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Memorandum

To: Nick Acklam, Washington State Department of Ecology

Copies: Drew Zaborowski, Avenue 55; Scott Hooton, Port of Tacoma

From: Tom Colligan and Gabriel Cisneros, Floyd|Snider

Date: December 4, 2018

Re: **Summary of Sub-Slab Soil Vapor Assessment**
1514 Taylor Way, Tacoma, Washington

This memorandum summarizes the results of sub-sab soil vapor sampling performed in Buildings A and B at the 1514 Taylor Way redevelopment site (the Site) in Tacoma, Washington. The Taylor Way redevelopment site (Portside) is part of the larger Taylor Way and Alexander Avenue Fill Area Site. Redevelopment activities at Portside were performed consistent with the Interim Action Work Plan (Floyd|Snider 2017). The sub-slab vapor assessment sampling was performed in accordance with the approved Sampling Plan Addendum for Vapor Intrusion Assessment (Floyd|Snider 2018) submitted to Mr. Steve Teel of the Washington State Department of Ecology (Ecology) in August 2018. As described in that addendum, sub-slab assessment was determined to be needed based on results from soil gas samples collected prior to building construction. The addendum also described the installation of passive vapor barriers in the four office nodes of the two redevelopment warehouses. The results from the sub-slab sampling will be used to determine if further evaluation of indoor air quality is needed.

SUB-SLAB SOIL VAPOR INSTALLATION AND SAMPLING

On September 10, 2018, Environmental Services Network Northwest, Inc., installed a total of 14 permanent sub-slab vapor sampling points in Buildings A and B after the slab foundations were poured in place. Eight sub-slab locations were installed in Building A and six locations were installed in Building B (Figures 1 and 2). The August 2018 sampling plan addendum proposed a total of 10 locations; however, the final number and locations of sub-slab points were adjusted based on recommendations provided by Ecology via email (Attachment 1). In general, the locations were selected to be representative of the prior volatile organic compound (VOC) detections in soil gas and at locations immediately adjacent to the office nodes, as well as general coverage. All vapor pin locations were placed outside the polyvinyl chloride (PVC) membrane and PVC piping installed under the office nodes.

Cox-Calvin & Associates, Inc., VAPOR PIN® points were used, and each point was constructed with a 1.5-inch extension and a flush mount, stainless-steel secure cover. The vapor pins extend

6 inches below the concrete floor slab in order to collect soil vapors accumulating directly under the slabs (Photograph 1 of Attachment 2). The standard operating procedure was followed during installation of the vapor pins (Attachment 3).

Prior to collecting soil vapor samples, the vapor pins were allowed 48 hours to equilibrate. Two sampling events were performed. The first event occurred on September 12, 2018, and the second sampling event occurred on October 24, 2018. All 14 locations were sampled during both events. Soil vapor samples were collected in accordance with Floyd|Snider's Standard Guideline for Vapor Intrusion.

Prior to collecting the samples, the soil gas sampling equipment was set up at each location and a closed valve test was performed. The sampling train was checked for leaks by capping the ends and closing the control valve at the vapor point, then opening the SUMMA® canister for a period of 5 minutes to see if vacuum was maintained. All sampling trains maintained their initial vacuum for at least 5 minutes during each sampling event.

After conducting closed-valve tests, at least three volumes were purged. Purging was completed using a 6-liter SUMMA canister with a flow rate less than 200 milliliters per minute (mL/min). After the sampling train was purged, soil gas samples were collected over a 5-minute period at a flow rate of less than 150 mL/min. Soil vapor samples were collected in 100-percent certified and pre-evacuated 1-liter SUMMA canisters supplied by Friedman & Bruya, Inc. (FBI) laboratory.

Soil vapor samples were collected per the following steps:

1. Open the valve on the top of the SUMMA canister and record the time in the logbook.
2. Observe the vacuum gauge on the sampling train to ensure that the vacuum in the canister is decreasing over time.
3. Shut off the valve once the vacuum gauge reads between 4.5 and 5.0 inches of mercury (inches Hg).

During the September 2018 sampling event, leak testing was performed at all sampling locations using the following soil gas sampling setup procedures:

1. A large plastic shroud was sealed around the sampling point.
2. A small hole was cut in the shroud to allow tubing to be inserted through it to introduce helium and to subsequently fill the shroud.
3. Helium was maintained at a concentration of 10 percent or greater within the plastic shroud. Detections of helium in the soil gas samples would indicate that the valve at the sampling point or sub-slab seal had potentially leaked ambient air into the sample. Helium was not detected in any location at the sample outlet during the September event, indicating that all vapor pin seals were tight and short circuits were not present; therefore, a helium leak test was not necessary during the second event in October 2018.

Once the sampling period was completed and the final vacuum was recorded, the sampling train was removed from the canister, and a Swagelok Company cap was tightly fitted to the inlet port of the canister. A photoionization detector (PID) was used to record vapor readings from the manifold connection, and the readings were logged in the notebook and soil vapor sampling sheet. The initial canister vacuums, vacuum testing times, purging times, purged volumes, helium readings, sampling starts and times, final vacuum readings, and PID readings were recorded on soil vapor sampling sheets, which are included in Attachment 4.

Soil gas samples were analyzed for the following:

- VOCs using U.S. Environmental Protection Agency (USEPA) Modified Method TO-15
- Volatile compounds by Method MA Air-Phase Hydrocarbons (APHs)

Additionally, during the September 2018 sampling event, helium was analyzed using ASTM D1946. Helium was not analyzed during the October 2018 event.

SOIL VAPOR SURVEY FINDINGS

The initial September 2018 sampling event detected the following VOCs at concentrations exceeding the Model Toxics Control Act (MTCA) Method C sub-slab soil gas screening levels listed on Ecology's Cleanup Levels and Risk Calculation (CLARC) website (Ecology 2015):

- 1,2,4-Trimethylbenzene (Building A in VP-1)
- 1,3-Butadiene (Building A in VP-8)
- Acetaldehyde (Building B in VP-11)
- Acrylonitrile (Buildings A and B in VP-8 and VP-14, respectively)
- APH EC9-12 aliphatics (Building A in VP-1)
- Naphthalene (Building A in VP-1)
- Trichloroethene (Building B in VP-14)

The greatest APH concentrations in soil gas were detected in Building A within the vicinity of VP-1, located adjacent to the eastern office location. APH EC9-12 aliphatics were detected in VP-1 at a soil gas concentration of 21,000 micrograms per cubic meter ($\mu g/m^3$), which exceeds the MTCA Method C sub-slab soil gas screening level of 10,000 $\mu g/m^3$.

However, upon resampling in October 2018, the sub-slab soil gas results indicated substantially lower concentrations of all detected analytes; none were at concentrations that exceeded their respective MTCA Method C sub-slab soil gas screening levels. As in the September 2018 soil gas results, the reporting limits for acrolein were greater than the screening level.

During the October 2018 sampling event, a lab air blank was collected at FBI. The following compounds were detected in the lab air blank:

- 1,3-Butadiene
- Acetone
- Chlorodifluoromethane
- Ethanol
- Hexane
- Isoprene
- Methylene chloride
- Toluene

Methylene chloride, ethanol, and acetone are used in the lab, and all soil gas samples were likely to have had minimal exposure to laboratory air during pressure checking requirements and processing activities. None of the compounds detected in the lab sample were detected in the soil gas samples at concentrations exceeding their respective MTCA Method C sub-slab soil gas screening levels.

All soil gas data are presented in Table 1, and laboratory reports are included as Attachment 5.

JEM INPUTS AND RESULTS

Per the Ecology vapor intrusion guidance (Ecology 2018), if concentrations are greater than the sub-slab screening levels during the Tier I vapor intrusion assessment, the reviewer will proceed to the Tier II assessment, which includes using the Johnson and Ettinger Model (JEM) to predict indoor air concentrations and risk. USEPA's online JEM worksheet (USEPA 2018) was used to predict a range of minimum to maximum concentrations in indoor air for each compound with concentrations that exceeded the MTCA Method C sub-slab soil gas screening level. Model results were then compared to indoor air cleanup levels, presented in the updated Table B-1 of the Ecology vapor intrusion guidance. Specific recommendations regarding the use of the JEM in this capacity are presented in Appendix D of the Ecology vapor intrusion guidance.

The highest concentration for each compound detected, including acrolein, was input in USEPA's online JEM worksheet. In addition, a conservative approach was taken by using default residential inputs for slab-on-grade floor thickness, crack width, average vapor flow rate into the building, average time for carcinogens and noncarcinogens, exposure duration, and exposure frequency. The property is zoned for Industrial Use under Pierce County Assessor's Building and Land Use records, and an indoor air exchange rate of 0.45 per hour was used to yield a conservative result. The actual dimensions for each Portside warehouse building were used as inputs.

The JEM results indicate that the highest predicted concentrations to indoor air for all compounds detected during the September 2018 sampling event are less than their respective MTCA Method C cleanup levels for indoor air. Additionally, all predicted cancer risks and hazard quotients are less than the target cancer risk of 1.0E-6 and 1.0, respectively, which indicate that adverse effects from vapors to indoor air are not likely to occur. JEM modeling results, using the above conservative approach and greatest concentrations, are shown in Table 2, and JEM inputs and modeling results are included as Attachment 6.

SOIL GAS AND JEM RESULTS DISCUSSION

The September 2018 sampling results indicate that several compounds, including APH EC9-12 aliphatics, were detected in soil gas at concentrations exceeding their respective MTCA Method C sub-slab soil gas screening levels. However, using conservative residential inputs, the JEM results for each compound indicate that there is not a risk to indoor air to occupants for either building. The October 2018 sub-slab sampling results indicate that all soil gas concentrations, including APH EC9-12 aliphatics, were less than their respective screening levels.

In August of 2018, Avenue 55 elected to install a passive vapor mitigation system in Buildings A and B, specifically under each of the office node locations of these large industrial warehouses. Based on the conservative JEM results and the October 2018 soil gas results, in conjunction with the passive vapor mitigation system installed beneath the office nodes, there is not a vapor risk to indoor air for occupants of the office nodes. Therefore, there is no need to monitor the performance (i.e., differential pressures) of the passive system, nor is there a need to collect indoor air vapor data to evaluate vapor intrusion risk to either building. If future sub-slab soil gas or indoor air sampling events are required, a reduced compound list should be used that will include only compounds that were detected at concentrations exceeding the laboratory detection limits. The reduced list is included as Table 3.

REFERENCES

Floyd|Snider. 2017. *Interim Action Work Plan, 1514 Taylor Way Development*. Prepared for Avenue 55, LLC. June.

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Washington State Department of Ecology (Ecology). 2015. *CLARC Master Table Spreadsheet.* <https://fortress.wa.gov/ecy/clarc/FocusSheets/CLARC%20Master%20Spreadsheet.xlsx>. July.

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U.S. Environmental Protection Agency (USEPA). 2016. EPA On-line Tools for Site Assessment Calculation, Screening Level Implementation of the Johnson and Ettinger Vapor Intrusion Model. <https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.html>. Last accessed 11/28/2018. 23 February.

LIST OF ATTACHMENTS

Table 1	Soil Gas Data
Table 2	JEM Results
Table 3	Reduced Analytes List
Figure 1	Sub-Slab Vapor Pin Locations in Building A (Herrera Environmental Consultants Figure)
Figure 2	Sub-Slab Vapor Pin Locations in Building B (Herrera Environmental Consultants Figure)
Attachment 1	Ecology Correspondence
Attachment 2	Photographs
Attachment 3	Vapor Pin Standard Operating Procedure
Attachment 4	Soil Vapor Sampling Sheets
Attachment 5	Laboratory Reports
Attachment 6	Johnson and Ettinger Model Inputs and Results

Tables

Table 1
Soil Gas Data

				Building A East Office Node							Building A Center					
			Location	VP-01			VP-02				VP-03		VP-04		VP-05	
			Sample ID	VP-01-091218	VP-01-102418	VP-01-102418 Dup	VP-02-091218	VP-02-091218 Dup	VP-02B-091218	VP-02-102418	VP-03-091218	VP-03-102418	VP-04-091218	VP-04-102418	VP-05-091218	VP-05-102418
			Sample Date	09/12/2018	10/24/2018	10/24/2018	09/12/2018	09/12/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018
Analyte	CAS No.	Sub-Slab MTCA Method C Soil Gas Screening Level	Units													
APH EC5-8 aliphatics	NA	200,000	µg/m³	11,000	3,600	3,200	2,800	2,000	3,300	2,200 J	1,100	790	820	480 J	1,400	750 J
APH EC9-10 aromatics	NA	--	µg/m³	2,700	170	160	82 U	82 U	82 U	82 UJ	82 U	82 U	82 U	82 UJ	82 U	82 UJ
APH EC9-12 aliphatics	NA	10,000	µg/m³	21,000 J	2,000	1,700	330	310	420	340 J	180	370	130	140 J	360	370 J
Benzene	71-43-2	110	µg/m³	28	5	4.9	7	5.2	--	8.4	1.1 U	2 U	1.1	1.1 U	1.1 U	1.1 U
Ethylbenzene	100-41-4	33,000	µg/m³	75	6.7	6.7	2.8	1.8	--	2.2	1.4 U	2.7 U	1.4 U	1.4 U	1.7	1.4 U
m,p-Xylene	179601-23-1	--	µg/m³	270	19	18	8.4	5.3	--	4.6	2.9 U	5.4 U	2.9 U	2.9 U	7.4	3.3
Naphthalene	91-20-3	25	µg/m³	33	5.5	3.6	1.2	0.59 JB	--	0.35 JB	0.57 JB	0.75 JB	0.71 JB	0.43 JB	1 JB	0.5 JB
o-Xylene	95-47-6	3,300	µg/m³	120	8.1	8	3	1.8	--	1.4 U	1.4 U	2.7 U	1.4 U	1.4 U	2.4	1.4 U
Toluene	108-88-3	170,000	µg/m³	62	11	12	11	7.9	--	7.1	1.8	4	1.7 JB	2.1	4.9	4
1,1,1-Trichloroethane	71-55-6	170,000	µg/m³	15	9.2	8.8	16	11	--	9.2	5	3.7	4	2	8.5	6.4
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/m³	1.4 U	0.45 U	0.45 U	0.45 U	0.45 U	--	0.45 U	0.45 U	0.86 U	0.45 U	0.45 U	0.45 U	0.45 U
1,1,2-Trichloroethane	79-00-5	6.7	µg/m³	1	0.18 U	0.18 U	0.65	0.18 U	--	0.18 U	0.18 U	0.34 U	0.18 U	0.18 U	0.18 U	0.18 U
1,1-Dichloroethane	75-34-3	520	µg/m³	6	5	5.1	2.6	1.9	--	3.1	1.3 U	2.5 U	1.3 U	1.3 U	1.3 U	1.3 U
1,1-Dichloroethene	75-35-4	6,700	µg/m³	4 U	1.8	1.8	1.3 JB	1.3 U	--	1.3 U	1.3 U	2.5 U	1.3 U	1.3 U	1.3 U	1.3 U
1,2,3-Trimethylbenzene	526-73-8	--	µg/m³	130	8.5	9	8.1 U	8.1 U	--	8.1 U	8.1 U	15 U	8.1 U	8.1 U	8.1 U	8.1 U
1,2,4-Trichlorobenzene	120-82-1	67	µg/m³	7.4 U	2.4 U	2.4 U	2.4 U	2.4 U	--	2.4 U	2.4 U	4.6 U	2.4 U	2.4 U	2.4 U	2.4 U
1,2,4-Trimethylbenzene	95-63-6	230	µg/m³	420	23	24	8.1 U	8.1 U	--	8.1 U	8.1 U	15 U	8.1 U	8.1 U	8.1 U	8.1 U
1,2-Dibromoethane (EDB)	106-93-4	1.4	µg/m³	0.77 U	0.25 U	0.25 U	0.25 U	0.25 U	--	0.25 U	0.25 U	0.48 U	0.25 U	0.25 U	0.25 U	0.25 U
1,2-Dichlorobenzene	95-50-1	6,700	µg/m³	6 U	2 U	2 U	2 U	2 U	--	2 U	2 U	3.8 U	2 U	2 U	2 U	2 U
1,2-Dichloroethane (EDC)	107-06-2	32	µg/m³	5.8	3.2	2.9	0.59	0.39	--	0.52	0.13 U	0.25 U	0.13 U	0.13 U	0.16	0.13 U
1,2-Dichloropropane	78-87-5	83	µg/m³	3.3	2.5	2.5	1.1	0.79	--	1.3	0.76 U	1.4 U	0.76 U	0.76 U	1.5	1.2
1,3,5-Trimethylbenzene	108-67-8	--	µg/m³	130	8.1 U	8.1 U	8.1 U	8.1 U	--	8.1 U	8.1 U	15 U	8.1 U	8.1 U	8.1 U	8.1 U
1,3-Butadiene	106-99-0	28	µg/m³	4.7	0.073 U	0.073 U	11	6.3	--	0.073 U	1.6	0.14 U	0.073 U	0.073 U	2.4	0.073 U
1,3-Dichlorobenzene	541-73-1	--	µg/m³	6 U	2 U	2 U	2 U	2 U	--	2 U	2 U	3.8 U	2 U	2 U	2 U	2 U
1,4-Dichlorobenzene	106-46-7	76	µg/m³	2.4 U	0.79 U	0.79 U	0.79 U	0.79 U	--	0.79 U	0.79 U	1.5 U	0.79 U	0.79 U	0.79 U	0.79 U
1,4-Dioxane	123-91-1	--	µg/m³	3.6 U	1.2 U	1.2 U	1.2 U	1.2 U	--	1.2 U	1.2 U	2.3 U	1.2 U	1.2 U	1.2 U	1.2 U
1-Butanol	71-36-3	--	µg/m³	61 U	20 U	20 U	53	20 U	--	20 U	20 U	38 U	54	20 U	20 U	20 U
2-Butanone (MEK)	78-93-3	170,000	µg/m³	94	9.7 U	9.7 U	9.7 U	9.7 U	--	9.7 U	9.7 U	18 U	9.7 U	9.7 U	9.7 U	9.7 U
2-Hexanone	591-78-6	--	µg/m³	41 U	14 U	14 U	14 U	14 U	--	14 U	14 U	26 U	14 U	14 U	14 U	14 U
2-Pentanone	107-87-9	--	µg/m³	35 U	12 U	12 U	12 U	12 U	--	12 U	12 U	22 U	12 U	12 U	12 U	12 U
2-Propanol	67-63-0	--	µg/m³	86 U	28 U	28 U	300	28 U	--	28 U	28 U	54 U	28 U	28 U	130	28 U
3-Hexanone	589-38-8	--	µg/m³	41 U	14 U	14 U	14 U	14 U	--	14 U	14 U	26 U	14 U	14 U	14 U	14 U
3-Pentanone	96-22-0	--	µg/m³	35 U	12 U	12 U	12 U	12 U	--	12 U	12 U	22 U	12 U	12 U	12 U	12 U
4-Methyl-2-pentanone	108-10-1	100,000	µg/m³	41 U	14 U	14 U	26	14 U	--	14 U	14 U	26 U	14 U	14 U	14 U	14 U
Acetaldehyde	75-07-0	300	µg/m³	90 U	110	30 U	80	66	--	270 U	49	56 U	34	30 U	45	30 U
Acetone	67-64-1	--	µg/m³	1,300 J	500 J	490 J	91	160	--	16 U	28	30 U	130	43	100	35
Acetonitrile	75-05-8	2,000	µg/m³	27	5.5 U	5.5 U	6.9	5.5 U	--	5.5 U	5.5 U	10 U	5.5 U	5.5 U	5.5 U	5.5 U
Acrolein	107-02-8	0.67	µg/m³	***9.2 U***	***3 U***	***3 U***	***3 U***	***3 U***	--	***3 U***	***3 U***	***5.7 U***	***3 U***	***3 U***	***3 U***	***3 U***
Acrylonitrile	107-13-1	12	µg/m³	2.2 U	0.72 U	0.72 U	5.8	4	--	0.72 U	0.72 U	1.4 U	0.72 U	0.72 U	0.72 U	0.72 U
Benzyl chloride	100-44-7	17	µg/m³	2.3	0.17 U	0.55	0.17 U	0.17 U	--	0.17 U	0.17 U	0.32 U	0.17 U	0.17 U	0.17 U	0.17 U
Bromodichloromethane	75-27-4	23	µg/m³	5.8	0.22 U	0.22 U	0.22 U	0.22 U	--	0.22 U	0.22 U	0.42 U	0.22 U	0.22 U	0.22 U	0.22 U
Bromoform	75-25-2	760	µg/m³	21 U	6.8 U	6.8 U	6.8 U	6.8 U	--	6.8 U	6.8 U	13 U	6.8 U	6.8 U	6.8 U	6.8 U
Bromomethane	74-83-9	170	µg/m³	16 U	5.1 U	5.1 U	5.1 U	5.1 U	--	5.1 U	5.1 U	9.7 U	5.1 U	5.1 U	5.1 U	5.1 U
Butanal	123-72-8	--	µg/m³	29 U	9.7 U	9.7 U	9.7 U	9.7 U	--	9.7 U	9.7 U	18 U	9.7 U	9.7 U	9.7 U	9.7 U
Carbon disulfide	75-15-0	23,000	µg/m³	62 U	21 U	21 U	21 U	21 U	--	21 U	21 U	39 U	21 U	21 U	21 U	21 U
Carbon tetrachloride	56-23-5	140	µg/m³	6.3 U	2.1 U	2.1 U	2.1 U	2.1 U	--	2.1 U	2.1 U	3.9 U	2.1 U	2.1 U	2.1 U	2.1 U
CFC-113	76-13-1	1,000,000	µg/m³	7.7 U	2.5 U	2.5 U	3.3 JB	2.5 U	--	2.5 U	2.5 U	4.8 U	2.5 U	2.5 U	2.5 U	2.5 U
Chlorobenzene	108-90-7	1,700	µg/m³	4.6 U	1.5 U	1.5 U	1.5 U	1.5 U	--	1.5 U	1.5 U	2.9 U	1.5 U	1.5 U	1.5 U	1.5 U
Chlorodifluoromethane	75-45-6	1,700,000	µg/m³	8.3	1.2 U	1.2 U	3.7	4.1	--	1.2 U	2.3	2.2 U	1.5	1.2 U	2.5	1.2 U
Chloroethane	75-00-3	330,000	µg/m³	4.9	3.5	3.6	1.5	1.1	--	2.4	0.87 U	1.6 U	0.87 U	0.87 U	0.87 U	0.87 U
Chloroform	67-66-3	36	µg/m³	6.9	3.5	3.9	2.9	1.9	--	2.6	0.69	0.46	2.5	1.5	0.97	0.47
Chloromethane	74-87-3	3,000	µg/m³	7.3	3	2.6	4.4	3.3	--	2.6	0.68 U	1.3 U	0.68 U	0.68 U	0.68 U	0.68 U

