8976 Wellington Road
Manassas, VA 20109

April 1, 2021

R. Scott Deyette
New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau C
625 Broadway, 11th Floor
Albany, New York 12233-7014

Re: Subslab Depressurization System Shutdown Testing Results – February 2021 Sampling
Former IBM Leased Building 982 (Neptune Commerce Center)
Poughkeepsie, Dutchess County, New York
NYSDEC Site No. 314076

Dear Mr. Deyette:

The enclosed document presents the results of the February 2021 shutdown testing associated with the subslab depressurization system at the former IBM leased Building 982 located at the Neptune Commerce Center on Neptune Road, Poughkeepsie, New York. The work described herein was conducted as a follow up to the previous two rounds of shut down sampling, the results of which were submitted on May 2, 2019 and March 5, 2020.

If you have any questions, please contact me at (703) 257-2580.

Sincerely,
International Business Machines Corporation

Stephen P Brown

Stephen Brown, P.E.
Program Manager, IBM Corporate Environmental Affairs

Enclosure: Letter Report

cc: T. Perretta (NYSDOH)
D. Kaminski (NCI)

SANBORN HEAD ENGINEERING

Building Trust. Engineering Success.

Subslab Depressurization System Shutdown Testing Results

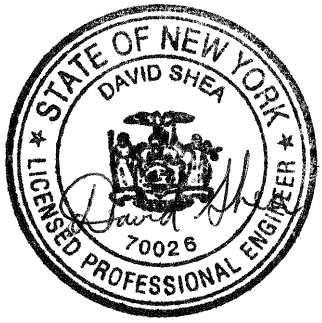
February 2021 Sampling

Former IBM Leased Building 982 (Neptune Commerce Center)

Poughkeepsie, NY
NYSDEC Site No. 314076

"I, David Shea, certify that I am currently a NYS registered professional engineer and that this report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10)."

Prepared for IBM Corporation
File No. 4593.00
April 2021



SANBORN HEAD ENGINEERING
Building Trust. Engineering Success.

20 Foundry Street
Concord, NH 03301

Stephen Brown, P.E.
IBM Corporation
8976 Wellington Road
Manassas, VA 20109

April 1, 2021
File No. 4593.00

Re: Subslab Depressurization System Shutdown Testing Results – February 2021 Sampling
Former IBM Leased Building 982 (Neptune Commerce Center)
Poughkeepsie, Dutchess County, New York
NYSDEC Site No. 314076

Dear Mr. Brown:

This letter presents the results of indoor air and subslab vapor sampling that was conducted in February 2021 to evaluate potential permanent shutdown of the subslab depressurization system (SSDS) at the former IBM leased Building 982 located at the Neptune Commerce Center in Poughkeepsie, New York (the site). IBM elected to install the SSDS in 2013 as a pro-active, pre-emptive mitigation measure to address potential soil vapor intrusion. Although IBM is not the owner of the site, IBM is conducting the remediation activities for the site. We understand this letter will be submitted to the New York State Department of Environmental Conservation (NYSDEC) and the Department of Health (NYSDOH) (the Departments) for review and comment.

The work described herein was conducted on behalf of IBM by Sanborn, Head Engineering P.C. in general accordance with the February 15, 2019 Work Plan[1], which incorporated responses to Department comments received by IBM on February 15, 2019. The February 2021 sampling event described herein was conducted following two previous sampling events completed in March and December 2019 after trial shutdown of the SSDS, the results of which were submitted to the Departments in May 2019[2] and March 2020[3] reports. The services conducted, and this letter, are subject to the standard limitations for this type of work described in Attachment 1.

---

1 *Work Plan for Subslab Depressurization System Shutdown Testing, Former IBM Leased Building 982 (Neptune Commerce Center), Poughkeepsie, Dutchess County, New York, NYSDEC Site No. 314076,* IBM Corporation and Sanborn, Head Engineering P.C., February 15, 2019.

2 *Subslab Depressurization System Shutdown Testing Results, Former IBM Leased Building 982 (Neptune Commerce Center), Poughkeepsie, Dutchess County, New York, NYSDEC Site No. 314076*, IBM Corporation and Sanborn, Head Engineering P.C., May 2, 2019.

3 *Subslab Depressurization System Shutdown Testing Results – December 2019 Sampling, Former IBM Leased Building 982 (Neptune Commerce Center), Poughkeepsie, Dutchess County, New York, NYSDEC Site No. 314076*, IBM Corporation and Sanborn, Head Engineering P.C., March 5, 2020.

BACKGROUND

The former IBM leased Building 982 at the current Neptune Commerce Center on Neptune Rd, Poughkeepsie, NY was redeveloped in 2013-2014 by its current owner, Neptune Capital Investors, LLC. It houses two tenants: Bounce, a commercial indoor trampoline recreational facility, in the western half of the building, and Crunch, a commercial gymnasium, in the eastern half of the building.

The SSDS for the entire building was installed in the fall of 2013 and put into operation on December 13, 2013. The SSDS installation and start-up was completed in accordance with IBM's 2013 SSDS Work Plan[4] and 2013 SSDS Design Report[5] for these activities. The start-up and performance testing of the SSDS was documented in a February 2014 report (2014 SSDS Startup Report),[6] which was approved by the Departments in an April 25, 2014 letter to IBM.

As documented in the 2014 SSDS Startup Report, the results of indoor air sampling prior to the installation of the SSDS indicated that indoor air had not been affected by soil vapor intrusion; the SSDS was installed by IBM as a pre-emptive measure to facilitate building redevelopment by its owner. The SSDS Startup Report also indicated that IBM, in consultation with the Departments, may conduct a temporary shut-down of the SSDS to evaluate the need for continued operations to mitigate potential soil vapor intrusion.

A recent evaluation of the volatile organic compound (VOC) mass captured by the SSDS, which was included with the May 2019 report, indicated that VOC mass capture rates have been consistently low in recent years. The rate of VOC capture is less than thresholds that would require VOC emissions controls (the SSDS is equipped with vapor-phase granular activated carbon treatment). Furthermore, the consistently low VOC capture rate by the SSDS is such that this mass, if uncaptured and allowed to enter the building, would be unlikely to result in exceedances of NYSDOH's indoor air concentration guidelines.

Given these evaluations, and consistent with Section 4.5 of NYSDOH's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006, IBM elected to perform shutdown testing of the SSDS to evaluate whether the SSDS is needed to address current or potential exposures to VOCs in indoor air related to soil vapor intrusion.

IBM conducted the initial trial shutdown of the SSDS beginning in February 2019, including collection of paired indoor air and subslab vapor samples in March 2019 approximately one month following the trial shutdown. When evaluated in comparison to the concentration

---

4 *Subslab Depressurization System (SSDS) Design Work Plan, Former Building 982 – Neptune Road, Poughkeepsie, New York, NYSDEC Site No. 314076*, IBM Corporation and Sanborn, Head Engineering P.C., September 26, 2013.

5 *Subslab Depressurization System (SSDS) Design Report, Former Building 982 – Neptune Road, Poughkeepsie, New York, NYSDEC Site No. 314076*, IBM Corporation and Sanborn, Head Engineering P.C., September 24, 2013.

6 *Subslab Depressurization System Start-up and Performance Testing Report, Former Building 982 – Neptune Road, Poughkeepsie, New York, NYSDEC Site No. 314076*, IBM Corporation and Sanborn, Head Engineering P.C., February 2014.

thresholds in the NYSDOH May 2017 Soil Vapor/Indoor Air matrices, the results of the initial trial SSDS shutdown sampling indicated that the SSDS is not needed to mitigate the vapor intrusion pathway.

Based on the favorable results of the March 2019 sampling, IBM elected to conduct a longer-term trial shutdown of the SSDS, including repeat indoor air and subslab vapor sampling in December 2019 approximately 5 months following the shutdown. When evaluated in comparison to the concentration thresholds in the NYSDOH May 2017 Soil Vapor/Indoor Air matrices, the results of the December 2019 sampling indicated that all of the sample pairs fell under the category of "no further action," except one pair in the Crunch gymnasium tenant space in which the subslab vapor trichloroethene (TCE) concentration was slightly above the threshold for the "mitigate" category.

In a June 9, 2020 letter to IBM, the Departments indicated that additional sampling be conducted within the eastern portion of Building 982 (i.e., the Crunch gymnasium) to evaluate whether rebound of VOCs in subslab vapor is occurring. This report summarizes the results of the additional sampling.

SUBSLAB VAPOR AND INDOOR AIR SAMPLING

On February 12, 2021, approximately 19 months following shutdown of the SSD system, paired subslab vapor and indoor air samples were collected from two locations in the Crunch gymnasium tenant space in the eastern portion of the building. The indoor air and subslab vapor sample pair locations, which are shown on Figure 1, were selected because they had the highest concentrations of TCE in subslab vapor during the December 2019 sampling event.

The subslab vapor and indoor air samples were collected concurrently using individually certified-clean, 6-liter, pre-evacuated, stainless-steel canisters (Summa® canisters) equipped with flow controllers to obtain 8-hour time-averaged samples. The samples were collected with the HVAC system operating consistent with normal business operations. Subslab vapor samples were collected from the existing permanent subslab vapor (SSV) ports using Teflon® tubing. Indoor air samples were collected from a height of three to four feet above the floor. A summary of field sampling information is provided in Table 1.

For quality assurance/quality control purposes, several samples were collected concurrently with the subslab vapor and indoor air samples, including: one outdoor air sample (AA-1); one blind duplicate indoor air sample collected at location IA-1005 (FD-01); one blind duplicate subslab vapor sample collected at location SSV-1001 (FD-02); and one field blank sample (FB-01) consisting of a sample canister filled on-site with laboratory-grade nitrogen. Outdoor air sample AA-01 was collected in the parking to the north of B982 to assess the presence of background conditions that could impact indoor air quality.

The samples were submitted to Eurofins/Air Toxics of Folsom, California for analysis of 23 site-specific VOCs listed in the 2013 SSDS Work Plan using USEPA Method TO-15 in selective ion monitoring (SIM) mode. The laboratory reports are included as Attachment 2.

SAMPLING RESULTS

The indoor air and subslab vapor sample results are presented in Tables 2 and 3, respectively, and summarized on Figure 1. The tables include the results of past samples collected in September 2013 prior to SSDS startup, March 2019 following the initial shutdown test, and December 2019 following the longer-term shutdown test.

As described in Section 3.4 of the October 2006 NYSDOH Soil Vapor Intrusion guidance document, subslab vapor/indoor air matrices were developed by NYSDOH to summarize recommended actions to address potential soil vapor intrusion in the event certain guideline concentrations are exceeded. Matrices A, B, and C were updated in May 2017 to include eight VOCs with guideline concentrations for subslab vapor and indoor air. Each matrix and the associated VOCs are listed in the table below:

Subslab Vapor/Indoor Air Matrix	VOC
Matrix A	Carbon tetrachloride 1,1-dichloroethene Cis-1,2-dichloroethene trichloroethene
Matrix B	Methylene chloride* Tetrachloroethene 1,1,1-trichlorethane
Matrix C	Vinyl chloride

*not analyzed because this compound is not a historical site contaminant

The results of the subslab vapor/indoor air sample pairs were evaluated in comparison to the guidelines concentrations on each matrix. According to the matrices, the subslab vapor/indoor air concentrations for all the VOCs for both sample pairs fall under the "no further action" category, with one exception: in sample SSV-1001, TCE was detected at 150 µg/m^3 in subslab vapor, which is greater than the threshold of 60 µg/m^3 that according to Matrix A yields a recommendation of "mitigate," despite TCE not being detected in indoor air. This result at SV-1001 indicates an increase in subslab TCE concentration from 62 µg/m^3 in the December 2019 sample.

Other key observations about the sample results are as follows:

- TCE was not detected in any of the February 2021 indoor air samples, which is consistent with the 2013 results and December 2019 results, and all but one of the March 2019 samples, in which a single low-level detection of 0.3 µg/m^3 was detected at location IA-1017.

- TCE was detected at a concentration of 59 µg/m^3 in sample SSV-1002, which is just below the 60 µg/m^3 "mitigate" threshold. This result indicates an increase from 26 µg/m^3 in the December 2019 sample.

- Consistent with the 2013, March 2019, and December 2019 results, 1,1,1-Trichlorethane (TCA) was not detected in any of the February 2021 indoor air samples. The TCA concentrations in the two subslab vapor samples ranged between 130 and 190 µg/m^3, which are well below the "mitigate" threshold of 1,000 µg/m^3 for TCA. For comparison, in 2013, the maximum subslab vapor TCA concentration was 3,020 µg/m^3.

- Other VOCs not specified in the NYSDOH matrices that were detected in indoor air were at concentrations less than 2.0 µg/m^3, with the exception of acetone, which was detected at a range of 30 to 33 µg/m^3, and isopropanol, which was detected at a range of 56 to 62 µg/m^3. Compared to the 2013 indoor air sample results, the maximum acetone concentration decreased from 390 µg/m^3 to 33 µg/m^3. Isopropanol was not detected in the 2013 samples either in subslab vapor or indoor air. The February 2021 sample concentrations of acetone and isopropanol in subslab vapor were less than their corresponding indoor air samples, which suggests that the presence of acetone and isopropanol in indoor is not attributable to vapor intrusion.

- Low-level concentrations of other VOCs detected in indoor air were similar in concentration to those in outdoor air, which indicates those VOCs were likely present as background conditions.

- Carbon disulfide was detected at SSV-1002 at a concentration of 34 µg/m^3. Carbon disulfide was not detected subslab vapor in the 2019 sampling events and in 2013, the maximum concentration was 7.2 µg/m^3. Carbon disulfide was not detected in indoor air in the 2019 or 2013 sampling events.

- Concentrations of other VOCs detected in subslab vapor were generally similar to those from the March and December 2019 sampling events.

Overall, the February 2021 sample results at two locations indicate slight increases in subslab vapor VOCs, but no effects to indoor air by soil vapor intrusion, even without the operation of the SSDS for an extended period (19 months).

Quality Assurance/Quality Control

The analytical data were provided to New Environmental Horizons, Inc. (NEH) of Skillman, NJ for an independent, third-party data usability review (i.e., data validation) in accordance with the Work Plan. The data usability summary reports (DUSRs) are provided in Attachment 3. The review found that all results were considered usable for the project objectives/decisions.

CONCLUSIONS AND NEXT STEPS

A long-term SSDS shutdown test was conducted to evaluate whether the SSDS is needed to address current or potential exposures to VOCs in indoor air related to soil vapor intrusion at the former IBM leased Building 982. The SSDS was shut down for approximately 19

months, followed by concurrent sampling of subslab vapor and indoor air in February 2021 at two locations on the eastern side of the building.

When evaluated in comparison to the concentration thresholds in the NYSDOH May 2017 Soil Vapor/Indoor Air matrices, all VOCs in each sample pair fall under the category of "no further action," except one pair: at location SSV-1001, the subslab vapor TCE concentration was above the threshold for the "mitigate" category, even though the indoor air TCE concentrations were below reporting limits. The subslab VOC concentrations at this location, and at SV-1002, indicate a slow rebound. However, indoor air samples provide the most direct indication of vapor intrusion and indoor air quality. Although subslab VOC concentrations have increased at two locations, the indoor air samples continue to indicate no potential exposure due to vapor intrusion.

IBM installed the SSDS as a pre-emptive measure to facilitate building redevelopment by its owner. The results of indoor air sampling prior to the installation of the SSDS indicated that indoor air had not been affected by soil vapor intrusion. Although recent subslab VOC concentrations have increased, they are still below, and should remain below, those concentrations observed prior to installation of the SSDS, which did not result in indoor air impacts.

In addition, a previous evaluation of VOC mass captured by the SSDS, as presented in the February 2019 Work Plan, indicated that the consistently low VOC mass capture rate by the SSDS was such that this mass, if uncaptured and allowed to enter the building, would be unlikely to result in exceedances of NYSDOH's indoor air concentration guidelines.

The February 2021 sampling event included only the two locations that historically have had the highest VOC subslab vapor concentrations. The results at these locations should be evaluated along with the results at other locations within the building to assess the overall risk of vapor intrusion to the building. Therefore, we recommend that IBM continue the shutdown test of the SSDS and conduct another round of paired subslab-indoor air samples throughout the building during the 2021-2022 heating season. If the average VOC concentrations in the subslab vapor samples indicates "no further action" by the matrices, and the indoor air sample VOC concentrations continue to be favorable, then IBM could consider requesting that the SSDS be kept shut down permanently.

The subslab vapor and indoor air sampling results presented in this report will be provided to the site owner for communication to its tenants consistent with the requirements of New York Environmental Conservation Law ENV Section 27-2405.

Very truly yours,
SANBORN, HEAD ENGINEERING, P.C.

David Shea, P.E.
Sr. Vice President

Joseph W. Corsello
Sr. Project Manager

Encl. Figure 1 – Summary of 8-Hour Indoor Air & Subslab Vapor Sampling Results
Table 1 – Summary of Indoor Air Sample Information
Table 2 – Summary of 8-Hour Indoor Air Sampling Results
Table 3 – Summary of 8-Hour Subslab Vapor Sampling Results
Attachment 1 – Limitations
Attachment 2 – Analytical Laboratory Reports
Attachment 3 – Data Usability Summary Reports

P:\4500s\4593.00\Source Files\Neptune Rd Shutdown Report No. 3\20210401 SSDS Shutdown Letter Report.docx

FIGURE

Figure 1

Summary of 8-Hour Indoor Air & Subslab Vapor Sampling Results

SSDS Shutdown Testing

Former Building 982 - Neptune Road
Poughkeepsie, New York

Drawn By: E. Wright
Designed By: J. Corsello
Reviewed By: D. Shea
Project No: 4593.00
Date: March 2021

Figure Narrative

This figure shows the results of indoor air and subslab vapor sampling conducted on February 12, 2021, approximately 19 months after a trial shutdown of the subslab depressurization system (SSDS). The samples were collected as 8-hour time-averaged samples using 6-L SUMMA canisters. Results are shown in micrograms per cubic meter (µg/m^3). The results of the samples collected in March and December 2019 are shown for comparison.

Notes

1. The exploration locations were surveyed by Berger Engineering and Land Surveying, PLLC.

2. Proposed building layout details were provided by the site owner (Neptune Capital Investors, LLC).

Legend

SSV-1002 — Subslab vapor sampling location

IA-1016 — Indoor air monitoring location

SSV-1016		
CTC	Matrix A	0.40
1,1-DCE		<0.063
cDCE		<0.12
TCE		0.23
PCE	Matrix B	0.44
1,1,1 TCA		11
VC	Matrix C	<0.040

Subslab vapor sample results
( ) indicates duplicate sample

IA-1016		MAR 19	DEC19
CTC	Matrix A	0.41	0.44
1,1-DCE		<0.066	<0.063
cDCE		<0.13	<0.12
TCE		<0.18	<0.17
PCE	Matrix B	0.37	<0.21
1,1,1 TCA		<0.18	<0.17
VC	Matrix C	<0.042	<0.040

Indoor air sample results
( ) indicates duplicate sample

Matrix A, B, and C refer to the May 2017 NYSDOH tables (matrices) on which the VOCs are listed with their guideline concentrations. Refer to Tables 2 and 3 for the results of all VOCs analyzed.

