Groundwater & Environmental Services, Inc.

16 Mt. Ebo Road South
Brewster, NY 10509

T. 866.839.5195

February 12, 2019

Mr. Amen Omorogbe
New York State Department of Environmental Conservation
625 Broadway, 11th Floor
Albany, New York 12233-7014

Re: Soil Vapor Intrusion Summary
1-45 Orangetown Shopping Center
Orangeburg, New York
Site #C344066

Dear Mr. Omorogbe:

Enclosed is the *Soil Vapor Intrusion Summary Report* for the above referenced site prepared by Groundwater & Environmental Services, Inc. (GES) on behalf of UB Orangeburg, LLC. The report summarizes the results of the soil vapor investigation performed at the site 1-45 Orangetown Shopping Center during the 4th Quarter of 2018.

If you have any questions or comments regarding this submittal, please contact Michael DeGloria of GES at (866) 839-5195 at extension 3839.

Sincerely,
Groundwater & Environmental Services, Inc.

Dan Konchan
Date: 2019.02.12 11:25:48 -05'00'

Dan Konchan
Associate Geologist

Michael DeGloria
Michael DeGloria 2019.02.12 11:29:11 -05'00'

Michael DeGloria, P.G.
Principal Project Manager

cc: Monica Roth, UB Orangeburg, LLC (mroth@ubproperties.com)
Miyun Sung, UB Orangeburg, LLC (msung@ubproperties.com)
Renata Ockerby, New York State Department of Health (renata.ockerby@health.ny.gov)
Maureen Schuck, New York State Department of Health (maureen.schuck@health.ny.gov)
Hilton Soniker, Esq., JLJ Management ('soniker@kamso.com)

UB Orangeburg, LLC

Soil Vapor Intrusion Summary

UB Orangeburg

1-45 Orangetown Shopping Center
NYSDEC Site Number C344066

February 2019

Version 1

Soil Vapor Intrusion Summary

UB Orangeburg
1-45 Orangetown Shopping Center
Orangeburg, NY

Prepared for:
UB Orangeburg, LLC
321 Railroad Avenue
Greenwich, CT 06830

Prepared by:
Groundwater & Environmental Services, Inc.
16 Mt. Ebo Road South
Brewster, New York 10509
TEL: 866-839-5195
www.gesonline.com

GES Project:
1102664

Date:
February 2019

Dan Konchan
Date: 2019.02.12 09:39:26 -05'00'

Dan Konchan
Associate Geologist

Michael DeGloria
Michael DeGloria
2019.02.12 11:29:57 -05'00'

Michael DeGloria, P.G.
Principal Project Manager

Table of Contents

Figures

Tables

Appendices

1 Objective

The objective of this report is to summarize the soil vapor and indoor air testing for volatile organic compounds (VOCs) completed on December 18 and 19, 2018 at a portion of the Orangetown Shopping Center located at 1-45 Orangetown Road, Orangeburg, New York. The investigation was completed at three of the tenant spaces (the New China House Restaurant, TZ Liquors which was formerly occupied by The Deli Spot, and a Verizon store which was formerly occupied by Sparkle Cleaners) located within Building #2 of the Orangetown Shopping Center (the "site"). All work was completed in accordance with the NYSDEC approved Work Plan submitted to the Department on October 3, 2017. Work was also completed in accordance with correspondences from the NYSDEC dated March 4, 2016 and January 25, 2017, the New York State Department of Health (NYSDOH) Indoor Air Sampling and Analysis Guidance, dated February 1, 2005 and the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006 and Updates to Soil Vapor/Indoor Air Decision Matrices, dated May 2017. All correspondences with the NYSDEC are included as **Appendix B**. This investigation represents the second of two required by the NYSDEC during the 2017-2018 and the 2018-2019 heating seasons.

This investigation was conducted for the purpose of evaluating current sub-slab and ambient air quality at the site as well as evaluating the potential for soil vapor intrusion in the above-referenced tenant spaces located within Building #2 in support of permanent removal of the remaining SSD systems and cessation of additional sub-slab or ambient air testing. A site location map and a site map indicating pertinent site features are presented as **Figures 1** and **2**.

1.1 Background Information

The subject site is a 1.2-acre portion of the shopping plaza, located near the southeast corner of the parcel. The shopping plaza is located at the southeast corner of Orangeburg and Dutch Hill Roads in Orangeburg, New York, and is comprised of an 11-acre parcel that contains several commercial buildings. The site has been utilized as farmland, a camp, an amphitheater, and the current retail shopping center. The plaza is situated in a suburban area of mixed land use, and is surrounded predominantly by commercial and residential properties. It is served by a public water supply system. There had previously been a dry cleaner operating at the shopping center since approximately 1966. The Sparkle Cleaners, which operated as a dry cleaning facility within Building #2, is currently a Verizon store. Historical investigations identified the presence of contamination caused by the release of dry cleaning fluids.

In January 2007, JLJ Management Company entered into Brownfield Cleanup Agreement #A3-0563-0906BCA with the NYSDEC to remediate a 1.2-acre portion of the 11-acre property. This BCA required the Remedial Party, JLJ Management Group, to investigate and remediate contaminated media at the site.

An environmental easement for the site was executed by the NYSDEC on September 16, 2011. The site is currently managed by GES in accordance with an approved Site Management Plan,

Remedial Action Work Plan and Final Engineering Report completed by Kleinfelder, Inc. and approved by the NYSDEC in December of 2011.

A property transfer of the shopping center was completed on March 28, 2012. UB Orangeburg, LLC acquired the property from JLJ Management Company, Inc. at that time.

2 Scope of Work

All activities described in this report were completed in accordance with published NYSDOH guidance for indoor air and vapor intrusion evaluation of the site. This effort was undertaken to determine the necessary remedial action for the site as outlined in the May 2017 Soil Vapor/Indoor Air Matrices A through C. Field activities included a pre-sampling inspection, a chemical inventory, and collection of samples over an 8 hour period. The remaining sub-slab depressurization systems (Former Sparkle Cleaners and New China Restaurant) have been idled since August 17, 2015. Laboratory analysis and reporting followed these field activities.

3 Pre-Sampling Requirements

3.1 Pre-sampling Inspection and Preparation of Property

On December 18, 2018, GES conducted a pre-sampling inspection within the three tenant spaces to confirm the type of structure, floor layout and physical conditions of the building being studied and to identify conditions that may affect or interfere with the planned testing. GES also confirmed the presence and integrity of all sampling points. This information along with information on sources of potential indoor contamination are identified on the NYSDOH *Indoor Air Quality Questionnaire and Building Inventory* Forms, which are provided as **Appendix C**. In all three tenant spaces all windows were closed during the time of the sample. GES also utilized a photo-ionization detector (PID) to evaluate and determine any potential interference during the sampling event. Items that were evaluated during the building inventory included but were not limited to the use or storage of chemical products. Potential interferences are noted on the NYSDOH *Indoor Air Quality Questionnaire and Building Inventory* Forms. Of potential significance is the recent renovation of the former Sparkle Cleaner location. These renovations include: application of paint, new carpeting, and furnishings.

3.2 Product Inventories

Because some consumer products contain ingredients which can contribute to levels of VOCs in the air, a product inventory was completed prior to completion of the air sampling activities on December 18, 2018 to provide an accurate assessment of the potential contribution of noted products. Each room in the three tenant spaces was inspected and the products containing or potentially containing VOCs were listed on the *Products Inventory* Form (attached) along with PID readings obtained near such products. In addition, the known volatile ingredients were also recorded for each product. Several items were observed that did not register a PID reading. The product inventory is included on the attached NYSDOH *Indoor Air Quality Questionnaire and*

Building Inventory Forms (**Appendix C**).

4 Soil Vapor Intrusion Investigation

4.1 Sampling Collection

To characterize contaminant concentration trends and potential exposures, indoor air and sub-slab vapor samples were collected over an 8-hour period from the approximate locations shown on the attached **Figure 3** and as summarized below in text and table format:

- TZ Liquors (Former Deli Spot): Vapor extraction well VP-1 and sub-slab monitoring point SSD-MP-2
- Verizon store (Former Sparkle Cleaners): Vapor extraction wells VP-5 and VP-6
- New China House (Restaurant): Sub-slab monitoring point SSD-MP-5 and vapor extraction well VP-9
- Ambient Outdoor Sample: Sample taken outside the building to the east of the three tenant spaces

Sample Location	Sample Identification	Sample Description
Former Deli Spot	Deli VP-1	Sub-slab
Former Deli Spot	Deli VP-1 Ambient	Ambient
Former Deli Spot	Deli SSD-MP-2	Sub-slab
Former Deli Spot	Deli SSD-MP-2 Ambient	Ambient
Former Sparkle Cleaners	Sparkle VP-5	Sub-slab
Former Sparkle Cleaners	Sparkle VP-5 Ambient	Ambient
Former Sparkle Cleaners	Sparkle VP-6	Sub-slab
Former Sparkle Cleaners	Sparkle VP-6 Ambient	Ambient
New China House	China SSD-MP-5	Sub-slab
New China House	China SSD-MP-5 Ambient	Ambient
New China House	China VP-9	Sub-slab
New China House	China VP-9 Ambient	Ambient
Outside (East of Building)	Outside Ambient	Ambient

4.2 Quality Assurance/Quality Control

Care was taken during all aspects of the sample collection to ensure that high quality data was obtained. Sub-slab samples were collected from the sub-slab vapor points at the approximate locations shown on **Figure 3**. To verify the integrity of the sample vapor points, a tracer gas was

used to test the seal. On December 18, 2018, prior to sampling, the sub-slab vapor points were first purged of three times the volume of the sampling point using a GILIAN personal air sampling system and a flow module (vacuum pump) set at a maximum flow rate of 0.2 liters per minute. Helium tracer gas was then used to confirm an adequate seal was in place at all locations prior to collection of the soil gas samples.

4.3 Sub-Slab and Ambient Air Sample Collection

Once the helium tracer tests were complete and it was confirmed that each point was adequately sealed, sub-slab vapor and ambient air samples were collected using SUMMA canisters equipped with 8-hour regulators. A total of thirteen (13) air samples were collected on December 19, 2018. Upon completion of the 8-hour sampling period, each sample collection apparatus was stored according to the sample collection method protocol and delivered to SGS-Accutest Laboratories of Dayton, New Jersey under proper chain of custody for analysis of VOCs via VOCs via Environmental Protection Agency (EPA) Method TO-15.

4.4 Sample Analysis

Laboratory analytical results indicated detections of individual VOCs above laboratory detection limits and / or above regulatory guidelines in all of the sub-slab and indoor air samples collected. The analytical data is summarized on **Tables 1** and **2** and the laboratory analytical report is included as **Appendix D**. In addition, a data usability summary report (DUSR) for all samples was completed by RemVer of Colchester, Connecticut and is provided as **Appendix E**.

The following compounds exceeded regulatory guidelines in one or more samples, based on the upper fence indoor air values in Appendix C of the NYSDOH Soil Vapor Intrusion Guidance document or the 90th percentile indoor air values from the EPA 2001 Building Assessment and Survey Evaluation (BASE) Database:

- Acetone
- Chloroform
- Chloromethane
- cis-1,2-Dichloroethylene
- Ethanol
- Ethyl Acetate
- Tetrachloroethylene
- Trichloroethylene

Laboratory analytical results for the constituents of concern (COCs), carbon tetrachloride,11-DCE, c12-DCE, tetrachloroethene (PCE), 1,1,1-trichloroethane (1,1,1-TCA), methyl chloride, vinyl chloride, and trichloroethene (TCE), were then compared to the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, section 3.4.2, Indoor Air Matrices A, B, and C (attached as **Appendix F**). Based on the comparison, GES determined that two of the

three tenant spaces (Former Deli Spot and New China House) qualify for No Further Action with one tenant space (Former Sparkle Cleaners) requiring Monitoring in accordance with the Matrix A and Matrix B results. Refer to the Constituents of Concern Summary Comparison detailed on **Table 3**. A summary of the COCs and the matrix recommendation are detailed below:

- TCE
  - Sub-slab: Non-detect (Deli VP-1 and China SSD-MP-5) to 11 micrograms per cubic meter (ug/m3) (Sparkle VP-6)
  - Ambient: Non-detect (Deli VP-1, Deli SSD-MP-2, and China SSD-MP-5) to 0.3 ug/m3 (Sparkle VP-6)
  - Recommendation: Monitor (Matrix A)
- c12-DCE
  - Sub-slab: Non-detect (Deli VP-1, Deli SSD-MP-2, China SSD-MP-5, and China VP-9) to 14 ug/m3 (Sparkle VP-6)
  - Ambient: Non-detect in all samples
  - Recommendation: No Further Action (Matrix A)
- 11-DCE
  - Sub-slab: Non-detect in all samples
  - Ambient: Non-detect in all samples
  - Recommendation: No Further Action (Matrix A)
- Carbon tetrachloride
  - Sub-slab: Non-detect (Deli VP-1, Deli SSD-MP-2, China SSD-MP-5, China VP-9 and Sparkle VP-5) to 0.43 ug/m3 (Sparkle VP-6)
  - Ambient: Non-detect (China SSD-MP-5 and China VP-9) to 0.49 ug/m3 (Sparkle VP-6)
  - Recommendation: No Further Action (Matrix A)
- PCE
  - Sub-slab: Non-detect (Deli VP-1) to 138 ug/m3 (Sparkle VP-6)
  - Ambient: 0.68 ug/m3 (SSD-MP-2) to 5.4 ug/m3 (Sparkle VP-5)
  - Recommendation: Monitor (Matrix B)
- 1,1,1-TCA
  - Sub-slab: Non-detect in all samples
  - Ambient: Non-detect in all samples
  - Recommendation: No Further Action (Matrix B)

- Methylene Chloride
  - Sub-slab: Non-detect (Sparkle VP-6) to 1.7 ug/m3 (Deli SSD-MP-2)
  - Ambient: 0.59 ug/m3 (Sparkle VP-5) to 0.97 ug/m3 (China SSD-MP-5)
  - Recommendation: Monitor (Matrix B)
- Vinyl Chloride
  - Sub-slab: Non-detect in all samples
  - Ambient: Non-detect in all samples
  - Recommendation: No Further Action (Matrix C)