Table 1
Soil Gas Data

				Building A East Office Node							Building A Center					
			Location	VP-01			VP-02				VP-03		VP-04		VP-05	
			Sample ID	VP-01-091218	VP-01-102418	VP-01-102418 Dup	VP-02-091218	VP-02-091218 Dup	VP-02B-091218	VP-02-102418	VP-03-091218	VP-03-102418	VP-04-091218	VP-04-102418	VP-05-091218	VP-05-102418
			Sample Date	09/12/2018	10/24/2018	10/24/2018	09/12/2018	09/12/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018
Analyte	CAS No.	Sub-Slab MTCA Method C Soil Gas Screening Level	Units													
cis-1,2-Dichloroethene	156-59-2	--	µg/m³	4 U	1.3 U	1.3 U	1.3 U	1.3 U	--	1.3 U	1.3 U	2.5 U	1.3 U	1.3 U	1.3 U	1.3 U
cis-1,3-Dichloropropene	10061-01-5	--	µg/m³	4.5 U	1.5 U	1.5 U	1.5 U	1.5 U	--	1.5 U	1.5 U	2.8 U	1.5 U	1.5 U	1.5 U	1.5 U
Cyclohexane	110-82-7	--	µg/m³	69 U	23 U	23 U	23 U	23 U	--	23 U	23 U	43 U	23 U	23 U	23 U	23 U
Cyclopentane	287-92-3	--	µg/m³	2.9 U	22	23	0.95 U	20	--	32	0.95 U	1.8 U	0.95 U	0.95 U	1.2	0.95 U
Dibromochloromethane	124-48-1	31	µg/m³	0.85 U	0.28 U	0.28 U	0.28 U	0.28 U	--	0.28 U	0.28 U	0.53 U	0.28 U	0.28 U	0.28 U	0.28 U
Dichlorodifluoromethane	75-71-8	3,300	µg/m³	120	75	72	49	37	--	47	35	23	17	10	39	29
Ethanol	64-17-5	--	µg/m³	75 U	25 U	25 U	68	52	--	25 U	25 U	47 U	46	26	33	51
F-114	76-14-2	--	µg/m³	7 U	2.3 U	2.3 U	2.3 U	2.3 U	--	2.3 U	2.3 U	4.4 U	2.3 U	2.3 U	2.3 U	2.3 U
Hexachlorobutadiene	87-68-3	38	µg/m³	2.1 U	0.7 U	0.7 U	0.7 U	0.7 U	--	0.7 U	0.7 U	1.3 U	0.7 U	0.7 U	0.7 U	0.7 U
Hexanal	66-25-1	--	µg/m³	41 U	14 U	14 U	14 U	14 U	--	14 U	14 U	26 U	14 U	14 U	14 U	14 U
Hexane	110-54-3	23,000	µg/m³	140	52	53	69	71	--	52	16	22 U	13	12 U	23	12 U
Iodomethane	74-88-4	--	µg/m³	5.8 U	1.9 U	1.9 U	1.9 U	1.9 U	--	1.9 U	1.9 U	3.6 U	1.9 U	1.9 U	1.9 U	1.9 U
Isobutene	115-11-7	--	µg/m³	1,600 J	840 J	830 J	180	130	--	140	36	17	3 U	3 U	56	32
Isoprene	78-79-5	--	µg/m³	17	8	8.8	7	4.6	--	4.8	0.92 U	1.7 U	0.92 U	0.92 U	0.92 U	0.92 U
Methacrolein	78-85-3	--	µg/m³	29 U	9.5 U	9.5 U	9.5 U	9.5 U	--	9.5 U	9.5 U	18 U	9.5 U	9.5 U	9.5 U	9.5 U
Methyl t-butyl ether (MTBE)	1634-04-4	3,200	µg/m³	18 U	5.9 U	5.9 U	5.9 U	5.9 U	--	5.9 U	5.9 U	11 U	5.9 U	5.9 U	5.9 U	5.9 U
Methyl vinyl ketone	78-94-4	--	µg/m³	29 U	9.5 U	9.5 U	9.5 U	9.5 U	--	9.5 U	9.5 U	18 U	9.5 U	9.5 U	9.5 U	9.5 U
Methylene chloride	75-09-2	20,000	µg/m³	870 U	290 U	290 U	290 U	410	--	290 U	290 U	540 U	290 U	290 U	290 U	290 U
Pentanal	110-62-3	--	µg/m³	35 U	12 U	12 U	12 U	12 U	--	12 U	12 U	22 U	12 U	12 U	12 U	12 U
Pentane	109-66-0	--	µg/m³	360	150	150	150	110	--	120	9.7 U	18 U	9.7 U	9.7 U	9.7 U	9.7 U
Propene	115-07-1	--	µg/m³	1,300 J	2.3 U	2.3 U	410 J	2.3 U	--	2.3 U	2.3 U	4.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Styrene	100-42-5	33,000	µg/m³	8.5 U	2.8 U	2.8 U	2.8 U	2.8 U	--	2.8 U	2.8 U	5.3 U	2.8 U	2.8 U	2.8 U	2.8 U
Tetrachloroethene	127-18-4	1,300	µg/m³	17	11	11	2.6	2.2 U	--	2.2 U	8.5	5.7	5.3	2.2	2.2 U	2.2 U
trans-1,2-Dichloroethene	156-60-5	--	µg/m³	4 U	1.3 U	1.3 U	1.3 U	1.3 U	--	1.3 U	1.3 U	2.5 U	1.3 U	1.3 U	1.3 U	1.3 U
trans-1,3-Dichloropropene	10061-02-6	--	µg/m³	4.5 U	1.5 U	1.5 U	1.5 U	1.5 U	--	1.5 U	1.5 U	2.8 U	1.5 U	1.5 U	1.5 U	1.5 U
Trichloroethene	79-01-6	67	µg/m³	9.1	6.6	8.4	5.4	2.4 JB	--	0.9	0.89 U	3	6.8	0.96	5.8	0.89
Trichlorofluoromethane	75-69-4	23,000	µg/m³	880	410	390	560	390	--	180	210	110	150	69	390	250
Vinyl acetate	108-05-4	6,700	µg/m³	70 U	23 U	23 U	23 U	23 U	--	23 U	23 U	44 U	23 U	23 U	23 U	23 U
Vinyl chloride	75-01-4	93	µg/m³	2.6 U	0.84 U	0.84 U	0.84 U	0.84 U	--	0.84 U	0.84 U	1.6 U	0.84 U	0.84 U	0.84 U	0.84 U

Notes:

-- Not applicable.

BOLD Detected concentration exceeds criteria.

Bold Italics Reporting limit exceeds criteria.

Abbreviations:

APH Air-phase hydrocarbons

CAS Chemical Abstracts Service

µg/m³ Micrograms per cubic meter

MTCA Model Toxics Control Act

NA Not available

TPH Total petroleum hydrocarbons

Qualifiers:

J Analyte was detected, concentration is considered to be an estimate.

JB Analyte was detected, concentration is considered to be an estimate due to potential blank contamination.

U Analyte was not detected at the given reporting limit.

UJ Analyte was not detected at the given reporting limit, which is considered to be an estimate.

Table 1
Soil Gas Data

				Building A West Office Node						Building B East Office Node				Building B Main - Center	
			Location	VP-06		VP-07		VP-08		VP-09		VP-10		VP-11	
			Sample ID	VP-06-091218	VP-06-102418	VP-07-091218	VP-07-102418	VP-08-091218	VP-08-102418	VP-09-091218	VP-09-102418	VP-10-091218	VP-10-102418	VP-11-091218	VP-11-102418
			Sample Date	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018
Analyte	CAS No.	Sub-Slab MTCA Method C Soil Gas Screening Level	Units												
APH EC5-8 aliphatics	NA	200,000	µg/m³	2,900	4,700 J	3,900 J	2,800 J	5,900 J	3,000	1,400	690 J	1,200	470 J	3,900	1,200
APH EC9-10 aromatics	NA	--	µg/m³	82 U	82 UJ	82 U	82 UJ	82 U	120 U	82 U	82 UJ	82 U	82 UJ	100 U	82 U
APH EC9-12 aliphatics	NA	10,000	µg/m³	530	580 J	170	340 J	1,100	330	220	200 J	360	320 J	6,000	790
Benzene	71-43-2	110	µg/m³	20	21	1.3	1.1	26	8.8	1.1 U	1.1 U	1.1 U	1.1 U	11	3.5
Ethylbenzene	100-41-4	33,000	µg/m³	7.7	5.8	1.4 U	1.4 U	15	3.9	2.6	1.4 U	1.4 U	1.4 U	3.3	1.8
m,p-Xylene	179601-23-1	--	µg/m³	14	9.1	4.8	2.9 U	13	4.8	10	2.9 U	2.9 U	2.9 U	10	6.1
Naphthalene	91-20-3	25	µg/m³	0.88 JB	0.54 JB	0.74 JB	0.47 JB	1.5 JB	0.42 JB	1.6 JB	0.4 JB	1.1 JB	0.45 JB	1.7 JB	0.5 JB
o-Xylene	95-47-6	3,300	µg/m³	4.9	2.9	1.6	1.4 U	8.3	2.2	3	1.4 U	1.4 U	1.4 U	8.7	2.6
Toluene	108-88-3	170,000	µg/m³	17	21	3.7	3.7	24	12	5.4	2.3	1.6 JB	3.5	25	13
1,1,1-Trichloroethane	71-55-6	170,000	µg/m³	11	23	23	19	20	13	1.8 U	1.8 U	1.8 U	1.8 U	9.1	1.8 U
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/m³	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.58 U	0.45 U
1,1,2-Trichloroethane	79-00-5	6.7	µg/m³	0.27 JB	0.18 U	0.18 U	0.18 U	0.83	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	3.8	0.18 U
1,1-Dichloroethane	75-34-3	520	µg/m³	1.4	3.8	4.9	4	9.2	7.2	1.3 U	1.3 U	1.3 U	1.3 U	7.5	2.7
1,1-Dichloroethene	75-35-4	6,700	µg/m³	1.6	7.9	2.1	1.3 U	3	2.3	1.3 U	1.3 U	1.3 U	1.3 U	6.8	1.5
1,2,3-Trimethylbenzene	526-73-8	--	µg/m³	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	10 U	8.1 U
1,2,4-Trichlorobenzene	120-82-1	67	µg/m³	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	3.1 U	2.4 U
1,2,4-Trimethylbenzene	95-63-6	230	µg/m³	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	10 U	8.1 U
1,2-Dibromoethane (EDB)	106-93-4	1.4	µg/m³	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.32 U	0.25 U
1,2-Dichlorobenzene	95-50-1	6,700	µg/m³	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2.5 U	2 U
1,2-Dichloroethane (EDC)	107-06-2	32	µg/m³	1.1	1.2	1.2	0.8	2.2	0.89	0.13 U	0.13 U	0.13 U	0.13 U	0.27	0.13 U
1,2-Dichloropropane	78-87-5	83	µg/m³	0.96	1.6	5	4.5	2.9	1.8	0.76 U	0.76 U	0.76 U	0.76 U	0.97 U	0.76 U
1,3,5-Trimethylbenzene	108-67-8	--	µg/m³	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	10 U	8.1 U
1,3-Butadiene	106-99-0	28	µg/m³	**29**	0.073 U	25	0.073 U	**47**	0.073 U	0.073 U	0.073 U	0.088 JB	0.073 U	3.9	0.073 U
1,3-Dichlorobenzene	541-73-1	--	µg/m³	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2.5 U	2 U
1,4-Dichlorobenzene	106-46-7	76	µg/m³	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	1 U	0.79 U
1,4-Dioxane	123-91-1	--	µg/m³	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.5 U	1.2 U
1-Butanol	71-36-3	--	µg/m³	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	59	20 U	25 U	20 U
2-Butanone (MEK)	78-93-3	170,000	µg/m³	11	9.7 U	9.7 U	9.7 U	21	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	12 U	9.7 U
2-Hexanone	591-78-6	--	µg/m³	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	17 U	14 U
2-Pentanone	107-87-9	--	µg/m³	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	15 U	12 U
2-Propanol	67-63-0	--	µg/m³	28 U	28 U	28 U	28 U	28 U	28 U	28 U	28 U	28 U	28 U	36 U	28 U
3-Hexanone	589-38-8	--	µg/m³	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	17 U	14 U
3-Pentanone	96-22-0	--	µg/m³	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	15 U	12 U
4-Methyl-2-pentanone	108-10-1	100,000	µg/m³	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	17 U	14 U
Acetaldehyde	75-07-0	300	µg/m³	30 U	270 U	100	30 U	30 U	270 U	30 U	30 U	160	30 U	**320**	30 U
Acetone	67-64-1	--	µg/m³	210	120	170	26	1,300 J	550 J	48	17	30	19	20 U	25
Acetonitrile	75-05-8	2,000	µg/m³	15	5.5 U	15	5.5 U	39	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	7.1 U	5.5 U
Acrolein	107-02-8	0.67	µg/m³	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***3.9 U***	***3 U***
Acrylonitrile	107-13-1	12	µg/m³	11	0.72 U	9.2	0.72 U	**25**	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	0.91 U	0.72 U
Benzyl chloride	100-44-7	17	µg/m³	0.17 U	0.17 U	0.17 U	0.17 U	0.29 JB	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.63	0.17 U
Bromodichloromethane	75-27-4	23	µg/m³	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	3.2	0.22 U
Bromoform	75-25-2	760	µg/m³	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	8.7 U	6.8 U
Bromomethane	74-83-9	170	µg/m³	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	6.5 U	5.1 U
Butanal	123-72-8	--	µg/m³	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	12 U	9.7 U
Carbon disulfide	75-15-0	23,000	µg/m³	21 U	21 U	21 U	21 U	27	21 U	21 U	21 U	21 U	21 U	26 U	21 U
Carbon tetrachloride	56-23-5	140	µg/m³	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.6 U	2.1 U
CFC-113	76-13-1	1,000,000	µg/m³	2.5 U	8.2	4.6 JB	2.5 U	9.4	6.9	2.5 U	2.5 U	2.5 U	2.5 U	12	2.9
Chlorobenzene	108-90-7	1,700	µg/m³	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.9 U	1.5 U
Chlorodifluoromethane	75-45-6	1,700,000	µg/m³	1.8	1.2 U	3	1.2 U	11	1.2 U	2.3	1.2 U	5	1.2 U	4	1.2 U
Chloroethane	75-00-3	330,000	µg/m³	1.1	0.88	0.93	0.87 U	3.9	2.4	0.87 U	0.87 U	0.87 U	0.87 U	1.1 U	0.87 U
Chloroform	67-66-3	36	µg/m³	2.1	3.1	2.6	1.9	4.7	2.1	3	2	3.7	1.6	0.45	0.16 U
Chloromethane	74-87-3	3,000	µg/m³	3.2	0.68 U	0.68 U	0.68 U	4	0.68 U	0.68 U	0.68 U	0.88	0.68 U	0.87 U	0.68 U

Table 1
Soil Gas Data

				Building A West Office Node						Building B East Office Node				Building B Main - Center	
			Location	VP-06		VP-07		VP-08		VP-09		VP-10		VP-11	
			Sample ID	VP-06-091218	VP-06-102418	VP-07-091218	VP-07-102418	VP-08-091218	VP-08-102418	VP-09-091218	VP-09-102418	VP-10-091218	VP-10-102418	VP-11-091218	VP-11-102418
			Sample Date	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018
Analyte	CAS No.	Sub-Slab MTCA Method C Soil Gas Screening Level	Units												
cis-1,2-Dichloroethene	156-59-2	--	µg/m³	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	4.5	1.3 U
cis-1,3-Dichloropropene	10061-01-5	--	µg/m³	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.9 U	1.5 U
Cyclohexane	110-82-7	--	µg/m³	23 U	25	23 U	23 U	36	27	23 U	23 U	23 U	23 U	31 JB	23 U
Cyclopentane	287-92-3	--	µg/m³	20	39	19	15	72	74	0.95 U	0.95 U	0.95 U	0.95 U	1.2 U	0.95 U
Dibromochloromethane	124-48-1	31	µg/m³	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.36 U	0.28 U
Dichlorodifluoromethane	75-71-8	3,300	µg/m³	74	140	91	77	57	29	3.8	2.9	7.8	6.6	6	3.6
Ethanol	64-17-5	--	µg/m³	25 U	31	38	40	32	25 U	28	25 U	41	25 U	55	25 U
F-114	76-14-2	--	µg/m³	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.9 U	2.3 U
Hexachlorobutadiene	87-68-3	38	µg/m³	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.9 JB	0.7 U
Hexanal	66-25-1	--	µg/m³	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U	17 U	14 U
Hexane	110-54-3	23,000	µg/m³	100	110	33	12 U	79	40	13	12 U	14	12 U	33	12 U
Iodomethane	74-88-4	--	µg/m³	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	2.4 U	1.9 U
Isobutene	115-11-7	--	µg/m³	700 J	960 J	610 J	430 J	1,200 J	760 J	3 U	3 U	3 U	3 U	95	12
Isoprene	78-79-5	--	µg/m³	7.3	12	1	0.92 U	16	18	0.92 U	0.92 U	0.92 U	0.92 U	1.2	0.92 U
Methacrolein	78-85-3	--	µg/m³	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	12 U	9.5 U
Methyl t-butyl ether (MTBE)	1634-04-4	3,200	µg/m³	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	7.6 U	5.9 U
Methyl vinyl ketone	78-94-4	--	µg/m³	9.5 U	11	9.5 U	9.5 U	22	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	12 U	9.5 U
Methylene chloride	75-09-2	20,000	µg/m³	290 U	290 U	470	290 U	290 U	290 U	290 U	290 U	290 U	290 U	360 U	290 U
Pentanal	110-62-3	--	µg/m³	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	15 U	12 U
Pentane	109-66-0	--	µg/m³	240	380	55	43	470	290	9.7 U	9.7 U	9.7 U	9.7 U	77	9.7 U
Propene	115-07-1	--	µg/m³	470 J	450 J	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.6	2.3 U	2.4 JB	2.9 U	2.3 U
Styrene	100-42-5	33,000	µg/m³	3.4	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	3.6 U	2.8 U
Tetrachloroethene	127-18-4	1,300	µg/m³	2.2 U	9.5	3.1	2.3	5.4	2.9	3.6	2.2 U	2.2 U	2.2 U	14	3.8
trans-1,2-Dichloroethene	156-60-5	--	µg/m³	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2	1.3 U
trans-1,3-Dichloropropene	10061-02-6	--	µg/m³	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.9 U	1.5 U
Trichloroethene	79-01-6	67	µg/m³	2.8	28	2.8	1.6	4.4	6.9	2.2 JB	1.2	0.89 U	1.8	28	11
Trichlorofluoromethane	75-69-4	23,000	µg/m³	1,100 J	2,000 J	2,200 J	1,700 J	960 J	410	6.1	3.6	120	55	5.9	2.7
Vinyl acetate	108-05-4	6,700	µg/m³	23 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	23 U	30 U	23 U
Vinyl chloride	75-01-4	93	µg/m³	0.84 U	0.84 U	0.84 U	0.84 U	0.92	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	1.1 U	0.84 U

Notes:

-- Not applicable.

BOLD Detected concentration exceeds criteria.

Bold Italics Reporting limit exceeds criteria.

Abbreviations:

APH Air-phase hydrocarbons

CAS Chemical Abstracts Service

µg/m³ Micrograms per cubic meter

MTCA Model Toxics Control Act

NA Not available

TPH Total petroleum hydrocarbons

Qualifiers:

J Analyte was detected, concentration is considered to be an estimate.

JB Analyte was detected, concentration is considered to be an estimate due to potential blank contamination.

U Analyte was not detected at the given reporting limit.

UJ Analyte was not detected at the given reporting limit, which is considered to be an estimate.