Abbreviations
PCE = Tetrachloroethene
TCE = Trichloroethene
cDCE = cis-1,2-Dichloroethene
1,1-DCE = 1,1-Dichloroethene
VC = Vinyl Chloride
1,1,1-TCA = 1,1,1-Trichloroethane
CTC = Carbon Tetrachloride

Feet
10' 5' 0 10' 20'

SANBORN HEAD ENGINEERING

SSV-1001		MAR 19	DEC 19	FEB21
CTC	Matrix A	0.40	0.41	0.34(0.33)
1,1-DCE		1.9	3.6	7.8(7.8)
cDCE		0.27	0.42	0.68(0.63)
TCE		39	62	140(150)
PCE	Matrix B	0.35	0.37	0.93(0.55)
1,1,1 TCA		30	51	190(180)
VC	Matrix C	<0.044	<0.040	<0.044(<0.058)

SSV-1002		MAR 19	DEC 19	FEB 21
CTC	Matrix A	0.49	0.41	0.39
1,1-DCE		<0.061	0.10	0.18
cDCE		0.30	0.38	0.70
TCE		22	26	59
PCE	Matrix B	1.8	0.22	0.29
1,1,1 TCA		24	36	130
VC	Matrix C	<0.039	<0.040	<0.043

IA-1002		MAR 19	DEC19	FEB21
CTC	Matrix A	0.55	0.46	0.42
1,1-DCE		<0.061	<0.068	<0.074
cDCE		<0.12	<0.14	<0.15
TCE		<0.16	<0.18	<0.20
PCE	Matrix B	<0.21	<0.23	<0.25
1,1,1 TCA		<0.17	<0.19	<0.20
VC	Matrix C	<0.039	<0.044	<0.048

IA-1005		MAR 19	DEC19	FEB21
CTC	Matrix A	0.63	0.47	0.38(0.39)
1,1-DCE		<0.063	<0.061	<0.067(<0.067)
cDCE		<0.13	<0.12	<0.13(<0.13)
TCE		<0.17	<0.17	<0.18(<0.18)
PCE	Matrix B	0.22	<0.21	<0.23(<0.23)
1,1,1 TCA		<0.17	<0.17	<0.18(<0.18)
VC	Matrix C	<0.041	<0.040	<0.043(<0.043)

IA-1013		MAR 19	DEC19
CTC	Matrix A	0.53	0.47
1,1-DCE		<0.058	<0.067
cDCE		<0.12	<0.13
TCE		<0.16	<0.18
PCE	Matrix B	0.21	<0.23
1,1,1 TCA		<0.16	<0.18
VC	Matrix C	<0.038	<0.043

SSV-1009		MAR 19	DEC 19
CTC	Matrix A	0.48	0.44
1,1-DCE		24	30
cDCE		2.3	1.4
TCE		25	15
PCE	Matrix B	22	0.22
1,1,1 TCA		72	64
VC	Matrix C	<0.040	<0.042

IA-1015		MAR 19	DEC19
CTC	Matrix A	0.47	0.42
1,1-DCE		<0.067	<0.063
cDCE		<0.13	<0.12
TCE		<0.18	<0.17
PCE	Matrix B	<0.23	<0.21
1,1,1 TCA		<0.18	<0.17
VC	Matrix C	<0.043	<0.040

SSV-1033		MAR 19	DEC 19
CTC	Matrix A	0.36	0.41
1,1-DCE		0.12	0.13
cDCE		0.13	<0.12
TCE		<0.17	<0.17
PCE	Matrix B	0.27	<0.21
1,1,1 TCA		2.6	4.4
VC	Matrix C	<0.041	<0.040

SSV-1016		MAR 19	DEC 19
CTC	Matrix A	0.40	0.45
1,1-DCE		<0.063	<0.064
cDCE		<0.12	<0.13
TCE		0.23	0.22
PCE	Matrix B	0.44	0.36
1,1,1 TCA		11	11
VC	Matrix C	<0.040	<0.041

IA-1017		MAR 19	DEC19
CTC	Matrix A	0.48(0.46)	0.46(0.46)
1,1-DCE		<0.067(<0.066)	<0.063(<0.065)
cDCE		<0.13(<0.13)	<0.12(<0.13)
TCE		0.30(<0.18)	<0.17(<0.18)
PCE	Matrix B	<0.23(0.27)	<0.21(<0.22)
1,1,1 TCA		<0.18(<0.18)	<0.17(<0.18)
VC	Matrix C	<0.043(<0.042)	<0.040(<0.042)

SSV-1017		MAR 19	DEC 19
CTC	Matrix A	0.25(0.26)	<0.20(<0.20)
1,1-DCE		9.1(8.6)	11(11)
cDCE		0.50(0.53)	0.39(0.39)
TCE		6.2(5.0)	4.7(4.9)
PCE	Matrix B	0.88(0.42)	0.21(0.34)
1,1,1 TCA		47(45)	120(120)
VC	Matrix C	<0.040(<0.040)	<0.040(<0.040)

TABLES

TABLE 1
Summary of Indoor Air Sample Information
Former IBM Leased Building 982
Poughkeepsie, New York

Sample Location	Sample Date	Building	Sample Matrix	Canister Number	Sample Height (ft above floor)	Start Time (hours)	Start Pressure (mm Hg)	Stop Time (hours)	Stop Pressure (mm Hg)	Temperature (°F)	Location Description	Notes
IA-1002	2/12/2021	B982	Indoor Air	6L2652	3.5	6:18	-30.0	14:18	-7.0	65	Crunch, near entrance	
IA-1005				6L1603	3.5	6:15	-30.0	14:15	-6.5	65	Crunch, near treadmills	
FD-01				6L2712	3.5	6:15	-29.5	14:15	-7.0	65	IA-1005	Field Duplicate Sample
AA-01		Exterior	Ambient Air	6L2712	0.0	6:19	-30.0	14:19	-4.5	40	Parking lot, near car dealership	Ambient Air Sample
Field Blank		Interior	Nitrogen	6L1568	0.0	6:20	-28.0	14:20	-13.0	40	Parking lot, near car dealership	Equipment Blank Sample

Notes:

1. Samples were collected by Sanborn Head personnel on the dates indicated.

2. Samples were collected into 6-liter, stainless steel, pre-evacuated SUMMA® canisters using 8-hour metering regulators. Each canister and regulator was laboratory-certified clean (100% certification). The samples were submitted to Eurofins/Air Toxics of Folsom, California for analysis of the 23 project-specific analytes using modified USEPA Method TO-15 using a combination of full scan and selective ion monitoring (SIM) mode.

TABLE 2
Summary of 8-Hour Indoor Air Sampling Results
Former IBM Leased Building 982
Poughkeepsie, New York

Concentrations in µg/m³

Analyte	AA-1											
	AA1			AA1			AA1			AA1		
	09/06/13			03/28/19			12/12/19			02/12/21		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	6.79			3.0			<4.0	U		6.3		
Butanone (2-) (MEK)	<1.47	U		<2.1	U		<2.5	U		<2.2	U	
Carbon disulfide	0.791			<2.2	U		<2.6	U		<2.3	U	
Carbon tetrachloride	0.396			0.42			0.41			0.41		
Chloroform (Trichloromethane)	0.122			<0.14	U		<0.16	U		<0.14	U	
Dichlorodifluoromethane (CFC12)	1.60			2.4			2.5			1.9		
Dichloroethane (1,1-)	<0.081	U		<0.12	U		<0.14	U		<0.12	U	
Dichloroethene (1,1-)	<0.079	U		<0.057	U		<0.067	U		<0.058	U	
Dichloroethene (cis-1,2-)	<0.079	U		<0.11	U		<0.13	U		<0.12	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	0.552			<1.1	U		<1.3	U		<1.1	U	
Ethylbenzene	0.096	EB	H	<0.12	U		<0.14	U		0.16		
Isopropyl Alcohol (Isopropanol)	<1.23	U		<1.8	U		<2.1	U		<1.8	UJ	I
Methyl-2-pentanone (4-) (MIBK)	<2.05	U		<0.59	U		<0.69	U		<0.60	U	
Propene	<0.861	U		<2.5	U		<2.9	U		<2.5	U	
Tetrachloroethene (PCE)	<0.136	U		<0.20	U		<0.23	U		<0.20	U	
Toluene	0.607			0.71			0.82			1.1		
Trichloroethane (1,1,1-)	<0.109	U		<0.16	U		<0.18	U		<0.16	U	
Trichloroethene (TCE)	<0.107	U		<0.16	U		<0.18	U		<0.16	U	
Trichlorofluoromethane	1.27			1.2			1.3			1.2		
Trimethylbenzene (1,2,4-)	0.133	EB	H	<0.71	U		<0.82	U		<0.72	U	
Vinyl chloride	<0.051	U		<0.037	U		<0.043	U		<0.037	U	
Xylene (m,p-)	0.295			0.28			<0.29	U		0.50		
Xylene (o-)	0.117			0.15			<0.14	U		0.19		

Analyte	IA-1002											
	IA1002			IA1002			IA1002			IA1002		
	09/06/13			03/28/19			12/12/19			02/12/21		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	148			61			31			33		
Butanone (2-) (MEK)	<1.47	U		<2.3	U		3.3			<2.8	U	
Carbon disulfide	<0.623	U		<2.4	U		<2.7	U		<2.9	U	
Carbon tetrachloride	0.365			0.55			0.46			0.42		
Chloroform (Trichloromethane)	0.400			0.24			<0.17	U		<0.18	U	
Dichlorodifluoromethane (CFC12)	1.26	J	I	2.4			2.4			2.0		
Dichloroethane (1,1-)	<0.081	U		<0.12	U		<0.14	U		<0.15	U	
Dichloroethene (1,1-)	<0.079	U		<0.061	U		<0.068	U		<0.074	U	
Dichloroethene (cis-1,2-)	<0.079	U		<0.12	U		<0.14	U		<0.15	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	0.537			<1.2	U		<1.3	U		<1.4	U	
Ethylbenzene	0.334	EB	H	0.17			0.18			0.17		
Isopropyl Alcohol (Isopropanol)	<1.23	U		30			20			62	J	I
Methyl-2-pentanone (4-) (MIBK)	<2.05	U		0.70			<0.70	U		<0.77	U	
Propene	<0.861	U		<2.6	U		<2.9	U		<3.2	U	
Tetrachloroethene (PCE)	<0.136	U		<0.21	U		<0.23	U		<0.25	U	
Toluene	1.15			1.1			0.77			1.0		
Trichloroethane (1,1,1-)	<0.109	U		<0.17	U		<0.19	U		<0.20	U	
Trichloroethene (TCE)	<0.107	U		<0.16	U		<0.18	U		<0.20	U	
Trichlorofluoromethane	1.23			1.2			1.3			1.3		
Trimethylbenzene (1,2,4-)	0.324	EB	H	<0.76	U		<0.84	U		<0.92	U	
Vinyl chloride	<0.051	U		<0.039	U		<0.044	U		<0.048	U	
Xylene (m,p-)	1.48			0.45			0.43			0.51		
Xylene (o-)	0.608			0.18			0.19			0.19		

Analyte	IA-1005														
	IA1005			IA1005			IA1005			IA1005			FD-01		
	09/06/13			03/28/19			12/12/19			02/12/21			02/12/21		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	161			61			30			30			31		
Butanone (2-) (MEK)	<1.47	U		<2.3	U		3.1			<2.5	U		<2.5	U	
Carbon disulfide	<0.623	U		<2.5	U		<2.4	U		<2.6	U		<2.6	U	
Carbon tetrachloride	0.359			0.63			0.47			0.38			0.39		
Chloroform (Trichloromethane)	0.171			0.26			<0.15	U		<0.16	U		<0.16	U	
Dichlorodifluoromethane (CFC12)	1.65			2.4			2.5			1.9			1.9		
Dichloroethane (1,1-)	<0.081	U		<0.13	U		<0.12	U		<0.14	U		<0.14	U	
Dichloroethene (1,1-)	<0.079	U		<0.063	U		<0.061	U		<0.067	U		<0.067	U	
Dichloroethene (cis-1,2-)	<0.079	U		<0.13	U		<0.12	U		<0.13	U		<0.13	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	0.544			<1.2	U		<1.2	U		<1.3	U		<1.3	U	
Ethylbenzene	0.343	EB	H	0.16			0.18			0.16			0.15		
Isopropyl Alcohol (Isopropanol)	<1.23	U		33			17			56	J	I	57	J	I
Methyl-2-pentanone (4-) (MIBK)	<2.05	U		0.76			<0.63	U		<0.69	U		<0.69	U	
Propene	<0.861	U		<2.7	U		<2.7	U		<2.9	U		<2.9	U	
Tetrachloroethene (PCE)	<0.136	U		0.22			<0.21	U		<0.23	U		<0.23	U	
Toluene	1.20			1.2			0.77			1.0			0.99		
Trichloroethane (1,1,1-)	<0.109	U		<0.17	U		<0.17	U		<0.18	U		<0.18	U	
Trichloroethene (TCE)	<0.107	U		<0.17	U		<0.17	U		<0.18	U		<0.18	U	
Trichlorofluoromethane	1.25			1.3			1.3			1.1			1.1		
Trimethylbenzene (1,2,4-)	0.320	EB	H	<0.78	U		<0.76	U		<0.82	U		<0.82	U	
Vinyl chloride	<0.051	U		<0.041	U		<0.040	U		<0.043	U		<0.043	U	
Xylene (m,p-)	1.55			0.47			0.42			0.48			0.48		
Xylene (o-)	0.652			0.22			0.18			0.18			0.18		

Analyte	IA-1013								
	IA1013			IA1013			IA1013		
	09/06/13			03/28/19			12/12/19		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	137			57			30		
Butanone (2-) (MEK)	<1.47	U		<2.2	U		3.1		
Carbon disulfide	<0.623	U		<2.3	U		<2.6	U	
Carbon tetrachloride	0.346			0.53			0.47		
Chloroform (Trichloromethane)	0.181			0.25			<0.16	U	
Dichlorodifluoromethane (CFC12)	1.14			2.4			2.5		
Dichloroethane (1,1-)	<0.081	U		<0.12	U		<0.14	U	
Dichloroethene (1,1-)	<0.079	U		<0.058	U		<0.067	U	
Dichloroethene (cis-1,2-)	<0.079	U		<0.12	U		<0.13	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	0.544			<1.1	U		<1.3	U	
Ethylbenzene	0.317	EB	H	0.19			0.18		
Isopropyl Alcohol (Isopropanol)	<1.23	U		28			17		
Methyl-2-pentanone (4-) (MIBK)	<2.05	U		0.70			<0.69	U	
Propene	<0.861	U		<2.5	U		<2.9	U	
Tetrachloroethene (PCE)	<0.136	U		0.21			<0.23	U	
Toluene	1.10			1.70			0.80		
Trichloroethane (1,1,1-)	<0.109	U		<0.16	U		<0.18	U	
Trichloroethene (TCE)	<0.107	U		<0.16	U		<0.18	U	
Trichlorofluoromethane	1.24			1.2			1.3		
Trimethylbenzene (1,2,4-)	0.305	EB	H	<0.72	U		<0.82	U	
Vinyl chloride	<0.051	U		<0.038	U		<0.043	U	
Xylene (m,p-)	1.39			0.50			0.42		
Xylene (o-)	0.573			0.20			0.18		

Analyte	IA-1015											
	IA1015			DUP1			IA1015			IA1015		
	09/06/13			09/06/13			03/28/19			12/12/19		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	166			172			24			8.0		
Butanone (2-) (MEK)	<1.47	U		<1.47	U		<2.5	U		<2.3	U	
Carbon disulfide	<0.623	U		<0.623	U		<2.6	U		<2.5	U	
Carbon tetrachloride	0.384			0.352			0.47			0.42		
Chloroform (Trichloromethane)	0.190			0.244			<0.17	U		<0.15	U	
Dichlorodifluoromethane (CFC12)	1.47	J	I	1.19	J	I	2.3			2.5		
Dichloroethane (1,1-)	<0.081	U		<0.081	U		<0.14	U		<0.13	U	
Dichloroethene (1,1-)	<0.079	U		<0.079	U		<0.067	U		<0.063	U	
Dichloroethene (cis-1,2-)	<0.079	U		<0.079	U		<0.13	U		<0.12	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	0.544			0.552			<1.3	U		<1.2	U	
Ethylbenzene	0.326	EB	H	0.321	EB	H	0.16			<0.14	U	
Isopropyl Alcohol (Isopropanol)	<1.23	U		<1.23	U		6.8			19		
Methyl-2-pentanone (4-) (MIBK)	<2.05	U		<2.05	U		<0.70	U		<0.65	U	
Propene	<0.861	U		<0.861	U		<2.9	U		<2.7	U	
Tetrachloroethene (PCE)	<0.136	U		0.183			<0.23	U		<0.21	U	
Toluene	1.06			1.07			0.92			0.60		
Trichloroethane (1,1,1-)	<0.109	U		<0.109	U		<0.18	U		<0.17	U	
Trichloroethene (TCE)	<0.107	U		<0.107	U		<0.18	U		<0.17	U	
Trichlorofluoromethane	1.25			1.25			1.2			1.3		
Trimethylbenzene (1,2,4-)	0.334	EB	H	0.310	EB	H	<0.84	U		<0.78	U	
Vinyl chloride	<0.051	U		<0.051	U		<0.043	U		<0.040	U	
Xylene (m,p-)	1.42			1.42			0.50			<0.27	U	
Xylene (o-)	0.591			0.586			0.25			<0.14	U	

Analyte	IA-1016								
	IA1016			IA1016			IA1016		
	09/06/13			03/28/19			12/12/19		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	213			13			19		
Butanone (2-) (MEK)	<1.47	U		<2.4	U		<2.3	U	
Carbon disulfide	<0.623	U		<2.6	U		<2.5	U	
Carbon tetrachloride	0.346			0.41			0.44		
Chloroform (Trichloromethane)	0.166			<0.16	U		<0.15	U	
Dichlorodifluoromethane (CFC12)	1.25			2.3			2.5		
Dichloroethane (1,1-)	<0.081	U		<0.13	U		<0.13	U	
Dichloroethene (1,1-)	<0.079	U		<0.066	U		<0.063	U	
Dichloroethene (cis-1,2-)	<0.079	U		<0.13	U		<0.12	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	0.537			<1.3	U		<1.2	U	
Ethylbenzene	0.304	EB	H	0.16			<0.14	U	
Isopropyl Alcohol (Isopropanol)	<1.23	U		7.6			18		
Methyl-2-pentanone (4-) (MIBK)	<2.05	U		<0.68	U		<0.65	U	
Propene	<0.861	U		<2.8	U		<2.7	U	
Tetrachloroethene (PCE)	<0.136	U		0.37			<0.21	U	
Toluene	1.07			1.0			0.70		
Trichloroethane (1,1,1-)	<0.109	U		<0.18	U		<0.17	U	
Trichloroethene (TCE)	<0.107	U		<0.18	U		<0.17	U	
Trichlorofluoromethane	1.24			1.2			1.2		
Trimethylbenzene (1,2,4-)	0.320	EB	H	<0.82	U		<0.78	U	
Vinyl chloride	<0.051	U		<0.042	U		<0.040	U	
Xylene (m,p-)	1.34			0.50			0.28		
Xylene (o-)	0.565			0.24			<0.14	U	

Concentrations in µg/m³

Analyte	IA-1017														
	IA1017			IA1017			FD-01			IA1017			FD-02		
	09/06/13			03/28/19			03/28/19			12/12/19			12/12/19		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	198			14			14			10			7.7		
Butanone (2-) (MEK)	<1.47	U		<2.5	U		<2.4	U		<2.3	U		<2.4	U	
Carbon disulfide	<0.623	U		<2.6	U		<2.6	U		<2.5	U		<2.6	U	
Carbon tetrachloride	0.352			0.48			0.46			0.46			0.46		
Chloroform (Trichloromethane)	0.166			<0.16	U		<0.16	U		<0.15	U		<0.16	U	
Dichlorodifluoromethane (CFC12)	1.42			2.3			2.4			2.5			2.5		
Dichloroethane (1,1-)	<0.081	U		<0.14	U		<0.13	U		<0.13	U		<0.13	U	
Dichloroethene (1,1-)	<0.079	U		<0.067	U		<0.066	U		<0.063	U		<0.065	U	
Dichloroethene (cis-1,2-)	<0.079	U		<0.13	U		<0.13	U		<0.12	U		<0.13	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	0.552			<1.3	U		<1.3	U		<1.2	U		<1.2	U	
Ethylbenzene	0.339	EB	H	0.19			0.16			<0.14	U		<0.14	U	
Isopropyl Alcohol (Isopropanol)	<1.23	U		6.3			6.2			18			18		
Methyl-2-pentanone (4-) (MIBK)	<2.05	U		<0.69	U		<0.68	U		<0.65	U		<0.67	U	
Propene	<0.861	U		<2.9	U		<2.8	U		<2.7	U		<2.8	U	
Tetrachloroethene (PCE)	<0.136	U		<0.23	U		0.27			<0.21	U		<0.22	U	
Toluene	1.11			1.7	J	I	4.2	J	I	0.71			0.67		
Trichloroethane (1,1,1-)	<0.109	U		<0.18	U		<0.18	U		<0.17	U		<0.18	U	
Trichloroethene (TCE)	<0.107	U		0.30			<0.18	U		<0.17	U		<0.18	U	
Trichlorofluoromethane	1.25			1.2			1.2			1.3			1.3		
Trimethylbenzene (1,2,4-)	0.334	EB	H	1.2			<0.82	U		<0.78	U		<0.81	U	
Vinyl chloride	<0.051	U		<0.043	U		<0.042	U		<0.040	U		<0.042	U	
Xylene (m,p-)	1.54			0.54			0.56			0.30			<0.28	U	
Xylene (o-)	0.617			0.25			0.22			<0.14	U		<0.14	U	

Concentrations in µg/m³

2013 Indoor Air			March 2019 Indoor Air			December 2019 Indoor Air			February 2021 Indoor Air		
Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
390	75.5	169	61	13	24	31	7.7	19	33	30	31
<1.47	<1.47	ND	<2.5	<2.2	ND	3.3	3.1	3.1	<2.8	<2.5	ND
<0.623	<0.623	ND	<2.6	<2.3	ND	<2.7	<2.4	ND	<2.9	<2.6	ND
0.384	0.346	0.356	0.63	0.41	0.48	0.47	0.42	0.46	0.42	0.38	0.39
0.400	0.166	0.174	0.26	0.24	0.25	<0.17	<0.15	ND	<0.18	<0.16	ND
1.76	1.14	1.30	2.4	2.3	2.4	2.5	2.4	2.5	2.0	1.9	1.9
<0.081	<0.081	ND	<0.14	<0.12	ND	<0.14	<0.12	ND	<0.15	<0.14	ND
<0.079	<0.079	ND	<0.067	<0.058	ND	<0.068	<0.061	ND	<0.074	<0.067	ND
<0.079	<0.079	ND	<0.13	<0.12	ND	<0.14	<0.12	ND	<0.15	<0.13	ND
0.567	0.537	0.544	<1.3	<1.1	ND	<1.3	<1.2	ND	<1.4	<1.3	ND
0.365	0.304	0.330	0.19	0.16	0.16	0.18	0.18	0.18	0.17	0.15	0.16
<1.23	<1.23	ND	33	6.2	7.6	20	17	18	62	56	57
<2.05	<2.05	ND	0.76	0.70	0.70	<0.70	<0.63	ND	<0.77	<0.69	ND
<0.861	<0.861	ND	<2.9	<2.5	ND	<2.9	<2.7	ND	<3.2	<2.9	ND
0.183	0.183	0.183	0.37	0.21	0.25	<0.23	<0.21	ND	<0.25	<0.23	ND
1.25	1.06	1.10	4.2	0.92	1.2	0.80	0.60	0.71	1.0	0.99	1.0
<0.109	<0.109	ND	<0.18	<0.16	ND	<0.19	<0.17	ND	<0.20	<0.18	ND
<0.107	<0.107	ND	0.30	0.30	0.30	<0.18	<0.17	ND	<0.20	<0.18	ND
1.25	1.23	1.25	1.3	1.2	1.2	1.3	1.2	1.3	1.3	1.1	1.1
0.393	0.305	0.324	1.2	1.2	1.2	<0.84	<0.76	ND	<0.92	<0.82	ND
<0.051	<0.051	ND	<0.043	<0.038	ND	<0.044	<0.040	ND	<0.048	<0.043	ND
1.58	1.33	1.45	0.56	0.45	0.50	0.43	0.28	0.42	0.51	0.48	0.48
0.652	0.556	0.600	0.25	0.18	0.22	0.19	0.18	0.18	0.19	0.18	0.18

Notes:

1. Samples from 2013 were collected by Sanborn Head personnel on the dates indicated using 2.7-liter Summa canisters equipped with 8-hour flow controllers and analyzed by Alpha Analytical of Mansfield, Massachusetts for the project-specific list of volatile organic compounds (VOCs) using United States Environmental Protection Agency (USEPA) Method TO-15 in Selective Ion Monitoring (SIM) mode. Samples from 2019 and 2021 were collected by Sanborn Head personnel on the dates indicated over an approximately 8-hour sampling interval using 6-liter Summa canisters. The samples were analyzed by Eurofins Air Toxics of Folsom, California by USEPA Method TO-15 using a combination of full scan and SIM mode. Location AA-1 is an outdoor ambient air sampling point. IA-series locations are indoor air sampling points.

