

December 17, 2020

Mr. Anthony L. Lopes, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, NY 14203

Re: Post-Remedial Soil Vapor Intrusion (SVI) Sampling Report
December 1-2, 2020
295 Maryland Street Site (C915242), Buffalo, New York

Dear Mr. Lopes:

Benchmark Environmental Engineering & Science, PLLC (Benchmark) has prepared this letter report to summarize the results of the Soil Vapor Intrusion (SVI) sampling conducted on December 1-2, 2020 for the newly constructed four-story apartment building (deemed the “Campus West” building) at the 295 Maryland Street Site, Buffalo, New York (Site; see Figure 1).

SOIL VAPOR INTRUSION TESTING

In accordance with the Soil Vapor Intrusion Investigation Work Plan approved by the New York State Department of Environmental Conservation in October 2020, sub-slab vapor, indoor air, and outdoor air samples were collected in December of 2020 to satisfy Site Management Plan (SMP) requirements for evaluating soil vapor intrusion conditions prior to building occupancy.

Benchmark performed sampling during the period of December 1-2, 2020. At that time the building was unoccupied, heating systems were active, and doors and windows were closed as typical for winter weather conditions (high temperatures were at or below 40 degrees F on both days). It is important to note that at the time the sampling was performed, the building was undergoing interior construction (final electrical/plumbing work, mudding of drywall, painting, appliance installation, etc.) in anticipation of January 2021 occupancy. As further discussed below, multiple containers of recently used or in-use finishing products were present within the structure. Sub-slab; indoor air, and outdoor air samples were collected from the following locations (see Figure 2):

- **Basement** - Collected one (1) sub-slab vapor sample and one (1) indoor air sample.
- **Outdoor (outside on second story patio)** – Collected one (1) outdoor air sample.

The air samples were collected using laboratory-provided air collection canisters equipped with pre-set timed regulator to draw vapors into the canisters over a 24-hour period. Following the 24-hour sample collection period, the canisters were delivered under chain of

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custody command to Centek Laboratories, located in Syracuse, NY for analysis of volatile organic compounds per USEPA TO-15 methodology.

Prior to collection of the air samples, a chemical product inventory of the basement was performed. The objective of the product inventory is to identify any potential sources which may influence the air sampling. In general, the chemicals identified were primarily comprised of partially used containers of building finish-related products including: mortar mix, flooring adhesive, cement floor finishing, concrete, acrylic, drywall joint compound, and latex caulk. Select photographs from the monitoring event are presented as Attachment 2.

SAMPLE RESULTS

Table 1 presents the results of the December 1-2, 2020 sampling event. A copy of the laboratory analytical report is provided as Attachment 3 to this report. Table 2 provides a comparison of the analytical results to the New York State Department of Health (NYSDOH) May 2017 Matrices, which are included in Attachment 4 for reference.

As indicated on Table 2, all of the parameters for which the NYSDOH has established action limits as of May 2017 SVI Guidance yielded “no further action” determinations for the December 2020 event.

CONCLUSIONS

Based upon the results of the sampling as summarized herein, the data do not indicate a soil vapor intrusion concern.

Please contact us if you have any questions or require additional information.

Sincerely,
Benchmark Environmental Engineering & Science, PLLC



Thomas H. Forbes, P.E.
Principal Engineer

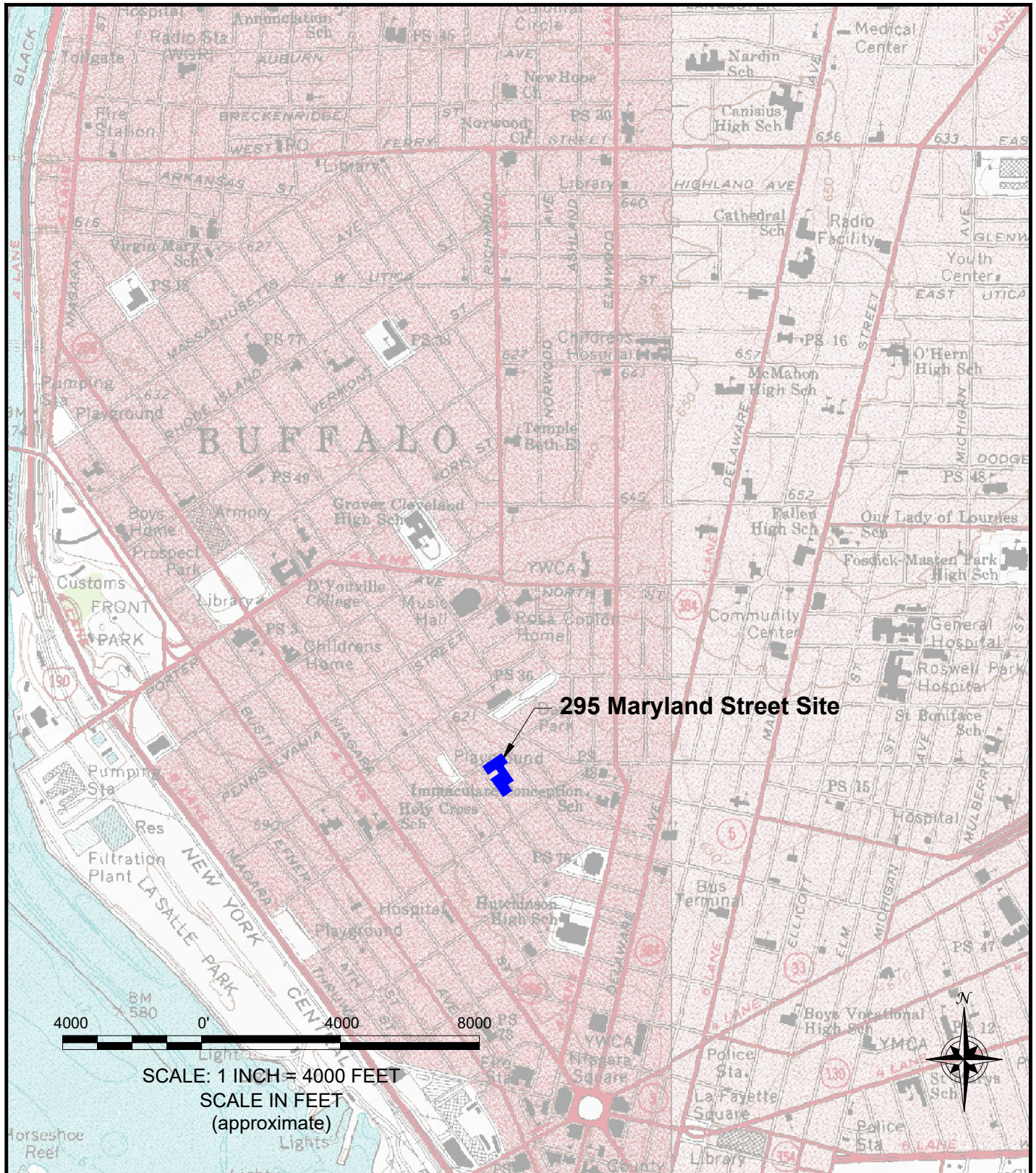


Caroline Bukowski, EIT
Engineer

C: Anthony LoRusso (Client)
Megan Kuczka (NYSDEC)

