring Log

Boring Number

NA-5606190904

Project #:		Logged By:	
Site Name:		Drilling co.:	
Site Address:		Drillers:	
City, State:		Drilling Method:	
Client:		Sampling Method:	
Date Drilled:	9/4/19 1025	Weather:	

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Soil Description								
					(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)								
					Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	6" - Dark Brown				Topsoil			M	
				4	Dark brown to gray w/iron				clay silty loam w/sand		Hard		D
				5					slight non plastic				
				6	Brown/gray				trace sand		hard		D
				10					Trace Trace Trace small medium small gravel gravel sand		hard		D
				8									
				15	Light Brown/gray mottling				silty clay w/sand		more slight very plastic		D
				20					Trace small gray				

PID 40ppb



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Boring Log

Boring Number

NA-SG07-190904

Project #:		Logged By:	Joe Robert
Site Name:		Drilling co.:	
Site Address:		Drillers:	
City, State:		Drilling Method:	
Client:		Sampling Method:	
Date Drilled:	9/4/19 1410	Weather:	

Soil Description

(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	1' - Light brown, dark mottling, silty clay, hard, dry, nonplastic + trace gravel								
					3' - grades to more fine sand								
				5	4' - grades slightly moist + slightly plastic								
					5' - same silty clay w/ less than 1" sand lens								
				10	10' EOB No sand lens below 5'								
				15									
				20									

PID = 80 ppb
8-10'



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Boring Log

Boring Number

NA-5608-190904

Project #:		Logged By:	Joe Robert
Site Name:		Drilling co.:	
Site Address:		Drillers:	
City, State:		Drilling Method:	
Client:		Sampling Method:	
Date Drilled:	2/4/19 1505	Weather:	

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Soil Description								
					(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)								
					Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	6" Topsoil, Silty cl.								
					1'- Silty Clay, Hard, Dry, mildly plastic, Light brown								
					2'- Silty Clay, grades more small gravel, slightly moist								
				5	3'- grades to light brown with mottling								
					6'- grades slightly plastic, slightly damp								
				10	8'- grades more sandy, moist								
					9'- grades plastic								
				15	10'- EOB								
				20									

Setting gas point at 7' due to visible moisture.

PID = 90ppb
8'



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Boring Log

Boring Number

NA-SG09-190905

Project #:		Logged By:	JoeRobert
Site Name:		Drilling co.:	
Site Address:		Drillers:	
City, State:		Drilling Method:	
Client:		Sampling Method:	
Date Drilled:	0945 9/5/19	Weather:	

sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Soil Description								
					(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)								
					Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	6" Topsoil								
					7" Light Brown, Black mottling, silty clay, slightly plastic, hard, dry								
					2' grades lighter brown w/less mottling								
				5	4' grades to trace sand and small gravel								
					5' grades more plastic, Moist, soft, more trace med + small gravel								
					9' Sandy clay, wet, slightly plastic, soft, Light Brown, sm. + med. gravel								
				10	10' EOB								
				15									
				20									

PID-
9'

Soil probe at 6.5



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Boring Log

Boring Number

NA-SG10-190905

Project #:		Logged By:	JTB
Site Name:		Drilling co.:	Earth X
Site Address:		Drillers:	
City, State:		Drilling Method:	Geoprobe
Client:		Sampling Method:	
Date Drilled:	9-5-19 1320	Weather:	Cloudy 80's

Soil Description

(USE MUNSELL COLOR CODE & Qepi FIELD CLASSIFICATION SYSTEM FOR DESCRIBING SOIL)

Sample #	Recovery (in)	PID (ppm)	Blow count	Depth (FT)	Color	Clay %	Sand % +grain size	Silt %	Type	Plasticity Non-Plastic to Very Plastic	Hardness Very Soft to Very Hard	Moisture D-Dry M-Moist W-Wet	Other: Mottling, Plasticity, etc.
				0	4" Concrete/Asphalt								
					4" Silty Clay - light brown/gray, plastic, firm, trace gravel(s)								
					drill/bump								
				5	3' grades w/ more sand, coloring w/ less gray								
					6' grades w/ orange mottling & more gravel								
				10	9' grades damp/moist - sand loose 2", moist								
					10' Silty Clay/Clayey silt - gray/brown hard, br., non plastic								
				15									
				20	EOP #12								

Soil gas 8'
PID 6-8' - 120 ppb

SG09
76 ppb
TPO4
160 ppb

ATTACHMENT 1
LABORATORY ANALYTICAL REPORTS

ANALYTICAL REPORT

This report at a minimum contains the following information:

- Analytical Report of Test Results
- Description of QC Qualifiers
- Chain of Custody (copy)
- Quality Control Summary
- Case Narrative (if applicable)
- Correspondence with Client (if applicable)

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for parameters where accreditation is required or available, unless otherwise noted in the case narrative.



ANALYTICAL REPORT

TETRA TECH
 JOE ROBERT
 1611 SOUTH FRANKLIN ST.
 INDIANAPOLIS, IN 46239

Project Name: NEWTON AVENUE VI - RS
 Project Phase: INDIANAPOLIS, IN
 Contract #: 3296
 Project #: 103X90260001S051902313
 Folder #: 147082
 Purchase Order #: 1144695 / CT-56

Page 1 of 7
 Arrival Temperature: 3.5
 Report Date: 08/20/2019
 Date Received: 08/06/2019
 Reprint Date: 08/20/2019

CT LAB#: 312710

Sample Description: NA-GW-MW1-190802

Client Sample #:

Sampled: 08/02/2019 0945

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results												
1,1,1-Trichloroethane	4.5	ug/L	0.29	0.60	1.0	1.0	1.00			8/14/19 14:28	RLD	EPA 8260C ^
1,1,2-Trichloroethane	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
1,1-Dichloroethane	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
1,1-Dichloroethene	<0.40	ug/L	0.40	1.0	2.0	2.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
1,2,4-Trimethylbenzene	<0.29	ug/L	0.29	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
1,2-Dichloroethane	<0.24	ug/L	0.24	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
cis-1,2-Dichloroethene	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
Naphthalene	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
Tetrachloroethene	<0.27	ug/L	0.27	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
Trichloroethene	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
Vinyl chloride	<0.14	ug/L	0.14	0.30	0.60	0.60	1.00	U		8/14/19 14:28	RLD	EPA 8260C ^
1,2 Dichloroethane-d4	91	% Recovery	70			120	1.00			8/14/19 14:28	RLD	EPA 8260C
Bromofluorobenzene	100	% Recovery	75			120	1.00			8/14/19 14:28	RLD	EPA 8260C
d8-Toluene	100	% Recovery	85			120	1.00			8/14/19 14:28	RLD	EPA 8260C
Dibromofluoromethane	103	% Recovery	85			115	1.00			8/14/19 14:28	RLD	EPA 8260C
1-Methylnaphthalene	0.14	ug/L	0.015	0.030	0.076	0.076	1.00		08/07/2019 08:45	8/13/19 16:56	RPN	EPA 8270D-SIM
2-Methylnaphthalene	0.12	ug/L	0.014	0.030	0.076	0.076	1.00	B	08/07/2019 08:45	8/13/19 16:56	RPN	EPA 8270D-SIM

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 312710	Sample Description: NA-GW-MW1-190802	Client Sample #:	Sampled: 08/02/2019 0945
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Surr: 2-Fluorobiphenyl	77	% Recovery	50			110	1.00		08/07/2019 08:45	8/13/19 16:56	RPN	EPA 8270D-SIM
Surr: Nitrobenzene-d5	89	% Recovery	40			110	1.00		08/07/2019 08:45	8/13/19 16:56	RPN	EPA 8270D-SIM
Surr: Terphenyl-d14	87	% Recovery	50			135	1.00		08/07/2019 08:45	8/13/19 16:56	RPN	EPA 8270D-SIM

CT LAB#: 312711	Sample Description: NA-GW-MW2-190802	Client Sample #:	Sampled: 08/02/2019 1100
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
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Organic Results

1,1,1-Trichloroethane	36	ug/L	0.29	0.60	1.0	1.0	1.00			8/14/19 14:58	RLD	EPA 8260C	^
1,1,2-Trichloroethane	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 14:58	RLD	EPA 8260C	^
1,1-Dichloroethane	3.2	ug/L	0.30	0.60	1.0	1.0	1.00			8/14/19 14:58	RLD	EPA 8260C	^
1,1-Dichloroethene	0.86	ug/L	0.40	1.0	2.0	2.0	1.00	J		8/14/19 14:58	RLD	EPA 8260C	^
1,2,4-Trimethylbenzene	0.60	ug/L	0.29	0.60	1.0	1.0	1.00	J		8/14/19 14:58	RLD	EPA 8260C	^
1,2-Dichloroethane	<0.24	ug/L	0.24	0.60	1.0	1.0	1.00	U		8/14/19 14:58	RLD	EPA 8260C	^
cis-1,2-Dichloroethene	0.87	ug/L	0.30	0.60	1.0	1.0	1.00	J		8/14/19 14:58	RLD	EPA 8260C	^
Naphthalene	0.69	ug/L	0.30	0.60	1.0	1.0	1.00	J		8/14/19 14:58	RLD	EPA 8260C	^
Tetrachloroethene	<0.27	ug/L	0.27	0.60	1.0	1.0	1.00	U		8/14/19 14:58	RLD	EPA 8260C	^
Trichloroethene	2.5	ug/L	0.30	0.60	1.0	1.0	1.00			8/14/19 14:58	RLD	EPA 8260C	^
Vinyl chloride	<0.14	ug/L	0.14	0.30	0.60	0.60	1.00	U		8/14/19 14:58	RLD	EPA 8260C	^
1,2 Dichloroethane-d4	97	% Recovery	70			120	1.00			8/14/19 14:58	RLD	EPA 8260C	
Bromofluorobenzene	96	% Recovery	75			120	1.00			8/14/19 14:58	RLD	EPA 8260C	
d8-Toluene	99	% Recovery	85			120	1.00			8/14/19 14:58	RLD	EPA 8260C	
Dibromofluoromethane	102	% Recovery	85			115	1.00			8/14/19 14:58	RLD	EPA 8260C	
1-Methylnaphthalene	0.55	ug/L	0.021	0.043	0.11	0.11	1.00		08/07/2019 08:45	8/13/19 17:15	RPN	EPA 8270D-SIM	
2-Methylnaphthalene	0.47	ug/L	0.020	0.043	0.11	0.11	1.00		08/07/2019 08:45	8/13/19 17:15	RPN	EPA 8270D-SIM	
Surr: 2-Fluorobiphenyl	70	% Recovery	50			110	1.00		08/07/2019 08:45	8/13/19 17:15	RPN	EPA 8270D-SIM	

