

Arnold F. Fleming, P.E.
&



Environmental Management & Consulting

Sent via electronic mail (Javier.perez-maldonado@dec.ny.gov)

February 19, 2020

Mr. Javier Perez-Maldonado
Project Manager
Division of Environmental Remediation
New York State Department of Environmental Remediation
625 Broadway
Albany, NY, 12233

RE: Soil Vapor Intrusion Investigation Summary Report
511 West 21st Street
New York, NY
Block 693, Lot 23
NYSDEC Site Number: C231080

Dear Mr. Perez-Maldonado:

Arnold F. Fleming, P.E, and Fleming-Lee Shue, Inc. (FLS) has prepared this Soil Vapor Intrusion Investigation Summary Report to document the findings from a recent soil vapor intrusion investigation of the Track 4 area at Brownfield Cleanup Program (BCP) Site No. C231080 located at 511 West 21st Street, New York, New York (Site). The following provides the findings of the investigation and recommendations regarding the operation of the sub-slab depressurization system (SSDS).

Background

Remedial investigations completed at the Site between May 2008 and July 2008 identified concentrations of volatile organic compounds (VOC) related to the onsite release of gasoline from an underground storage tank (UST) located under the West 21st Street side of the building. Following the removal of the UST and accessible impacted soils, elevated concentrations of the gasoline-related contaminants benzene, toluene,

ethylbenzene and xylene (BTEX) and methyl tertiary-butyl ether (MTBE) remained in groundwater and soil in the vicinity of the former UST. The Site was admitted into the BCP in 2013 and subsequent soil vapor investigations conducted in December of 2013 and 2014 identified low levels of BTEX and MTBE, but additionally indicated the presence of dichlorodifluoromethane (Freon-12), a refrigerant and aerosol spray that was discontinued beginning in 1996. During the redevelopment of the Site under the BCP, additional soils were removed from the former tank area and adjacent West 21st Street sidewalk.

Following construction of the building, FLS performed a soil vapor investigation in March 2018 in order to characterize the post-remediation soil gas conditions beneath the slab. Generally, VOC concentrations appeared largely reduced from pre-remedy concentrations. A subsequent investigation in February 2019, was conducted to continue to monitor changes in the sub-slab conditions. Laboratory analytical results from the February 2019 investigation revealed a reduction in soil gas contaminant concentrations by several orders of magnitude from pre-development concentrations. However, indoor air concentrations of select VOCs remained above background levels. This was thought to be contributed by the on-going construction finishing work (floor sealants, painting) underway on several floors of the Site during the sampling event.

New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) case managers requested additional indoor air sampling be conducted within the Track 4 area during the 2019-2020 heating season to monitor VOC presence in indoor air and determine if the passive SSDS continued to mitigate potential vapor intrusion. In correspondence between case managers and FLS, dated May 24, 2019, the primary concern for the Site has been outlined as reducing indoor air VOC concentrations (including Freon-12) closer to background ambient air levels. Additionally, as a part of evaluating this concern, case managers approved collection of only indoor air samples during this event. A copy of this NYSDEC and NYSDOH correspondence, dated December 16, 2019, is included as Attachment A.

2020 Indoor Air Sampling

The indoor and ambient air sampling was conducted in accordance with the NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) and subsequent updates and the approved 2019 Soil Vapor Investigation Work Plan for the Site dated February 22, 2019.

On January 17, 2020, FLS collected two (2) indoor air and one (1) ambient air sample on Site. Prior to sampling, FLS conducted an inventory of chemical storage in the sampling areas that had the potential to affect sampling results. A copy of the inventory is included as Attachment B. Indoor Air samples were collected in the identical locations from the 2019 Vapor Intrusion event as shown on Figure 1. All samples were transported under proper chain-of-custody to SGS Accutest Laboratories, a New York State ELAP-certified laboratory.

Results

Analytical results from the 2020 Indoor Air Sampling are summarized on Table 1 (attached) and a copy of the Laboratory Report is included as Attachment C. Table 2 (attached) summarizes the collective soil vapor intrusion sampling results over time.

Similar to the 2019 event, there were no individual VOC concentrations that exceeded applicable NYSDOH Guidance values at either sampling location. Generally, concentrations of VOCs in all samples either reduced or remained at similarly low-levels for all compounds. Historic concentrations of Total VOCs in samples IA-1 (251.25 µg/m³) and IA-2 (299.37 µg/m³) reduced during this event to 42.1 µg/m³ and 82.11 µg/m³ respectively. This corresponds to an approximately 83.3% and 72.6% reduction in VOCs at each respective location. Similarly, key contaminants of concern to NYSDEC and NYSDOH for the Site (Freon-12, BTEX, hexane, ethanol chlorinated solvents etc.) have also either reduced or remained at low-level concentrations. Table 3 below summarizes key contaminant concentrations between the last two sampling events.

Table 3. Summary of Contaminants of Concern

	SS-1	SS-2	IA-1	IA-2	AA-1	IA-1	IA-2	AA-1
	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019	1/17/2020	1/17/2020	1/17/2020
	Soil Vapor	Soil Vapor	Indoor Air	Indoor Air	Ambient Air	Indoor Air	Indoor Air	Ambient Air
Acetone	430	57.2	17	70.6	14	5.9	31.4	5.2
Benzene	16	2.5	6.1	4.8	0.89	0.7	0.64	0.51
Dichlorodifluoromethane (Freon-12)	4810	85.1	2.3	2.4	2.5	2.4	2.3	2.2
Ethanol	192	78.2 E	72.2 E	112 E	9.2	8.5	14	3.8
Ethylbenzene	2.7	1.4	6.9	2.5	0.48 J	0.33 J	0.43 J	ND (0.69)
Heptane	11	2.5	13	9.8	0.7	0.31 J	0.38 J	ND (0.66)
Hexane	25	4.9	19	18	0.56	0.53 J	0.92	0.30 J
Isopropyl Alcohol	3.7	2.4	1.5	3.9	0.69	0.64	1	0.49
Methylene chloride	1.2	1	1.6	1.4	1.4	0.83	4.9	1.1
Methyl ethyl ketone	41.9	6.5	1.7	8.6	0.62	3.8	2.9	4.4
1,2,4-Trimethylbenzene	3.2	1.2	9.3	1.9	1	0.59 J	0.74 J	ND (0.79)
2,2,4-Trimethylpentane	20	2	13	11	2	ND (0.75)	ND (0.75)	ND (0.75)
Tetrachloroethylene	2	4.7	0.28	0.35	0.29	0.39	ND (0.22)	ND (0.22)
Toluene	18	4.5	31	14	2	6.4	6.8	5.3
Trichlorofluoromethane	3.1	3.6	1.2	1.3	1.3	1.2	1.3	1.2
m,p-Xylene	6.5	6.1	25	11	1.5	1	1.5	0.42 J
o-Xylene	2.4	1.7	9.6	3	0.42 J	0.40 J	0.52 J	ND (0.69)
Xylenes (total)	9.1	7.8	34	14	2	1.4	2	0.42 J
Trichloroethylene	0.37	1.1	ND(0.081)	ND(0.081)	ND(0.081)	ND (0.17)	ND (0.17)	ND (0.17)
Trichlorofluoromethane	3.1	3.6	1.2	1.3	1.3	1.2	1.3	1.2
Vinyl chloride	ND(0.046)	ND(0.056)	ND(0.046)	ND(0.046)	ND(0.046)	ND(0.082)	ND(0.082)	ND(0.082)
Total (TO-15)	6,164.94	377.99	251.35	299.37	41.89	42.1	82.11	27.52

E – Indicates value exceeds calibration range

J – Indicates an estimated value

NT – Not Tested

ND—Non-Detect

Results in µg/m³

As shown in Table 3, 2019 Total BTEX concentrations in samples IA-1 (78 $\mu\text{g}/\text{m}^3$) and IA-2 (35.3 $\mu\text{g}/\text{m}^3$) have reduced to 8.5 $\mu\text{g}/\text{m}^3$ and 9.44 $\mu\text{g}/\text{m}^3$, respectively during the 2020 sampling event. This corresponds to approximately an 89.1% and 73.3% reduction in Total BTEX, at each location. The largest individual BTEX reduction was xylene which reduced by approximately 95.9% and 85.7% at locations IA-1 (1.4 $\mu\text{g}/\text{m}^3$) and IA-2 (2 $\mu\text{g}/\text{m}^3$).

The largest overall VOC reduction appears in hexane, where concentrations reduced from approximately 19 $\mu\text{g}/\text{m}^3$ at both locations to 0.52 $\mu\text{g}/\text{m}^3$ and 0.92 $\mu\text{g}/\text{m}^3$ at IA-1 and IA-2, respectively. This represents 97.2% and 94.9% reductions in these locations and generally reduces hexane concentrations to similar levels as ambient air (0.30 $\mu\text{g}/\text{m}^3$). Similarly, ethanol concentrations, which had been historically higher than background were reduced by approximately 88.23% and 87.5% for IA-1 (8.5 $\mu\text{g}/\text{m}^3$), and IA-2 (14 $\mu\text{g}/\text{m}^3$), respectively. Freon-12 concentrations have remained at similar levels for all locations and remains similar to that of ambient air (2.2 $\mu\text{g}/\text{m}^3$). Chlorinated solvents were largely non-detect at all locations, with the exception of methylene chloride at IA-2 (4.9 $\mu\text{g}/\text{m}^3$), which remained well below the NYSDOH guidance value of 60 $\mu\text{g}/\text{m}^3$.

Conclusions and Recommendations

Analytical results from the January 2020 investigation continue to demonstrate a general downward trend in VOC concentrations within indoor air. Now that final construction and finishing work has been complete on Site, it appears that VOC concentrations have reduced to levels similar to background and ambient air conditions. Total VOCs in indoor air have reduced by approximately 83.3% and 72.6% at locations IA-1 and IA-2. Similarly, no individual compounds at these locations were detected exceeding NYSDOH guidance values.