5 Conclusions/Recommendations

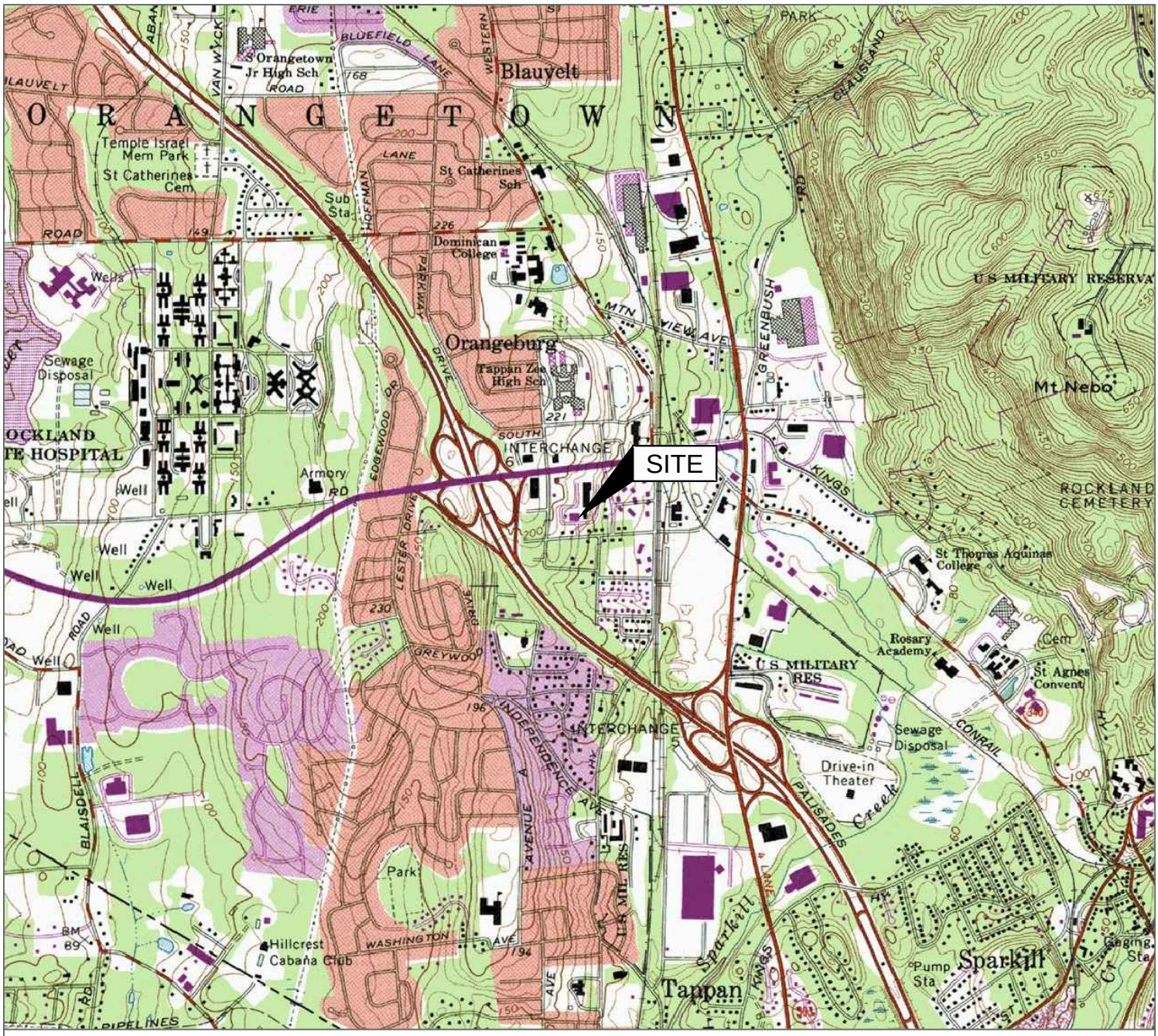
On December 18 and 19, 2018 a soil vapor intrusion investigation was completed at three of the tenant spaces (the New China House Restaurant, TZ Liquors which was formerly occupied by The Deli Spot, and a Verizon store which was formerly occupied by Sparkle Cleaners) located within Building #2 of the Orangetown Shopping Center. This investigation was conducted for the purpose of evaluating current soil vapor and ambient air quality and the potential for soil vapor intrusion in the tenant spaces located within Building #2.

Based on the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York, section 3.4.2, Indoor Air Matrices A, B, and C, a recommendation for No Further Action is supported by the testing results at two of the three of the tenant spaces (Former Deli Spot and New China House). However, a recommendation to Monitor the Former Sparkle Cleaners tenant space is supported by the testing results:

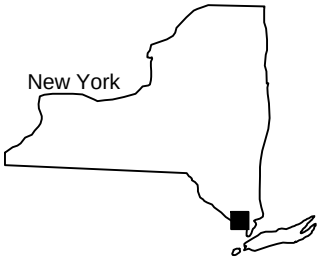
- Detections of TCE in the sub-slab sample (Sparkle VP-6) reported at 11 ug/m3 and in the ambient sample (Sparkle VP-6) reported at 0.30 ug/m3. A concentration in 0.2 ug/m3 or less in the ambient sample would have resulted in a No Further Action recommendation.
- Detections of PCE in the sub-slab sample (Sparkle VP-6) reported at 138 ug/m3 and in the ambient sample (Sparkle VP-6) reported at 4.3 ug/m3. A concentration of 3 ug/m3 or less in the ambient sample would have resulted in a No Further Action recommendation.

Based on the results of the December 2018 and prior sampling events completed in December 2017 (No Further Action Outcome- all locations), and March 2017 (No Further Action Outcome- all locations except China VP-9- Identify Source / Resample / Mitigate), GES recommends one additional sampling event targeting the former Sparkle Cleaner tenant space (sample locations Sparkle VP-5 and Sparkle VP-6). In addition, these and prior results continue to demonstrate that the SSD systems can remain off-line at this time.

Figures



Source:
USGS 7.5 Minute Series
Topographic Quadrangle, 1979
Nyack, New York
Contour Interval = 10'



Quadrangle Location

CA

KB

Site Location Map

UB Orangeburg, LLC
1-45 Orangetown Shopping Center
Orangeburg, New York

Drawn
W.G.S.
Designed

Approved
DK

Date
1-23-18
Figure
1

N

Scale In Feet
0 200

GES
Groundwater & Environmental Services, Inc.

M:\Graphics\1100-Patterson-LH\Misc\Urstadt Biddle Properties\Orangeburg\Orangeburg SLM.dwg, Template SLM, WShea

M:\Graphics\1100-Patterson-LHV\Misc\Urstadt Biddle Properties\Orangeburg\Orangeburg SM.dwg, Template B, WShea

ONE STORY
STUCCO STORE
FRONT
(BUILDING #2)

SOURCE:

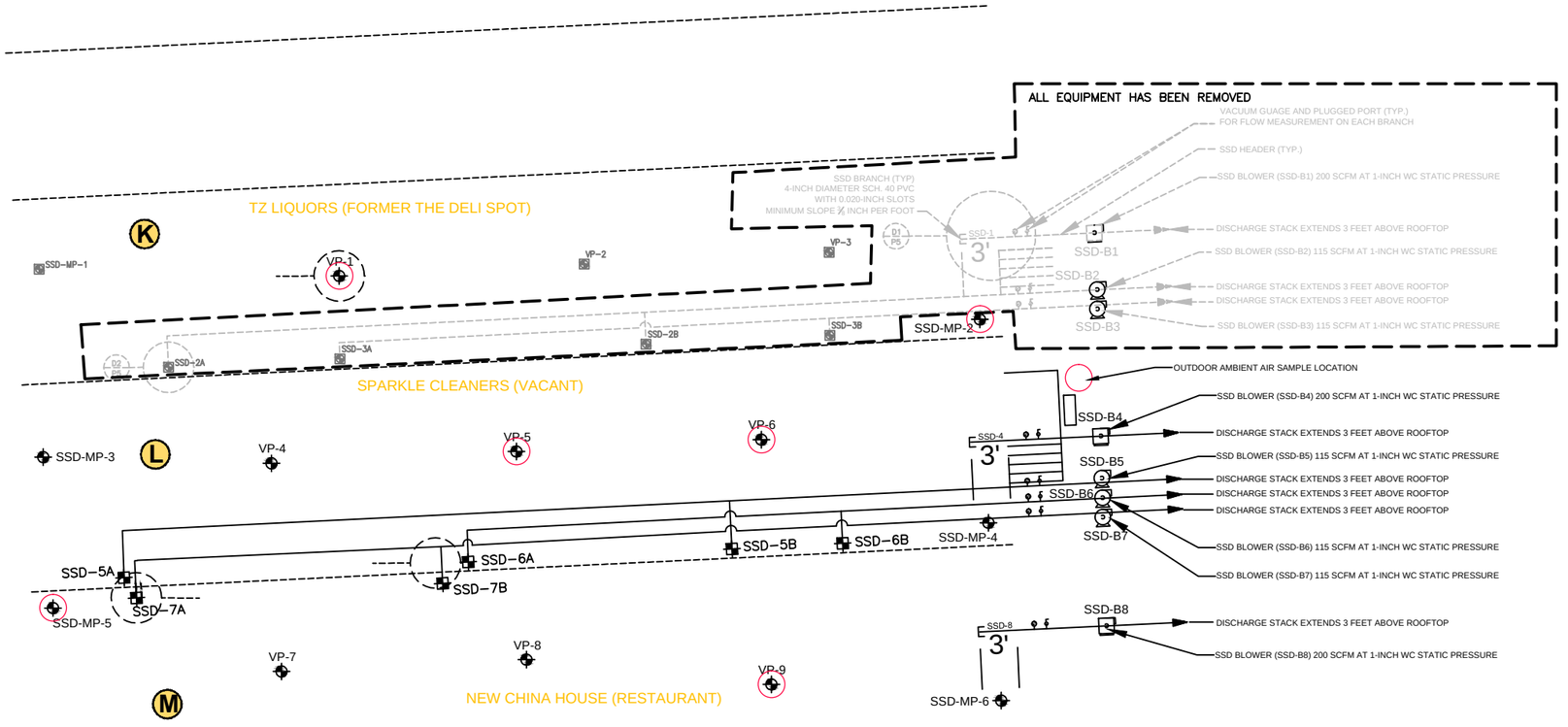
1. LAND LINK SURVEYORS P.C. SURVEY MAP DATED NOVEMBER 4, 2003.
2. SURVEY AMENDED TO SHOW NEW CERTIFICATION JUNE 1, 2005.
3. SURVEY AMENDED WELL LOCATION DECEMBER 19, 2007.
4. ADDITIONAL WELLS MW10, MW12, AND MW13 LOCATED DECEMBER 27, 2007.
5. FIGURE GENERATED FROM KLEINFELDER ENGINEERING FIGURE DATED JULY 15, 2011.

LEGEND

- SSD-MP-6 — SUB-SLAB MONITORING PORT
- SUB-SLAB VAPOR EXTRACTION WELL
- D1 / P5 — DETAIL NUMBER / PLATE NUMBER
- SSD BLOWER (115 SCFM)
- SSD BLOWER (200 SCFM)
- VACUUM GAUGE
- PLUGGED PORT
- ABANDONED/DESTROYED WELL
- Sub-slab and/or Ambient Air Sample Location

COMMERCIAL STORE ID TABLE (BUILDING #2)

- (K) FORMER THE DELI SPOT
- (L) FORMER SPARKLE CLEANERS
- (M) NEW CHINA HOUSE



NOTES:

1. THE EXTRACTION PIPING INSIDE THE BUILDING IS ROUTED ABOVE THE SUB-CEILING OR ALONG THE EXTERIOR WALL.
2. DISCHARGE STACKS EXTEND 3 FEET ABOVE THE ROOFTOP (TYP.).

Sub-Slab and Ambient Air Sampling Map
December 19, 2018

UB Orangeburg, LLC
1-45 Orangetown Shopping Center
Orangeburg, New York

Drawn: W.G.S.
Designed
Approved: DK
Date: 2-1-18
Figure: 3

Not to Scale

Groundwater & Environmental Services, Inc.

M:\Graphics\1100-Patterson-LHV\Misc\Urstadt Biddle Properties\Orangeburg\Engineering\Orangeburg (KLF-details).dwg, Template B, WShea