2. "<" indicates the analyte was not detected at the reporting limit shown.

3. New Environmental Horizons, Inc. (NEH) performed an independent validation of the analytical data, which is provided in Attachment 5. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data:
"EB" - The analyte was also present in the field equipment blank.
"J" - The associated numerical value is an estimated quantity due to quality control criteria exceedance(s). The value is usable for project objectives with the documentation of the uncertainty, bias, and/or imprecision.
"U" - The compound was analyzed for, but was not detected. The associated numerical value is the sample-specific reporting limit. The value is usable for project decisions as a non-detect result at the reporting limit.
"H" - high bias.
"I" - Indeterminate bias.

4. "Max" indicates the maximum detected concentration in the indoor air samples. For those analytes that were not detected in any of the samples, the maximum reporting limit value is presented.
"Min" indicates the minimum detected concentration in the indoor air samples. For those analytes that were not detected in any of the samples, the minimum reporting limit value is presented. For those analytes that were detected, the reporting limit values were not considered when calculating the minimum values.
"Median" indicates the median detected concentration in the indoor air samples.
Max/Min/Median values are shown with up to three significant digits.
"ND" indicates that the analyte was not detected above laboratory reporting limits in any of the indoor air samples.

TABLE 3
Summary of 8-Hour Subslab Vapor Sampling Results
Former IBM Leased Building 982
Poughkeepsie, New York

Concentrations in µg/m^3

Analyte	Field Blank												SSV-1001											
	FB1			FB1			FB1			FB1			SSV1001			SSV1001			SSV1001			FD-02		
	09/06/13			03/28/19			12/12/19			02/12/21			03/28/19			12/12/19			02/12/21			02/12/21		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	<13.1	U		<2.6	U		<3.5	U		<5.3	U		7.4			9.6			9.2			<5.4	U	
Butanone (2-) (MEK)	<4.07	U		<3.2	U		<2.2	U		<3.3	U		<2.5	U		<2.3	U		<2.5	U		<3.3	U	
Carbon disulfide	<1.71	U		<3.4	U		<2.3	U		<3.5	U		<2.7	U		<2.5	U		<2.7	U		<3.5	U	
Carbon tetrachloride	<0.346	U		<0.27	U		<0.19	U		<0.28	U		0.40			0.41			0.34			0.33		
Chloroform (Trichloromethane)	<0.269	U		<0.21	U		<0.14	U		<0.22	U		0.69			1.4			2.4			2.4		
Dichlorodifluoromethane (CFC12)	<0.682	U		<0.22	U		<0.15	U		<0.22	U		2.8			2.4			2.1			2.0		
Dichloroethane (1,1-)	<0.223	U		<0.18	U		<0.12	U		<0.18	U		0.63			1.3			2.5			2.5		
Dichloroethene (1,1-)	<0.218	U		<0.086	U		<0.059	U		<0.088	U		1.9			3.6			7.8			7.8		
Dichloroethene (cis-1,2-)	<0.218	U		<0.17	U		<0.12	U		<0.18	U		0.27			0.42			0.68			0.63		
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	<1.06	U		<1.7	U		<1.1	U		<1.7	U		2.8			3.7			17			15		
Ethylbenzene	0.452			<0.19	U		<0.13	U		<0.19	U		<0.15	U		<0.14	U		<0.15	U		<0.20	U	
Isopropyl Alcohol (Isopropanol)	<3.39	U		<2.7	U		<1.8	U		<2.7	U		<2.1	U		<1.9	U		3.2	J	I	<2.8	UJ	I
Methyl-2-pentanone (4-) (MIBK)	<5.66	U		<0.89	U		<0.61	U		<0.91	U		<0.70	U		<0.65	U		<0.70	U		<0.92	U	
Propene	<2.38	U		<3.8	U		<2.6	U		<3.8	U		<2.9	U		<2.7	U		<2.9	U		<3.9	U	
Tetrachloroethene (PCE)	<0.373	U		<0.30	U		<0.20	U		<0.30	U		0.35			0.37			0.93			0.55		
Toluene	<0.520	U		0.18			<0.28	U		<0.42	U		0.17			0.72			<0.32	U		<0.42	U	
Trichloroethane (1,1,1-)	<0.300	U		<0.24	U		<0.16	U		<0.24	U		30			51			190			180		
Trichloroethene (TCE)	<0.296	U		<0.23	U		<0.16	U		<0.24	U		39			62			140			150		
Trichlorofluoromethane	<0.776	U		<1.2	U		<0.84	U		<1.2	U		1.2			1.3			1.3			1.3		
Trimethylbenzene (1,2,4-)	0.311			<1.1	U		<0.73	U		<1.1	U		<0.84	U		<0.78	U		<0.84	U		<1.1	U	
Vinyl chloride	<0.141	U		<0.056	U		<0.038	U		<0.057	U		<0.044	U		<0.040	U		<0.044	U		<0.058	U	
Xylene (m,p-)	<0.478	U		<0.38	U		<0.26	U		<0.39	U		<0.30	U		0.33			<0.30	U		<0.39	U	
Xylene (o-)	<0.239	U		0.19	J	I	<0.13	U		<0.19	U		<0.15	U		<0.14	U		<0.15	U		<0.20	U	
Total VOCs	0.763			0.37			ND			ND			88			139			377			363		

Analyte	SSV-1002												SSV-1005		
	SSV1002			SSV1002			SSV1002			SSV1002			SSV1005		
	09/06/13			03/28/19			12/12/19			02/12/21			09/06/13		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	33.7			8.5	J	H	5.3			9.8			<39.2	U	
Butanone (2-) (MEK)	14.3			<2.2	U		<2.3	U		<2.5	U		15.5		
Carbon disulfide	2.59			<2.4	U		<2.4	U		34			<5.14	U	
Carbon tetrachloride	<0.506	U		0.49	J	H	0.41			0.39			<1.04	U	
Chloroform (Trichloromethane)	22.3			0.47	J	H	0.82			1.5			12.9		
Dichlorodifluoromethane (CFC12)	21.0	J	I	2.7	J	H	2.4			2.2			6.68		
Dichloroethane (1,1-)	26.6			0.70	J	H	1.3			2.4			56.3		
Dichloroethene (1,1-)	53.1			<0.061	U		0.10			0.18			303		
Dichloroethene (cis-1,2-)	21.6			0.30	J	H	0.38			0.70			0.916		
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	17.6			1.5	J	H	1.5			5.6			63.2		
Ethylbenzene	0.873	EB	H	<0.13	U		<0.13	U		<0.14	U		0.969	EB	H
Isopropyl Alcohol (Isopropanol)	<4.94	U		<1.9	U		<1.9	U		2.7	J	I	<10.1	U	
Methyl-2-pentanone (4-) (MIBK)	<8.24	U		<0.63	U		<0.63	U		<0.69	U		<16.9	U	
Propene	<3.46	U		<2.6	U		<2.7	U		<2.9	U		<7.09	U	
Tetrachloroethene (PCE)	4.75			1.8	J	H	0.22			0.29			3.69		
Toluene	3.02			<0.12	U		0.53			<0.32	U		1.68		
Trichloroethane (1,1,1-)	726			24	J	H	36			130			1,640		
Trichloroethene (TCE)	378			22	J	H	26			59			65.0		
Trichlorofluoromethane	3.71			1.2	J	H	1.3			2.3			3.99		
Trimethylbenzene (1,2,4-)	1.86	EB	H	<0.75	U		<0.76	U		<0.82	U		1.10	EB	H
Vinyl chloride	<0.206	U		<0.039	U		<0.040	U		<0.043	U		<0.422	U	
Xylene (m,p-)	4.82			<0.26	U		<0.27	U		<0.29	U		4.60		
Xylene (o-)	1.78			<0.13	U		<0.13	U		<0.14	U		2.22		
Total VOCs	1,340			64			76			251			2,180		

Analyte	SSV-1009						SSV-1013			SSV-1015			SSV-1016								
	SSV1009			SSV1009			SSV1013			SSV1015			SSV1016			SSV1016			SSV1016		
	03/28/19			12/12/19			09/06/13			09/06/13			09/06/13			03/28/19			12/12/19		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	9.4			6.2			<23.6	U		16.9			75.8			10			5.4		
Butanone (2-) (MEK)	<2.3	U		<2.4	U		<7.31	U		6.49			22.0			<2.3	U		<2.4	U	
Carbon disulfide	<2.4	U		<2.6	U		<3.09	U		2.45			4.83			<2.5	U		<2.5	U	
Carbon tetrachloride	0.48			0.44			<0.625	U		<0.300	U		<0.969	U		0.40			0.45		
Chloroform (Trichloromethane)	4.1			2.8			13.4			5.42			5.71			0.21			0.18		
Dichlorodifluoromethane (CFC12)	2.7			2.4			6.18			12.5			8.06			2.7			2.0		
Dichloroethane (1,1-)	5.4			3.4			8.90			0.242			9.71			0.26			0.28		
Dichloroethene (1,1-)	24			30			1.55			0.208			19.3			<0.063	U		<0.064	U	
Dichloroethene (cis-1,2-)	2.3			1.4			<0.394	U		<0.189	U		<0.611	U		<0.12	U		<0.13	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	<1.2	U		<1.2	U		5.75			18.2			5.91			<1.2	U		<1.2	U	
Ethylbenzene	0.19			0.15			0.691	EB	H	5.39	EB	H	0.669	EB	H	<0.14	U		<0.14	U	
Isopropyl Alcohol (Isopropanol)	<1.9	U		<2.0	U		<6.10	U		<2.93	U		<9.46	U		<1.9	U		<2.0	U	
Methyl-2-pentanone (4-) (MIBK)	<0.64	U		<0.67	U		<10.2	U		<4.88	U		<15.8	U		<0.65	U		<0.66	U	
Propene	<2.7	U		<2.8	U		<4.27	U		<2.05	U		<6.63	U		<2.7	U		<2.8	U	
Tetrachloroethene (PCE)	22			0.22			1.52			6.59			5.07			0.44			0.36		
Toluene	0.40			<0.31	U		<0.935	U		7.20			4.37			0.14			<0.30	U	
Trichloroethane (1,1,1-)	72			64			1,280			414			1,520			11			11		
Trichloroethene (TCE)	25			15			2.64			<0.256	U		1.28			0.23			0.22		
Trichlorofluoromethane	1.5			1.6			9.05			5.03			6.57			1.0			1.2		
Trimethylbenzene (1,2,4-)	<0.77	U		<0.81	U		<0.488	U		2.12	EB	H	0.983	EB	H	<0.78	U		<0.79	U	
Vinyl chloride	<0.040	U		<0.042	U		<0.254	U		<0.122	U		<0.394	U		<0.040	U		<0.041	U	
Xylene (m,p-)	0.38			0.29			3.47			5.39			1.77			<0.27	U		<0.28	U	
Xylene (o-)	<0.14	U		<0.14	U		1.60			2.65			0.838			<0.14	U		<0.14	U	
Total VOCs	170			128			1,330			511			1,690			26			21		

Concentrations in µg/m^3

Analyte	SSV-1017															SSV-1033					
	SSV1017			SSV1017			FD-02			SSV1017			FD-01			SSV1033			SSV1033		
	09/06/13			03/28/19			03/28/19			12/12/19			12/12/19			03/28/19			12/12/19		
	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias	Result	Qual	Bias
Acetone	<58.2	U		9.0	J	I	48	J	I	4.8			<3.8	U		7.5			13		
Butanone (2-) (MEK)	<18.0	U		<2.3	UJ	I	11	J	I	<2.3	U		<2.3	U		<2.4	U		<2.3	U	
Carbon disulfide	<7.63	U		<2.5	UJ	I	<2.4	U		<2.5	U		<2.5	U		<2.5	U		<2.4	U	
Carbon tetrachloride	<1.54	U		0.25	J	I	0.26			<0.20	U		<0.20	U		0.36			0.41		
Chloroform (Trichloromethane)	37.2			2.9	J	I	2.8			3.3			3.4			0.16			0.18		
Dichlorodifluoromethane (CFC12)	7.81			2.7	J	I	2.6			2.4			2.4			2.6			2.1		
Dichloroethane (1,1-)	15.5			0.57	J	I	0.53			1.0			1.1			<0.13	U		<0.12	U	
Dichloroethene (1,1-)	351			9.1	J	I	8.6			11			11			0.12			0.13		
Dichloroethene (cis-1,2-)	<0.971	U		0.50	J	I	0.53			0.39			0.39			0.13			<0.12	U	
Ethane, 1,1,2-trichloro-1,2,2-trifluoro- (CFC113)	62.2			4.8	J	I	3.6			6.6			6.6			<1.2	U		<1.2	U	
Ethylbenzene	<1.06	U		<0.14	UJ	I	0.20			<0.14	U		<0.14	U		<0.14	U		<0.13	U	
Isopropyl Alcohol (Isopropanol)	<15.0	U		<1.9	UJ	I	2.4			<1.9	U		<1.9	U		<2.0	U		<1.9	U	
Methyl-2-pentanone (4-) (MIBK)	<25.1	U		<0.65	UJ	I	0.82			<0.65	U		<0.65	U		<0.66	U		<0.63	U	
Propene	<10.5	U		<2.7	UJ	I	<2.7	U		<2.7	U		<2.7	U		<2.8	U		<2.7	U	
Tetrachloroethene (PCE)	1.91			0.88	J	I	0.42			0.21	J	I	0.34			0.27			<0.21	U	
Toluene	<2.31	U		0.27	J	I	0.63	J	I	1.0			1.1			<0.12	U		0.46		
Trichloroethane (1,1,1-)	3,020			47	J	I	45			120			120			2.6			4.4		
Trichloroethene (TCE)	<1.32	U		6.2	J	I	5.0			4.7			4.9			<0.17	U		<0.17	U	
Trichlorofluoromethane	8.32			1.2	J	I	1.1			1.2			1.2			0.98			1.2		
Trimethylbenzene (1,2,4-)	<1.20	U		<0.78	UJ	I	<0.76	U		<0.78	U		<0.78	U		<0.80	U		<0.76	U	
Vinyl chloride	<0.626	U		<0.040	UJ	I	<0.040	U		<0.040	U		<0.040	U		<0.041	U		<0.040	U	
Xylene (m,p-)	<2.12	U		<0.27	UJ	I	0.76			0.37			0.32			<0.28	U		<0.27	U	
Xylene (o-)	<1.06	U		0.25	J	I	0.28			<0.14	U		<0.14	U		<0.14	U		<0.13	U	
Total VOCs	3,500			86			135			157			153			15			22		

Concentrations in µg/m^3

2013 Subslab Vapor			March 2019 Subslab Vapor			December 2019 Subslab Vapor			February 2021 Subslab Vapor		
Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
75.8	16.9	42.0	48	7.4	9.0	13	4.8	5.8	9.8	9.2	9.5
22.0	6.25	15.4	11	11	11	<2.4	<2.3	ND	<3.3	<2.5	ND
7.22	2.45	4.78	<2.7	<2.4	ND	<2.6	<2.4	ND	34	34	34
0.705	0.566	0.636	0.49	0.25	0.40	0.45	0.41	0.41	0.39	0.33	0.34
37.2	5.42	15.9	4.1	0.16	0.69	6.6	1.5	5.2	2.4	1.5	2.4
33.0	2.67	6.63	2.8	2.6	2.7	3.4	0.18	1.4	2.2	2.0	2.1
56.3	0.242	8.28	5.4	0.26	0.60	2.4	2.0	2.4	2.5	2.4	2.5
351	0.208	36.5	24	0.12	8.6	3.4	0.28	1.2	7.8	0.18	7.8
21.6	0.324	0.696	2.3	0.13	0.40	30	0.10	7.3	0.70	0.63	0.68
63.2	2.10	14.3	4.8	1.5	3.2	1.4	0.38	0.39	17	5.6	15
55.2	0.399	1.05	0.20	0.19	0.20	0.15	0.15	0.15	<0.20	<0.14	ND
<15.2	<2.83	ND	2.4	2.4	2.4	<2.0	<1.9	ND	3.2	2.7	3.0
<25.3	<4.71	ND	0.82	0.82	0.82	<0.67	<0.63	ND	<0.92	<0.69	ND
3.18	2.48	2.83	<2.9	<2.6	ND	<2.8	<2.7	ND	<3.9	<2.9	ND
135	1.52	5.83	22	0.27	0.44	0.37	0.21	0.28	0.93	0.29	0.55
11.1	1.11	3.06	0.63	0.14	0.27	1.1	0.46	0.72	<0.42	<0.32	ND
3,020	13.6	925	72	2.6	30	120	4.4	51	190	130	180
378	0.666	1.40	39	0.23	14.1	62	0.22	10	150	59	140
12.0	1.78	6.55	1.5	1.0	1.2	1.6	1.2	1.2	2.3	1.3	1.3
2.12	0.531	1.22	<0.84	<0.75	ND	<0.81	<0.76	ND	<1.1	<0.82	ND
<0.631	<0.117	ND	<0.044	<0.039	ND	<0.042	<0.040	ND	<0.058	<0.043	ND
269	1.01	4.82	0.76	0.38	0.57	0.37	0.29	0.33	<0.39	<0.29	ND
86.9	0.433	2.22	0.28	0.25	0.27	<0.14	<0.13	ND	<0.20	<0.14	ND
3,500	476	1,305	170	15	86	157	21	128	377	251	363

Notes:

1. Samples from 2013 were collected by Sanborn Head personnel on the dates indicated using 1-liter Summa canisters equipped with 1-hour flow controllers and analyzed by Alpha Analytical of Mansfield, Massachusetts using United States Environmental Protection Agency (USEPA) Method TO-15 in Selective Ion Monitoring (SIM) mode. Samples from 2019 and 2021 were collected by Sanborn Head personnel on the dates indicated over an approximately 8-hour sampling interval using 6-liter Summa canisters. The samples were analyzed by Eurofins Air Toxics of Folsom, California by USEPA Method TO-15 using a combination of full scan and SIM mode. SSV-series locations are subslab vapor sampling points.

2. "<" indicates the analyte was not detected at the reporting limit shown.
"Total VOCs" indicates the sum of detected concentrations.

3. New Environmental Horizons, Inc. (NEH) performed an independent validation of the analytical data, which is provided in Attachment 5. All results were considered acceptable, with the understanding of the potential uncertainty (bias) in the qualified results. In some cases, NEH assigned the following qualifiers and biases to the data:
"EB" - The analyte was also present in the field equipment blank.
"J" - The associated numerical value is an estimated quantity due to quality control criteria exceedance(s). The value is usable for project objectives with the documentation of the uncertainty, bias, and/or imprecision.
"U" - The compound was analyzed for, but was not detected. The associated numerical value is the sample-specific reporting limit. The value is usable for project decisions as a non-detect result at the reporting limit.
"H" - high bias.
"I" - Indeterminate bias.

4. "Max" indicates the maximum detected concentration in the subslab vapor samples. For those analytes that were not detected in any of the samples, the maximum reporting limit value is presented.
"Min" indicates the minimum detected concentration in the subslab vapor samples. For those analytes that were not detected in any of the samples, the minimum reporting limit value is presented. For those analytes that were detected, the reporting limit values were not considered when calculating the minimum values.
"Median" indicates the median detected concentration in the subslab vapor samples.
Max/Min/Median and Total VOC values are shown with up to three significant digits.
"ND" indicates that the analyte was not detected above laboratory reporting limits in any of the subslab vapor samples.

ATTACHMENT 1

LIMITATIONS

ATTACHMENT 1
SHPC LIMITATIONS

1. The findings and conclusions described in this report are based in part on the data obtained from a finite number of samples from widely spaced locations. The figures are intended to depict inferred conditions during a given period of time, consistent with available information. The actual conditions will vary from that shown, both spatially and temporally. Other interpretations are possible. The nature and extent of variations between sampling locations may not become evident until further investigation is initiated. If variations or other latent conditions then appear evident, it may be necessary to re-evaluate the conclusions of this report.

2. Quantitative laboratory testing was performed by others as part of the investigation as noted within the report. It must be noted that additional compounds not searched for during the current study may be present in indoor air at the site. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their distribution within the indoor air may occur due to the passage of time, seasonal fluctuations, and other factors.

3. This report has been prepared for the exclusive use of the IBM Corporation for specific application to the former IBM leased Building 982 in accordance with generally accepted hydrogeologic and engineering practices. No warranty, expressed or implied, is made. The contents of this report should not be relied on by any other party without the express written consent of SHPC.

4. In preparing this report, SHPC has endeavored to conform to generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area. SHPC has attempted to observe a degree of care and skill generally exercised by the technical community under similar circumstances and conditions.

