

December 11, 2020

Michael Squire  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
625 Broadway  
Albany, New York 12233  
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**Re: Remedial Design Investigation Report  
Former Designs for Leisure  
41 Kensico Drive  
Mount Kisco, New York  
BCP Site No.: C360163  
Langan Project No.: 190046301**

Dear Mr. Squire:

Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) completed a Remedial Design Investigation (RDI) on behalf of NY Luxury Motors of Mt. Kisco, Inc. for the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site No. C360163 (the site). The site is located at 41 Kensico Drive in Mount Kisco, New York (Figure 1). The RDI was performed to evaluate the potential for volatile organic compounds (VOCs) from contaminated soil and/or groundwater to enter the building and affect the indoor air quality through soil vapor intrusion (SVI) and evaluate the potential need for a vapor intrusion mitigation system as part of building renovations. This letter report summarizes the site background, sampling methodology, field observations, and analytical results of the RDI.

## **SITE BACKGROUND AND DEVELOPMENT PLAN**

The site is a 1.73-acre lot with a 13,000-square-foot vacant commercial building with a slab-on-grade foundation, an asphalt-paved parking lot, landscaped areas around the building and parking lot, and a wooded area along Branch Brook, a surface water body. The site is located in the Village/Town of Mount Kisco, New York and is identified as Westchester County Tax Map No. 17258, Section 69.50, Block 1, Lot 2 (69.50-1-2). The site is located in a commercial office park and is bound by a two-story commercial office building with multiple tenants (45 Kensico Drive) to the north; Branch Brook and a raised railway embankment with stone ballast utilized by Metro-North Railroad to the east; a propane supplier (Suburban Propane, 25 Kensico Drive) to the south;

and a hotel (Holiday Inn, 1 Holiday Inn Drive) and a car dealership (Lexus of Mount Kisco, 265-181 Kisco Avenue) to the west. The proposed redevelopment plan consists of renovating the existing one-story office building for continued commercial uses.

## **SITE ENVIRONMENTAL HISTORY**

The following previous environmental reports were prepared for this site and are included in the Remedial Investigation Report (RIR), prepared by Langan, dated November 1, 2019.

- Phase I Environmental Site Assessment (ESA), 41 Kensico Drive, Mount Kisco, New York, prepared by URS Corporation (URS), dated September 21, 2016
- Phase II ESA, 41 Kensico Drive, Mount Kisco, New York, prepared by URS Corporation, an AECOM Company, dated December 14, 2016
- Limited Site Assessment, Commercial Property, 41 Kensico Drive, Mount Kisco, Westchester County, New York, prepared by AECOM, dated May 8, 2017
- Report on Subsurface Soil and Foundation Investigation, Proposed AutoNation Mt. Kisco, 41 Kensico Drive, NY prepared by Carlin Simpson & Associates, dated May 3, 2018
- Remedial Investigation Report (RIR), prepared by Langan Engineering, dated November 1, 2019

The Phase I ESA indicated that the site was undeveloped from 1892 through 1975. The one-story commercial building was constructed in 1976 and was originally occupied by a veterinary hospital. Between 1982 and 1998, Design for Leisure, a manufacturer of pool tables and bar stools occupied the site, followed by Human Relations Media. The Phase I ESA identified one Recognized Environmental Condition (REC) associated with the historical operation of two heating-oil underground storage tanks (USTs) east of the building, which were upgraded in 1998 to one 1,000-gallon heating-oil UST, and subsequently removed in 2008 as part of a conversion to natural gas supply for heating purposes. After the removal of the USTs, post-excavation endpoint samples were collected that indicated no constituents of concern were above applicable standards/criteria and the NYSDEC granted a No Further Action (NFA) determination on August 26, 1998.