Tables

Table 1
GC/MS Volatiles (TO-15) - ug/m3

UB Orangeburg
1-45 Orangetown Shopping Center
Orangeburg, New York

Client Sample ID:	OUTSIDE	SSD-MP-2	SSD-MP-2	VP-1	VP-1	VP-6	VP-6	VP-5	VP-5	VP-9	VP-9	SSD-MP-5	SSD-MP-5	REGULATORY GUIDANCE		
Lab Sample ID:	JC80272-5	JC80272-9	JC80272-8	JC80272-7	JC80272-6	JC80272-2	JC80272-1	JC80272-4	JC80272-3	JC80272-13	JC80272-12	JC80272-11	JC80272-10	NYSDOH 2003 Soil Vapor Indoor 95th Percentile (1)	NYSDOH 2003 Soil Vapor Intrusion Air Guidance Value (2)	EPA 2001 BASE 90th Percentile (3)
Date Sampled:	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018			
Matrix:	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.			
Acetone	9	45.4	113	31.4	**128**	30.2	62.2	22	59.1	45.1	**201**	**37.5**	**235**	140	NS	98.9
1,3-Butadiene	ND (0.35)	ND (0.44)	0.77	ND (0.44)	0.86	ND (0.44)	ND (0.35)	ND (0.44)	ND (0.35)	ND (0.44)	ND (0.35)	ND (0.44)	ND (0.35)	NS	NS	<3.0
Benzene	0.99	1.2	0.99	ND (0.64)	1.4	1.1	0.86	0.89	0.86	1.1	1.0	0.93	1.0	29	NS	9.4
Bromodichloromethane	ND (0.54)	ND (0.67)	ND (0.54)	ND (0.67)	ND (0.54)	ND (0.67)	ND (0.54)	ND (0.67)	ND (0.54)	ND (0.67)	ND (0.54)	ND (0.67)	ND (0.54)	NS	NS	NS
Bromoform	ND (0.33)	ND (0.41) [a]	ND (0.33)	ND (0.41) [a]	ND (0.33)	ND (0.41)	ND (0.33)	ND (0.41) [a]	ND (0.33)	ND (0.41) [a]	ND (0.33) [a]	ND (0.41) [a]	ND (0.33) [a]	NS	NS	NS
Bromomethane	ND (0.62)	ND (0.78)	ND (0.62)	ND (0.78)	ND (0.62)	ND (0.78)	ND (0.62)	ND (0.78)	ND (0.62)	ND (0.78)	ND (0.62)	ND (0.78)	ND (0.62)	0.9	NS	<1.7
Bromoethene	ND (0.70)	ND (0.87)	ND (0.70)	ND (0.87)	ND (0.70)	ND (0.87)	ND (0.70)	ND (0.87)	ND (0.70)	ND (0.87)	ND (0.70)	ND (0.87)	ND (0.70)	NS	NS	NS
Benzyl Chloride	ND (0.82)	ND (1.0) [a]	ND (0.82)	ND (1.0) [a]	ND (0.82)	ND (1.0)	ND (0.82)	ND (1.0) [a]	ND (0.82)	ND (1.0) [a]	ND (0.82) [a]	ND (1.0) [a]	ND (0.82) [a]	NS	NS	<6.8
Carbon disulfide	ND (0.50)	ND (0.62)	ND (0.50)	ND (0.62)	ND (0.50)	ND (0.62)	ND (0.50)	0.93	ND (0.50)	ND (0.62)	ND (0.50)	ND (0.62)	ND (0.50)	NS	NS	4.2
Chlorobenzene	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	<0.25	NS	<0.9
Chloroethane	ND (0.42)	ND (0.53)	ND (0.42)	ND (0.53)	ND (0.42)	ND (0.53)	ND (0.42)	ND (0.53)	ND (0.42)	ND (0.53)	ND (0.42)	ND (0.53)	ND (0.42)	0.6	NS	<1.1
Chloroform	ND (0.78)	**7.8**	2.8	ND (0.98)	2.2	2.2	1.3	1.1	1.3	1.1	1.1	ND (0.98)	0.88	4.6	NS	1.1
Chloromethane	0.95	1.0	1.6	**7.4**	1.4	ND (0.41)	1.1	0.47	1.1	0.58	1.3	0.41	0.87	5.2	NS	3.7
3-Chloropropene	ND (0.50)	ND (0.63)	ND (0.50)	ND (0.63)	ND (0.50)	ND (0.63)	ND (0.50)	ND (0.63)	ND (0.50)	ND (0.63)	ND (0.50)	ND (0.63)	ND (0.50)	NS	NS	NS
2-Chlorotoluene	ND (0.83)	ND (1.0)	ND (0.83)	ND (1.0)	ND (0.83)	ND (1.0)	ND (0.83)	ND (1.0)	ND (0.83)	ND (1.0)	ND (0.83)	ND (1.0)	ND (0.83)	NS	NS	NS
Carbon tetrachloride	0.40	ND (0.25)	0.45	ND (0.25)	0.48	0.43	0.49	ND (0.25)	0.42	ND (0.25)	ND (0.20)	ND (0.25)	ND (0.20)	1.1	NS	<1.3
Cyclohexane	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	19	NS	NS
1,1-Dichloroethane	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	<0.25	NS	<0.7
1,1-Dichloroethylene	ND (0.13)	ND (0.16)	ND (0.13)	ND (0.16)	ND (0.13)	ND (0.16)	ND (0.13)	ND (0.16)	ND (0.13)	ND (0.16)	ND (0.13)	ND (0.16)	ND (0.13)	<0.25	NS	<1.4
1,2-Dibromoethane	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	<0.25	NS	<1.5
1,2-Dichloroethane	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	ND (0.81)	ND (0.65)	<0.25	NS	<0.9
1,2-Dichloropropane	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	ND (0.92)	ND (0.74)	<0.25	NS	<1.6
1,4-Dioxane	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	NS	NS	NS
Dichlorodifluoromethane	2.2	1.9	2.1	1.8	2.0	2.0	2.2	1.8	2.0	1.9	1.8	1.9	1.8	26	NS	16.5
Dibromochloromethane	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	NS	NS	NS
trans-1,2-Dichloroethylene	ND (0.63)	ND (0.79)	ND (0.63)	ND (0.79)	ND (0.63)	ND (0.79)	ND (0.63)	ND (0.79)	ND (0.63)	ND (0.79)	ND (0.63)	ND (0.79)	ND (0.63)	NS	NS	NS
cis-1,2-Dichloroethylene	ND (0.13)	ND (0.16)	ND (0.13)	ND (0.16)	ND (0.13)	**14**	ND (0.13)	**5.6**	ND (0.13)	ND (0.16)	ND (0.13)	ND (0.16)	ND (0.13)	1.2	NS	<1.9
cis-1,3-Dichloropropene	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	<0.25	NS	<2.3
m-Dichlorobenzene	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	1	NS	<2.4
o-Dichlorobenzene	ND (0.19)	ND (0.24)	ND (0.19)	ND (0.24)	ND (0.19)	ND (0.24)	ND (0.19)	ND (0.24)	ND (0.19)	ND (0.24)	ND (0.19)	ND (0.24)	ND (0.19)	0.9	NS	<1.2
p-Dichlorobenzene	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	ND (0.60)	ND (0.48)	2.6	NS	5.5
trans-1,3-Dichloropropene	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	ND (0.91)	ND (0.73)	<0.25	NS	<1.3
Ethanol	9.2	136 E	146 E	72.9	198 E	234 E	173 E	66.7	164 E	260 E	115	129 E	82.9	NS	NS	210
Ethylbenzene	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	13.0	NS	5.7
Ethyl Acetate	15	0.76	1.5	ND (0.72)	3.4	1.4	1.8	1.2	1.6	3.3	4.3	2.7	5.4	NS	NS	5.4
4-Ethyltoluene	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	NS	NS	NS
Freon 113	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	ND (0.77)	ND (0.61)	NS	NS	3.5
Freon 114	ND (0.56)	ND (0.70)	ND (0.56)	ND (0.70)	ND (0.56)	ND (0.70)	ND (0.56)	ND (0.70)	ND (0.56)	ND (0.70)	ND (0.56)	ND (0.70)	ND (0.56)	NS	NS	NS
Heptane	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	NS	NS	NS
Hexachlorobutadiene	ND (0.77)	ND (0.96)	ND (0.77)	ND (0.96)	ND (0.77)	ND (0.96)	ND (0.77)	ND (0.96)	ND (0.77)	ND (0.96)	ND (0.77)	ND (0.96)	ND (0.77)	11.0	NS	<6.8
Hexane	0.78	ND (0.70)	0.56	ND (0.70)	0.56	ND (0.70)	ND (0.56)	ND (0.70)	ND (0.56)	ND (0.70)	0.60	ND (0.70)	0.63	NS	NS	NS
2-Hexanone	ND (0.65)	ND (0.82)	ND (0.65)	ND (0.82)	ND (0.65)	ND (0.82)	ND (0.65)	ND (0.82)	ND (0.65)	ND (0.82)	ND (0.65)	ND (0.82)	ND (0.65)	NS	NS	NS
Isopropyl Alcohol	1.9	4.7	9.1	ND (0.49)	13	12	45.7	14	44.7	8.1	24	5.4	26.8	NS	NS	250
Methylene chloride	0.73	1.7	0.73	0.80	0.63	ND (0.69)	0.73	0.76	0.59	0.73	0.76	1.4	0.97	45.0	60	10
Methyl ethyl ketone	0.71	1.3	1.2	ND (0.59)	1.0	1.7	0.94	2.2	0.77	1.2	1.6	2.8	1.1	39.0	NS	NS

Table 1
GC/MS Volatiles (TO-15) - ug/m3

UB Orangeburg
1-45 Orangetown Shopping Center
Orangeburg, New York

Client Sample ID:	OUTSIDE	SSD-MP-2	SSD-MP-2	VP-1	VP-1	VP-6	VP-6	VP-5	VP-5	VP-9	VP-9	SSD-MP-5	SSD-MP-5	REGULATORY GUIDANCE		
Lab Sample ID:	JC80272-5	JC80272-9	JC80272-8	JC80272-7	JC80272-6	JC80272-1	JC80272-1	JC80272-4	JC80272-3	JC80272-13	JC56815-11	JC80272-11	JC80272-10	NYSDOH 2003 Soil Vapor Indoor 95th Percentile (1)	NYSDOH 2003 Soil Vapor Intrusion Air Guidance Value (2)	EPA 2001 BASE 90th Percentile (3)
Date Sampled:	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/19/2018	12/5/2017	12/19/2018	12/19/2018			
Matrix:	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.	Soil Vapor Comp.	Ambient Air Comp.			
Methyl Isobutyl Ketone	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	5.3	NS	NS
Methyl Tert Butyl Ether	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	ND (0.72)	ND (0.58)	71.0	NS	11.5
Methylmethacrylate	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	ND (0.82)	ND (0.66)	1.1	NS	NS
Propylene	ND (0.69)	3.6	5.7	2.2	ND (0.69)	ND (0.86)	ND (0.69)	ND (0.86)	ND (0.69)	ND (0.86)	ND (0.69)	ND (0.86)	2.1	NS	NS	NS
Styrene	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	ND (0.85)	ND (0.68)	2.3	NS	1.9
1,1,1-Trichloroethane	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	6.9	NS	20.6
1,1,2,2-Tetrachloroethane	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	ND (0.69)	ND (0.55)	<0.25	NS	NS
1,1,2-Trichloroethane	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	ND (0.55)	ND (0.44)	<0.25	NS	<1.5
1,2,4-Trichlorobenzene	ND (0.59)	ND (0.74)	ND (0.59)	ND (0.74)	ND (0.59)	ND (0.74)	ND (0.59)	ND (0.74)	ND (0.59)	ND (0.74)	ND (0.59)	ND (0.74)	ND (0.59)	6.3	NS	<6.8
1,2,4-Trimethylbenzene	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	18	NS	9.5
1,3,5-Trimethylbenzene	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	ND (0.98)	ND (0.79)	6.5	NS	NS
2,2,4-Trimethylpentane	ND (0.75)	ND (0.93)	ND (0.75)	ND (0.93)	ND (0.75)	ND (0.93)	ND (0.75)	ND (0.93)	ND (0.75)	ND (0.93)	ND (0.75)	ND (0.93)	ND (0.75)	NS	NS	NS
Tertiary Butyl Alcohol	ND (0.49)	ND (0.61)	ND (0.49)	ND (0.61)	ND (0.49)	ND (0.61)	ND (0.49)	0.64	ND (0.49)	ND (0.61)	ND (0.49)	ND (0.61)	ND (0.49)	NS	NS	NS
Tetrachloroethylene	0.40	2.2	0.68	ND (0.27)	0.81	***138***	**4.3**	***31***	**5.4**	**6.6**	3.0	**5.2**	2.8	4.1	30	15.9
Tetrahydrofuran	ND (0.47)	ND (0.59)	ND (0.47)	ND (0.59)	ND (0.47)	0.91	ND (0.47)	ND (0.59)	ND (0.47)	ND (0.59)	ND (0.47)	0.97	ND (0.47)	9.4	NS	NS
Toluene	1.5	1.5	ND (0.60)	ND (0.75)	2.1	1.4	1.3	1.4	1.2	1.4	1.7	1.2	1.8	110	NS	43
Trichloroethylene	ND (0.17)	0.26	ND (0.17)	ND (0.21)	ND (0.17)	***11***	0.30	***3.5***	0.29	0.24	0.26	ND (0.21)	ND (0.17)	0.8	2	4.2
Trichlorofluoromethane	1.2	1.1	1.1	0.67	1.3	1.3	1.5	1.0	1.3	1.1	1.0	1.1	1.1	30	NS	18.1
Vinyl chloride	ND (0.082)	ND (0.10)	ND (0.082)	ND (0.10)	ND (0.082)	ND (0.10)	ND (0.082)	ND (0.10)	ND (0.082)	ND (0.10)	ND (0.082)	ND (0.10)	ND (0.082)	<0.25	NS	<1.9
Vinyl Acetate	ND (0.56)	ND (0.70)	ND (0.56)	ND (0.70)	ND (0.56)	0.88	0.77	ND (0.70)	ND (0.56)	ND (0.70)	0.98	ND (0.70)	ND (0.56)	NS	NS	NS
m,p-Xylene	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	0.69	21.0	NS	22.2
o-Xylene	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	13.0	NS	7.9
Xylenes (total)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	ND (0.69)	ND (0.87)	0.69	NS	NS	NS

Note:
Results and Standards expressed in micrograms per cubic meter (µg/m3)
ND<# = Not detected, less than the laboratory reporting limit
NS = No Standard
E = The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
A = Result is from run #2.
BOLD = results exceed NYSDOH 2003 Soil Vapor Indoor Upper Fence (1) standard
ITALIC = results exceed NYSDOH 2003 Soil Vapor Intrusion Air Guidance Value (2) standard
"Gray" = results exceed EPA 2001 BASE 90th Percentile (3) standard
BOLD, *ITALIC,* or "Gray" indicators in the Regulatory Guidance columns indicate at least one historic exceedence was observed.
(1) Upper fence indoor air values from "Table C1. NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes', published in the NYSDOH Soil Vapor Intrusion Guidance Document, Appendix C" (October 2006)
(2) NYSDOH Air Guidline Values (AGVs) from "Table 3.1 Air guideline values derived by the NYSDOH" presented in the Final Guidance for evaluating Soil Vapor Intrusion in the State of New York, dated October 2006 ("NYSDOH Vapor Intrusion Guidance Document")
(3) 90th percentile indoor air values from "Table C-2. EPA 2001: Building Assessment and Survey Evaluation (BASE) Database, SUMMA canister method" published in the NYSDOH Soil Vapor Intrusion Guidance Document, Appendix C" (October 2006)

Table 2
Constituents of Concern Summary Comparison

UB Orangeburg
1-45 Orangetown Shopping Center
Orangeburg, New York

Samples			Chemical Compound								Action Required		
Sample Date	Sample Location	Sample Type	TCE	c12-DCE	11 - DCE	Carbon Tetrachloride	PCE	1,1,1-TCA	Methylene Chrloride	Vinyl Chloride	Matrix A (TCE, c12-DCE, 11-DCE, Carbon Tetrachloride)	Matrix B (PCE, 111-TCA, Methylene Chloride)	Matrix C (Vinyl Chloride)
12/19/2018	Deli VP-1	Ambient	ND(<0.17)	ND(<0.13)	ND(<0.13)	0.48	0.81	ND(<0.44)	0.63	ND(<0.082)	No Further Action	No Further Action	No Further Action
		Sub-slab	ND(<0.21)	ND(<0.16)	ND(<0.16)	ND(<0.25)	ND(<0.27)	ND(<0.55)	0.80	ND(<0.10)			
12/19/2018	Deli SSD-MP-2	Ambient	ND(<0.17)	ND(<0.13)	ND(<0.13)	0.45	0.68	ND(<0.44)	0.73	ND(<0.082)	No Further Action	No Further Action	No Further Action
		Sub-slab	0.26	ND(<0.16)	ND(<0.16)	ND(<0.25)	2.2	ND(<0.55)	1.7	ND(<0.10)			
12/19/2018	China SSD-MP-5	Ambient	ND(<0.17)	ND(<0.13)	ND(<0.13)	ND(<0.20)	2.8	ND(<0.44)	0.97	ND(<0.082)	No Further Action	No Further Action	No Further Action
		Sub-slab	ND(<0.21)	ND(<0.16)	ND(<0.16)	ND(<0.25)	5.2	ND(<0.55)	1.4	ND(<0.10)			
12/19/2018	China VP-9	Ambient	0.26	ND(<0.13)	ND(<0.13)	ND(<0.20)	3.0	ND(<0.44)	0.76	ND(<0.082)	No Further Action	No Further Action	No Further Action
		Sub-slab	0.24	ND(<0.16)	ND(<0.16)	ND(<0.25)	6.6	ND(<0.55)	0.73	ND(<0.10)			
12/19/2018	Sparkle VP-6	Ambient	**0.30**	ND(<0.13)	ND(<0.13)	0.49	**4.3**	ND(<0.44)	0.73	ND(<0.082)	Monitor	Monitor	No Further Action
		Sub-slab	11	14	ND(<0.16)	0.43	138	ND(<0.55)	ND(<0.69)	ND(<0.10)			
12/19/2018	Sparkle VP-5	Ambient	0.29	ND(<0.13)	ND(<0.13)	0.42	5.4	ND(<0.44)	0.59	ND(<0.082)	No Further Action	No Further Action	No Further Action
		Sub-slab	3.5	5.6	ND(<0.16)	ND(<0.25)	31	ND(<0.55)	0.76	ND(<0.10)			

Appendix A – List of Acronyms

Acronyms

AS	Air Sparge
Cat-Ox	Catalytic Oxidizer
COC	Chemical of Concern
CP-51	Soil quality standards as defined by the NYSDEC
SGC	*Commissioner Policy 15/Soil Cleanup Guidance, Amended October 21, 2010 (updated soil cleanup Levels to TAGM4046)*
DO	*Dissolved Oxygen*
DTW	Depth to Water
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
eV	Electron Volt
F&T	Fate & Transport
ft bgs	Feet Below Ground Surface
GES	Groundwater & Environmental Services, Inc.
GPR	Ground Penetrating Radar
HIT	High Intensity Targeted
HVE	High Vacuum Extraction
IP	Injection Point
IRM	Interim Remedial Measure
ISCO	In-situ Chemical Oxidation
lbs/hr	Pounds per hour
LNAPL	Groundwater & Environmental Services, Inc.
LPH	Liquid Phase Hydrocarbons
mg/L	Milligrams Per Liter
MNA	Monitored Natural Attenuation
MPE	Multi-Phase Extraction
MTBE	Methyl Tertiary Butyl Ether
mV	Millivolts
MW	Monitoring Well
ND	Not Detected
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
O&M	Operations and Maintenance
ORP	Oxidation-Reduction Potential
PID	Photo-Ionization Detector
ppm_v	Parts Per Million By Volume
P&T	Pump and Treat
RAP	Remedial Action Plan
RSCOs	Recommended Soil Cleanup Objectives as defined by TAGM 4046
SRS	Sensitive Receptor Survey
STARS	*Spills Technology and Remediation Series #1*, amended August 1992
STIP	Stipulation Agreement
SVE	Soil Vapor Extraction
SVOCs	Semi Volatile Organic Compounds
TAGM	*Technical and Administrative Guidance Memorandum (#4046): Determination of Soil Cleanup Objectives*, amended January 24, 1994
TOC	Top of Casing
µg/kg	Micrograms Per Kilogram
µg/L	Micrograms Per Liter
UST	Underground Storage Tank
USGS	United States Geological Survey
VGAC	Vapor-Phase Granulated Activated Carbon
VEGE	Vacuum Enhanced Groundwater Extraction
VOCs	Volatile Organic Compounds
WQS	Groundwater Quality Standards as defined by the June 1998 *Technical and Operation Guidance Series* 1.1.1, *Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* and the April 2000 *Addendum*

Appendix B – NYSDEC Correspondences

From: Herb Woike
To: Daniel Konchan
Subject: FW: UB - Orangeburg - SSDS Decommissioning Request
Date: Friday, February 10, 2017 2:06:33 PM
Attachments: image001.png
image002.png

Dan,

I don't think we received a letter just the 2 emails below outlining what DEC is requiring at Orangeburg. Please use this information to update the SVI Report. Thanks.