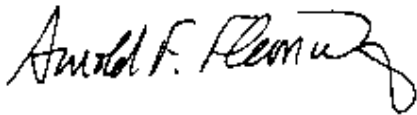
As previously mentioned, the NYSDEC/ NYSDOH case managers have previously indicated that the primary concern for the Site has been reducing concentrations of VOCs (including Freon-12) to levels closer to background and ambient air concentrations. Concentrations of Freon-12 in indoor air remain at levels similar to ambient air conditions (approximately 2.2 $\mu\text{g}/\text{m}^3$). Similarly, other VOC concentrations (including hexane, heptane, BTEX compounds, ethanol, and all chlorinated solvents) have all either reduced or remained at similar levels generally akin to background/ambient air.

Based on the data presented above, the NYSDOH Guidance values, and the last two consecutive years of soil vapor and indoor air sampling results warranting “no further action” under the NYSDOH Vapor Intrusion Matrices, FLS recommends that the current passive SSDS remain in place, but no further monitoring of sub-slab vapor and indoor air be conducted. If both agencies concur, FLS will revise the SMP accordingly and submit it for review and approval. Annual inspections of the site cover and passive SSDS will continue as per the current SMP requirements.

Please contact us with any questions or comments you may have regarding the report and recommendations.

Sincerely,

Fleming-Lee Shue, Inc.



Arnold F. Fleming, P.E.
President

Cc: S. Karpinski, NYSDOH
S. McLaughlin NYSDOH
J. McArter – Vornado Realty Trust
J. Coghlan, Esq., Sive Paget, & Riesel, PC
Daniel DiRocco, Fleming-Lee Shue, Inc.
Mark Hutson, Fleming-Lee Shue, Inc.

Enc: Figure 1 – Vapor Intrusion Investigation Sample Locations
Table 1 – 2020 Indoor Air Analytical Results
Table 2 – Historical Vapor Intrusion Sampling Results
Table 3 – Summary of Contaminants of Concern (in-text)
Attachment A – NYSDEC & NYSDOH Correspondence
Attachment B – Product Inventory
Attachment C- Laboratory Report

FIGURES



Environmental Management & Consulting

158 West 29th Street, 9th Fl.
New York, NY 10001

511 W. 21st Street
New York, NY
BCP Site # C231080






Figure 1

Sub-Slab Vapor and Indoor Air Sample Locations

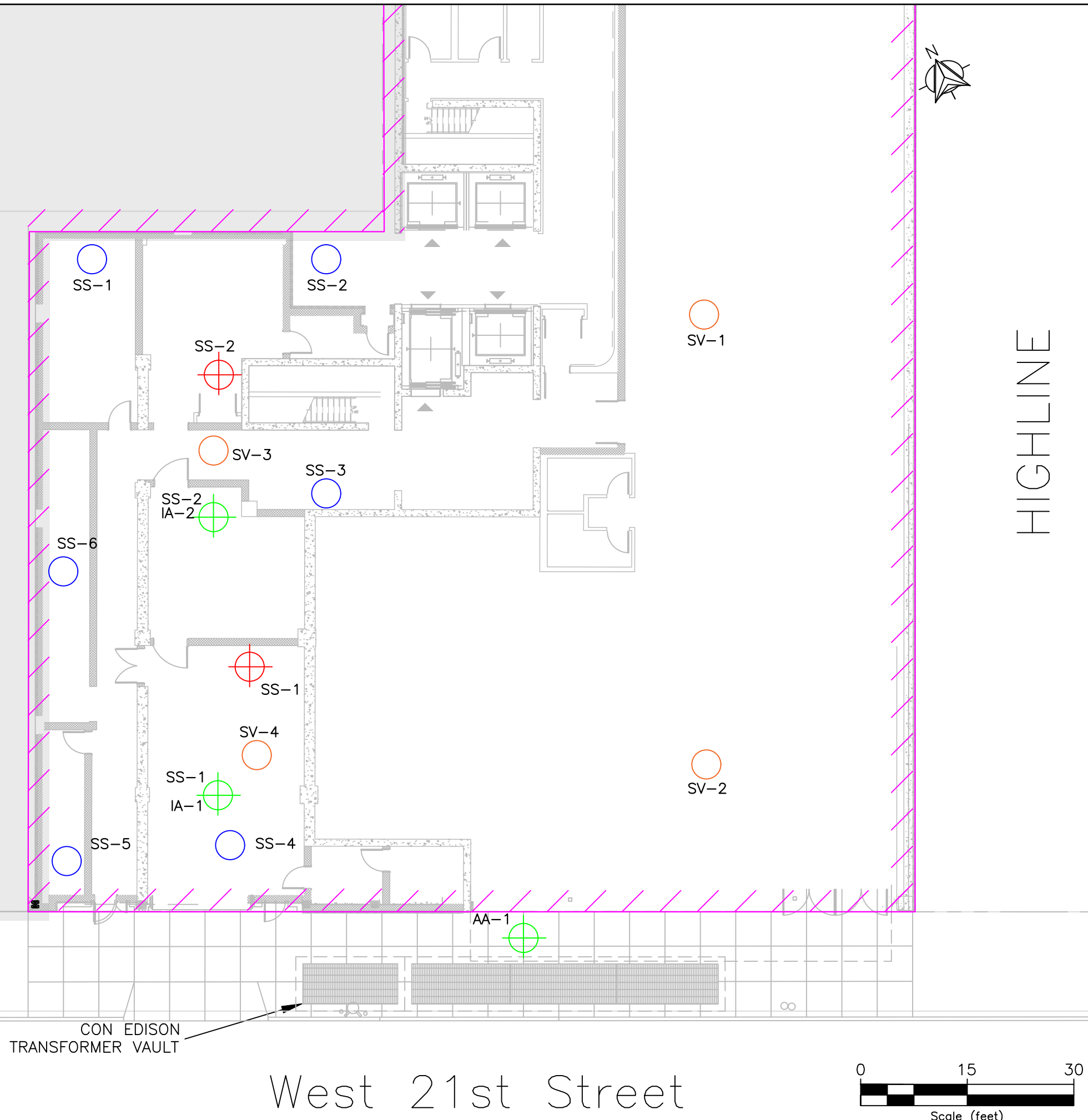
February 2020

Project Number
10173-002

LEGEND

-  BUILDING OUTLINE
-  POST-REMEDY VAPOR SAMPLE LOCATION - 2/27/2019; 1/17/2020
-  POST-REMEDY VAPOR SAMPLE LOCATION - 3/30/2018
-  PRE-REMEDY VAPOR SAMPLE LOCATION - 12/30/2014
-  PRE-REMEDY VAPOR SAMPLE LOCATION - 12/12/2013

FILE: P:\10118 - Vornado\003 - 511 West 21st Street (Formerly Albanese)\Figures\2019 VI Sampling\VI Sampling Locations 1.17.20.dwg DATE: 2/12/2020