FIGURES

FIGURE 1



2558 HAMBURG TURNPIKE
 SUITE 300
 BUFFALO, NY 14218
 (716) 856-0599

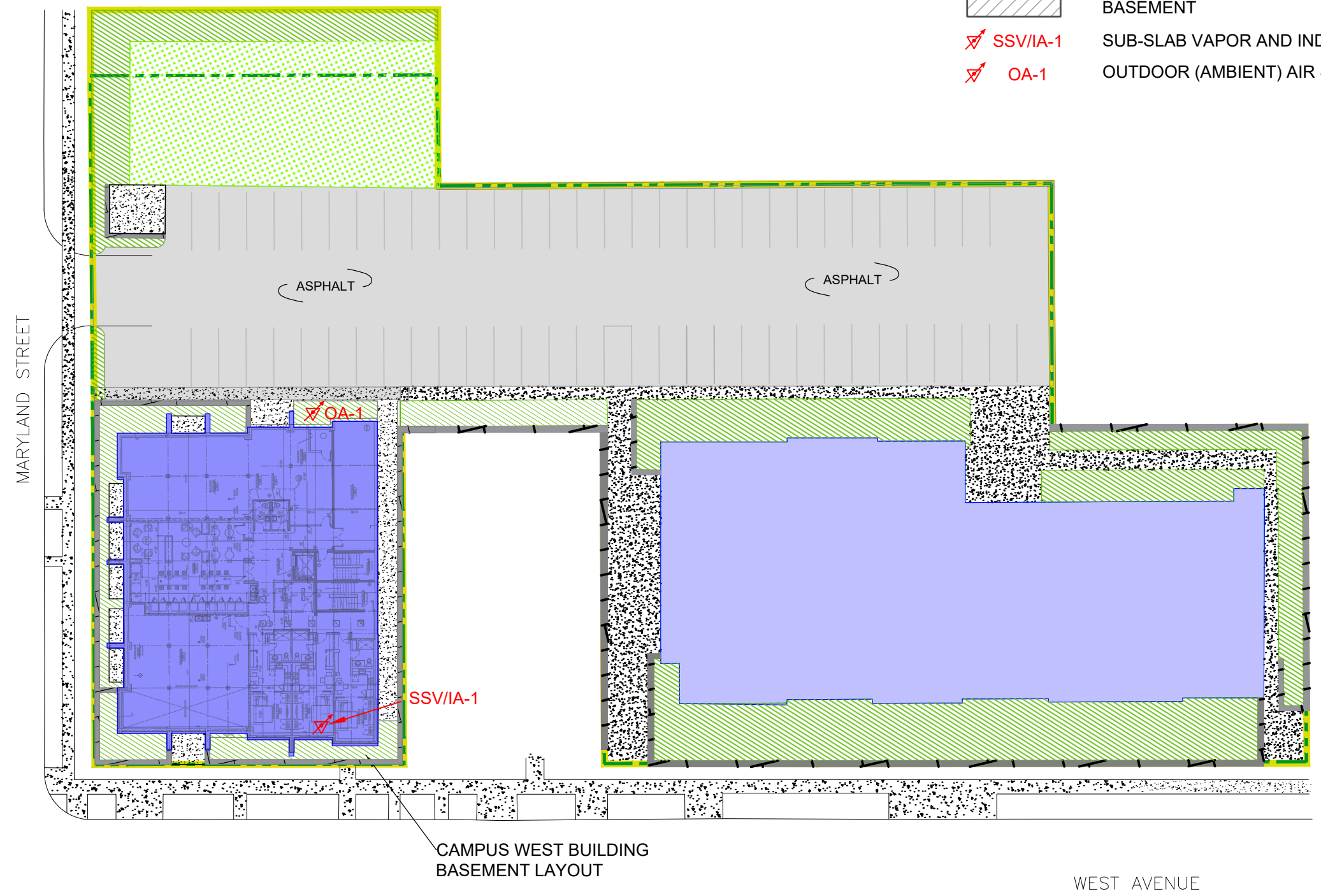
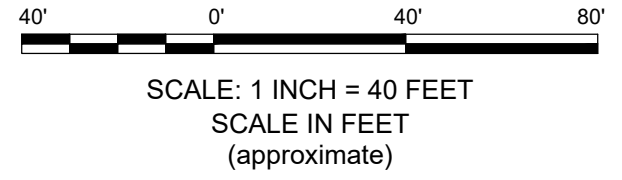
SITE LOCATION AND VICINITY MAP
 SOIL VAPOR INTRUSION INVESTIGATION REPORT

295 MARYLAND STREET SITE
 BCP SITE NO. C915242
 BUFFALO, NEW YORK
 PREPARED FOR
 295 MARYLAND, LLC

PROJECT NO.: B0222-020-002

DATE: DECEMBER 2020

DRAFTED BY: CCB



- LEGEND:**
- REDEVELOPMENT AREA BOUNDARY
 - BCP SITE BOUNDARY
 - BUILDING
 - BASEMENT
 - ↗ SSV/IA-1 SUB-SLAB VAPOR AND INDOOR AIR SAMPLE
 - ↗ OA-1 OUTDOOR (AMBIENT) AIR SAMPLE



SITE PLAN AND SOIL VAPOR INVESTIGATION LOCATIONS
SOIL VAPOR INTRUSION INVESTIGATION REPORT

BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NY 14218
(716) 856-0599

295 MARYLAND STREET SITE
BCP SITE NO. C915242
BUFFALO, NEW YORK
PREPARED FOR
295 MARYLAND, LLC

JOB NO.: B0222-020-002

FIGURE 2

DISCLAIMER: PROPERTY OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC. IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND AS SUCH IS SUBJECT TO RECALL AT ANY TIME. INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN ANY FORM FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS & SUPPLIERS WITHOUT THE WRITTEN CONSENT OF BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC.