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 312711	Sample Description: NA-GW-MW2-190802	Client Sample #:	Sampled: 08/02/2019 1100
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Surr: Nitrobenzene-d5	143	% Recovery	40			110	1.00	S	08/07/2019 08:45	8/13/19 17:15	RPN	EPA 8270D-SIM
Surr: Terphenyl-d14	82	% Recovery	50			135	1.00		08/07/2019 08:45	8/13/19 17:15	RPN	EPA 8270D-SIM

CT LAB#: 312712	Sample Description: NA-GW-MW3-190801	Client Sample #:	Sampled: 08/01/2019 1600
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
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Organic Results

1,1,1-Trichloroethane	34	ug/L	0.29	0.60	1.0	1.0	1.00			8/14/19 15:27	RLD	EPA 8260C	^
1,1,2-Trichloroethane	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 15:27	RLD	EPA 8260C	^
1,1-Dichloroethane	2.4	ug/L	0.30	0.60	1.0	1.0	1.00			8/14/19 15:27	RLD	EPA 8260C	^
1,1-Dichloroethene	0.81	ug/L	0.40	1.0	2.0	2.0	1.00	J		8/14/19 15:27	RLD	EPA 8260C	^
1,2,4-Trimethylbenzene	0.78	ug/L	0.29	0.60	1.0	1.0	1.00	J		8/14/19 15:27	RLD	EPA 8260C	^
1,2-Dichloroethane	<0.24	ug/L	0.24	0.60	1.0	1.0	1.00	U		8/14/19 15:27	RLD	EPA 8260C	^
cis-1,2-Dichloroethene	0.30	ug/L	0.30	0.60	1.0	1.0	1.00	J		8/14/19 15:27	RLD	EPA 8260C	^
Naphthalene	0.66	ug/L	0.30	0.60	1.0	1.0	1.00	J		8/14/19 15:27	RLD	EPA 8260C	^
Tetrachloroethene	<0.27	ug/L	0.27	0.60	1.0	1.0	1.00	U		8/14/19 15:27	RLD	EPA 8260C	^
Trichloroethene	0.79	ug/L	0.30	0.60	1.0	1.0	1.00	J		8/14/19 15:27	RLD	EPA 8260C	^
Vinyl chloride	<0.14	ug/L	0.14	0.30	0.60	0.60	1.00	U		8/14/19 15:27	RLD	EPA 8260C	^
1,2 Dichloroethane-d4	98	% Recovery	70			120	1.00			8/14/19 15:27	RLD	EPA 8260C	
Bromofluorobenzene	99	% Recovery	75			120	1.00			8/14/19 15:27	RLD	EPA 8260C	
d8-Toluene	101	% Recovery	85			120	1.00			8/14/19 15:27	RLD	EPA 8260C	
Dibromofluoromethane	101	% Recovery	85			115	1.00			8/14/19 15:27	RLD	EPA 8260C	
1-Methylnaphthalene	1.0	ug/L	0.014	0.029	0.072	0.072	1.00		08/07/2019 08:45	8/13/19 17:34	RPN	EPA 8270D-SIM	
2-Methylnaphthalene	0.86	ug/L	0.013	0.029	0.072	0.072	1.00		08/07/2019 08:45	8/13/19 17:34	RPN	EPA 8270D-SIM	
Surr: 2-Fluorobiphenyl	79	% Recovery	50			110	1.00		08/07/2019 08:45	8/13/19 17:34	RPN	EPA 8270D-SIM	
Surr: Nitrobenzene-d5	81	% Recovery	40			110	1.00		08/07/2019 08:45	8/13/19 17:34	RPN	EPA 8270D-SIM	

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 312712	Sample Description: NA-GW-MW3-190801	Client Sample #:	Sampled: 08/01/2019 1600
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Surr: Terphenyl-d14	91	% Recovery	50			135	1.00		08/07/2019 08:45	8/13/19 17:34	RPN	EPA 8270D-SIM

CT LAB#: 312713	Sample Description: NA-GW-MW4-190801	Client Sample #:	Sampled: 08/01/2019 1345
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
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Organic Results

1,1,1-Trichloroethane	30000	ug/L	150	300	500	500	500.00	M		8/15/19 11:47	RLD	EPA 8260C	^
1,1,2-Trichloroethane	88	ug/L	15	30	50	50	50.00			8/14/19 18:56	RLD	EPA 8260C	^
1,1-Dichloroethane	5700	ug/L	150	300	500	500	500.00			8/15/19 11:47	RLD	EPA 8260C	^
1,1-Dichloroethene	530	ug/L	20	50	100	100	50.00			8/14/19 18:56	RLD	EPA 8260C	^
1,2,4-Trimethylbenzene	44	ug/L	15	30	50	50	50.00	J		8/14/19 18:56	RLD	EPA 8260C	^
1,2-Dichloroethane	16	ug/L	12	30	50	50	50.00	J		8/14/19 18:56	RLD	EPA 8260C	^
cis-1,2-Dichloroethene	750	ug/L	15	30	50	50	50.00			8/14/19 18:56	RLD	EPA 8260C	^
Naphthalene	34	ug/L	15	30	50	50	50.00	J		8/14/19 18:56	RLD	EPA 8260C	^
Tetrachloroethene	<14	ug/L	14	30	50	50	50.00	U		8/14/19 18:56	RLD	EPA 8260C	^
Trichloroethene	370	ug/L	15	30	50	50	50.00			8/14/19 18:56	RLD	EPA 8260C	^
Vinyl chloride	17	ug/L	7.0	15	30	30	50.00	J		8/14/19 18:56	RLD	EPA 8260C	^
1,2 Dichloroethane-d4	93	% Recovery	70			120	1.00			8/14/19 18:56	RLD	EPA 8260C	
Bromofluorobenzene	98	% Recovery	75			120	1.00			8/14/19 18:56	RLD	EPA 8260C	
d8-Toluene	99	% Recovery	85			120	1.00			8/14/19 18:56	RLD	EPA 8260C	
Dibromofluoromethane	100	% Recovery	85			115	1.00			8/14/19 18:56	RLD	EPA 8260C	
1-Methylnaphthalene	55	ug/L	0.58	1.2	2.9	2.9	40.00		08/07/2019 08:45	8/14/19 11:00	RPN	EPA 8270D-SIM	
2-Methylnaphthalene	50	ug/L	0.54	1.2	2.9	2.9	40.00		08/07/2019 08:45	8/14/19 11:00	RPN	EPA 8270D-SIM	
Surr: 2-Fluorobiphenyl	0	% Recovery	50			110	40.00	D	08/07/2019 08:45	8/14/19 11:00	RPN	EPA 8270D-SIM	
Surr: Nitrobenzene-d5	0	% Recovery	40			110	40.00	D	08/07/2019 08:45	8/14/19 11:00	RPN	EPA 8270D-SIM	
Surr: Terphenyl-d14	0	% Recovery	50			135	40.00	D	08/07/2019 08:45	8/14/19 11:00	RPN	EPA 8270D-SIM	

Unless specifically stated to the contrary, soil/sediment/sludge sample results reported on a Dry Weight Basis

CT LAB#: 312713	Sample Description: NA-GW-MW4-190801	Client Sample #:	Sampled: 08/01/2019 1345
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
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CT LAB#: 312714	Sample Description: NA-GW-MW5-190801	Client Sample #:	Sampled: 08/01/2019 1200
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Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results												
1,1,1-Trichloroethane	38	ug/L	0.29	0.60	1.0	1.0	1.00			8/14/19 15:57	RLD	EPA 8260C ^
1,1,2-Trichloroethane	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 15:57	RLD	EPA 8260C ^
1,1-Dichloroethane	11	ug/L	0.30	0.60	1.0	1.0	1.00			8/14/19 15:57	RLD	EPA 8260C ^
1,1-Dichloroethene	2.2	ug/L	0.40	1.0	2.0	2.0	1.00			8/14/19 15:57	RLD	EPA 8260C ^
1,2,4-Trimethylbenzene	<0.29	ug/L	0.29	0.60	1.0	1.0	1.00	U		8/14/19 15:57	RLD	EPA 8260C ^
1,2-Dichloroethane	<0.24	ug/L	0.24	0.60	1.0	1.0	1.00	U		8/14/19 15:57	RLD	EPA 8260C ^
cis-1,2-Dichloroethene	93	ug/L	1.5	3.0	5.0	5.0	5.00			8/15/19 11:16	RLD	EPA 8260C ^
Naphthalene	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/14/19 15:57	RLD	EPA 8260C ^
Tetrachloroethene	0.49	ug/L	0.27	0.60	1.0	1.0	1.00	J		8/14/19 15:57	RLD	EPA 8260C ^
Trichloroethene	260	ug/L	1.5	3.0	5.0	5.0	5.00			8/15/19 11:16	RLD	EPA 8260C ^
Vinyl chloride	8.4	ug/L	0.14	0.30	0.60	0.60	1.00			8/14/19 15:57	RLD	EPA 8260C ^
1,2 Dichloroethane-d4	93	% Recovery	70			120	1.00			8/14/19 15:57	RLD	EPA 8260C
Bromofluorobenzene	100	% Recovery	75			120	1.00			8/14/19 15:57	RLD	EPA 8260C
d8-Toluene	102	% Recovery	85			120	1.00			8/14/19 15:57	RLD	EPA 8260C
Dibromofluoromethane	99	% Recovery	85			115	1.00			8/14/19 15:57	RLD	EPA 8260C
1-Methylnaphthalene	0.016	ug/L	0.015	0.030	0.075	0.075	1.00	J	08/07/2019 08:45	8/13/19 18:13	RPN	EPA 8270D-SIM
2-Methylnaphthalene	0.038	ug/L	0.014	0.030	0.075	0.075	1.00	J B	08/07/2019 08:45	8/13/19 18:13	RPN	EPA 8270D-SIM
Surr: 2-Fluorobiphenyl	73	% Recovery	50			110	1.00		08/07/2019 08:45	8/13/19 18:13	RPN	EPA 8270D-SIM
Surr: Nitrobenzene-d5	79	% Recovery	40			110	1.00		08/07/2019 08:45	8/13/19 18:13	RPN	EPA 8270D-SIM
Surr: Terphenyl-d14	78	% Recovery	50			135	1.00		08/07/2019 08:45	8/13/19 18:13	RPN	EPA 8270D-SIM

CT LAB#: 312715

Sample Description: DUP-01

Client Sample #:

Sampled: 08/01/2019

Analyte	Result	Units	DL	DOD LOD	DOD LOQ	RL	DF	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Organic Results												
1,1,1-Trichloroethane	1.7	ug/L	0.29	0.60	1.0	1.0	1.00			8/15/19 10:16	RLD	EPA 8260C ^
1,1,2-Trichloroethane	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
1,1-Dichloroethane	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
1,1-Dichloroethene	<0.40	ug/L	0.40	1.0	2.0	2.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
1,2,4-Trimethylbenzene	<0.29	ug/L	0.29	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
1,2-Dichloroethane	<0.24	ug/L	0.24	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
cis-1,2-Dichloroethene	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
Naphthalene	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
Tetrachloroethene	<0.27	ug/L	0.27	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
Trichloroethene	<0.30	ug/L	0.30	0.60	1.0	1.0	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
Vinyl chloride	<0.14	ug/L	0.14	0.30	0.60	0.60	1.00	U		8/15/19 10:16	RLD	EPA 8260C ^
1,2 Dichloroethane-d4	101	% Recovery	70			120	1.00			8/15/19 10:16	RLD	EPA 8260C
Bromofluorobenzene	99	% Recovery	75			120	1.00			8/15/19 10:16	RLD	EPA 8260C
d8-Toluene	102	% Recovery	85			120	1.00			8/15/19 10:16	RLD	EPA 8260C
Dibromofluoromethane	99	% Recovery	85			115	1.00			8/15/19 10:16	RLD	EPA 8260C
1-Methylnaphthalene	0.12	ug/L	0.014	0.029	0.072	0.072	1.00		08/07/2019 08:45	8/13/19 18:32	RPN	EPA 8270D-SIM
2-Methylnaphthalene	0.12	ug/L	0.013	0.029	0.072	0.072	1.00	B	08/07/2019 08:45	8/13/19 18:32	RPN	EPA 8270D-SIM
Surr: 2-Fluorobiphenyl	66	% Recovery	50			110	1.00		08/07/2019 08:45	8/13/19 18:32	RPN	EPA 8270D-SIM
Surr: Nitrobenzene-d5	70	% Recovery	40			110	1.00		08/07/2019 08:45	8/13/19 18:32	RPN	EPA 8270D-SIM
Surr: Terphenyl-d14	70	% Recovery	50			135	1.00		08/07/2019 08:45	8/13/19 18:32	RPN	EPA 8270D-SIM

Notes:

^ Indicates the laboratory is NELAP accredited for this analyte by the indicated matrix and method. DL (detection limit), LOD (limit of detection), loq (limit of quantitation) as defined by most recent DOD QSM version.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report has been specifically prepared to satisfy project or program requirements. These results are in compliance with NELAC requirements for the parameters where accreditation is required or available, unless noted in the case narrative.

Submitted by: Brett M. Szymanski
Project Manager
608-356-2760

QC Qualifiers		Current CT Laboratories Certifications
Code	Description	
B	Analyte detected in the associated Method Blank.	<p>Wisconsin (WDNR) Chemistry ID# 157066030 Wisconsin (DATCP) Bacteriology ID# 289 Louisiana NELAP (primary) ID# ACC20190002 Illinois NELAP Lab ID# 200073 Kansas NELAP Lab ID# E-10368 Virginia NELAP Lab ID# 460203 Maryland Lab ID# 344 ISO/IEC 17025-2005 A2LA Cert # 3806.01 DoD-ELAP A2LA 3806.01 GA EPD Stipulation ID ACC20190002</p>
C	Toxicity present in BOD sample.	
D	Diluted Out.	
E	Safe, No Total Coliform detected.	
F	Unsafe, Total Coliform detected, no E. Coli detected.	
G	Unsafe, Total Coliform detected and E. Coli detected.	
H	Holding time exceeded.	
I	Incubator temperature was outside acceptance limits during test period.	
J	Estimated value.	
L	Significant peaks were detected outside the chromatographic window.	
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.	
N	Insufficient BOD oxygen depletion.	
O	Complete BOD oxygen depletion.	
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.	
Q	Laboratory Control Sample outside acceptance limits.	
R	See Narrative at end of report.	
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.	
T	Sample received with improper preservation or temperature.	
U	Analyte concentration was below detection limit.	
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.	
W	Sample amount received was below program minimum.	
X	Analyte exceeded calibration range.	
Y	Replicate/Duplicate precision outside acceptance limits.	
Z	Specified calibration criteria was not met.	

QC SUMMARY REPORT

TETRA TECH

Project Name: NEWTON AVENUE VI - RS

SDG #: 0

Folder #: 147082

Project #: 103X90260001S051902313

Lab Control Spike Water

Analytical Run #:	163337	Analysis Date:	08/13/2019	Prep Batch #:	73021	Matrix:	LIQUID
CTLab #:	312983	Analysis Time:	16:37	Prep Date/Time:	08/07/2019 08:45	Method:	SW8270SIM
Parent Sample #:		Analyst:	RPN	Prep Analyst:	AJZ		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1-Methylnaphthalene	0.719	ug/L			1.00	72	50 --- 150		30
2-Methylnaphthalene	0.810	ug/L			1.00	81	45 --- 105		30
Naphthalene	0.744	ug/L			1.00	74	40 --- 100		30

TETRA TECH

Project Name: NEWTON AVENUE VI - RS

SDG #: 0

Folder #: 147082

Project #: 103X90260001S051902313

Method Blank Water

Analytical Run #:	163337	Analysis Date:	08/13/2019	Prep Batch #:	73021	Matrix:	LIQUID
CTLab #:	312982	Analysis Time:	16:18	Prep Date/Time:	08/07/2019 08:45	Method:	SW8270SIM
Parent Sample #:		Analyst:	RPN	Prep Analyst:	AJZ		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1-Methylnaphthalene	0.015	ug/L		U	0		.0375		
2-Methylnaphthalene	0.0283	ug/L			0		.0375		
Naphthalene	0.014	ug/L		U	0		.0375		

TETRA TECH

Project Name: NEWTON AVENUE VI - RS

SDG #: 0

Folder #: 147082

Project #: 103X90260001S051902313

Matrix Spike Duplicate Water

Analytical Run #:	163337	Analysis Date:	08/14/2019	Prep Batch #:	73021	Matrix:	GROUND WATER
CTLab #:	312986	Analysis Time:	11:37	Prep Date/Time:	08/07/2019 08:45	Method:	SW8270SIM
Parent Sample #:	312985	Analyst:	RPN	Prep Analyst:	AJZ		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1-Methylnaphthalene	55.0	ug/L	55		0.990	0	50 --- 150	21	30
2-Methylnaphthalene	49.6	ug/L	50		0.990	0	45 --- 105	21	30
Naphthalene	38.6	ug/L	38		0.990	61	40 --- 100	10	30
Surr: 2-Fluorobiphenyl	0	% Recovery		D	100	0	50 --- 110		
Surr: Nitrobenzene-d5	0	% Recovery		D	100	0	40 --- 110		
Surr: Terphenyl-d14	0	% Recovery		D	100	0	50 --- 135		

TETRA TECH

Project Name: NEWTON AVENUE VI - RS

SDG #: 0

Folder #: 147082

Project #: 103X90260001S051902313

Matrix Spike Water

Analytical Run #:	163337	Analysis Date:	08/14/2019	Prep Batch #:	73021	Matrix:	GROUND WATER
CTLab #:	312985	Analysis Time:	11:19	Prep Date/Time:	08/07/2019 08:45	Method:	SW8270SIM
Parent Sample #:	312713	Analyst:	RPN	Prep Analyst:	AJZ		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1-Methylnaphthalene	49.8	ug/L	55		1.11	0	50 --- 150		
2-Methylnaphthalene	44.9	ug/L	50		1.11	0	45 --- 105		
Naphthalene	39.2	ug/L	38		1.11	108	40 --- 100		
Surr: 2-Fluorobiphenyl	0	% Recovery		D	100	0	50 --- 110		
Surr: Nitrobenzene-d5	0	% Recovery		D	100	0	40 --- 110		
Surr: Terphenyl-d14	0	% Recovery		D	100	0	50 --- 135		

TETRA TECH

Project Name: NEWTON AVENUE VI - RS

SDG #: 0

Folder #: 147082

Project #: 103X90260001S051902313

Lab Control Spike Water

Analytical Run #:	163434	Analysis Date:	08/14/2019	Prep Batch #:	Matrix:	LIQUID
CTLab #:	316431	Analysis Time:	10:28	Prep Date/Time:	Method:	SW8260C
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	10.1	ug/L			10.0	101	65 --- 130		30
1,1,2-Trichloroethane	9.40	ug/L			10.0	94	75 --- 125		30
1,1-Dichloroethane	9.64	ug/L			10.0	96	70 --- 135		30
1,1-Dichloroethene	10.2	ug/L			10.0	102	70 --- 130		30
1,2,4-Trimethylbenzene	10.3	ug/L			10.0	103	75 --- 130		30
1,2-Dichloroethane	9.10	ug/L			10.0	91	70 --- 130		30
cis-1,2-Dichloroethene	9.67	ug/L			10.0	97	70 --- 125		30
Naphthalene	9.16	ug/L			10.0	92	55 --- 140		30
Tetrachloroethene	10.2	ug/L			10.0	102	45 --- 150		30
Trichloroethene	9.93	ug/L			10.0	99	70 --- 125		30
Vinyl chloride	9.38	ug/L			10.0	94	50 --- 145		30

TETRA TECH

Project Name: NEWTON AVENUE VI - RS

SDG #: 0

Folder #: 147082

Project #: 103X90260001S051902313

Method Blank Water

Analytical Run #:	163434	Analysis Date:	08/14/2019	Prep Batch #:	Matrix:	LIQUID
CTLab #:	316435	Analysis Time:	12:28	Prep Date/Time:	Method:	SW8260C
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.29	ug/L		U	0		0.50		
1,1,2-Trichloroethane	0.30	ug/L		U	0		0.50		
1,1-Dichloroethane	0.3	ug/L		U	0		0.5		
1,1-Dichloroethene	0.4	ug/L		U	0		1.0		
1,2,4-Trimethylbenzene	0.29	ug/L		U	0		0.50		
1,2-Dichloroethane	0.24	ug/L		U	0		0.50		
cis-1,2-Dichloroethene	0.3	ug/L		U	0		0.5		
Naphthalene	0.30	ug/L		U	0		0.50		
Tetrachloroethene	0.27	ug/L		U	0		0.50		
Trichloroethene	0.3	ug/L		U	0		0.5		
Vinyl chloride	0.14	ug/L		U	0		0.30		