Table 1
Soil Gas Data

				Building B West Office Node						Lab Blank
			Location	VP-12		VP-13		VP-14		VP-LB
			Sample ID	VP-12-091218	VP-12-102418	VP-13-091218	VP-13-102418	VP-14-091218	VP-14-102418	VP-LB-102418
			Sample Date	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	10/24/2018
Analyte	CAS No.	Sub-Slab MTCA Method C Soil Gas Screening Level	Units							
APH EC5-8 aliphatics	NA	200,000	µg/m³	820	740 J	800	770 J	2,600	710 J	470
APH EC9-10 aromatics	NA	--	µg/m³	82 U	82 UJ	82 U	82 UJ	82 U	82 UJ	250 U
APH EC9-12 aliphatics	NA	10,000	µg/m³	180	250 J	150	180 J	520	390 J	350 U
Benzene	71-43-2	110	µg/m³	1.1 U	1.1 U	1.1 U	1.1 U	3.6	1.1 U	3.2 U
Ethylbenzene	100-41-4	33,000	µg/m³	1.4 U	1.4 U	1.4 U	2.6	1.6	5.7	4.3 U
m,p-Xylene	179601-23-1	--	µg/m³	2.9	2.9 U	2.9 U	6.8	4.4	27	8.7 U
Naphthalene	91-20-3	25	µg/m³	1.1 JB	0.45 JB	0.54 JB	0.36 JB	1.1 JB	2.3 JB	1 U
o-Xylene	95-47-6	3,300	µg/m³	1.4 U	1.4 U	1.4 U	2.6	2.2	8.3	4.3 U
Toluene	108-88-3	170,000	µg/m³	2.3	2.7	1.4 JB	42	9.3	34	4.4
1,1,1-Trichloroethane	71-55-6	170,000	µg/m³	2.1 JB	1.8 U	2.1 JB	15	6.9	3.3	5.5 U
1,1,2,2-Tetrachloroethane	79-34-5	14	µg/m³	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	1.4 U
1,1,2-Trichloroethane	79-00-5	6.7	µg/m³	0.18 U	0.18 U	0.18 U	0.18 U	4.9	0.18 U	0.55 U
1,1-Dichloroethane	75-34-3	520	µg/m³	1.3 U	1.3 U	1.3 U	3.8	2.4	1.3 U	4 U
1,1-Dichloroethene	75-35-4	6,700	µg/m³	1.3 U	1.3 U	1.3 U	8.9	10	1.3 U	4 U
1,2,3-Trimethylbenzene	526-73-8	--	µg/m³	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	25 U
1,2,4-Trichlorobenzene	120-82-1	67	µg/m³	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	7.4 U
1,2,4-Trimethylbenzene	95-63-6	230	µg/m³	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	25 U
1,2-Dibromoethane (EDB)	106-93-4	1.4	µg/m³	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.77 U
1,2-Dichlorobenzene	95-50-1	6,700	µg/m³	2 U	2 U	2 U	2 U	2 U	2 U	6 U
1,2-Dichloroethane (EDC)	107-06-2	32	µg/m³	0.13 U	0.13 U	0.13 U	0.13	0.13 JB	0.31	0.4 U
1,2-Dichloropropane	78-87-5	83	µg/m³	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	2.3 U
1,3,5-Trimethylbenzene	108-67-8	--	µg/m³	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	8.1 U	25 U
1,3-Butadiene	106-99-0	28	µg/m³	0.088	0.073 U	0.095 JB	0.073 U	16	0.073 U	0.35
1,3-Dichlorobenzene	541-73-1	--	µg/m³	2 U	2 U	2 U	2 U	2 U	2 U	6 U
1,4-Dichlorobenzene	106-46-7	76	µg/m³	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	0.79 U	2.4 U
1,4-Dioxane	123-91-1	--	µg/m³	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	3.6 U
1-Butanol	71-36-3	--	µg/m³	20 U	20 U	100	20 U	21	20 U	61 U
2-Butanone (MEK)	78-93-3	170,000	µg/m³	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	13	29 U
2-Hexanone	591-78-6	--	µg/m³	14 U	14 U	14 U	14 U	14 U	14 U	41 U
2-Pentanone	107-87-9	--	µg/m³	12 U	12 U	12 U	12 U	12 U	12 U	35 U
2-Propanol	67-63-0	--	µg/m³	28 U	28 U	28 U	28 U	28 U	28 U	86 U
3-Hexanone	589-38-8	--	µg/m³	14 U	14 U	14 U	14 U	14 U	14 U	41 U
3-Pentanone	96-22-0	--	µg/m³	12 U	12 U	12 U	12 U	12 U	12 U	35 U
4-Methyl-2-pentanone	108-10-1	100,000	µg/m³	14 U	14 U	14 U	14 U	14 U	38	41 U
Acetaldehyde	75-07-0	300	µg/m³	30 U	30 U	30 U	30 U	110	30 U	90 U
Acetone	67-64-1	--	µg/m³	25	18	44	23	99	58	64
Acetonitrile	75-05-8	2,000	µg/m³	5.5 U	5.5 U	5.5 U	5.5 U	14	5.5 U	17 U
Acrolein	107-02-8	0.67	µg/m³	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***3 U***	***9.2 U***
Acrylonitrile	107-13-1	12	µg/m³	0.72 U	0.72 U	0.72 U	0.72 U	**16**	0.72 U	2.2 U
Benzyl chloride	100-44-7	17	µg/m³	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.52 U
Bromodichloromethane	75-27-4	23	µg/m³	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	0.67 U
Bromoform	75-25-2	760	µg/m³	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	6.8 U	21 U
Bromomethane	74-83-9	170	µg/m³	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	16 U
Butanal	123-72-8	--	µg/m³	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	9.7 U	29 U
Carbon disulfide	75-15-0	23,000	µg/m³	21 U	21 U	21 U	21 U	21 U	21 U	62 U
Carbon tetrachloride	56-23-5	140	µg/m³	2.1 U	2.1 U	6.2	2.1 U	62	2.1 U	6.3 U
CFC-113	76-13-1	1,000,000	µg/m³	2.5 U	2.5 U	3.3	15	18	4.1	7.7 U
Chlorobenzene	108-90-7	1,700	µg/m³	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	4.6 U
Chlorodifluoromethane	75-45-6	1,700,000	µg/m³	2.3	1.2 U	7	1.2 U	2.9	1.2 U	18
Chloroethane	75-00-3	330,000	µg/m³	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	0.87 U	2.6 U
Chloroform	67-66-3	36	µg/m³	3.7	1.3	5.2	2.3	4.3	1.3	0.49 U
Chloromethane	74-87-3	3,000	µg/m³	0.68 U	0.68 U	2	0.68 U	0.68 U	0.68 U	2.1 U

Table 1
Soil Gas Data

				Building B West Office Node						Lab Blank
			Location	VP-12		VP-13		VP-14		VP-LB
			Sample ID	VP-12-091218	VP-12-102418	VP-13-091218	VP-13-102418	VP-14-091218	VP-14-102418	VP-LB-102418
			Sample Date	09/12/2018	10/24/2018	09/12/2018	10/24/2018	09/12/2018	10/24/2018	10/24/2018
Analyte	CAS No.	Sub-Slab MTCA Method C Soil Gas Screening Level	Units							
cis-1,2-Dichloroethene	156-59-2	--	µg/m³	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	4 U
cis-1,3-Dichloropropene	10061-01-5	--	µg/m³	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	4.5 U
Cyclohexane	110-82-7	--	µg/m³	23 U	23 U	23 U	23 U	23 U	23 U	69 U
Cyclopentane	287-92-3	--	µg/m³	0.95 U	0.95 U	0.95 U	0.95 U	28	0.95 U	2.9 U
Dibromochloromethane	124-48-1	31	µg/m³	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	0.85 U
Dichlorodifluoromethane	75-71-8	3,300	µg/m³	4.3	4	6.5	6.3	59	62	4.9 U
Ethanol	64-17-5	--	µg/m³	43	25 U	82	25 U	71	49	86
F-114	76-14-2	--	µg/m³	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	7 U
Hexachlorobutadiene	87-68-3	38	µg/m³	0.7 U	0.7 U	0.7 U	0.7 U	2.6	0.7 U	2.1 U
Hexanal	66-25-1	--	µg/m³	14 U	14 U	14 U	14 U	14 U	14 U	41 U
Hexane	110-54-3	23,000	µg/m³	12 U	12 U	38	12 U	120	12 U	57
Iodomethane	74-88-4	--	µg/m³	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	5.8 U
Isobutene	115-11-7	--	µg/m³	3 U	3 U	3 U	3 U	410 J	3 U	9.2 U
Isoprene	78-79-5	--	µg/m³	0.92 U	0.92 U	0.92 U	0.92 U	47	0.92 U	13
Methacrolein	78-85-3	--	µg/m³	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	29 U
Methyl t-butyl ether (MTBE)	1634-04-4	3,200	µg/m³	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	5.9 U	18 U
Methyl vinyl ketone	78-94-4	--	µg/m³	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	9.5 U	29 U
Methylene chloride	75-09-2	20,000	µg/m³	290 U	290 U	2,200 J	290 U	300	290 U	2,500 J
Pentanal	110-62-3	--	µg/m³	12 U	12 U	12 U	12 U	12 U	12 U	35 U
Pentane	109-66-0	--	µg/m³	9.7 U	9.7 U	9.7 U	9.7 U	260	9.7 U	30 U
Propene	115-07-1	--	µg/m³	2.7	2.3 U	2.3 U	3.2 JB	2.3 U	2.8 JB	7.4 JB
Styrene	100-42-5	33,000	µg/m³	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	2.8 U	8.5 U
Tetrachloroethene	127-18-4	1,300	µg/m³	3	2.2 U	7.6	8	31	3.1	6.8 U
trans-1,2-Dichloroethene	156-60-5	--	µg/m³	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	4 U
trans-1,3-Dichloropropene	10061-02-6	--	µg/m³	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	4.5 U
Trichloroethene	79-01-6	67	µg/m³	1.5 JB	1.3	6.5	35	**94**	7.4	2.7 U
Trichlorofluoromethane	75-69-4	23,000	µg/m³	33	15	45	29	13	12	5.6 U
Vinyl acetate	108-05-4	6,700	µg/m³	23 U	23 U	23 U	23 U	23 U	23 U	70 U
Vinyl chloride	75-01-4	93	µg/m³	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	0.84 U	2.6 U

Notes:

-- Not applicable.

BOLD Detected concentration exceeds criteria.

Bold Italics Reporting limit exceeds criteria.

Abbreviations:

APH Air-phase hydrocarbons

CAS Chemical Abstracts Service

µg/m³ Micrograms per cubic meter

MTCA Model Toxics Control Act

NA Not available

TPH Total petroleum hydrocarbons

Qualifiers:

J Analyte was detected, concentration is considered to be an estimate.

JB Analyte was detected, concentration is considered to be an estimate due to potential blank contamination.

U Analyte was not detected at the given reporting limit.

UJ Analyte was not detected at the given reporting limit, which is considered to be an estimate.

Table 2
JEM Results

Analyte	USEPA's Online JEM Worksheet—Predicted Concentrations to Indoor Air											Indoor Air MTCA Method C Cleanup Levels—Noncancer ($\mu g/m^3$)	Indoor Air MTCA Method C Cleanup Levels—Cancer ($\mu g/m^3$)
	Sub-Slab Location	Soil Gas Concentration ($\mu g/m^3$)	Low Prediction ($\mu g/m^3$)	Cancer Risk [1]	Hazard Quotient [2]	Best Estimate ($\mu g/m^3$)	Cancer Risk [1]	Hazard Quotient [2]	High Prediction ($\mu g/m^3$)	Cancer Risk [1]	Hazard Quotient [2]		
Building A													
1,2,4-Trimethylbenzene	VP-1	420	4.21E-04	NA	7.08E-05	8.78E-04	NA	1.48E-04	1.63E-03	NA	2.74E-04	7	NA
1,3-Butadiene	VP-8	47	1.57E-04	1.81E-08	NA	3.70E-04	4.25E-08	NA	7.17E-04	8.25E-08	NA	2	0.83
Acrolein	VP-1	9.2	1.44E-05	NA	7.22E-04	3.18E-05	NA	1.59E-03	6.04E-05	NA	3.02E-03	0.02	NA
Acrylonitrile	VP-8	25	4.47E-05	1.25E-09	2.24E-05	9.93E-05	2.78E-09	4.97E-05	1.90E-04	5.30E-09	9.48E-05	2	0.368
Naphthalene	VP-1	33	3.26E-05	NA	1.09E-05	6.74E-05	NA	2.25E-05	1.25E-04	NA	4.17E-05	3.00	0.74
Building B													
Acetaldehyde	VP-11	320	7.41E-04	6.7E-10	8.23E-05	1.44E-03	1.3E-09	1.60E-04	2.61E-03	2.36E-09	2.90E-04	9	11.4
Acrolein	VP-11	3.9	8.11E-06	NA	4.05E-04	1.53E-05	NA	7.63E-04	2.73E-05	NA	1.37E-03	0.02	NA
Acrylonitrile	VP-14	16	3.66E-05	1.02E-09	1.83E-05	7.09E-05	1.98E-09	3.54E-05	1.29E-04	3.59E-09	6.43E-05	2	0.368
Trichloroethene	VP-14	94	1.66E-04	7.5E-09	4.15E-06	2.94E-04	1.33E-08	7.34E-06	5.12E-04	2.31E-08	1.28E-05	2	6.3

Notes:

1 Target cancer risk is 1.0E-6.

2 Target hazard quotient is less than 1.0.

Abbreviations:

$\mu g/m^3$ Micrograms per cubic meters
MTCA Model Toxics Control Act
NA Not applicable
USEPA U.S. Environmental Protection Agency

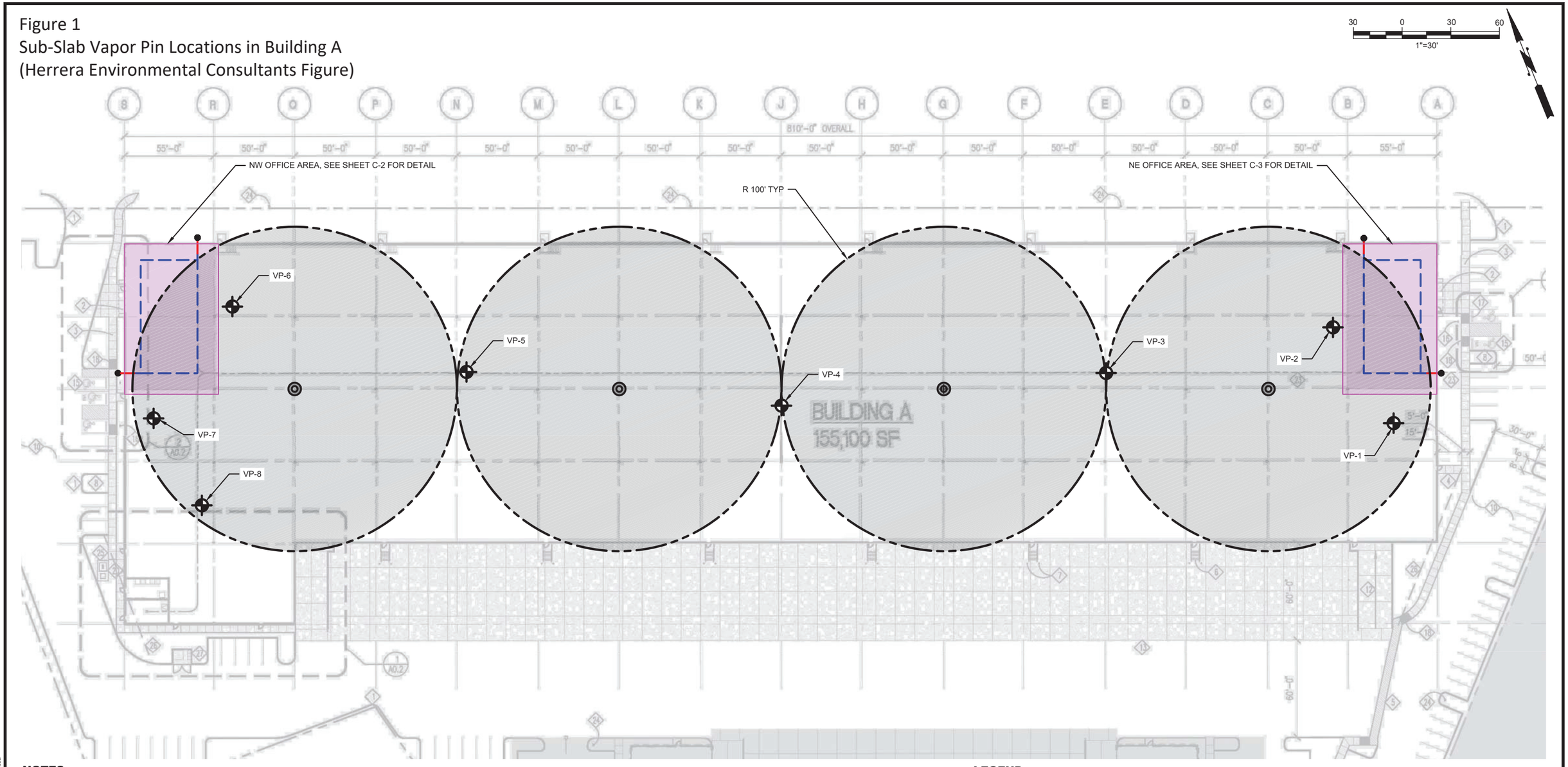
Table 3
Reduced Analytes List

Analyte	CAS No.
APH EC5-8 aliphatics	NA
APH EC9-10 aromatics	NA
APH EC9-12 aliphatics	NA
1,1,1-Trichloroethane	71-55-6
1,1,2-Trichloroethane	79-00-5
1,1-Dichloroethane	75-34-3
1,1-Dichloroethene	75-35-4
1,2,3-Trimethylbenzene	526-73-8
1,2,4-Trimethylbenzene	95-63-6
1,2-Dichloroethane (EDC)	107-06-2
1,2-Dichloropropane	78-87-5
1,3,5-Trimethylbenzene	108-67-8
1,3-Butadiene	106-99-0
1-Butanol	71-36-3
2-Butanone (MEK)	78-93-3
2-Propanol	67-63-0
4-Methyl-2-pentanone	108-10-1
Acetaldehyde	75-07-0
Acetonitrile	75-05-8
Acrolein	107-02-8
Acrylonitrile	107-13-1
Benzene	71-43-2
Benzyl chloride	100-44-7
Bromodichloromethane	75-27-4
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
CFC-113	76-13-1
Chlorodifluoromethane	75-45-6
Chloroethane	75-00-3
Chloroform	67-66-3
Chloromethane	74-87-3
cis-1,2-Dichloroethene	156-59-2
Cyclohexane	110-82-7
Cyclopentane	287-92-3
Dichlorodifluoromethane	75-71-8
Ethylbenzene	100-41-4
Hexachlorobutadiene	87-68-3
Hexane	110-54-3
Isobutene	115-11-7
Isoprene	78-79-5
m,p-Xylene	179601-23-1
Methyl vinyl ketone	78-94-4
Naphthalene	91-20-3
o-Xylene	95-47-6
Pentane	109-66-0
Propene	115-07-1
Styrene	100-42-5
Tetrachloroethene	127-18-4
Toluene	108-88-3
trans-1,2-Dichloroethene	156-60-5
Trichloroethene	79-01-6
Trichlorofluoromethane	75-69-4
Vinyl chloride	75-01-4

Abbreviations:
APH Air-phase hydrocarbons
CAS Chemical Abstracts Service
NA Not available

Figures

Figure 1
Sub-Slab Vapor Pin Locations in Building A
(Herrera Environmental Consultants Figure)



NOTES:

1. 30mil GEOMEMBRANE SHALL BE A CONTINUOUS SHEET UNDER BUILDING SLAB AND SHALL EXTEND TO EXTERIOR EDGE OF PERIMETER FOOTING OR BE SEALED TO FOOTINGS BY BATTEN STRIP.
2. ALL PENETRATIONS THROUGH MEMBRANE SHALL BE BOOTED AND SEALED. SEE DETAILS 1 AND 2/C-8.
3. ALL INTERIOR VENT PIPING MUST BE PRESSURE TESTED USING HYDRO STATIC OR PNEUMATIC METHOD.
4. GRANULAR MATERIAL UNDER SLAB IN PIPE TRENCH SIZED LARGER THAN PERFORATIONS IN PIPE OR ADD GEOTEXTILE WRAP AROUND PERFORATED PIPE.
5. ALL SLAB PENETRATIONS SHALL BE SEALED WITH ELASTOMERIC POLYURETHANE SEALANT.

LEGEND:

- 4" RISER VENT
- RISER VENT WITH BLOWER
- ECOLOGY RECOMMENDED MONITORING LOCATION
- 2" DIA SCH 40 PERFORATED PVC COLLECTION PIPE
- 4" DIA SCH 80 OR GALVANIZED SOLID WALL PIPE
- VAPOR MONITORING ZONE
- 30mil PVC MEMBRANE EXTENTS

ORIGINATED BY: / DATE:
CHECKED BY: / DATE:
BACK-CHECKED BY: / DATE:
CORRECTED BY: / DATE:
VERIFIED BY: / DATE:

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WORK PLAN MEMO

No.	REVISION	BY	APP'D	DATE

ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

811 Know what's below. Call before you dig.

HERRERA

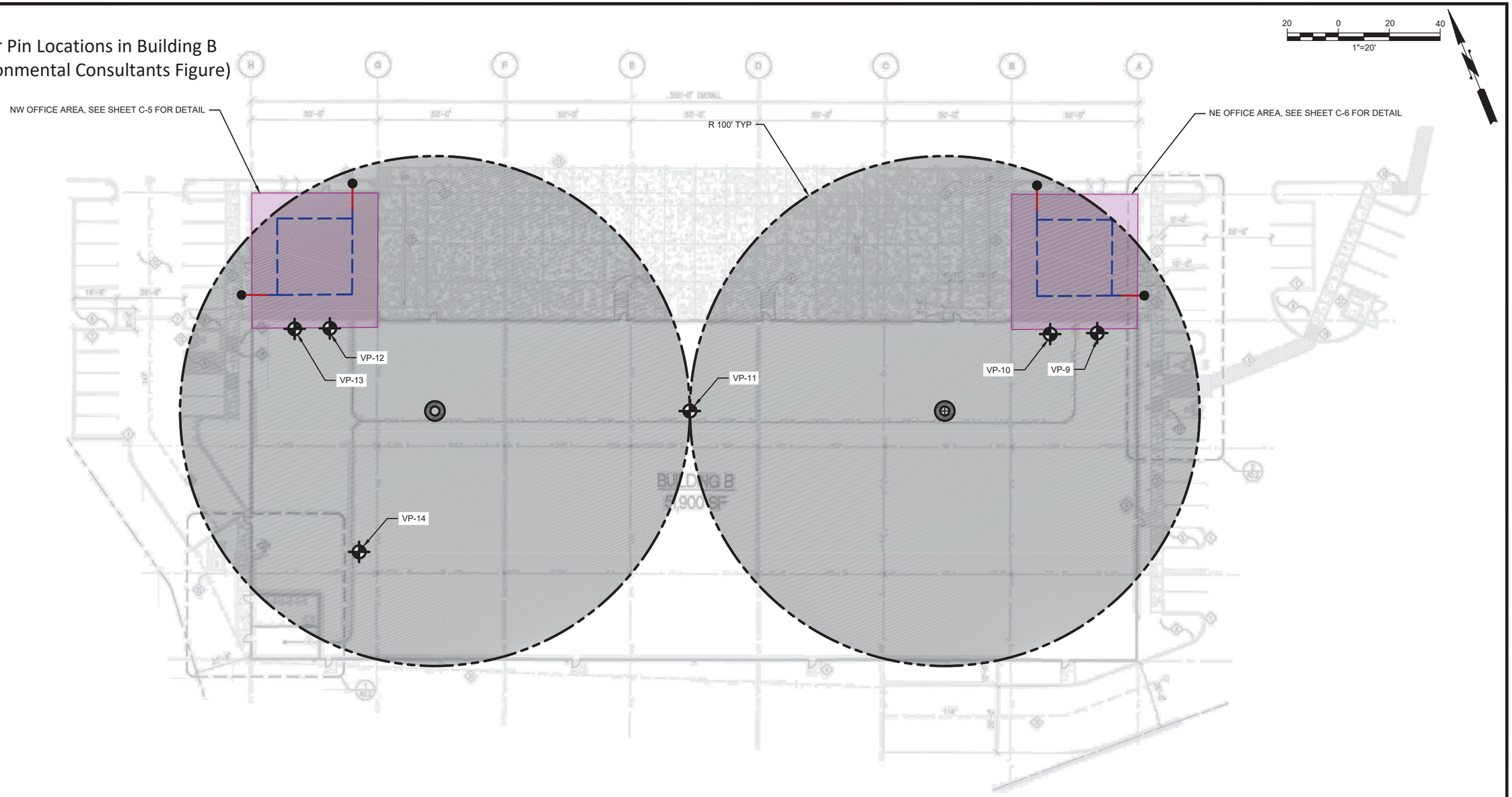
DESIGNED: K. JOHNSON	DRAWN: T. PRESCOTT
DESIGNED: M. SPILLANE	DRAWN: -
DESIGNED: -	CHECKED: -
SCALE: AS NOTED	APPROVED: M. SPILLANE

AVE 55
TAYLOR WAY METHANE MITIGATION

PAD A

DATE: AUGUST 2018
PROJECT NO: 16-06475-000
DRAWING NO: Figure 1
SHEET NO: 2 OF 4

Figure 2
Sub-Slab Vapor Pin Locations in Building B
(Herrera Environmental Consultants Figure)



NOTES:

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- 4" RISER VENT
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- VAPOR MONITORING ZONE
- 30mil PVC MEMBRANE EXTENTS

ORIGINATED BY: / DATE: / /
CHECKED BY: / DATE: / /
BACK-CHECKED BY: / DATE: / /
CORRECTED BY: / DATE: / /
VERIFIED BY: / DATE: / /
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WORK PLAN MEMO

No.	REVISION	BY	APP'D	DATE

ONE INCH
AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

811 Know what's below. Call before you dig.

HERRERA

DESIGNED: K. JOHNSON	DRAWN: T. PRESCOTT
DESIGNED: M. SPILLANE	DRAWN: -
DESIGNED: -	CHECKED: -
SCALE: AS NOTED	APPROVED: M. SPILLANE

AVE 55
TAYLOR WAY METHANE MITIGATION

PAD B

DATE: AUGUST 2018
PROJECT NO: 16-06475-000
DRAWING NO: Figure 2
SHEET NO: 3 OF 4

Attachment 1
Ecology Correspondence

Gabe Cisneros

From: Teel, Steve (ECY) <STEE461@ECY.WA.GOV>
Sent: Thursday, September 6, 2018 1:28 PM
To: Tom Colligan
Cc: Gabe Cisneros; Kristin Anderson; Drew Zaborowski; Scott Hooton (shooton@portoftacoma.com); Kara Hitchko; Acklam, Nicholas (ECY)
Subject: RE: Addendum for VI assessment at Taylor Way site
Attachments: bld-B_ss_201809061133.pdf

Tom –
Attached is a figure that shows our recommendations for changes to the Building B locations. Basically, we want them to be about 15 feet in from the outside edge and about 15 feet apart from each other. Please let me know by COB today if you have any questions because I won't be in the office tomorrow.
Thanks,
Steve

Steve Teel, LHG
Cleanup Project Manager/Hydrogeologist
Washington State Department of Ecology
Toxics Cleanup Program, Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
Phone (360) 407-6247
steve.teel@ecy.wa.gov

From: Tom Colligan <Tom.Colligan@floydsnider.com>
Sent: Wednesday, September 5, 2018 2:43 PM
To: Teel, Steve (ECY) <STEE461@ECY.WA.GOV>
Cc: Gabe Cisneros <Gabe.Cisneros@floydsnider.com>; Kristin Anderson <Kristin.Anderson@floydsnider.com>; Drew Zaborowski <dzaborowski@avenue55.net>; Scott Hooton (shooton@portoftacoma.com) <shooton@portoftacoma.com>; Kara Hitchko <Kara.Hitchko@floydsnider.com>
Subject: Addendum for VI assessment at Taylor Way site

Steve, attached is a detail sheet C-10 for the vapor pins- and updated location maps which you have seen already. If you have any suggestions as to moving some locations, let us know. As we discussed today, these will be installed Friday by Gabe and sampled next week, per the protocols in the work plan as amended by your email comments below.