Herbert E. Woike, LEP, LSP
Senior Project Manager
Groundwater & Environmental Services, Inc.
425E Hayden Station Road
Windsor, CT 06095
(800) 220-6119 Ext. 3534
Cell - 860-466-0369
hwoike@gesonline.com

From: Verrigni, Jamie L (DEC) [mailto:jamie.verrigni@dec.ny.gov]
Sent: Wednesday, January 25, 2017 9:02 AM
To: Herb Woike
Cc: Monica Roth <mroth@ubproperties.com> (mroth@ubproperties.com); Omorogbe, Amen (DEC); Ockerby, Renata E (HEALTH); Schuck, Maureen E (HEALTH)
Subject: RE: UB - Orangeburg - SSDS Decommissioning Request

Herb,

This area will still need to be sampled over the next two years. New sampling ports would need to be installed once the existing ones are destroyed by the concrete fill.

Thanks,
Jamie

Jamie Verrigni, P.E.
Environmental Engineer, Division of Environmental Remediation

New York State Department of Environmental Conservation
625 Broadway, 11th Floor, Albany, NY 12233-7014
P: (518) 402-9662 | F: (518) 402-9679 | jamie.verrigni@dec.ny.gov

www.dec.ny.gov |

From: Herb Woike [mailto:HWoike@gesonline.com]

Sent: Friday, January 20, 2017 3:01 PM
To: Verrigni, Jamie L (DEC) <jamie.verrigni@dec.ny.gov>
Cc: Monica Roth <mroth@ubproperties.com> (mroth@ubproperties.com) <mroth@ubproperties.com>
Subject: RE: UB - Orangeburg - SSDS Decommissioning Request

Jamie,

Thanks for getting back to us so quickly. I do have a question that I hope you can clarify. It looks like you're requesting sampling at all three (3) of the tenant spaces. However, the new tenant at the former Deli Spot will be retrofitting the space and is requiring additional support for the floor which will require Urstadt Biddle to pump concrete fill below the floor. We expect this work will seal and/or destroy the existing sampling ports. Given the lack of CVOC concentrations under the former Deli Spot, will this area still need to be sampled over the next two years?

Let us know or if you'd prefer I can call and talk live. Thanks and have a good weekend.

Herb

Herbert E. Woike, LEP, LSP
Senior Project Manager
Groundwater & Environmental Services, Inc.
425E Hayden Station Road
Windsor, CT 06095
(800) 220-6119 Ext. 3534
Cell - 860-466-0369
hwoike@gesonline.com

From: Verrigni, Jamie L (DEC) [mailto:jamie.verrigni@dec.ny.gov]
Sent: Friday, January 20, 2017 2:23 PM
To: Herb Woike
Cc: Monica Roth <mroth@ubproperties.com> (mroth@ubproperties.com); srapaglia@ubproperties.com; msung@ubproperties.com; Ockerby, Renata E (HEALTH); Omorogbe, Amen (DEC); soniker@kamso.com; Schuck, Maureen E (HEALTH)
Subject: RE: UB - Orangeburg - SSDS Decommissioning Request

Herb,

The Department and NYSDOH have reviewed the request dated January 3, 2017 to decommission the sub-slab depressurization systems (SSDSs) at two of the three tenant spaces, which were formerly occupied by Sparkle Cleaners and the Deli Spot and are currently vacant, at the Orangetown Shopping Center Site. Based on the information provided, this request is hereby approved with the following contingency:

- Sub-slab and indoor air samples should be collected yearly at the three tenant spaces for at least two more heating seasons (i.e., 2017-2018 and 2018-2019). If potential impacts are not observed during the sampling events then

the sampling can be discontinued and no further action is needed. However, if any potential impacts are identified then monitoring must continue and/or the SSDSs must be re-installed at the former Sparkle Cleaners and former Deli Spot.

If you have any questions or comments please feel free to contact me.

Jamie

Jamie Verrigni, P.E.

Environmental Engineer, Division of Environmental Remediation

New York State Department of Environmental Conservation
625 Broadway, 11th Floor, Albany, NY 12233-7014
P: (518) 402-9662 | F: (518) 402-9679 | jamie.verrigni@dec.ny.gov

www.dec.ny.gov | | |

From: Herb Woike [mailto:HWoike@gesonline.com]
Sent: Tuesday, January 03, 2017 4:16 PM
To: Verrigni, Jamie L (DEC) <jamie.verrigni@dec.ny.gov>
Cc: Monica Roth <mroth@ubproperties.com> (mroth@ubproperties.com) <mroth@ubproperties.com>; srapaglia@ubproperties.com; msung@ubproperties.com; Ockerby, Renata E (HEALTH) <renata.ockerby@health.ny.gov>; Omorogbe, Amen (DEC) <amen.omorogbe@dec.ny.gov>; soniker@kamso.com
Subject: UB - Orangeburg - SSDS Decommissioning Request

Jamie,

Attached please find a letter requesting that the NYSDEC and NYSDOH allow Urstadt Biddle to decommission the SSDS components and monitoring points within the currently vacant spaces of building #2 at the Orangeburg Shopping Center, specifically the former Sparkle Cleaners and former Deli Spot. As requested in your letter dated March 4, 2016, additional sub-slab and indoor air sampling was conducted to evaluate potential soil vapor intrusion during the winter months.

Given current site data and the desire to allow a new tenant into the former Deli Spot space, we are hoping you could provide a timely review and response. If you have any questions please feel free to give me a call. Thanks for your assistance in the matter.

Herbert E. Woike, LEP, LSP
Senior Project Manager
Groundwater & Environmental Services, Inc.

425E Hayden Station Road
Windsor, CT 06095
(800) 220-6119 Ext. 3534
Cell - 860-466-0369
hwoike@gesonline.com

Appendix C – NYSDOH Indoor Air Quality Questionnaire and Building Inventory Form

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Dan Kerrhan Date/Time Prepared 12/19/18 1000

Preparer's Affiliation CES Phone No. 866-839-5195

Purpose of Investigation SVI

1. OCCUPANT:

Interviewed: (Y) / N

Last Name: Liquor Store / Verizon worker First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y (N)

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	(Commercial/Multi-use)
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? 3

If the property is commercial, type?

Business Type(s) China take out, Verizon, liquor store

Does it include residences (i.e., multi-use)? Y (N) If yes, how many? _____

Other characteristics:

Number of floors 1 Building age_____

Is the building insulated? Y / N How air tight? Tight / (Average) / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors N/A

Airflow near source Into ceiling units

Outdoor air infiltration Only if doors are open

Infiltration into air ducts up into returns

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	(concrete)	stone	brick
b. Basement type:	full	crawlspace	slab	other NA
c. Basement floor:	concrete	dirt	stone	other NA
d. Basement floor:	uncovered	covered	covered with NA	
e. Concrete floor:	unsealed	(sealed)	sealed with paint - liquid, carpet - vernon,	
f. Foundation walls:	poured	(block)	stone	other tile - chris
g. Foundation walls:	unsealed	(sealed)	sealed with	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / (N)			
k. Water in sump?	Y / (N) / not applicable			

Basement/Lowest level depth below grade: 0 (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

NA

---

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

(Hot air circulation)	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other

The primary type of fuel used is:

(Natural Gas)	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: electric

Boiler/furnace located in: Basement Outdoors Main Floor Other roof

Air conditioning: (Central Air) Window units Open Windows None

Are there air distribution ducts present? (Y) / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

AC is off

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	NA
1st Floor	During business hours
2nd Floor	NA
3rd Floor	
4th Floor	

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / (N)

b. Does the garage have a separate heating unit? Y / N / (NA)

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / (NA) Please specify_____

d. Has the building ever had a fire? Y / (N) When?_____

e. Is a kerosene or unvented gas space heater present? Y / (N) Where?_____

f. Is there a workshop or hobby/craft area? Y / (N) Where & Type? _____

g. Is there smoking in the building? Y / (N) How frequently? _____

h. Have cleaning products been used recently? (Y) / N When & Type? Bathroom/ daily

i. Have cosmetic products been used recently? Y / (N) When & Type? _____

j. Has painting/staining been done in the last 6 months? Y (N) Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / (N) Where & When? _____

l. Have air fresheners been used recently? (Y) / N When & Type? Bathrooms

m. Is there a kitchen exhaust fan? (Y) / N If yes, where vented? roof

n. Is there a bathroom exhaust fan? (Y) / N If yes, where vented? roof

o. Is there a clothes dryer? Y / (N) If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / (N) When & Type? _____

Are there odors in the building? Y (N)
If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / (N)
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service → liquor store

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: Not

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

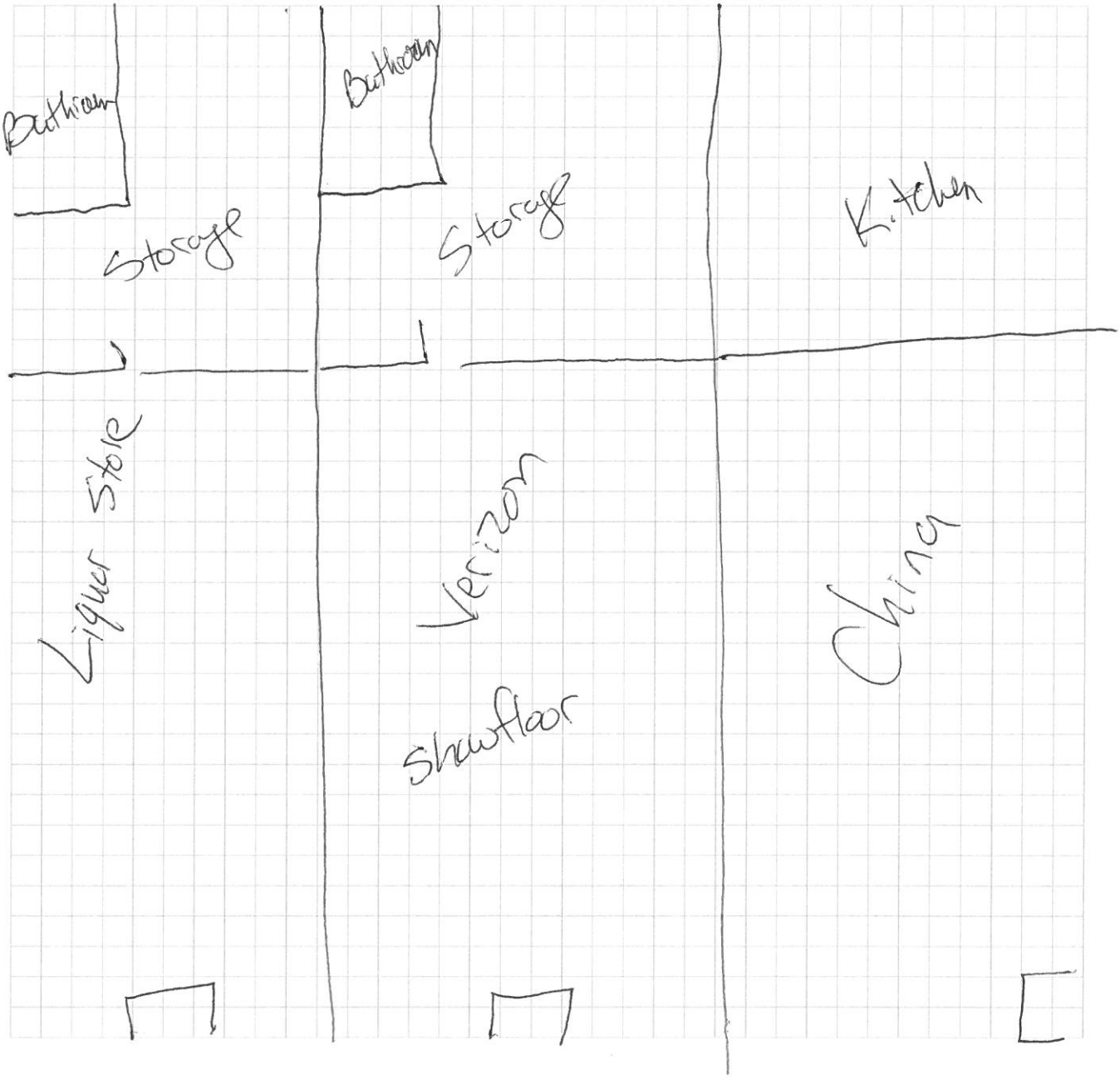
d. Relocation package provided and explained to residents? Y / N

Layout

~~12. OUTDOOR PLOT~~

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: PID Minirae 3000

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

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y / N
Verizon	~~Tide~~ Clorox		U/UO	~~Tide~~ ~~bleach~~ Clorox ing	0.0	Y
Verizon	febreeze		UO	febreeze ing	0.0	Y
Verizon	Windex		UO/U	Windex ing	0.0	Y

* 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.