TABLES

Table 1
511 W. 21st Street
Indoor and Ambient Air Sampling Results

Client Sample ID:		IA-1	IA-2	AA-1
Date Sampled:		1/17/2020	1/17/2020	1/17/2020
Matrix:		Indoor Air	Indoor Air	Ambient Air
MS Volatiles (TO-15) - ug/m3				
Acetone	ug/m3	5.9	31.4	5.2
1,3-Butadiene	ug/m3	ND (0.35)	ND (0.35)	ND (0.35)
Benzene	ug/m3	0.7	0.64	0.51
Bromodichloromethane	ug/m3	ND (0.54)	ND (0.54)	ND (0.54)
Bromoform	ug/m3	ND (0.33)	ND (0.33)	ND (0.33)
Bromomethane	ug/m3	ND (0.62)	ND (0.62)	ND (0.62)
Bromoethene	ug/m3	ND (0.70)	ND (0.70)	ND (0.70)
Benzyl Chloride	ug/m3	ND (0.82)	ND (0.82)	ND (0.82)
Carbon disulfide	ug/m3	ND (0.50)	0.16 J	ND (0.50)
Chlorobenzene	ug/m3	ND (0.74)	ND (0.74)	ND (0.74)
Chloroethane	ug/m3	ND (0.42)	ND (0.42)	ND (0.42)
Chloroform	ug/m3	ND (0.78)	ND (0.78)	ND (0.78)
Chloromethane	ug/m3	1.2	1.1	1.2
3-Chloropropene	ug/m3	ND (0.50)	ND (0.50)	ND (0.50)
2-Chlorotoluene	ug/m3	ND (0.83)	ND (0.83)	ND (0.83)
Carbon tetrachloride	ug/m3	0.52	0.49	ND (0.20)
Cyclohexane	ug/m3	ND (0.55)	0.33 J	ND (0.55)
1,1-Dichloroethane	ug/m3	ND (0.65)	ND (0.65)	ND (0.65)
1,1-Dichloroethylene	ug/m3	ND (0.63)	ND (0.63)	ND (0.63)
1,2-Dibromoethane	ug/m3	2.2	ND (0.61)	ND (0.61)
1,2-Dichloroethane	ug/m3	ND (0.65)	ND (0.65)	ND (0.65)
1,2-Dichloropropane	ug/m3	ND (0.74)	ND (0.74)	ND (0.74)
1,4-Dioxane	ug/m3	ND (0.58)	ND (0.58)	ND (0.58)
Dichlorodifluoromethane	ug/m3	2.4	2.3	2.2
Dibromochloromethane	ug/m3	ND (0.68)	ND (0.68)	ND (0.68)
trans-1,2-Dichloroethylene	ug/m3	ND (0.63)	ND (0.63)	ND (0.63)
cis-1,2-Dichloroethylene	ug/m3	ND (0.63)	ND (0.63)	ND (0.63)
cis-1,3-Dichloropropene	ug/m3	ND (0.73)	ND (0.73)	ND (0.73)
m-Dichlorobenzene	ug/m3	ND (0.48)	ND (0.48)	ND (0.48)
o-Dichlorobenzene	ug/m3	ND (0.19)	ND (0.19)	ND (0.19)
p-Dichlorobenzene	ug/m3	ND (0.48)	ND (0.48)	ND (0.48)
trans-1,3-Dichloropropene	ug/m3	ND (0.73)	ND (0.73)	ND (0.73)
Ethanol	ug/m3	8.5	14	3.8
Ethylbenzene	ug/m3	0.33 J	0.43 J	ND (0.69)
Ethyl Acetate	ug/m3	3.6	4.3	1.4
4-Ethyltoluene	ug/m3	ND (0.79)	ND (0.79)	ND (0.79)
Freon 113	ug/m3	ND (0.61)	ND (0.61)	ND (0.61)
Freon 114	ug/m3	ND (0.56)	ND (0.56)	ND (0.56)
Heptane	ug/m3	0.31 J	0.38 J	ND (0.66)
Hexachlorobutadiene	ug/m3	ND (0.77)	ND (0.77)	ND (0.77)
Hexane	ug/m3	0.53 J	0.92	0.30 J
2-Hexanone	ug/m3	ND (0.65)	ND (0.65)	ND (0.65)
Isopropyl Alcohol	ug/m3	0.64	1	0.49
Methylene chloride	ug/m3	0.83	4.9	1.1
Methyl ethyl ketone	ug/m3	3.8	2.9	4.4
Methyl Isobutyl Ketone	ug/m3	ND (0.66)	1.5	ND (0.66)
Methyl Tert Butyl Ether	ug/m3	ND (0.58)	ND (0.58)	ND (0.58)
Methylmethacrylate	ug/m3	0.66	2.8	ND (0.66)
Propylene	ug/m3	ND (0.69)	ND (0.69)	ND (0.69)
Styrene	ug/m3	ND (0.68)	1.4	ND (0.68)
1,1,1-Trichloroethane	ug/m3	ND (0.44)	ND (0.44)	ND (0.44)
1,1,2,2-Tetrachloroethane	ug/m3	ND (0.55)	ND (0.55)	ND (0.55)
1,1,2-Trichloroethane	ug/m3	ND (0.44)	ND (0.44)	ND (0.44)
1,2,4-Trichlorobenzene	ug/m3	ND (0.59)	ND (0.59)	ND (0.59)
1,2,4-Trimethylbenzene	ug/m3	0.59 J	0.74 J	ND (0.79)
1,3,5-Trimethylbenzene	ug/m3	ND (0.79)	ND (0.79)	ND (0.79)
2,2,4-Trimethylpentane	ug/m3	ND (0.75)	ND (0.75)	ND (0.75)
Tertiary Butyl Alcohol	ug/m3	ND (0.49)	ND (0.49)	ND (0.49)
Tetrachloroethylene	ug/m3	0.39	ND (0.22)	ND (0.22)
Tetrahydrofuran	ug/m3	ND (0.47)	0.32 J	ND (0.47)
Toluene	ug/m3	6.4	6.8	5.3
Trichloroethylene	ug/m3	ND (0.17)	ND (0.17)	ND (0.17)
Trichlorofluoromethane	ug/m3	1.2	1.3	1.2
Vinyl chloride	ug/m3	ND (0.082)	ND (0.082)	ND (0.082)
Vinyl Acetate	ug/m3	ND (0.56)	ND (0.56)	ND (0.56)
m,p-Xylene	ug/m3	1	1.5	0.42 J
o-Xylene	ug/m3	0.40 J	0.52 J	ND (0.69)
Xylenes (total)	ug/m3	1.4	2	0.42 J

ND- Non-Detect
J - Estimated Value

ATTACHMENT A

NYSDEC & NYSDOH Correspondence

Joel Kane

From: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>
Sent: Monday, December 16, 2019 3:47 PM
To: Joel Kane
Cc: Daniel DiRocco; Mark Hutson; Arnold F. Fleming (arnie@flemingleeshue.com); Perez-Maldonado, Javier (DEC); McLaughlin, Scarlett E (HEALTH)
Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

Joel,

At this point in time, collection of only indoor air samples with VOC analysis is acceptable. I would prefer to see this sampling conducted before the additional finish work is started, and I would prefer that the buildings heating system is operational. If the heating system is not operating yet, then it may make more sense to do the indoor air sampling once the finish work is completed. We may need additional concurrent sampling of the sub-slab and indoor air environments, depending on what we see from the next round of samples.

Also, BEEI has a new Region Chief for Region 2, Scarlett McLaughlin (copied on this email). Please replace Justin with Scarlett on future correspondences.

Steven Karpinski
Bureau of Environmental Exposure Investigation
New York State Department of Health
Empire State Plaza
Corning Tower, Room 1787
Albany, New York, 12237
518-402-7860

From: Joel Kane <joel@flemingleeshue.com>
Sent: Tuesday, December 10, 2019 4:36 PM
To: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>
Cc: Daniel DiRocco <daniel@flemingleeshue.com>; Mark Hutson <mark@flemingleeshue.com>; Arnold F. Fleming (arnie@flemingleeshue.com) <arnie@flemingleeshue.com>; Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>; Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>
Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

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Hello Steven,

Following up on the vapor intrusion study for 511 W. 21st Street (C231080). As we have now entered another heating season, I thought it pertinent to clarify the sampling requirements for the Site.

Our current understanding was to conduct another sampling event during the 2019-2020 heating season. The primary concern being indoor air concentrations of VOCs. You had mentioned below hoping to see VOCs closer to background once construction was complete and the building occupied.

Main construction on Site has been complete. However, there are no tenants. Additionally, further construction activities and finishing work are planned for the next couple months to prepare for tenants. The nature of this work

could potentially have low levels of VOCs. Additionally, this would begin in the next couple weeks and could likely extend throughout the heating season.

As a result of the above, I have a couple questions regarding sampling scope.

- 1). Given the primary concern is VOCs in indoor air, are we approved to sample for indoor air only moving forward with this next event?
- 2). Would you prefer we conduct the sampling event in the next couple weeks, prior to additional finishing work, but without occupants? Or alternatively wait until all finishing work is complete in the building and sample most likely outside of heating season?

Let me know your thoughts.

Thanks again,

Joel Kane
Project Manager
Fleming-Lee Shue, Inc.
158 West 29th Street
New York, NY, 10001
P: (212) 675-3225
F: (212) 675-3224
C: (406) 321-0586

From: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>
Sent: Friday, May 24, 2019 1:11 PM
To: Daniel DiRocco <daniel@flemingleeshue.com>
Cc: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Mark Hutson <mark@flemingleeshue.com>; FLS - Arnold Fleming <arnie@flemingleeshue.com>; Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>
Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

Daniel,

We do see Freon 12 showing up frequently in both sub-slab and indoor air with no clear source, although the concentrations we saw in the 2014 samples is somewhat unusual. I don't know that we necessarily have to address the sub-slab Freon concentrations specifically, especially since there is not a significant impact to indoor air. My primary concern is that we get closer to back ground indoor air concentrations for Freon and some of the other VOCs that we are seeing once construction is completed and the building is occupied.

7VGXGP#/ CTRKPUIM#
&WIGCW#QI#) PXXIQPO GPVCN#) ZRQUWTG#PXGUVKICVQP#
2GY #-QIM#7VCV#(GRCIVO GPV#QI#, GCNU#
)O RKIG#7VCV#1NC\C#
' QTPKI#BQYGD#6 QOO #eklk#
%NDCP [x#2GY #-QIM#efgk#
iel hnf kljn#

From: Daniel DiRocco <daniel@flemingleeshue.com>
Sent: Friday, May 24, 2019 11:43 AM
To: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>
Cc: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Mark Hutson <mark@flemingleeshue.com>;

FLS - Arnold Fleming <arnie@flemingleeshue.com>; Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>

Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

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We are working on a response and will follow-up early next week.

Does DOH have any guidance or experience with Freon in sub-slab vapor?

Seems very odd that Freon 12 (Dichlorodifluoromethane) in sub-slab with no known source of Freon-12 within the Site boundaries.

Thank you,

Daniel P. DiRocco

Senior Project Manager

Fleming-Lee Shue, Inc.

158 West 29th Street, 9th Fl.

New York, N.Y. 10001

P: (212) 675-3225

F: (212) 675-3224

daniel@flemingleeshue.com

From: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>

Sent: Wednesday, May 22, 2019 9:44 AM

To: Daniel DiRocco <daniel@flemingleeshue.com>

Cc: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Mark Hutson <mark@flemingleeshue.com>;

FLS - Arnold Fleming <arnie@flemingleeshue.com>; Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>

Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

OK, so I am reviewing the data in your May 9, 2019 report, and considering your recommendation to discontinue sub-slab and indoor air sampling, and I am trying to justify why I still see sub-slab and indoor air levels of freon and other various volatile organic compounds that look similar to the concentrations seen prior to any remediation. Do you have an opinion or a thought as to whether the work that is still being conducted in the building could be the source of some of the indoor air levels?

Steve#

From: Daniel DiRocco <daniel@flemingleeshue.com>

Sent: Thursday, May 16, 2019 4:05 PM

To: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>

Cc: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Mark Hutson <mark@flemingleeshue.com>;

FLS - Arnold Fleming <arnie@flemingleeshue.com>

Subject: Re: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

On May 16, 2019, at 3:53 PM, Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov> wrote:

Daniel,

Am I correct in remembering that this area is a loading dock? If it is, and the building is still being completed, I suspect this area gets a lot of use, which would explain why we are still seeing BTEX hits in indoor air. Is this correct as well?