P:\4500s\4593.00\Source Files\Neptune Rd Shutdown Report No. 3\Attachment 1 - Limitations\Attachment 1 - Limitations.doc

ATTACHMENT 2

ANALYTICAL LABORATORY REPORTS

eurofins | Air Toxics

3/2/2021
Mr. Joe Corsello
Sanborn, Head & Associates
20 Foundry Street

Concord NH 03301

Project Name: Neptune Rd
Project #: 4593.00
Workorder #: 2102419

Dear Mr. Joe Corsello

The following report includes the data for the above referenced project for sample(s) received on 2/17/2021 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Alexandra Winslow at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Alexandra Winslow

Project Manager

eurofins | Air Toxics

WORK ORDER #: 2102419

Work Order Summary

CLIENT:	Mr. Joe Corsello Sanborn, Head & Associates 20 Foundry Street Concord, NH 03301	**BILL TO:**	Accounts Payable Sanborn, Head & Associates 20 Foundry Street Concord, NH 03301
PHONE:	603-229-1900	**P.O. #**	
FAX:	603-229-1919	**PROJECT #**	4593.00 Neptune Rd
DATE RECEIVED:	02/17/2021	**CONTACT:**	Alexandra Winslow
DATE COMPLETED:	03/02/2021		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	IA-1002_20210212	Modified TO-15	8.5 "Hg	5 psi
01B	IA-1002_20210212	Modified TO-15	8.5 "Hg	5 psi
02A	IA-1005_20210212	Modified TO-15	6.0 "Hg	5 psi
02B	IA-1005_20210212	Modified TO-15	6.0 "Hg	5 psi
03A	AA-1_20210212	Modified TO-15	2.5 "Hg	5 psi
03B	AA-1_20210212	Modified TO-15	2.5 "Hg	5 psi
04A	FD-01_20210212	Modified TO-15	6.0 "Hg	5 psi
04B	FD-01_20210212	Modified TO-15	6.0 "Hg	5 psi
05A	Lab Blank	Modified TO-15	NA	NA
05B	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
06B	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA
07B	LCS	Modified TO-15	NA	NA
07BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY:  DATE: 03/02/21

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
Sanborn, Head & Associates
Workorder# 2102419

Three 6 Liter Summa Canister (100% SIM Ambient) and one 6 Liter Summa Canister (SIM Certified) samples were received on February 17, 2021. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	For Full Scan: 30% RSD with 4 compounds allowed out to < 40% RSD For SIM: Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	For Full Scan: </= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers For SIM: Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN - See case narrative explanation

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IA-1002_20210212

Lab ID#: 2102419-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.19	0.23	1.0	1.3
Acetone	1.9	14	4.4	33
2-Propanol	0.94	25 J0	2.3	62 J0

Client Sample ID: IA-1002_20210212

Lab ID#: 2102419-01B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.037	0.40	0.18	2.0
Carbon Tetrachloride	0.037	0.068	0.24	0.42
Toluene	0.094	0.28	0.35	1.0
Ethyl Benzene	0.037	0.039	0.16	0.17
m,p-Xylene	0.075	0.12	0.32	0.51
o-Xylene	0.037	0.044	0.16	0.19

Client Sample ID: IA-1005_20210212

Lab ID#: 2102419-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.19	0.94	1.1
Acetone	1.7	12	4.0	30
2-Propanol	0.84	23 J0	2.1	56 J0

Client Sample ID: IA-1005_20210212

Lab ID#: 2102419-02B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.39	0.17	1.9
Carbon Tetrachloride	0.034	0.061	0.21	0.38
Toluene	0.084	0.26	0.32	1.0
Ethyl Benzene	0.034	0.036	0.14	0.16
m,p-Xylene	0.067	0.11	0.29	0.48

eurofins | Air Toxics

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: IA-1005_20210212

Lab ID#: 2102419-02B

o-Xylene	0.034	0.040	0.14	0.18

Client Sample ID: AA-1_20210212

Lab ID#: 2102419-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.15	0.21	0.82	1.2
Acetone	1.5	2.7	3.5	6.3

Client Sample ID: AA-1_20210212

Lab ID#: 2102419-03B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.029	0.39	0.14	1.9
Carbon Tetrachloride	0.029	0.065	0.18	0.41
Toluene	0.073	0.28	0.28	1.1
Ethyl Benzene	0.029	0.038	0.13	0.16
m,p-Xylene	0.058	0.12	0.25	0.50
o-Xylene	0.029	0.043	0.13	0.19

Client Sample ID: FD-01_20210212

Lab ID#: 2102419-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.20	0.94	1.1
Acetone	1.7	13	4.0	31
2-Propanol	0.84	23 J0	2.1	57 J0

Client Sample ID: FD-01_20210212

Lab ID#: 2102419-04B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.39	0.17	1.9
Carbon Tetrachloride	0.034	0.063	0.21	0.39

eurofins | Air Toxics

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: FD-01_20210212

Lab ID#: 2102419-04B

Toluene	0.084	0.26	0.32	0.99
Ethyl Benzene	0.034	0.034	0.14	0.15
m,p-Xylene	0.067	0.11	0.29	0.48
o-Xylene	0.034	0.042	0.14	0.18

eurofins | Air Toxics

Client Sample ID: IA-1002_20210212

Lab ID#: 2102419-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022207**	**Date of Collection: 2/12/21 2:18:00 PM**	
Dil. Factor:	**1.87**	**Date of Analysis: 2/22/21 11:00 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.19	0.23	1.0	1.3
Freon 113	0.19	Not Detected	1.4	Not Detected
Acetone	1.9	14	4.4	33
2-Propanol	0.94	25 J0	2.3	62 J0
Carbon Disulfide	0.94	Not Detected	2.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.94	Not Detected	2.8	Not Detected
4-Methyl-2-pentanone	0.19	Not Detected	0.77	Not Detected
1,2,4-Trimethylbenzene	0.19	Not Detected	0.92	Not Detected
Propylene	1.9	Not Detected	3.2	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	87	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: IA-1002_20210212

Lab ID#: 2102419-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022207sim**	**Date of Collection: 2/12/21 2:18:00 PM**	
Dil. Factor:	**1.87**	**Date of Analysis: 2/22/21 11:00 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.037	0.40	0.18	2.0
Vinyl Chloride	0.019	Not Detected	0.048	Not Detected
1,1-Dichloroethene	0.019	Not Detected	0.074	Not Detected
1,1-Dichloroethane	0.037	Not Detected	0.15	Not Detected
cis-1,2-Dichloroethene	0.037	Not Detected	0.15	Not Detected
Chloroform	0.037	Not Detected	0.18	Not Detected
1,1,1-Trichloroethane	0.037	Not Detected	0.20	Not Detected
Carbon Tetrachloride	0.037	0.068	0.24	0.42
Trichloroethene	0.037	Not Detected	0.20	Not Detected
Toluene	0.094	0.28	0.35	1.0
Tetrachloroethene	0.037	Not Detected	0.25	Not Detected
Ethyl Benzene	0.037	0.039	0.16	0.17
m,p-Xylene	0.075	0.12	0.32	0.51
o-Xylene	0.037	0.044	0.16	0.19

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	84	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: IA-1005_20210212

Lab ID#: 2102419-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022208**	**Date of Collection: 2/12/21 2:15:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/22/21 12:03 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.19	0.94	1.1
Freon 113	0.17	Not Detected	1.3	Not Detected
Acetone	1.7	12	4.0	30
2-Propanol	0.84	23 J0	2.1	56 J0
Carbon Disulfide	0.84	Not Detected	2.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.84	Not Detected	2.5	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.69	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
Propylene	1.7	Not Detected	2.9	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	84	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: IA-1005_20210212

Lab ID#: 2102419-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022208sim**	**Date of Collection: 2/12/21 2:15:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/22/21 12:03 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.39	0.17	1.9
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
Chloroform	0.034	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Carbon Tetrachloride	0.034	0.061	0.21	0.38
Trichloroethene	0.034	Not Detected	0.18	Not Detected
Toluene	0.084	0.26	0.32	1.0
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
Ethyl Benzene	0.034	0.036	0.14	0.16
m,p-Xylene	0.067	0.11	0.29	0.48
o-Xylene	0.034	0.040	0.14	0.18

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	83	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: AA-1_20210212

Lab ID#: 2102419-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022209**	**Date of Collection: 2/12/21 2:19:00 PM**	
Dil. Factor:	**1.46**	**Date of Analysis: 2/22/21 12:43 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.15	0.21	0.82	1.2
Freon 113	0.15	Not Detected	1.1	Not Detected
Acetone	1.5	2.7	3.5	6.3
2-Propanol	0.73	Not Detected UJ	1.8	Not Detected UJ
Carbon Disulfide	0.73	Not Detected	2.3	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.73	Not Detected	2.2	Not Detected
4-Methyl-2-pentanone	0.15	Not Detected	0.60	Not Detected
1,2,4-Trimethylbenzene	0.15	Not Detected	0.72	Not Detected
Propylene	1.5	Not Detected	2.5	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: AA-1_20210212

Lab ID#: 2102419-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022209sim**	**Date of Collection: 2/12/21 2:19:00 PM**	
Dil. Factor:	**1.46**	**Date of Analysis: 2/22/21 12:43 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.029	0.39	0.14	1.9
Vinyl Chloride	0.015	Not Detected	0.037	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.058	Not Detected
1,1-Dichloroethane	0.029	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.029	Not Detected	0.12	Not Detected
Chloroform	0.029	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.029	Not Detected	0.16	Not Detected
Carbon Tetrachloride	0.029	0.065	0.18	0.41
Trichloroethene	0.029	Not Detected	0.16	Not Detected
Toluene	0.073	0.28	0.28	1.1
Tetrachloroethene	0.029	Not Detected	0.20	Not Detected
Ethyl Benzene	0.029	0.038	0.13	0.16
m,p-Xylene	0.058	0.12	0.25	0.50
o-Xylene	0.029	0.043	0.13	0.19

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: FD-01_20210212

Lab ID#: 2102419-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022210**	**Date of Collection: 2/12/21 2:15:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/22/21 01:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.20	0.94	1.1
Freon 113	0.17	Not Detected	1.3	Not Detected
Acetone	1.7	13	4.0	31
2-Propanol	0.84	23 J0	2.1	57 J0
Carbon Disulfide	0.84	Not Detected	2.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.84	Not Detected	2.5	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.69	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
Propylene	1.7	Not Detected	2.9	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

Client Sample ID: FD-01_20210212

Lab ID#: 2102419-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022210sim**	**Date of Collection: 2/12/21 2:15:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/22/21 01:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.39	0.17	1.9
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
Chloroform	0.034	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.034	Not Detected	0.18	Not Detected
Carbon Tetrachloride	0.034	0.063	0.21	0.39
Trichloroethene	0.034	Not Detected	0.18	Not Detected
Toluene	0.084	0.26	0.32	0.99
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected
Ethyl Benzene	0.034	0.034	0.14	0.15
m,p-Xylene	0.067	0.11	0.29	0.48
o-Xylene	0.034	0.042	0.14	0.18

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	84	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2102419-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022206**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 09:42 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.10	Not Detected	0.56	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
Acetone	1.0	Not Detected	2.4	Not Detected
2-Propanol	0.50	Not Detected UJ	1.2	Not Detected UJ
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
Propylene	1.0	Not Detected	1.7	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	101	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2102419-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022206sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 09:42 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.020	Not Detected	0.099	Not Detected
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Chloroform	0.020	Not Detected	0.098	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.050	Not Detected	0.19	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 2102419-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022202**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 07:04 AM**	

Compound	**%Recovery**
Freon 11	104
Freon 113	100
Acetone	74
2-Propanol	66 Q
Carbon Disulfide	86
2-Butanone (Methyl Ethyl Ketone)	79
4-Methyl-2-pentanone	89
1,2,4-Trimethylbenzene	95
Propylene	84

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	81	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 2102419-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022202sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 07:04 AM**	

Compound	%Recovery
Freon 12	86
Vinyl Chloride	76
1,1-Dichloroethene	82
1,1-Dichloroethane	83
cis-1,2-Dichloroethene	84
Chloroform	83
1,1,1-Trichloroethane	92
Carbon Tetrachloride	108
Trichloroethene	107
Toluene	97
Tetrachloroethene	101
Ethyl Benzene	95
m,p-Xylene	86
o-Xylene	86

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	84	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2102419-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022203**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 07:44 AM**	

Compound	%Recovery	Method Limits
Freon 11	104	70-130
Freon 113	99	70-130
Acetone	76	70-130
2-Propanol	68 Q	70-130
Carbon Disulfide	84	70-130
2-Butanone (Methyl Ethyl Ketone)	79	70-130
4-Methyl-2-pentanone	87	70-130
1,2,4-Trimethylbenzene	96	70-130
Propylene	85	60-140

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2102419-07AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 08:23 AM**	

Compound	%Recovery	Method Limits
Freon 11	104	70-130
Freon 113	102	70-130
Acetone	75	70-130
2-Propanol	70	70-130
Carbon Disulfide	88	70-130
2-Butanone (Methyl Ethyl Ketone)	81	70-130
4-Methyl-2-pentanone	84	70-130
1,2,4-Trimethylbenzene	92	70-130
Propylene	84	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2102419-07B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022203sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 07:44 AM**	

Compound	%Recovery	Method Limits
Freon 12	85	70-130
Vinyl Chloride	75	70-130
1,1-Dichloroethene	80	70-130
1,1-Dichloroethane	78	70-130
cis-1,2-Dichloroethene	81	70-130
Chloroform	79	70-130
1,1,1-Trichloroethane	88	70-130
Carbon Tetrachloride	90	60-140
Trichloroethene	102	70-130
Toluene	91	70-130
Tetrachloroethene	98	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	86	70-130
o-Xylene	84	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	85	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2102419-07BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022204sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/22/21 08:23 AM**	

Compound	%Recovery	Method Limits
Freon 12	85	70-130
Vinyl Chloride	75	70-130
1,1-Dichloroethene	80	70-130
1,1-Dichloroethane	79	70-130
cis-1,2-Dichloroethene	82	70-130
Chloroform	79	70-130
1,1,1-Trichloroethane	89	70-130
Carbon Tetrachloride	90	60-140
Trichloroethene	102	70-130
Toluene	89	70-130
Tetrachloroethene	99	70-130
Ethyl Benzene	91	70-130
m,p-Xylene	80	70-130
o-Xylene	78	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

3/2/2021
Mr. Joe Corsello
Sanborn, Head & Associates
20 Foundry Street

Concord NH 03301

Project Name: Neptune Rd
Project #: 4593.00
Workorder #: 2102420

Dear Mr. Joe Corsello

The following report includes the data for the above referenced project for sample(s) received on 2/17/2021 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Alexandra Winslow at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Alexandra Winslow

Project Manager

eurofins | Air Toxics

WORK ORDER #: 2102420

Work Order Summary

CLIENT:	Mr. Joe Corsello Sanborn, Head & Associates 20 Foundry Street Concord, NH 03301	**BILL TO:**	Accounts Payable Sanborn, Head & Associates 20 Foundry Street Concord, NH 03301
PHONE:	603-229-1900	**P.O. #**	
FAX:	603-229-1919	**PROJECT #**	4593.00 Neptune Rd
DATE RECEIVED:	02/17/2021	**CONTACT:**	Alexandra Winslow
DATE COMPLETED:	03/02/2021		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	FB-1_20210212	Modified TO-15	12.0 "Hg	5 psi
01B	FB-1_20210212	Modified TO-15	12.0 "Hg	5 psi
02A	Lab Blank	Modified TO-15	NA	NA
02B	Lab Blank	Modified TO-15	NA	NA
03A	CCV	Modified TO-15	NA	NA
03B	CCV	Modified TO-15	NA	NA
04A	LCS	Modified TO-15	NA	NA
04AA	LCSD	Modified TO-15	NA	NA
04B	LCS	Modified TO-15	NA	NA
04BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 03/02/21

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
Sanborn, Head & Associates
Workorder# 2102420

One 6 Liter Summa Canister (100% SIM Ambient) sample was received on February 17, 2021. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	For Full Scan: 30% RSD with 4 compounds allowed out to < 40% RSD For SIM: Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	For Full Scan: </= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers For SIM: Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

The Chain of Custody (COC) information for sample FB-1_20210212 did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN - See case narrative explanation

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: FB-1_20210212

Lab ID#: 2102420-01A

No Detections Were Found.

Client Sample ID: FB-1_20210212

Lab ID#: 2102420-01B

No Detections Were Found.

eurofins | Air Toxics

Client Sample ID: FB-1_20210212

Lab ID#: 2102420-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022307**	**Date of Collection: 2/12/21 2:20:00 PM**	
Dil. Factor:	**2.23**	**Date of Analysis: 2/23/21 10:47 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.22	Not Detected	1.2	Not Detected
Freon 113	0.22	Not Detected	1.7	Not Detected
Acetone	2.2	Not Detected	5.3	Not Detected
2-Propanol	1.1	Not Detected	2.7	Not Detected
Carbon Disulfide	1.1	Not Detected	3.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.3	Not Detected
4-Methyl-2-pentanone	0.22	Not Detected	0.91	Not Detected
1,2,4-Trimethylbenzene	0.22	Not Detected	1.1	Not Detected
Propylene	2.2	Not Detected	3.8	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	91	70-130

eurofins | Air Toxics

Client Sample ID: FB-1_20210212

Lab ID#: 2102420-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022307sim**	**Date of Collection: 2/12/21 2:20:00 PM**	
Dil. Factor:	**2.23**	**Date of Analysis: 2/23/21 10:47 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.045	Not Detected	0.22	Not Detected
Vinyl Chloride	0.022	Not Detected	0.057	Not Detected
1,1-Dichloroethene	0.022	Not Detected	0.088	Not Detected
1,1-Dichloroethane	0.045	Not Detected	0.18	Not Detected
cis-1,2-Dichloroethene	0.045	Not Detected	0.18	Not Detected
Chloroform	0.045	Not Detected	0.22	Not Detected
1,1,1-Trichloroethane	0.045	Not Detected	0.24	Not Detected
Carbon Tetrachloride	0.045	Not Detected	0.28	Not Detected
Trichloroethene	0.045	Not Detected	0.24	Not Detected
Toluene	0.11	Not Detected	0.42	Not Detected
Tetrachloroethene	0.045	Not Detected	0.30	Not Detected
Ethyl Benzene	0.045	Not Detected	0.19	Not Detected
m,p-Xylene	0.089	Not Detected	0.39	Not Detected
o-Xylene	0.045	Not Detected	0.19	Not Detected

Container Type: 6 Liter Summa Canister (100% SIM Ambient)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	105	70-130
4-Bromofluorobenzene	93	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2102420-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022306c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 09:50 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.10	Not Detected	0.56	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
Acetone	1.0	Not Detected	2.4	Not Detected
2-Propanol	0.50	Not Detected	1.2	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
Propylene	1.0	Not Detected	1.7	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	120	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	93	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2102420-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022306simc**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 09:50 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.020	Not Detected	0.099	Not Detected
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Chloroform	0.020	Not Detected	0.098	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.050	Not Detected	0.19	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 2102420-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 07:17 AM**	

Compound	%Recovery
Freon 11	110
Freon 113	100
Acetone	93
2-Propanol	79
Carbon Disulfide	104
2-Butanone (Methyl Ethyl Ketone)	101
4-Methyl-2-pentanone	100
1,2,4-Trimethylbenzene	102
Propylene	90

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	113	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 2102420-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022302sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 07:17 AM**	

Compound	%Recovery
Freon 12	96
Vinyl Chloride	87
1,1-Dichloroethene	97
1,1-Dichloroethane	119
cis-1,2-Dichloroethene	100
Chloroform	101
1,1,1-Trichloroethane	103
Carbon Tetrachloride	110
Trichloroethene	115
Toluene	111
Tetrachloroethene	111
Ethyl Benzene	112
m,p-Xylene	109
o-Xylene	105

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	115	70-130
4-Bromofluorobenzene	106	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2102420-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 07:54 AM**	

Compound	%Recovery	Method Limits
Freon 11	111	70-130
Freon 113	99	70-130
Acetone	97	70-130
2-Propanol	88	70-130
Carbon Disulfide	106	70-130
2-Butanone (Methyl Ethyl Ketone)	106	70-130
4-Methyl-2-pentanone	101	70-130
1,2,4-Trimethylbenzene	99	70-130
Propylene	96	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	111	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2102420-04AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 08:31 AM**	

Compound	%Recovery	Method Limits
Freon 11	109	70-130
Freon 113	101	70-130
Acetone	96	70-130
2-Propanol	92	70-130
Carbon Disulfide	104	70-130
2-Butanone (Methyl Ethyl Ketone)	106	70-130
4-Methyl-2-pentanone	101	70-130
1,2,4-Trimethylbenzene	93	70-130
Propylene	95	60-140

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	109	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2102420-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022303sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 07:54 AM**	

Compound	%Recovery	Method Limits
Freon 12	97	70-130
Vinyl Chloride	88	70-130
1,1-Dichloroethene	97	70-130
1,1-Dichloroethane	118	70-130
cis-1,2-Dichloroethene	99	70-130
Chloroform	99	70-130
1,1,1-Trichloroethane	102	70-130
Carbon Tetrachloride	114	60-140
Trichloroethene	109	70-130
Toluene	103	70-130
Tetrachloroethene	103	70-130
Ethyl Benzene	108	70-130
m,p-Xylene	105	70-130
o-Xylene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	112	70-130
4-Bromofluorobenzene	105	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2102420-04BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**21022304sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 08:31 AM**	

Compound	%Recovery	Method Limits
Freon 12	98	70-130
Vinyl Chloride	90	70-130
1,1-Dichloroethene	99	70-130
1,1-Dichloroethane	120	70-130
cis-1,2-Dichloroethene	100	70-130
Chloroform	100	70-130
1,1,1-Trichloroethane	102	70-130
Carbon Tetrachloride	115	60-140
Trichloroethene	109	70-130
Toluene	104	70-130
Tetrachloroethene	105	70-130
Ethyl Benzene	108	70-130
m,p-Xylene	104	70-130
o-Xylene	100	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	113	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

3/2/2021
Mr. Joe Corsello
Sanborn, Head & Associates
20 Foundry Street

Concord NH 03301

Project Name: Neptune Rd
Project #: 4593.00
Workorder #: 2102421

Dear Mr. Joe Corsello

The following report includes the data for the above referenced project for sample(s) received on 2/17/2021 at Eurofins Air Toxics LLC.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics LLC. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Alexandra Winslow at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Alexandra Winslow

Project Manager

eurofins | Air Toxics

WORK ORDER #: 2102421

Work Order Summary

CLIENT:	Mr. Joe Corsello Sanborn, Head & Associates 20 Foundry Street Concord, NH 03301	**BILL TO:**	Accounts Payable Sanborn, Head & Associates 20 Foundry Street Concord, NH 03301
PHONE:	603-229-1900	**P.O. #**	
FAX:	603-229-1919	**PROJECT #**	4593.00 Neptune Rd
DATE RECEIVED:	02/17/2021	**CONTACT:**	Alexandra Winslow
DATE COMPLETED:	03/02/2021		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SSV-1001_20210212	Modified TO-15	6.5 "Hg	5 psi
01B	SSV-1001_20210212	Modified TO-15	6.5 "Hg	5 psi
02A	SSV-1002_20210212	Modified TO-15	6.0 "Hg	5 psi
02B	SSV-1002_20210212	Modified TO-15	6.0 "Hg	5 psi
03A	FD-02_20210212	Modified TO-15	4.5 "Hg	5 psi
03B	FD-02_20210212	Modified TO-15	4.5 "Hg	5 psi
04A	Lab Blank	Modified TO-15	NA	NA
04B	Lab Blank	Modified TO-15	NA	NA
05A	CCV	Modified TO-15	NA	NA
05B	CCV	Modified TO-15	NA	NA
06A	LCS	Modified TO-15	NA	NA
06AA	LCSD	Modified TO-15	NA	NA
06B	LCS	Modified TO-15	NA	NA
06BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 03/02/21

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209220, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-20-16, UT NELAP – CA009332020-12, VA NELAP - 10615, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-014, Effective date: 10/18/2020, Expiration date: 10/17/2021.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 351-8279

LABORATORY NARRATIVE
Modified TO-15 Full Scan/SIM
Sanborn, Head & Associates
Workorder# 2102421

Three 6 Liter Summa Canister (SIM Certified) samples were received on February 17, 2021. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the EATL modifications.