Appendix D – Laboratory Analytical Results

Technical Report for

Groundwater & Environmental Services

Orangeburg UB, Orangeburg, NY

1102664-706-1111

SGS Job Number: JC80272

Sampling Date: 12/19/18

Report to:

Groundwater & Environmental Services
16 Mount Ebo Road South Suite 21
Brewster, NY 10509
MDeGloria@GESOnline.com

ATTN: Michael DeGloria

Total number of pages in report: 38

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Brian McGuire
General Manager

Client Service contact: Rocus Peters 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

Sample Summary

Groundwater & Environmental Services

Job No: JC80272

Orangeburg UB, Orangeburg, NY
Project No: 1102664-706-1111

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
JC80272-1	12/19/18	17:15	DK	12/21/18	AIR	Ambient Air Comp.	VP-6-A
JC80272-2	12/19/18	17:15	DK	12/21/18	AIR	Soil Vapor Comp.	VP-6-SV
JC80272-3	12/19/18	17:20	DK	12/21/18	AIR	Ambient Air Comp.	VP-5-A
JC80272-4	12/19/18	17:20	DK	12/21/18	AIR	Soil Vapor Comp.	VP-5-SV
JC80272-5	12/19/18	17:25	DK	12/21/18	AIR	Ambient Air Comp.	OUTDOOR
JC80272-6	12/19/18	18:10	DK	12/21/18	AIR	Ambient Air Comp.	VP-1-A
JC80272-7	12/19/18	18:11	DK	12/21/18	AIR	Soil Vapor Comp.	VP-1-SV
JC80272-8	12/19/18	18:12	DK	12/21/18	AIR	Ambient Air Comp.	SSD-MP-2-A
JC80272-9	12/19/18	18:13	DK	12/21/18	AIR	Soil Vapor Comp.	SSD-MP-2-SV
JC80272-10	12/19/18	18:00	DK	12/21/18	AIR	Ambient Air Comp.	SSD-MP-5-A
JC80272-11	12/19/18	18:05	DK	12/21/18	AIR	Soil Vapor Comp.	SSD-MP-5-SV
JC80272-12	12/19/18	18:08	DK	12/21/18	AIR	Ambient Air Comp.	VP-9-A
JC80272-13	12/19/18	18:09	DK	12/21/18	AIR	Soil Vapor Comp.	VP-9-SV

Report of Analysis

Client Sample ID:	VP-6-A		
Lab Sample ID:	JC80272-1	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A1085	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5W34459.D	1	01/03/19 04:33	GP	n/a	n/a	V5W1393
Run #2							

	Initial Volume
Run #1	500 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	26.2	0.16	ppbv		62.2	0.38	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	ppbv		ND	0.35	ug/m3
71-43-2	78.11	Benzene	0.27	0.16	ppbv		0.86	0.51	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	ppbv		ND	0.54	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	ppbv		ND	0.33	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	ppbv		ND	0.62	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	ppbv		ND	0.70	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	ppbv		ND	0.82	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	ppbv		ND	0.50	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	ppbv		ND	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	ppbv		ND	0.42	ug/m3
67-66-3	119.4	Chloroform	0.26	0.16	ppbv		1.3	0.78	ug/m3
74-87-3	50.49	Chloromethane	0.54	0.16	ppbv		1.1	0.33	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	ppbv		ND	0.50	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	ppbv		ND	0.83	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.078	0.032	ppbv		0.49	0.20	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	ppbv		ND	0.55	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	ppbv		ND	0.61	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	ppbv		ND	0.74	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	ppbv		ND	0.58	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.45	0.16	ppbv		2.2	0.79	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	ppbv		ND	0.68	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	ppbv		ND	0.63	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	ppbv		ND	0.19	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-6-A		
Lab Sample ID:	JC80272-1	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A1085	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	91.9	0.40	ppbv	E	173	0.75	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	ppbv		ND	0.69	ug/m3
141-78-6	88	Ethyl Acetate	0.51	0.16	ppbv		1.8	0.58	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	ppbv		ND	0.79	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	ppbv		ND	0.61	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	ppbv		ND	0.56	ug/m3
142-82-5	100.2	Heptane	ND	0.16	ppbv		ND	0.66	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	ppbv		ND	0.77	ug/m3
110-54-3	86.17	Hexane	ND	0.16	ppbv		ND	0.56	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	ppbv		ND	0.65	ug/m3
67-63-0	60.1	Isopropyl Alcohol	18.6	0.16	ppbv		45.7	0.39	ug/m3
75-09-2	84.94	Methylene chloride	0.21	0.16	ppbv		0.73	0.56	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.32	0.16	ppbv		0.94	0.47	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	ppbv		ND	0.66	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	ppbv		ND	0.58	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	ppbv		ND	0.66	ug/m3
115-07-1	42	Propylene	ND	0.40	ppbv		ND	0.69	ug/m3
100-42-5	104.1	Styrene	ND	0.16	ppbv		ND	0.68	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	ppbv		ND	0.55	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	ppbv		ND	0.59	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	ppbv		ND	0.75	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	ppbv		ND	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.63	0.032	ppbv		4.3	0.22	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	ppbv		ND	0.47	ug/m3
108-88-3	92.14	Toluene	0.34	0.16	ppbv		1.3	0.60	ug/m3
79-01-6	131.4	Trichloroethylene	0.055	0.032	ppbv		0.30	0.17	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.27	0.080	ppbv		1.5	0.45	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	ppbv		ND	0.082	ug/m3
108-05-4	86	Vinyl Acetate	0.22	0.16	ppbv		0.77	0.56	ug/m3
	106.2	m,p-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.16	ppbv		ND	0.69	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-6-SV		
Lab Sample ID:	JC80272-2	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A1193	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5W34473.D	1	01/03/19 20:21	GP	n/a	n/a	V5W1394
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	12.7	0.20	ppbv		30.2	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	0.33	0.20	ppbv		1.1	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.10	ppbv		ND	0.67	ug/m3
75-25-2	252.8	Bromoform	ND	0.040	ppbv		ND	0.41	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.20	ppbv		ND	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	0.46	0.20	ppbv		2.2	0.98	ug/m3
74-87-3	50.49	Chloromethane	ND	0.20	ppbv		ND	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.069	0.040	ppbv		0.43	0.25	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.10	ppbv		ND	0.77	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.41	0.20	ppbv		2.0	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.10	ppbv		ND	0.85	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	3.5	0.040	ppbv		14	0.16	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.040	ppbv		ND	0.24	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-6-SV		
Lab Sample ID:	JC80272-2	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A1193	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	124	0.50	ppbv	E	234	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.20	ppbv		ND	0.87	ug/m3
141-78-6	88	Ethyl Acetate	0.39	0.20	ppbv		1.4	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.10	ppbv		ND	0.77	ug/m3
76-14-2	170.9	Freon 114	ND	0.10	ppbv		ND	0.70	ug/m3
142-82-5	100.2	Heptane	ND	0.20	ppbv		ND	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.090	ppbv		ND	0.96	ug/m3
110-54-3	86.17	Hexane	ND	0.20	ppbv		ND	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	5.0	0.20	ppbv		12	0.49	ug/m3
75-09-2	84.94	Methylene chloride	ND	0.20	ppbv		ND	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.56	0.20	ppbv		1.7	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.20	ppbv		ND	0.82	ug/m3
115-07-1	42	Propylene	ND	0.50	ppbv		ND	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.10	ppbv		ND	0.69	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.10	ppbv		ND	0.74	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	ppbv		ND	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	ppbv		ND	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	20.3	0.040	ppbv		138	0.27	ug/m3
109-99-9	72.11	Tetrahydrofuran	0.31	0.20	ppbv		0.91	0.59	ug/m3
108-88-3	92.14	Toluene	0.37	0.20	ppbv		1.4	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	2.0	0.040	ppbv		11	0.21	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.23	0.10	ppbv		1.3	0.56	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.040	ppbv		ND	0.10	ug/m3
108-05-4	86	Vinyl Acetate	0.25	0.20	ppbv		0.88	0.70	ug/m3
	106.2	m,p-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
95-47-6	106.2	o-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.20	ppbv		ND	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-5-A		
Lab Sample ID:	JC80272-3	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M162	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5W34474.D	1	01/03/19 21:21	GP	n/a	n/a	V5W1394
Run #2							

	Initial Volume
Run #1	500 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	24.9	0.16	ppbv		59.1	0.38	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	ppbv		ND	0.35	ug/m3
71-43-2	78.11	Benzene	0.27	0.16	ppbv		0.86	0.51	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	ppbv		ND	0.54	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	ppbv		ND	0.33	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	ppbv		ND	0.62	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	ppbv		ND	0.70	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	ppbv		ND	0.82	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	ppbv		ND	0.50	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	ppbv		ND	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	ppbv		ND	0.42	ug/m3
67-66-3	119.4	Chloroform	0.26	0.16	ppbv		1.3	0.78	ug/m3
74-87-3	50.49	Chloromethane	0.54	0.16	ppbv		1.1	0.33	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	ppbv		ND	0.50	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	ppbv		ND	0.83	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.067	0.032	ppbv		0.42	0.20	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	ppbv		ND	0.55	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	ppbv		ND	0.61	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	ppbv		ND	0.74	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	ppbv		ND	0.58	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.41	0.16	ppbv		2.0	0.79	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	ppbv		ND	0.68	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	ppbv		ND	0.63	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	ppbv		ND	0.19	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-5-A		
Lab Sample ID:	JC80272-3	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M162	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	87.1	0.40	ppbv	E	164	0.75	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	ppbv		ND	0.69	ug/m3
141-78-6	88	Ethyl Acetate	0.44	0.16	ppbv		1.6	0.58	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	ppbv		ND	0.79	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	ppbv		ND	0.61	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	ppbv		ND	0.56	ug/m3
142-82-5	100.2	Heptane	ND	0.16	ppbv		ND	0.66	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	ppbv		ND	0.77	ug/m3
110-54-3	86.17	Hexane	ND	0.16	ppbv		ND	0.56	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	ppbv		ND	0.65	ug/m3
67-63-0	60.1	Isopropyl Alcohol	18.2	0.16	ppbv		44.7	0.39	ug/m3
75-09-2	84.94	Methylene chloride	0.17	0.16	ppbv		0.59	0.56	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.26	0.16	ppbv		0.77	0.47	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	ppbv		ND	0.66	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	ppbv		ND	0.58	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	ppbv		ND	0.66	ug/m3
115-07-1	42	Propylene	ND	0.40	ppbv		ND	0.69	ug/m3
100-42-5	104.1	Styrene	ND	0.16	ppbv		ND	0.68	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	ppbv		ND	0.55	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	ppbv		ND	0.59	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	ppbv		ND	0.75	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	ppbv		ND	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.80	0.032	ppbv		5.4	0.22	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	ppbv		ND	0.47	ug/m3
108-88-3	92.14	Toluene	0.33	0.16	ppbv		1.2	0.60	ug/m3
79-01-6	131.4	Trichloroethylene	0.054	0.032	ppbv		0.29	0.17	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.23	0.080	ppbv		1.3	0.45	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	ppbv		ND	0.082	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	ppbv		ND	0.56	ug/m3
	106.2	m,p-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.16	ppbv		ND	0.69	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	92%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-5-SV		
Lab Sample ID:	JC80272-4	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A326	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6W09922.D	1	01/03/19 18:28	PC	n/a	n/a	V6W388
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	9.1	0.20	ppbv		22	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	0.28	0.20	ppbv		0.89	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.10	ppbv		ND	0.67	ug/m3
75-25-2	252.8	Bromoform [a]	ND	0.040	ppbv		ND	0.41	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride [a]	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	0.30	0.20	ppbv		0.93	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	0.23	0.20	ppbv		1.1	0.98	ug/m3
74-87-3	50.49	Chloromethane	0.23	0.20	ppbv		0.47	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.040	ppbv		ND	0.25	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.10	ppbv		ND	0.77	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.37	0.20	ppbv		1.8	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.10	ppbv		ND	0.85	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	1.4	0.040	ppbv		5.6	0.16	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.040	ppbv		ND	0.24	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-5-SV		
Lab Sample ID:	JC80272-4	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A326	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	35.4	0.50	ppbv		66.7	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.20	ppbv		ND	0.87	ug/m3
141-78-6	88	Ethyl Acetate	0.32	0.20	ppbv		1.2	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.10	ppbv		ND	0.77	ug/m3
76-14-2	170.9	Freon 114	ND	0.10	ppbv		ND	0.70	ug/m3
142-82-5	100.2	Heptane	ND	0.20	ppbv		ND	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.090	ppbv		ND	0.96	ug/m3
110-54-3	86.17	Hexane	ND	0.20	ppbv		ND	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	5.5	0.20	ppbv		14	0.49	ug/m3
75-09-2	84.94	Methylene chloride	0.22	0.20	ppbv		0.76	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.76	0.20	ppbv		2.2	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.20	ppbv		ND	0.82	ug/m3
115-07-1	42	Propylene	ND	0.50	ppbv		ND	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.10	ppbv		ND	0.69	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.10	ppbv		ND	0.74	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	ppbv		ND	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	0.21	0.20	ppbv		0.64	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	4.5	0.040	ppbv		31	0.27	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.20	ppbv		ND	0.59	ug/m3
108-88-3	92.14	Toluene	0.36	0.20	ppbv		1.4	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	0.65	0.040	ppbv		3.5	0.21	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.18	0.10	ppbv		1.0	0.56	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.040	ppbv		ND	0.10	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.20	ppbv		ND	0.70	ug/m3
	106.2	m,p-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
95-47-6	106.2	o-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.20	ppbv		ND	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-5-SV		
Lab Sample ID:	JC80272-4	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A326	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	OUTDOOR		
Lab Sample ID:	JC80272-5	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A313	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5W34475.D	1	01/03/19 22:16	GP	n/a	n/a	V5W1394
Run #2							

	Initial Volume
Run #1	500 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	3.8	0.16	ppbv		9.0	0.38	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	ppbv		ND	0.35	ug/m3
71-43-2	78.11	Benzene	0.31	0.16	ppbv		0.99	0.51	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	ppbv		ND	0.54	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	ppbv		ND	0.33	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	ppbv		ND	0.62	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	ppbv		ND	0.70	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	ppbv		ND	0.82	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	ppbv		ND	0.50	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	ppbv		ND	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	ppbv		ND	0.42	ug/m3
67-66-3	119.4	Chloroform	ND	0.16	ppbv		ND	0.78	ug/m3
74-87-3	50.49	Chloromethane	0.46	0.16	ppbv		0.95	0.33	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	ppbv		ND	0.50	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	ppbv		ND	0.83	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.063	0.032	ppbv		0.40	0.20	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	ppbv		ND	0.55	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	ppbv		ND	0.61	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	ppbv		ND	0.74	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	ppbv		ND	0.58	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.45	0.16	ppbv		2.2	0.79	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	ppbv		ND	0.68	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	ppbv		ND	0.63	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	ppbv		ND	0.19	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	OUTDOOR		
Lab Sample ID:	JC80272-5	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A313	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	4.9	0.40	ppbv		9.2	0.75	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	ppbv		ND	0.69	ug/m3
141-78-6	88	Ethyl Acetate	4.1	0.16	ppbv		15	0.58	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	ppbv		ND	0.79	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	ppbv		ND	0.61	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	ppbv		ND	0.56	ug/m3
142-82-5	100.2	Heptane	ND	0.16	ppbv		ND	0.66	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	ppbv		ND	0.77	ug/m3
110-54-3	86.17	Hexane	0.22	0.16	ppbv		0.78	0.56	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	ppbv		ND	0.65	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.77	0.16	ppbv		1.9	0.39	ug/m3
75-09-2	84.94	Methylene chloride	0.21	0.16	ppbv		0.73	0.56	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.24	0.16	ppbv		0.71	0.47	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	ppbv		ND	0.66	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	ppbv		ND	0.58	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	ppbv		ND	0.66	ug/m3
115-07-1	42	Propylene	ND	0.40	ppbv		ND	0.69	ug/m3
100-42-5	104.1	Styrene	ND	0.16	ppbv		ND	0.68	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	ppbv		ND	0.55	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	ppbv		ND	0.59	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	ppbv		ND	0.75	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	ppbv		ND	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.059	0.032	ppbv		0.40	0.22	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	ppbv		ND	0.47	ug/m3
108-88-3	92.14	Toluene	0.41	0.16	ppbv		1.5	0.60	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.032	ppbv		ND	0.17	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.22	0.080	ppbv		1.2	0.45	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	ppbv		ND	0.082	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	ppbv		ND	0.56	ug/m3
	106.2	m,p-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.16	ppbv		ND	0.69	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	95%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-1-A		
Lab Sample ID:	JC80272-6	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A888	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5W34476.D	1	01/03/19 23:20	GP	n/a	n/a	V5W1394
Run #2	5W34484.D	1	01/04/19 17:55	GP	n/a	n/a	V5W1395