TABLES

**TABLE 1
SUMMARY OF SUB-SLAB VAPOR, INDOOR AIR,
AND OUTDOOR AIR ANALYTICAL DATA**

**295 MARYLAND STREET SITE
(NYSDEC SITE NO. C915242)
CAMPUS WEST
BUFFALO, NEW YORK**

Parameter	Sample Location & Sample Date		
	CW SUB-SLAB-1	CW INDOOR AIR-1	CW OUTDOOR AIR-1
	12/1/2020 - 12/2/2020		
Volatile Organic Compounds (VOCs, ug/m3)			
1,1,1-Trichloroethane (Matrix B)	ND< 0.82	ND< 0.82	ND< 0.82
1,1-Dichloroethene (Matrix A)	ND< 0.59	ND< 0.16	ND< 0.16
1,2,4-Trimethylbenzene	0.49 J	ND< 0.74	ND< 0.74
4-ethyltoluene	ND< 0.74	0.59 J	ND< 0.74
Acetone	12	110	7.6
Benzene	0.48	0.61	0.45 J
Carbon Disulfide	0.47	ND< 0.47	ND< 0.47
Carbon Tetrachloride (Matrix A)	ND< 0.94	0.44	0.44
Chloromethane	0.29 J	0.64	0.66
cis-1,2-Dichloroethene (Matrix A)	ND< 0.59	ND< 0.16	ND< 0.16
Cyclohexane	ND< 0.52	0.69	ND< 0.52
Ethyl acetate	0.58	6.0	ND< 0.54
Ethylbenzene	0.56 J	0.61 J	ND< 0.65
Freon 11	1.1	1.1	1.2
Freon 12	2.3	2.1	2.3
Heptane	1.2	3.7	ND< 0.61
Hexane	0.99	2.1	ND< 0.53
Isopropyl alcohol	3.4	21	1.7
m&p-Xylene	1.7	1.4	ND< 1.3
Methyl Ethyl Ketone	0.97	19	0.47 J
Methyl Isobutyl Ketone	ND< 1.2	8.9	ND< 1.2
Methylene chloride (Matrix B)	1.5	0.8	0.56
o-Xylene	0.56 J	0.78	ND< 0.65
Styrene	0.72	2.9	ND< 0.64
Tetrachloroethene (Matrix B)	ND< 1	ND< 1	ND< 1
Tetrahydrofuran	0.59	12	ND< 0.44
Toluene	9.8	5.6	0.64
Total Xylenes	2.3	2.18	ND< 1.95
Trichloroethene (Matrix A)	ND< 0.81	ND< 0.16	ND< 0.16
Vinyl chloride (Matrix C)	ND< 0.38	ND< 0.10	ND< 0.10

Notes:

1. Only those parameters detected above the method detection limit, at a minimum of one location, are presented in this table
2. Constituent monitored under NYSDOH Vapor/ Indoor Air Quality Standards - (Matrices A,B,C- Updated May 2017)

Definitions:

ND = Parameter not detected above laboratory detection limit.

"-" = No value available for the parameter. Or parameter not analysed for.

J = The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the

blue = one of eight compounds regulated by the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (May 2017)

**TABLE 2
COMPARISON OF SUB-SLAB VAPOR, INDOOR AIR, AND OUTDOOR AIR ANALYTICAL DATA TO NYSDOH DECISION MATRICES**

**295 MARYLAND STREET SITE
(NYSDEC SITE NO. C915242)
CAMPUS WEST
BUFFALO, NEW YORK**

Sample Location	Carbon Tetrachloride		Trichloroethene (TCE)		cis-1,2-Dichloroethene		1,1-Dichloroethene		Tetrachloroethene (PCE)		1,1,1 -Trichloroethane		Methylene Chloride		Vinyl Chloride			
	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix A	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix A	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix A	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix A	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix B	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix B	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix B	Lab Reported Concentration (ug/m ³)	Soil Vapor / Indoor Air Matrix C		
Round 1 (December 2020)																		
CW SUB-SLAB-1	ND< 0.94	NFA	ND< 0.81	NFA	ND< 0.59	NFA	ND< 0.59	NFA	ND< 1	NFA	ND< 0.82	NFA	1.5	NFA	ND< 0.38	NFA		
CW INDOOR AIR-1	0.44		ND< 0.16		ND< 0.16		ND< 0.16		ND< 0.16		ND< 0.16		ND< 0.16		ND< 0.82		0.8	ND< 0.10
CW OUTDOOR AIR-1	0.44		ND< 0.16		ND< 0.16		ND< 0.16		ND< 0.16		ND< 0.82		0.56		ND< 0.10			

Notes:

1. Concentration in micrograms per cubic meter (ug/m³)

Definitions:

- ND = Not Detected
- J = Results are estimated; results are below the reporting limit, but greater than or equal to the method detection limit.
- NFA = No further action.
- I, R = Take reasonable and practical actions to identify source(s) and reduce exposures and resample or mitigate.
- Monitor = Monitor soil vapor / indoor air
- Mitigate = Mitigate source of identified parameter.

Analyses Assigned:
Trichloroethene (TCE), cis-1,2-Dichloroethene (c12-DCE), 1,1-Dichloroethene (11-DCE), Carbon Tetrachloride

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)		
	< 0.2	0.2 to < 1	1 and above
< 6	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	4. No further action	5. MONITOR	6. MITIGATE
60 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

Analyses Assigned:
Tetrachloroethene (PCE), 1,1,1-Trichloroethane (111-TCA), Methylene Chloride

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)		
	< 3	3 to < 10	10 and above
< 100	1. No further action	2. No Further Action	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
100 to < 1,000	4. No further action	5. MONITOR	6. MITIGATE
1,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE

Analyses Assigned:
Vinyl Chloride

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)	
	< 0.2	0.2 and above
< 6	1. No further action	2. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	3. MONITOR	4. MITIGATE
60 and above	5. MITIGATE	6. MITIGATE