From: Teel, Steve (ECY) [mailto:STEE461@ECY.WA.GOV]
Sent: Tuesday, August 21, 2018 4:12 PM
To: Tom Colligan <Tom.Colligan@floydsnider.com>
Cc: Scott Hooton (shooton@portoftacoma.com) <shooton@portoftacoma.com>; Drew Zaborowski <dzaborowski@avenue55.net>; Michael Spillane <mspillane@herrerainc.com>; Acklam, Nicholas (ECY)

<nack461@ECY.WA.GOV>
Subject: RE: Addendum for VI assessment at Taylor Way site

Tom,
Thank you for submitting the below-referenced plan for our review. Please revise the plan to incorporate the following comments:

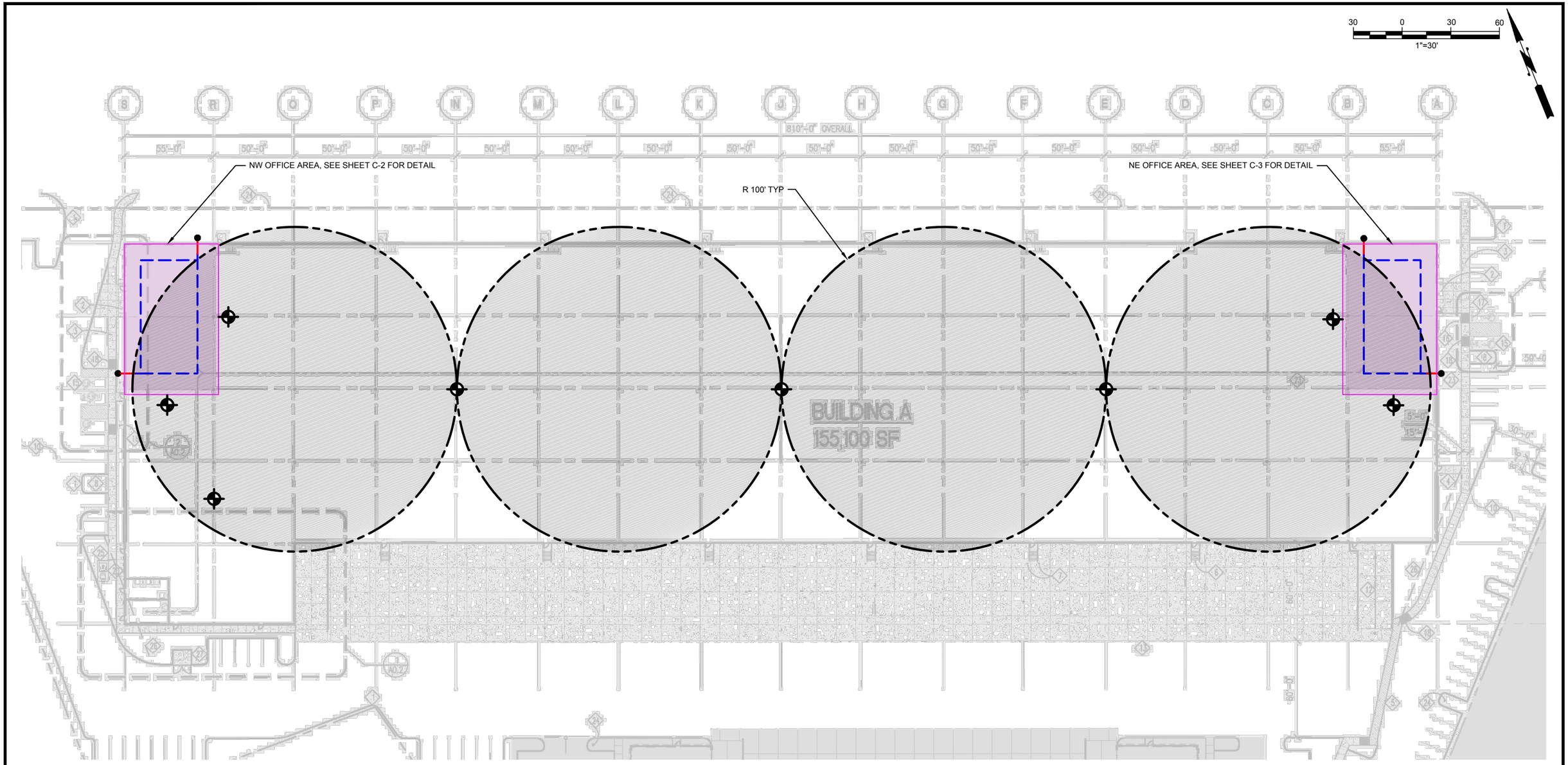
1. Four additional permanent sub-slab monitoring locations are needed. These additional locations shall be at the edge of the membrane at the south side of each of the office nodes in Buildings A and B. Because the office node monitoring points were not installed in the center of the office area prior to pouring the slab, the proposed network of only one near-membrane monitoring point per node is not sufficient. Therefore, two per node is needed. Provide an updated map to Ecology for review and approval.
2. Ecology does not agree that the proposed one indoor air sample from each warehouse space is sufficient. Due to the size of the warehouse space, at least four samples are needed from the Building A warehouse and at least two samples are needed from the Building B warehouse. A survey shall be made prior to conducting indoor air sampling to check for any areas of preferential vapor intrusion (such as cracks, utility penetrations, expansion joints, and floor drains). This information shall be used in planning Indoor air sample locations. A map with proposed indoor air sample locations shall be provided to Ecology for review and approval.
3. Field QC duplicate samples need to be included. Duplicate soil vapor samples shall be collected by using a T-splitter at the point of sample collection to divide the sample stream into two separate sample containers. Duplicate samples shall be collected on a daily frequency.
4. As stated in our previous comments, for the first year, at least two indoor air sampling rounds are required (winter and summer).
5. The building shall not be occupied until Ecology agrees that the vapor intrusion mitigation system is working adequately.
6. Ambient air background samples shall be collected in an upwind location from the Site. Therefore, the proposed location of the drive aisle between the buildings is not appropriate.
7. The use of Tedlar bags for sample collection is not recommended because of issues with adsorption of compounds. Remove all references to Tedlar bags from Attachment 1.
8. The constituent list for analyses shall include all compounds previously detected in soil gas, sub-slab, and indoor air samples and all potential constituents of concern for the Site.
9. Differential pressures shall be measured in the locations adjacent to the office nodes using a micro-manometer that is auto-zeroing and has a pressure differential sensitivity to 0.001 inches of water (such as a CLK-Zephyr II+ data logging micro-manometer). Differential pressures shall be recorded using a data logger for at least 48 hours (preferably one week) prior to sampling to assess fluctuations (if any) of cross-slab differential pressure.
10. A standard photoionization detector is generally not sensitive enough for vapor intrusion investigations because they are limited to ppmv range. As noted by the ITRC in their online guidance, (available at: https://www.itrcweb.org/PetroleumVI-Guidance/, for lower detection limits, either mobile laboratories or portable GC/MS or small-footprint gas chromatographs are available.

Steve Teel, LHG
Cleanup Project Manager/Hydrogeologist
Washington State Department of Ecology
Toxics Cleanup Program, Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
Phone (360) 407-6247
steve.teel@ecy.wa.gov

From: Tom Colligan <Tom.Colligan@floydsnider.com>
Sent: Monday, August 13, 2018 11:02 AM
To: Teel, Steve (ECY) <STEE461@ECY.WA.GOV>
Cc: Scott Hooton (shooton@portoftacoma.com) <shooton@portoftacoma.com>; Drew Zaborowski <dzaborowski@avenue55.net>; Michael Spillane <mspillane@herrerainc.com>
Subject: Addendum for VI assessment at Taylor Way site

Steve, attached is the addendum detailing the approach for further assessment of the VI pathway at Buildings A and B at the Portside Development of the Taylor Way site. Let me know your thoughts as we would like to get in the field as soon as possible.

Tom Colligan L.H.G.
FLOYD | SNIDER
601 Union Street, Suite 600 | Seattle, WA 98101
direct tel 206.805.2166
Office tel: 206.292.2078 | fax: 206.682.7867
Tom.Colligan@floydsnider.com | www.floydsnider.com



NOTES:

1. 30mil GEOMEMBRANE SHALL BE A CONTINUOUS SHEET UNDER OFFICE AREA SLAB AND SHALL EXTEND TO EXTERIOR EDGE OF PERIMETER FOOTING OR BE SEALED TO FOOTINGS BY BATTEN STRIP.
2. ALL PENETRATIONS THROUGH MEMBRANE SHALL BE BOOTED AND SEALED. SEE DETAILS 1 AND 2/C-8.
3. ALL INTERIOR VENT PIPING MUST BE PRESSURE TESTED USING HYDRO STATIC OR PNEUMATIC METHOD.
4. GRANULAR MATERIAL UNDER SLAB IN PIPE TRENCH SIZED LARGER THAN PERFORATIONS IN PIPE OR ADD GEOTEXTILE WRAP AROUND PERFORATED PIPE.
5. ALL SLAB PENETRATIONS SHALL BE SEALED WITH ELASTOMERIC POLYURETHANE SEALANT.

LEGEND:

- 4" RISER VENT
- MONITORING LOCATION
- 2" DIA SCH 40 PERFORATED PVC COLLECTION PIPE
- 2" DIA SCH 80 PVC OR GALVANIZED PIPE
- VAPOR MONITORING ZONE
- 30mil PVC MEMBRANE EXTENTS

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CORRECTED BY: / DATE:
VERIFIED BY: / DATE:

BID SET

No.	REVISION	BY	APP'D	DATE

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AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY

811 Know what's below. Call before you dig.

HERRERA

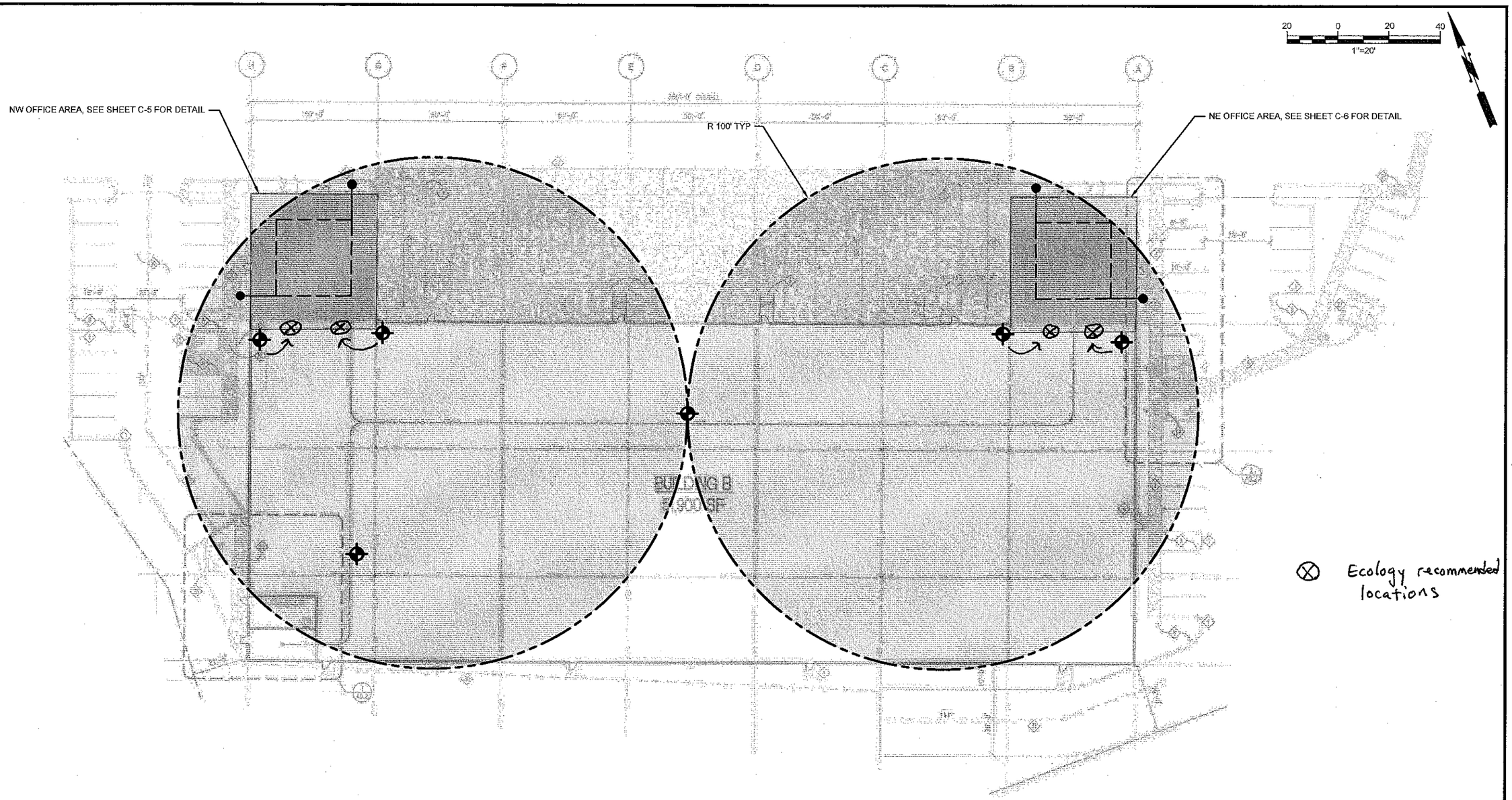
MICHAEL M. SPILLANE — STATE OF WASHINGTON — 30780 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED: K. JOHNSON	DRAWN: T. PRESCOTT
DESIGNED: M. SPILLANE	DRAWN: -
DESIGNED: -	CHECKED: -
SCALE: AS NOTED	APPROVED: M. SPILLANE

AVE 55
TAYLOR WAY METHANE MITIGATION

BUILDING A SITE PLAN

DATE: AUGUST 2018
PROJECT NO: 16-06475-000
DRAWING NO: C-1
SHEET NO: 3 OF 12



NOTES:

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5. ALL SLAB PENETRATIONS SHALL BE SEALED WITH ELASTOMERIC POLYURETHANE SEALANT.

LEGEND:

- 4" RISER VENT
- MONITORING LOCATION
- 2" DIA SCH 40 PERFORATED PVC COLLECTION PIPE
- 2" DIA SCH 80 PVC OR GALVANIZED PIPE
- VAPOR MONITORING ZONE
- 30mil PVC MEMBRANE EXTENTS

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VERIFIED BY: / DATE:

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MICHAEL M. SPILLANE STATE OF WASHINGTON 30780 REGISTERED PROFESSIONAL ENGINEER

DESIGNED: K. JOHNSON	DRAWN: T. PRESCOTT
DESIGNED: M. SPILLANE	DRAWN: -
DESIGNED: -	CHECKED: -
SCALE: AS NOTED	APPROVED: M. SPILLANE

AVE 55
TAYLOR WAY METHANE MITIGATION

BUILDING B SITE PLAN

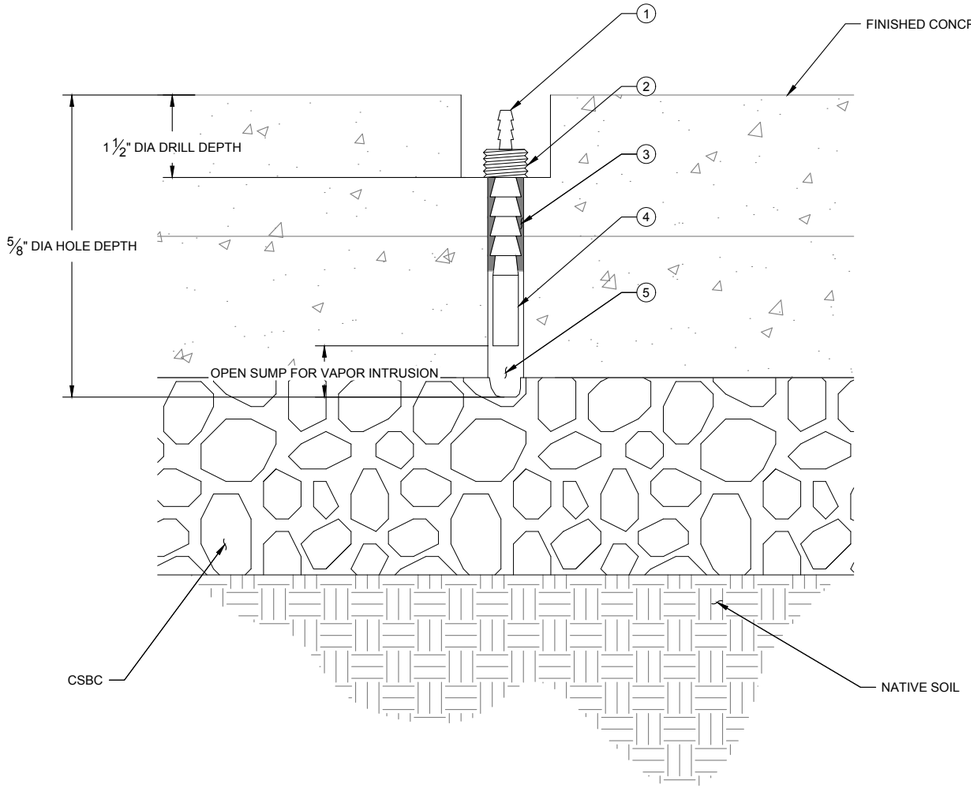
DATE: AUGUST 2018
PROJECT NO: 16-06475-000
DRAWING NO: C-4
SHEET NO: 6 OF 12

ITEMIZED NOTES:

1. VAPOR PIN STAINLESS STEEL HOSE BARB ADAPTER
2. TREADS FOR STAINLESS STEEL SECURE VAPOR PIN COVER
3. SILICONE SLEEVE
4. 1-1/2" STAINLESS STEEL VAPOR PIN EXTENSION
5. 1" MAX OPEN SUMP FOR VAPOR INTRUSION
6. STAINLESS STEEL SECURE VAPOR PIN COVER
7. SILICONE VAPOR PIN CAP

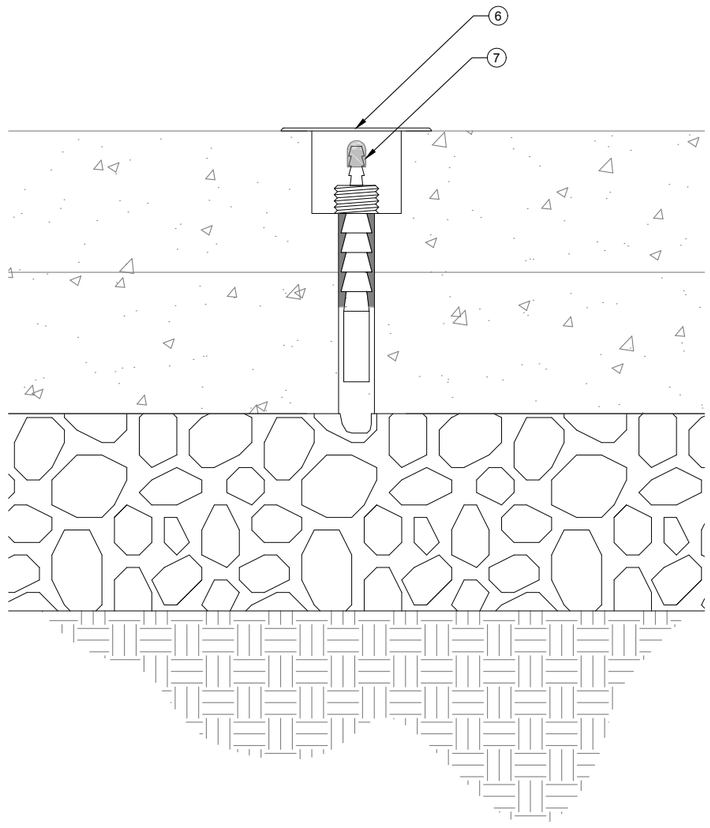
INSTALLATION NOTES:

1. SELECT LOCATION FOR THE PERMANENT SUB-SLAB PROBE BASED ON THE OBJECTIVES OF THE PHASE OF WORK, PRESENCE OR POTENTIAL PRESENCE OF OBSTRUCTIONS AND INPUT FROM THE BUILDING OWNER.
2. USING A HAMMER OR CHISEL, CHIP AN "X" IN THE CONCRETE AS A STARTING POINT FOR DRILLING TO PREVENT THE BIT FROM WANDERING OFF THE DESIRED TARGET LOCATION.
3. MARK A DEPTH OF 1-3/4" ON THE 1-1/2" MASONRY BIT AND WRAP WITH DUCT TAPED FLAP. THE FLAP WILL ACT AS A DEPTH GAUGE. WHEN THE DUCT TAPE FLAP HITS THE SLAB, THE BIT IS AT THE APPROPRIATE DEPTH.
4. USING THE VAPOR PIN DRILLING GUIDE PROVIDED DRILL A 5/8" DIAMETER HOLE THROUGH THE SLAB.
5. VACUUM AND CLEAN HOLE HOLE USING THE BRUSH PROVIDED.
6. DAMPEN A PAPER TOWEL WITH DISTILLED WATER AND WIPE AWAY THE DUST FROM 1-1/2" HOLE AND WET THE SIDEWALLS. DO NOT ALLOW EXCESS WATER ON THE TOWEL GO INTO THE SUBSURFACE.
7. SLIDE SILICONE SLEEVE ONTO VAPOR PIN, SCREW 1-1/2" EXTENSION ONTO VAPOR PIN. USING THE INSTALLATION TOOL PROVIDED, HAMMER VAPOR PIN INTO PLACE UNTIL FULLY SEATED.
8. INSTALL VAPOR PIN CAP AND SCREW ACCESS COVER IN PLACE.
9. DETAIL 1 IS A TYPICAL CROSS SECTION OF THE PERMANENT SUB-SLAB VAPOR PIN PROBE DURING THE MONITORING PROCESS.
10. DETAIL 2 IS A TYPICAL CROSS SECTION OF THE PERMANENT SUB-SLAB VAPOR PIN PROBE CAPPED FLUSH WITH THE FINISH GRADE.