The previous investigations at the site included the advancement of soil borings, advancement of geotechnical test borings, installation of permanent groundwater monitoring wells, and installation of sub-slab soil vapor samples. The stratigraphy of the site is comprised of a historic fill layer to depths ranging from approximately 5 to 10 feet below ground surface (bgs) underlain by native material and bedrock. The historic fill consists of brown fine- to coarse-grained sand with varying amount of gravel, silt, clay and other anthropogenic materials. Native material underlying the historic fill consists of varying layers of fine-grained sand, silty sand, silt, and intermittent clay lenses of about 0.5 to 5 feet thick. During the remedial investigation (RI),

bedrock was encountered at depths ranging from 24 feet bgs in the southwest corner of the site to 71 feet bgs in the east-central part of the site. The bedrock is metamorphic in nature and appears to slope from west to east. Groundwater was observed at depths ranging between approximately 0.05 to 5.48 feet bgs and is anticipated to flow from west-southwest to the east-northeast toward Branch Brook. Groundwater elevations observed during the RI indicate the site has two distinct groundwater systems with a zone of transitional permeability located in the central part of the site that trends north-south.

Of relevance to the RDI, the RI detected the presence of chlorinated volatile organic compounds (CVOCs), including tetrachloroethene (PCE), trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA) and/or their breakdown products in soil, groundwater, and soil vapor samples collected at the site. CVOCs were detected in all 21 on-site monitoring wells at concentrations above the 6 NYCRR Part 703.5 Water Quality Standards for Class GA waters and the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water (collectively referred to as SGVs). The presence of the CVOCs at the site is attributed to a suspected, hydraulically, up-gradient off-site source.

## **REMEDIAL DESIGN INVESTIGATION METHODOLOGY**

The RDI was conducted on September 23, 2020 and included the following activities:

- Installation of three sub-slab soil vapor sampling points; and
- Collection and laboratory analysis of three sub-slab soil vapor samples, three co-located indoor air samples, and one ambient air sample.

Sub-slab soil vapor, indoor air, and the ambient air sample locations are shown on Figure 2. A photo documentation log is included in Attachment A.

### Soil Vapor Investigation

Lakewood Environmental Services Corp. installed three sub-slab soil vapor sample points (SSV01 through SSV03) through the concrete ground floor slab using a hammer drill. SSV01 was installed in the northwestern part of the building, SSV02 was installed in the northeastern part, and SSV03 was installed in the southern part of the building. Each sub-slab vapor point consisted of dedicated Teflon-lined polyethylene tubing placed about 2 inches below the ground floor slab with a hydrated bentonite seal. Three co-located indoor air samples (IA01 through IA03) were collected from a typical breathing height of about 3 feet above the floor. One ambient air sample (AA01) was collected along the southern exterior wall of the building at a height of approximately 3 feet above the ground surface.

The sub-slab soil vapor points were purged using a MultiRAE five-gas meter at an approximate rate of 0.2 liters per minute (L/min) to evacuate a minimum of three tubing/vapor point volumes prior to sample collection. As a quality assurance/quality control (QA/QC) measure before

collecting air samples, an inert tracer gas (helium) was introduced into an above-grade sampling chamber to ensure that the sub-slab soil vapor sampling points were properly sealed above the targeted sampling depth, thereby preventing subsurface infiltration of ambient air. Direct readings of helium of 0 parts per million (ppm) prior to sampling were considered sufficient to verify a tight seal. All sub-slab soil vapor points exhibited sufficiently tight seals.

The air samples were collected into laboratory-supplied, batch-certified, 6-liter Summa® canisters equipped with flow controllers calibrated for an 8-hour sampling period. Canister pressures were recorded before and after sampling. The canisters were transported via courier to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory (Alpha Analytical, Inc. of Westborough, MA [ELAP ID #11148]) in accordance with standard chain-of-custody protocols and analyzed for VOCs via United States Environmental Protection Agency (USEPA) Method TO-15. Soil vapor sampling logs are provided as Attachment B.

## **OBSERVATIONS AND ANALYTICAL RESULTS**

### Field Observations

The building slab ranged in thickness from approximately 6 inches in the office space (western part of the building) to 10 inches thick in the warehouse (eastern part of the building). Langan completed the New York State Department of Health (NYSDOH) Indoor Air Quality (IAQ) Questionnaire and Building Inventory before sampling, which included field screening the building and sample locations for VOCs with a photoionization detector (PID). The IAQ assessment did not reveal any sources of VOCs within the building. The IAQ questionnaire is provided in Attachment C.