ATTACHMENT 1

Chemical Inventory

INDOOR AIR QUALITY QUESTIONNAIRE & BUILDING INVENTORY

13. PRODUCT INVENTORY FORM

List specific products found in the structure that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition ¹	Chemical Ingredients	Field Instrument Reading (units)	Photo (Y/N)
Basement	(2) Fire Extinguisher	5 lbs	UO	Non VOC	N	Y
Basement	(1) Mortar Mix	80 lbs	U	Non VOC	N	Y
Basement	(1) Proseries vinyl flooring adhesive	4 gal	U	1% Distillates, petroleum, hydrotreated	N	Y
Basement	(1) ARDEX SD-P Concrete	40 lbs	U	1-5% by weight vinyl acetate	N	Y
Basement	(1) PCMP Prep Star Cement Based Finishing	10 lbs	U	15-25% by weight vinyl acetate copolymer	N	Y
Basement	(1) Quikrete	80 lbs	U	Non VOC	N	Y
Basement	(1) ProMar 200 HP Zero VOC Acrylic	4 gal	U	>0.3 Heavy Paraffinic Oil	N	Y
Basement	(1) USG All Purpose Joint Compound	4 gal	U	Non VOC	N	Y
Basement	(1) USG Easy Sand 90 Joint Compound	8 lbs	U	> 5% Vinyl alcohol polymer	N	Y
Basement	(1) USG Plus 3 Joint Compound	4 gal	U	Non VOC	N	Y
Basement	(5) Sherwin Willaims 1050 Quick Dry Siliconized Latex Caulk	10 Oz	U	>3% Light aliphatic hydrocarbon	N	Y
Cabinets were being installed prior to sample collection in the basement area. Cabinet installation work was not performed during sampling, however workers were in and out of the basement area during the sample period.						

Notes:

- Describe the condition of the product containers as **Unopened (UO)**, **Used (U)**, or **Deteriorated (D)**.
- Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

ATTACHMENT 2

Photo Log



Client Name: 295 Maryland, LLC		Site Location: 295 Maryland Street Site	Project No.: 0222-020-002
Photo No. 1	Date 12/01/20		
Direction Photo Taken: South			
Description: Sub-slab air sample port and air sampling canister (CW SS-1) and indoor ambient air sampling canister (CW IA-1). Basement.			

Photo No. 2	Date 12/01/20	
Direction Photo Taken: Northeast		
Description: Basement apartment where sub-slab and indoor air samples were collected.		


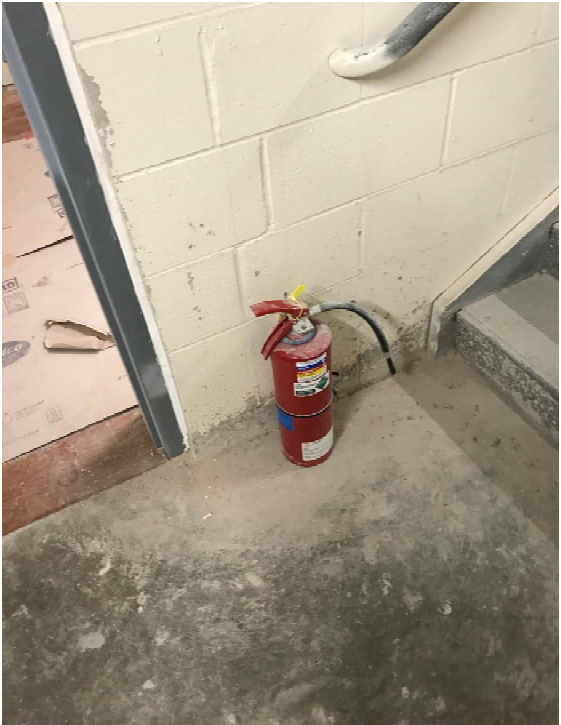
Client Name: 295 Maryland, LLC		Site Location: 295 Maryland Street Site	Project No.: 0222-020-002
Photo No. 3	Date 12/01/20		
Direction Photo Taken: Southeast			
Description: Outdoor ambient air sampling canister (CW OA-1). Outside on second story patio.			

Photo No. 4	Date 12/01/20	
Direction Photo Taken:		
Description: Chemical Inventory - Basement		




Client Name: 295 Maryland, LLC		Site Location: 295 Maryland Street Site	Project No.: 0222-020-002
Photo No. 5	Date 12/01/20		
Direction Photo Taken:			
Description: Chemical Inventory - Basement			

Photo No. 6	Date 12/01/20	
Direction Photo Taken:		
Description: Chemical Inventory - Basement		

Client Name: 295 Maryland, LLC		Site Location: 295 Maryland Street Site	Project No.: 0222-020-002
Photo No. 7	Date 12/01/20		
Direction Photo Taken:			
Description: Chemical Inventory - Basement			

Photo No. 8	Date 12/01/20	
Direction Photo Taken:		
Description: Chemical Inventory - Basement		

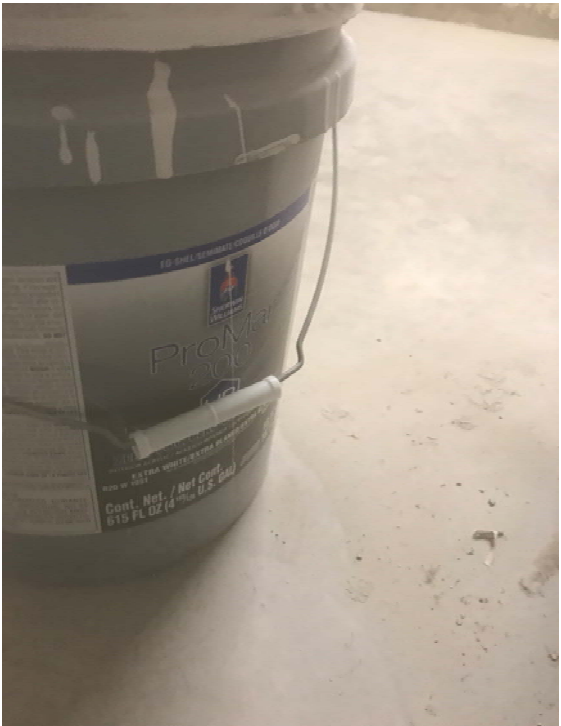
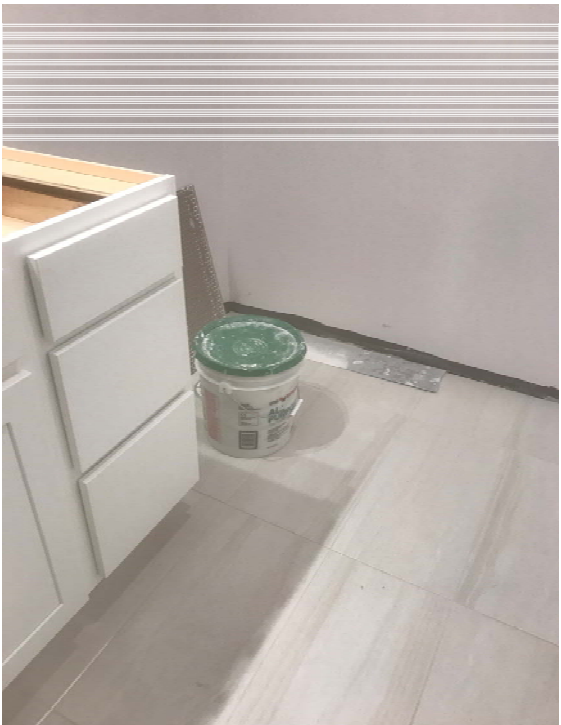
Client Name: 295 Maryland, LLC		Site Location: 295 Maryland Street Site	Project No.: 0222-020-002
Photo No. 9	Date 12/01/20		
Direction Photo Taken:			
Description: Chemical Inventory - Basement			