Steve

From: Daniel DiRocco <daniel@flemingleeshue.com>
Sent: Thursday, May 16, 2019 3:36 PM
To: Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>
Cc: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Mark Hutson <mark@flemingleeshue.com>; FLS - Arnold Fleming <arnie@flemingleeshue.com>
Subject: Re: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

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They are finishing up interior. No tenants yet. They are in the process of getting TCO with building department

On May 16, 2019, at 3:32 PM, Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov> wrote:

Daniel,

What is the status of the building itself, is construction completed and the building occupied?

7VGXGP#/ CTRK PUMK
&WIGCW#Q# PXXIQPO GPVCN# ZRQUWTG#PXGUVKICWQP
2GY #-QIM#VCV#(GRCTVO GPV#Q# GCNU
)O RKIG#VCV#INC\C
' QTPKI#BQYGD#6 QOO #k1k
%NDCP [X#GY #-QIM#efgk
iel hnf kljn

From: Daniel DiRocco <daniel@flemingleeshue.com>
Sent: Thursday, May 09, 2019 3:56 PM
To: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>
Cc: Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>; Jeffrey L. Chaisson <jlc@albaneseorg.com>; Marty Dettling <msd@albaneseorg.com>; arnie@flemingleeshue.com; Joel Kane <joel@flemingleeshue.com>; Jennifer Coghlan <jcoghlan@sprlaw.com>; Mark Hutson <mark@flemingleeshue.com>
Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown senders or unexpected emails.

Please find attached the Soil Vapor Intrusion Investigation report for the 511 West 21st St Site in Manhattan (BCP C231080) for NYSDEC and NYSDOH review. Please let us know if you have any questions.

Thank you,

Daniel P. DiRocco

Senior Project Manager

Fleming-Lee Shue, Inc.

158 West 29th Street, 9th Fl.

New York, N.Y. 10001

P: (212) 675-3225

F: (212) 675-3224

daniel@flemingleeshue.com

From: Daniel DiRocco

Sent: Friday, February 22, 2019 10:17 AM

To: 'Perez-Maldonado, Javier (DEC)' <javier.perez-maldonado@dec.ny.gov>; Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>

Cc: Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>; Jeffrey L. Chaisson <jlc@albaneseorg.com>; Marty Dettling <msd@albaneseorg.com>; arnie@flemingleeshue.com; Joel Kane <joel@flemingleeshue.com>; Jennifer Coghlan <jcoghlan@sprlaw.com>

Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

Javier,

We made the revisions to the Vapor Intrusion Investigation Workplan and have scheduled sampling for next Wednesday February 27, 2019.

Thank you,

Daniel P. DiRocco

Senior Project Manager

Fleming-Lee Shue, Inc.

158 West 29th Street, 9th Fl.

New York, N.Y. 10001

P: (212) 675-3225

F: (212) 675-3224

daniel@flemingleeshue.com

From: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>

Sent: Friday, February 22, 2019 7:33 AM

To: Daniel DiRocco <daniel@flemingleeshue.com>; Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>

Cc: Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>; Jeffrey L. Chaisson <jlc@albaneseorg.com>; Marty Dettling <msd@albaneseorg.com>; arnie@flemingleeshue.com; Joel Kane <joel@flemingleeshue.com>; Jennifer Coghlan <jcoghlan@sprlaw.com>

Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

Daniel,

All samples need to be collected during the same 8-hr period.

Javier Perez-Maldonado

Project Manager, Division of Environmental Remediation

New York State Department of Environmental Conservation

625 Broadway, Albany, NY 12233

P: 518-402-9767 | F: 518-402-9773 | javier.perez-maldonado@dec.ny.gov

www.dec.ny.gov | <image001.gif> | <image002.gif>

From: Daniel DiRocco <daniel@flemingleeshue.com>

Sent: Thursday, February 21, 2019 9:40 AM

To: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>

Cc: Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>; Jeffrey L. Chaisson <jlc@albaneseorg.com>; Marty Dettling <msd@albaneseorg.com>; arnie@flemingleeshue.com; Joel Kane <joel@flemingleeshue.com>; Jennifer Coghlan <jcoghlan@sprlaw.com>

Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown sender or unexpected emails.

Please confirm if the sub-slab vapor samples and the collated indoor air samples should be collected during the same 8-hour sample period?

Thank you
Dan

Daniel P. DiRocco

Senior Project Manager

Fleming-Lee Shue, Inc.

158 West 29th Street, 9th Fl.

New York, N.Y. 10001

P: (212) 675-3225

F: (212) 675-3224

daniel@flemingleeshue.com

From: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>

Sent: Wednesday, February 20, 2019 3:52 PM

To: Daniel DiRocco <daniel@flemingleeshue.com>; Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>

Cc: Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>; Jeffrey L. Chaisson <jlc@albaneseorg.com>; Marty Dettling <msd@albaneseorg.com>;

arnie@flemingleeshue.com; Joel Kane <joel@flemingleeshue.com>; Jennifer Coghlan

<jcoghlansprlaw.com>

Subject: RE: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

Daniel,

The New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) have reviewed the February 15, 2019 Soil Vapor Investigation Work Plan (SVIWP) for the 511 West 21st Street site located in New York, New York County.

The following comments need to be addressed before the document is acceptable:

1. There must be a co-located indoor air sample for each sub-slab sample.
2. All samples must run for the same duration, i.e., sub-slab and indoor air must run for eight hours (since this is a commercial building).

Please modify the work plan to address the comments above and re-submit it to the NYSDEC and NYSDOH for review and approval.

Regards,

Javier Perez-Maldonado

Project Manager, Division of Environmental Remediation

New York State Department of Environmental Conservation

625 Broadway, Albany, NY 12233

P: 518-402-9767 | F: 518-402-9773 | javier.perez-maldonado@dec.ny.gov

www.dec.ny.gov | <image001.gif> | <image002.gif>

From: Daniel DiRocco <daniel@flemingleeshue.com>

Sent: Friday, February 15, 2019 3:15 PM

To: Perez-Maldonado, Javier (DEC) <javier.perez-maldonado@dec.ny.gov>; Karpinski, Steven (HEALTH) <steven.karpinski@health.ny.gov>

Cc: Deming, Justin H (HEALTH) <justin.deming@health.ny.gov>; Jeffrey L. Chaisson

<jlc@albaneseorg.com>; Marty Dettling <msd@albaneseorg.com>;

arnie@flemingleeshue.com; Joel Kane <joel@flemingleeshue.com>; Jennifer Coghlans

<jcoghlansprlaw.com>

Subject: 511 West 21st Street Site (C231080) - Vapor Intrusion Sample Plan - For Review

Importance: High

ATTENTION: This email came from an external source. Do not open attachments or click on links from unknown sender unexpected emails.

Please find attached our Vapor Intrusion (VI) Investigation Workplan for the 511 West 21st Street Site (BCP Site No. C231080).

Please review and let us know if you have any comments on our sample plan. We are targeting conducting the VI sampling in the next week or two before the March 15 end of the heating season.

Thank you,

Daniel P. DiRocco

Senior Project Manager

Fleming-Lee Shue, Inc.

158 West 29th Street, 9th Fl.

New York, N.Y. 10001

P: (212) 675-3225

F: (212) 675-3224

daniel@flemingleeshue.com

ATTACHMENT B

Product Inventory

Soil Vapor Intrusion - Structure Sampling Building Questionnaire

Structure ID : _____

Site No. : C231080 Site Name : 511 W. 21st St.

Date: 02/03/2020 Time: 10:00

Structure Address : 511 W. 21st St.

Preparer's Name & Affiliation : Fleming Lee Shive Inc. Environmental Consultant

Residential ? Yes No Owner Occupied ? Yes No Owner Interviewed ? Yes No

Commercial ? Yes No Industrial ? Yes No Mixed Uses ? Yes No

Identify all non-residential use(s) : N/A

Owner Name : Vornado Realty Trvst Owner Phone : () _____ - _____

Secondary Owner Phone : () _____ - _____

Owner Address (if different) : 888 Seventh Ave. 43rd Fl.

Occupant Name : N/A Occupant Phone : () _____ - _____

Secondary Occupant Phone : () _____ - _____

Number & Age of All Persons Residing at this Location : N/A

Additional Owner/Occupant Information : N/A

Describe Structure (style, number floors, size) : 11-story commercial office building

Approximate Year Built : 2015 Is the building Insulated? Yes No

Lowest level : Slab-on-grade Basement Crawlspace

Describe Lowest Level (finishing, use, time spent in space) : not complete at this time

Floor Type: Concrete Slab Dirt Mixed : _____

Floor Condition : Good (few or no cracks) Average (some cracks) Poor (broken concrete or dirt)

Sumps/Drains? Yes No Describe : _____

Identify other floor penetrations & details : N/A

Wall Construction : Concrete Block Poured Concrete Laid-Up Stone

Identify any wall penetrations : N/A

Identify water, moisture, or seepage: location & severity (sump, cracks, stains, etc) : N/A

Heating Fuel : Oil Gas Wood Electric Other : _____

Heating System : Forced Air Hot Water Other : _____

Hot Water System : Combustion Electric Boilermate Other: N/A

Clothes Dryer : Electric Gas Where is dryer vented to? N/A

If combustion occurs, describe where air is drawn from (cold air return, basement, external air, etc.) : N/A

Fans & Vents (identify where fans/vents pull air from and where they vent/exhaust to) : N/A

Describe factors that may affect indoor air quality (chemical use/storage, unvented heaters, smoking, workshop):