	Initial Volume
Run #1	500 ml
Run #2	200 ml

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	53.9 [a]	0.40	ppbv		128 [a]	0.95	ug/m3
106-99-0	54.09	1,3-Butadiene	0.39	0.16	ppbv		0.86	0.35	ug/m3
71-43-2	78.11	Benzene	0.44	0.16	ppbv		1.4	0.51	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	ppbv		ND	0.54	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	ppbv		ND	0.33	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	ppbv		ND	0.62	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	ppbv		ND	0.70	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	ppbv		ND	0.82	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	ppbv		ND	0.50	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	ppbv		ND	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	ppbv		ND	0.42	ug/m3
67-66-3	119.4	Chloroform	0.46	0.16	ppbv		2.2	0.78	ug/m3
74-87-3	50.49	Chloromethane	0.68	0.16	ppbv		1.4	0.33	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	ppbv		ND	0.50	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	ppbv		ND	0.83	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.077	0.032	ppbv		0.48	0.20	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	ppbv		ND	0.55	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	ppbv		ND	0.61	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	ppbv		ND	0.74	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	ppbv		ND	0.58	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.41	0.16	ppbv		2.0	0.79	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	ppbv		ND	0.68	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	ppbv		ND	0.63	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	ppbv		ND	0.19	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-1-A		
Lab Sample ID:	JC80272-6	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A888	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	105 [a]	1.0	ppbv	E	198 [a]	1.9	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	ppbv		ND	0.69	ug/m3
141-78-6	88	Ethyl Acetate	0.94	0.16	ppbv		3.4	0.58	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	ppbv		ND	0.79	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	ppbv		ND	0.61	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	ppbv		ND	0.56	ug/m3
142-82-5	100.2	Heptane	ND	0.16	ppbv		ND	0.66	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	ppbv		ND	0.77	ug/m3
110-54-3	86.17	Hexane	0.16	0.16	ppbv		0.56	0.56	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	ppbv		ND	0.65	ug/m3
67-63-0	60.1	Isopropyl Alcohol	5.2	0.16	ppbv		13	0.39	ug/m3
75-09-2	84.94	Methylene chloride	0.18	0.16	ppbv		0.63	0.56	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.34	0.16	ppbv		1.0	0.47	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	ppbv		ND	0.66	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	ppbv		ND	0.58	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	ppbv		ND	0.66	ug/m3
115-07-1	42	Propylene	ND	0.40	ppbv		ND	0.69	ug/m3
100-42-5	104.1	Styrene	ND	0.16	ppbv		ND	0.68	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	ppbv		ND	0.55	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	ppbv		ND	0.59	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	ppbv		ND	0.75	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	ppbv		ND	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.12	0.032	ppbv		0.81	0.22	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	ppbv		ND	0.47	ug/m3
108-88-3	92.14	Toluene	0.57	0.16	ppbv		2.1	0.60	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.032	ppbv		ND	0.17	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.24	0.080	ppbv		1.3	0.45	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	ppbv		ND	0.082	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	ppbv		ND	0.56	ug/m3
	106.2	m,p-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.16	ppbv		ND	0.69	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	93%	93%	65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-1-A		
Lab Sample ID:	JC80272-6	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A888	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-1-SV		
Lab Sample ID:	JC80272-7	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A448	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6W09924.D	1.52	01/03/19 20:20	PC	n/a	n/a	V6W388
Run #2							

	Initial Volume
Run #1	608 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	13.2	0.20	ppbv		31.4	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	ND	0.20	ppbv		ND	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.10	ppbv		ND	0.67	ug/m3
75-25-2	252.8	Bromoform [a]	ND	0.040	ppbv		ND	0.41	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride [a]	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.20	ppbv		ND	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	ND	0.20	ppbv		ND	0.98	ug/m3
74-87-3	50.49	Chloromethane	3.6	0.20	ppbv		7.4	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.040	ppbv		ND	0.25	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.10	ppbv		ND	0.77	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.37	0.20	ppbv		1.8	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.10	ppbv		ND	0.85	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.040	ppbv		ND	0.24	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-1-SV		
Lab Sample ID:	JC80272-7	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A448	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	38.7	0.50	ppbv		72.9	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.20	ppbv		ND	0.87	ug/m3
141-78-6	88	Ethyl Acetate	ND	0.20	ppbv		ND	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.10	ppbv		ND	0.77	ug/m3
76-14-2	170.9	Freon 114	ND	0.10	ppbv		ND	0.70	ug/m3
142-82-5	100.2	Heptane	ND	0.20	ppbv		ND	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.090	ppbv		ND	0.96	ug/m3
110-54-3	86.17	Hexane	ND	0.20	ppbv		ND	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	ND	0.20	ppbv		ND	0.49	ug/m3
75-09-2	84.94	Methylene chloride	0.23	0.20	ppbv		0.80	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	ND	0.20	ppbv		ND	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.20	ppbv		ND	0.82	ug/m3
115-07-1	42	Propylene	1.3	0.50	ppbv		2.2	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.10	ppbv		ND	0.69	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.10	ppbv		ND	0.74	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	ppbv		ND	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	ppbv		ND	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	ND	0.040	ppbv		ND	0.27	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.20	ppbv		ND	0.59	ug/m3
108-88-3	92.14	Toluene	ND	0.20	ppbv		ND	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	ppbv		ND	0.21	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.12	0.10	ppbv		0.67	0.56	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.040	ppbv		ND	0.10	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.20	ppbv		ND	0.70	ug/m3
	106.2	m,p-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
95-47-6	106.2	o-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.20	ppbv		ND	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	98%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-1-SV		
Lab Sample ID:	JC80272-7	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A448	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-2-A		
Lab Sample ID:	JC80272-8	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A275	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5W34477.D	1	01/04/19 00:22	GP	n/a	n/a	V5W1394
Run #2	5W34485.D	1	01/04/19 18:44	GP	n/a	n/a	V5W1395

	Initial Volume
Run #1	500 ml
Run #2	200 ml

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	47.5 [a]	0.40	ppbv		113 [a]	0.95	ug/m3
106-99-0	54.09	1,3-Butadiene	0.35	0.16	ppbv		0.77	0.35	ug/m3
71-43-2	78.11	Benzene	0.31	0.16	ppbv		0.99	0.51	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	ppbv		ND	0.54	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	ppbv		ND	0.33	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	ppbv		ND	0.62	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	ppbv		ND	0.70	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	ppbv		ND	0.82	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	ppbv		ND	0.50	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	ppbv		ND	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	ppbv		ND	0.42	ug/m3
67-66-3	119.4	Chloroform	0.57	0.16	ppbv		2.8	0.78	ug/m3
74-87-3	50.49	Chloromethane	0.76	0.16	ppbv		1.6	0.33	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	ppbv		ND	0.50	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	ppbv		ND	0.83	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.071	0.032	ppbv		0.45	0.20	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	ppbv		ND	0.55	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	ppbv		ND	0.61	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	ppbv		ND	0.74	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	ppbv		ND	0.58	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.42	0.16	ppbv		2.1	0.79	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	ppbv		ND	0.68	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	ppbv		ND	0.63	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	ppbv		ND	0.19	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-2-A		
Lab Sample ID:	JC80272-8	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A275	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	77.3	0.40	ppbv	E	146	0.75	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	ppbv		ND	0.69	ug/m3
141-78-6	88	Ethyl Acetate	0.43	0.16	ppbv		1.5	0.58	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	ppbv		ND	0.79	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	ppbv		ND	0.61	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	ppbv		ND	0.56	ug/m3
142-82-5	100.2	Heptane	ND	0.16	ppbv		ND	0.66	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	ppbv		ND	0.77	ug/m3
110-54-3	86.17	Hexane	0.16	0.16	ppbv		0.56	0.56	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	ppbv		ND	0.65	ug/m3
67-63-0	60.1	Isopropyl Alcohol	3.7	0.16	ppbv		9.1	0.39	ug/m3
75-09-2	84.94	Methylene chloride	0.21	0.16	ppbv		0.73	0.56	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.40	0.16	ppbv		1.2	0.47	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	ppbv		ND	0.66	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	ppbv		ND	0.58	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	ppbv		ND	0.66	ug/m3
115-07-1	42	Propylene	3.3	0.40	ppbv		5.7	0.69	ug/m3
100-42-5	104.1	Styrene	ND	0.16	ppbv		ND	0.68	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	ppbv		ND	0.55	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	ppbv		ND	0.59	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	ppbv		ND	0.75	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	ppbv		ND	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.10	0.032	ppbv		0.68	0.22	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	ppbv		ND	0.47	ug/m3
108-88-3	92.14	Toluene	ND	0.16	ppbv		ND	0.60	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.032	ppbv		ND	0.17	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.20	0.080	ppbv		1.1	0.45	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	ppbv		ND	0.082	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	ppbv		ND	0.56	ug/m3
	106.2	m,p-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.16	ppbv		ND	0.69	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	92%	94%	65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-2-A		
Lab Sample ID:	JC80272-8	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: A275	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-2-SV		
Lab Sample ID:	JC80272-9	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A850	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6W09925.D	1	01/03/19 21:12	PC	n/a	n/a	V6W388
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	19.1	0.20	ppbv		45.4	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	0.36	0.20	ppbv		1.2	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.10	ppbv		ND	0.67	ug/m3
75-25-2	252.8	Bromoform [a]	ND	0.040	ppbv		ND	0.41	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride [a]	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.20	ppbv		ND	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	1.6	0.20	ppbv		7.8	0.98	ug/m3
74-87-3	50.49	Chloromethane	0.50	0.20	ppbv		1.0	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.040	ppbv		ND	0.25	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.10	ppbv		ND	0.77	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.38	0.20	ppbv		1.9	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.10	ppbv		ND	0.85	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.040	ppbv		ND	0.24	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-2-SV		
Lab Sample ID:	JC80272-9	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A850	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	72.0	0.50	ppbv	E	136	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.20	ppbv		ND	0.87	ug/m3
141-78-6	88	Ethyl Acetate	0.21	0.20	ppbv		0.76	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.10	ppbv		ND	0.77	ug/m3
76-14-2	170.9	Freon 114	ND	0.10	ppbv		ND	0.70	ug/m3
142-82-5	100.2	Heptane	ND	0.20	ppbv		ND	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.090	ppbv		ND	0.96	ug/m3
110-54-3	86.17	Hexane	ND	0.20	ppbv		ND	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	1.9	0.20	ppbv		4.7	0.49	ug/m3
75-09-2	84.94	Methylene chloride	0.48	0.20	ppbv		1.7	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.43	0.20	ppbv		1.3	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.20	ppbv		ND	0.82	ug/m3
115-07-1	42	Propylene	2.1	0.50	ppbv		3.6	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.10	ppbv		ND	0.69	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.10	ppbv		ND	0.74	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	ppbv		ND	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	ppbv		ND	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.33	0.040	ppbv		2.2	0.27	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.20	ppbv		ND	0.59	ug/m3
108-88-3	92.14	Toluene	0.41	0.20	ppbv		1.5	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	0.049	0.040	ppbv		0.26	0.21	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.20	0.10	ppbv		1.1	0.56	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.040	ppbv		ND	0.10	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.20	ppbv		ND	0.70	ug/m3
	106.2	m,p-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
95-47-6	106.2	o-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.20	ppbv		ND	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-2-SV		
Lab Sample ID:	JC80272-9	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A850	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-5-A		
Lab Sample ID:	JC80272-10	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M215	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6W09926.D	1	01/03/19 22:09	PC	n/a	n/a	V6W388
Run #2	6W09946.D	1	01/04/19 22:32	PC	n/a	n/a	V6W389

	Initial Volume
Run #1	500 ml
Run #2	100 ml

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	98.8 [a]	0.80	ppbv		235 [a]	1.9	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	ppbv		ND	0.35	ug/m3
71-43-2	78.11	Benzene	0.32	0.16	ppbv		1.0	0.51	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	ppbv		ND	0.54	ug/m3
75-25-2	252.8	Bromoform [b]	ND	0.032	ppbv		ND	0.33	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	ppbv		ND	0.62	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	ppbv		ND	0.70	ug/m3
100-44-7	126	Benzyl Chloride [b]	ND	0.16	ppbv		ND	0.82	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	ppbv		ND	0.50	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	ppbv		ND	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	ppbv		ND	0.42	ug/m3
67-66-3	119.4	Chloroform	0.18	0.16	ppbv		0.88	0.78	ug/m3
74-87-3	50.49	Chloromethane	0.42	0.16	ppbv		0.87	0.33	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	ppbv		ND	0.50	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	ppbv		ND	0.83	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.032	ppbv		ND	0.20	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	ppbv		ND	0.55	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	ppbv		ND	0.61	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	ppbv		ND	0.74	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	ppbv		ND	0.58	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.37	0.16	ppbv		1.8	0.79	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	ppbv		ND	0.68	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	ppbv		ND	0.63	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	ppbv		ND	0.19	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SSD-MP-5-A
Lab Sample ID: JC80272-10
Matrix: AIR - Ambient Air Comp. Summa ID: M215
Method: TO-15
Project: Orangeburg UB, Orangeburg, NY

Date Sampled: 12/19/18
Date Received: 12/21/18
Percent Solids: n/a

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	44.0 [a]	2.0	ppbv		82.9 [a]	3.8	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	ppbv		ND	0.69	ug/m3
141-78-6	88	Ethyl Acetate	1.5	0.16	ppbv		5.4	0.58	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	ppbv		ND	0.79	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	ppbv		ND	0.61	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	ppbv		ND	0.56	ug/m3
142-82-5	100.2	Heptane	ND	0.16	ppbv		ND	0.66	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	ppbv		ND	0.77	ug/m3
110-54-3	86.17	Hexane	0.18	0.16	ppbv		0.63	0.56	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	ppbv		ND	0.65	ug/m3
67-63-0	60.1	Isopropyl Alcohol	10.9	0.16	ppbv		26.8	0.39	ug/m3
75-09-2	84.94	Methylene chloride	0.28	0.16	ppbv		0.97	0.56	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.38	0.16	ppbv		1.1	0.47	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	ppbv		ND	0.66	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	ppbv		ND	0.58	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	ppbv		ND	0.66	ug/m3
115-07-1	42	Propylene	1.2	0.40	ppbv		2.1	0.69	ug/m3
100-42-5	104.1	Styrene	ND	0.16	ppbv		ND	0.68	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	ppbv		ND	0.55	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	ppbv		ND	0.59	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	ppbv		ND	0.75	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	ppbv		ND	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.41	0.032	ppbv		2.8	0.22	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	ppbv		ND	0.47	ug/m3
108-88-3	92.14	Toluene	0.47	0.16	ppbv		1.8	0.60	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.032	ppbv		ND	0.17	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.19	0.080	ppbv		1.1	0.45	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	ppbv		ND	0.082	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	ppbv		ND	0.56	ug/m3
	106.2	m,p-Xylene	0.16	0.16	ppbv		0.69	0.69	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
1330-20-7	106.2	Xylenes (total)	0.16	0.16	ppbv		0.69	0.69	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%	101%	65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-5-A		
Lab Sample ID:	JC80272-10	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M215	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Result is from Run# 2
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-5-SV		
Lab Sample ID:	JC80272-11	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: M138	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6W09927.D	1	01/03/19 23:03	PC	n/a	n/a	V6W388
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	15.8	0.20	ppbv		37.5	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	0.29	0.20	ppbv		0.93	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.10	ppbv		ND	0.67	ug/m3
75-25-2	252.8	Bromoform [a]	ND	0.040	ppbv		ND	0.41	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride [a]	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.20	ppbv		ND	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	ND	0.20	ppbv		ND	0.98	ug/m3
74-87-3	50.49	Chloromethane	0.20	0.20	ppbv		0.41	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.040	ppbv		ND	0.25	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.10	ppbv		ND	0.77	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.39	0.20	ppbv		1.9	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.10	ppbv		ND	0.85	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.040	ppbv		ND	0.24	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-5-SV		
Lab Sample ID:	JC80272-11	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: M138	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	68.7	0.50	ppbv	E	129	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.20	ppbv		ND	0.87	ug/m3
141-78-6	88	Ethyl Acetate	0.76	0.20	ppbv		2.7	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.10	ppbv		ND	0.77	ug/m3
76-14-2	170.9	Freon 114	ND	0.10	ppbv		ND	0.70	ug/m3
142-82-5	100.2	Heptane	ND	0.20	ppbv		ND	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.090	ppbv		ND	0.96	ug/m3
110-54-3	86.17	Hexane	ND	0.20	ppbv		ND	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	2.2	0.20	ppbv		5.4	0.49	ug/m3
75-09-2	84.94	Methylene chloride	0.39	0.20	ppbv		1.4	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.95	0.20	ppbv		2.8	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.20	ppbv		ND	0.82	ug/m3
115-07-1	42	Propylene	ND	0.50	ppbv		ND	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.10	ppbv		ND	0.69	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.10	ppbv		ND	0.74	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	ppbv		ND	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	ppbv		ND	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.77	0.040	ppbv		5.2	0.27	ug/m3
109-99-9	72.11	Tetrahydrofuran	0.33	0.20	ppbv		0.97	0.59	ug/m3
108-88-3	92.14	Toluene	0.32	0.20	ppbv		1.2	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.040	ppbv		ND	0.21	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.20	0.10	ppbv		1.1	0.56	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.040	ppbv		ND	0.10	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.20	ppbv		ND	0.70	ug/m3
	106.2	m,p-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
95-47-6	106.2	o-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.20	ppbv		ND	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	99%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SSD-MP-5-SV		
Lab Sample ID:	JC80272-11	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: M138	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-9-A		
Lab Sample ID:	JC80272-12	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M107	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6W09928.D	1	01/04/19 00:01	PC	n/a	n/a	V6W388
Run #2	6W09947.D	1	01/04/19 23:20	PC	n/a	n/a	V6W389