TETRA TECH

Project Name: NEWTON AVENUE VI - RS

SDG #: 0

Folder #: 147082

Project #: 103X90260001S051902313

Matrix Spike Duplicate Water

Analytical Run #:	163434	Analysis Date:	08/15/2019	Prep Batch #:	Matrix:	GROUND WATER
CTLab #:	316426	Analysis Time:	12:46	Prep Date/Time:	Method:	SW8260C
Parent Sample #:	316425	Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	32500	ug/L	30000		5000	50	65 --- 130	6	30
1,1,2-Trichloroethane	664	ug/L	88		500	115	75 --- 125	0	30
1,1-Dichloroethane	9720	ug/L	5700		5000	80	70 --- 135	6	30
1,1-Dichloroethene	893	ug/L	530		500	73	70 --- 130	2	30
1,2 Dichloroethane-d4	97.0	% Recovery			100	97.0	70 --- 120		
1,2,4-Trimethylbenzene	652	ug/L	44		500	122	75 --- 130	1	30
1,2-Dichloroethane	498	ug/L	16		500	96	70 --- 130	2	30
Bromofluorobenzene	98.0	% Recovery			100	98.0	75 --- 120		
cis-1,2-Dichloroethene	1200	ug/L	750		500	90	70 --- 125	0	30
d8-Toluene	102	% Recovery			100	102	85 --- 120		
Dibromofluoromethane	99.0	% Recovery			100	99.0	85 --- 115		
Naphthalene	628	ug/L	34		500	119	55 --- 140	6	30
Tetrachloroethene	550	ug/L	BDL		500	110	45 --- 150	6	30
Trichloroethene	882	ug/L	370		500	102	70 --- 125	3	30
Vinyl chloride	382	ug/L	17		500	73	50 --- 145	4	30

Matrix Spike Water

Analytical Run #:	163434	Analysis Date:	08/15/2019	Prep Batch #:	Matrix:	GROUND WATER
CTLab #:	316425	Analysis Time:	12:16	Prep Date/Time:	Method:	SW8260C
Parent Sample #:	312713	Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1-Trichloroethane	34400	ug/L	30000		5000	88	65 --- 130		30
1,1,2-Trichloroethane	665	ug/L	88		500	115	75 --- 125		30
1,1-Dichloroethane	10300	ug/L	5700		5000	92	70 --- 135		30
1,1-Dichloroethene	910	ug/L	530		500	76	70 --- 130		30
1,2 Dichloroethane-d4	101	% Recovery			100	101	70 --- 120		
1,2,4-Trimethylbenzene	656	ug/L	44		500	122	75 --- 130		30
1,2-Dichloroethane	489	ug/L	16		500	95	70 --- 130		30
Bromofluorobenzene	97.0	% Recovery			100	97.0	75 --- 120		
cis-1,2-Dichloroethene	1200	ug/L	750		500	90	70 --- 125		30
d8-Toluene	101	% Recovery			100	101	85 --- 120		
Dibromofluoromethane	99.0	% Recovery			100	99.0	85 --- 115		
Naphthalene	592	ug/L	34		500	112	55 --- 140		30
Tetrachloroethene	583	ug/L	BDL		500	117	45 --- 150		30
Trichloroethene	860	ug/L	370		500	98	70 --- 125		30
Vinyl chloride	369	ug/L	17		500	70	50 --- 145		30

Sample Condition Report

Folder #: 147082
 Client: TETRA TECH

Print Date / Time: 08/06/2019 14:46
 Received Date / Time / By: 08/06/2019 10:15 DL

Project Name: NEWTON AVENUE VI - RS
 Project Phase: INDIANAPOLIS, IN

Log-In Date / Time / By: 08/06/2019 11:01 JRB
 Project #: 103X90260001S051902313 PM: BMS

Coolers: 6309,6321
 Custody Seals Present : Y

Temperature: <3.5 C On Ice: Y
 COC Present?: Y Complete? Y

Seal Intact? Y
 Ship Method: FEDEX EXPRESS
 Adequate Packaging: Y

Numbers: SIGNED AND DATED
 Tracking Number: 788904245649/6840
 Temp Blank Enclosed? Y

Notes: THE SAMPLES WERE RECEIVED ON ICE.

ONE VOA VIAL FOR SAMPLE NA-GW-MW5-190801 WAS RECEIVED BROKEN. THE VOC ANALYSIS WILL BE PERFORMED USING THE TWO REMAINING VOA VIALS.

TWO 1-L AMBER GLASS JARS FOR SAMPLE NA-GW-MW4-190801 WERE RECEIVED BROKEN. THERE REMAINS SUFFICIENT VOLUME TO PERFORM THE PAH-SIM + QC ANALYSIS.

ONE CUSTODY SEAL WAS PRESENT AND INTACT ON EACH COOLER UPON RECEIPT - BOTH WERE DATED 8/5/19 AND SIGNED.

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
312710 NA-GW-MW1-190802	AMBER GL	1	/	8270
	AMBER GL	1	/	8270
	Total # of Containers of Type (AMBER GL) = 2			
312710 NA-GW-MW1-190802	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	Total # of Containers of Type (VOA HCL) = 3			
Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
312711 NA-GW-MW2-190802	AMBER GL	1	/	8270
	AMBER GL	1	/	8270
	Total # of Containers of Type (AMBER GL) = 2			
312711 NA-GW-MW2-190802	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	VOA HCL	1	/	VOC
	Total # of Containers of Type (VOA HCL) = 3			
Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
312712 NA-GW-MW3-190801	AMBER GL	1	/	8270
	AMBER GL	1	/	8270
	Total # of Containers of Type (AMBER GL) = 2			

147082

312712 NA-GW-MW3-190801

VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
Total # of Containers of Type (VOA HCL) = 3			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
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312713 NA-GW-MW4-190801

AMBER GL	3	/	N
AMBER GL	3	/	
Total # of Containers of Type (AMBER GL) = 2			

312713 NA-GW-MW4-190801

AMBER GL	1	/	8270
AMBER GL	1	/	8270
AMBER GL	1	/	8270
AMBER GL	1	/	8270
Total # of Containers of Type (AMBER GL) = 4			

312713 NA-GW-MW4-190801

VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
Total # of Containers of Type (VOA HCL) = 9			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
-------------------------	----------------	------------	------------------	-------

312714 NA-GW-MW5-190801

AMBER GL	1	/	8270
AMBER GL	1	/	8270
Total # of Containers of Type (AMBER GL) = 2			

312714 NA-GW-MW5-190801

VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
Total # of Containers of Type (VOA HCL) = 3			

Sample ID / Description	Container Type	Cond. Code	pH OK?/Filtered?	Tests
-------------------------	----------------	------------	------------------	-------

312715 DUP-01

AMBER GL	1	/	8270
AMBER GL	1	/	8270
Total # of Containers of Type (AMBER GL) = 2			

312715 DUP-01

VOA HCL	1	/	VOC
VOA HCL	1	/	VOC
VOA HCL	3	/	VOC
Total # of Containers of Type (VOA HCL) = 3			

<u>Condition Code</u>	<u>Condition Description</u>
3	Broken Container

CT Laboratories Terms and Conditions

Where a purchaser (Client) places an order for laboratory, consulting or sampling services from CT Laboratories (CTL), CTL shall provide the ordered services pursuant to these Terms and Conditions, and the related Quotation, or as agreed in a negotiated contract. In the absence of a written agreement to the contrary, the Order constitutes an acceptance by the Client of CTL's offer to do business under these Terms and Conditions, and an agreement to be bound by these Terms and Conditions. No contrary or additional terms and conditions expressed in a Client's document shall be deemed to become a part of the contract created upon acceptance of these Terms and Conditions, unless accepted by CTL in advance of the start of the project and in writing.

1. ORDERS AND RECEIPT OF SAMPLES (Sample Acceptance Policy)

- 1.1 The Client may place the Order (i.e., specify a Scope of Work) either by submitting a purchase order to CTL in writing, by telephone (confirmed in writing) or by negotiated contract. Whichever option the Client selects for placing the Order, the Order shall not be valid unless it contains sufficient information to enable CTL to carry out the Client's requirements. It is the policy of CTL that samples not meeting the acceptance criteria, outlined in the NELAC standards and Section 5.8.3.2 of the DOD QSM, will not be accepted by the laboratory or will be qualified on the final report. All samples submitted to the laboratory must: (a) be accompanied by proper, full and complete documentation, including sample identification, location, date and time of collection, the collector's name, type of preservation (if any), type of sample, any special comments concerning the sample and any additional pertinent fields on the chain-of-custody. In the absence of any of the required information, the laboratory will attempt to contact the client to obtain the information; if unable to obtain the necessary information, the final report will be qualified. (b) samples must be labeled appropriately with a unique sample identification written with indelible ink on water resistant labels. If the laboratory cannot determine the identity of a sample, it may be rejected and the client will be contacted for further instructions or resampling. (c) samples must be in an appropriate sample container. If the container is inappropriate, the client will be contacted for further instructions or resampling. If analysis is possible, the final report will be qualified. CTL can provide a sampling guide containing approved containers and preservations for analytical methods requested. (d) adhere to method specified holding times. If samples are received with less than 1/2 the holding time remaining for the requested test, CTL will make its best effort to analyze the samples and notify the client. If holding times are exceeded, the final report will be qualified. (e) contain adequate sample volume to perform the necessary testing. If sufficient volume is not present, the sample may be rejected and the client will be contacted for further instructions or resampling. If samples show signs of damage, contamination or inadequate preservation, the client will be notified. If analysis can be performed, the final report will be qualified. If not, the samples will be rejected and the client notified for further instructions or resampling. It is the Client's responsibility to understand and package samples correctly and provide the proper amount of temperature control (ice) suitable to current weather conditions. 1.2 CTL must be supplied with complete written disclosure of the known or suspected presence of any hazardous substances, as defined by applicable federal or state law. Where any samples which were not accompanied by the required disclosure, cause interruptions in the lab's ability to process work due to contamination of instruments or work areas, the Client will be responsible for the costs of clean up and recovery. 1.3 Prior to Sample Acceptance, the entire risk of loss or damage to samples remains with the Client. In no event will CTL have any responsibility or liability for the action or inaction of any carrier shipping or delivering any sample to or from CTL's premises. Client is responsible to assure that any sample containing any hazardous substance which is to be delivered to CTL's premises will be packaged, labeled, transported and delivered properly and in accordance with applicable laws. 1.4 Clients using CTL's shipping account(s) do so at their own risk and must purchase separate insurance if they do not wish to assume risk of loss. CTL will not assume any risk whatsoever for any samples outside of CTL's control and not successfully delivered to the laboratory within specified hold times. 1.5 CTL will not accept liability for any sample(s), except sample(s) damaged or broken by log-in staff prior to successful log-in of the sample(s) into the CTL-LIMS system. This includes, but may not be limited to: complete, valid COC documentation, all sample receiving issues being resolved from a delay caused by the Client in CTL's ability to log-in samples, including missed turnaround and hold times, delay in processing and, ultimately, additional charges to the Client. 1.6 CTL will only reject samples per directions from the Client. CTL's sole liability is to inform the Client of any sample receipt issues, and may provide an indication how proceeding with the analysis may affect results and final acceptance by the regulating agency. Ultimately, suitability for use is between the Client and the regulating agency(s). 1.7 Signing of this COC by the Client or Client's representative, or directions to CTL via email or Fax constitutes acceptance of these Terms and Conditions, and guarantees payment by the Client to CTL.