Attached garage ? Yes No Air fresheners ? Yes No

New carpet or furniture ? Yes No What/Where ? Some carpeted - work mats

Recent painting or staining ? Yes No Where ? : N/A

Any solvent or chemical-like odors ? Yes No Describe : N/A

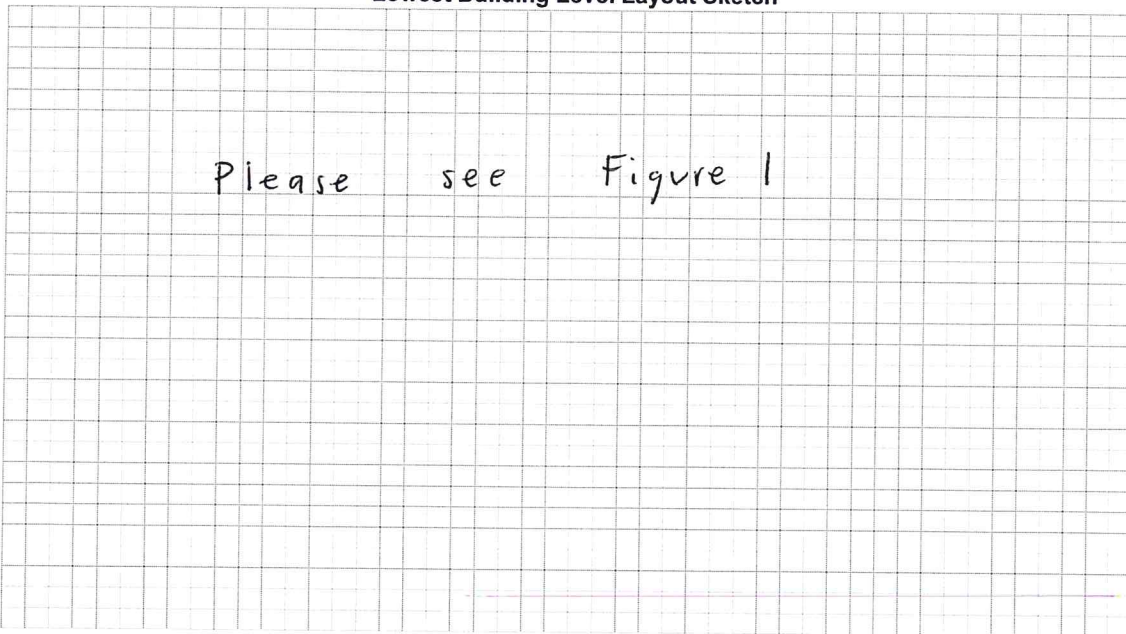
Last time Dry Cleaned fabrics brought in ? N/A What / Where ? N/A

Do any building occupants use solvents at work ? Yes No Describe : N/A

Any testing for Radon ? Yes No Results : N/A

Radon System/Soil Vapor Intrusion Mitigation System present ? Yes No If yes, describe below

Lowest Building Level Layout Sketch



- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sketch.
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

<p>B or F Boiler or Furnace</p> <p>HW Hot Water Heater</p> <p>FP Fireplaces</p> <p>WS Wood Stoves</p> <p>W/D Washer / Dryer</p> <p>S Sumps</p> <p>@ Floor Drains</p>	<p>o Other floor or wall penetrations (label appropriately)</p> <p>xxxxxxx Perimeter Drains (draw inside or outside outer walls as appropriate)</p> <p>##### Areas of broken-up concrete</p> <p>● SS-1 Location & label of sub-slab vapor samples</p> <p>● IA-1 Location & label of indoor air samples</p> <p>● OA-1 Location & label of outdoor air samples</p> <p>● PFET-1 Location and label of any pressure field test holes.</p>
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ATTACHMENT C

Laboratory Report

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Fleming-Lee Shue, Inc.

Vornado, 511 West 21st Street, New York, NY

10173-002-5

SGS Job Number: JD1975

Sampling Date: 01/17/20

Report to:

Fleming-Lee Shue, Inc.

jordan@flemingleeshue.com

ATTN: Jordan Arey

Total number of pages in report: 19



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

A handwritten signature in black ink, appearing to read "Laura Degenhardt".

Laura Degenhardt
General Manager

Client Service contact: Tammy McCloskey 732-329-0200

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

This report shall not be reproduced, except in its entirety, without the written approval of SGS.
Test results relate only to samples analyzed.

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-1-

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Section 3: Summary of Hits	5
Section 4: Sample Results	8
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4.2: JD1975-2: IA-2	11
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Section 5: Misc. Forms	15
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5.2: Summa Canister and Flow Controller Log	19

1

2

3

4

5



Sample Summary

Fleming-Lee Shue, Inc.

Job No: JD1975

Vornado, 511 West 21st Street, New York, NY

Project No: 10173-002-5

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
---------------	----------------	---------	----------	------------------	------------------

This report contains results reported as ND = Not detected. The following applies:
 Organics ND = Not detected above the MDL

JD1975-1	01/17/20	17:36 JA	01/20/20	AIR Indoor Air Comp.	IA-1
JD1975-2	01/17/20	17:40 JA	01/20/20	AIR Indoor Air Comp.	IA-2
JD1975-3	01/17/20	17:45 JA	01/20/20	AIR Ambient Air Comp.	AA-1

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Fleming-Lee Shue, Inc.

Job No JD1975

Site: Vornado, 511 West 21st Street, New York, NY

Report Date 1/30/2020 12:36:56 P

On 01/20/2020, 3 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. A SGS North America Inc. Job Number of JD1975 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

MS Volatiles By Method TO-15

Matrix: AIR	Batch ID: V3W2800
--------------------	--------------------------

- All samples were analyzed within the recommended method holding time.
- Sample(s) JD1975-3DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for Duplicate for Isopropyl Alcohol are outside control limits for sample JD1975-3DUP.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JD1975
Account: Fleming-Lee Shue, Inc.
Project: Vornado, 511 West 21st Street, New York, NY
Collected: 01/17/20



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

JD1975-1 **IA-1**

Acetone		2.5	0.16	0.090	ppbv	TO-15
Benzene		0.22	0.16	0.0095	ppbv	TO-15
Chloromethane		0.58	0.16	0.012	ppbv	TO-15
Carbon tetrachloride		0.083	0.032	0.019	ppbv	TO-15
1,2-Dibromoethane		0.28	0.080	0.014	ppbv	TO-15
Dichlorodifluoromethane		0.49	0.16	0.013	ppbv	TO-15
Ethanol		4.5	0.40	0.17	ppbv	TO-15
Ethylbenzene		0.076 J	0.16	0.012	ppbv	TO-15
Ethyl Acetate		1.0	0.16	0.030	ppbv	TO-15
Heptane		0.076 J	0.16	0.014	ppbv	TO-15
Hexane		0.15 J	0.16	0.0085	ppbv	TO-15
Isopropyl Alcohol		0.26	0.16	0.052	ppbv	TO-15
Methylene chloride		0.24	0.16	0.012	ppbv	TO-15
Methyl ethyl ketone		1.3	0.16	0.034	ppbv	TO-15
Methylmethacrylate		0.16	0.16	0.026	ppbv	TO-15
1,2,4-Trimethylbenzene		0.12 J	0.16	0.026	ppbv	TO-15
Tetrachloroethylene		0.058	0.032	0.025	ppbv	TO-15
Toluene		1.7	0.16	0.012	ppbv	TO-15
Trichlorofluoromethane		0.22	0.080	0.022	ppbv	TO-15
m,p-Xylene		0.23	0.16	0.027	ppbv	TO-15
o-Xylene		0.092 J	0.16	0.014	ppbv	TO-15
Xylenes (total)		0.32	0.16	0.014	ppbv	TO-15
Acetone		5.9	0.38	0.21	ug/m3	TO-15
Benzene		0.70	0.51	0.030	ug/m3	TO-15
Chloromethane		1.2	0.33	0.025	ug/m3	TO-15
Carbon tetrachloride		0.52	0.20	0.12	ug/m3	TO-15
1,2-Dibromoethane		2.2	0.61	0.11	ug/m3	TO-15
Dichlorodifluoromethane		2.4	0.79	0.064	ug/m3	TO-15
Ethanol		8.5	0.75	0.32	ug/m3	TO-15
Ethylbenzene		0.33 J	0.69	0.052	ug/m3	TO-15
Ethyl Acetate		3.6	0.58	0.11	ug/m3	TO-15
Heptane		0.31 J	0.66	0.057	ug/m3	TO-15
Hexane		0.53 J	0.56	0.030	ug/m3	TO-15
Isopropyl Alcohol		0.64	0.39	0.13	ug/m3	TO-15
Methylene chloride		0.83	0.56	0.042	ug/m3	TO-15
Methyl ethyl ketone		3.8	0.47	0.10	ug/m3	TO-15
Methylmethacrylate		0.66	0.66	0.11	ug/m3	TO-15
1,2,4-Trimethylbenzene		0.59 J	0.79	0.13	ug/m3	TO-15
Tetrachloroethylene		0.39	0.22	0.17	ug/m3	TO-15
Toluene		6.4	0.60	0.045	ug/m3	TO-15
Trichlorofluoromethane		1.2	0.45	0.12	ug/m3	TO-15
m,p-Xylene		1.0	0.69	0.12	ug/m3	TO-15
o-Xylene		0.40 J	0.69	0.061	ug/m3	TO-15

Summary of Hits

Job Number: JD1975
Account: Fleming-Lee Shue, Inc.
Project: Vornado, 511 West 21st Street, New York, NY
Collected: 01/17/20



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Xylenes (total)		1.4	0.69	0.061	ug/m3	TO-15
-----------------	--	-----	------	-------	-------	-------