Requirement	***TO-15***	***ATL Modifications***
ICAL %RSD acceptance criteria	</=30% RSD with 2 compounds allowed out to < 40% RSD	For Full Scan: 30% RSD with 4 compounds allowed out to < 40% RSD For SIM: Project specific; default criteria is </=30% RSD with 10% of compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	For Full Scan: </= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers For SIM: Project specific; default criteria is </= 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

The Chain of Custody (COC) information for sample SSV-1001_20210212 did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

Analytical Notes

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Dilution was performed on sample FD-02_20210212 due to the presence of high level target species.

Definition of Data Qualifying Flags

Nine qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

CN - See case narrative explanation

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: SSV-1001_20210212

Lab ID#: 2102421-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.23	0.96	1.3
Freon 113	0.17	2.2	1.3	17
Acetone	1.7	3.9	4.1	9.2
2-Propanol	0.86	1.3 J0	2.1	3.2 J0

Client Sample ID: SSV-1001_20210212

Lab ID#: 2102421-01B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.43	0.17	2.1
1,1-Dichloroethene	0.017	2.0	0.068	7.8
1,1-Dichloroethane	0.034	0.63	0.14	2.5
cis-1,2-Dichloroethene	0.034	0.17	0.14	0.68
Chloroform	0.034	0.49	0.17	2.4
1,1,1-Trichloroethane	0.034	34	0.19	190
Carbon Tetrachloride	0.034	0.054	0.22	0.34
Trichloroethene	0.034	26	0.18	140
Tetrachloroethene	0.034	0.14	0.23	0.93

Client Sample ID: SSV-1002_20210212

Lab ID#: 2102421-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.41	0.94	2.3
Freon 113	0.17	0.72	1.3	5.6
Acetone	1.7	4.1	4.0	9.8
2-Propanol	0.84	1.1 J0	2.1	2.7 J0
Carbon Disulfide	0.84	11	2.6	34

Client Sample ID: SSV-1002_20210212

Lab ID#: 2102421-02B

eurofins | Air Toxics

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

Client Sample ID: SSV-1002_20210212

Lab ID#: 2102421-02B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.45	0.17	2.2
1,1-Dichloroethene	0.017	0.046	0.067	0.18
1,1-Dichloroethane	0.034	0.60	0.14	2.4
cis-1,2-Dichloroethene	0.034	0.18	0.13	0.70
Chloroform	0.034	0.30	0.16	1.5
1,1,1-Trichloroethane	0.034	24	0.18	130
Carbon Tetrachloride	0.034	0.061	0.21	0.39
Trichloroethene	0.034	11	0.18	59
Tetrachloroethene	0.034	0.042	0.23	0.29

Client Sample ID: FD-02_20210212

Lab ID#: 2102421-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.23	0.24	1.3	1.3
Freon 113	0.23	2.0	1.7	15

Client Sample ID: FD-02_20210212

Lab ID#: 2102421-03B

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.045	0.41	0.22	2.0
1,1-Dichloroethene	0.023	2.0	0.090	7.8
1,1-Dichloroethane	0.045	0.62	0.18	2.5
cis-1,2-Dichloroethene	0.045	0.16	0.18	0.63
Chloroform	0.045	0.49	0.22	2.4
1,1,1-Trichloroethane	0.045	34	0.25	180
Carbon Tetrachloride	0.045	0.053	0.28	0.33
Trichloroethene	0.045	28	0.24	150
Tetrachloroethene	0.045	0.081	0.31	0.55

eurofins | Air Toxics

Client Sample ID: SSV-1001_20210212

Lab ID#: 2102421-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022307**	**Date of Collection: 2/12/21 2:16:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 2/23/21 11:03 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.23	0.96	1.3
Freon 113	0.17	2.2	1.3	17
Acetone	1.7	3.9	4.1	9.2
2-Propanol	0.86	1.3 J0	2.1	3.2 J0
Carbon Disulfide	0.86	Not Detected	2.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.86	Not Detected	2.5	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.70	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.84	Not Detected
Propylene	1.7	Not Detected	2.9	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	110	70-130

eurofins | Air Toxics

Client Sample ID: SSV-1001_20210212

Lab ID#: 2102421-01B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022307sim**	**Date of Collection: 2/12/21 2:16:00 PM**	
Dil. Factor:	**1.71**	**Date of Analysis: 2/23/21 11:03 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.43	0.17	2.1
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
1,1-Dichloroethene	0.017	2.0	0.068	7.8
1,1-Dichloroethane	0.034	0.63	0.14	2.5
cis-1,2-Dichloroethene	0.034	0.17	0.14	0.68
Chloroform	0.034	0.49	0.17	2.4
1,1,1-Trichloroethane	0.034	34	0.19	190
Carbon Tetrachloride	0.034	0.054	0.22	0.34
Trichloroethene	0.034	26	0.18	140
Toluene	0.086	Not Detected	0.32	Not Detected
Tetrachloroethene	0.034	0.14	0.23	0.93
Ethyl Benzene	0.034	Not Detected	0.15	Not Detected
m,p-Xylene	0.068	Not Detected	0.30	Not Detected
o-Xylene	0.034	Not Detected	0.15	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	108	70-130

eurofins | Air Toxics

Client Sample ID: SSV-1002_20210212

Lab ID#: 2102421-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022308**	**Date of Collection: 2/12/21 2:17:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/23/21 12:01 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.17	0.41	0.94	2.3
Freon 113	0.17	0.72	1.3	5.6
Acetone	1.7	4.1	4.0	9.8
2-Propanol	0.84	1.1 J0	2.1	2.7 J0
Carbon Disulfide	0.84	11	2.6	34
2-Butanone (Methyl Ethyl Ketone)	0.84	Not Detected	2.5	Not Detected
4-Methyl-2-pentanone	0.17	Not Detected	0.69	Not Detected
1,2,4-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
Propylene	1.7	Not Detected	2.9	Not Detected

J0 = Estimated value due to bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: SSV-1002_20210212

Lab ID#: 2102421-02B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022308sim**	**Date of Collection: 2/12/21 2:17:00 PM**	
Dil. Factor:	**1.68**	**Date of Analysis: 2/23/21 12:01 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.034	0.45	0.17	2.2
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	0.046	0.067	0.18
1,1-Dichloroethane	0.034	0.60	0.14	2.4
cis-1,2-Dichloroethene	0.034	0.18	0.13	0.70
Chloroform	0.034	0.30	0.16	1.5
1,1,1-Trichloroethane	0.034	24	0.18	130
Carbon Tetrachloride	0.034	0.061	0.21	0.39
Trichloroethene	0.034	11	0.18	59
Toluene	0.084	Not Detected	0.32	Not Detected
Tetrachloroethene	0.034	0.042	0.23	0.29
Ethyl Benzene	0.034	Not Detected	0.14	Not Detected
m,p-Xylene	0.067	Not Detected	0.29	Not Detected
o-Xylene	0.034	Not Detected	0.14	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: FD-02_20210212

Lab ID#: 2102421-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022311**	**Date of Collection: 2/12/21 2:16:00 PM**	
Dil. Factor:	**2.26**	**Date of Analysis: 2/23/21 03:17 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.23	0.24	1.3	1.3
Freon 113	0.23	2.0	1.7	15
Acetone	2.3	Not Detected	5.4	Not Detected
2-Propanol	1.1	Not Detected UJ	2.8	Not Detected UJ
Carbon Disulfide	1.1	Not Detected	3.5	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.1	Not Detected	3.3	Not Detected
4-Methyl-2-pentanone	0.23	Not Detected	0.92	Not Detected
1,2,4-Trimethylbenzene	0.23	Not Detected	1.1	Not Detected
Propylene	2.3	Not Detected	3.9	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	112	70-130

eurofins | Air Toxics

Client Sample ID: FD-02_20210212

Lab ID#: 2102421-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022311sim**	**Date of Collection: 2/12/21 2:16:00 PM**	
Dil. Factor:	**2.26**	**Date of Analysis: 2/23/21 03:17 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.045	0.41	0.22	2.0
Vinyl Chloride	0.023	Not Detected	0.058	Not Detected
1,1-Dichloroethene	0.023	2.0	0.090	7.8
1,1-Dichloroethane	0.045	0.62	0.18	2.5
cis-1,2-Dichloroethene	0.045	0.16	0.18	0.63
Chloroform	0.045	0.49	0.22	2.4
1,1,1-Trichloroethane	0.045	34	0.25	180
Carbon Tetrachloride	0.045	0.053	0.28	0.33
Trichloroethene	0.045	28	0.24	150
Toluene	0.11	Not Detected	0.42	Not Detected
Tetrachloroethene	0.045	0.081	0.31	0.55
Ethyl Benzene	0.045	Not Detected	0.20	Not Detected
m,p-Xylene	0.090	Not Detected	0.39	Not Detected
o-Xylene	0.045	Not Detected	0.20	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	108	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2102421-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022306d**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 10:03 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	0.10	Not Detected	0.56	Not Detected
Freon 113	0.10	Not Detected	0.77	Not Detected
Acetone	1.0	Not Detected	2.4	Not Detected
2-Propanol	0.50	Not Detected UJ	1.2	Not Detected UJ
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
4-Methyl-2-pentanone	0.10	Not Detected	0.41	Not Detected
1,2,4-Trimethylbenzene	0.10	Not Detected	0.49	Not Detected
Propylene	1.0	Not Detected	1.7	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	96	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 2102421-04B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022306simd**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 10:03 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.020	Not Detected	0.099	Not Detected
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Chloroform	0.020	Not Detected	0.098	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Carbon Tetrachloride	0.020	Not Detected	0.12	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Toluene	0.050	Not Detected	0.19	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 2102421-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022302a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 07:22 AM**	

Compound	**%Recovery**
Freon 11	105
Freon 113	100
Acetone	75
2-Propanol	65 Q
Carbon Disulfide	88
2-Butanone (Methyl Ethyl Ketone)	79
4-Methyl-2-pentanone	88
1,2,4-Trimethylbenzene	99
Propylene	85

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	85	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 2102421-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022302sima**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 07:22 AM**	

Compound	%Recovery
Freon 12	86
Vinyl Chloride	76
1,1-Dichloroethene	81
1,1-Dichloroethane	83
cis-1,2-Dichloroethene	84
Chloroform	83
1,1,1-Trichloroethane	92
Carbon Tetrachloride	108
Trichloroethene	107
Toluene	98
Tetrachloroethene	101
Ethyl Benzene	97
m,p-Xylene	88
o-Xylene	88

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2102421-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022303a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 08:02 AM**	

Compound	%Recovery	Method Limits
Freon 11	106	70-130
Freon 113	101	70-130
Acetone	76	70-130
2-Propanol	66 Q	70-130
Carbon Disulfide	86	70-130
2-Butanone (Methyl Ethyl Ketone)	82	70-130
4-Methyl-2-pentanone	91	70-130
1,2,4-Trimethylbenzene	96	70-130
Propylene	84	60-140

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	85	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2102421-06AA

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022304a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 08:42 AM**	

Compound	%Recovery	Method Limits
Freon 11	102	70-130
Freon 113	99	70-130
Acetone	72	70-130
2-Propanol	65 Q	70-130
Carbon Disulfide	84	70-130
2-Butanone (Methyl Ethyl Ketone)	77	70-130
4-Methyl-2-pentanone	89	70-130
1,2,4-Trimethylbenzene	98	70-130
Propylene	84	60-140

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	82	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

eurofins | Air Toxics

Client Sample ID: LCS

Lab ID#: 2102421-06B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022303sima**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 08:02 AM**	

Compound	%Recovery	Method Limits
Freon 12	87	70-130
Vinyl Chloride	76	70-130
1,1-Dichloroethene	81	70-130
1,1-Dichloroethane	82	70-130
cis-1,2-Dichloroethene	84	70-130
Chloroform	82	70-130
1,1,1-Trichloroethane	91	70-130
Carbon Tetrachloride	107	60-140
Trichloroethene	105	70-130
Toluene	94	70-130
Tetrachloroethene	102	70-130
Ethyl Benzene	93	70-130
m,p-Xylene	79	70-130
o-Xylene	80	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	85	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 2102421-06BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	**v022304sima**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/23/21 08:42 AM**	

Compound	%Recovery	Method Limits
Freon 12	87	70-130
Vinyl Chloride	76	70-130
1,1-Dichloroethene	82	70-130
1,1-Dichloroethane	82	70-130
cis-1,2-Dichloroethene	84	70-130
Chloroform	82	70-130
1,1,1-Trichloroethane	91	70-130
Carbon Tetrachloride	107	60-140
Trichloroethene	105	70-130
Toluene	94	70-130
Tetrachloroethene	102	70-130
Ethyl Benzene	96	70-130
m,p-Xylene	85	70-130
o-Xylene	84	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

ATTACHMENT 3

DATA USABILITY SUMMARY REPORTS

Data Usability Summary Report (DUSR)

Client:	Sanborn, Head & Associates, Inc., Concord, New Hampshire (SHA)
Site:	Former IBM Facility, Neptune Road, Poughkeepsie, New York
Laboratory:	Eurofins Air Toxics, Inc. (EATL), Folsom, California
SDG / Work Order:	2102419 & 2102420
Date(s) of Collection:	February 12, 2021
Number and type Samples & analyses:	3 Indoor Air, 1 Ambient Air, and 1 Field Blank sample for twenty-three project-specific VOCs by Method TO-15 Hi/Lo
Senior Data Reviewers:	Dr. Nancy C. Rothman, New Environmental Horizons, Inc. Susan D. Chapnick, New Environmental Horizons, Inc.
Date Completed:	March 25, 2021

This Data Usability Summary Report (DUSR) is based on guidance developed by the New York State Department of Conservation (NYSDEC), June 1999, for technical review of analytical data and consistent with the requirements set forth in NYSDEC Technical Guidance for Site Investigation and Remediation, DER-10, Appendix 2B (May 2010). The objective of the DUSR is to determine whether or not the data as presented meet NYSDEC ASP 2005 or EPA method QC acceptance criteria.

2 Farmers Circle, Arlington, Massachusetts 02474 781-643-4294 schapnick@neh-inc.com
34 Pheasant Run Drive, Skillman, New Jersey 08558 908-874-5686 nrothman@neh-inc.com

I. Required DUSR Questions

1. ***Is the data package complete as defined under the requirements for the most current NYSDEC ASP Category B or USEPA CLP deliverables?***

   Yes.

2. ***Have all holding times been met?***

   Yes.

3. ***Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?***

   Yes. Some QC exceptions resulted in qualification of data as noted in the Data Validation Checklists (DV Checklists).

4. ***Have all of the data been generated using established and agreed upon analytical protocols?***

   Yes. Analytical data were generated using established EPA Methods (see analytical references in Section II below). Deviations from EPA and NYSDEC ASP 2005 QC protocols are discussed in the DV Checklists of this DUSR.

5. ***Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?***

   Yes. The raw data were checked to verify that detected results met retention time and mass spectral criteria, where applicable, for qualitative identification. A spot check was performed to verify quantitative accuracy for reporting of all results (see the DV Checklists).

6. ***Have the correct data qualifiers been used and are they consistent with the most current NYSDEC ASP?***

   Yes. The laboratory qualified some results due to QC exceedances and during this usability review, these qualified data were accepted as reported by the laboratory.

7. ***Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheets from the data package been attached to the DUSR?***

   Yes. QC exceedances are specified in the DV Checklists. QC summary sheets from the data package have not been attached; however, all QC exceedances that required data qualification are summarized in Table 2 of the DUSR and flagged in the validated electronic data deliverable (EDD).

II. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification of quality control (QC) samples, if applicable, and the analytical parameters reviewed in this In-Depth data usability review are listed in Table 1. Any deviations noted for sample collection or receipt (*e.g.*, temperature or preservation issues) are included in Section III, below.

Table 1. Sample Descriptions and Analytical Parameters

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters	Sample Type
IA-1002_20210212	2102419-01	2/12/2021	Indoor Air	VOCs	Field Sample
IA-1005_20210212	2102419-02	2/12/2021	Indoor Air	VOCs	Field Sample
AA-1_20210212	2102419-03	2/12/2021	Ambient Air	VOCs	Field Sample
FD-01_20210212	2102419-04	2/12/2021	Indoor Air	VOCs	Field Duplicate of IA-1005_20210212
FB-1_20210212	2102420-01	2/12/2021	Air	VOCs	Field Blank

Analytical method reference:

VOC: TO-15 Hi/Lo – Method TO-15 with simultaneous Full Scan and Selected Ion Monitoring (SIM) analysis for twenty-three project-specific VOCs

III. Data Deficiencies, Analytical Protocol Deviations, and Quality Control Problems

The following QC elements, as applicable to the analytical methods, were reviewed during this validation:

- Data package completeness and reporting protocols
- Sample receipt, holding times, and canister condition
- Calibration criteria (instrument tuning, initial and continuing calibration verifications)
- Method and field blank results
- Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) Recoveries and Precision
- Internal Standard (IS) and Surrogate Recoveries
- Sample/Laboratory Duplicate (LD) or sample/Field Duplicate (FD) Relative Percent Differences (RPDs)
- Sample result reporting (including reporting limits and units)
- Other method-specific QC if applicable and reported
- Deficiencies or protocol deviations as noted in the Laboratory Narrative

During this review, several results were estimated (J or UJ) due to QC issues. Table 2 summarizes the actions taken during this review. NEH generated validated electronic data deliverables (EDDs) based on the EDD files received from SHA for these Work Orders. All results were considered acceptable compared to method criteria and usable for project decisions, with the understanding of the potential uncertainty (bias) in the qualified results.

As required by the DUSR, the DV Checklists attached to this DUSR document the QC reviewed and the issues that required action or affected the data certainty in terms of the project data quality objectives (DQO) of accuracy, precision, representativeness, comparability, and sensitivity. The DQO of completeness can be evaluated by the project manager after all data are generated.

The laboratory reported results for 23 project-specific VOCs from a single analysis with two mass spectrometer (MS) detectors, each operated in a different detection mode: one operated in the full scan electron impact mode and the other operated in the Selected Ion Monitoring (SIM) mode. This analysis, called TO-15 Hi/Lo by ATL, allowed the sensitivity requirements of the project, unless otherwise discussed in this report, to be met for all of the compounds. The Data Review Checklist indicates the compounds reported from each of the two modes of MS operation. The full scan analysis was reported with an “A” suffix and the SIM analysis with a “B” suffix appended to the laboratory sample ID.

Field duplicate (FD) precision was acceptable in the FD pair IA-1005_20210212 and FD-01_20210212 for all target VOCs indicating acceptable precision and representativeness of the samples to the site location for all the project-specific VOCs.

All non-detects were reported at levels below the May 2017 NYSDOH Soil Vapor/Indoor Air values indicating sensitivity was acceptable for these data.

Table 2. Summary of Data Validation Actions
Work Orders 2102419 & 2102420

Client ID	Analyte	DV Qualifer	Bias	DV Comment
IA-1002_20210212	2-Propanol	J	I	Initial Calibration outside criteria + Low Calibration verification
IA-1005_20210212	2-Propanol	J	I	Initial Calibration outside criteria + Low Calibration verification
AA-1_20210212	2-Propanol	UJ	I	Initial Calibration outside criteria + Low Calibration verification
FD-01_20210212	2-Propanol	J	I	Initial Calibration outside criteria + Low Calibration verification

Date Sampled: 2/12/2021

No. Samples 2 IA + 1FD + 1AA

Method of Analysis: TO-15 Full scan & SIM

Data Element Acceptable	Canister Receipt	HT	GC/MS Tunes + Calibrations	Internal Stds + Surrogates	LCS	Lab Dup (LCS and LD)	Field Duplicates	RL & Quant.
Yes	√	√		√	√	√	√	√
No			Estimate (J or UJ) 4 results					

Other Issues : None

A combined Full Scan and SIM Analysis was performed for each sample for 23 Project-specific VOCs listed in Table B.1 of the Work Plan, as shown on the second to last page of this checklist. The full scan analysis was reported with an "A" suffix and the SIM analysis with a "B" suffix appended to the laboratory sample ID.