DETAIL - SUB-SLAB VAPORPIN PROBE DURING MONITORING (1 / C-1)

SCALE: NTS



DETAIL - SUB-SLAB VAPORPIN PROBE CAPPED (2 / -)

SCALE: NTS

PHOTO - INSTALLED VAPOR PIN (3 / -)

SCALE: NTS

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VERIFIED BY: / DATE:

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DESIGNED: K. JOHNSON	DRAWN: T. PRESCOTT		
DESIGNED: M. SPILLANE	DRAWN: -		
DESIGNED: -	CHECKED: -		
SCALE: AS NOTED	APPROVED: M. SPILLANE		

AVE 55
TAYLOR WAY METHANE MITIGATION

SUB-SLAB VAPOR PIN PROBE INSTALLATION

DATE: AUGUST 2018
PROJECT NO: 16-06475-000
DRAWING NO: C-10
SHEET NO: 12 OF 12

Attachment 2
Photographs

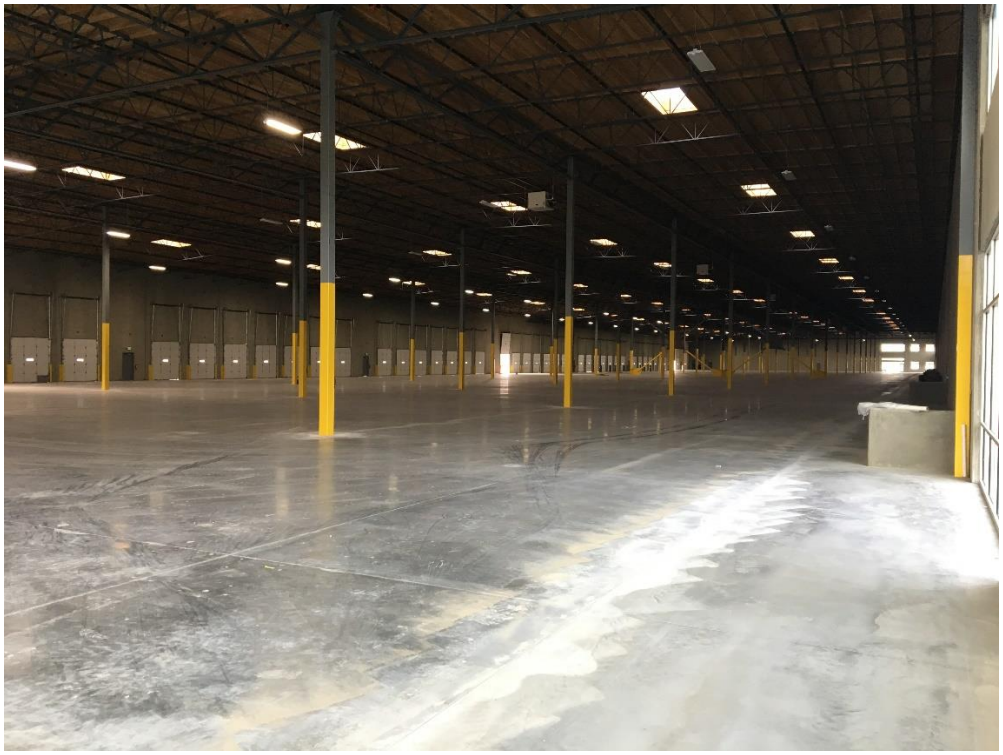
Photograph 1. Soil vapor pin with extension next to slab for comparison.

Photograph 2. Hammering vapor pin in place.

Photograph 3. Vapor pin.

Photograph 4. Vapor pin with flushed-cover.

Photograph 5. Aerial of property; view to the southwest. Building A is in the lower portion of the photo, and Building B is adjacent to and southwest of Building A.



Photograph 6. Building A interior; northeast corner facing west.

Photograph 7. Building A interior; northeast office node.

Photograph 8. Building A interior; northwest corner facing east.

Photograph 9. Building A interior; northwest office node.

Photograph 10. Building A interior; southwest corner facing east.

Attachment 3
Vapor Pin Standard Operating Procedure

Standard Operating Procedure Installation and Extraction of the Vapor Pin®

Updated September 9, 2016

Scope:

This standard operating procedure describes the installation and extraction of the VAPOR PIN® for use in sub-slab soil-gas sampling.

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the VAPOR PIN® for the collection of sub-slab soil-gas samples or pressure readings.

Equipment Needed:

- Assembled VAPOR PIN® [VAPOR PIN® and silicone sleeve(Figure 1)]; Because of sharp edges, gloves are recommended for sleeve installation;
- Hammer drill;
- 5/8-inch (16mm) diameter hammer bit (hole **must** be 5/8-inch (16mm) diameter to ensure seal. It is recommended that you use the drill guide). (Hilti™ TE-YX 5/8" x 22" (400 mm) #00206514 or equivalent);
- 1½-inch (38mm) diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent) for flush mount applications;
- ¾-inch (19mm) diameter bottle brush;
- Wet/Dry vacuum with HEPA filter (optional);
- VAPOR PIN® installation/extraction tool;
- Dead blow hammer;
- VAPOR PIN® flush mount cover, if desired;
- VAPOR PIN® drilling guide, if desired;
- VAPOR PIN® protective cap; and
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following the extraction of the VAPOR PIN®.

Figure 1. Assembled VAPOR PIN®

Installation Procedure:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Set up wet/dry vacuum to collect drill cuttings.

3) If a flush mount installation is required, drill a 1½-inch (38mm) diameter hole at least 1¾-inches (45mm) into the slab. Use of a VAPOR PIN® drilling guide is recommended.

4) Drill a 5/8-inch (16mm) diameter hole through the slab and approximately 1-inch (25mm) into the underlying soil to form a void. Hole **must** be 5/8-inch (16mm) in diameter to ensure seal. It is recommended that you use the drill guide.

5) Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.

6) Place the lower end of VAPOR PIN® assembly into the drilled hole. Place the small hole located in the handle of the installation/extraction tool over the vapor pin to protect the barb fitting, and tap the vapor pin into place using a dead blow hammer (Figure 2). Make sure the installation/extraction tool is aligned parallel to the vapor pin to avoid damaging the barb fitting.

Figure 2. Installing the VAPOR PIN®

During installation, the silicone sleeve will form a slight bulge between the slab and the VAPOR PIN® shoulder. Place the protective cap on VAPOR PIN® to prevent vapor loss prior to sampling (Figure 3).

Figure 3. Installed VAPOR PIN®

7) For flush mount installations, cover the vapor pin with a flush mount cover, using either the plastic cover or the optional stainless-steel Secure Cover (Figure 4).

Figure 4. Secure Cover Installed

8) Allow 20 minutes or more (consult applicable guidance for your situation) for the sub-slab soil-gas conditions to re-equilibrate prior to sampling.

9) Remove protective cap and connect sample tubing to the barb fitting of the VAPOR PIN®. This connection can be made using a short piece of Tygon™ tubing to join the VAPOR PIN® with the Nylaflow tubing (Figure 5). Put the

Nylaflow tubing as close to the VAPOR PIN® as possible to minimize contact between soil gas and Tygon™ tubing.

Figure 5. VAPOR PIN® sample connection

10) Conduct leak tests in accordance with applicable guidance. If the method of leak testing is not specified, an alternative can be the use of a water dam and vacuum pump, as described in SOP Leak Testing the VAPOR PIN® via Mechanical Means (Figure 6). For flush-mount installations, distilled water can be poured directly into the 1 1/2 inch (38mm) hole.

Figure 6. Water dam used for leak detection

11) Collect sub-slab soil gas sample or pressure reading. When finished, replace the protective cap and flush mount cover until the next event. If the sampling is complete, extract the VAPOR PIN®.

Extraction Procedure:

1) Remove the protective cap, and thread the installation/extraction tool onto the barrel of the VAPOR PIN® (Figure 7). Turn the tool clockwise continuously, don't stop turning, the VAPOR PIN® will feed into the bottom of the installation/extraction tool and will extract from the hole like a wine cork, DO NOT PULL.

2) Fill the void with hydraulic cement and smooth with a trowel or putty knife.

Figure 7. Removing the VAPOR PIN®

- Prior to reuse, remove the silicone sleeve and protective cap and discard. Decontaminate the VAPOR PIN® in a hot water and Alconox® wash, then heat in an oven to a temperature of 265° F (130° C) for 15 to 30 minutes. For both steps, **STAINLESS – ½ hour, BRASS 8 minutes**

3) Replacement parts and supplies are available online.

Attachment 4
Soil Vapor Sampling Sheets

SOIL VAPOR SAMPLING SHEET

Site Reference: Arc 55 - Taylor Way

Address:

Date: 9/12/18

Personnel: Gabe C & Kara Hitchkd

Soil Vapor Sampling Point ID	Vacuum Test: Time Start Vacuum Testing	Vacuum Test: Time Stop Vacuum Testing	Purging: Time Start Purging	Purging: Time Stop Purging	Purging: Purging Rate (ml/min)	Purging: Total Volume Purged (ml)	Helium: Time of Helium Reading	Helium: Helium Reading (%)	Sampling: Time Start Sampling	Sampling: Time Stop Sampling	Sampling: Canister Vacuum Before Sampling (in Hg)	Sampling: Canister Vacuum After Sampling (in Hg)	PID: Time of PID Reading	PID: PID Reading	CANID/FLOWID Notes
VP-4	1103	1108	1114	1115	~~167~~ 150		1117	18	1116	1121	28	4.5	1122	0.0	3672/256
VP-6	1159	1204	1204	1205	~~167~~ 150		1208	10	1206	1210	30	4.5	1211	1.2	2300/108
VP-8	1226	1231	1231	1232	150		1237	10	1235	1239	29.5	4.5	1240	0.1	3669/105
VP-10	1347	1352	1352	1353	150		1355	10	1353	1400	30	2.8 ~~3~~	1400	0.0	3386/01
VP-14	1425	1430	1430	1431	150		1445	10	1442	1448	29.5	4.5	1449	0.4	2298/201
VP-13	1515	1520	1520	1521	150		1525	10	1522	1527	29.5	4.5	1528	0.0	3389/101

Notes:

Helium varies between 10% & as high as 30%
fixed to keep it @ 10%

SOIL VAPOR SAMPLING SHEET

Site Reference: Ames 55 - Taylor Way

Address:

Date: 9/12/18

Personnel:

Soil Vapor Sampling Point ID	Vacuum Test		Purging				Helium		Sampling				PID		
	Time Start Vacuum Testing	Time Stop Vacuum Testing	Time Start Purging	Time Stop Purging	Purging Rate (ml/min)	Total Volume Purged (ml)	Time of Helium Reading	Helium Reading (%)	Time Start Sampling	Time Stop Sampling	Canister Vacuum Before Sampling (in Hg)	Canister Vacuum After Sampling (in Hg)	Time of PID Reading	PID Reading	Canister ID / Flow Cont. Notes
VP-1	0907	0912	0912	0913	167 150		0918	15%	0919	0926	30	4.5	0928	3.5	3252 / 31
VP-2	0951	0956	0957	0958	167 150		0957	40%	0957	1010	30	4.5	1016	0.0	3378 / 02
VP-2D	0951	0956	0957	0958	150		0957	40%	0957	1005	30	4.5	1016	0.0	3258 / 102
VP-3	10:38	10:43	1044	10:45			10:47	10%	10:47	10:51	30	4.5	10:54	0.0	2301 / 106
VP-5	11:39	11:44	11:44	11:45			11:48	10%	11:46	11:50	29.5	4.5	11:51	0.0	2435 / 07
VP-7	12:21	12:26	12:26	12:27			12:29	10%	12:28	12:32	28.5	4.5	12:34	0.0	3251 / 109
VP-9	13:28	13:33	13:34	13:35			13:40	5%	13:36	13:42	30	4.5	13:45	0.0	2297 / 231
VP-11	14:18	14:23	14:23	14:24			14:31	5%	14:28	14:32	28.7	4.5	14:35	0.0	3677 / 257
VP-12	15:02	15:07	15:07	15:08			15:09	5%	15:09	15:15	29.1	4.5	1516	0.0	2437 / 03
VP-2B	15:47	15:53	15:53	15:54	↓		15:56	10%	15:54	16:03	29.5	4.5	16:03	0.0	3674 / 111

Notes:

200 ml/min = 4.31 min sample time to 4.5 in Hg

- Switched to new helium canister for VP-9 and wasn't able to get the percent up to 10.

Soil Vapor Sampling Sheet

Site Reference: Taylor Way
Address: _____

Date: 10/24/18
Personnel: Kara and Gabe

Soil Vapor Sampling Point ID	Vacuum Test		Purging				Helium		Sampling				PID		Notes
	Time Start Vacuum Testing	Time Stop Vacuum Testing	Time Start Purging	Time Stop Purging	Purging Rate ~~(ml/min)~~ cc/min	Total Volume Purged ~~(ml)~~ cc	Time of Helium Reading	Helium Reading (%)	Time Start Sampling	Time Stop Sampling	Canister Vacuum Before Sampling (in Hg)	Canister Vacuum After Sampling (in Hg)	Time of PID Reading	PID Reading	
VP-2-102418	7:52	7:57	7:58	7:59	150 ~~167~~	150	—	—	7:59	8:05	29	4.5	8:10	0.0	3311 / #242
VP-3	8:54	8:59	9:00	9:01	~~167~~		—	—	9:03	9:08	28.5	4.5	9:11	0.0	3483 / #258
VP-5	9:44	9:49	9:49	9:50			—	—	9:51	9:57	29.5	4.5	10:01	0.0	3255 / #240
VP-8	10:33	10:38	10:39	10:40			—	—	10:41	10:46	29.5	4.5	10:50	0.0	3676 / #241
VP-11	11:19	11:25	11:25	11:26			—	—	11:27	11:33	29.5	4.5	11:35	0.0	2436 / #230
VP-9	11:56	12:01	12:01	12:02			—	—	12:02	12:07	29	4.5	12:09	0.0	3347 / #244

Notes: _____

Soil Vapor Sampling Sheet

Site Reference: Ave 55 - Taylor Way
Address: _____

Date: 10/24/18
Personnel: G. Cisneros . K. Hitchko

Soil Vapor Sampling Point ID	Vacuum Test		Purging				Helium		Sampling				PID			
	Time Start Vacuum Testing	Time Stop Vacuum Testing	Time Start Purging	Time Stop Purging	Purging Rate (ml/min) 150	Total Volume Purged (ml)	Time of Helium Reading	Helium Reading (%)	Time Start Sampling	Time Stop Sampling	Canister Vacuum Before Sampling (in Hg)	Canister Vacuum After Sampling (in Hg)	Time of PID Reading	PID Reading	Flow ID	Notes Canister ID
VP-1-102418	0819	0825	0837	0838	~~200~~ 150		Same as prev	N/A	0838	0843	28	4.5	0844	0.0	257	3257
VP-1-102418 Dup	0832	0837	0837	0838	~~200~~ 150		↓		0838	0843	27.5	4.5	"	0.0	256	3390
VP-4-102418	0901	0906	0906	0907	200		150 ml/min		0909	0913	30	4.5	0914	0.0	101	3668
VP-6-102418	0930	0935	0936	0937	200		150 ml/min		0937	0942	28.5	4.5	0943	0.0	204	2299
VP-7-102418	0956	1001	1001	1002	150		150 ml/min		1002	1008	30	4.5	1009	0.0	224	3344
VP-12-102418	1024	1029	1029	1030	150		150 ml/min		1030	1035	29.5	4.5	1036	0.0	243	3672
VP-13-102418	1042	1047	1047	1048	150		150 ml/min		1048	1054	30	4.5	1055	0.0	203	3387
VP-14-102418	1114	1119	1119	1121	150		150 ml/min		1121	1127	30	4.5	1128	0.0	221	3260
VP-10-102418	1148	1153	1153	1154	150		150 ml/min		1155	1201	29	4.0	1202	0.0	17	2433

Notes: _____

Attachment 5
Laboratory Reports

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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September 28, 2018

Tom Colligan, Project Manager
Floyd-Snider
Two Union Square, Suite 600
601 Union St
Seattle, WA 98101

Dear Mr Colligan:

Included are the results from the testing of material submitted on September 12, 2018 from the Ave 55-Taylor Way, F&BI 809188 project. There are 38 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
FDS0928R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 12, 2018 by Friedman & Bruya, Inc. from the Floyd-Snider Ave 55-Taylor Way project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
809188 -01	VP-1-091218
809188 -02	VP-2-091218
809188 -03	VP-2-091218 Dup
809188 -04	VP-3-091218
809188 -05	VP-5-091218
809188 -06	VP-7-091218
809188 -07	VP-9-091218
809188 -08	VP-4-091218
809188 -09	VP-6-091218
809188 -10	VP-8-091218
809188 -11	VP-10-091218
809188 -12	VP-14-091218
809188 -13	VP-13-091218
809188 -14	VP-11-091218
809188 -15	VP-12-091218
809188 -16	VP-2B-091218

The helium analysis will be sent in an additional report.

Several TO-15 and APH analytes exceeded the calibration range. The data were qualified accordingly.

Several TO15 compounds were present in the samples at a concentration less than 10 times the concentration in the method blank. The data were qualified accordingly.

Non-petroleum compounds with a Q value greater than 85 were subtracted from the APH ranges for all samples.