2. PAYMENT TERMS

- 2.1 Services performed by CTL will be in accordance with prices quoted and later confirmed in writing or as stated in the Price Schedule. Invoices may be submitted to Client upon completion of any sample delivery group. Payment in advance is required for all Clients except those whose credit has been established with CTL. For Clients with approved credit, payment terms are net 30 days from the date of invoice by CTL. All overdue payments are subject to an additional interest and service charge of one and one-half percent (1.5%) or the maximum rate permissible by law, per month or portion thereof from the due date until the date of payment. All fees are charged or billed directly to the Client. The billing of a third party will not be accepted without a statement, signed by the third party that acknowledges and accepts payment responsibility. CTL may suspend work and withhold delivery of data under this order at any time in the event Client fails to make timely payment of its invoices. Client shall be responsible for all costs and expenses of collection including reasonable attorney's fees. CTL reserves the right to refuse to proceed with work at any time based upon an unfavorable Client credit report.

3. CHANGE ORDERS, TERMINATION

- 3.1 Changes to the Scope of Work, price, or result delivery date may be initiated by CTL after Sample Acceptance due to any condition which conflicts with analytical, QA or other protocols warranted in these Terms and Conditions. CTL will not proceed with such changes until an agreement with the Client is reached on the amount of any cost, schedule change or technical change to the Scope of Work, and such agreement is documented in writing. 3.2 Changes to the Scope of Work, including but not limited to increasing or decreasing the work, changing test and analysis specification or acceleration in the performance of the work may be initiated by the Client after sample acceptance. Such a change will be documented in writing and may result in a change in cost and turnaround time commitment. CTL's acceptance of such changes is contingent upon technical feasibility and operational capacity. 3.3 Suspension or termination of all or any part of the work may be initiated by the Client. CTL will be compensated consistent with Section 2 of these Terms and Conditions. CTL will complete all work in progress and be paid in full for all work completed.

4. WARRANTIES AND LIABILITY

- 4.1 Where applicable, CTL will use analytical methodologies which are in substantial conformity with published test methods. CTL has implemented these methods in its Laboratory Quality Manuals and referenced Standard Operating Procedures and where the nature or composition of the sample requires it, CTL reserves the right to deviate from these methodologies as necessary or appropriate, based on the reasonable judgment of CTL, which deviations, if any, will be made on a basis consistent with recognized standards of the industry and/or CTL's Laboratory Quality Manuals. Client may request that CTL perform according to a mutually agreed Quality Assurance Project Plan (QAPP). In the event that samples arrive prior to agreement on a QAPP, CTL will proceed with analyses under its standard Quality Manuals then in effect, and CTL will not be responsible for any resampling or other charges if work must be repeated to comply with a subsequently finalized QAPP. 4.2 CTL shall start preparation and/or analysis within holding times provided that Sample Acceptance occurs within 48 hours of sampling or 1/2 of the holding time for the test, whichever is less. Samples received that do not meet this provision will be charged as expedited samples and the appropriate rate will be added accordingly. Where resolution of inconsistencies leading to Sample Acceptance does not occur within this period, CTL will use its best efforts to meet holding times and will proceed with the work provided that, in CTL's judgment, the chain-of-custody or definition of the Scope of Work provide sufficient guidance. Reanalysis of samples to comply with CTL's Quality Manuals will be deemed to have met holding times provided the initial analysis was performed within the applicable holding time. Where reanalysis demonstrates that sample matrix interference is the cause of failure to meet any Quality Manual requirements, the warranty will be deemed to have been met. 4.3 CTL warrants that it possesses and maintains all licenses and certifications which are required to perform services under these Terms and Conditions provided that such requirements are specified in writing to CTL prior to Sample Acceptance. CTL will notify the Client in writing of any decertification or revocation of any license, or notice of either, which affects work in progress. 4.4 The warranty obligations set forth in Sections 4.1, 4.2 and 4.3 are the sole and exclusive warranties given by CTL in connection with any services performed by CTL or any Results generated from such services, and CTL gives and makes NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. No representative of CTL is authorized to give or make any other representation or warranty or modify this warranty in any way. 4.5 Client's sole and exclusive remedy for the breach of warranty in connection with any services performed by CTL, will be limited to repeating any services performed, contingent on the Client's providing, at the request of CTL and at the Client's expense, additional sample(s) if necessary. Any reanalysis requested by the Client generating Results consistent with the original Results will be at the Client's expense. If resampling is necessary, CTL's liability for resampling costs will be limited to actual cost or one hundred or one hundred fifty dollars (\$150) per sample, whichever is less. 4.6 CTL's liability for any and all causes of action arising hereunder, whether based in contract, tort, warranty, negligence or otherwise, shall be limited to the lesser amount of compensation for the services performed or \$100,000. All claims, including those for negligence, shall be deemed waived unless suit thereon is filed within one year after CTL's completion of the services. Under no circumstances, whether arising in contract, tort (including negligence), or otherwise, shall CTL be responsible for loss of use, loss of profits, or for any special, indirect, incidental or consequential damages occasioned by the services performed or by application or use of the reports prepared. 4.7 In no event shall CTL have any responsibility or liability to the Client for any failure or delay in performance by CTL which results, directly or indirectly, in whole or in part, from any cause or circumstance beyond the reasonable control of CTL. Such causes and circumstances shall include, but not be limited to, acts of God, acts of Client, acts or orders of any governmental authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, equipment breakdown, matrix interference or unknown highly contaminated samples that impact instrument operation, unavailability of supplies from usual suppliers, difficulties or delays in transportation, mail or delivery services, or any other cause beyond CTL's reasonable control.

5. RESULTS, WORK PRODUCT

- 5.1 Data or information provided to CTL or generated by services performed under this agreement shall only become the property of the Client upon receipt in full by CTL of payment for the whole Order. Ownership of any analytical method, QA/QC protocols, software programs or equipment developed by CTL for performance of work will be retained by CTL, and Client shall not disclose such information to any third party. 5.2 Data and sample materials provided by Client or at Client's request, and the result obtained by CTL shall be held in confidence (unless such information is generally available to the public or is in the public domain or Client has failed to pay CTL for all services rendered or is otherwise in breach of these Terms and Conditions), subject to any disclosure required by law or legal process. 5.3 Should the Results delivered by CTL be used by the Client or Client's client, even though subsequently determined not to meet the warranties described in these Terms and Conditions, then the compensation will be adjusted based upon mutual agreement. In no case shall the Client unreasonably withhold CTL's right to independently defend its data. 5.4 CTL reserves the right to subcontract services ordered by the Client to another laboratory or laboratories, if, in CTL's sole judgment, it is reasonably necessary, appropriate or advisable to do so, and with the Client's permission. CTL will in no way be liable for any subcontracted services and all applicable warranties, guarantees and insurance are those of the subcontracted laboratory. 5.5 CTL shall dispose of the Client's samples and extracts 30 days after the analytical report is issued, unless instructed to store them for an alternate period of time or to return such samples to the Client, in a manner consistent with U.S. Environmental Protection Agency regulations or other applicable Federal, state or local requirements. Additional charges will apply for samples or extracts stored longer than 30 days at the Client's request. Any samples for projects that are canceled or not accepted, or for which return was requested, will be returned to the Client at Client expense. CTL reserves the right to return to the Client any sample or unused portion of a sample that is not within CTL's permitted capability or the capabilities of CTL's designated waste disposal vendor(s), or will make arrangements to dispose of these samples at Client direction and expense. 5.6 Unless a different time period is agreed to in any order under these Terms and Conditions, CTL agrees to retain all records for five (5) years. 5.7 In the event that CTL is required to respond to legal process related to services for Client, Client agrees to reimburse CTL for hourly charges for personnel involved in the response and attorney fees reasonably incurred in obtaining advice concerning the response, preparation to testify, and appearances related to the legal process, travel and all reasonable expenses associated with the litigation.

6. INSURANCE

- 6.1 CTL shall maintain in force during the performance of services under these Terms and Conditions, Workers' Compensation and Employer's Liability Insurance in accordance with the laws of the states having jurisdiction over CTL's employees who are engaged in the performance of the work. CTL shall also maintain during such period, Comprehensive General and Contractual Liability (limit of \$2,000,000 per occurrence/aggregate), Comprehensive Automobile Liability, owned and hired, (\$1,000,000 combined single limit), and Professional/Pollution Liability Insurance (limit of \$5,000,000 per occurrence/aggregate). Any Client required charges to these limits or conditions will result in a change in cost to the Client.

7. AUDIT

- 7.1 Upon prior notice to CTL, the Client may audit and inspect CTL's records and accounts covering reimbursable costs related to work done for the Client, for a period of one (1) year after completion of the work. The purpose of any such audit shall be only for verification of such costs, and CTL shall not be required to provide access to cost records where prices are expressed as fixed fees or published unit prices.

Ice Present (YES) NO

Temperature 3.5

IR Gun # 24

Initials YL

Date 8/6/19 Time 10:15

Cooler #: 6309

Cooler Receipt Form

SHIP DATE: 05AUG19
ACTWGT: 45.00 LB
CAD: 111001742INET4160

BILL SENDER

(317) 847-5020

ORIGIN ID: GSHA
JOSEPH ROBERT
QEPI

1611 SOUTH FRANKLIN ROAD
INDIANAPOLIS, IN 46239
UNITED STATES US

TO CT LABORATORIES
CT LABORATORIES
1230 LANGE CT

BARABOO WI 53913

REF: NEWTON AVENUE

(608) 356-2760

INV: PO:

DEPT:

FedEx
Express



TUE - 06 AUG 10:30A
PRIORITY OVERNIGHT

2 of 2

MPS# 7889 0424 6840

0263

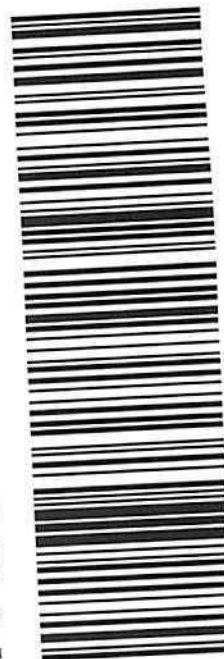
Mstr# 7889 0424 5649

0201

53913

NA MSNA

WI-US MSN



SEAL

DATE

8/15/19

SIGNATURE

Robert

QEC

Quality Environmental Containers
800-255-3950 • 304-255-3900

Ice Present YES NO

Temperature 3.1

IR Gun # 6321

Initials JA

Date 8/6/19 Time 10:15

Cooler #: 6321

Cooler Receipt Form

SHIP DATE: 05AUG19
ACTWGT: 45.00 LB
CAD: 111001742INET4160

BILL SENDER

(317) 847-5020

ORIGIN ID: GSHA
JOSEPH ROBERT
QEP1

1611 SOUTH FRANKLIN ROAD

INDIANAPOLIS, IN 46239

UNITED STATES US

TO
CT LABORATORIES
CT LABORATORIES
1230 LANGE CT

BARABOO WI 53913

(608) 356-2760

REF: NEWTON AVENUE

DEPT:



FedEx
Express



TUE - 06 AUG 10:30A
PRIORITY OVERNIGHT

1 of 2

TRK# 7889 0424 5649

0201

MASTER

NA MSNA

53913

WI-US MSN



CUSTODY SEAL

DATE

8/5/19

SIGNATURE

Joe Robert

QEC

Quality Environmental Containers
800-255-3950 • 304-255-3900



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

LABORATORY REPORT

September 19, 2019

Dennis Linley
CT Laboratories
1230 Lange Court
Baraboo, WI 53913

RE: Newton Ave. VI / S05-0001-1902-313

Dear Dennis:

Your Tier II report for P1905371 has been amended for the samples submitted to our laboratory on September 10, 2019. The dates of collection for some of the samples needed to be corrected to match the chain of custody. None of the sample results were affected by the change. The revision has been indicated by the "Revised Report" footer located at the bottom right corner of each page.