Photo No. 10	Date 12/01/20	
Direction Photo Taken:		
Description: Chemical Inventory - Basement		



Client Name: 295 Maryland, LLC		Site Location: 295 Maryland Street Site	Project No.: 0222-020-002
Photo No. 11	Date 12/01/20		
Direction Photo Taken:			
Description: Chemical Inventory - Basement			

Photo No. 12	Date 12/01/20	
Direction Photo Taken:		
Description: Chemical Inventory - Basement		

ATTACHMENT 3

Laboratory Report

Centek Laboratories, LLC

Date: 09-Dec-20

CLIENT: Benchmark Environmental Engineering & S
Lab Order: C2012008
Project: Campus West
Lab ID: C2012008-001A

Client Sample ID: CW SS-1
Tag Number: 191,385
Collection Date: 12/2/2020
Matrix: AIR

Analyses	Result	DL	Qual	Units	DF	Date Analyzed
1UG/M3 BY METHOD TO15		TO-15		Analyst: RJP		
1,1,1-Trichloroethane	< 0.82	0.82		ug/m3	1	12/3/2020 8:27:00 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	12/3/2020 8:27:00 PM
1,1,2-Trichloroethane	< 0.82	0.82		ug/m3	1	12/3/2020 8:27:00 PM
1,1-Dichloroethane	< 0.61	0.61		ug/m3	1	12/3/2020 8:27:00 PM
1,1-Dichloroethene	< 0.59	0.59		ug/m3	1	12/3/2020 8:27:00 PM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	12/3/2020 8:27:00 PM
1,2,4-Trimethylbenzene	0.49	0.74	J	ug/m3	1	12/3/2020 8:27:00 PM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	12/3/2020 8:27:00 PM
1,2-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 8:27:00 PM
1,2-Dichloroethane	< 0.61	0.61		ug/m3	1	12/3/2020 8:27:00 PM
1,2-Dichloropropane	< 0.69	0.69		ug/m3	1	12/3/2020 8:27:00 PM
1,3,5-Trimethylbenzene	< 0.74	0.74		ug/m3	1	12/3/2020 8:27:00 PM
1,3-butadiene	< 0.33	0.33		ug/m3	1	12/3/2020 8:27:00 PM
1,3-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 8:27:00 PM
1,4-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 8:27:00 PM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	12/3/2020 8:27:00 PM
2,2,4-trimethylpentane	< 0.70	0.70		ug/m3	1	12/3/2020 8:27:00 PM
4-ethyltoluene	< 0.74	0.74		ug/m3	1	12/3/2020 8:27:00 PM
Acetone	12	7.1		ug/m3	10	12/4/2020 5:07:00 AM
Allyl chloride	< 0.47	0.47		ug/m3	1	12/3/2020 8:27:00 PM
Benzene	0.48	0.48		ug/m3	1	12/3/2020 8:27:00 PM
Benzyl chloride	< 0.86	0.86		ug/m3	1	12/3/2020 8:27:00 PM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	12/3/2020 8:27:00 PM
Bromoform	< 1.6	1.6		ug/m3	1	12/3/2020 8:27:00 PM
Bromomethane	< 0.58	0.58		ug/m3	1	12/3/2020 8:27:00 PM
Carbon disulfide	0.47	0.47		ug/m3	1	12/3/2020 8:27:00 PM
Carbon tetrachloride	< 0.94	0.94		ug/m3	1	12/3/2020 8:27:00 PM
Chlorobenzene	< 0.69	0.69		ug/m3	1	12/3/2020 8:27:00 PM
Chloroethane	< 0.40	0.40		ug/m3	1	12/3/2020 8:27:00 PM
Chloroform	< 0.73	0.73		ug/m3	1	12/3/2020 8:27:00 PM
Chloromethane	0.29	0.31	J	ug/m3	1	12/3/2020 8:27:00 PM
cis-1,2-Dichloroethene	< 0.59	0.59		ug/m3	1	12/3/2020 8:27:00 PM
cis-1,3-Dichloropropene	< 0.68	0.68		ug/m3	1	12/3/2020 8:27:00 PM
Cyclohexane	< 0.52	0.52		ug/m3	1	12/3/2020 8:27:00 PM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	12/3/2020 8:27:00 PM
Ethyl acetate	0.58	0.54		ug/m3	1	12/3/2020 8:27:00 PM
Ethylbenzene	0.56	0.65	J	ug/m3	1	12/3/2020 8:27:00 PM
Freon 11	1.1	0.84		ug/m3	1	12/3/2020 8:27:00 PM
Freon 113	< 1.1	1.1		ug/m3	1	12/3/2020 8:27:00 PM
Freon 114	< 1.0	1.0		ug/m3	1	12/3/2020 8:27:00 PM

Qualifiers:

.	Results reported are not blank corrected	B	Analyte detected in the associated Method Blank
DL	Detection Limit	E	Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	SC	Sub-Contracted

Centek Laboratories, LLC

Date: 09-Dec-20

CLIENT: Benchmark Environmental Engineering & S
Lab Order: C2012008
Project: Campus West
Lab ID: C2012008-001A

Client Sample ID: CW SS-1
Tag Number: 191,385
Collection Date: 12/2/2020
Matrix: AIR