JD1975-2 IA-2

Acetone		13.2	0.16	0.090	ppbv	TO-15
Benzene		0.20	0.16	0.0095	ppbv	TO-15
Carbon disulfide		0.050 J	0.16	0.019	ppbv	TO-15
Chloromethane		0.54	0.16	0.012	ppbv	TO-15
Carbon tetrachloride		0.078	0.032	0.019	ppbv	TO-15
Cyclohexane		0.095 J	0.16	0.018	ppbv	TO-15
Dichlorodifluoromethane		0.46	0.16	0.013	ppbv	TO-15
Ethanol		7.3	0.40	0.17	ppbv	TO-15
Ethylbenzene		0.10 J	0.16	0.012	ppbv	TO-15
Ethyl Acetate		1.2	0.16	0.030	ppbv	TO-15
Heptane		0.093 J	0.16	0.014	ppbv	TO-15
Hexane		0.26	0.16	0.0085	ppbv	TO-15
Isopropyl Alcohol		0.41	0.16	0.052	ppbv	TO-15
Methylene chloride		1.4	0.16	0.012	ppbv	TO-15
Methyl ethyl ketone		1.0	0.16	0.034	ppbv	TO-15
Methyl Isobutyl Ketone		0.36	0.16	0.029	ppbv	TO-15
Methylmethacrylate		0.68	0.16	0.026	ppbv	TO-15
Styrene		0.32	0.16	0.015	ppbv	TO-15
1,2,4-Trimethylbenzene		0.15 J	0.16	0.026	ppbv	TO-15
Tetrahydrofuran		0.11 J	0.16	0.040	ppbv	TO-15
Toluene		1.8	0.16	0.012	ppbv	TO-15
Trichlorofluoromethane		0.24	0.080	0.022	ppbv	TO-15
m,p-Xylene		0.34	0.16	0.027	ppbv	TO-15
o-Xylene		0.12 J	0.16	0.014	ppbv	TO-15
Xylenes (total)		0.46	0.16	0.014	ppbv	TO-15
Acetone		31.4	0.38	0.21	ug/m3	TO-15
Benzene		0.64	0.51	0.030	ug/m3	TO-15
Carbon disulfide		0.16 J	0.50	0.059	ug/m3	TO-15
Chloromethane		1.1	0.33	0.025	ug/m3	TO-15
Carbon tetrachloride		0.49	0.20	0.12	ug/m3	TO-15
Cyclohexane		0.33 J	0.55	0.062	ug/m3	TO-15
Dichlorodifluoromethane		2.3	0.79	0.064	ug/m3	TO-15
Ethanol		14	0.75	0.32	ug/m3	TO-15
Ethylbenzene		0.43 J	0.69	0.052	ug/m3	TO-15
Ethyl Acetate		4.3	0.58	0.11	ug/m3	TO-15
Heptane		0.38 J	0.66	0.057	ug/m3	TO-15
Hexane		0.92	0.56	0.030	ug/m3	TO-15
Isopropyl Alcohol		1.0	0.39	0.13	ug/m3	TO-15
Methylene chloride		4.9	0.56	0.042	ug/m3	TO-15
Methyl ethyl ketone		2.9	0.47	0.10	ug/m3	TO-15
Methyl Isobutyl Ketone		1.5	0.66	0.12	ug/m3	TO-15

Summary of Hits

Job Number: JD1975
Account: Fleming-Lee Shue, Inc.
Project: Vornado, 511 West 21st Street, New York, NY
Collected: 01/17/20



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Methylmethacrylate		2.8	0.66	0.11	ug/m3	TO-15
Styrene		1.4	0.68	0.064	ug/m3	TO-15
1,2,4-Trimethylbenzene		0.74 J	0.79	0.13	ug/m3	TO-15
Tetrahydrofuran		0.32 J	0.47	0.12	ug/m3	TO-15
Toluene		6.8	0.60	0.045	ug/m3	TO-15
Trichlorofluoromethane		1.3	0.45	0.12	ug/m3	TO-15
m,p-Xylene		1.5	0.69	0.12	ug/m3	TO-15
o-Xylene		0.52 J	0.69	0.061	ug/m3	TO-15
Xylenes (total)		2.0	0.69	0.061	ug/m3	TO-15
JD1975-3 AA-1						
Acetone		2.2	0.16	0.090	ppbv	TO-15
Benzene		0.16	0.16	0.0095	ppbv	TO-15
Chloromethane		0.56	0.16	0.012	ppbv	TO-15
Dichlorodifluoromethane		0.45	0.16	0.013	ppbv	TO-15
Ethanol		2.0	0.40	0.17	ppbv	TO-15
Ethyl Acetate		0.40	0.16	0.030	ppbv	TO-15
Hexane		0.086 J	0.16	0.0085	ppbv	TO-15
Isopropyl Alcohol		0.20	0.16	0.052	ppbv	TO-15
Methylene chloride		0.32	0.16	0.012	ppbv	TO-15
Methyl ethyl ketone		1.5	0.16	0.034	ppbv	TO-15
Toluene		1.4	0.16	0.012	ppbv	TO-15
Trichlorofluoromethane		0.21	0.080	0.022	ppbv	TO-15
m,p-Xylene		0.097 J	0.16	0.027	ppbv	TO-15
Xylenes (total)		0.097 J	0.16	0.014	ppbv	TO-15
Acetone		5.2	0.38	0.21	ug/m3	TO-15
Benzene		0.51	0.51	0.030	ug/m3	TO-15
Chloromethane		1.2	0.33	0.025	ug/m3	TO-15
Dichlorodifluoromethane		2.2	0.79	0.064	ug/m3	TO-15
Ethanol		3.8	0.75	0.32	ug/m3	TO-15
Ethyl Acetate		1.4	0.58	0.11	ug/m3	TO-15
Hexane		0.30 J	0.56	0.030	ug/m3	TO-15
Isopropyl Alcohol		0.49	0.39	0.13	ug/m3	TO-15
Methylene chloride		1.1	0.56	0.042	ug/m3	TO-15
Methyl ethyl ketone		4.4	0.47	0.10	ug/m3	TO-15
Toluene		5.3	0.60	0.045	ug/m3	TO-15
Trichlorofluoromethane		1.2	0.45	0.12	ug/m3	TO-15
m,p-Xylene		0.42 J	0.69	0.12	ug/m3	TO-15
Xylenes (total)		0.42 J	0.69	0.061	ug/m3	TO-15

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: IA-1		
Lab Sample ID: JD1975-1		Date Sampled: 01/17/20
Matrix: AIR - Indoor Air Comp. Summa ID: A650		Date Received: 01/20/20
Method: TO-15		Percent Solids: n/a
Project: Vornado, 511 West 21st Street, New York, NY		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W71506.D	1.53	01/29/20 13:58	DFT	n/a	n/a	V3W2800
Run #2							

Run #	Initial Volume
Run #1	765 ml
Run #2	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	2.5	0.16	0.090	ppbv		5.9	0.38	0.21	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	0.037	ppbv		ND	0.35	0.082	ug/m3
71-43-2	78.11	Benzene	0.22	0.16	0.0095	ppbv		0.70	0.51	0.030	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	0.021	ppbv		ND	0.54	0.14	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	0.030	ppbv		ND	0.33	0.31	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	0.018	ppbv		ND	0.62	0.070	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	0.018	ppbv		ND	0.70	0.079	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	0.045	ppbv		ND	0.82	0.23	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	0.019	ppbv		ND	0.50	0.059	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	0.021	ppbv		ND	0.74	0.097	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	0.039	ppbv		ND	0.42	0.10	ug/m3
67-66-3	119.4	Chloroform	ND	0.16	0.016	ppbv		ND	0.78	0.078	ug/m3
74-87-3	50.49	Chloromethane	0.58	0.16	0.012	ppbv		1.2	0.33	0.025	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	0.032	ppbv		ND	0.50	0.10	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	0.020	ppbv		ND	0.83	0.10	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.083	0.032	0.019	ppbv		0.52	0.20	0.12	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	0.018	ppbv		ND	0.55	0.062	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	0.0093	ppbv		ND	0.65	0.038	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.16	0.013	ppbv		ND	0.63	0.052	ug/m3
106-93-4	187.9	1,2-Dibromoethane	0.28	0.080	0.014	ppbv		2.2	0.61	0.11	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	0.017	ppbv		ND	0.65	0.069	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	0.015	ppbv		ND	0.74	0.069	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	0.042	ppbv		ND	0.58	0.15	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.49	0.16	0.013	ppbv		2.4	0.79	0.064	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	0.027	ppbv		ND	0.68	0.23	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	0.0058	ppbv		ND	0.63	0.023	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.16	0.0094	ppbv		ND	0.63	0.037	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	0.016	ppbv		ND	0.73	0.073	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	0.015	ppbv		ND	0.48	0.090	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	0.017	ppbv		ND	0.19	0.10	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	0.014	ppbv		ND	0.48	0.084	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	0.016	ppbv		ND	0.73	0.073	ug/m3

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

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Report of Analysis

Client Sample ID: IA-1		
Lab Sample ID: JD1975-1		
Matrix: AIR - Indoor Air Comp. Summa ID: A650	Date Sampled: 01/17/20	
Method: TO-15	Date Received: 01/20/20	
Project: Vornado, 511 West 21st Street, New York, NY	Percent Solids: n/a	