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-1-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-01 1/10
Date Analyzed:	09/20/18	Data File:	091930.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	11,000
APH EC9-12 aliphatics	21,000 ve
APH EC9-10 aromatics	2,700

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-2-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-02 1/3.3
Date Analyzed:	09/19/18	Data File:	091915.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,800
APH EC9-12 aliphatics	330
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-2-091218 Dup	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-03 1/3.3
Date Analyzed:	09/20/18	Data File:	091916.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,000
APH EC9-12 aliphatics	310
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-3-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-04 1/3.3
Date Analyzed:	09/20/18	Data File:	091917.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,100
APH EC9-12 aliphatics	180
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-5-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-05 1/3.3
Date Analyzed:	09/20/18	Data File:	091918.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,400
APH EC9-12 aliphatics	360
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-7-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-06 1/3.3
Date Analyzed:	09/20/18	Data File:	091919.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,900 ve
APH EC9-12 aliphatics	170
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-9-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-07 1/3.3
Date Analyzed:	09/20/18	Data File:	091920.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	86	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,400
APH EC9-12 aliphatics	220
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-4-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-08 1/3.3
Date Analyzed:	09/20/18	Data File:	091921.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	820
APH EC9-12 aliphatics	130
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-6-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-09 1/3.3
Date Analyzed:	09/20/18	Data File:	091922.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,900
APH EC9-12 aliphatics	530
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-8-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-10 1/3.3
Date Analyzed:	09/20/18	Data File:	091923.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	5,900 ve
APH EC9-12 aliphatics	1,100
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-10-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-11 1/3.3
Date Analyzed:	09/20/18	Data File:	091924.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,200
APH EC9-12 aliphatics	360
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-14-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-12 1/3.3
Date Analyzed:	09/20/18	Data File:	091925.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,600
APH EC9-12 aliphatics	520
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-13-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-13 1/3.3
Date Analyzed:	09/20/18	Data File:	091926.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	800
APH EC9-12 aliphatics	150
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-11-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-14 1/4.2
Date Analyzed:	09/20/18	Data File:	091929.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,900
APH EC9-12 aliphatics	6,000
APH EC9-10 aromatics	<100

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-12-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-15 1/3.3
Date Analyzed:	09/20/18	Data File:	091927.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	820
APH EC9-12 aliphatics	180
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-2B-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-16 1/3.3
Date Analyzed:	09/20/18	Data File:	091928.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,300
APH EC9-12 aliphatics	420
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/19/18	Lab ID:	08-2081 mb
Date Analyzed:	09/19/18	Data File:	091911.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<46
APH EC9-12 aliphatics	<35
APH EC9-10 aromatics	<25

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-1-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-01 1/10
Date Analyzed:	09/20/18	Data File:	091930.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	113	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	8.3	2.3	1-Butanol	<61	<20
Propene	1,300 ve	740 ve	Carbon tetrachloride	<6.3	<1
Dichlorodifluoromethane	120	24	Benzene	28	8.6
Chloromethane	7.3	3.5	Cyclohexane	<69	<20
F-114	<7	<1	2-Pentanone	<35	<10
Isobutene	1,600 ve	700 ve	3-Pentanone	<35	<10
Acetaldehyde	<90	<50	Pentanal	<35	<10
Vinyl chloride	<2.6	<1	1,2-Dichloropropane	3.3	0.71
1,3-Butadiene	4.7	2.1	1,4-Dioxane	<3.6	<1
Bromomethane	<16	<4	Bromodichloromethane	5.8	0.86
Chloroethane	4.9	1.8	Trichloroethene	9.1	1.7
Ethanol	<75	<40	cis-1,3-Dichloropropene	<4.5	<1
Acetonitrile	27	16	4-Methyl-2-pentanone	<41	<10
Acrolein	<9.2	<4	trans-1,3-Dichloropropene	<4.5	<1
Acrylonitrile	<2.2	<1	Toluene	62	16
Pentane	360	120	1,1,2-Trichloroethane	1.0	0.19
Trichlorofluoromethane	880	160	3-Hexanone	<41	<10
Acetone	1,300 ve	560 ve	2-Hexanone	<41	<10
2-Propanol	<86	<35	Hexanal	<41	<10
Isoprene	17	5.9	Tetrachloroethene	17	2.5
Iodomethane	<5.8	<1	Dibromochloromethane	<0.85	<0.1
1,1-Dichloroethene	<4	<1	1,2-Dibromoethane (EDB)	<0.77	<0.1
Methacrolein	<29	<10	Chlorobenzene	<4.6	<1
trans-1,2-Dichloroethene	<4	<1	Ethylbenzene	75	17
Cyclopentane	<2.9	<1	1,1,2,2-Tetrachloroethane	<1.4	<0.2
Methyl vinyl ketone	<29	<10	m,p-Xylene	270	61
Butanal	<29	<10	o-Xylene	120	28
Methylene chloride	<870	<250	Styrene	<8.5	<2
CFC-113	<7.7	<1	Bromoform	<21	<2
Carbon disulfide	<62	<20	Benzyl chloride	2.3	0.45
Methyl t-butyl ether (MTBE)	<18	<5	1,3,5-Trimethylbenzene	130	27
Vinyl acetate	<70	<20	1,2,4-Trimethylbenzene	420	85
1,1-Dichloroethane	6.0	1.5	1,3-Dichlorobenzene	<6	<1
cis-1,2-Dichloroethene	<4	<1	1,4-Dichlorobenzene	<2.4	<0.4
Hexane	140	39	1,2,3-Trimethylbenzene	130	27
Chloroform	6.9	1.4	1,2-Dichlorobenzene	<6	<1
2-Butanone (MEK)	94	32	1,2,4-Trichlorobenzene	<7.4	<1
1,2-Dichloroethane (EDC)	5.8	1.4	Naphthalene	33	6.3
1,1,1-Trichloroethane	15	2.7	Hexachlorobutadiene	<2.1	<0.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-2-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-02 1/3.3
Date Analyzed:	09/19/18	Data File:	091915.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	3.7	1.0	1-Butanol	53	17
Propene	410 ve	240 ve	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	49	9.9	Benzene	7.0	2.2
Chloromethane	4.4	2.1	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	180	77	3-Pentanone	<12	<3.3
Acetaldehyde	80	44	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	1.1	0.24
1,3-Butadiene	11	4.8	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	1.5	0.57	Trichloroethene	5.4	1.0
Ethanol	68	36	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	6.9	4.1	4-Methyl-2-pentanone	26	6.2
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	5.8	2.7	Toluene	11	2.9
Pentane	150	52	1,1,2-Trichloroethane	0.65	0.12
Trichlorofluoromethane	560	99	3-Hexanone	<14	<3.3
Acetone	91	38	2-Hexanone	<14	<3.3
2-Propanol	300	120	Hexanal	<14	<3.3
Isoprene	7.0	2.5	Tetrachloroethene	2.6	0.38
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	1.3 fb	0.34 fb	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	2.8	0.64
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	8.4	1.9
Butanal	<9.7	<3.3	o-Xylene	3.0	0.70
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	3.3 fb	0.43 fb	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	2.6	0.64	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	69	20	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.9	0.59	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.59	0.15	Naphthalene	1.2	0.23 fb
1,1,1-Trichloroethane	16	2.9	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-2-091218 Dup	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-03 1/3.3
Date Analyzed:	09/20/18	Data File:	091916.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	4.1	1.2	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	37	7.4	Benzene	5.2	1.6
Chloromethane	3.3	1.6	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	130	56	3-Pentanone	<12	<3.3
Acetaldehyde	66	36	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	0.79	0.17
1,3-Butadiene	6.3	2.8	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	1.1	0.42	Trichloroethene	2.4 fb	0.45 fb
Ethanol	52	28	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	4.0	1.8	Toluene	7.9	2.1
Pentane	110	37	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	390	70	3-Hexanone	<14	<3.3
Acetone	160	67	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	4.6	1.6	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	1.8	0.43
Cyclopentane	20	6.9	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	5.3	1.2
Butanal	<9.7	<3.3	o-Xylene	1.8	0.42
Methylene chloride	410	120	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	1.9	0.47	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	71	20	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	1.9	0.39	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.39	0.096	Naphthalene	0.59 fb	0.11 fb
1,1,1-Trichloroethane	11	2.0	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-3-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-04 1/3.3
Date Analyzed:	09/20/18	Data File:	091917.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	2.3	0.65	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	35	7.1	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	36	16	3-Pentanone	<12	<3.3
Acetaldehyde	49	27	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	1.6	0.71	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	<0.89	<0.16
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	1.8	0.48
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	210	37	3-Hexanone	<14	<3.3
Acetone	28	12	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	8.5	1.3
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	16	4.6	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	0.69	0.14	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.57 fb	0.11 fb
1,1,1-Trichloroethane	5.0	0.91	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-5-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-05 1/3.3
Date Analyzed:	09/20/18	Data File:	091918.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	2.5	0.71	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	39	7.9	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	56	25	3-Pentanone	<12	<3.3
Acetaldehyde	45	25	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	1.5	0.32
1,3-Butadiene	2.4	1.1	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	5.8	1.1
Ethanol	33	18	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	4.9	1.3
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	390	69	3-Hexanone	<14	<3.3
Acetone	100	42	2-Hexanone	<14	<3.3
2-Propanol	130	52	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	1.7	0.40
Cyclopentane	1.2	0.43	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	7.4	1.7
Butanal	<9.7	<3.3	o-Xylene	2.4	0.54
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	23	6.5	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	0.97	0.20	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.16	0.040	Naphthalene	1.0 fb	0.20 fb
1,1,1-Trichloroethane	8.5	1.6	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-7-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-06 1/3.3
Date Analyzed:	09/20/18	Data File:	091919.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	3.0	0.85	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	91	18	Benzene	1.3	0.40
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	610 ve	270 ve	3-Pentanone	<12	<3.3
Acetaldehyde	100	58	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	5.0	1.1
1,3-Butadiene	25	11	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	0.93	0.35	Trichloroethene	2.8	0.51
Ethanol	38	20	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	15	8.8	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	9.2	4.2	Toluene	3.7	0.98
Pentane	55	19	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	2,200 ve	400 ve	3-Hexanone	<14	<3.3
Acetone	170	70	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	1.0	0.36	Tetrachloroethene	3.1	0.46
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	2.1	0.52	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	19	6.6	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	4.8	1.1
Butanal	<9.7	<3.3	o-Xylene	1.6	0.37
Methylene chloride	470	140	Styrene	<2.8	<0.66
CFC-113	4.6 fb	0.60 fb	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	4.9	1.2	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	33	9.4	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.6	0.54	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	1.2	0.29	Naphthalene	0.74 fb	0.14 fb
1,1,1-Trichloroethane	23	4.1	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-9-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-07 1/3.3
Date Analyzed:	09/20/18	Data File:	091920.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	93	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	2.3	0.65	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	3.8	0.77	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	2.2 fb	0.41 fb
Ethanol	28	15	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	5.4	1.4
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	6.1	1.1	3-Hexanone	<14	<3.3
Acetone	48	20	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	3.6	0.53
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	2.6	0.59
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	10	2.3
Butanal	<9.7	<3.3	o-Xylene	3.0	0.70
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	13	3.8	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	3.0	0.61	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	1.6 fb	0.31 fb
1,1,1-Trichloroethane	<1.8	<0.33	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-4-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-08 1/3.3
Date Analyzed:	09/20/18	Data File:	091921.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	1.5	0.42	1-Butanol	54	18
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	17	3.5	Benzene	1.1	0.34
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	34	19	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	6.8	1.3
Ethanol	46	24	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	1.7 fb	0.44 fb
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	150	27	3-Hexanone	<14	<3.3
Acetone	130	56	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	5.3	0.78
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	13	3.6	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.5	0.51	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.71 fb	0.14 fb
1,1,1-Trichloroethane	4.0	0.73	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-6-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-09 1/3.3
Date Analyzed:	09/20/18	Data File:	091922.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	1.8	0.52	1-Butanol	<20	<6.6
Propene	470 ve	280 ve	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	74	15	Benzene	20	6.2
Chloromethane	3.2	1.5	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	700 ve	310 ve	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	0.96	0.21
1,3-Butadiene	29	13	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	1.1	0.41	Trichloroethene	2.8	0.53
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	15	8.9	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	11	5.2	Toluene	17	4.4
Pentane	240	80	1,1,2-Trichloroethane	0.27 fb	0.049 fb
Trichlorofluoromethane	1,100 ve	190 ve	3-Hexanone	<14	<3.3
Acetone	210	89	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	7.3	2.6	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	1.6	0.40	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	7.7	1.8
Cyclopentane	20	7.0	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	14	3.1
Butanal	<9.7	<3.3	o-Xylene	4.9	1.1
Methylene chloride	<290	<82	Styrene	3.4	0.81
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	1.4	0.35	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	100	29	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.1	0.43	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	11	3.7	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	1.1	0.26	Naphthalene	0.88 fb	0.17 fb
1,1,1-Trichloroethane	11	2.0	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-8-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-10 1/3.3
Date Analyzed:	09/20/18	Data File:	091923.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	11	3.1	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	57	12	Benzene	26	8.0
Chloromethane	4.0	1.9	Cyclohexane	36	10
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	1,200 ve	510 ve	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	0.92	0.36	1,2-Dichloropropane	2.9	0.62
1,3-Butadiene	47	21	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	3.9	1.5	Trichloroethene	4.4	0.81
Ethanol	32	17	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	39	23	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	25	12	Toluene	24	6.5
Pentane	470	160	1,1,2-Trichloroethane	0.83	0.15
Trichlorofluoromethane	960 ve	170 ve	3-Hexanone	<14	<3.3
Acetone	1,300 ve	540 ve	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	16	5.6	Tetrachloroethene	5.4	0.80
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	3.0	0.76	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	15	3.4
Cyclopentane	72	25	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	22	7.7	m,p-Xylene	13	3.1
Butanal	<9.7	<3.3	o-Xylene	8.3	1.9
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	9.4	1.2	Bromoform	<6.8	<0.66
Carbon disulfide	27	8.7	Benzyl chloride	0.29 fb	0.056 fb
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	9.2	2.3	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	79	22	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	4.7	0.96	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	21	7.1	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	2.2	0.54	Naphthalene	1.5 fb	0.29 fb
1,1,1-Trichloroethane	20	3.6	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-10-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-11 1/3.3
Date Analyzed:	09/20/18	Data File:	091924.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	5.0	1.4	1-Butanol	59	20
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	7.8	1.6	Benzene	<1.1	<0.33
Chloromethane	0.88	0.43	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	160	91	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	0.088 fb	0.040 fb	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	<0.89	<0.16
Ethanol	41	22	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	1.6 fb	0.43 fb
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	120	21	3-Hexanone	<14	<3.3
Acetone	30	13	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	14	3.9	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	3.7	0.77	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	1.1 fb	0.20 fb
1,1,1-Trichloroethane	<1.8	<0.33	Hexachlorobutadiene	<0.7	<0.066

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-14-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-12 1/3.3
Date Analyzed:	09/20/18	Data File:	091925.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	2.9	0.82	1-Butanol	21	7.0
Propene	<2.3	<1.3	Carbon tetrachloride	62	9.9
Dichlorodifluoromethane	59	12	Benzene	3.6	1.1
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	410 ve	180 ve	3-Pentanone	<12	<3.3
Acetaldehyde	110	59	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	16	7.2	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	94	18
Ethanol	71	38	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	14	8.2	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	16	7.6	Toluene	9.3	2.5
Pentane	260	87	1,1,2-Trichloroethane	4.9	0.89
Trichlorofluoromethane	13	2.3	3-Hexanone	<14	<3.3
Acetone	99	42	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	47	17	Tetrachloroethene	31	4.6
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	10	2.6	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	1.6	0.36
Cyclopentane	28	9.7	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	4.4	1.0
Butanal	<9.7	<3.3	o-Xylene	2.2	0.50
Methylene chloride	300	86	Styrene	<2.8	<0.66
CFC-113	18	2.3	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	2.4	0.59	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	120	34	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	4.3	0.87	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.13 fb	0.033 fb	Naphthalene	1.1 fb	0.20 fb
1,1,1-Trichloroethane	6.9	1.3	Hexachlorobutadiene	2.6	0.24

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-13-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-13 1/3.3
Date Analyzed:	09/20/18	Data File:	091926.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	7.0	2.0	1-Butanol	100	33
Propene	<2.3	<1.3	Carbon tetrachloride	6.2	0.99
Dichlorodifluoromethane	6.5	1.3	Benzene	<1.1	<0.33
Chloromethane	2.0	0.98	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	0.095 fb	0.043 fb	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	6.5	1.2
Ethanol	82	44	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	1.4 fb	0.38 fb
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	45	8.1	3-Hexanone	<14	<3.3
Acetone	44	18	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	7.6	1.1
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	2,200 ve	630 ve	Styrene	<2.8	<0.66
CFC-113	3.3	0.43	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	38	11	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	5.2	1.1	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.54 fb	0.10 fb
1,1,1-Trichloroethane	2.1 fb	0.39 fb	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-11-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-14 1/4.2
Date Analyzed:	09/20/18	Data File:	091929.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	4.0	1.1	1-Butanol	<25	<8.4
Propene	<2.9	<1.7	Carbon tetrachloride	<2.6	<0.42
Dichlorodifluoromethane	6.0	1.2	Benzene	11	3.4
Chloromethane	<0.87	<0.42	Cyclohexane	31 fb	9.1 fb
F-114	<2.9	<0.42	2-Pentanone	<15	<4.2
Isobutene	95	41	3-Pentanone	<15	<4.2
Acetaldehyde	320	180	Pentanal	<15	<4.2
Vinyl chloride	<1.1	<0.42	1,2-Dichloropropane	<0.97	<0.21
1,3-Butadiene	3.9	1.8	1,4-Dioxane	<1.5	<0.42
Bromomethane	<6.5	<1.7	Bromodichloromethane	3.2	0.48
Chloroethane	<1.1	<0.42	Trichloroethene	28	5.2
Ethanol	55	29	cis-1,3-Dichloropropene	<1.9	<0.42
Acetonitrile	<7.1	<4.2	4-Methyl-2-pentanone	<17	<4.2
Acrolein	<3.9	<1.7	trans-1,3-Dichloropropene	<1.9	<0.42
Acrylonitrile	<0.91	<0.42	Toluene	25	6.5
Pentane	77	26	1,1,2-Trichloroethane	3.8	0.69
Trichlorofluoromethane	5.9	1.0	3-Hexanone	<17	<4.2
Acetone	<20	<8.4	2-Hexanone	<17	<4.2
2-Propanol	<36	<15	Hexanal	<17	<4.2
Isoprene	1.2	0.44	Tetrachloroethene	14	2.1
Iodomethane	<2.4	<0.42	Dibromochloromethane	<0.36	<0.042
1,1-Dichloroethene	6.8	1.7	1,2-Dibromoethane (EDB)	<0.32	<0.042
Methacrolein	<12	<4.2	Chlorobenzene	<1.9	<0.42
trans-1,2-Dichloroethene	2.0	0.50	Ethylbenzene	3.3	0.77
Cyclopentane	<1.2	<0.42	1,1,2,2-Tetrachloroethane	<0.58	<0.084
Methyl vinyl ketone	<12	<4.2	m,p-Xylene	10	2.3
Butanal	<12	<4.2	o-Xylene	8.7	2.0
Methylene chloride	<360	<100	Styrene	<3.6	<0.84
CFC-113	12	1.6	Bromoform	<8.7	<0.84
Carbon disulfide	<26	<8.4	Benzyl chloride	0.63	0.12
Methyl t-butyl ether (MTBE)	<7.6	<2.1	1,3,5-Trimethylbenzene	<10	<2.1
Vinyl acetate	<30	<8.4	1,2,4-Trimethylbenzene	<10	<2.1
1,1-Dichloroethane	7.5	1.9	1,3-Dichlorobenzene	<2.5	<0.42
cis-1,2-Dichloroethene	4.5	1.1	1,4-Dichlorobenzene	<1	<0.17
Hexane	33	9.4	1,2,3-Trimethylbenzene	<10	<2.1
Chloroform	0.45	0.092	1,2-Dichlorobenzene	<2.5	<0.42
2-Butanone (MEK)	<12	<4.2	1,2,4-Trichlorobenzene	<3.1	<0.42
1,2-Dichloroethane (EDC)	0.27	0.067	Naphthalene	1.7 fb	0.33 fb
1,1,1-Trichloroethane	9.1	1.7	Hexachlorobutadiene	0.90 fb	0.084 fb

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-12-091218	Client:	Floyd-Snider
Date Received:	09/12/18	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/12/18	Lab ID:	809188-15 1/3.3
Date Analyzed:	09/20/18	Data File:	091927.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	2.3	0.65	1-Butanol	<20	<6.6
Propene	2.7	1.6	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	4.3	0.88	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	0.088	0.040	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	1.5 fb	0.28 fb
Ethanol	43	23	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	2.3	0.60
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	33	5.9	3-Hexanone	<14	<3.3
Acetone	25	11	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	3.0	0.44
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	2.9	0.67
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	3.7	0.75	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	1.1 fb	0.21 fb
1,1,1-Trichloroethane	2.1 fb	0.38 fb	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Ave 55-Taylor Way, F&BI 809188
Date Collected:	09/19/18	Lab ID:	08-2081 mb
Date Analyzed:	09/19/18	Data File:	091911.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<0.35	<0.1	1-Butanol	<6.1	<2
Propene	<0.69	<0.4	Carbon tetrachloride	<0.63	<0.1
Dichlorodifluoromethane	<0.49	<0.1	Benzene	<0.32	<0.1
Chloromethane	<0.21	<0.1	Cyclohexane	<6.9	<2
F-114	<0.7	<0.1	2-Pentanone	<3.5	<1
Isobutene	<0.92	<0.4	3-Pentanone	<3.5	<1
Acetaldehyde	<9	<5	Pentanal	<3.5	<1
Vinyl chloride	<0.26	<0.1	1,2-Dichloropropane	<0.23	<0.05
1,3-Butadiene	<0.022	<0.01	1,4-Dioxane	<0.36	<0.1
Bromomethane	<1.6	<0.4	Bromodichloromethane	<0.067	<0.01
Chloroethane	<0.26	<0.1	Trichloroethene	<0.27	<0.05
Ethanol	<7.5	<4	cis-1,3-Dichloropropene	<0.45	<0.1
Acetonitrile	<1.7	<1	4-Methyl-2-pentanone	<4.1	<1
Acrolein	<0.92	<0.4	trans-1,3-Dichloropropene	<0.45	<0.1
Acrylonitrile	<0.22	<0.1	Toluene	<0.38	<0.1
Pentane	<3	<1	1,1,2-Trichloroethane	<0.055	<0.01
Trichlorofluoromethane	<0.56	<0.1	3-Hexanone	<4.1	<1
Acetone	<4.8	<2	2-Hexanone	<4.1	<1
2-Propanol	<8.6	<3.5	Hexanal	<4.1	<1
Isoprene	<0.28	<0.1	Tetrachloroethene	<0.68	<0.1
Iodomethane	<0.58	<0.1	Dibromochloromethane	<0.085	<0.01
1,1-Dichloroethene	<0.4	<0.1	1,2-Dibromoethane (EDB)	<0.077	<0.01
Methacrolein	<2.9	<1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Cyclopentane	<0.29	<0.1	1,1,2,2-Tetrachloroethane	<0.14	<0.02
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	<0.87	<0.2
Butanal	<2.9	<1	o-Xylene	<0.43	<0.1
Methylene chloride	<87	<25	Styrene	<0.85	<0.2
CFC-113	<0.77	<0.1	Bromoform	<2.1	<0.2
Carbon disulfide	<6.2	<2	Benzyl chloride	<0.052	<0.01
Methyl t-butyl ether (MTBE)	<1.8	<0.5	1,3,5-Trimethylbenzene	<2.5	<0.5
Vinyl acetate	<7	<2	1,2,4-Trimethylbenzene	<2.5	<0.5
1,1-Dichloroethane	<0.4	<0.1	1,3-Dichlorobenzene	<0.6	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	1,4-Dichlorobenzene	<0.24	<0.04
Hexane	<3.5	<1	1,2,3-Trimethylbenzene	<2.5	<0.5
Chloroform	<0.049	<0.01	1,2-Dichlorobenzene	<0.6	<0.1
2-Butanone (MEK)	<2.9	<1	1,2,4-Trichlorobenzene	<0.74	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	Naphthalene	0.14 lc	0.026 lc
1,1,1-Trichloroethane	<0.55	<0.1	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 09/28/18
Date Received: 09/12/18
Project: Ave 55-Taylor Way, F&BI 809188

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD APH

Laboratory Code: 809150-01 1/5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	3,400	3,300	3
APH EC9-12 aliphatics	ug/m3	1,000	1,000	0
APH EC9-10 aromatics	ug/m3	300	320	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	45	80	70-130
APH EC9-12 aliphatics	ug/m3	45	116	70-130
APH EC9-10 aromatics	ug/m3	45	94	70-130

Date of Report: 09/28/18
Date Received: 09/12/18
Project: Ave 55-Taylor Way, F&BI 809188