All analyses were performed according to our laboratory's NELAP and DoD-ELAP-approved quality assurance program. The test results meet requirements of the current NELAP and DoD-ELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP and DoD-ELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

ALS | Environmental



By Sue Anderson at 6:24 pm, Sep 19, 2019

Sue Anderson
Project Manager



2655 Park Center Dr., Suite A
Simi Valley, CA 93065
T: +1 805 526 7161
www.alsglobal.com

Client: CT Laboratories
Project: Newton Ave. VI / S05-0001-1902-313

Service Request No: P1905371

CASE NARRATIVE

The samples were received intact under chain of custody on September 10, 2019 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for volatile organic compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. This procedure is described in laboratory SOP VOA-TO15. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator. This method is included on the laboratory's NELAP and DoD-ELAP scope of accreditation. Any analytes flagged with an X are not included on the NELAP or DoD-ELAP accreditation.

The spike recovery of 1,2,4-trimethylbenzene for the Laboratory Control Sample (LCS) analyzed on September 11 and 12, 2019 was outside the Laboratory generated control criterion. The recovery error equates to a potential high bias. However, the spike recovery of the analyte in question was within the method criteria; therefore, the data quality has not been significantly affected. No corrective action was taken.

The reporting limits have been elevated for most of the samples. The chromatograms indicated the presence of non-target background components; therefore, the samples were diluted in order to prevent damage to the instrument and to achieve optimal resolution of the target analytes.

The containers were cleaned, prior to sampling, down to the method reporting limit (MRL) reported for this project. For projects requiring DoD QSM 5.1 compliance canisters were cleaned to <1/2 the MRL. Please note, projects which require reporting below the MRL could have results between the MRL and method detection limit (MDL) that are biased high.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.



2655 Park Center Dr., Suite A
 Simi Valley, CA 93065
 T: +1 805 526 7161
www.alsglobal.com

ALS Environmental – Simi Valley

CERTIFICATIONS, ACCREDITATIONS, AND REGISTRATIONS

Agency	Web Site	Number
Alaska DEC	http://dec.alaska.gov/eh/lab.aspx	17-019
Arizona DHS	http://www.azdhs.gov/preparedness/state-laboratory/lab-licensure-certification/index.php#laboratory-licensure-home	AZ0694
Florida DOH (NELAP)	http://www.floridahealth.gov/licensing-and-regulation/environmental-laboratories/index.html	E871020
Louisiana DEQ (NELAP)	http://www.deq.louisiana.gov/page/la-lab-accreditation	05071
Maine DHHS	http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/professionals/labCert.shtml	2018027
Minnesota DOH (NELAP)	http://www.health.state.mn.us/accreditation	1521096
New Jersey DEP (NELAP)	http://www.nj.gov/dep/enforcement/oqa.html	CA009
New York DOH (NELAP)	http://www.wadsworth.org/labcert/elap/elap.html	11221
Oregon PHD (NELAP)	http://www.oregon.gov/oha/ph/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	4068-006
Pennsylvania DEP	http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx	68-03307 (Registration)
PJLA (DoD ELAP)	http://www.pjlab.com/search-accredited-labs	65818 (Testing)
Texas CEQ (NELAP)	http://www.tceq.texas.gov/agency/qa/env_lab_accreditation.html	T104704413-19-10
Utah DOH (NELAP)	http://health.utah.gov/lab/lab_cert_env	CA016272019-10
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C946
<p>Analyses were performed according to our laboratory's NELAP and DoD-ELAP approved quality assurance program. A complete listing of specific NELAP and DoD-ELAP certified analytes can be found in the certifications section at www.alsglobal.com, or at the accreditation body's website.</p> <p>Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact the laboratory for information corresponding to a particular certification.</p>		

ALS ENVIRONMENTAL

DETAIL SUMMARY REPORT

Client: CT Laboratories
Project ID: Newton Ave. VI / S05-0001-1902-313

Service Request: P1905371

Date Received: 9/10/2019
Time Received: 09:15

TO-15 - VOC Cans

Client Sample ID	Lab Code	Matrix	Date Collected	Time Collected	Container ID	Pi1 (psig)	Pf1 (psig)	
NG-SG01-190904	P1905371-001	Air	9/5/2019	15:01	SC02258	-2.26	3.84	X
NG-SG02-190904	P1905371-002	Air	9/5/2019	16:00	SC00651	-2.16	3.88	X
NG-SG03-190904	P1905371-003	Air	9/6/2019	09:55	SC00958	-2.62	4.02	X
NG-SG04-190905	P1905371-004	Air	9/6/2019	13:45	SC00871	-2.29	3.71	X
NG-SG05-190905	P1905371-005	Air	9/6/2019	14:28	SC00661	-1.70	3.79	X
NG-SG06-190904	P1905371-006	Air	9/5/2019	14:00	SC00699	-1.97	3.89	X
NG-SG07-190904	P1905371-007	Air	9/6/2019	10:55	SC01825	-2.55	3.92	X
NG-SG08-190904	P1905371-008	Air	9/6/2019	09:09	SC01640	-1.57	3.74	X
NG-SG09-190905	P1905371-009	Air	9/6/2019	11:42	SC01482	-2.50	3.72	X
NG-SG10-190905	P1905371-010	Air	9/6/2019	15:18	SC00095	-1.81	3.59	X
Dup-02	P1905371-011	Air	9/6/2019	00:00	SC02083	-2.06	3.69	X
Dup-03	P1905371-012	Air	9/6/2019	00:00	SC02103	-2.39	4.21	X



Air - Chain of Custody Record & Analytical Service Request

2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161

Page 1 of 1

Company Name & Address (Reporting Information)				Requested Turnaround Time in Business Days (Surcharges) please circle				ALS Project No.	
QEPI 16115 Franklin Rd. Indianapolis, IN 46239				1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day-Standard				2105371	
Project Manager Joe Robert				Project Name Newton Ave. VI				ALS Contact:	
Phone 3178475020				Project Number SOS-0001-1902-313				Analysis Method	
Fax				P.O. # / Billing Information CT-56 Medt 102314				Comments e.g. Actual Preservative or specific instructions	
Email Address for Result Reporting JRobert@QEPI.com				Sampler (Print & Sign) Joe Robert				TO-15	
Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Canister ID (Bar code # - AC, SC, etc.)	Flow Controller ID (Bar code # - FC #)	Canister Start Pressure "Hg	Canister End Pressure "Hg/psig	Sample Volume	
NA-SG01-190904	97514	9/5/19	1501	SC02258	AV605055	-29	-4		X
NA-SG02-190904		9/5/19	1600	SC0651	AV6-304-	-29	-4		X
NA-SG03-190904		9/6/19	0955	SC00958	DA00976	-30	-5		X
NA-SG04-190905		9/6/19	1345	SC00871	DA00668	-31	-6		X
NA-SG05-190905		9/6/19	1428	SC00661	DA02148	-30	-3		X
NA-SG06-190904		9/5/19	1400	SC00699	AV6032-	-29	-4		X
NA-SG07-190904		9/6/19	1055	SC01925	DA00380	-29	-5		X
NA-SG08-190904		9/6/19	0909	SC01640	DA01824	-29	-4		X
NA-SG09-190905		9/6/19	1142	SC01482	DA01575	-28	-5		X
NA-SG10-190905		9/6/19	1518	SC00095	DA00545	-29	-2		X
Dup-02		-	-	SC02083	DA02123	-30	-5		X
Dup-03		-	-	SC02103	DA00505	-33	-7		X
Report Tier Levels - please select Need level I, II, or Level IV Acports									
Tier I - Results (Default if not specified) <input checked="" type="checkbox"/> Tier II (Results + QC Summaries) <input type="checkbox"/> Tier III (Results + QC & Calibration Summaries) <input type="checkbox"/> Tier IV (Data Validation Package) 10% Surcharge <input type="checkbox"/> EDD required <input checked="" type="checkbox"/> No									
Revised Report									
Relinquished by: (Signature) Joe Robert				Received by: (Signature)				Chain of Custody Seal: (Circle) INTACT BROKEN ABSENT	
Date: 9/9/19				Date: 9/10/19				Time: 1200	
Relinquished by: (Signature)				Received by: (Signature)				Cooler / Blank Temperature °C	

ALS Environmental Sample Acceptance Check Form

Client: CT Laboratories Work order: P1905371
 Project: Newton Ave. VI / S05-0001-1902-313
 Sample(s) received on: 9/10/2019 Date opened: 9/10/2019 by: ADAVID

Note: This form is used for all samples received by ALS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

- | | Yes | No | N/A |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1 Were sample containers properly marked with client sample ID? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Did sample containers arrive in good condition? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Were chain-of-custody papers used and filled out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Did sample container labels and/or tags agree with custody papers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 Was sample volume received adequate for analysis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 Are samples within specified holding times? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Was proper temperature (thermal preservation) of cooler at receipt adhered to? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8 Were custody seals on outside of cooler/Box/Container? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Location of seal(s)? _____ Sealing Lid? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were signature and date included? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were seals intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9 Do containers have appropriate preservation , according to method/SOP or Client specified information? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Is there a client indication that the submitted samples are pH preserved? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Were VOA vials checked for presence/absence of air bubbles? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Does the client/method/SOP require that the analyst check the sample pH and <u>if necessary</u> alter it? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10 Tubes: Are the tubes capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 11 Badges: Are the badges properly capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Are dual bed badges separated and individually capped and intact? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1905371-001.01	6.0 L Source Can					
P1905371-002.01	6.0 L Source Can					
P1905371-003.01	6.0 L Source Can					
P1905371-004.01	6.0 L Source Can					
P1905371-005.01	6.0 L Source Can					
P1905371-006.01	6.0 L Source Can					
P1905371-007.01	6.0 L Source Can					
P1905371-008.01	6.0 L Source Can					
P1905371-009.01	6.0 L Source Can					
P1905371-010.01	6.0 L Source Can					
P1905371-011.01	6.0 L Source Can					
P1905371-012.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers): _____