Data usability review was performed on Quality Control forms associated with this data package, which involved evaluation of the following (where applicable): agreement of analyses conducted with COC requests; Holding times and sample preservation; Laboratory blanks/equipment blanks/ field blanks results compared to field sample results; Field duplicate results; Quantitation limits and sample results; Surrogate and Internal Standard recoveries; LCS/LCSD results; Laboratory duplicate results; instrument tuning and calibration information; sample chromatograms; and laboratory qualifiers applied to the dataset. The project narrative was also reviewed to determine whether additional issues were found that were not reported in the QC previously evaluated. This review is consistent with the requirements set forth in NYSDEC Technical Guidance for Site Investigation and Remediation, DER-10, Appendix 2B (May 2010).

Data Package Completeness: All required forms (results, summary QC, COC), as needed to validate the data in accordance with NYSDEC ASP and the Work Plan were present in the data package. The laboratory provided the equivalent of the Category B deliverable.

Sample receipt: The 4 6-L canisters were received intact and in good condition on 2/17/2021. There were no COC issues noted by lab with sample receipt.

Date: ***3/22/2021***

Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Associated Blanks: Method Blank: v022206 / v022206sim
FB = FB-1_20210212 (reported in Work Order 2102420)

Blank ID	Contaminant / Level (µg/m^3)		Action Level DF= 2.18		Sample and reported result (µg/m3)	Corrected Database Result
v022206	None				No Blank Action Required	
v022206sim	None				No Blank Action Required	
FB-1_20210212	None				No Blank Action Required	

Certification: Canisters were Certified pre-cleaned on 2/1-2/2/2021 prior to shipment to the field indicating all 23 target VOCs were non-detect prior to use.

Sample Integrity: Samples were collected for 8 hours on 2/12/2021. The field receipt vacuums (29.5- 30 "Hg), field final vacuums (4.5 - 7 "Hg) and lab receipt vacuum (2.5 - 8.5 "Hg) were acceptable. The canisters were over-pressurized to 5 psi prior to analysis. No Action required.

Holding Time (HT): Samples were analyzed on 2/22/2021; therefore HT was met. No Action required.

BFB Tunes: Instrument MSDV 2 tunes (ICAL + 1 CCV). Method TO-15 tune criteria used and tunes were acquired properly (average of 3 scans across BFB peak with background subtraction). All criteria in all tunes were met and all samples were analyzed within 12 hours of tune; therefore, No Action Required.

ICALs : Instrument MSDV Full Scan and SIM performed on 2/2/2021. Full Scan = 7- to 9-level calibration from 0.05, 0.1, or 0.5 to 40 ppbV for all 23 Target compounds plus several non-target compounds. SIM = 9- to 10-level calibration from 0.01 or 0.02 to 20 ppbV for all 14 Targets requiring SIM (see Table on second to last page of this DV Checklist). All RLs were supported by the ICAL (i.e., the lowest ICAL standard was at a level at or below the RL reported as verified by evaluating the Method Blank with DF=1) and all %RSD ≤ 30% except for 2-propanol (isopropanol), which reported %RSD > 30% (see calculation check where this was verified). ICALs valid for all compounds except 2-propanol.
****ACTION: All results for 2-propanol estimated (J or UJ) with indeterminate bias due to Initial Calibration being outside criteria***

CCALs: v022202 / v022202sim on 2/22/2021- % Recovery 70-130% for all 23 Target compounds except 2-propanol, which was recovered below criteria in the CCV.
****ACTION: 2-Propanol estimated (J- or UJ) with possible low bias, unless other issues affect the data, due to low calibration verification (NOTE: overall bias indeterminate based on the cumulative bias of ICAL and CCV exceedance)***

Surrogates & Internal Standards **:** Surrogates (1,2-Dichloroethane-d4, Toluene-d8, and 4-Bromofluorobenzene) had %Recovery within criteria and all 3 IS' (Chlorobenzene-d5, 1,4-Difluorobenzene, and Bromochloromethane) had areas and RTs within criteria for both full scan and SIM in all analyses; therefore, No Action Required.

LCS/LCSD : v022203/v022204 & v022203sim/v022204sim - %Recovery acceptable for all 23 Targets in both LCS and LCSD and LCS/LCSD RPDs all OK except LCS %Rec low for 2-propanol. Since the LCSD %Rec for 2-propanol and the LCS/LCSD RPD was acceptable for this compound, no action taken for low LCS recovery. Acceptable accuracy and precision demonstrated for analysis of the 23 VOCs by Full Scan & SIM analysis. No Action required

LD: not performed for this sample since LCS/LCSD performed allowing precision evaluation.

Compound Reporting: the lab reported results for 23 Target VOCs, as requested in Table B.1 of the Work Plan. 9 compounds were reported from the Full Scan analysis and 14 from the SIM analysis as shown on the second to last page of this DV Checklist.

Qualifier Action: the lab qualified the 2-propanol results as "J" and "UJ" in this Work Order to indicate that the calibrations did not meet criteria for this compound but these "J" are not related to the results being reported < RL. There were no other results reported < RL and qualified "J" by the lab. All other data were either detected (not qualified) or non-detect with the "U" qualifier. No qualifier action required.

Sensitivity: All non-detects were below the NYSDOH Values; therefore, sensitivity was acceptable for all these analyses.

Narrative: The narrative did not raise any issues not already address or that would affect data quality.

The sample chromatogram, and quantitation report was reviewed and data appeared to have been reported correctly. Although Tentatively Identified Compound (TIC) analysis was not requested, there were some extra peaks in some samples not identified in the analyses.

Calculation Verification Checks:

Initial Calibration : Verification MSDV Full Scan ICAL on 2/2/2021 for Isopropanol (called 2-Propanol in the data) with IS Bromochloromethane

	Level 1	Level 2	Level 3	Level 4	Level 5
Std Conc.	0.5	1	5	10	15
Cpd Resp	65146	116145	404339	828791	1242097
IS Conc.	5	5	5	5	5
IS Resp	136260	119963	148179	149237	156319
RRF	4.7810	4.8409	2.7287	2.7768	2.6486

	Level 6	Level 7	Avg. RRF	%RSD
Std Conc.	20	40		
Cpd Resp	1624125	3528473		
IS Conc.	5	5		
IS Resp	154329	173247		
RRF	2.6309	2.5458	3.2790	32.0%

√ Verified that ICAL was outside criteria for this compound

ICAL verified, no action required

CCV : Verification MSDV 2/22/2021 for 10 ppbV Standard of Vinyl chloride: Response for Compound = 203416; IS (Bromochloromethane) Response = 113809 @5 ppbV; RRF from SIM ICAL = 1.17085

$$\text{Concentration} = \frac{203416 \times 5}{113809 \times 1.17085} = 7.63 \text{ ppb}$$ √

$$\%\text{Recovery} = \frac{100 \text{ X } 7.63}{10} = 76\%$$

QL & Result Verification: IA-1002_20210212; Toluene

Normal 250 mL analyzed (same as for Method Blank) but since canister was over-pressurize, effective DF = 1.87; MWt = 92.13

Sample Response = 14409; IS Response = 380183 @ 5; RRF ICAL = 1.27191

$$\text{Conc.} = \frac{14409 \times 5 \times 1.87}{380183 \times 1.27191} = 0.28 \text{ ppbV}$$

$\mu g/m^3$ = (ppbv x Mwt x DF) / 24.45 = (0.28 x 92.13 x 1)/24.45 = 1.05 = 1.0 $\mu g/m^3$ √

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

FD : IA-1005_20210212 /FD-01_20210212. A comparison of results for the 23 target compounds is shown below

Field Duplicate Evaluation_ Sample IDs: Sample = IA-1005_20210212 FD = FD-01_20210212

Analyte Name	DF= 1.68 RL (µg/m^3)	Sample µg/m^3	Q	Sample Result Level	FD µg/m^3	Q	FD Result Level	RPD	Action *
Freon 11	0.94	1.1		< 5x RL	1.1		< 5x RL	0.0%	None
Freon 113	1.3	1.3	U	RL	1.3	U	RL	NC	None
Acetone	4	30		> 5x RL	31		> 5x RL	3.3%	None
2-Propanol	2.1	56	J	> 5x RL	57	J	> 5x RL	1.8%	None
Carbon Disulfide	2.6	2.6	U	RL	2.6	U	RL	NC	None
2-Butanone (Methyl Ethyl Ketone)	2.5	2.5	U	RL	2.5	U	RL	NC	None
4-Methyl-2-pentanone	0.69	0.69	U	RL	0.69	U	RL	NC	None
1,2,4-Trimethylbenzene	0.82	0.82	U	RL	0.82	U	RL	NC	None
Propylene	2.9	2.9	U	RL	2.9	U	RL	NC	None
Freon 12	0.17	1.9		> 5x RL	1.9		> 5x RL	0.0%	None
Vinyl Chloride	0.043	0.043	U	RL	0.043	U	RL	NC	None
1,1-Dichloroethene	0.067	0.067	U	RL	0.067	U	RL	NC	None
1,1-Dichloroethane	0.14	0.14	U	RL	0.14	U	RL	NC	None
cis-1,2-Dichloroethene	0.13	0.13	U	RL	0.13	U	RL	NC	None
Chloroform	0.16	0.16	U	RL	0.16	U	RL	NC	None
1,1,1-Trichloroethane	0.18	0.18	U	RL	0.18	U	RL	NC	None
Carbon Tetrachloride	0.21	0.38		< 5x RL	0.39		< 5x RL	2.6%	None
Trichloroethene	0.18	0.18	U	RL	0.18	U	RL	NC	None
Toluene	0.32	1		< 5x RL	0.99		< 5x RL	1.0%	None
Tetrachloroethene	0.23	0.23	U	RL	0.23	U	RL	NC	None
Ethyl Benzene	0.14	0.16		< 5x RL	0.15		< 5x RL	6.5%	None
m,p-Xylene	0.29	0.48		< 5x RL	0.48		< 5x RL	0.0%	None
o-Xylene	0.14	0.18		< 5x RL	0.18		< 5x RL	0.0%	None

*Action only taken if RPD > 20% and one or both samples report values > 5 x RL; Q = Validator Qualifier; NC = Not Calculated

FD precision was acceptable for all project-specific VOCs in the FD pair IA-1005_20210212 /FD-01_20210212 indicating acceptable precision from sample collection through analysis. No Action required.

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Compound List and Project-required Reporting Limits (RL): Table B.1 of Work Plan (updated March 2019)

Analyte	CAS No.		TO-15/TO-15 SIM (6 L canister)	Full Scan TO-15 Soil Vapor (6 L canister)		NYS DOH Values (µg/m³)		
			Typical Final RL (µg/m³) *	Typical Final RL (µg/m³) *	Expected Analysis	Indoor Air		Subslab Vapor
1,1,1-Trichloroethane	71-55-6		0.1771	4.3	SIM	3		100
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1		1.2397	6.1	Full			
1,1-Dichloroethane (1,1-DCA)	75-34-3		0.13041	3.2	SIM			
1,1-Dichloroethylene (1,1-DCE)	75-35-4		0.0644	3.2	SIM	0.2		6
1,2,4-Trimethylbenzene	95-63-6		0.7889	3.8	Full			
2-Butanone (Methyl Ethyl Ketone [MEK])	78-93-3		2.415	9.5	Full			
4-Methyl-2-Pentanone (2-Pentanone; Methyl Isobutyl Ketone [MIBK])	108-10-1		0.6601	3.2	Full			
Acetone	67-64-1		1.932	19	Full			
Carbon disulfide	75-15-0		2.576	10	Full			
Carbon tetrachloride	56-23-5		0.2093	5	SIM	0.2		6
Chloroform	67-66-3		0.15778	3.8	SIM			
cis-1,2-Dichloroethylene (cis-1,2-DCE)	156-59-2		0.12719	3.2	SIM	0.2		6
Dichlorodifluoromethane (DCDFM; Freon 12)	75-71-8		0.15939	4	SIM			
Ethylbenzene	100-41-4		0.14007	3.5	SIM			
Isopropanol	67-63-0		1.932	7.9	Full			
Propylene	115-07-1		2.737	5.5	Full			
Tetrachloroethylene (PCE)	127-18-4		0.2254	5.5	SIM	3		100
Toluene	108-88-3		0.12075	3	SIM			
Trichloroethylene (TCE)	79-01-6		0.1771	4.3	SIM	0.2		6
Trichlorofluoromethane (TCFM; Freon 11)	75-69-4		0.9016	4.5	Full			
Vinyl chloride (VC)	75-01-4		0.04186	2.1	SIM	0.2		6
m/p-Xylene	108-38-3 106-42-3		0.2737	3.5	SIM			
o-Xylene	95-47-6		0.14007	3.5	SIM			

* Typical Final RL assumed a 1.61 Dilution Factor for sample (6L canister collected to a final vacuum of 5 "Hg and over-pressurized to 5 psi prior to analysis).

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Actions continued (see references below):

Canister Integrity:	If certification forms indicate issues, J/U or UJ results in samples; if Flow controller RPD > 20% for pre- and post-flow calibrations, J detect/UJ non-detects
Canister Vacuum (Vac):	Initial Field Vac < 25" Hg, J/UJ all results; Lab Receipt Vac > 15" Hg, J/UJ results; Lab Receipt Vac > ± 5" Hg of Final Field Vac, J/UJ results
Hold Time (HT):	HT > 30 days, J detects/ UJ non-detects
Blank Actions:	Sample-specific Blank Action Level = Blank Level x (Sample DF/Blank DF)
	Method Blank (MB): ***If MB < RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < 2 x RL (or 4 x RL for acetone, 2-butanone, and methylene chloride), negate (U) result at level found in sample. ***If MB > RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < Sample-Specific Blank Action Level, negate (U) the sample at the Sample-Specific Blank Action Level.
	Equipment Blank (EB): Result<Blank Action, EB result at level reported in sample
BFB Tune:	SW-846 method 8260B or TO-15 tune criteria not met, professional judgment on R of all data; samples analyzed > 12-hours after tune; professional judgment on J/UJ or R of results
LCS and CCV:	Percent Recovery (%Rec) <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Initial Calibration (ICAL):	%RSD > 30%, J/UJ associated results
Internal Standard (IS):	RT > ±0.33 min of IS RT in daily CCV, J/UJ associated results;
	Area < 25% Area in CCV, J detects, R non-detects (or professional judgment); 25%< Area < 60% of CCV Area, J/UJ associated results; Area > 140% of CCV Area, J detects, no action for non-detects
Surrogates:	%Rec <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Laboratory Duplicates:	LCS/LCSD RPD or Sample/LD RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
Field Duplicates:	RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
RLs + Quant:	Compound reported outside calibration range (< RL or at ppbV level > sample-specific highest ICAL standard for compound), J data. Note if RL > expected RL from Table B.1 of Work Plan (see above) and if non-detects exceed NYSDOH May 2017 Updated Soil Vapor/Indoor Air Matrices levels
DV Qualifier Definitions:	U = analyte is non-detect at the sample-specific Quantitation Limit (usable); UJ = non-detect is usable as an estimated value; J = result is usable as an estimated value with indeterminate bias; J+ = result is usable as an estimated value with possible high bias; J- = result is usable as an estimated value with possible low bias; and R = result is rejected due to severe QC exceedance and unusable for project objectives. Bias: L = Low; H = High; I = Indeterminate.
References:	*Remedial Design/Remedial Action Work Plan; Former IBM Building 982 – Neptune Road, Poughkeepsie, New York, including Appendix B, QAQC Plan, prepared by Sanborn, Head & Associates, September 3, 2013 (Work Plan) with updated Table B.1 March 2019* ; *NYSDEC Analytical Services Protocol,* June 2005 *with NYSDEC Modifications to the EPA Region 9 TO-15 QA/QC Criteria,* February 2008*; USEPA Region II SOP HW-31, Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15,* Rev. 6, June 2014; *Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS),* Publication EPA/625/R-96/010b, January 1999; and NYSDOH May 2017 Update to Soil Vapor/Indoor Air Decision Matrices.

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Date Sampled: 2/12/2021

No. Samples 1 FB

Method of Analysis: TO-15 Full scan & SIM

Data Element Acceptable	Canister Receipt	HT	GC/MS Tunes + Calibrations	Internal Stds + Surrogates	LCS	Lab Dup (LCS and LD)	Field Duplicates	RL & Quant.
Yes	√	√	√	√	√	√	NA	√
No								

Other Issues : None

A combined Full Scan and SIM Analysis was performed for each sample for 23 Project-specific VOCs listed in Table B.1 of the Work Plan, as shown on the second to last page of this checklist. The full scan analysis was reported with an "A" suffix and the SIM analysis with a "B" suffix appended to the laboratory sample ID.

Data usability review was performed on Quality Control forms associated with this data package, which involved evaluation of the following (where applicable): agreement of analyses conducted with COC requests; Holding times and sample preservation; Laboratory blanks/equipment blanks/ field blanks results compared to field sample results; Field duplicate results; Quantitation limits and sample results; Surrogate and Internal Standard recoveries; LCS/LCSD results; Laboratory duplicate results; instrument tuning and calibration information; sample chromatograms; and laboratory qualifiers applied to the dataset. The project narrative was also reviewed to determine whether additional issues were found that were not reported in the QC previously evaluated. This review is consistent with the requirements set forth in NYSDEC Technical Guidance for Site Investigation and Remediation, DER-10, Appendix 2B (May 2010).

Data Package Completeness: All required forms (results, summary QC, COC), as needed to validate the data in accordance with NYSDEC ASP and the Work Plan were present in the data package. The laboratory provided the equivalent of the Category B deliverable.

Sample receipt: The 1 6-L canisters was received intact and in good condition on 2/17/2021. The lab noted that the COC lists the sample as "FB-1_20210212" while the canister sample tag label lists the sample as "FB-01_20210212." ETL reported the sample using the name listed on the COC. There were no other issues noted with sample receiving.

Date: ***3/21/2021***

Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Associated Blanks: Method Blank: 21022306c / 21022306simc
FB = NA

Blank ID	Contaminant / Level (µg/m^3)		Action Level DF=		Sample and reported result (µg/m3)	Corrected Database Result
21022306c	None				No Blank Action Required	
21022306simc	None				No Blank Action Required	

Certification: Canister was Certified pre-cleaned on 2/1/2021 prior to shipment to the field indicating all 23 target VOCs were non-detect prior to use.

Sample Integrity: FB-1_20210212 was collected for 8 hours on 2/21/2021. The field receipt vacuum (28 ”Hg), field final vacuum (13 "Hg) and lab receipt vacuum (12 "Hg) were acceptable. The canister was over-pressurized to 5 psi prior to analysis. No Action required.

Holding Time (HT): Sample was analyzed on 2/23/21; therefore HT was met. No Action required.

BFB Tunes: Instrument MSD21 tunes (ICAL + 1 CCV). Method TO-15 tune criteria used and tunes were acquired properly (average of 3 scans across BFB peak with background subtraction). All criteria in all tunes were met and the sample was analyzed within 12 hours of tune; therefore, No Action Required.

ICALs : Instrument MSD21 Full Scan and SIM performed on 2/8/21. Full Scan = 7- to 9-level calibration from 0.05, 0.1, or 0.5 to 40 ppbV for all 23 Target compounds plus several non-target compounds. SIM = 9- to 10-level calibration from 0.01 or 0.02 to 20 ppbV for all 14 Targets requiring SIM (see Table on second to last page of this DV Checklist). All %RSD were acceptable and all RLs were supported by the ICAL (i.e., the lowest ICAL standard was at a level at or below the RL reported as verified by evaluating the Method Blank with DF=1). No Action required - valid ICAL.

CCALs: 21022302/21022302sim - % Recovery 70-130% for all 23 Target compounds - No Action required.

Surrogates & Internal Standards **:** Surrogates (1,2-Dichloroethane-d4, Toluene-d8, and 4-Bromofluorobenzene) had %Recovery within criteria and all 3 IS' (Chlorobenzene-d5, 1,4-Difluorobenzene, and Bromochloromethane) had areas and RTs within criteria for both full scan and SIM in all analyses; therefore, No Action Required.

LCS/LCSD : 21022303/21022304 & 21022303sim/21022304sim - %Recovery acceptable for all 23 Targets in both LCS and LCSD and LCS/LCSD RPDs all OK; therefore, acceptable accuracy and precision demonstrated for analysis of the 23 VOCs by Full Scan & SIM analysis. No Action required

LD: not performed for this sample since LCS/LCSD performed allowing precision evaluation.

FD: not applicable for a Field Blank.

Compound Reporting: the lab reported results for 23 Target VOCs, as requested in Table B.1 of the Work Plan. 9 compounds were reported from the Full Scan analysis and 14 from the SIM analysis as shown on the second to last page of this DV Checklist.

Qualifier Action: There were no results reported < RL and all data were non-detect qualified "U". No Qualifier action required.

Sensitivity: All non-detects were below the NYSDOH Values (shown on the second to last page of this DV Checklist); therefore, sensitivity was considered acceptable.

Narrative: The narrative did not raise any issues not already addressed or that would affect data quality.

The sample chromatogram, and quantitation report was reviewed and data appeared to have been reported correctly. Although Tentatively Identified Compound (TIC) analysis was not requested, there were no extra peaks not identified in the FB sample.