### Vapor Analytical Results

VOCs were detected in sub-slab vapor and indoor air samples. New York State currently does not have standards or criteria for VOCs in soil vapor. In lieu of regulatory standards, Decision Matrices published in the NYSDOH October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York and subsequent updates (NYSDOH Guidance) were used as a comparison reference for detected sub-slab vapor and indoor air concentrations. NYSDOH Decision Matrices (Matrices A, B, and C) address eight VOC compounds (PCE, TCE, 1,1,1-TCA, 1,1-dichloroethene, cis-1,2-dichloroethene (DCE), vinyl chloride, methylene chloride and carbon tetrachloride) to evaluate the relationship between sub-slab vapor and indoor air concentrations and provide recommendations for actions such as monitoring or mitigation. Indoor air concentrations were also compared to the NYSDOH Air Guideline Values (AGVs). The results are described below.

- 1,1,1-TCA, 1,1-Dichloroethene, methylene chloride, and vinyl chloride were not detected in the sub-slab or indoor air samples.
- Carbon tetrachloride and PCE were detected in indoor air and/or sub-slab soil vapor samples, but below concentrations that indicate a recommendation for mitigation.
- Cis-1,2-DCE was detected in sub-slab vapor samples SSV\_DUP01 (duplicate of SSV02) at  $1.03 \mu\text{g}/\text{m}^3$  and SSV03 at  $53.9 \mu\text{g}/\text{m}^3$ . Cis-1,2-DCE was detected in indoor air samples IA01 at  $4.68 \mu\text{g}/\text{m}^3$ , IA02 at  $4.4 \mu\text{g}/\text{m}^3$ , and IA03 at  $4.04 \mu\text{g}/\text{m}^3$ . Using the decision matrices, the recommended actions range from "identify source(s) and resample or mitigate" for IA01/SSV01 and IA02/SSV02 to "mitigate" for IA03/SSV03.
- TCE was detected in sub-slab vapor samples SSV01 at  $3.12 \mu\text{g}/\text{m}^3$ , SSV\_DUP01 at  $6.5 \mu\text{g}/\text{m}^3$ , SSV02 at  $4.2 \mu\text{g}/\text{m}^3$  and SSV03 at  $640 \mu\text{g}/\text{m}^3$ . TCE was detected in indoor air samples IA01 at  $4.44 \mu\text{g}/\text{m}^3$ , IA02 at  $4.36 \mu\text{g}/\text{m}^3$  and IA03 at  $4.1 \mu\text{g}/\text{m}^3$ . Using the decision matrices, the recommended actions range from "identify source(s) and resample or mitigate" for IA01/SSV01 to "mitigate" for IA02/SSV02 and IA03/SSV03. TCE also exceeded the NYSDOH Air Guideline Values (AGV) ( $2 \mu\text{g}/\text{m}^3$ ) as set forth in the NYSDOH Guidance of in all three indoor air samples.

The sub-slab vapor and indoor air sample results are summarized in Table 1. The air sample laboratory analytical report is included in Attachment D. Analytical data was validated in accordance with USEPA and NYSDEC validation protocols. Copies of the data usability summary reports (DUSR) and the data validator's credentials are provided in Attachment E. The electronic data deliverable (EDD) was submitted to the NYSDEC on November 19, 2020.

## CONCLUSIONS

The RDI identified two CVOCs, TCE and cis-1,2-DCE, in sub-slab vapor and co-located indoor air samples at concentrations for which mitigation is recommended when evaluated using the NYSDOH Decision Matrices. TCE was also detected at concentrations exceeding the NYSDOH AGV in all three indoor air samples. The plan for vapor mitigation was coordinated with the NYDSEC and NYSDOH and will be described in the forthcoming Remedial Action Work Plan.