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	4.5	0.40	0.17	ppbv		8.5	0.75	0.32	ug/m3
100-41-4	106.2	Ethylbenzene	0.076	0.16	0.012	ppbv	J	0.33	0.69	0.052	ug/m3
141-78-6	88	Ethyl Acetate	1.0	0.16	0.030	ppbv		3.6	0.58	0.11	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	0.024	ppbv		ND	0.79	0.12	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	0.014	ppbv		ND	0.61	0.11	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	0.015	ppbv		ND	0.56	0.10	ug/m3
142-82-5	100.2	Heptane	0.076	0.16	0.014	ppbv	J	0.31	0.66	0.057	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	0.036	ppbv		ND	0.77	0.38	ug/m3
110-54-3	86.17	Hexane	0.15	0.16	0.0085	ppbv	J	0.53	0.56	0.030	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	0.029	ppbv		ND	0.65	0.12	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.26	0.16	0.052	ppbv		0.64	0.39	0.13	ug/m3
75-09-2	84.94	Methylene chloride	0.24	0.16	0.012	ppbv		0.83	0.56	0.042	ug/m3
78-93-3	72.11	Methyl ethyl ketone	1.3	0.16	0.034	ppbv		3.8	0.47	0.10	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	0.029	ppbv		ND	0.66	0.12	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	0.015	ppbv		ND	0.58	0.054	ug/m3
80-62-6	100.12	Methylmethacrylate	0.16	0.16	0.026	ppbv		0.66	0.66	0.11	ug/m3
115-07-1	42	Propylene	ND	0.40	0.013	ppbv		ND	0.69	0.022	ug/m3
100-42-5	104.1	Styrene	ND	0.16	0.015	ppbv		ND	0.68	0.064	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	0.027	ppbv		ND	0.44	0.15	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	0.022	ppbv		ND	0.55	0.15	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	0.024	ppbv		ND	0.44	0.13	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	0.071	ppbv		ND	0.59	0.53	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	0.12	0.16	0.026	ppbv	J	0.59	0.79	0.13	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	0.027	ppbv		ND	0.79	0.13	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	0.017	ppbv		ND	0.75	0.079	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	0.011	ppbv		ND	0.49	0.033	ug/m3
127-18-4	165.8	Tetrachloroethylene	0.058	0.032	0.025	ppbv		0.39	0.22	0.17	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	0.040	ppbv		ND	0.47	0.12	ug/m3
108-88-3	92.14	Toluene	1.7	0.16	0.012	ppbv		6.4	0.60	0.045	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.032	0.015	ppbv		ND	0.17	0.081	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.22	0.080	0.022	ppbv		1.2	0.45	0.12	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	0.018	ppbv		ND	0.082	0.046	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	0.027	ppbv		ND	0.56	0.095	ug/m3
	106.2	m,p-Xylene	0.23	0.16	0.027	ppbv		1.0	0.69	0.12	ug/m3
95-47-6	106.2	o-Xylene	0.092	0.16	0.014	ppbv	J	0.40	0.69	0.061	ug/m3
1330-20-7	106.2	Xylenes (total)	0.32	0.16	0.014	ppbv		1.4	0.69	0.061	ug/m3

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

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

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Report of Analysis

Client Sample ID: IA-2		
Lab Sample ID: JD1975-2		Date Sampled: 01/17/20
Matrix: AIR - Indoor Air Comp. Summa ID: A879		Date Received: 01/20/20
Method: TO-15		Percent Solids: n/a
Project: Vornado, 511 West 21st Street, New York, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	3W71507.D	1.48	01/29/20 16:33	DFT	n/a	n/a	V3W2800

Run #1	Initial Volume
Run #2	740 ml

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	13.2	0.16	0.090	ppbv		31.4	0.38	0.21	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	0.037	ppbv		ND	0.35	0.082	ug/m3
71-43-2	78.11	Benzene	0.20	0.16	0.0095	ppbv		0.64	0.51	0.030	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	0.021	ppbv		ND	0.54	0.14	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	0.030	ppbv		ND	0.33	0.31	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	0.018	ppbv		ND	0.62	0.070	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	0.018	ppbv		ND	0.70	0.079	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	0.045	ppbv		ND	0.82	0.23	ug/m3
75-15-0	76.14	Carbon disulfide	0.050	0.16	0.019	ppbv	J	0.16	0.50	0.059	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	0.021	ppbv		ND	0.74	0.097	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	0.039	ppbv		ND	0.42	0.10	ug/m3
67-66-3	119.4	Chloroform	ND	0.16	0.016	ppbv		ND	0.78	0.078	ug/m3
74-87-3	50.49	Chloromethane	0.54	0.16	0.012	ppbv		1.1	0.33	0.025	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	0.032	ppbv		ND	0.50	0.10	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	0.020	ppbv		ND	0.83	0.10	ug/m3
56-23-5	153.8	Carbon tetrachloride	0.078	0.032	0.019	ppbv		0.49	0.20	0.12	ug/m3
110-82-7	84.16	Cyclohexane	0.095	0.16	0.018	ppbv	J	0.33	0.55	0.062	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	0.0093	ppbv		ND	0.65	0.038	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.16	0.013	ppbv		ND	0.63	0.052	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	0.014	ppbv		ND	0.61	0.11	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	0.017	ppbv		ND	0.65	0.069	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	0.015	ppbv		ND	0.74	0.069	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	0.042	ppbv		ND	0.58	0.15	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.46	0.16	0.013	ppbv		2.3	0.79	0.064	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	0.027	ppbv		ND	0.68	0.23	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	0.0058	ppbv		ND	0.63	0.023	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.16	0.0094	ppbv		ND	0.63	0.037	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	0.016	ppbv		ND	0.73	0.073	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	0.015	ppbv		ND	0.48	0.090	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	0.017	ppbv		ND	0.19	0.10	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	0.014	ppbv		ND	0.48	0.084	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	0.016	ppbv		ND	0.73	0.073	ug/m3

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: IA-2		Date Sampled: 01/17/20
Lab Sample ID: JD1975-2		Date Received: 01/20/20
Matrix: AIR - Indoor Air Comp. Summa ID: A879		Percent Solids: n/a
Method: TO-15		
Project: Vornado, 511 West 21st Street, New York, NY		

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VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	7.3	0.40	0.17	ppbv		14	0.75	0.32	ug/m3
100-41-4	106.2	Ethylbenzene	0.10	0.16	0.012	ppbv	J	0.43	0.69	0.052	ug/m3
141-78-6	88	Ethyl Acetate	1.2	0.16	0.030	ppbv		4.3	0.58	0.11	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	0.024	ppbv		ND	0.79	0.12	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	0.014	ppbv		ND	0.61	0.11	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	0.015	ppbv		ND	0.56	0.10	ug/m3
142-82-5	100.2	Heptane	0.093	0.16	0.014	ppbv	J	0.38	0.66	0.057	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	0.036	ppbv		ND	0.77	0.38	ug/m3
110-54-3	86.17	Hexane	0.26	0.16	0.0085	ppbv		0.92	0.56	0.030	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	0.029	ppbv		ND	0.65	0.12	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.41	0.16	0.052	ppbv		1.0	0.39	0.13	ug/m3
75-09-2	84.94	Methylene chloride	1.4	0.16	0.012	ppbv		4.9	0.56	0.042	ug/m3
78-93-3	72.11	Methyl ethyl ketone	1.0	0.16	0.034	ppbv		2.9	0.47	0.10	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	0.36	0.16	0.029	ppbv		1.5	0.66	0.12	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	0.015	ppbv		ND	0.58	0.054	ug/m3
80-62-6	100.12	Methylmethacrylate	0.68	0.16	0.026	ppbv		2.8	0.66	0.11	ug/m3
115-07-1	42	Propylene	ND	0.40	0.013	ppbv		ND	0.69	0.022	ug/m3
100-42-5	104.1	Styrene	0.32	0.16	0.015	ppbv		1.4	0.68	0.064	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	0.027	ppbv		ND	0.44	0.15	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	0.022	ppbv		ND	0.55	0.15	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	0.024	ppbv		ND	0.44	0.13	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	0.071	ppbv		ND	0.59	0.53	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	0.15	0.16	0.026	ppbv	J	0.74	0.79	0.13	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	0.027	ppbv		ND	0.79	0.13	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	0.017	ppbv		ND	0.75	0.079	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	0.011	ppbv		ND	0.49	0.033	ug/m3
127-18-4	165.8	Tetrachloroethylene	ND	0.032	0.025	ppbv		ND	0.22	0.17	ug/m3
109-99-9	72.11	Tetrahydrofuran	0.11	0.16	0.040	ppbv	J	0.32	0.47	0.12	ug/m3
108-88-3	92.14	Toluene	1.8	0.16	0.012	ppbv		6.8	0.60	0.045	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.032	0.015	ppbv		ND	0.17	0.081	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.24	0.080	0.022	ppbv		1.3	0.45	0.12	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	0.018	ppbv		ND	0.082	0.046	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	0.027	ppbv		ND	0.56	0.095	ug/m3
	106.2	m,p-Xylene	0.34	0.16	0.027	ppbv		1.5	0.69	0.12	ug/m3
95-47-6	106.2	o-Xylene	0.12	0.16	0.014	ppbv	J	0.52	0.69	0.061	ug/m3
1330-20-7	106.2	Xylenes (total)	0.46	0.16	0.014	ppbv		2.0	0.69	0.061	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	91%		65-128%

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

Report of Analysis

Client Sample ID: AA-1		Date Sampled: 01/17/20
Lab Sample ID: JD1975-3		Date Received: 01/20/20
Matrix: AIR - Ambient Air Comp. Summa ID: A837		Percent Solids: n/a
Method: TO-15		
Project: Vornado, 511 West 21st Street, New York, NY		

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W71508.D	1	01/29/20 17:30	DFT	n/a	n/a	V3W2800
Run #2							