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chlorodifluoromethane	ppbv	5	114	70-130
Propene	ppbv	5	101	70-130
Dichlorodifluoromethane	ppbv	5	108	70-130
Chloromethane	ppbv	5	102	70-130
F-114	ppbv	5	111	70-130
Isobutene	ppbv	5	105	70-130
Acetaldehyde	ppbv	5	124	70-130
Vinyl chloride	ppbv	5	107	70-130
1,3-Butadiene	ppbv	5	116	70-130
Bromomethane	ppbv	5	118	70-130
Chloroethane	ppbv	5	104	70-130
Ethanol	ppbv	5	91	70-130
Acetonitrile	ppbv	5	98	70-130
Acrolein	ppbv	5	103	70-130
Acrylonitrile	ppbv	5	123	70-130
Pentane	ppbv	5	107	70-130
Trichlorofluoromethane	ppbv	5	111	70-130
Acetone	ppbv	5	102	70-130
2-Propanol	ppbv	5	111	70-130
Isoprene	ppbv	5	110	70-130
Iodomethane	ppbv	5	107	70-130
1,1-Dichloroethene	ppbv	5	108	70-130
Methacrolein	ppbv	5	102	70-130
trans-1,2-Dichloroethene	ppbv	5	108	70-130
Cyclopentane	ppbv	5	112	70-130
Methyl vinyl ketone	ppbv	5	120	70-130
Butanal	ppbv	5	97	70-130
Methylene chloride	ppbv	5	82	70-130
CFC-113	ppbv	5	107	70-130
Carbon disulfide	ppbv	5	100	70-130
Methyl t-butyl ether (MTBE)	ppbv	5	111	70-130
Vinyl acetate	ppbv	5	106	70-130
1,1-Dichloroethane	ppbv	5	111	70-130
cis-1,2-Dichloroethene	ppbv	5	106	70-130
Hexane	ppbv	5	115	70-130
Chloroform	ppbv	5	113	70-130
2-Butanone (MEK)	ppbv	5	109	70-130
1,2-Dichloroethane (EDC)	ppbv	5	113	70-130
1,1,1-Trichloroethane	ppbv	5	115	70-130

Date of Report: 09/28/18
Date Received: 09/12/18
Project: Ave 55-Taylor Way, F&BI 809188

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
1-Butanol	ppbv	5	96	70-130
Carbon tetrachloride	ppbv	5	108	70-130
Benzene	ppbv	5	110	70-130
Cyclohexane	ppbv	5	103	70-130
2-Pentanone	ppbv	5	106	70-130
3-Pentanone	ppbv	5	113	70-130
Pentanal	ppbv	5	94	70-130
1,2-Dichloropropane	ppbv	5	103	70-130
1,4-Dioxane	ppbv	5	111	70-130
Bromodichloromethane	ppbv	5	110	70-130
Trichloroethene	ppbv	5	101	70-130
cis-1,3-Dichloropropene	ppbv	5	99	70-130
4-Methyl-2-pentanone	ppbv	5	96	70-130
trans-1,3-Dichloropropene	ppbv	5	105	70-130
Toluene	ppbv	5	98	70-130
1,1,2-Trichloroethane	ppbv	5	104	70-130
3-Hexanone	ppbv	5	101	70-130
2-Hexanone	ppbv	5	100	70-130
Hexanal	ppbv	5	98	70-130
Tetrachloroethene	ppbv	5	101	70-130
Dibromochloromethane	ppbv	5	119	70-130
1,2-Dibromoethane (EDB)	ppbv	5	111	70-130
Chlorobenzene	ppbv	5	106	70-130
Ethylbenzene	ppbv	5	109	70-130
1,1,2,2,-Tetrachloroethane	ppbv	5	118	70-130
m,p-Xylene	ppbv	10	116	70-130
o-Xylene	ppbv	5	123	70-130
Styrene	ppbv	5	109	70-130
Bromoform	ppbv	5	114	70-130
Benzyl chloride	ppbv	5	126	70-130
1,3,5-Trimethylbenzene	ppbv	5	110	70-130
1,2,4-Trimethylbenzene	ppbv	5	105	70-130
1,3-Dichlorobenzene	ppbv	5	114	70-130
1,4-Dichlorobenzene	ppbv	5	124	70-130
1,2,3-Trimethylbenzen e	ppbv	5	107	70-130
1,2-Dichlorobenzene	ppbv	5	117	70-130
1,2,4-Trichlorobenzene	ppbv	5	101	70-130
Naphthalene	ppbv	5	100	70-130
Hexachloro-1,3-butadiene	ppbv	5	108	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

809188

SAMPLE CHAIN OF CUSTODY

ME 09-12-18

Page # 1 of 3

Report To: Tom Colligan
Company: Floyd Snider
Address: 601 Union St, Suite 600
City, State, ZIP: Seattle, WA 98101
Phone: 206-292-2078 Email: tom.colligan@floydsnider.com

SAMPLERS (*signature*): Kara, Gabe

PROJECT NAME: Ave 55 - Taylor Way

PO #:

REPORTING LEVEL
- ☐ Indoor Air
- ☐ Deep Soil Gas
- ☑ Sub Slab/Soil Gas
- ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☑ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	APH (MA-APH)	Helium		Notes
VP-1-091218	01	3252	31	9/12/18	30	0919	4.5	0926	X	X	X		*See table 3 for full
VP-2-091218	02	3378	02		30	0957	4.5	1010 ~~1006~~					list of VOCs
VP-2-091218 Dup	03	3258	102		30	0957	4.5	1005 ~~1010~~					
VP-3-091218	04	2301	106		30	10:47	4.5	10:51					
~~VP-4-091218~~	—	~~3692~~	~~256~~										
VP-5-091218	05	2435	07		29.5	11:46	~~11:50~~ 4.5	11:50					
VP-7-091218	06	3251	109		28.5	12:28	4.5	12:32					
VP-9-091218	07	2297	231		30	13:36	~~13:54~~ 4.5	13:42					

Samples received at 21 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Gabe Cisneros	Floyd Snider	9/12/18	1720
Received by:	Eric Lam	F-S	9/13/18	900
Relinquished by:				
Received by:				

809188

SAMPLE CHAIN OF CUSTODY

ME 09-12-18

Report To Tom Colligan

Company Floyd Snider

Address 601 Union St, Suite 600

City, State, ZIP Seattle, WA 98101

Phone 206-292-2078 Email tom.colligan@floydsnider.com

SAMPLERS (*signature*): Kara, Gabe

PROJECT NAME: Ave 55 - Taylor Way

PO #:

REPORTING LEVEL: ☐ Indoor Air ☐ Deep Soil Gas ☑ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME: ☑ Standard ☐ RUSH ____ Rush charges authorized by: ____

SAMPLE DISPOSAL: ☑ Dispose after 30 days ☐ Archive Samples ☐ Other ____

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	APH (MA-APH) TO-15 PAH SIM	Helium TO-15 cVOCs		Notes
SVP-4-091218	08	3672	252	9/12/18	28	1117	4.5	1124	X	X	X		*See table 3 for full
SVP-6-091218	09	2300	108	9/12/18	30	1206	4.5	1210					list of VOCs
VP-8-091218	10	3669	105	9/12	29.5	1235	4.5	1239					
VP-10-091218	11	3386	01	9/12	30	1353	~~4.5~~ 2.0	1400					
VP-14-091218	12	2298	201	9/12	29.5	1442	4.5	1448					
~~SVP-13~~ VP-13-091218	13	3389	101	9/12	29.5	1522	~~1527~~ 4.5	1527					

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Gabriel Cisneros	Floyd Snider	9/12/18	1720
Received by:	Eric Yang	FSI3	9/12/18	1720
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SAMPLE CHAIN OF CUSTODY

809188

ME 09-12-18

Report To Tom Colligan
Company Floyd Snider
Address 601 Union St, Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206-292-2078 Email tom.colligan@floydsnider.com

SAMPLERS (*signature*): Keva, Gabe

PROJECT NAME: Ave 55 - Taylor Way

PO #:

REPORTING LEVEL
- ☐ Indoor Air
- ☐ Deep Soil Gas
- ☑ Sub Slab/Soil Gas
- ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☑ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

ANALYSIS REQUESTED

	Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	APH (MA-APH) TO-15 BTEXN	Fielding Naphthalene	Archive	Notes
*	VP-11-091218	14	3677	257	9/12/18	28.7	14:28	4.5	14:38	X	X	X		* See table 3 for full list of VOCs
*	VP-12-091218	15	2437	03	↓	29.1 28.7	15:09	4.5	15:15	↓	↓	↓		↓
*	VP-2B-091218	16	3674	111	↓	29.5	15:54 15:56	4.5	16:03	↓	↓	↓	X	HOLD ANALYSIS

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Gabe Cisneros	Floyd|Snider	9/12/18	1720
Received by:	Eric Main	FSB	9/12/18	1720
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
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Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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October 8, 2018

Tom Colligan, Project Manager
Floyd-Snider
Two Union Square, Suite 600
601 Union St
Seattle, WA 98101

Dear Mr Colligan:

Included are the additional results from the testing of material submitted on September 12, 2018 from the Ave 55-Taylor Way, F&BI 809188 project. There are 5 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
FDS1008R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on September 12, 2018 by Friedman & Bruya, Inc. from the Floyd-Snider Ave 55-Taylor Way, F&BI 809188 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
809188 -01	VP-1-091218
809188 -02	VP-2-091218
809188 -03	VP-2-091218 Dup
809188 -04	VP-3-091218
809188 -05	VP-5-091218
809188 -06	VP-7-091218
809188 -07	VP-9-091218
809188 -08	VP-4-091218
809188 -09	VP-6-091218
809188 -10	VP-8-091218
809188 -11	VP-10-091218
809188 -12	VP-14-091218
809188 -13	VP-13-091218
809188 -14	VP-11-091218
809188 -15	VP-12-091218
809188 -16	VP-2B-091218

All quality control requirements were acceptable.

Date of Report: 10/08/18
Date Received: 09/12/18
Project: Ave 55-Taylor Way, F&BI 809188
Date Extracted: 10/02/18
Date Analyzed: 10/02/18

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Results Reported as % Helium

Sample ID Laboratory ID	Helium
VP-1-091218 809188-01	<0.6
VP-2-091218 809188-02	<0.6
VP-2-091218 Dup 809188-03	<0.6
VP-3-091218 809188-04	<0.6
VP-5-091218 809188-05	<0.6
VP-7-091218 809188-06	<0.6
VP-9-091218 809188-07	<0.6
VP-4-091218 809188-08	<0.6
VP-6-091218 809188-09	<0.6
VP-8-091218 809188-10	<0.6
VP-10-091218 809188-11	<0.6
VP-14-091218 809188-12	<0.6

Date of Report: 10/08/18
Date Received: 09/12/18
Project: Ave 55-Taylor Way, F&BI 809188
Date Extracted: 10/02/18
Date Analyzed: 10/02/18

RESULTS FROM THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Results Reported as % Helium

Sample ID Laboratory ID	Helium
VP-13-091218 809188-13	<0.6
VP-11-091218 809188-14	<0.6
VP-12-091218 809188-15	<0.6
Method Blank	<0.6

Date of Report: 10/08/18
Date Received: 09/12/18
Project: Ave 55-Taylor Way, F&BI 809188

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR HELIUM USING METHOD ASTM D1946

Laboratory Code: 809188-13 (Duplicate)

Analyte	Sample Result (%)	Duplicate Result (%)	Relative Percent Difference	Acceptance Criteria
Helium	<0.6	<0.6	nm	0-50

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

809188

SAMPLE CHAIN OF CUSTODY

ME 09-12-18

Page # 1 of 3

Report To: Tom Colligan
Company: Floyd Snider
Address: 601 Union St, Suite 600
City, State, ZIP: Seattle, WA 98101
Phone: 206-292-2078 Email: tom.colligan@floydsnider.com

SAMPLERS (*signature*): Kara, Gabe

PROJECT NAME: Ave 55 - Taylor Way

PO #:

REPORTING LEVEL
- ☐ Indoor Air
- ☐ Deep Soil Gas
- ☑ Sub Slab/Soil Gas
- ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☑ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	APH (MA-APH)	Helium		Notes
VP-1-091218	01	3252	31	9/12/18	30	0919	4.5	0926	X	X	X		*See table 3 for full
VP-2-091218	02	3378	02		30	0957	4.5	1010 ~~1006~~					list of VOCs
VP-2-091218 Dup	03	3258	102		30	0957	4.5	1005 ~~1010~~					
VP-3-091218	04	2301	106		30	10:47	4.5	10:51					
~~VP-4-091218~~	—	~~3692~~	~~256~~										
VP-5-091218	05	2435	07		29.5	11:46	~~11:50~~ 4.5	11:50					
VP-7-091218	06	3251	109		28.5	12:28	4.5	12:32					
VP-9-091218	07	2297	231		30	13:36	~~13:54~~ 4.5	13:42					

Samples received at 21 °C

Friedman & Bruya, Inc.
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Seattle, WA 98119-2029
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Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Gabe Cisneros	Floyd Snider	9/12/18	1720
Received by:	Eric Lam	F-S	9/13/18	900
Relinquished by:				
Received by:				

809188

SAMPLE CHAIN OF CUSTODY

ME 09-12-18

Report To Tom Colligan

Company Floyd Snider

Address 601 Union St, Suite 600

City, State, ZIP Seattle, WA 98101

Phone 206-292-2078 Email tom.colligan@floydsnider.com

SAMPLERS (*signature*): Kara, Gabe

PROJECT NAME: Ave 55 - Taylor Way

PO #:

REPORTING LEVEL: ☐ Indoor Air ☐ Deep Soil Gas ☑ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME: ☑ Standard ☐ RUSH ____ Rush charges authorized by: ____

SAMPLE DISPOSAL: ☑ Dispose after 30 days ☐ Archive Samples ☐ Other ____

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	APH (MA-APH) TO-15 PAH SIM	Helium TO-15 cVOCs		Notes
SVP-4-091218	08	3672	252	9/12/18	28	1117	4.5	1124	X	X	X		*See table 3 for full
SVP-6-091218	09	2300	108	9/12/18	30	1206	4.5	1210					list of VOCs
VP-8-091218	10	3669	105	9/12	29.5	1235	4.5	1239					
VP-10-091218	11	3386	01	9/12	30	1353	~~4.5~~ 2.0	1400					
VP-14-091218	12	2298	201	9/12	29.5	1442	4.5	1448					
~~SVP-13~~ VP-13-091218	13	3389	101	9/12	29.5	1522	~~1527~~ 4.5	1527					

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Gabriel Cisneros	Floyd Snider	9/12/18	1720
Received by:	Eric Yang	FSI3	9/12/18	1720
Relinquished by:				
Received by:				

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Seattle, WA 98119-2029
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Fax (206) 283-5044

SAMPLE CHAIN OF CUSTODY

809188

ME 09-12-18

Report To Tom Colligan
Company Floyd Snider
Address 601 Union St, Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206-292-2078 Email tom.colligan@floydsnider.com

SAMPLERS (*signature*): Keva, Gabe

PROJECT NAME: Ave 55 - Taylor Way

PO #:

REPORTING LEVEL
- ☐ Indoor Air
- ☐ Deep Soil Gas
- ☑ Sub Slab/Soil Gas
- ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☑ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

ANALYSIS REQUESTED

	Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	APH (MA-APH) TO-15 BTEXN	Fielding Naphthalene	Archive	Notes
*	VP-11-091218	14	3677	257	9/12/18	28.7	14:28	4.5	14:38	X	X	X		* See table 3 for full list of VOCs
*	VP-12-091218	15	2437	03	↓	29.1 28.7	15:09	4.5	15:15	↓	↓	↓		↓
*	VP-2B-091218	16	3674	111	↓	29.5	15:54 15:56	4.5	16:03	↓	↓	↓	X	HOLD ANALYSIS

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Gabe Cisneros	Floyd|Snider	9/12/18	1720
Received by:	Eric Main	FSB	9/12/18	1720
Relinquished by:				
Received by:				

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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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Eric Young, B.S.

3012 16th Avenue West
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November 7, 2018

Tom Colligan, Project Manager
Floyd-Snider
Two Union Square, Suite 600
601 Union St
Seattle, WA 98101

Dear Mr Colligan:

Included are the results from the testing of material submitted on October 24, 2018 from the Taylor Way-Ave 55, F&BI 810462 project. There are 25 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
FDS1107R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 24, 2018 by Friedman & Bruya, Inc. from the Floyd-Snider Taylor Way-Ave 55, F&BI 810462 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
810462 -01	VP-2-102418
810462 -02	VP-1-102418
810462 -03	VP-1-102418 Dup
810462 -04	VP-3-102418
810462 -05	VP-5-102418
810462 -06	VP-8-102418
810462 -07	VP-11-102418
810462 -08	VP-9-102418
810462 -09	VP-4-102418
810462 -10	VP-6-102418
810462 -11	VP-7-102418
810462 -12	VP-12-102418
810462 -13	VP-13-102418
810462 -14	VP-14-102418
810462 -15	VP-10-102418
810462 -16	VP-LB-102418

Naphthalene was detected in the TO-15 method blank at a level greater than one tenth the concentration detected in the samples. The data were flagged accordingly.

Several compounds exceeded the calibration range of the instrument. The data were flagged accoridngly.

An 8270D internal standard failed the acceptance criteria for sample VP-3-102418 due to matrix interferences. The data were flagged accordingly. The sample was diluted and reanalyzed.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-2-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-01 1/3.3
Date Analyzed:	10/26/18	Data File:	102608.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	97	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	47	9.6	Benzene	8.4	2.6
Chloromethane	2.6	1.3	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	140	60	3-Pentanone	<12	<3.3
Acetaldehyde	<270	<150	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	1.3	0.29
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	2.4	0.89	Trichloroethene	0.90	0.17
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	7.1	1.9
Pentane	120	40	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	180	32	3-Hexanone	<14	<3.3
Acetone	<16	<6.6	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	4.8	1.7	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	2.2	0.50
Cyclopentane	32	11	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	4.6	1.1
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	3.1	0.77	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	52	15	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.6	0.54	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.52	0.13	Naphthalene	0.35 fb	0.066 fb
1,1,1-Trichloroethane	9.2	1.7	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-1-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-02 1/3.3
Date Analyzed:	10/26/18	Data File:	102609.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	75	15	Benzene	5.0	1.6
Chloromethane	3.0	1.4	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	840 ve	370 ve	3-Pentanone	<12	<3.3
Acetaldehyde	110	62	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	2.5	0.55
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	3.5	1.3	Trichloroethene	6.6	1.2
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	11	2.8
Pentane	150	50	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	410	73	3-Hexanone	<14	<3.3
Acetone	500 ve	210 ve	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	8.0	2.9	Tetrachloroethene	11	1.6
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	1.8	0.47	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	6.7	1.6
Cyclopentane	22	7.7	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	19	4.3
Butanal	<9.7	<3.3	o-Xylene	8.1	1.9
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	23	4.7
1,1-Dichloroethane	5.0	1.2	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	52	15	1,2,3-Trimethylbenzene	8.5	1.7
Chloroform	3.5	0.72	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	3.2	0.78	Naphthalene	5.5	1.0
1,1,1-Trichloroethane	9.2	1.7	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-1-102418 Dup	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-03 1/3.3
Date Analyzed:	10/26/18	Data File:	102610.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	111	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	72	15	Benzene	4.9	1.5
Chloromethane	2.6	1.3	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	830 ve	360 ve	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	2.5	0.53
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	3.6	1.3	Trichloroethene	8.4	1.6
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	12	3.3
Pentane	150	50	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	390	69	3-Hexanone	<14	<3.3
Acetone	490 ve	210 ve	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	8.8	3.2	Tetrachloroethene	11	1.6
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	1.8	0.45	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	6.7	1.5
Cyclopentane	23	7.8	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	18	4.2
Butanal	<9.7	<3.3	o-Xylene	8.0	1.8
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	0.55	0.11
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	24	4.9
1,1-Dichloroethane	5.1	1.3	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	53	15	1,2,3-Trimethylbenzene	9.0	1.8
Chloroform	3.9	0.81	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	2.9	0.73	Naphthalene	3.6	0.69
1,1,1-Trichloroethane	8.8	1.6	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-3-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	11/24/18	Lab ID:	810462-04 1/3.3
Date Analyzed:	10/26/18	Data File:	102611.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2 J	<0.33 J	1-Butanol	<20 J	<6.6 J
Propene	<2.3 J	<1.3 J	Carbon tetrachloride	<2.1 J	<0.33 J
Dichlorodifluoromethane	18 J	3.7 J	Benzene	<1.1 J	<0.33 J
Chloromethane	<0.68 J	<0.33 J	Cyclohexane	<23 J	<6.6 J
F-114	<2.3 J	<0.33 J	2-Pentanone	<12	<3.3
Isobutene	16 J	6.9 J	3-Pentanone	<12	<3.3
Acetaldehyde	<30 J	<16 J	Pentanal	<12	<3.3
Vinyl chloride	<0.84 J	<0.33 J	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073 J	<0.033 J	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1 J	<1.3 J	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87 J	<0.33 J	Trichloroethene	1.1	0.20
Ethanol	<25 J	<13 J	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5 J	<3.3 J	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3 J	<1.3 J	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72 J	<0.33 J	Toluene	2.3	0.61
Pentane	<9.7 J	<3.3 J	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	96 J	17 J	3-Hexanone	<14	<3.3
Acetone	21 J	8.8 J	2-Hexanone	<14	<3.3
2-Propanol	<28 J	<12 J	Hexanal	<14	<3.3
Isoprene	<0.92 J	<0.33 J	Tetrachloroethene	4.7	0.69
Iodomethane	<1.9 J	<0.33 J	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3J	<0.33 J	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5 J	<3.3 J	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3 J	<0.33 J	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95 J	<0.33 J	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5 J	<3.3 J	m,p-Xylene	<2.9	<0.66
Butanal	<9.7 J	<3.3 J	o-Xylene	<1.4	<0.33
Methylene chloride	<290 J	<82 J	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21 J	<6.6 J	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9 J	<1.6 J	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23 J	<6.6 J	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3 J	<0.33 J	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3 J	<0.33 J	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12 J	<3.3 J	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	0.32 J	0.066 J	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7 J	<3.3 J	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13 J	<0.033 J	Naphthalene	0.59 fb	0.11 fb
1,1,1-Trichloroethane	2.9 J	0.54 J	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-3-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-04 1/6.25
Date Analyzed:	11/03/18	Data File:	110225.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<2.2	<0.62	1-Butanol	<38	<12
Propene	<4.3	<2.5	Carbon tetrachloride	<3.9	<0.62
Dichlorodifluoromethane	23	4.6	Benzene	<2	<0.62
Chloromethane	<1.3	<0.62	Cyclohexane	<43	<12
F-114	<4.4	<0.62	2-Pentanone	<22	<6.2
Isobutene	17	7.4	3-Pentanone	<22	<6.2
Acetaldehyde	<56	<31	Pentanal	<22	<6.2
Vinyl chloride	<1.6	<0.62	1,2-Dichloropropane	<1.4	<0.31
1,3-Butadiene	<0.14	<0.062	1,4-Dioxane	<2.3	<0.62
Bromomethane	<9.7	<2.5	Bromodichloromethane	<0.42	<0.062
Chloroethane	<1.6	<0.62	Trichloroethene	3.0	0.56
Ethanol	<47	<25	cis-1,3-Dichloropropene	<2.8	<0.62
Acetonitrile	<10	<6.2	4-Methyl-2-pentanone	<26	<6.2
Acrolein	<5.7	<2.5	trans-1,3-Dichloropropene	<2.8	<0.62
Acrylonitrile	<1.4	<0.62	Toluene	4.0	1.0
Pentane	<18	<6.2	1,1,2-Trichloroethane	<0.34	<0.062
Trichlorofluoromethane	110	20	3-Hexanone	<26	<6.2
Acetone	<30	<12	2-Hexanone	<26	<6.2
2-Propanol	<54	<22	Hexanal	<26	<6.2
Isoprene	<1.7	<0.62	Tetrachloroethene	5.7	0.84
Iodomethane	<3.6	<0.62	Dibromochloromethane	<0.53	<0.062
1,1-Dichloroethene	<2.5	<0.62	1,2-Dibromoethane (EDB)	<0.48	<0.062
Methacrolein	<18	<6.2	Chlorobenzene	<2.9	<0.62
trans-1,2-Dichloroethene	<2.5	<0.62	Ethylbenzene	<2.7	<0.62
Cyclopentane	<1.8	<0.62	1,1,2,2-Tetrachloroethane	<0.86	<0.12
Methyl vinyl ketone	<18	<6.2	m,p-Xylene	<5.4	<1.2
Butanal	<18	<6.2	o-Xylene	<2.7	<0.62
Methylene chloride	<540	<160	Styrene	<5.3	<1.2
CFC-113	<4.8	<0.62	Bromoform	<13	<1.2
Carbon disulfide	<39	<12	Benzyl chloride	<0.32	<0.062
Methyl t-butyl ether (MTBE)	<11	<3.1	1,3,5-Trimethylbenzene	<15	<3.1
Vinyl acetate	<44	<12	1,2,4-Trimethylbenzene	<15	<3.1
1,1-Dichloroethane	<2.5	<0.62	1,3-Dichlorobenzene	<3.8	<0.62
cis-1,2-Dichloroethene	<2.5	<0.62	1,4-Dichlorobenzene	<1.5	<0.25
Hexane	<22	<6.2	1,2,3-Trimethylbenzene	<15	<3.1
Chloroform	0.46	0.094	1,2-Dichlorobenzene	<3.8	<0.62
2-Butanone (MEK)	<18	<6.2	1,2,4-Trichlorobenzene	<4.6	<0.62
1,2-Dichloroethane (EDC)	<0.25	<0.062	Naphthalene	0.75 fb	0.14 fb
1,1,1-Trichloroethane	3.7	0.68	Hexachlorobutadiene	<1.3	<0.12