Sincerely,

**Langan Engineering, Environmental, Surveying,  
Landscape Architecture and Geology, D.P.C.**



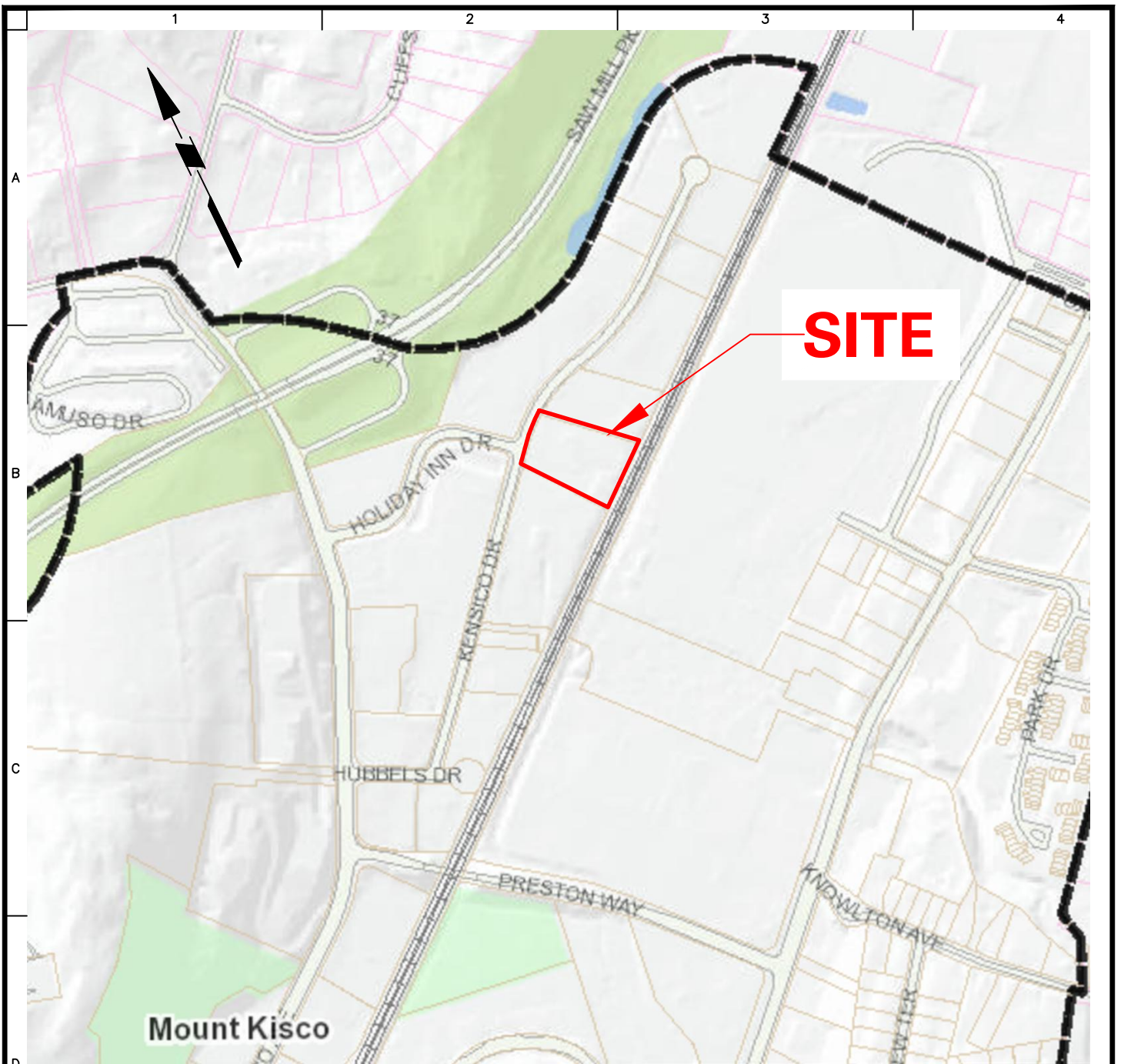
Michael Burke, PG, CHMM  
Principal/Vice President