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

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
67-64-1	58.08	Acetone	2.2	0.16	0.090	ppbv		5.2	0.38	0.21	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.16	0.037	ppbv		ND	0.35	0.082	ug/m3
71-43-2	78.11	Benzene	0.16	0.16	0.0095	ppbv		0.51	0.51	0.030	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.080	0.021	ppbv		ND	0.54	0.14	ug/m3
75-25-2	252.8	Bromoform	ND	0.032	0.030	ppbv		ND	0.33	0.31	ug/m3
74-83-9	94.94	Bromomethane	ND	0.16	0.018	ppbv		ND	0.62	0.070	ug/m3
593-60-2	106.9	Bromoethene	ND	0.16	0.018	ppbv		ND	0.70	0.079	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.16	0.045	ppbv		ND	0.82	0.23	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.16	0.019	ppbv		ND	0.50	0.059	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.16	0.021	ppbv		ND	0.74	0.097	ug/m3
75-00-3	64.52	Chloroethane	ND	0.16	0.039	ppbv		ND	0.42	0.10	ug/m3
67-66-3	119.4	Chloroform	ND	0.16	0.016	ppbv		ND	0.78	0.078	ug/m3
74-87-3	50.49	Chloromethane	0.56	0.16	0.012	ppbv		1.2	0.33	0.025	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.16	0.032	ppbv		ND	0.50	0.10	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.16	0.020	ppbv		ND	0.83	0.10	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.032	0.019	ppbv		ND	0.20	0.12	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.16	0.018	ppbv		ND	0.55	0.062	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.16	0.0093	ppbv		ND	0.65	0.038	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.16	0.013	ppbv		ND	0.63	0.052	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.080	0.014	ppbv		ND	0.61	0.11	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.16	0.017	ppbv		ND	0.65	0.069	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.16	0.015	ppbv		ND	0.74	0.069	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.16	0.042	ppbv		ND	0.58	0.15	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.45	0.16	0.013	ppbv		2.2	0.79	0.064	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.080	0.027	ppbv		ND	0.68	0.23	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.16	0.0058	ppbv		ND	0.63	0.023	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	0.16	0.0094	ppbv		ND	0.63	0.037	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.16	0.016	ppbv		ND	0.73	0.073	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.080	0.015	ppbv		ND	0.48	0.090	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.032	0.017	ppbv		ND	0.19	0.10	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.080	0.014	ppbv		ND	0.48	0.084	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.16	0.016	ppbv		ND	0.73	0.073	ug/m3

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: AA-1		Date Sampled: 01/17/20
Lab Sample ID: JD1975-3		Date Received: 01/20/20
Matrix: AIR - Ambient Air Comp. Summa ID: A837		Percent Solids: n/a
Method: TO-15		
Project: Vornado, 511 West 21st Street, New York, NY		

VOA TO15 List

CAS No.	MW	Compound	Result	RL	MDL	Units	Q	Result	RL	MDL	Units
64-17-5	46.07	Ethanol	2.0	0.40	0.17	ppbv		3.8	0.75	0.32	ug/m3
100-41-4	106.2	Ethylbenzene	ND	0.16	0.012	ppbv		ND	0.69	0.052	ug/m3
141-78-6	88	Ethyl Acetate	0.40	0.16	0.030	ppbv		1.4	0.58	0.11	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.16	0.024	ppbv		ND	0.79	0.12	ug/m3
76-13-1	187.4	Freon 113	ND	0.080	0.014	ppbv		ND	0.61	0.11	ug/m3
76-14-2	170.9	Freon 114	ND	0.080	0.015	ppbv		ND	0.56	0.10	ug/m3
142-82-5	100.2	Heptane	ND	0.16	0.014	ppbv		ND	0.66	0.057	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.072	0.036	ppbv		ND	0.77	0.38	ug/m3
110-54-3	86.17	Hexane	0.086	0.16	0.0085	ppbv	J	0.30	0.56	0.030	ug/m3
591-78-6	100	2-Hexanone	ND	0.16	0.029	ppbv		ND	0.65	0.12	ug/m3
67-63-0	60.1	Isopropyl Alcohol	0.20	0.16	0.052	ppbv		0.49	0.39	0.13	ug/m3
75-09-2	84.94	Methylene chloride	0.32	0.16	0.012	ppbv		1.1	0.56	0.042	ug/m3
78-93-3	72.11	Methyl ethyl ketone	1.5	0.16	0.034	ppbv		4.4	0.47	0.10	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.16	0.029	ppbv		ND	0.66	0.12	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.16	0.015	ppbv		ND	0.58	0.054	ug/m3
80-62-6	100.12	Methylmethacrylate	ND	0.16	0.026	ppbv		ND	0.66	0.11	ug/m3
115-07-1	42	Propylene	ND	0.40	0.013	ppbv		ND	0.69	0.022	ug/m3
100-42-5	104.1	Styrene	ND	0.16	0.015	ppbv		ND	0.68	0.064	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.080	0.027	ppbv		ND	0.44	0.15	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.080	0.022	ppbv		ND	0.55	0.15	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.080	0.024	ppbv		ND	0.44	0.13	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.080	0.071	ppbv		ND	0.59	0.53	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	0.16	0.026	ppbv		ND	0.79	0.13	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.16	0.027	ppbv		ND	0.79	0.13	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.16	0.017	ppbv		ND	0.75	0.079	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.16	0.011	ppbv		ND	0.49	0.033	ug/m3
127-18-4	165.8	Tetrachloroethylene	ND	0.032	0.025	ppbv		ND	0.22	0.17	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.16	0.040	ppbv		ND	0.47	0.12	ug/m3
108-88-3	92.14	Toluene	1.4	0.16	0.012	ppbv		5.3	0.60	0.045	ug/m3
79-01-6	131.4	Trichloroethylene	ND	0.032	0.015	ppbv		ND	0.17	0.081	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.21	0.080	0.022	ppbv		1.2	0.45	0.12	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.032	0.018	ppbv		ND	0.082	0.046	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.16	0.027	ppbv		ND	0.56	0.095	ug/m3
	106.2	m,p-Xylene	0.097	0.16	0.027	ppbv	J	0.42	0.69	0.12	ug/m3
95-47-6	106.2	o-Xylene	ND	0.16	0.014	ppbv		ND	0.69	0.061	ug/m3
1330-20-7	106.2	Xylenes (total)	0.097	0.16	0.014	ppbv	J	0.42	0.69	0.061	ug/m3

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

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

4.3
 4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Summa Canister and Flow Controller Log



AIR

AIR CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3499
www.sgs.com/ehsusa

FED-EX Tracking #
SGS Quote #
Bottle Order Control #
SGS Job #
JD1975

Client / Reporting Information
Company Name: Fleming Lee Shive Inc
Address: 158 W. 29th St.
City: NY State: NY Zip: 10001
Project Name: 511 W 21st St
Project Contact: J. Kane
E-mail: jkane@flemingleeshive.com
Phone #: 212-675-3225
Fax #:
Client Purchase Order #

Table with columns: Lab Sample #, Field ID / Point of Collection, Air Type, Sampling Equipment Info, Start Sampling Information, Stop Sampling Information. Includes handwritten entries for samples 1, 2, and 3.

Turnaround Time (Business days)
Data Deliverable Information
Comments / Remarks
Extra Can Not used.
SUMMN

Table for Sample Custody with columns: Retained by Laboratory, Date/Time, Received By, Retained By, Date/Time, Received By. Includes handwritten signatures and dates.



5.1 5

VT015 NYLL

INITIAL ASSESSMENT Y.A.

SUMMN

1/20/2020 11:00



AIR SAMPLING EQUIPMENT RETURN FORM

CLIENT: FLEMING CEC

PROJECT: 511 w 21st ST

CONTROL# TM-01720-22

JOB# JD1975

ADDITIONAL SUMMA CANISTERS
4 A878

ADDITIONAL CONTROLLERS
MC098

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
1 SGS COURTEL	1/20/20	2	1/20/20
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
3	1/21/4	4	1/21/4
CUSTODY SEAL #'S:		# OF BOXES OR PIECES IN DELIVERY	

NOTES:

SM086-03
Pub Date: 3/12/18

SGS Sample Receipt Summary

Job Number: JD1975

Client: FLEMING-LEE SHUE, INC.

Project: VORNADO, 511 WEST 21ST STREET, NEW YO

Date / Time Received: 1/20/2020 12:14:00 PM

Delivery Method:

Airbill #'s:

Cooler Temps (Raw Measured) °C:

Cooler Temps (Corrected) °C:

Cooler Security

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

- | | | |
|------------------------------|--------------------------|--------------------------|
| 1. Temp criteria achieved: | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | N/A | |
| 3. Cooler media: | N/A | |
| 4. No. Coolers: | N/A | |

Quality Control Preservation

- | | | | |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify) _____
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Comments

SM089-03
Rev. Date 12/7/17

JD1975: Chain of Custody

Page 3 of 3

5.1
5

Summa Canister and Flow Controller Log

Job Number: JD1975
Account: FLSNYYNY Fleming-Lee Shue, Inc.
Project: Vornado, 511 West 21st Street, New York, NY
Received: 01/20/20

SUMMA CANISTERS													
Shipping						Receiving							
Summa ID	Vac L	Date " Hg	Date Out	By	SCC Batch	SCC FileID	Sample Number	Date In	By	Vac " Hg	Pres psig	Final psig	Dil Fact
A650	6	29.4	01/15/20	ED	CP10655	6W15716.D	JD1975-1	01/20/20	DG	8.5		1.3	1.52
A879	6	29.4	01/15/20	ED	CP10655	6W15716.D	JD1975-2	01/20/20	DG	8		1.2	1.48
A837	6	29.4	01/15/20	ED	CP10655	6W15716.D	JD1975-3	01/20/20	DG	3			1

FLOW CONTROLLERS / OTHER										
Shipping					Receiving					
Flow Ctrl ID	Date Out	By	cc/ min	Time hrs.	Date In	By	cc/ min	Flow RPD	Equipment Type	
FC492	01/15/20	ED	9.6	8	01/31/20	JT	10.3	7	Flow Controller	
FC585	01/15/20	ED	9.6	8	01/23/20	JT	10	4.1	Flow Controller	
FC642	01/15/20	ED	9.6	8	01/23/20	JT	14	37.3*	Flow Controller	

* Flow controller RPD > 20%

SGS Bottle Order(s):

TM-01720-22

Prep Date	Room Temp(F)	Bar Pres "Hg
01/15/20	70	29.92