Calculation Verification Checks:

Initial Calibration : Verification MSD21 Full Scan ICAL on 2/8/2021 for Freon 11 with IS Bromochloromethane

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
Std Conc.	0.05	0.1	0.5	1	5	10	15
Cpd Resp	9204	22750	95563	189570	1330030	2508147	3635842
IS Conc.	5	5	5	5	5	5	5
IS Resp	230178	244228	241234	241056	272944	272810	275021
RRF	3.9986	4.6575	3.9614	3.9321	4.8729	4.5969	4.4067

	Level 8	Level 9	Avg. RRF	%RSD
Std Conc.	20	40		
Cpd Resp	4752898	8802863		
IS Conc.	5	5		
IS Resp	265366	258973		
RRF	4.4777	4.2489	4.3503	7.74%

√

ICAL verified, no action required

CCV : Verification MSD21 12/26/19 for 10 ppbV Standard of Toluene: Response for Compound = 4290199; IS (1,4-Difluorobenzene) Response = 1015636 @5 ppbV; RRF from SIM ICAL = 1.90909

$$\text{Concentration} = \frac{4290199 \times 5}{1015636 \times 1.90909} = 11.1 \text{ ppb}$$ √

$$\%\text{Recovery} = \frac{100 \times 11.1}{10} = 111\%$$

QL & Result Verification: FB-1_20210212; All results are non-detect so only QL Checked for 1,1-Dichloroethene (1,1-DCE)

Normal 250 mL analyzed (same as for Method Blank) but since canister was over-pressurize, effective DF = 2.23

Lowest-level 1,1-DCE standard analyzed was 0.01 ppbV

QL = 0.01 ppbV x 2.23 = 0.0223 ppbV
Mwt 1,1-DCE = 96.95

$\mu g/m^3$ = (ppbv x Mwt x DF) / 24.45 = (0.015 x 96.95 x 1)/24.45 = 0.088 $\mu g/m^3$ √

Compound List and Project-required Reporting Limits (RL): Table B.1 of Work Plan (updated March 2019)

Analyte	CAS No.		TO-15/TO-15 SIM (6 L canister)	Full Scan TO-15 Soil Vapor (6 L canister)		NYS DOH Values (µg/m³)		
			Typical Final RL (µg/m³) *	Typical Final RL (µg/m³) *	Expected Analysis	Indoor Air		Subslab Vapor
1,1,1-Trichloroethane	71-55-6		0.1771	4.3	SIM	3		100
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1		1.2397	6.1	Full			
1,1-Dichloroethane (1,1-DCA)	75-34-3		0.13041	3.2	SIM			
1,1-Dichloroethylene (1,1-DCE)	75-35-4		0.0644	3.2	SIM	0.2		6
1,2,4-Trimethylbenzene	95-63-6		0.7889	3.8	Full			
2-Butanone (Methyl Ethyl Ketone [MEK])	78-93-3		2.415	9.5	Full			
4-Methyl-2-Pentanone (2-Pentanone; Methyl Isobutyl Ketone [MIBK])	108-10-1		0.6601	3.2	Full			
Acetone	67-64-1		1.932	19	Full			
Carbon disulfide	75-15-0		2.576	10	Full			
Carbon tetrachloride	56-23-5		0.2093	5	SIM	0.2		6
Chloroform	67-66-3		0.15778	3.8	SIM			
cis-1,2-Dichloroethylene (cis-1,2-DCE)	156-59-2		0.12719	3.2	SIM	0.2		6
Dichlorodifluoromethane (DCDFM; Freon 12)	75-71-8		0.15939	4	SIM			
Ethylbenzene	100-41-4		0.14007	3.5	SIM			
Isopropanol	67-63-0		1.932	7.9	Full			
Propylene	115-07-1		2.737	5.5	Full			
Tetrachloroethylene (PCE)	127-18-4		0.2254	5.5	SIM	3		100
Toluene	108-88-3		0.12075	3	SIM			
Trichloroethylene (TCE)	79-01-6		0.1771	4.3	SIM	0.2		6
Trichlorofluoromethane (TCFM; Freon 11)	75-69-4		0.9016	4.5	Full			
Vinyl chloride (VC)	75-01-4		0.04186	2.1	SIM	0.2		6
m/p-Xylene	108-38-3 106-42-3		0.2737	3.5	SIM			
o-Xylene	95-47-6		0.14007	3.5	SIM			

* Typical Final RL assumed a 1.61 Dilution Factor for sample (6L canister collected to a final vacuum of 5 "Hg and over-pressurized to 5 psi prior to analysis).

Date: ***3/21/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Actions continued (see references below):

Canister Integrity:	If certification forms indicate issues, J/U or UJ results in samples; if Flow controller RPD > 20% for pre- and post-flow calibrations, J detect/UJ non-detects
Canister Vacuum (Vac):	Initial Field Vac < 25" Hg, J/UJ all results; Lab Receipt Vac > 15" Hg, J/UJ results; Lab Receipt Vac > ± 5" Hg of Final Field Vac, J/UJ results
Hold Time (HT):	HT > 30 days, J detects/ UJ non-detects
Blank Actions:	Sample-specific Blank Action Level = Blank Level x (Sample DF/Blank DF)
	Method Blank (MB): ***If MB < RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < 2 x RL (or 4 x RL for acetone, 2-butanone, and methylene chloride), negate (U) result at level found in sample. ***If MB > RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < Sample-Specific Blank Action Level, negate (U) the sample at the Sample-Specific Blank Action Level.
	Equipment Blank (EB): Result<Blank Action, EB result at level reported in sample
BFB Tune:	SW-846 method 8260B or TO-15 tune criteria not met, professional judgment on R of all data; samples analyzed > 12-hours after tune; professional judgment on J/UJ or R of results
LCS and CCV:	Percent Recovery (%Rec) <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Initial Calibration (ICAL):	%RSD > 30%, J/UJ associated results
Internal Standard (IS):	RT > ±0.33 min of IS RT in daily CCV, J/UJ associated results;
	Area < 25% Area in CCV, J detects, R non-detects (or professional judgment); 25%< Area < 60% of CCV Area, J/UJ associated results; Area > 140% of CCV Area, J detects, no action for non-detects
Surrogates:	%Rec <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Laboratory Duplicates:	LCS/LCSD RPD or Sample/LD RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
Field Duplicates:	RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
RLs + Quant:	Compound reported outside calibration range (< RL or at ppbV level > sample-specific highest ICAL standard for compound), J data. Note if RL > expected RL from Table B.1 of Work Plan (see above) and if non-detects exceed NYSDOH May 2017 Updated Soil Vapor/Indoor Air Matrices levels
DV Qualifier Definitions:	U = analyte is non-detect at the sample-specific Quantitation Limit (usable); UJ = non-detect is usable as an estimated value; J = result is usable as an estimated value with indeterminate bias; J+ = result is usable as an estimated value with possible high bias; J- = result is usable as an estimated value with possible low bias; and R = result is rejected due to severe QC exceedance and unusable for project objectives. Bias: L = Low; H = High; I = Indeterminate.
References:	*Remedial Design/Remedial Action Work Plan; Former IBM Building 982 – Neptune Road, Poughkeepsie, New York, including Appendix B, QAQC Plan, prepared by Sanborn, Head & Associates, September 3, 2013 (Work Plan) with updated Table B.1 March 2019* ; *NYSDEC Analytical Services Protocol,* June 2005 *with NYSDEC Modifications to the EPA Region 9 TO-15 QA/QC Criteria,* February 2008*; USEPA Region II SOP HW-31, Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15,* Rev. 6, June 2014; *Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS),* Publication EPA/625/R-96/010b, January 1999; and NYSDOH May 2017 Update to Soil Vapor/Indoor Air Decision Matrices.

Date: ***3/21/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Data Usability Summary Report (DUSR)

Client:	Sanborn, Head & Associates, Inc., Concord, New Hampshire (SHA)
Site:	Former IBM Facility, Neptune Road, Poughkeepsie, New York
Laboratory:	Eurofins Air Toxics, Inc. (EATL), Folsom, California
SDG / Work Order:	2102420 & 2102421
Date(s) of Collection:	February 12, 2021
Number and type Samples & analyses:	3 sub-slab soil vapor (SSV) samples and 1 Field Blank sample for twenty-three project-specific VOCs by Method TO-15 Hi/Lo
Senior Data Reviewers:	Dr. Nancy C. Rothman, New Environmental Horizons, Inc. Susan D. Chapnick, New Environmental Horizons, Inc.
Date Completed:	March 25, 2021

This Data Usability Summary Report (DUSR) is based on guidance developed by the New York State Department of Conservation (NYSDEC), June 1999, for technical review of analytical data and consistent with the requirements set forth in NYSDEC Technical Guidance for Site Investigation and Remediation, DER-10, Appendix 2B (May 2010). The objective of the DUSR is to determine whether or not the data as presented meet NYSDEC ASP 2005 or EPA method QC acceptance criteria.

2 Farmers Circle, Arlington, Massachusetts 02474 781-643-4294 schapnick@neh-inc.com
34 Pheasant Run Drive, Skillman, New Jersey 08558 908-874-5686 nrothman@neh-inc.com

I. Required DUSR Questions

1. ***Is the data package complete as defined under the requirements for the most current NYSDEC ASP Category B or USEPA CLP deliverables?***

   Yes.

2. ***Have all holding times been met?***

   Yes.

3. ***Do all the QC data: blanks, instrument tunings, calibration standards, calibration verifications, surrogate recoveries, spike recoveries, replicate analyses, laboratory controls and sample data fall within the protocol required limits and specifications?***

   Yes. Some QC exceptions resulted in qualification of data as noted in the Data Validation Checklists (DV Checklists).

4. ***Have all of the data been generated using established and agreed upon analytical protocols?***

   Yes. Analytical data were generated using established EPA Methods (see analytical references in Section II below). Deviations from EPA and NYSDEC ASP 2005 QC protocols are discussed in the DV Checklists of this DUSR.

5. ***Does an evaluation of the raw data confirm the results provided in the data summary sheets and quality control verification forms?***

   Yes. The raw data were checked to verify that detected results met retention time and mass spectral criteria, where applicable, for qualitative identification. A spot check was performed to verify quantitative accuracy for reporting of all results (see the DV Checklists).

6. ***Have the correct data qualifiers been used and are they consistent with the most current NYSDEC ASP?***

   Yes. The laboratory qualified some results due to QC exceedances and during this usability review, these qualified data were accepted as reported by the laboratory.

7. ***Have any quality control (QC) exceedances been specifically noted in the DUSR and have the corresponding QC summary sheets from the data package been attached to the DUSR?***

   Yes. QC exceedances are specified in the DV Checklists. QC summary sheets from the data package have not been attached; however, all QC exceedances that required data qualification are summarized in Table 2 of the DUSR and flagged in the validated electronic data deliverable (EDD).

II. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification of quality control (QC) samples, if applicable, and the analytical parameters reviewed in this In-Depth data usability review are listed in Table 1. Any deviations noted for sample collection or receipt (*e.g.*, temperature or preservation issues) are included in Section III, below.

Table 1. Sample Descriptions and Analytical Parameters

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters	Sample Type
FB-1_20210212	2102420-01	2/12/2021	Air	VOCs	Field Blank
SSV-1001_20210212	2102421-01	2/12/2021	SSV	VOCs	Field Sample
SSV-1002_20210212	2102421-02	2/12/2021	SSV	VOCs	Field Sample
FD-02_20210212	2102421-03	2/12/2021	SSV	VOCs	Field Duplicate of SSV-001_20210212

SSV = Sub-slab Soil Vapor

Analytical method reference:

VOC: TO-15 Hi/Lo – Method TO-15 with simultaneous Full Scan and Selected Ion Monitoring (SIM) analysis for twenty-three project-specific VOCs

III. Data Deficiencies, Analytical Protocol Deviations, and Quality Control Problems

The following QC elements, as applicable to the analytical methods, were reviewed during this validation:

- Data package completeness and reporting protocols
- Sample receipt, holding times, and canister condition
- Calibration criteria (instrument tuning, initial and continuing calibration verifications)
- Method and field blank results
- Laboratory Control Sample (LCS) and Laboratory Control Sample Duplicate (LCSD) Recoveries and Precision
- Internal Standard (IS) and Surrogate Recoveries
- Sample/Laboratory Duplicate (LD) or sample/Field Duplicate (FD) Relative Percent Differences (RPDs)
- Sample result reporting (including reporting limits and units)
- Other method-specific QC if applicable and reported
- Deficiencies or protocol deviations as noted in the Laboratory Narrative

During this review, several results were estimated (J or UJ) due to QC issues. Table 2 summarizes the actions taken during this review. NEH generated validated electronic data deliverables (EDDs) based on the EDD files received from SHA for these Work Orders. All results were considered acceptable compared to method criteria and usable for project decisions, with the understanding of the potential uncertainty (bias) in the qualified results.

As required by the DUSR, the DV Checklists attached to this DUSR document the QC reviewed and the issues that required action or affected the data certainty in terms of the project data quality objectives (DQO) of accuracy, precision, representativeness, comparability, and sensitivity. The DQO of completeness can be evaluated by the project manager after all data are generated.

The laboratory reported results for 23 project-specific VOCs from a single analysis with two mass spectrometer (MS) detectors, each operated in a different detection mode: one operated in the full scan electron impact mode and the other operated in the Selected Ion Monitoring (SIM) mode. This analysis, called TO-15 Hi/Lo by ATL, allowed the sensitivity requirements of the project, unless otherwise discussed in this report, to be met for all of the compounds. The Data Review Checklist indicates the compounds reported from each of the two modes of MS operation. The full scan analysis was reported with an “A” suffix and the SIM analysis with a “B” suffix appended to the laboratory sample ID.

Field duplicate (FD) precision was acceptable in the FD pair SSV-1001_20210212 and FD-02_20210212 for all target VOCs indicating acceptable precision and representativeness of the samples to the site location for all the project-specific VOCs.

All non-detects were reported at levels below the May 2017 NYSDOH Soil Vapor/Indoor Air values indicating sensitivity was acceptable for these data.

Table 2. Summary of Data Validation Actions
Work Orders 2102420 & 2102421

Client ID	Analyte	DV Qualifer	Bias	DV Comment
SSV-1001_20210212	2-Propanol	J	I	Initial Calibration outside criteria + Low Calibration verification + Low LCS/LCSD recoveries
SSV-1002_20210212	2-Propanol	J	I	Initial Calibration outside criteria + Low Calibration verification + Low LCS/LCSD recoveries
FD-02_20210212	2-Propanol	UJ	I	Initial Calibration outside criteria + Low Calibration verification + Low LCS/LCSD recoveries

Date Sampled: 2/12/2021

No. Samples 1 FB

Method of Analysis: TO-15 Full scan & SIM

Data Element Acceptable	Canister Receipt	HT	GC/MS Tunes + Calibrations	Internal Stds + Surrogates	LCS	Lab Dup (LCS and LD)	Field Duplicates	RL & Quant.
Yes	√	√	√	√	√	√	NA	√
No								

Other Issues : None

A combined Full Scan and SIM Analysis was performed for each sample for 23 Project-specific VOCs listed in Table B.1 of the Work Plan, as shown on the second to last page of this checklist. The full scan analysis was reported with an "A" suffix and the SIM analysis with a "B" suffix appended to the laboratory sample ID.

Data usability review was performed on Quality Control forms associated with this data package, which involved evaluation of the following (where applicable): agreement of analyses conducted with COC requests; Holding times and sample preservation; Laboratory blanks/equipment blanks/ field blanks results compared to field sample results; Field duplicate results; Quantitation limits and sample results; Surrogate and Internal Standard recoveries; LCS/LCSD results; Laboratory duplicate results; instrument tuning and calibration information; sample chromatograms; and laboratory qualifiers applied to the dataset. The project narrative was also reviewed to determine whether additional issues were found that were not reported in the QC previously evaluated. This review is consistent with the requirements set forth in NYSDEC Technical Guidance for Site Investigation and Remediation, DER-10, Appendix 2B (May 2010).

Data Package Completeness: All required forms (results, summary QC, COC), as needed to validate the data in accordance with NYSDEC ASP and the Work Plan were present in the data package. The laboratory provided the equivalent of the Category B deliverable.

Sample receipt: The 1 6-L canisters was received intact and in good condition on 2/17/2021. The lab noted that the COC lists the sample as "FB-1_20210212" while the canister sample tag label lists the sample as "FB-01_20210212." ETL reported the sample using the name listed on the COC. There were no other issues noted with sample receiving.

Date: ***3/21/2021***

Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Associated Blanks: Method Blank: 21022306c / 21022306simc
FB = NA

Blank ID	Contaminant / Level (µg/m^3)		Action Level DF=		Sample and reported result (µg/m3)	Corrected Database Result
21022306c	None				No Blank Action Required	
21022306simc	None				No Blank Action Required	

Certification: Canister was Certified pre-cleaned on 2/1/2021 prior to shipment to the field indicating all 23 target VOCs were non-detect prior to use.

Sample Integrity: FB-1_20210212 was collected for 8 hours on 2/21/2021. The field receipt vacuum (28 ”Hg), field final vacuum (13 "Hg) and lab receipt vacuum (12 "Hg) were acceptable. The canister was over-pressurized to 5 psi prior to analysis. No Action required.

Holding Time (HT): Sample was analyzed on 2/23/21; therefore HT was met. No Action required.

BFB Tunes: Instrument MSD21 tunes (ICAL + 1 CCV). Method TO-15 tune criteria used and tunes were acquired properly (average of 3 scans across BFB peak with background subtraction). All criteria in all tunes were met and the sample was analyzed within 12 hours of tune; therefore, No Action Required.

ICALs : Instrument MSD21 Full Scan and SIM performed on 2/8/21. Full Scan = 7- to 9-level calibration from 0.05, 0.1, or 0.5 to 40 ppbV for all 23 Target compounds plus several non-target compounds. SIM = 9- to 10-level calibration from 0.01 or 0.02 to 20 ppbV for all 14 Targets requiring SIM (see Table on second to last page of this DV Checklist). All %RSD were acceptable and all RLs were supported by the ICAL (i.e., the lowest ICAL standard was at a level at or below the RL reported as verified by evaluating the Method Blank with DF=1). No Action required - valid ICAL.

CCALs: 21022302/21022302sim - % Recovery 70-130% for all 23 Target compounds - No Action required.

Surrogates & Internal Standards **:** Surrogates (1,2-Dichloroethane-d4, Toluene-d8, and 4-Bromofluorobenzene) had %Recovery within criteria and all 3 IS' (Chlorobenzene-d5, 1,4-Difluorobenzene, and Bromochloromethane) had areas and RTs within criteria for both full scan and SIM in all analyses; therefore, No Action Required.

LCS/LCSD : 21022303/21022304 & 21022303sim/21022304sim - %Recovery acceptable for all 23 Targets in both LCS and LCSD and LCS/LCSD RPDs all OK; therefore, acceptable accuracy and precision demonstrated for analysis of the 23 VOCs by Full Scan & SIM analysis. No Action required

LD: not performed for this sample since LCS/LCSD performed allowing precision evaluation.

FD: not applicable for a Field Blank.

Compound Reporting: the lab reported results for 23 Target VOCs, as requested in Table B.1 of the Work Plan. 9 compounds were reported from the Full Scan analysis and 14 from the SIM analysis as shown on the second to last page of this DV Checklist.

Qualifier Action: There were no results reported < RL and all data were non-detect qualified "U". No Qualifier action required.

Sensitivity: All non-detects were below the NYSDOH Values (shown on the second to last page of this DV Checklist); therefore, sensitivity was considered acceptable.

Narrative: The narrative did not raise any issues not already addressed or that would affect data quality.

The sample chromatogram, and quantitation report was reviewed and data appeared to have been reported correctly. Although Tentatively Identified Compound (TIC) analysis was not requested, there were no extra peaks not identified in the FB sample.

Calculation Verification Checks:

Initial Calibration : Verification MSD21 Full Scan ICAL on 2/8/2021 for Freon 11 with IS Bromochloromethane

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7
Std Conc.	0.05	0.1	0.5	1	5	10	15
Cpd Resp	9204	22750	95563	189570	1330030	2508147	3635842
IS Conc.	5	5	5	5	5	5	5
IS Resp	230178	244228	241234	241056	272944	272810	275021
RRF	3.9986	4.6575	3.9614	3.9321	4.8729	4.5969	4.4067

	Level 8	Level 9	Avg. RRF	%RSD
Std Conc.	20	40		
Cpd Resp	4752898	8802863		
IS Conc.	5	5		
IS Resp	265366	258973		
RRF	4.4777	4.2489	4.3503	7.74%

√

ICAL verified, no action required

CCV : Verification MSD21 12/26/19 for 10 ppbV Standard of Toluene: Response for Compound = 4290199; IS (1,4-Difluorobenzene) Response = 1015636 @5 ppbV; RRF from SIM ICAL = 1.90909

$$\text{Concentration} = \frac{4290199 \times 5}{1015636 \times 1.90909} = 11.1 \text{ ppb}$$ √

$$\%\text{Recovery} = \frac{100 \times 11.1}{10} = 111\%$$

QL & Result Verification: FB-1_20210212; All results are non-detect so only QL Checked for 1,1-Dichloroethene (1,1-DCE)

Normal 250 mL analyzed (same as for Method Blank) but since canister was over-pressurize, effective DF = 2.23

Lowest-level 1,1-DCE standard analyzed was 0.01 ppbV

QL = 0.01 ppbV x 2.23 = 0.0223 ppbV
Mwt 1,1-DCE = 96.95

$\mu g/m^3$ = (ppbv x Mwt x DF) / 24.45 = (0.015 x 96.95 x 1)/24.45 = 0.088 $\mu g/m^3$ √

Compound List and Project-required Reporting Limits (RL): Table B.1 of Work Plan (updated March 2019)

Analyte	CAS No.		TO-15/TO-15 SIM (6 L canister)	Full Scan TO-15 Soil Vapor (6 L canister)		NYS DOH Values (µg/m³)		
			Typical Final RL (µg/m³) *	Typical Final RL (µg/m³) *	Expected Analysis	Indoor Air		Subslab Vapor
1,1,1-Trichloroethane	71-55-6		0.1771	4.3	SIM	3		100
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1		1.2397	6.1	Full			
1,1-Dichloroethane (1,1-DCA)	75-34-3		0.13041	3.2	SIM			
1,1-Dichloroethylene (1,1-DCE)	75-35-4		0.0644	3.2	SIM	0.2		6
1,2,4-Trimethylbenzene	95-63-6		0.7889	3.8	Full			
2-Butanone (Methyl Ethyl Ketone [MEK])	78-93-3		2.415	9.5	Full			
4-Methyl-2-Pentanone (2-Pentanone; Methyl Isobutyl Ketone [MIBK])	108-10-1		0.6601	3.2	Full			
Acetone	67-64-1		1.932	19	Full			
Carbon disulfide	75-15-0		2.576	10	Full			
Carbon tetrachloride	56-23-5		0.2093	5	SIM	0.2		6
Chloroform	67-66-3		0.15778	3.8	SIM			
cis-1,2-Dichloroethylene (cis-1,2-DCE)	156-59-2		0.12719	3.2	SIM	0.2		6
Dichlorodifluoromethane (DCDFM; Freon 12)	75-71-8		0.15939	4	SIM			
Ethylbenzene	100-41-4		0.14007	3.5	SIM			
Isopropanol	67-63-0		1.932	7.9	Full			
Propylene	115-07-1		2.737	5.5	Full			
Tetrachloroethylene (PCE)	127-18-4		0.2254	5.5	SIM	3		100
Toluene	108-88-3		0.12075	3	SIM			
Trichloroethylene (TCE)	79-01-6		0.1771	4.3	SIM	0.2		6
Trichlorofluoromethane (TCFM; Freon 11)	75-69-4		0.9016	4.5	Full			
Vinyl chloride (VC)	75-01-4		0.04186	2.1	SIM	0.2		6
m/p-Xylene	108-38-3 106-42-3		0.2737	3.5	SIM			
o-Xylene	95-47-6		0.14007	3.5	SIM			

* Typical Final RL assumed a 1.61 Dilution Factor for sample (6L canister collected to a final vacuum of 5 "Hg and over-pressurized to 5 psi prior to analysis).