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG01-190904

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-001

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC02258

Date Collected: 9/5/19

Date Received: 9/10/19

Date Analyzed: 9/11/19

Volume(s) Analyzed: 0.030 Liter(s)

Initial Pressure (psig): -2.26 Final Pressure (psig): 3.84

Container Dilution Factor: 1.49

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	26	ND	10	
75-35-4	1,1-Dichloroethene	ND	27	ND	6.8	
75-34-3	1,1-Dichloroethane	ND	26	ND	6.4	
156-59-2	cis-1,2-Dichloroethene	ND	26	ND	6.6	
107-06-2	1,2-Dichloroethane	ND	26	ND	6.5	
71-55-6	1,1,1-Trichloroethane	260	27	48	4.9	
79-01-6	Trichloroethene	ND	26	ND	4.9	
79-00-5	1,1,2-Trichloroethane	ND	27	ND	4.9	
127-18-4	Tetrachloroethene	ND	26	ND	3.9	
95-63-6	1,2,4-Trimethylbenzene	ND	26	ND	5.4	
91-20-3	Naphthalene	ND	25	ND	4.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG02-190904

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-002

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00651

Date Collected: 9/5/19

Date Received: 9/10/19

Date Analyzed: 9/12/19

Volume(s) Analyzed: 0.030 Liter(s)

Initial Pressure (psig): -2.16 Final Pressure (psig): 3.88

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	26	ND	10	
75-35-4	1,1-Dichloroethene	ND	27	ND	6.7	
75-34-3	1,1-Dichloroethane	ND	26	ND	6.3	
156-59-2	cis-1,2-Dichloroethene	ND	26	ND	6.6	
107-06-2	1,2-Dichloroethane	ND	26	ND	6.5	
71-55-6	1,1,1-Trichloroethane	ND	27	ND	4.9	
79-01-6	Trichloroethene	ND	26	ND	4.9	
79-00-5	1,1,2-Trichloroethane	ND	27	ND	4.9	
127-18-4	Tetrachloroethene	ND	26	ND	3.9	
95-63-6	1,2,4-Trimethylbenzene	ND	26	ND	5.3	
91-20-3	Naphthalene	ND	25	ND	4.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG03-190904

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-003

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00958

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/11/19

Volume(s) Analyzed: 0.025 Liter(s)

Initial Pressure (psig): -2.62 Final Pressure (psig): 4.02

Container Dilution Factor: 1.55

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	33	ND	13	
75-35-4	1,1-Dichloroethene	ND	33	ND	8.4	
75-34-3	1,1-Dichloroethane	ND	32	ND	8.0	
156-59-2	cis-1,2-Dichloroethene	ND	33	ND	8.3	
107-06-2	1,2-Dichloroethane	ND	33	ND	8.1	
71-55-6	1,1,1-Trichloroethane	ND	33	ND	6.1	
79-01-6	Trichloroethene	ND	33	ND	6.1	
79-00-5	1,1,2-Trichloroethane	ND	33	ND	6.1	
127-18-4	Tetrachloroethene	ND	33	ND	4.8	
95-63-6	1,2,4-Trimethylbenzene	ND	33	ND	6.7	
91-20-3	Naphthalene	ND	32	ND	6.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG04-190905

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-004

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00871

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/12/19

Volume(s) Analyzed: 0.040 Liter(s)

Initial Pressure (psig): -2.29 Final Pressure (psig): 3.71

Container Dilution Factor: 1.48

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	20	ND	7.7	
75-35-4	1,1-Dichloroethene	ND	20	ND	5.0	
75-34-3	1,1-Dichloroethane	ND	19	ND	4.8	
156-59-2	cis-1,2-Dichloroethene	ND	20	ND	4.9	
107-06-2	1,2-Dichloroethane	ND	20	ND	4.8	
71-55-6	1,1,1-Trichloroethane	180	20	34	3.7	
79-01-6	Trichloroethene	ND	20	ND	3.7	
79-00-5	1,1,2-Trichloroethane	ND	20	ND	3.7	
127-18-4	Tetrachloroethene	ND	20	ND	2.9	
95-63-6	1,2,4-Trimethylbenzene	ND	20	ND	4.0	
91-20-3	Naphthalene	ND	19	ND	3.6	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG05-190905

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-005

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00661

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/11/19

Volume(s) Analyzed: 0.50 Liter(s)

Initial Pressure (psig): -1.70 Final Pressure (psig): 3.79

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	1.5	ND	0.59	
75-35-4	1,1-Dichloroethene	ND	1.5	ND	0.39	
75-34-3	1,1-Dichloroethane	ND	1.5	ND	0.37	
156-59-2	cis-1,2-Dichloroethene	ND	1.5	ND	0.38	
107-06-2	1,2-Dichloroethane	ND	1.5	ND	0.37	
71-55-6	1,1,1-Trichloroethane	2.3	1.5	0.43	0.28	
79-01-6	Trichloroethene	ND	1.5	ND	0.28	
79-00-5	1,1,2-Trichloroethane	ND	1.5	ND	0.28	
127-18-4	Tetrachloroethene	ND	1.5	ND	0.22	
95-63-6	1,2,4-Trimethylbenzene	15	1.5	3.0	0.31	
91-20-3	Naphthalene	4.1	1.4	0.78	0.28	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: CT Laboratories

Client Sample ID: NG-SG06-190904

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-006

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00699

Date Collected: 9/5/19

Date Received: 9/10/19

Date Analyzed: 9/11/19

Volume(s) Analyzed: 0.020 Liter(s)

Initial Pressure (psig): -1.97 Final Pressure (psig): 3.89

Container Dilution Factor: 1.46

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	39	ND	15	
75-35-4	1,1-Dichloroethene	ND	39	ND	9.9	
75-34-3	1,1-Dichloroethane	ND	38	ND	9.4	
156-59-2	cis-1,2-Dichloroethene	ND	39	ND	9.8	
107-06-2	1,2-Dichloroethane	ND	39	ND	9.6	
71-55-6	1,1,1-Trichloroethane	61	39	11	7.2	
79-01-6	Trichloroethene	ND	39	ND	7.2	
79-00-5	1,1,2-Trichloroethane	ND	39	ND	7.2	
127-18-4	Tetrachloroethene	ND	39	ND	5.7	
95-63-6	1,2,4-Trimethylbenzene	ND	39	ND	7.9	
91-20-3	Naphthalene	ND	37	ND	7.1	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG07-190904

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-007

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC01825

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/11/19

Volume(s) Analyzed: 0.035 Liter(s)

Initial Pressure (psig): -2.55 Final Pressure (psig): 3.92

Container Dilution Factor: 1.53

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	23	ND	9.1	
75-35-4	1,1-Dichloroethene	ND	24	ND	6.0	
75-34-3	1,1-Dichloroethane	ND	23	ND	5.6	
156-59-2	cis-1,2-Dichloroethene	ND	23	ND	5.8	
107-06-2	1,2-Dichloroethane	ND	23	ND	5.7	
71-55-6	1,1,1-Trichloroethane	ND	24	ND	4.3	
79-01-6	Trichloroethene	ND	23	ND	4.3	
79-00-5	1,1,2-Trichloroethane	ND	24	ND	4.3	
127-18-4	Tetrachloroethene	ND	23	ND	3.4	
95-63-6	1,2,4-Trimethylbenzene	ND	23	ND	4.7	
91-20-3	Naphthalene	ND	22	ND	4.3	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG08-190904

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-008

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC01640

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/12/19

Volume(s) Analyzed: 0.045 Liter(s)

Initial Pressure (psig): -1.57 Final Pressure (psig): 3.74

Container Dilution Factor: 1.40

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	16	ND	6.5	
75-35-4	1,1-Dichloroethene	ND	17	ND	4.2	
75-34-3	1,1-Dichloroethane	ND	16	ND	4.0	
156-59-2	cis-1,2-Dichloroethene	ND	16	ND	4.2	
107-06-2	1,2-Dichloroethane	ND	16	ND	4.1	
71-55-6	1,1,1-Trichloroethane	ND	17	ND	3.1	
79-01-6	Trichloroethene	ND	16	ND	3.1	
79-00-5	1,1,2-Trichloroethane	ND	17	ND	3.1	
127-18-4	Tetrachloroethene	ND	16	ND	2.4	
95-63-6	1,2,4-Trimethylbenzene	ND	16	ND	3.4	
91-20-3	Naphthalene	ND	16	ND	3.0	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG09-190905

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-009

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC01482

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/12/19

Volume(s) Analyzed: 0.060 Liter(s)

Initial Pressure (psig): -2.50 Final Pressure (psig): 3.72

Container Dilution Factor: 1.51

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	13	ND	5.2	
75-35-4	1,1-Dichloroethene	ND	14	ND	3.4	
75-34-3	1,1-Dichloroethane	ND	13	ND	3.2	
156-59-2	cis-1,2-Dichloroethene	ND	13	ND	3.4	
107-06-2	1,2-Dichloroethane	ND	13	ND	3.3	
71-55-6	1,1,1-Trichloroethane	49	14	9.0	2.5	
79-01-6	Trichloroethene	ND	13	ND	2.5	
79-00-5	1,1,2-Trichloroethane	ND	14	ND	2.5	
127-18-4	Tetrachloroethene	21	13	3.2	2.0	
95-63-6	1,2,4-Trimethylbenzene	18	13	3.6	2.7	
91-20-3	Naphthalene	ND	13	ND	2.4	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: NG-SG10-190905

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-010

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC00095

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/12/19

Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.81 Final Pressure (psig): 3.59

Container Dilution Factor: 1.42

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.75	ND	0.29	
75-35-4	1,1-Dichloroethene	ND	0.77	ND	0.19	
75-34-3	1,1-Dichloroethane	ND	0.74	ND	0.18	
156-59-2	cis-1,2-Dichloroethene	ND	0.75	ND	0.19	
107-06-2	1,2-Dichloroethane	ND	0.75	ND	0.19	
71-55-6	1,1,1-Trichloroethane	ND	0.77	ND	0.14	
79-01-6	Trichloroethene	ND	0.75	ND	0.14	
79-00-5	1,1,2-Trichloroethane	ND	0.77	ND	0.14	
127-18-4	Tetrachloroethene	ND	0.75	ND	0.11	
95-63-6	1,2,4-Trimethylbenzene	13	0.75	2.6	0.15	
91-20-3	Naphthalene	0.85	0.72	0.16	0.14	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: Dup-02

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-011

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC02083

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/12/19

Volume(s) Analyzed: 0.050 Liter(s)