	Initial Volume
Run #1	500 ml
Run #2	100 ml

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	84.5 [a]	0.80	ppbv		201 [a]	1.9	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	ppbv		ND	0.35	ug/m3
71-43-2	78.11	Benzene	0.32	0.16	ppbv		1.0	0.51	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	ppbv		ND	0.54	ug/m3
75-25-2	252.8	Bromoform [b]	ND	0.032	ppbv		ND	0.33	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	ppbv		ND	0.62	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	ppbv		ND	0.70	ug/m3
100-44-7	126	Benzyl Chloride [b]	ND	0.16	ppbv		ND	0.82	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	ppbv		ND	0.50	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	ppbv		ND	0.74	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	ppbv		ND	0.42	ug/m3
67-66-3	119.4	Chloroform	0.23	0.16	ppbv		1.1	0.78	ug/m3
74-87-3	50.49	Chloromethane	0.61	0.16	ppbv		1.3	0.33	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	ppbv		ND	0.50	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	ppbv		ND	0.83	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.032	ppbv		ND	0.20	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	ppbv		ND	0.55	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	ppbv		ND	0.61	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	ppbv		ND	0.65	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	ppbv		ND	0.74	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	ppbv		ND	0.58	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.37	0.16	ppbv		1.8	0.79	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	ppbv		ND	0.68	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	ppbv		ND	0.63	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.032	ppbv		ND	0.13	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	ppbv		ND	0.19	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	ppbv		ND	0.48	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	ppbv		ND	0.73	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-9-A		
Lab Sample ID:	JC80272-12	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M107	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	61.2 [a]	2.0	ppbv		115 [a]	3.8	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	ppbv		ND	0.69	ug/m3
141-78-6	88	Ethyl Acetate	1.2	0.16	ppbv		4.3	0.58	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	ppbv		ND	0.79	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	ppbv		ND	0.61	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	ppbv		ND	0.56	ug/m3
142-82-5	100.2	Heptane	ND	0.16	ppbv		ND	0.66	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	ppbv		ND	0.77	ug/m3
110-54-3	86.17	Hexane	0.17	0.16	ppbv		0.60	0.56	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	ppbv		ND	0.65	ug/m3
67-63-0	60.1	Isopropyl Alcohol	9.6	0.16	ppbv		24	0.39	ug/m3
75-09-2	84.94	Methylene chloride	0.22	0.16	ppbv		0.76	0.56	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.54	0.16	ppbv		1.6	0.47	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	ppbv		ND	0.66	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	ppbv		ND	0.58	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	ppbv		ND	0.66	ug/m3
115-07-1	42	Propylene	ND	0.40	ppbv		ND	0.69	ug/m3
100-42-5	104.1	Styrene	ND	0.16	ppbv		ND	0.68	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	ppbv		ND	0.55	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	ppbv		ND	0.44	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	ppbv		ND	0.59	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	ppbv		ND	0.79	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	ppbv		ND	0.75	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	ppbv		ND	0.49	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.44	0.032	ppbv		3.0	0.22	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	ppbv		ND	0.47	ug/m3
108-88-3	92.14	Toluene	0.45	0.16	ppbv		1.7	0.60	ug/m3
79-01-6	131.4	Trichloroethylene	0.048	0.032	ppbv		0.26	0.17	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.18	0.080	ppbv		1.0	0.45	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	ppbv		ND	0.082	ug/m3
108-05-4	86	Vinyl Acetate	0.28	0.16	ppbv		0.98	0.56	ug/m3
	106.2	m,p-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	ppbv		ND	0.69	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.16	ppbv		ND	0.69	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	100%	98%	65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-9-A		
Lab Sample ID:	JC80272-12	**Date Sampled:**	12/19/18
Matrix:	AIR - Ambient Air Comp. Summa ID: M107	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Result is from Run# 2
(b) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-9-SV		
Lab Sample ID:	JC80272-13	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A751	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	6W09929.D	1.48	01/04/19 00:58	PC	n/a	n/a	V6W388
Run #2							

	Initial Volume
Run #1	592 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	19.0	0.20	ppbv		45.1	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	0.35	0.20	ppbv		1.1	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.10	ppbv		ND	0.67	ug/m3
75-25-2	252.8	Bromoform [a]	ND	0.040	ppbv		ND	0.41	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride [a]	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.20	ppbv		ND	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	0.22	0.20	ppbv		1.1	0.98	ug/m3
74-87-3	50.49	Chloromethane	0.28	0.20	ppbv		0.58	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.040	ppbv		ND	0.25	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.10	ppbv		ND	0.77	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.39	0.20	ppbv		1.9	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.10	ppbv		ND	0.85	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.040	ppbv		ND	0.16	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.040	ppbv		ND	0.24	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.10	ppbv		ND	0.60	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-9-SV		
Lab Sample ID:	JC80272-13	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A751	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	138	0.50	ppbv	E	260	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.20	ppbv		ND	0.87	ug/m3
141-78-6	88	Ethyl Acetate	0.91	0.20	ppbv		3.3	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.10	ppbv		ND	0.77	ug/m3
76-14-2	170.9	Freon 114	ND	0.10	ppbv		ND	0.70	ug/m3
142-82-5	100.2	Heptane	ND	0.20	ppbv		ND	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.090	ppbv		ND	0.96	ug/m3
110-54-3	86.17	Hexane	ND	0.20	ppbv		ND	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	3.3	0.20	ppbv		8.1	0.49	ug/m3
75-09-2	84.94	Methylene chloride	0.21	0.20	ppbv		0.73	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.42	0.20	ppbv		1.2	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.20	ppbv		ND	0.82	ug/m3
115-07-1	42	Propylene	ND	0.50	ppbv		ND	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.10	ppbv		ND	0.69	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.10	ppbv		ND	0.55	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.10	ppbv		ND	0.74	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	ppbv		ND	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	ppbv		ND	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.97	0.040	ppbv		6.6	0.27	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.20	ppbv		ND	0.59	ug/m3
108-88-3	92.14	Toluene	0.36	0.20	ppbv		1.4	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	0.044	0.040	ppbv		0.24	0.21	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.19	0.10	ppbv		1.1	0.56	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.040	ppbv		ND	0.10	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.20	ppbv		ND	0.70	ug/m3
	106.2	m,p-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
95-47-6	106.2	o-Xylene	ND	0.20	ppbv		ND	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	0.20	ppbv		ND	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	101%		65-128%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VP-9-SV		
Lab Sample ID:	JC80272-13	**Date Sampled:**	12/19/18
Matrix:	AIR - Soil Vapor Comp. Summa ID: A751	**Date Received:**	12/21/18
Method:	TO-15	**Percent Solids:**	n/a
Project:	Orangeburg UB, Orangeburg, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Associated CCV outside of control limits high, sample was ND.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Appendix E – Data Usability Summary Report

RemVer

Quality Assessment
Data Usability Summary Report

			RemVer Project #2018GE01 Client Project # 1102664-02-210
Site:	Orangetown Shopping Center	**Site #:**	C344066
Client:	GES, Inc.	**Site Owner:**	UB Orangeburg, LLC (UBO)
Sample Delivery Group (SDG)	JC80272		
Sample Matrix:	☐ Drinking water ☐ Groundwater ☐ Surface water ☐ Soil ☐ Sediment ☒ Air ☐ Biota (tissue, type: _____) ☐ Other: _____		

Introduction

RemVer performed a data quality assessment (DQA) on analytical data reported in Sample Delivery Group (SDG) #JC80272 for air samples. The DQA evaluated the performance of the analytical procedures and the quality of the resulting data. RemVer followed the requirements of the New York State Department of Environmental Conservation (NYSDEC) Data Usability Summary Report (DUSR) guidelines for an Analytical Services Protocol (ASP) Category B Data Deliverable. This report includes a narrative discussion of sample results qualified during the DQA. Table 1 describes qualification flags applied to the data either by SGS or during the DQA process.

Reported Methods

- ☐ Method 1311 TCLP
- ☐ Method 1312 SPLP
- ☐ Method 6010A, B & C / 6020 Trace Metals
- ☐ Method 7000 Metals
- ☐ Method 7196 Hexavalent Chromium (other:_____)
- ☐ Method 7470A or 7471 Mercury
- ☐ Method 8021 Volatile Organic Compounds (VOCs) GC
- ☐ Method 8081B Pesticides
- ☐ Method 8082 PCBs
- ☐ Method 8151 Chlorinated Herbicides
- ☐ Method 8260C VOCs GC/MS
- ☐ Method 8270D Semi-VOCs (sVOCs) GC/MS
- ☐ Method 9010/9012/9014 Cyanides (_____)
- ☐ Method TO-13A PAHs (air)
- ☒ Method TO-14A / -15 VOCs (air, summa) (_____)
- ☐ Method TO-17 VOCs (air, sorbent)
- ☐ Extractable Petroleum Hydrocarbons (EPH)
- ☐ Volatile Petroleum Hydrocarbons (VPH) Method
- ☐ EPH-total
- ☐ Other Methods:
  - Method 9060A Total Organic Carbon
  - Method MCAWW 300.0 Anions (IC)
  - Method RSK-175 Dissolved Gases
  - Method SM4500 Nitrite
  - Method 353 Nitrite & Nitrate

Quality Control Requirements Summary

- ☒ Duplicate (internal)
- ☐ Matrix Spike [MS] / Matrix Spike Duplicate [MSD]
- ☐ Trip Blank(s)
- ☐ Equipment, Method, &/or Rinsate Blank
- ☒ Other Field QC: Field notes regarding sampling
- ☐ Special QAPP Requirements: _____

Intended Use of Data under Review

The client collected air samples during a two-consecutive day collection event beginning December 19, 2018 at the referenced New York State Brownfields site. The site is under a Site Management Plan (SMP) that requires several kinds of monitoring. The sampling event provided ambient and sub-slab/soil vapor monitoring (see §3.3 of Kleinfelder, 2011).

Significant Data Usability Issues Identified for SDG: #JC80272

Of the thirteen samples (six soil gas, six indoor ambient air, and one outdoor ambient) discussed herein, RemVer rejected no results, but flagged certain analytes as estimated due to the quality of the analysis and the results are acceptable for use. Some analytes had quality issues associated with results falling beyond the calibrated range requiring qualifier flagging. Please refer to the Lab Results and Data Usability Narrative section for further detail.

Detailed Quality Review

Field Notes Review

	Y	N	NA	COMMENTS
Sampling notes	☒	☐	☐	Field Notes & COC sheets
Field meteorological data	☐	☐	☒	No review required under QAPP
Associated sampling location and plan included	☒	☐	☐	See RAP/QAPP
Associated drilling logs available, reviewed	☐	☐	☒	No review required under QAPP
Identification of QC samples in notes	☒	☐	☐	
Sampling instrument decontamination records	☐	☐	☒	No review required under QAPP
Sampling instrument calibration logs	☐	☐	☒	No review required under QAPP
Chain of custody included	☒	☐	☐	With analytical report
Notes include communication logs	☐	☒	☐	
Any corrective action (CA) reports	☐	☒	☐	If so, CA documentation of results required.
Any deviation from methods noted? If so, explain	☐	☒	☐	None
Any electronic data deliverables	☒	☐	☐	See Attachment #4
Sampling Report (by Field Team Leader)	☒	☐	☐	

Lab Report Contents (SGS SDG Report: #JC80272)

☒ SDG Narrative
☒ Contract Lab Sample Information Sheets
☒ Data Package Summary Forms
☒ Chain-of-Custody (COC) Forms
☒ Test Results (no tentatively identified compounds [TICs])
☒ Calibration standards
☒ Surrogate recoveries
☒ Blank results
☒ Spike recoveries
☒ Duplicate results
☒ Confirmation (lab check/QC) samples
☒ Internal standard area & retention time summary
☒ Chromatograms
☒ Raw data files
☒ Other specific information

The SDG reported on the following samples:

Sample ID	SDG #JC80272–Sample #	Matrix	Sampled	Received
VP–6-A	#-1	IA	12/19/18	12/21/18
VP–6-SV	#-2	SV	12/19/18	12/21/18
VP–5-A	#-3	IA	12/19/18	12/21/18
VP–5-SV	#-4	SV	12/19/18	12/21/18
Outdoor Ambient	#-5	OA	12/19/18	12/21/18
VP–1-A	#-6	IA	12/19/18	12/21/18
VP–1-SV	#-7	SV	12/19/18	12/21/18
SSD-MP-2-A	#-8	IA	12/19/18	12/21/18
SSD-MP-2-SV	#-9	SV	12/19/18	12/21/18
SSD-MP-5-A	#-10	IA	12/19/18	12/21/18
SSD-MP-5-SV	#-11	SV	12/19/18	12/21/18
VP–9-A	#-12	IA	12/19/18	12/21/18
VP–9-SV	#-13	SV	12/19/18	12/21/18

NOTES: SV = Soil Gas (Vapor) IA = Indoor Ambient Air OA = Outdoor Ambient Air

All samples associated with SDG #JC80272 were analyzed using USEPA Method TO-15.

Is the data package complete as defined under the requirements for the NYSDEC ASP Category B?		
Laboratory Report	**Complete (Y/N)**	**Comments**
JC80272	Y	Yes

Sample Preservation Requirements & Holding Times Met?			
Laboratory Report	**Hold Times (Y/N)**	**Preservation (Y/N)**	**Exception Comment**
JC80272	Y	Y	None

Do all QC data fall within the protocol required limits and specifications? *(1) blanks, (2) instrument tunings, (3) calibration standards, (4) calibration verifications, (5) surrogate recoveries, (6) spike recoveries, (7) replicate analyses, (8) laboratory controls, and (9) sample data*									
SDG	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
JC80272	☐	☐	☒	☒	☐	☐	☐	☐	☒
The narrative section, below, discusses these deficiencies in detail, see Attachment 2 as well.									