Enclosures:     Figure 1:   Site Location Map  
                     Figure 2:   Sub-Slab/Indoor Air Soil Vapor Analytical Results Map

                     Table 1:   Sub-Slab Vapor and Indoor Air Sample Analytical Results Summary

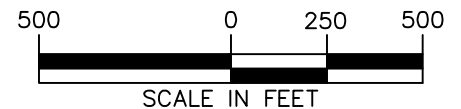
                     Attachment A: Photo Documentation Log  
                     Attachment B: Sub-Slab/Indoor Air Sampling Logs  
                     Attachment C: Indoor Air Quality Questionnaire  
                     Attachment D: Laboratory Analytical Reports  
                     Attachment E: Data Usability Summary Report

## FIGURES



**NOTES:**

1. BASE MAP IS REFERENCED FROM WESTCHESTER COUNTY 2-FOOT TOPOGRAPHIC MAP, ACCESSED FROM WESTCHESTER COUNTY GEOGRAPHIC INFORMATION SYSTEMS ON OCTOBER 23, 2018.



**WARNING:** IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

**LANGAN**

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Project

**41 KENSICO DRIVE**

SECTION 69.50, PARCEL No. 1-2  
TOWN OF MOUNT KISCO  
WESTCHESTER COUNTY NEW YORK

Figure Title

**SITE LOCATION  
MAP**

Project No.  
190046301

Date  
11/12/2020

Drawn By  
ERA

Checked By  
TC

Figure No.

**1**





## TABLE

Table 1  
Remedial Design Investigation  
Soil Vapor and Indoor Air Sample Analytical Results Summary