Analyses	Result	DL	Qual	Units	DF	Date Analyzed
1UG/M3 BY METHOD TO15		TO-15		Analyst: RJP		
Freon 12	2.3	0.74		ug/m3	1	12/3/2020 8:27:00 PM
Heptane	1.2	0.61		ug/m3	1	12/3/2020 8:27:00 PM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	12/3/2020 8:27:00 PM
Hexane	0.99	0.53		ug/m3	1	12/3/2020 8:27:00 PM
Isopropyl alcohol	3.4	0.37		ug/m3	1	12/3/2020 8:27:00 PM
m&p-Xylene	1.7	1.3		ug/m3	1	12/3/2020 8:27:00 PM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	12/3/2020 8:27:00 PM
Methyl Ethyl Ketone	0.97	0.88		ug/m3	1	12/3/2020 8:27:00 PM
Methyl Isobutyl Ketone	< 1.2	1.2		ug/m3	1	12/3/2020 8:27:00 PM
Methyl tert-butyl ether	< 0.54	0.54		ug/m3	1	12/3/2020 8:27:00 PM
Methylene chloride	1.5	0.52		ug/m3	1	12/3/2020 8:27:00 PM
o-Xylene	0.56	0.65	J	ug/m3	1	12/3/2020 8:27:00 PM
Propylene	< 0.26	0.26		ug/m3	1	12/3/2020 8:27:00 PM
Styrene	0.72	0.64		ug/m3	1	12/3/2020 8:27:00 PM
Tetrachloroethylene	< 1.0	1.0		ug/m3	1	12/3/2020 8:27:00 PM
Tetrahydrofuran	0.59	0.44		ug/m3	1	12/3/2020 8:27:00 PM
Toluene	9.8	5.7		ug/m3	10	12/4/2020 5:07:00 AM
trans-1,2-Dichloroethene	< 0.59	0.59		ug/m3	1	12/3/2020 8:27:00 PM
trans-1,3-Dichloropropene	< 0.68	0.68		ug/m3	1	12/3/2020 8:27:00 PM
Trichloroethene	< 0.81	0.81		ug/m3	1	12/3/2020 8:27:00 PM
Vinyl acetate	< 0.53	0.53		ug/m3	1	12/3/2020 8:27:00 PM
Vinyl Bromide	< 0.66	0.66		ug/m3	1	12/3/2020 8:27:00 PM
Vinyl chloride	< 0.38	0.38		ug/m3	1	12/3/2020 8:27:00 PM

Qualifiers:	.	Results reported are not blank corrected	B	Analyte detected in the associated Method Blank
	DL	Detection Limit	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits	SC	Sub-Contracted

Centek Laboratories, LLC

Date: 09-Dec-20

CLIENT: Benchmark Environmental Engineering & S
Lab Order: C2012008
Project: Campus West
Lab ID: C2012008-002A

Client Sample ID: CW IA-1
Tag Number: 545,377
Collection Date: 12/2/2020
Matrix: AIR

Analyses	Result	DL	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.2UG/M3 CT-TCE-VC-DCE-1,1DCE		TO-15		Analyst: RJP		
1,1,1-Trichloroethane	< 0.82	0.82		ug/m3	1	12/3/2020 7:42:00 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	12/3/2020 7:42:00 PM
1,1,2-Trichloroethane	< 0.82	0.82		ug/m3	1	12/3/2020 7:42:00 PM
1,1-Dichloroethane	< 0.61	0.61		ug/m3	1	12/3/2020 7:42:00 PM
1,1-Dichloroethene	< 0.16	0.16		ug/m3	1	12/3/2020 7:42:00 PM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	12/3/2020 7:42:00 PM
1,2,4-Trimethylbenzene	< 0.74	0.74		ug/m3	1	12/3/2020 7:42:00 PM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	12/3/2020 7:42:00 PM
1,2-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 7:42:00 PM
1,2-Dichloroethane	< 0.61	0.61		ug/m3	1	12/3/2020 7:42:00 PM
1,2-Dichloropropane	< 0.69	0.69		ug/m3	1	12/3/2020 7:42:00 PM
1,3,5-Trimethylbenzene	< 0.74	0.74		ug/m3	1	12/3/2020 7:42:00 PM
1,3-butadiene	< 0.33	0.33		ug/m3	1	12/3/2020 7:42:00 PM
1,3-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 7:42:00 PM
1,4-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 7:42:00 PM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	12/3/2020 7:42:00 PM
2,2,4-trimethylpentane	< 0.70	0.70		ug/m3	1	12/3/2020 7:42:00 PM
4-ethyltoluene	0.59	0.74	J	ug/m3	1	12/3/2020 7:42:00 PM
Acetone	110	28		ug/m3	40	12/4/2020 4:24:00 AM
Allyl chloride	< 0.47	0.47		ug/m3	1	12/3/2020 7:42:00 PM
Benzene	0.61	0.48		ug/m3	1	12/3/2020 7:42:00 PM
Benzyl chloride	< 0.86	0.86		ug/m3	1	12/3/2020 7:42:00 PM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	12/3/2020 7:42:00 PM
Bromoform	< 1.6	1.6		ug/m3	1	12/3/2020 7:42:00 PM
Bromomethane	< 0.58	0.58		ug/m3	1	12/3/2020 7:42:00 PM
Carbon disulfide	< 0.47	0.47		ug/m3	1	12/3/2020 7:42:00 PM
Carbon tetrachloride	0.44	0.19		ug/m3	1	12/3/2020 7:42:00 PM
Chlorobenzene	< 0.69	0.69		ug/m3	1	12/3/2020 7:42:00 PM
Chloroethane	< 0.40	0.40		ug/m3	1	12/3/2020 7:42:00 PM
Chloroform	< 0.73	0.73		ug/m3	1	12/3/2020 7:42:00 PM
Chloromethane	0.64	0.31		ug/m3	1	12/3/2020 7:42:00 PM
cis-1,2-Dichloroethene	< 0.16	0.16		ug/m3	1	12/3/2020 7:42:00 PM
cis-1,3-Dichloropropene	< 0.68	0.68		ug/m3	1	12/3/2020 7:42:00 PM
Cyclohexane	0.69	0.52		ug/m3	1	12/3/2020 7:42:00 PM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	12/3/2020 7:42:00 PM
Ethyl acetate	6.0	0.54		ug/m3	1	12/3/2020 7:42:00 PM
Ethylbenzene	0.61	0.65	J	ug/m3	1	12/3/2020 7:42:00 PM
Freon 11	1.1	0.84		ug/m3	1	12/3/2020 7:42:00 PM
Freon 113	< 1.1	1.1		ug/m3	1	12/3/2020 7:42:00 PM
Freon 114	< 1.0	1.0		ug/m3	1	12/3/2020 7:42:00 PM

Qualifiers:

.	Results reported are not blank corrected	B	Analyte detected in the associated Method Blank
DL	Detection Limit	E	Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	SC	Sub-Contracted

Centek Laboratories, LLC

Date: 09-Dec-20

CLIENT: Benchmark Environmental Engineering & S
Lab Order: C2012008
Project: Campus West
Lab ID: C2012008-002A

Client Sample ID: CW IA-1
Tag Number: 545,377
Collection Date: 12/2/2020
Matrix: AIR

Analyses	Result	DL	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.2UG/M3 CT-TCE-VC-DCE-1,1DCE		TO-15		Analyst: RJP		
Freon 12	2.1	0.74		ug/m3	1	12/3/2020 7:42:00 PM
Heptane	3.7	0.61		ug/m3	1	12/3/2020 7:42:00 PM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	12/3/2020 7:42:00 PM
Hexane	2.1	0.53		ug/m3	1	12/3/2020 7:42:00 PM
Isopropyl alcohol	21	3.7		ug/m3	10	12/4/2020 3:41:00 AM
m&p-Xylene	1.4	1.3		ug/m3	1	12/3/2020 7:42:00 PM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	12/3/2020 7:42:00 PM
Methyl Ethyl Ketone	19	8.8		ug/m3	10	12/4/2020 3:41:00 AM
Methyl Isobutyl Ketone	8.9	1.2		ug/m3	1	12/3/2020 7:42:00 PM
Methyl tert-butyl ether	< 0.54	0.54		ug/m3	1	12/3/2020 7:42:00 PM
Methylene chloride	0.80	0.52		ug/m3	1	12/3/2020 7:42:00 PM
o-Xylene	0.78	0.65		ug/m3	1	12/3/2020 7:42:00 PM
Propylene	< 0.26	0.26		ug/m3	1	12/3/2020 7:42:00 PM
Styrene	2.9	0.64		ug/m3	1	12/3/2020 7:42:00 PM
Tetrachloroethylene	< 1.0	1.0		ug/m3	1	12/3/2020 7:42:00 PM
Tetrahydrofuran	12	4.4		ug/m3	10	12/4/2020 3:41:00 AM
Toluene	5.6	0.57		ug/m3	1	12/3/2020 7:42:00 PM
trans-1,2-Dichloroethene	< 0.59	0.59		ug/m3	1	12/3/2020 7:42:00 PM
trans-1,3-Dichloropropene	< 0.68	0.68		ug/m3	1	12/3/2020 7:42:00 PM
Trichloroethene	< 0.16	0.16		ug/m3	1	12/3/2020 7:42:00 PM
Vinyl acetate	< 0.53	0.53		ug/m3	1	12/3/2020 7:42:00 PM
Vinyl Bromide	< 0.66	0.66		ug/m3	1	12/3/2020 7:42:00 PM
Vinyl chloride	< 0.10	0.10		ug/m3	1	12/3/2020 7:42:00 PM

Qualifiers:	.	Results reported are not blank corrected	B	Analyte detected in the associated Method Blank
	DL	Detection Limit	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits	SC	Sub-Contracted

Centek Laboratories, LLC

Date: 09-Dec-20

CLIENT:	Benchmark Environmental Engineering & S	Client Sample ID:	CW-OA-1
Lab Order:	C2012008	Tag Number:	1316,443
Project:	Campus West	Collection Date:	12/2/2020
Lab ID:	C2012008-003A	Matrix:	AIR

Analyses	Result	DL	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.2UG/M3 CT-TCE-VC-DCE-1,1DCE		TO-15		Analyst: RJP		
1,1,1-Trichloroethane	< 0.82	0.82		ug/m3	1	12/3/2020 6:58:00 PM
1,1,2,2-Tetrachloroethane	< 1.0	1.0		ug/m3	1	12/3/2020 6:58:00 PM
1,1,2-Trichloroethane	< 0.82	0.82		ug/m3	1	12/3/2020 6:58:00 PM
1,1-Dichloroethane	< 0.61	0.61		ug/m3	1	12/3/2020 6:58:00 PM
1,1-Dichloroethene	< 0.16	0.16		ug/m3	1	12/3/2020 6:58:00 PM
1,2,4-Trichlorobenzene	< 1.1	1.1		ug/m3	1	12/3/2020 6:58:00 PM
1,2,4-Trimethylbenzene	< 0.74	0.74		ug/m3	1	12/3/2020 6:58:00 PM
1,2-Dibromoethane	< 1.2	1.2		ug/m3	1	12/3/2020 6:58:00 PM
1,2-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 6:58:00 PM
1,2-Dichloroethane	< 0.61	0.61		ug/m3	1	12/3/2020 6:58:00 PM
1,2-Dichloropropane	< 0.69	0.69		ug/m3	1	12/3/2020 6:58:00 PM
1,3,5-Trimethylbenzene	< 0.74	0.74		ug/m3	1	12/3/2020 6:58:00 PM
1,3-butadiene	< 0.33	0.33		ug/m3	1	12/3/2020 6:58:00 PM
1,3-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 6:58:00 PM
1,4-Dichlorobenzene	< 0.90	0.90		ug/m3	1	12/3/2020 6:58:00 PM
1,4-Dioxane	< 1.1	1.1		ug/m3	1	12/3/2020 6:58:00 PM
2,2,4-trimethylpentane	< 0.70	0.70		ug/m3	1	12/3/2020 6:58:00 PM
4-ethyltoluene	< 0.74	0.74		ug/m3	1	12/3/2020 6:58:00 PM
Acetone	7.6	7.1		ug/m3	10	12/4/2020 2:58:00 AM
Allyl chloride	< 0.47	0.47		ug/m3	1	12/3/2020 6:58:00 PM
Benzene	0.45	0.48	J	ug/m3	1	12/3/2020 6:58:00 PM
Benzyl chloride	< 0.86	0.86		ug/m3	1	12/3/2020 6:58:00 PM
Bromodichloromethane	< 1.0	1.0		ug/m3	1	12/3/2020 6:58:00 PM
Bromoform	< 1.6	1.6		ug/m3	1	12/3/2020 6:58:00 PM
Bromomethane	< 0.58	0.58		ug/m3	1	12/3/2020 6:58:00 PM
Carbon disulfide	< 0.47	0.47		ug/m3	1	12/3/2020 6:58:00 PM
Carbon tetrachloride	0.44	0.19		ug/m3	1	12/3/2020 6:58:00 PM
Chlorobenzene	< 0.69	0.69		ug/m3	1	12/3/2020 6:58:00 PM
Chloroethane	< 0.40	0.40		ug/m3	1	12/3/2020 6:58:00 PM
Chloroform	< 0.73	0.73		ug/m3	1	12/3/2020 6:58:00 PM
Chloromethane	0.66	0.31		ug/m3	1	12/3/2020 6:58:00 PM
cis-1,2-Dichloroethene	< 0.16	0.16		ug/m3	1	12/3/2020 6:58:00 PM
cis-1,3-Dichloropropene	< 0.68	0.68		ug/m3	1	12/3/2020 6:58:00 PM
Cyclohexane	< 0.52	0.52		ug/m3	1	12/3/2020 6:58:00 PM
Dibromochloromethane	< 1.3	1.3		ug/m3	1	12/3/2020 6:58:00 PM
Ethyl acetate	< 0.54	0.54		ug/m3	1	12/3/2020 6:58:00 PM
Ethylbenzene	< 0.65	0.65		ug/m3	1	12/3/2020 6:58:00 PM
Freon 11	1.2	0.84		ug/m3	1	12/3/2020 6:58:00 PM
Freon 113	< 1.1	1.1		ug/m3	1	12/3/2020 6:58:00 PM
Freon 114	< 1.0	1.0		ug/m3	1	12/3/2020 6:58:00 PM