Date: ***3/21/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Actions continued (see references below):

Canister Integrity:	If certification forms indicate issues, J/U or UJ results in samples; if Flow controller RPD > 20% for pre- and post-flow calibrations, J detect/UJ non-detects
Canister Vacuum (Vac):	Initial Field Vac < 25" Hg, J/UJ all results; Lab Receipt Vac > 15" Hg, J/UJ results; Lab Receipt Vac > ± 5" Hg of Final Field Vac, J/UJ results
Hold Time (HT):	HT > 30 days, J detects/ UJ non-detects
Blank Actions:	Sample-specific Blank Action Level = Blank Level x (Sample DF/Blank DF)
	Method Blank (MB): ***If MB < RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < 2 x RL (or 4 x RL for acetone, 2-butanone, and methylene chloride), negate (U) result at level found in sample. ***If MB > RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < Sample-Specific Blank Action Level, negate (U) the sample at the Sample-Specific Blank Action Level.
	Equipment Blank (EB): Result<Blank Action, EB result at level reported in sample
BFB Tune:	SW-846 method 8260B or TO-15 tune criteria not met, professional judgment on R of all data; samples analyzed > 12-hours after tune; professional judgment on J/UJ or R of results
LCS and CCV:	Percent Recovery (%Rec) <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Initial Calibration (ICAL):	%RSD > 30%, J/UJ associated results
Internal Standard (IS):	RT > ±0.33 min of IS RT in daily CCV, J/UJ associated results;
	Area < 25% Area in CCV, J detects, R non-detects (or professional judgment); 25%< Area < 60% of CCV Area, J/UJ associated results; Area > 140% of CCV Area, J detects, no action for non-detects
Surrogates:	%Rec <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Laboratory Duplicates:	LCS/LCSD RPD or Sample/LD RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
Field Duplicates:	RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
RLs + Quant:	Compound reported outside calibration range (< RL or at ppbV level > sample-specific highest ICAL standard for compound), J data. Note if RL > expected RL from Table B.1 of Work Plan (see above) and if non-detects exceed NYSDOH May 2017 Updated Soil Vapor/Indoor Air Matrices levels
DV Qualifier Definitions:	U = analyte is non-detect at the sample-specific Quantitation Limit (usable); UJ = non-detect is usable as an estimated value; J = result is usable as an estimated value with indeterminate bias; J+ = result is usable as an estimated value with possible high bias; J- = result is usable as an estimated value with possible low bias; and R = result is rejected due to severe QC exceedance and unusable for project objectives. Bias: L = Low; H = High; I = Indeterminate.
References:	*Remedial Design/Remedial Action Work Plan; Former IBM Building 982 – Neptune Road, Poughkeepsie, New York, including Appendix B, QAQC Plan, prepared by Sanborn, Head & Associates, September 3, 2013 (Work Plan) with updated Table B.1 March 2019* ; *NYSDEC Analytical Services Protocol,* June 2005 *with NYSDEC Modifications to the EPA Region 9 TO-15 QA/QC Criteria,* February 2008*; USEPA Region II SOP HW-31, Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15,* Rev. 6, June 2014; *Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS),* Publication EPA/625/R-96/010b, January 1999; and NYSDOH May 2017 Update to Soil Vapor/Indoor Air Decision Matrices.

Date: ***3/21/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Date Sampled: 2/12/2021

No. Samples 2 SSV + 1FD

Method of Analysis: TO-15 Full scan & SIM

Data Element Acceptable	Canister Receipt	HT	GC/MS Tunes + Calibrations	Internal Stds + Surrogates	LCS	Lab Dup (LCS and LD)	Field Duplicates	RL & Quant.
Yes	√	√		√		√	√	√
No			Estimate (J or UJ) 3 results		Estimate (J or UJ) 3 results			

Other Issues : None

A combined Full Scan and SIM Analysis was performed for each sample for 23 Project-specific VOCs listed in Table B.1 of the Work Plan, as shown on the second to last page of this checklist. The full scan analysis was reported with an "A" suffix and the SIM analysis with a "B" suffix appended to the laboratory sample ID.

Data usability review was performed on Quality Control forms associated with this data package, which involved evaluation of the following (where applicable): agreement of analyses conducted with COC requests; Holding times and sample preservation; Laboratory blanks/equipment blanks/ field blanks results compared to field sample results; Field duplicate results; Quantitation limits and sample results; Surrogate and Internal Standard recoveries; LCS/LCSD results; Laboratory duplicate results; instrument tuning and calibration information; sample chromatograms; and laboratory qualifiers applied to the dataset. The project narrative was also reviewed to determine whether additional issues were found that were not reported in the QC previously evaluated. This review is consistent with the requirements set forth in NYSDEC Technical Guidance for Site Investigation and Remediation, DER-10, Appendix 2B (May 2010).

Data Package Completeness: All required forms (results, summary QC, COC), as needed to validate the data in accordance with NYSDEC ASP and the Work Plan were present in the data package. The laboratory provided the equivalent of the Category B deliverable.

Sample receipt: The 3 6-L canisters were received intact and in good condition on 2/17/2021. The sample with COC ID SSV-1001_20210212 canister label listed the ID as SSV-1002_20210212. The lab was able to distinguish the canisters for the 3 SSV samples based on their "Sample Device ID" listed on the COC. The lab reported this sample using the COC ID. There were no other COC issues noted by lab with sample receipt.

Date: ***3/22/2021***

Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Associated Blanks: Method Blank: v022306d / v022306simd
FB = FB-1_20210212 (reported in Work Order 2102420)

Blank ID	Contaminant / Level (µg/m^3)		Action Level DF= 2.18		Sample and reported result (µg/m3)	Corrected Database Result
v022306d	None				No Blank Action Required	
v022306simd	None				No Blank Action Required	
FB-1_20210212	None				No Blank Action Required	

Certification: Canisters were Certified pre-cleaned on 2/1/2021 prior to shipment to the field indicating all 23 target VOCs were non-detect prior to use.

Sample Integrity: Samples were collected for 8 hours on 2/12/2021. The field receipt vacuums (28.5- 30 ”Hg), field final vacuums (5 - 7 "Hg) and lab receipt vacuum (4.5 - 6.5 "Hg) were acceptable. The canisters were over-pressurized to 5 psi prior to analysis. No Action required.

Holding Time (HT): Samples were analyzed on 2/23/2021; therefore HT was met. No Action required.

BFB Tunes: Instrument MSDV 2 tunes (ICAL + 1 CCV). Method TO-15 tune criteria used and tunes were acquired properly (average of 3 scans across BFB peak with background subtraction). All criteria in all tunes were met and all samples were analyzed within 12 hours of tune; therefore, No Action Required.

ICALs : Instrument MSDV Full Scan and SIM performed on 2/2/2021. Full Scan = 7- to 9-level calibration from 0.05, 0.1, or 0.5 to 40 ppbV for all 23 Target compounds plus several non-target compounds. SIM = 9- to 10-level calibration from 0.01 or 0.02 to 20 ppbV for all 14 Targets requiring SIM (see Table on second to last page of this DV Checklist). All RLs were supported by the ICAL (i.e., the lowest ICAL standard was at a level at or below the RL reported as verified by evaluating the Method Blank with DF=1) and all %RSD ≤ 30% except for 2-propanol (isopropanol), which reported %RSD > 30%. ICALs valid for all compounds except 2-propanol.
****ACTION: All results for 2-propanol estimated (J or UJ) with indeterminate bias due to Initial Calibration being outside criteria***

CCALs: v022302a / v022302sima on 2/23/2021- % Recovery 70-130% for all 23 Target compounds except 2-propanol, which was recovered below criteria in the CCV.
****ACTION: 2-Propanol estimated (J- or UJ) with possible low bias, unless other issues affect the data, due to low calibration verification (NOTE: overall bias indeterminate based on the cumulative bias of ICAL and CCV exceedance)***

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

***Surrogates & Internal Standards* :** Surrogates (1,2-Dichloroethane-d4, Toluene-d8, and 4-Bromofluorobenzene) had %Recovery within criteria and all 3 IS' (Chlorobenzene-d5, 1,4-Difluorobenzene, and Bromochloromethane) had areas and RTs within criteria for both full scan and SIM in all analyses; therefore, No Action Required.

LCS/LCSD : v022303/v022304 & v022303sim/v022304sim - %Recovery acceptable for all 23 Targets in both LCS and LCSD and LCS/LCSD RPDs all OK except for 2-propanol, which was recovered < 70% in both the LCS & LCSD; therefore, acceptable accuracy and precision demonstrated for analysis of the VOCs by Full Scan & SIM analysis except for 2-propanol.
****ACTION: 2-Propanol estimated (J- or UJ) due to low LCS/LCSD recoveries (NOTE: overall bias indeterminate due to cumulative bias)***

LD: not performed for this sample since LCS/LCSD performed allowing precision evaluation.

Compound Reporting: the lab reported results for 23 Target VOCs, as requested in Table B.1 of the Work Plan. 9 compounds were reported from the Full Scan analysis and 14 from the SIM analysis as shown on the second to last page of this DV Checklist.

Qualifier Action: the lab qualified the 2-propanol results as "J" and "UJ" in this Work Order to indicate that the calibrations did not meet criteria for this compound but these "J" are not related to the results being reported < RL. There were no other results reported < RL and qualified "J" by the lab. All other data were either detected (not qualified) or non-detect with the "U" qualifier. No qualifier action required.

Sensitivity: All non-detects were below the NYSDOH Values; therefore, sensitivity was acceptable for all these analyses.

Narrative: The narrative did not raise any issues not already address or that would affect data quality.

The sample chromatogram, and quantitation report was reviewed and data appeared to have been reported correctly. Although Tentatively Identified Compound (TIC) analysis was not requested, there were some extra peaks in some samples not identified in the analyses.

Calculation Verification Checks:

Initial Calibration : Verification MSDV SIM ICAL on 2/2/2021 for 1,1,1-Trichloroethane with IS Bromochloromethane

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Std Conc.	0.01	0.02	0.05	0.1	0.5	1	5	10
Cpd Resp	1090	1940	4509	10798	46694	91049	525948	1004696
IS Conc.	5	5	5	5	5	5	5	5
IS Resp	150350	142914	129498	150853	141820	130329	152493	159450
RRF	3.6249	3.3936	3.4819	3.5790	3.2925	3.4930	3.4490	3.1505

	Level 9	Level 10	Avg. RRF	%RSD
Std Conc.	15	20		
Cpd Resp	1504791	1999282		
IS Conc.	5	5		
IS Resp	165519	165952		
RRF	3.0304	3.0118	3.3507	6.6%

√

ICAL verified, no action required

CCV : Verification MSDV 2/23/2021 for 10 ppbV Standard of Carbon Disulfide: Response for Compound = 570588; IS (Bromochloromethane) Response = 106232 @5 ppbV; RRF from Full Scan ICAL = 3.05438

$$\text{Concentration} = \frac{570588 \times 5}{106232 \times 3.05438} = 8.79 \text{ ppb}$$ √

$$\%\text{Recovery} = \frac{100 \times 8.79}{10} = 88\%$$

QL & Result Verification: FD-02_20210212; Trichloroethene

Reduced volume (175 mL as compared to normal 250 mL analyzed due to presence of high level target compounds in sample and with canister over-pressurization effective DF = 2.26; MWt = 131.4

Sample Response = 548422; IS Response = 345968 @ 5; RRF ICAL = 0.65001

$$\text{Conc.} = \frac{548422 \times 5 \times 2.26}{345968 \times 0.65001} = 27.56 \text{ ppbV}$$

$\mu g/m^3$ = (ppbv x Mwt x DF) / 24.45 = (27.56 x 131.4 x 1)/24.45 = 148 = 150 $\mu g/m^3$ √

Date: ***3/22/2021***

Data Reviewer: ***Nancy C. Rothman, Ph.D.***

FD : SSV-1001_20210212 /FD-02_20210212. A comparison of results for the 23 target compounds is shown below

Field Duplicate Evaluation_ Sample IDs: Sample = SSV-1001_20210212 FD = FD-02_20210212

Analyte Name	DF= 1.71* RL (µg/m^3)	Sample µg/m^3	Q	Sample Result Level	FD µg/m^3	Q	FD Result Level	RPD	Action **
Freon 11	0.96	1.3		< 5x RL	1.3		< 5x RL	0.0%	None
Freon 113	1.3	17		> 5x RL	15		> 5x RL	12.5%	None
Acetone	4.1	9.2		< 5x RL	5.4	U	RL	NC	None
2-Propanol	2.1	3.2	J	< 5x RL	2.8	UJ	RL	NC	None
Carbon Disulfide	2.7	2.7	U	RL	3.5	U	RL	NC	None
2-Butanone (Methyl Ethyl Ketone)	2.5	2.5	U	RL	3.3	U	RL	NC	None
4-Methyl-2-pentanone	0.7	0.7	U	RL	0.92	U	RL	NC	None
1,2,4-Trimethylbenzene	0.84	0.84	U	RL	1.1	U	RL	NC	None
Propylene	2.9	2.9	U	RL	3.9	U	RL	NC	None
Freon 12	0.17	2.1		> 5x RL	2		> 5x RL	4.9%	None
Vinyl Chloride	0.044	0.044	U	RL	0.058	U	RL	NC	None
1,1-Dichloroethene	0.068	7.8		> 5x RL	7.8		> 5x RL	0.0%	None
1,1-Dichloroethane	0.14	2.5		> 5x RL	2.5		> 5x RL	0.0%	None
cis-1,2-Dichloroethene	0.14	0.68		< 5x RL	0.63		< 5x RL	7.6%	None
Chloroform	0.17	2.4		> 5x RL	2.4		> 5x RL	0.0%	None
1,1,1-Trichloroethane	0.19	190		> 5x RL	180		> 5x RL	5.4%	None
Carbon Tetrachloride	0.22	0.34		< 5x RL	0.33		< 5x RL	3.0%	None
Trichloroethene	0.18	140		> 5x RL	150		> 5x RL	6.9%	None
Toluene	0.32	0.32	U	RL	0.42	U	RL	NC	None
Tetrachloroethene	0.23	0.93		< 5x RL	0.55		< 5x RL	51.4%	None
Ethyl Benzene	0.15	0.15	U	RL	0.2	U	RL	NC	None
m,p-Xylene	0.3	0.3	U	RL	0.39	U	RL	NC	None
o-Xylene	0.15	0.15	U	RL	0.2	U	RL	NC	None

* FD DF = 2.26 so FD RLs are RLs shown x 2.26/1.71

**Action only taken if RPD > 20% and one or both samples report values > 5 x RL; Q = Validator Qualifier; NC = Not Calculated

FD precision was acceptable for all project-specific VOCs in the FD pair SSV-1001_20210212 /FD-02_20210212 indicating acceptable precision from sample collection through analysis. No Action required.

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Compound List and Project-required Reporting Limits (RL): Table B.1 of Work Plan (updated March 2019)

Analyte	CAS No.		TO-15/TO-15 SIM (6 L canister)	Full Scan TO-15 Soil Vapor (6 L canister)		NYS DOH Values (µg/m³)		
			Typical Final RL (µg/m³) *	Typical Final RL (µg/m³) *	Expected Analysis	Indoor Air		Subslab Vapor
1,1,1-Trichloroethane	71-55-6		0.1771	4.3	SIM	3		100
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1		1.2397	6.1	Full			
1,1-Dichloroethane (1,1-DCA)	75-34-3		0.13041	3.2	SIM			
1,1-Dichloroethylene (1,1-DCE)	75-35-4		0.0644	3.2	SIM	0.2		6
1,2,4-Trimethylbenzene	95-63-6		0.7889	3.8	Full			
2-Butanone (Methyl Ethyl Ketone [MEK])	78-93-3		2.415	9.5	Full			
4-Methyl-2-Pentanone (2-Pentanone; Methyl Isobutyl Ketone [MIBK])	108-10-1		0.6601	3.2	Full			
Acetone	67-64-1		1.932	19	Full			
Carbon disulfide	75-15-0		2.576	10	Full			
Carbon tetrachloride	56-23-5		0.2093	5	SIM	0.2		6
Chloroform	67-66-3		0.15778	3.8	SIM			
cis-1,2-Dichloroethylene (cis-1,2-DCE)	156-59-2		0.12719	3.2	SIM	0.2		6
Dichlorodifluoromethane (DCDFM; Freon 12)	75-71-8		0.15939	4	SIM			
Ethylbenzene	100-41-4		0.14007	3.5	SIM			
Isopropanol	67-63-0		1.932	7.9	Full			
Propylene	115-07-1		2.737	5.5	Full			
Tetrachloroethylene (PCE)	127-18-4		0.2254	5.5	SIM	3		100
Toluene	108-88-3		0.12075	3	SIM			
Trichloroethylene (TCE)	79-01-6		0.1771	4.3	SIM	0.2		6
Trichlorofluoromethane (TCFM; Freon 11)	75-69-4		0.9016	4.5	Full			
Vinyl chloride (VC)	75-01-4		0.04186	2.1	SIM	0.2		6
m/p-Xylene	108-38-3 106-42-3		0.2737	3.5	SIM			
o-Xylene	95-47-6		0.14007	3.5	SIM			

* Typical Final RL assumed a 1.61 Dilution Factor for sample (6L canister collected to a final vacuum of 5 "Hg and over-pressurized to 5 psi prior to analysis).

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***

Actions continued (see references below):

Canister Integrity:	If certification forms indicate issues, J/U or UJ results in samples; if Flow controller RPD > 20% for pre- and post-flow calibrations, J detect/UJ non-detects
Canister Vacuum (Vac):	Initial Field Vac < 25" Hg, J/UJ all results; Lab Receipt Vac > 15" Hg, J/UJ results; Lab Receipt Vac > ± 5" Hg of Final Field Vac, J/UJ results
Hold Time (HT):	HT > 30 days, J detects/ UJ non-detects
Blank Actions:	Sample-specific Blank Action Level = Blank Level x (Sample DF/Blank DF)
	Method Blank (MB): ***If MB < RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < 2 x RL (or 4 x RL for acetone, 2-butanone, and methylene chloride), negate (U) result at level found in sample. ***If MB > RL*** : and sample < RL, negate (U) result in sample RL; if sample is > RL but < Sample-Specific Blank Action Level, negate (U) the sample at the Sample-Specific Blank Action Level.
	Equipment Blank (EB): Result<Blank Action, EB result at level reported in sample
BFB Tune:	SW-846 method 8260B or TO-15 tune criteria not met, professional judgment on R of all data; samples analyzed > 12-hours after tune; professional judgment on J/UJ or R of results
LCS and CCV:	Percent Recovery (%Rec) <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Initial Calibration (ICAL):	%RSD > 30%, J/UJ associated results
Internal Standard (IS):	RT > ±0.33 min of IS RT in daily CCV, J/UJ associated results;
	Area < 25% Area in CCV, J detects, R non-detects (or professional judgment); 25%< Area < 60% of CCV Area, J/UJ associated results; Area > 140% of CCV Area, J detects, no action for non-detects
Surrogates:	%Rec <10%, J detects, R non-detects; 10% < %Rec <70%; J/UJ all associated data; %Rec >130%, J detects - no action for non-detects
Laboratory Duplicates:	LCS/LCSD RPD or Sample/LD RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
Field Duplicates:	RPD > 20% for detects > 5x RL, J associated data; professional judgment for results < 5 x RL
RLs + Quant:	Compound reported outside calibration range (< RL or at ppbV level > sample-specific highest ICAL standard for compound), J data. Note if RL > expected RL from Table B.1 of Work Plan (see above) and if non-detects exceed NYSDOH May 2017 Updated Soil Vapor/Indoor Air Matrices levels
DV Qualifier Definitions:	U = analyte is non-detect at the sample-specific Quantitation Limit (usable); UJ = non-detect is usable as an estimated value; J = result is usable as an estimated value with indeterminate bias; J+ = result is usable as an estimated value with possible high bias; J- = result is usable as an estimated value with possible low bias; and R = result is rejected due to severe QC exceedance and unusable for project objectives. Bias: L = Low; H = High; I = Indeterminate.
References:	*Remedial Design/Remedial Action Work Plan; Former IBM Building 982 – Neptune Road, Poughkeepsie, New York, including Appendix B, QAQC Plan, prepared by Sanborn, Head & Associates, September 3, 2013 (Work Plan) with updated Table B.1 March 2019* ; *NYSDEC Analytical Services Protocol,* June 2005 *with NYSDEC Modifications to the EPA Region 9 TO-15 QA/QC Criteria,* February 2008*; USEPA Region II SOP HW-31, Validating Air Samples, Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15,* Rev. 6, June 2014; *Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry (GC/MS),* Publication EPA/625/R-96/010b, January 1999; and NYSDOH May 2017 Update to Soil Vapor/Indoor Air Decision Matrices.

Date: ***3/22/2021***
Data Reviewer: ***Nancy C. Rothman, Ph.D.***