41 Kensico Drive  
Mount Kisco, New York  
Langan Project No.: 190046301

Location	NYSDOH	NYSDOH AGVs	AA01	IA01/SSV01			IA02/SSV02			IA03/SSV03	
Sample ID	Decision		AA01_092320	IA01_092320	SSV01_092320	IA02_092320	SSV02_092320	SSV_DUP01	IA03_092320	SSV03_092320	
Laboratory ID	Matrix		L2040199-08	L2040199-04	L2040199-01	L2040199-05	L2040199-02	L2040199-07	L2040199-06	L2040199-03	
Sample Date	Minimum		9/23/2020	9/23/2020	9/23/2020	9/23/2020	9/23/2020	9/23/2020	9/23/2020	9/23/2020	
Sample Type	Concentration		AA	IA	SSV	IA	SSV	SSV	IA	SSV	
Volatile Organic Compounds (µg/m³)											
1,1-Dichloroethane	~	~	0.809 U	0.809 U	2.7	0.809 U	0.809 U	0.809 U	0.809 U	1.62 U	
1,2,4-Trimethylbenzene	~	~	0.983 U	0.983 U	3.14	0.983 U	2.9	3.87	0.983 U	4.86	
1,3,5-Trimethylbenzene (Mesitylene)	~	~	0.983 U	0.983 U	1.04	0.983 U	0.983 U	1.08	0.983 U	1.97 U	
1,3-Butadiene	~	~	0.442 U	0.442 U	2.32	0.442 U	2.94	3.38	0.442 U	9.47	
2-Hexanone	~	~	0.82 U	0.82 U	3.76	0.82 U	3.67 J	11.1 J	0.82 U	4.59	
Acetone	~	~	6.89	7.46	48.7	7.22	38.7 J	102 J	8.39	191	
Benzene	~	~	0.639 U	0.639 U	1.82	0.639 U	2.33 J	4.06 J	0.639 U	7.41	
Carbon Disulfide	~	~	0.623 U	0.623 U	5.23	0.623 U	2.39 J	17.1 J	0.623 U	8.16	
Carbon Tetrachloride	6	~	0.39	0.365	1.26 U	0.371	1.26 U	1.26 U	0.409	2.52 U	
Chloroform	~	~	0.977 U	0.977 U	39.4	0.977 U	2.67	2.13	0.977 U	6.89	
Chloromethane	~	~	0.843	0.849	0.413 U	0.82	0.413 U	0.413 U	0.816	0.826 U	
Cis-1,2-Dichloroethene	6	~	0.682	4.68	0.793 U	4.4	0.793 U	1.03	4.04	53.9	
Cyclohexane	~	~	0.75	0.716	3.58	0.916	0.702	1.64	0.833	1.38 U	
Dichlorodifluoromethane	~	~	2.37	6.03	2,750	4.25	119	105	4.51	1,230	
Ethanol	~	~	19.8	9.42 U	9.42 U	13.2	9.42 U	13.8	12.2	18.8 U	
Ethylbenzene	~	~	0.869 U	0.869 U	0.956	0.869 U	1.05	6.25	0.869 U	1.9	
Isopropanol	~	~	1.24	1.61	1.23 U	2.07	5.58 J	15.8 J	1.9	3.79	
M,P-Xylene	~	~	1.74 U	1.74 U	4.09	1.74 U	3.54 J	18.5 J	1.74 U	3.85	
Methyl Ethyl Ketone (2-Butanone)	~	~	1.47 U	1.47 U	6.9	1.47 U	8.35 J	17.5 J	1.47 U	56.6	
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	~	~	2.05 U	2.05 U	2.05 U	2.05 U	3.11	8.73	2.05 U	4.1 U	
Methylene Chloride	100	60	8.03	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	1.74 U	3.47 U	
n-Heptane	~	~	0.82 U	0.82 U	1.75	0.82 U	0.959	3.4	0.82 U	4.84	
n-Hexane	~	~	2.59	0.705 U	3.08	0.705 U	2.03 J	3.05 J	0.705 U	11.3	
o-Xylene (1,2-Dimethylbenzene)	~	~	0.869 U	0.869 U	2.06	0.869 U	1.65	6.08	0.869 U	2.84	
Tert-Butyl Alcohol	~	~	1.52 U	1.52 U	1.52 U	1.52 U	5.61 J	14.5 J	1.52 U	4.21	
Tetrachloroethene (PCE)	100	30	0.156	0.468	1.36 U	0.38	1.36 U	1.36 U	0.407	2.71 U	
Tetrahydrofuran	~	~	1.47 U	1.47 U	2.42	1.47 U	2.55	2.04	1.47 U	2.95 U	
Toluene	~	~	0.754 U	1.26	4.97	1.21	5.05	6.33	1.15	11.2	
Total Xylenes	~	~	0.869 U	0.869 U	6.17	0.869 U	5.21 J	24.5 J	0.869 U	6.69	
Trans-1,2-Dichloroethene	~	~	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	0.793 U	3.52	
Trichloroethene (TCE)	6	2	0.715	4.44	3.12	4.36	4.2 J	6.5 J	4.1	640	
Trichlorofluoromethane	~	~	1.12 U	1.12 U	1.47	1.44	1.23	1.28	1.62	2.25 U	

Notes:

- Co-located sub-slab vapor and indoor air sample analytical results are evaluated using the New York State Department of Health (NYSDOH) October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York Decision Matrices for Sub-Slab Vapor and Indoor Air and subsequent updates (2017).
- Ambient air sample analytical results are shown for reference only.
- NYSDOH Air Guideline Values (AGVs) as set forth in the New York State Department of Health (NYSDOH) October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York and subsequent updates (2013, 2015) are shown as reference only.
- Only detected analytes are shown in the table.
- Detected analytical results for which identification of source(s) and resampling or mitigation is recommended by the NYSDOH Decision Matrices are shaded.
- Detected analytical results for which mitigation is recommended by the NYSDOH Decision Matrices are bolded and shaded.
- Sample SSV\_DUP01 is a duplicate sample of SSV02\_092320.
- ~ = Regulatory limit for this analyte does not exist
- µg/m3 = Micrograms per cubic meter
- AA = Ambient air
- IA = Indoor air
- SSV = Sub-slab vapor

Qualifiers:

- J = The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.  
U = The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the Reporting Limit (RL) or the sample concentration for results impacted by blank contamination.