Qualifiers:

.	Results reported are not blank corrected	B	Analyte detected in the associated Method Blank
DL	Detection Limit	E	Estimated Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
S	Spike Recovery outside accepted recovery limits	SC	Sub-Contracted

Centek Laboratories, LLC

Date: 09-Dec-20

CLIENT: Benchmark Environmental Engineering & S
Lab Order: C2012008
Project: Campus West
Lab ID: C2012008-003A

Client Sample ID: CW-OA-1
Tag Number: 1316,443
Collection Date: 12/2/2020
Matrix: AIR

Analyses	Result	DL	Qual	Units	DF	Date Analyzed
1UG/M3 W/ 0.2UG/M3 CT-TCE-VC-DCE-1,1DCE		TO-15		Analyst: RJP		
Freon 12	2.3	0.74		ug/m3	1	12/3/2020 6:58:00 PM
Heptane	< 0.61	0.61		ug/m3	1	12/3/2020 6:58:00 PM
Hexachloro-1,3-butadiene	< 1.6	1.6		ug/m3	1	12/3/2020 6:58:00 PM
Hexane	< 0.53	0.53		ug/m3	1	12/3/2020 6:58:00 PM
Isopropyl alcohol	1.7	0.37		ug/m3	1	12/3/2020 6:58:00 PM
m&p-Xylene	< 1.3	1.3		ug/m3	1	12/3/2020 6:58:00 PM
Methyl Butyl Ketone	< 1.2	1.2		ug/m3	1	12/3/2020 6:58:00 PM
Methyl Ethyl Ketone	0.47	0.88	J	ug/m3	1	12/3/2020 6:58:00 PM
Methyl Isobutyl Ketone	< 1.2	1.2		ug/m3	1	12/3/2020 6:58:00 PM
Methyl tert-butyl ether	< 0.54	0.54		ug/m3	1	12/3/2020 6:58:00 PM
Methylene chloride	0.56	0.52		ug/m3	1	12/3/2020 6:58:00 PM
o-Xylene	< 0.65	0.65		ug/m3	1	12/3/2020 6:58:00 PM
Propylene	< 0.26	0.26		ug/m3	1	12/3/2020 6:58:00 PM
Styrene	< 0.64	0.64		ug/m3	1	12/3/2020 6:58:00 PM
Tetrachloroethylene	< 1.0	1.0		ug/m3	1	12/3/2020 6:58:00 PM
Tetrahydrofuran	< 0.44	0.44		ug/m3	1	12/3/2020 6:58:00 PM
Toluene	0.64	0.57		ug/m3	1	12/3/2020 6:58:00 PM
trans-1,2-Dichloroethene	< 0.59	0.59		ug/m3	1	12/3/2020 6:58:00 PM
trans-1,3-Dichloropropene	< 0.68	0.68		ug/m3	1	12/3/2020 6:58:00 PM
Trichloroethene	< 0.16	0.16		ug/m3	1	12/3/2020 6:58:00 PM
Vinyl acetate	< 0.53	0.53		ug/m3	1	12/3/2020 6:58:00 PM
Vinyl Bromide	< 0.66	0.66		ug/m3	1	12/3/2020 6:58:00 PM
Vinyl chloride	< 0.10	0.10		ug/m3	1	12/3/2020 6:58:00 PM

Qualifiers:	.	Results reported are not blank corrected	B	Analyte detected in the associated Method Blank
	DL	Detection Limit	E	Estimated Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limit
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Limit of Detection
	S	Spike Recovery outside accepted recovery limits	SC	Sub-Contracted

ATTACHMENT 4

DOH Matrices

ATTACHMENT 4

SOIL VAPOR / INDOOR AIR MATRIX A

*Carbon Tetrachloride, Trichloroethene (TCE),
cis-1,2-Dichloroethene (cis-1,2-DCE), & 1,1-Dichloroethene (1,1-DCE)
(October 2006/June 2007/May 2017)*

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)		
	< 0.2	0.2 to < 1	1.0 and above
< 6	1. No further action (NFA)	2. No further action (NFA)	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	4. No further action (NFA)	5. MONITOR	6. MITIGATE
60 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE



ATTACHMENT 4 (cont.)

SOIL VAPOR / INDOOR AIR MATRIX B

Tetrachloroethene (PCE), 1,1,1-Trichloroethane (1,1,1-TCA), & Methylene Chloride (MC)
(October 2006/June 2007/May 2017)

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)		
	< 3	3 to < 10	10 and above
< 100	1. No further action (NFA)	2. No further action (NFA)	3. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
100 to < 1,000	4. No further action (NFA)	5. MONITOR	6. MITIGATE
1,000 and above	7. MITIGATE	8. MITIGATE	9. MITIGATE



ATTACHMENT 4 (cont.)

SOIL VAPOR / INDOOR AIR MATRIX C

Vinyl Chloride (VC)
(October 2006/June 2007/May 2017)

SUB-SLAB VAPOR CONCENTRATION of COMPOUND (mcg/m ³)	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m ³)	
	< 0.2	0.2 and above
< 6	1. No further action (NFA)	2. IDENTIFY SOURCE(S) and RESAMPLE or MITIGATE
6 to < 60	3. MONITOR	4. MITIGATE
60 and above	5. MITIGATE	6. MITIGATE