Have all of the data been generated using established and agreed upon analytical protocols?		
Laboratory Report	**Protocols (Y/N)**	**Exception Comment**
JC80272	Y	None

Do the raw data confirm the results provided in the data summary sheets and quality control verification forms?		
Laboratory Report	**Confirmation (Y/N)**	**Exception Comment**
JC80272	Y	None

Have the correct data qualifiers been used and are they consistent with the most current guidance?		
Laboratory Report	**Qualifiers (Y/N)**	**Comment**
JC80272	Y	The laboratory generally applied appropriate qualifiers. To prepare the DUSR, it was necessary to apply additional qualifications or adjust qualifications to certain results as shown in Attachments 3 and 4.

Have any quality control (QC) exceedances been specifically noted in this DUSR and the corresponding QC summary sheets from the data packages referenced?		
Laboratory Report	**QC Exceedances Documented (Y/N)**	**Comment**
JC80272	Y	Several data qualifications were applied as described below

Data Quality and Usability Narrative

Field Notes Inspection

The air samples came from a collection event over two-consecutive days, beginning December 19, 2018. GES provided air sampling field notes related to the liquor store with the COC.

Laboratory Report Inspection

The laboratory produced SDG report #JC80272. The original report was re-issued on 3 Jan 2018. The final report contained the required data and information.

Chain of Custody (COC) Evaluation

GES produced one COC for the referenced fieldwork (#JC80272, single, two-page COC). The laboratory noted no quality issues.

Sample Preservation & Holding Time Evaluation

Laboratory received the canister samples on 12/19/2018 @ 13:00 (designated as SDG-JC80272) in proper condition. Holding times and preservation requirements were met. There were no issues noted with the canisters or the flow controllers.

Calibration Standards and Continuing Calibration Verification (CCV)

Calibration standard (external or internal) were acceptable in both SDGs for all analytes, with the following exceptions:

- The laboratory flagged Batch V5W1393 Sample #-01 Ethanol result as "E," indicating it is estimated and exceeding calibration range. RemVer flagged these results with J+.
- The laboratory flagged Batch V5W1394 Samples #-02, #-03, and #-08 Ethanol results as "E," indicating it is estimated and exceeding calibration range. RemVer flagged these results with J+.
- The laboratory flagged Batch V5W1395 Sample #-06 Ethanol results as "E," indicating it is estimated and exceeding calibration range. RemVer flagged these results with J+.
- The laboratory flagged Batch V6W388 Samples #-09, #-11, and #-13 Ethanol results as "E," indicating it is estimated and exceeding calibration range. RemVer flagged these results with J+.

CCV were acceptable in both SDGs for all analytes, with the following exceptions:

- In laboratory Batch V6W388 Samples #-04, #-07, #-09, #-10, #-11, #-12, #-13 CCV for Benzyl Chloride was greater than the upper control limit (UCL). RemVer flagged these results with UJ or J, as appropriate.
- In laboratory Batch V6W388 Samples #-04, #-07, #-09, #-10, #-11, #-12, #-13 CCV for Bromoform was greater than the upper control limit (UCL). RemVer flagged these results with UJ or J, as appropriate.

Blank Evaluation

There were no associated blanks, other than the ambient indoor and outdoor air samples. All laboratory method blanks performed within acceptable parameters.

Laboratory Control Samples (LCS)

The various LCS' were within the acceptable range for their particular analyses in SDG JC80272.

Surrogates

Surrogates added to a sample allow testing of preparatory and instrument behavior resulting in recoveries within appropriate method ranges for all analytes. The various surrogates performed within acceptable parameters across all Method TO-15 runs in SDG JC80272.

Site-Specific Matrix Spikes and Matrix Spike Duplicates

No matrix spike/matrix spike duplicate (MS/MSD) runs were required for the analyses per TO-15 Method.

Duplicates

The laboratory used internal duplicates for these VOC analytes; all duplicates met the RPD performance criteria of <25% (see below Attachment #2).

Tentatively Identified Compounds (TICs)

This SDG had no analysis of TICs.

Sample Result and Usability Evaluation

All samples were run as three batches, with one to three independent sample runs. Due to certain sample issues or laboratory performance (result beyond calibration range for Ethanol in Samples #-01, #-02, #-03, #-06, #-08, #-09, #-11, and #-13), some results were qualified; however, the data are usable. No data received an R (rejected) flag. If an analyte was above the MDL but below the RL, then it was flagged as “UJ”.

RemVer modified SGS’s laboratory electronic data reports by adding quality flags, highlighted in yellow (see Attachment #4 [separate file]: Orangetown_2018Q4air_DUSR.xlsx [EXCEL file]).

References

Kleinfelder, 2011, *Site Management Plan, Orangetown Shopping Center, 1-45 Orangetown Shopping Center, Orangeburg, NY, NYSDEC Site #C344066*, Final, 21-November, 250p

NYSDEC, 2010, *Technical Guidance for Site Investigation and Remediation*, "DER-10," Division of Environmental Remediation: Albany, NY, May, 232p

NYSDEC, 2010, *Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, Appendix 2B IN *Technical Guidance for Site Investigation and Remediation*, Division of Environmental Remediation: Albany, NY, May, 232p

USEPA, 2008, *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, OSWER 9240.1-48, USEPA-540-R-08-01, Office of Superfund Remediation and Technology Innovation: Washington, DC, June, 225p

USEPA, 2010, *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, OSWER 9240.1-51, USEPA-540-R-10-011, Office of Superfund Remediation and Technology Innovation: Washington, DC, January, 110p

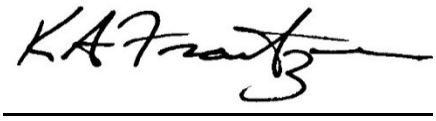
USEPA, 2012, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*, Current Online Revision: http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm, accessed April 2012

Tables

1. Qualifier Flags

Attachments

1. Data Usability Reviewer Qualifications
2. DQA Detail Worksheet
3. DQA Non-Conformance Summary Workheet
4. Separate EXCEL File: Orangetown_2018Q4air_DUSR.xls [NOTE: RemVer modified the SGS work products by adding quality flags, which are in yellow highlight.]



Prepared by: Kurt A. Frantzen, PhD, CHMM
January 24, 2019

GES PO# 762252

Table 1
Qualifier Flags

Qualifier	Quality Implication
U	Analyte analyzed for, but not detected above the sample's reported quantitation limit
J	Analyte positively identified at a numerical value that is the approximate concentration of the analyte in the sample
J +	Sample likely to have a high bias
J –	Sample likely to have a low bias
UJ	Analyte not detected above the sample quantitation limit; the associated quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification."
NJ	The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
R	Sample result rejected due to serious deficiency in ability to analyze sample and meet quality control criteria; the presence or absence of the analyte cannot be confirmed. This qualifier also may apply when more than one sample result is generated for a target analyte (*i.e.*, dilutions or re-analyses), the most technically acceptable result is considered acceptable.
B | EB **TB | BB**	An analyte identified in method blank (B), aqueous equipment (EB), trip (TB), or bottle blanks (BB) used to assess field contamination associated with soil or sediment samples mandates these qualifiers for only soil and sediment sample results.
P	Use professional judgment based on data use. It usually has an "M" with it, which indicates that a manual check should be made if the data that are qualified with the "P" are important to the data user. In addition, "PM" also means a decision is necessary from the Project Manager (or a delegate) concerning the need for further review of the data (*see below*).
PM	A manual review of the raw data is recommended to determine if the defect affects data use, as in "R" above. This review should include consideration of potential affects that could result from using the "P" qualified data. For example, in the case of holding-time exceedance, the Project Manager or delegate can decide to use the data with no qualification when analytes of interest are known not to be adversely affected by holding-time exceedances. Another example is the case where soil sample duplicate analyses for metals exceed the precision criteria; because this is likely due to sample non-homogeneity rather than contract laboratory error, then the manager or delegate must decide how to use the data.

Attachment 1
Data Usability Reviewer: Kurt A. Frantzen, PhD, CHMM

Experience

2014-Present	AECC	Senior EHS Consultant
2013-Present	d/b/a RemVer	Owner
2011-2012	RemVer, Inc.	President
2006-2011	Kleinfelder	Senior Principal Scientist
2005	Kleinfelder	Principal Scientist, Part-Time/On Call
2004-2006	d/b/a Environmental Risk Group	Owner
2004-2006	RemVer, Inc., Larchmont, NY	Founder, President
1999-2004	VHB, Inc.	ERM Director & Associate
1997-1998	GEI Consultants, Inc.	Senior Project Manager
1992-1997	Ecology and Environment, Inc.	Technical Chief
1991-1992	EA Engineering, Science, & Technology, Inc.	Project Manager III
1990-1991	Ecology and Environment, Inc.	Technical Group Manager
1986-1990	Ecology and Environment, Inc.	Senior Environmental Scientist

Education

Am Cancer Soc. Post-Doctoral Fellow, U Washington 1985-1986

PhD—Life Sci. / Biochem, NU—Lincoln	1985
MS—Plant Pathology, Kansas State Univ.	1980
BS—Biology, NU—Omaha	1978

Registrations

Certified Hazardous Materials Manager, since 2007, #14143

Professional Affiliations

Society Risk Analysis ('09 & '11 Chair, Eco-Risk Assessment)
Am. Chemistry Society
Am. Assoc. Advance Science
NY Academy of Science
Am. Institute of Biological Sciences
LSP Association

Other

- CERCLA & RCRA experience, as well as DOD (Air Force & Army) & DOE (INEL)
- NE Regional Experience—NY BCP; Mass MCP; & various sites in CT, RI & NH
- National Experience: NE, SE, Gulf & West Coast, Mid-west, Inter-mountain, California, Alaska
- International: Germany, Israel, Kuwait, Australia
- Selected Publications
    - *Using Risk Appraisals to Manage Environmentally Impaired Properties*, 2000, VHB Site Works, Report 108
    - *Risk-Based Analysis for Environmental Managers*, 2001, CRC/Lewis
    - Chapter 7 Risk Assessment, *Managing Hazardous Materials*, 2002 & 2009, IHMM
    - Chapter 22 Cleanup Goals, *Brownfields Law & Practice*, 2004-Present, Lexis/Nexis
    - *Use of Risk Assessment in Risk Management of Contaminated Sites*, 2008, ITRC
- 60 Conference Papers & Invited Professional Presentations
    - 1999-2014, Visiting Lecturer, Brownfields Program, Harvard Graduate School of Design
    - 2010-2013, Invited Lecturer, Pace University Law School

Attachment 2
DQA Detail Worksheet

BLANKS	>RL?	Compounds	Notes
Method Blank: VOCs	No	—	No Comment
—	—	—	—

LCS	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	—	VOCs	No Comment
—	—	—	—	—	—

SURROGATES	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	Compound(s)	Notes
VOCs	—	—	—	—	No Comment
—	—	—	—	—	—

MS/MSDs	SV <10%	Low Bias > 10% & < LCL	High Bias >UCL	QC Source	RPDs	Notes
VOCs	—	—	—	—	—	No Comment, none required
—	—	—	—	—	—	—

FIELD DUPLICATES RPDs	QC Source	Soil RPD > 50%	Water RPD > 20%	Compounds	Notes
N/A	N/A	N/A	N/A	N/A	N/A
N/A		N/A	N/A	N/A	N/A
LAB DUPLICATES					
Internal Lab Batches	Based on #-01, #-02, #-04, & #-08	N/A	—	—	No Comment

	Reasonable Confidence Achieved ☐ Y ☐ N—Not Applicable Significant QC Variances Noted ☒ Y ☐ N Requested Reporting Limits Achieved ☒ Y ☐ N Preservation Requirements Met ☒ Y ☐ N Holding Time Requirements Met ☒ Y ☐ N
	Abbreviations: RL = Reporting Limit LCS = Laboratory Control Sample SV = Significant QC Variance RPD = Relative Percent Difference LCL= RCP Lower Control Limit UCL= RCP Upper Control Limit VOCs = Volatile Organic Compounds SVOCs = Semi-volatile Organic Compounds Pest = Pesticides EPH = Extractable Petroleum Hydrocarbons VPH = Volatile Petroleum Hydrocarbons ETPH = EPH-Total PCBs = Polychlorinated Biphenyls N/A = Not Applicable N/C = Not Collected -- = nothing to report **Notes:** * Typical lab contaminants, not site-related

Attachment 3
DQA Non-Conformance Summary Worksheet

Only Flagged Results Shown Below

Sample Number(s)	Compound(s)	QC Non-Conformance	% Recovery	% RPD †	High or Low Bias ‡	Comments
#-01 – #-13	All Other VOCs	—	—	—	—	No Flag
#-01, #-02, #-03, #-06, #-08, #-09, #-11, & #-13	Ethanol	Beyond calibration range	—	>UCL	Hi	Flag J+
#-04, #-07, #-09, #-10, #-11, #-12, & #-13	Benzyl Chloride	CCV	>UCL	>UCL	—	Flag UJ/J
	Bromoform	CCV	>UCL	>UCL	—	Flag UJ/J

Notes: † RPD—Relative Percent Difference
‡ Bias High—Reported result may be lower, Reporting Limit (RL) is acceptable as reported. Bias Low—Reported results may be higher, RL may be higher than reported.

Appendix F – NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York

Soil Vapor/Indoor Air Matrix A

May 2017

Analytes Assigned:
Trichloroethene (TCE), *cis*-1,2-Dichloroethene (*c*12-DCE), 1,1-Dichloroethene (11-DCE), Carbon Tetrachloride

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m^3)		
SUB-SLAB VAPOR 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

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

Soil Vapor/Indoor Air Matrix B

May 2017

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

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m^3)		
SUB-SLAB VAPOR 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

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.

Soil Vapor/Indoor Air Matrix C

May 2017

Analytes Assigned:
Vinyl Chloride

	INDOOR AIR CONCENTRATION of COMPOUND (mcg/m^3)	
SUB-SLAB VAPOR 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

No further action: No additional actions are recommended to address human exposures.

Identify Source(s) and Resample or Mitigate: We recommend that reasonable and practical actions be taken to identify the source(s) affecting the indoor air quality and that actions be implemented to reduce indoor air concentrations to within background ranges. For example, if an indoor or outdoor air source is identified, we recommend the appropriate party implement actions to reduce the levels. In the event that indoor or outdoor sources are not readily identified or confirmed, resampling (which might include additional sub-slab vapor and indoor air sampling locations) is recommended to demonstrate that SVI mitigation actions are not needed. Based on the information available, mitigation might also be recommended when soil vapor intrusion cannot be ruled out.

Monitor: We recommend monitoring (sampling on a recurring basis), including but not necessarily limited to sub-slab vapor, basement air and outdoor air sampling, to determine whether concentrations in the indoor air or sub-slab vapor have changed and/or to evaluate temporal influences. Monitoring might also be recommended to determine whether existing building conditions (e.g., positive pressure heating, ventilation and air-conditioning systems) are maintaining the desired mitigation endpoint and to determine whether changes are needed. The type and frequency of monitoring is determined based on site-, building- and analyte-specific information, taking into account applicable environmental data and building operating conditions. Monitoring is an interim measure required to evaluate exposures related to soil vapor intrusion until contaminated environmental media are remediated.

Mitigate: We recommend mitigation to minimize current or potential exposures associated with soil vapor intrusion. The most common mitigation methods are sealing preferential pathways in conjunction with installing a sub-slab depressurization system and changing the pressurization of the building in conjunction with monitoring. The type, or combination of types, of mitigation is determined on a building-specific basis, taking into account building construction and operating conditions. Mitigation is considered a temporary measure implemented to address exposures related to soil vapor intrusion until contaminated environmental media are remediated.

These general recommendations are made with consideration being given to the additional notes on page 2.