Initial Pressure (psig): -2.06 Final Pressure (psig): 3.69

Container Dilution Factor: 1.45

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	15	ND	6.0	
75-35-4	1,1-Dichloroethene	ND	16	ND	4.0	
75-34-3	1,1-Dichloroethane	ND	15	ND	3.7	
156-59-2	cis-1,2-Dichloroethene	ND	15	ND	3.9	
107-06-2	1,2-Dichloroethane	ND	15	ND	3.8	
71-55-6	1,1,1-Trichloroethane	49	16	9.0	2.9	
79-01-6	Trichloroethene	ND	15	ND	2.9	
79-00-5	1,1,2-Trichloroethane	ND	16	ND	2.9	
127-18-4	Tetrachloroethene	21	15	3.1	2.3	
95-63-6	1,2,4-Trimethylbenzene	16	15	3.3	3.1	
91-20-3	Naphthalene	ND	15	ND	2.8	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: Dup-03

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P1905371-012

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Container ID: SC02103

Date Collected: 9/6/19

Date Received: 9/10/19

Date Analyzed: 9/12/19

Volume(s) Analyzed: 0.50 Liter(s)

Initial Pressure (psig): -2.39 Final Pressure (psig): 4.21

Container Dilution Factor: 1.54

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	1.6	ND	0.64	
75-35-4	1,1-Dichloroethene	ND	1.7	ND	0.42	
75-34-3	1,1-Dichloroethane	ND	1.6	ND	0.40	
156-59-2	cis-1,2-Dichloroethene	ND	1.6	ND	0.41	
107-06-2	1,2-Dichloroethane	ND	1.6	ND	0.40	
71-55-6	1,1,1-Trichloroethane	2.3	1.7	0.43	0.30	
79-01-6	Trichloroethene	ND	1.6	ND	0.30	
79-00-5	1,1,2-Trichloroethane	ND	1.7	ND	0.30	
127-18-4	Tetrachloroethene	ND	1.6	ND	0.24	
95-63-6	1,2,4-Trimethylbenzene	19	1.6	3.8	0.33	
91-20-3	Naphthalene	3.6	1.6	0.68	0.30	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: Method Blank

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P190911-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 9/11/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.53	ND	0.21	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-34-3	1,1-Dichloroethane	ND	0.52	ND	0.13	
156-59-2	cis-1,2-Dichloroethene	ND	0.53	ND	0.13	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
79-01-6	Trichloroethene	ND	0.53	ND	0.099	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
127-18-4	Tetrachloroethene	ND	0.53	ND	0.078	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	ND	0.11	
91-20-3	Naphthalene	ND	0.51	ND	0.097	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories

Client Sample ID: Method Blank

Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

ALS Sample ID: P190912-MB

Test Code: EPA TO-15

Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16

Analyst: Lusine Hakobyan

Sample Type: 6.0 L Summa Canister

Test Notes:

Date Collected: NA

Date Received: NA

Date Analyzed: 9/12/19

Volume(s) Analyzed: 1.00 Liter(s)

Container Dilution Factor: 1.00

CAS #	Compound	Result µg/m ³	MRL µg/m ³	Result ppbV	MRL ppbV	Data Qualifier
75-01-4	Vinyl Chloride	ND	0.53	ND	0.21	
75-35-4	1,1-Dichloroethene	ND	0.54	ND	0.14	
75-34-3	1,1-Dichloroethane	ND	0.52	ND	0.13	
156-59-2	cis-1,2-Dichloroethene	ND	0.53	ND	0.13	
107-06-2	1,2-Dichloroethane	ND	0.53	ND	0.13	
71-55-6	1,1,1-Trichloroethane	ND	0.54	ND	0.099	
79-01-6	Trichloroethene	ND	0.53	ND	0.099	
79-00-5	1,1,2-Trichloroethane	ND	0.54	ND	0.099	
127-18-4	Tetrachloroethene	ND	0.53	ND	0.078	
95-63-6	1,2,4-Trimethylbenzene	ND	0.53	ND	0.11	
91-20-3	Naphthalene	ND	0.51	ND	0.097	

ND = Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

ALS ENVIRONMENTAL

SURROGATE SPIKE RECOVERY RESULTS

Page 1 of 1

Client: CT Laboratories
Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 9/5 - 9/6/19
Date(s) Received: 9/10/19
Date(s) Analyzed: 9/11 - 9/12/19

Client Sample ID	ALS Sample ID	1,2-Dichloroethane-d4	Toluene-d8	Bromofluorobenzene	Acceptance Limits	Data Qualifier
		Percent Recovered	Percent Recovered	Percent Recovered		
Method Blank	P190911-MB	101	99	93	70-130	
Method Blank	P190912-MB	100	99	95	70-130	
Lab Control Sample	P190911-LCS	97	99	104	70-130	
Lab Control Sample	P190912-LCS	96	99	104	70-130	
NG-SG01-190904	P1905371-001	98	97	99	70-130	
NG-SG02-190904	P1905371-002	97	97	99	70-130	
NG-SG03-190904	P1905371-003	99	97	101	70-130	
NG-SG04-190905	P1905371-004	95	99	101	70-130	
NG-SG05-190905	P1905371-005	97	95	103	70-130	
NG-SG06-190904	P1905371-006	99	97	99	70-130	
NG-SG07-190904	P1905371-007	98	96	101	70-130	
NG-SG08-190904	P1905371-008	100	97	100	70-130	
NG-SG09-190905	P1905371-009	97	99	100	70-130	
NG-SG10-190905	P1905371-010	93	96	105	70-130	
Dup-02	P1905371-011	98	98	99	70-130	
Dup-03	P1905371-012	96	97	103	70-130	

Surrogate percent recovery is verified and accepted based on the on-column result.

Reported results are shown in concentration units and as a result of the calculation, may vary slightly from the on-column percent recovery.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

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Client: CT Laboratories
Client Sample ID: Lab Control Sample
Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371
 ALS Sample ID: P190911-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 9/11/19
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	213	100	57-117	
75-35-4	1,1-Dichloroethene	218	219	100	68-107	
75-34-3	1,1-Dichloroethane	216	217	100	66-106	
156-59-2	cis-1,2-Dichloroethene	211	214	101	67-110	
107-06-2	1,2-Dichloroethane	215	212	99	60-110	
71-55-6	1,1,1-Trichloroethane	215	216	100	64-108	
79-01-6	Trichloroethene	213	222	104	66-108	
79-00-5	1,1,2-Trichloroethane	215	227	106	68-112	
127-18-4	Tetrachloroethene	213	224	105	55-120	
95-63-6	1,2,4-Trimethylbenzene	215	269	125	61-122	L
91-20-3	Naphthalene	203	266	131	62-145	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.
 L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

LABORATORY CONTROL SAMPLE SUMMARY

Page 1 of 1

Client: CT Laboratories
Client Sample ID: Lab Control Sample
Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371
 ALS Sample ID: P190912-LCS

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 9/12/19
Volume(s) Analyzed: 0.125 Liter(s)

CAS #	Compound	Spike Amount µg/m ³	Result µg/m ³	% Recovery	ALS Acceptance Limits	Data Qualifier
75-01-4	Vinyl Chloride	214	214	100	57-117	
75-35-4	1,1-Dichloroethene	218	218	100	68-107	
75-34-3	1,1-Dichloroethane	216	217	100	66-106	
156-59-2	cis-1,2-Dichloroethene	211	212	100	67-110	
107-06-2	1,2-Dichloroethane	215	209	97	60-110	
71-55-6	1,1,1-Trichloroethane	215	215	100	64-108	
79-01-6	Trichloroethene	213	220	103	66-108	
79-00-5	1,1,2-Trichloroethane	215	228	106	68-112	
127-18-4	Tetrachloroethene	213	225	106	55-120	
95-63-6	1,2,4-Trimethylbenzene	215	266	124	61-122	L
91-20-3	Naphthalene	203	262	129	62-145	

Laboratory Control Sample percent recovery is verified and accepted based on the on-column result.
 Reported results are shown in concentration units and as a result of the calculation, may vary slightly.
 L = Laboratory control sample recovery outside the specified limits, results may be biased high.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

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Client: CT Laboratories
Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 09111925.D
Date Analyzed: 9/11/19
Time Analyzed: 16:54

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	234874	11.18	1013640	13.30	497276	17.61
Upper Limit	328824	11.51	1419096	13.63	696186	17.94
Lower Limit	140924	10.85	608184	12.97	298366	17.28

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	205947	11.16	901659	13.30	445533	17.61
02	Lab Control Sample	231138	11.18	1006689	13.30	487710	17.62
03	NG-SG01-190904	252440	11.17	1039653	13.30	517794	17.61
04	NG-SG03-190904	248993	11.17	1028447	13.30	512429	17.61
05	NG-SG05-190905	243880	11.17	1050473	13.30	544515	17.61
06	NG-SG06-190904	253245	11.16	1041623	13.30	521622	17.61
07	NG-SG07-190904	257596	11.17	1051333	13.30	526810	17.61
08	NG-SG08-190904	252546	11.17	1062373	13.30	525680	17.61
09	NG-SG10-190905	261640	11.17	1123528	13.30	569540	17.61
10	Dup-03	244267	11.17	1051886	13.30	534081	17.61
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.

ALS ENVIRONMENTAL

RESULTS OF ANALYSIS

Page 1 of 1

Client: CT Laboratories
Client Project ID: Newton Ave. VI / S05-0001-1902-313

ALS Project ID: P1905371

Internal Standard Area and RT Summary

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Cinert/6890N/MS16
Analyst: Lusine Hakobyan
Sample Type: 6.0 L Summa Canister(s)
Test Notes:

Lab File ID: 09121902.D
Date Analyzed: 9/12/19
Time Analyzed: 06:35

	IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
	AREA	#	RT	#	AREA	#
24 Hour Standard	254648	11.17	1092580	13.30	519044	17.61
Upper Limit	356507	11.50	1529612	13.63	726662	17.94
Lower Limit	152789	10.84	655548	12.97	311426	17.28

Client Sample ID		IS1 (BCM)		IS2 (DFB)		IS3 (CBZ)	
		AREA	#	RT	#	AREA	#
01	Method Blank	212729	11.16	923062	13.29	455138	17.61
02	Lab Control Sample	239702	11.17	1034435	13.30	498113	17.61
03	NG-SG02-190904	263094	11.17	1081693	13.30	527297	17.61
04	NG-SG04-190905	273250	11.17	1130315	13.30	535271	17.61
05	NG-SG09-190905	264496	11.17	1102893	13.30	524876	17.61
06	Dup-02	250728	11.17	1060710	13.30	521959	17.61
07							
08							
09							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

IS1 (BCM) = Bromochloromethane

IS2 (DFB) = 1,4-Difluorobenzene

IS3 (CBZ) = Chlorobenzene-d5

AREA UPPER LIMIT = 140% of internal standard area

AREA LOWER LIMIT = 60% of internal standard area

RT UPPER LIMIT = 0.33 minutes of internal standard RT

RT LOWER LIMIT = 0.33 minutes of internal standard RT

Column used to flag values outside QC limits with an I.

I = Internal standard not within the specified limits.