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-5-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-05 1/3.3
Date Analyzed:	10/26/18	Data File:	102612.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	29	5.9	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	32	14	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	1.2	0.26
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	0.89	0.16
Ethanol	51	27	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	4.0	1.1
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	250	45	3-Hexanone	<14	<3.3
Acetone	35	15	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	3.3	0.77
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	0.47	0.096	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.50 fb	0.096 fb
1,1,1-Trichloroethane	6.4	1.2	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-8-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-06 1/3.3
Date Analyzed:	10/26/18	Data File:	102613.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	29	5.9	Benzene	8.8	2.8
Chloromethane	<0.68	<0.33	Cyclohexane	27	7.8
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	760 ve	330 ve	3-Pentanone	<12	<3.3
Acetaldehyde	<270	<150	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	1.8	0.39
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	2.4	0.91	Trichloroethene	6.9	1.3
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	12	3.2
Pentane	290	98	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	410	73	3-Hexanone	<14	<3.3
Acetone	550 ve	230 ve	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	18	6.4	Tetrachloroethene	2.9	0.42
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	2.3	0.58	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	3.9	0.90
Cyclopentane	74	26	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	4.8	1.1
Butanal	<9.7	<3.3	o-Xylene	2.2	0.50
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	6.9	0.90	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	7.2	1.8	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	40	11	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.1	0.44	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.89	0.22	Naphthalene	0.42 fb	0.079 fb
1,1,1-Trichloroethane	13	2.4	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-11-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-07 1/3.3
Date Analyzed:	10/26/18	Data File:	102614.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	3.6	0.72	Benzene	3.5	1.1
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	12	5.1	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	11	2.0
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	13	3.5
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	2.7	0.49	3-Hexanone	<14	<3.3
Acetone	25	10	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	3.8	0.56
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	1.5	0.37	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	1.8	0.42
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	6.1	1.4
Butanal	<9.7	<3.3	o-Xylene	2.6	0.59
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	2.9	0.38	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	2.7	0.66	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	<0.16	<0.033	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.50 fb	0.096 fb
1,1,1-Trichloroethane	<1.8	<0.33	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-9-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-08 1/3.3
Date Analyzed:	10/26/18	Data File:	102615.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	2.6	1.5	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	2.9	0.59	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	1.2	0.21
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	2.3	0.62
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	3.6	0.64	3-Hexanone	<14	<3.3
Acetone	17	7.1	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.0	0.40	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.40 fb	0.076 fb
1,1,1-Trichloroethane	<1.8	<0.33	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-4-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-09 1/3.3
Date Analyzed:	10/26/18	Data File:	102616.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	10	2.1	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	0.96	0.18
Ethanol	26	14	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	2.1	0.57
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	69	12	3-Hexanone	<14	<3.3
Acetone	43	18	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	2.2	0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	1.5	0.31	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.43 fb	0.082 fb
1,1,1-Trichloroethane	2.0	0.36	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-6-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-10 1/3.3
Date Analyzed:	10/26/18	Data File:	102617.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	450 ve	260 ve	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	140	28	Benzene	21	6.6
Chloromethane	<0.68	<0.33	Cyclohexane	25	7.4
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	960 ve	420 ve	3-Pentanone	<12	<3.3
Acetaldehyde	<270	<150	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	1.6	0.34
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	0.88	0.33	Trichloroethene	28	5.2
Ethanol	31	17	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	21	5.6
Pentane	380	130	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	2,000 ve	360 ve	3-Hexanone	<14	<3.3
Acetone	120	51	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	12	4.2	Tetrachloroethene	9.5	1.4
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	7.9	2.0	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	5.8	1.3
Cyclopentane	39	14	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	11	4.0	m,p-Xylene	9.1	2.1
Butanal	<9.7	<3.3	o-Xylene	2.9	0.68
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	8.2	1.1	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	3.8	0.93	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	110	33	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	3.1	0.64	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	1.2	0.31	Naphthalene	0.54 fb	0.10 fb
1,1,1-Trichloroethane	23	4.1	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-7-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-11 1/3.3
Date Analyzed:	10/26/18	Data File:	102618.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	77	16	Benzene	1.1	0.34
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	430 ve	190 ve	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	4.5	0.97
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	1.6	0.30
Ethanol	40	21	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	3.7	0.98
Pentane	43	15	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	1,700 ve	290 ve	3-Hexanone	<14	<3.3
Acetone	26	11	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	2.3	0.34
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	15	5.1	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	4.0	0.98	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	1.9	0.38	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.80	0.20	Naphthalene	0.47 fb	0.089 fb
1,1,1-Trichloroethane	19	3.4	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-12-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-12 1/3.3
Date Analyzed:	10/26/18	Data File:	102619.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	<2.3	<1.3	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	4.0	0.80	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	1.3	0.24
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	2.7	0.73
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	15 c	2.7 c	3-Hexanone	<14	<3.3
Acetone	18	7.6	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	1.3	0.27	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.45 fb	0.086 fb
1,1,1-Trichloroethane	<1.8	<0.33	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-13-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-13 1/3.3
Date Analyzed:	10/26/18	Data File:	102620.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	3.2 fb	1.8 fb	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	6.3	1.3	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	35	6.6
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	42	11
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	29	5.1	3-Hexanone	<14	<3.3
Acetone	23	9.8	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	8.0	1.2
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	8.9	2.2	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	2.6	0.60
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	6.8	1.6
Butanal	<9.7	<3.3	o-Xylene	2.6	0.60
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	15	2.0	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	3.8	0.95	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	2.3	0.48	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.13	0.033	Naphthalene	0.36 fb	0.069 fb
1,1,1-Trichloroethane	15	2.7	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-14-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-14 1/3.3
Date Analyzed:	10/26/18	Data File:	102621.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	2.8 fb	1.6 fb	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	62	12	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	7.4	1.4
Ethanol	49	26	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	38	9.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	34	9.1
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	12	2.2	3-Hexanone	<14	<3.3
Acetone	58	24	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	3.1	0.45
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	5.7	1.3
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	27	6.1
Butanal	<9.7	<3.3	o-Xylene	8.3	1.9
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	4.1	0.53	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	1.3	0.27	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	13	4.4	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	0.31	0.076	Naphthalene	2.3 fb	0.43 fb
1,1,1-Trichloroethane	3.3	0.61	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-10-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-15 1/3.3
Date Analyzed:	10/26/18	Data File:	102622.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	100	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<1.2	<0.33	1-Butanol	<20	<6.6
Propene	2.4 fb	1.4 fb	Carbon tetrachloride	<2.1	<0.33
Dichlorodifluoromethane	6.6	1.3	Benzene	<1.1	<0.33
Chloromethane	<0.68	<0.33	Cyclohexane	<23	<6.6
F-114	<2.3	<0.33	2-Pentanone	<12	<3.3
Isobutene	<3	<1.3	3-Pentanone	<12	<3.3
Acetaldehyde	<30	<16	Pentanal	<12	<3.3
Vinyl chloride	<0.84	<0.33	1,2-Dichloropropane	<0.76	<0.16
1,3-Butadiene	<0.073	<0.033	1,4-Dioxane	<1.2	<0.33
Bromomethane	<5.1	<1.3	Bromodichloromethane	<0.22	<0.033
Chloroethane	<0.87	<0.33	Trichloroethene	1.8	0.33
Ethanol	<25	<13	cis-1,3-Dichloropropene	<1.5	<0.33
Acetonitrile	<5.5	<3.3	4-Methyl-2-pentanone	<14	<3.3
Acrolein	<3	<1.3	trans-1,3-Dichloropropene	<1.5	<0.33
Acrylonitrile	<0.72	<0.33	Toluene	3.5	0.92
Pentane	<9.7	<3.3	1,1,2-Trichloroethane	<0.18	<0.033
Trichlorofluoromethane	55	9.9	3-Hexanone	<14	<3.3
Acetone	19	8.1	2-Hexanone	<14	<3.3
2-Propanol	<28	<12	Hexanal	<14	<3.3
Isoprene	<0.92	<0.33	Tetrachloroethene	<2.2	<0.33
Iodomethane	<1.9	<0.33	Dibromochloromethane	<0.28	<0.033
1,1-Dichloroethene	<1.3	<0.33	1,2-Dibromoethane (EDB)	<0.25	<0.033
Methacrolein	<9.5	<3.3	Chlorobenzene	<1.5	<0.33
trans-1,2-Dichloroethene	<1.3	<0.33	Ethylbenzene	<1.4	<0.33
Cyclopentane	<0.95	<0.33	1,1,2,2-Tetrachloroethane	<0.45	<0.066
Methyl vinyl ketone	<9.5	<3.3	m,p-Xylene	<2.9	<0.66
Butanal	<9.7	<3.3	o-Xylene	<1.4	<0.33
Methylene chloride	<290	<82	Styrene	<2.8	<0.66
CFC-113	<2.5	<0.33	Bromoform	<6.8	<0.66
Carbon disulfide	<21	<6.6	Benzyl chloride	<0.17	<0.033
Methyl t-butyl ether (MTBE)	<5.9	<1.6	1,3,5-Trimethylbenzene	<8.1	<1.6
Vinyl acetate	<23	<6.6	1,2,4-Trimethylbenzene	<8.1	<1.6
1,1-Dichloroethane	<1.3	<0.33	1,3-Dichlorobenzene	<2	<0.33
cis-1,2-Dichloroethene	<1.3	<0.33	1,4-Dichlorobenzene	<0.79	<0.13
Hexane	<12	<3.3	1,2,3-Trimethylbenzene	<8.1	<1.6
Chloroform	1.6	0.34	1,2-Dichlorobenzene	<2	<0.33
2-Butanone (MEK)	<9.7	<3.3	1,2,4-Trichlorobenzene	<2.4	<0.33
1,2-Dichloroethane (EDC)	<0.13	<0.033	Naphthalene	0.45 fb	0.086 fb
1,1,1-Trichloroethane	<1.8	<0.33	Hexachlorobutadiene	<0.7	<0.066

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VP-LB-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-16 1/10
Date Analyzed:	11/03/18	Data File:	110226.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	18	5.1	1-Butanol	<61	<20
Propene	7.4 fb	4.3 fb	Carbon tetrachloride	<6.3	<1
Dichlorodifluoromethane	<4.9	<1	Benzene	<3.2	<1
Chloromethane	<2.1	<1	Cyclohexane	<69	<20
F-114	<7	<1	2-Pentanone	<35	<10
Isobutene	<9.2	<4	3-Pentanone	<35	<10
Acetaldehyde	<90	<50	Pentanal	<35	<10
Vinyl chloride	<2.6	<1	1,2-Dichloropropane	<2.3	<0.5
1,3-Butadiene	0.35	0.16	1,4-Dioxane	<3.6	<1
Bromomethane	<16	<4	Bromodichloromethane	<0.67	<0.1
Chloroethane	<2.6	<1	Trichloroethene	<2.7	<0.5
Ethanol	86	46	cis-1,3-Dichloropropene	<4.5	<1
Acetonitrile	<17	<10	4-Methyl-2-pentanone	<41	<10
Acrolein	<9.2	<4	trans-1,3-Dichloropropene	<4.5	<1
Acrylonitrile	<2.2	<1	Toluene	4.4	1.2
Pentane	<30	<10	1,1,2-Trichloroethane	<0.55	<0.1
Trichlorofluoromethane	<5.6	<1	3-Hexanone	<41	<10
Acetone	64	27	2-Hexanone	<41	<10
2-Propanol	<86	<35	Hexanal	<41	<10
Isoprene	13	4.5	Tetrachloroethene	<6.8	<1
Iodomethane	<5.8	<1	Dibromochloromethane	<0.85	<0.1
1,1-Dichloroethene	<4	<1	1,2-Dibromoethane (EDB)	<0.77	<0.1
Methacrolein	<29	<10	Chlorobenzene	<4.6	<1
trans-1,2-Dichloroethene	<4	<1	Ethylbenzene	<4.3	<1
Cyclopentane	<2.9	<1	1,1,2,2-Tetrachloroethane	<1.4	<0.2
Methyl vinyl ketone	<29	<10	m,p-Xylene	<8.7	<2
Butanal	<29	<10	o-Xylene	<4.3	<1
Methylene chloride	2,500 ve	730 ve	Styrene	<8.5	<2
CFC-113	<7.7	<1	Bromoform	<21	<2
Carbon disulfide	<62	<20	Benzyl chloride	<0.52	<0.1
Methyl t-butyl ether (MTBE)	<18	<5	1,3,5-Trimethylbenzene	<25	<5
Vinyl acetate	<70	<20	1,2,4-Trimethylbenzene	<25	<5
1,1-Dichloroethane	<4	<1	1,3-Dichlorobenzene	<6	<1
cis-1,2-Dichloroethene	<4	<1	1,4-Dichlorobenzene	<2.4	<0.4
Hexane	57	16	1,2,3-Trimethylbenzene	<25	<5
Chloroform	<0.49	<0.1	1,2-Dichlorobenzene	<6	<1
2-Butanone (MEK)	<29	<10	1,2,4-Trichlorobenzene	<7.4	<1
1,2-Dichloroethane (EDC)	<0.4	<0.1	Naphthalene	<1	<0.2
1,1,1-Trichloroethane	<5.5	<1	Hexachlorobutadiene	<2.1	<0.2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	Not Applicable	Lab ID:	08-2396 mb
Date Analyzed:	10/26/18	Data File:	102605.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	99	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<0.35	<0.1	1-Butanol	<6.1	<2
Propene	<0.69	<0.4	Carbon tetrachloride	<0.63	<0.1
Dichlorodifluoromethane	<0.49	<0.1	Benzene	<0.32	<0.1
Chloromethane	<0.21	<0.1	Cyclohexane	<6.9	<2
F-114	<0.7	<0.1	2-Pentanone	<3.5	<1
Isobutene	<0.92	<0.4	3-Pentanone	<3.5	<1
Acetaldehyde	<9	<5	Pentanal	<3.5	<1
Vinyl chloride	<0.26	<0.1	1,2-Dichloropropane	<0.23	<0.05
1,3-Butadiene	<0.022	<0.01	1,4-Dioxane	<0.36	<0.1
Bromomethane	<1.6	<0.4	Bromodichloromethane	<0.067	<0.01
Chloroethane	<0.26	<0.1	Trichloroethene	<0.27	<0.05
Ethanol	<7.5	<4	cis-1,3-Dichloropropene	<0.45	<0.1
Acetonitrile	<1.7	<1	4-Methyl-2-pentanone	<4.1	<1
Acrolein	<0.92	<0.4	trans-1,3-Dichloropropene	<0.45	<0.1
Acrylonitrile	<0.22	<0.1	Toluene	<0.38	<0.1
Pentane	<3	<1	1,1,2-Trichloroethane	<0.055	<0.01
Trichlorofluoromethane	<0.56	<0.1	3-Hexanone	<4.1	<1
Acetone	<4.8	<2	2-Hexanone	<4.1	<1
2-Propanol	<8.6	<3.5	Hexanal	<4.1	<1
Isoprene	<0.28	<0.1	Tetrachloroethene	<0.68	<0.1
Iodomethane	<0.58	<0.1	Dibromochloromethane	<0.085	<0.01
1,1-Dichloroethene	<0.4	<0.1	1,2-Dibromoethane (EDB)	<0.077	<0.01
Methacrolein	<2.9	<1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Cyclopentane	<0.29	<0.1	1,1,2,2-Tetrachloroethane	<0.14	<0.02
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	<0.87	<0.2
Butanal	<2.9	<1	o-Xylene	<0.43	<0.1
Methylene chloride	<87	<25	Styrene	<0.85	<0.2
CFC-113	<0.77	<0.1	Bromoform	<2.1	<0.2
Carbon disulfide	<6.2	<2	Benzyl chloride	<0.052	<0.01
Methyl t-butyl ether (MTBE)	<1.8	<0.5	1,3,5-Trimethylbenzene	<2.5	<0.5
Vinyl acetate	<7	<2	1,2,4-Trimethylbenzene	<2.5	<0.5
1,1-Dichloroethane	<0.4	<0.1	1,3-Dichlorobenzene	<0.6	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	1,4-Dichlorobenzene	<0.24	<0.04
Hexane	<3.5	<1	1,2,3-Trimethylbenzene	<2.5	<0.5
Chloroform	<0.049	<0.01	1,2-Dichlorobenzene	<0.6	<0.1
2-Butanone (MEK)	<2.9	<1	1,2,4-Trichlorobenzene	<0.74	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	Naphthalene	<0.1	<0.02
1,1,1-Trichloroethane	<0.55	<0.1	Hexachlorobutadiene	<0.21	<0.02

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	Not Applicable	Lab ID:	08-2449 mb
Date Analyzed:	11/02/18	Data File:	110208.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	98	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Chlorodifluoromethane	<0.35	<0.1	1-Butanol	<6.1	<2
Propene	<0.69	<0.4	Carbon tetrachloride	<0.63	<0.1
Dichlorodifluoromethane	<0.49	<0.1	Benzene	<0.32	<0.1
Chloromethane	<0.21	<0.1	Cyclohexane	<6.9	<2
F-114	<0.7	<0.1	2-Pentanone	<3.5	<1
Isobutene	<0.92	<0.4	3-Pentanone	<3.5	<1
Acetaldehyde	<9	<5	Pentanal	<3.5	<1
Vinyl chloride	<0.26	<0.1	1,2-Dichloropropane	<0.23	<0.05
1,3-Butadiene	<0.022	<0.01	1,4-Dioxane	<0.36	<0.1
Bromomethane	<1.6	<0.4	Bromodichloromethane	<0.067	<0.01
Chloroethane	<0.26	<0.1	Trichloroethene	<0.27	<0.05
Ethanol	<7.5	<4	cis-1,3-Dichloropropene	<0.45	<0.1
Acetonitrile	<1.7	<1	4-Methyl-2-pentanone	<4.1	<1
Acrolein	<0.92	<0.4	trans-1,3-Dichloropropene	<0.45	<0.1
Acrylonitrile	<0.22	<0.1	Toluene	<0.38	<0.1
Pentane	<3	<1	1,1,2-Trichloroethane	<0.055	<0.01
Trichlorofluoromethane	<0.56	<0.1	3-Hexanone	<4.1	<1
Acetone	<4.8	<2	2-Hexanone	<4.1	<1
2-Propanol	<8.6	<3.5	Hexanal	<4.1	<1
Isoprene	<0.28	<0.1	Tetrachloroethene	<0.68	<0.1
Iodomethane	<0.58	<0.1	Dibromochloromethane	<0.085	<0.01
1,1-Dichloroethene	<0.4	<0.1	1,2-Dibromoethane (EDB)	<0.077	<0.01
Methacrolein	<2.9	<1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Cyclopentane	<0.29	<0.1	1,1,2,2-Tetrachloroethane	<0.14	<0.02
Methyl vinyl ketone	<2.9	<1	m,p-Xylene	<0.87	<0.2
Butanal	<2.9	<1	o-Xylene	<0.43	<0.1
Methylene chloride	<87	<25	Styrene	<0.85	<0.2
CFC-113	<0.77	<0.1	Bromoform	<2.1	<0.2
Carbon disulfide	<6.2	<2	Benzyl chloride	<0.052	<0.01
Methyl t-butyl ether (MTBE)	<1.8	<0.5	1,3,5-Trimethylbenzene	<2.5	<0.5
Vinyl acetate	<7	<2	1,2,4-Trimethylbenzene	<2.5	<0.5
1,1-Dichloroethane	<0.4	<0.1	1,3-Dichlorobenzene	<0.6	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	1,4-Dichlorobenzene	<0.24	<0.04
Hexane	<3.5	<1	1,2,3-Trimethylbenzene	<2.5	<0.5
Chloroform	<0.049	<0.01	1,2-Dichlorobenzene	<0.6	<0.1
2-Butanone (MEK)	<2.9	<1	1,2,4-Trichlorobenzene	<0.74	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	Naphthalene	0.12 lc	0.023 lc
1,1,1-Trichloroethane	<0.55	<0.1	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 11/07/18
Date Received: 10/24/18
Project: Taylor Way-Ave 55, F&BI 810462

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chlorodifluoromethane	ppbv	5	116	70-130
Propene	ppbv	5	104	70-130
Dichlorodifluoromethane	ppbv	5	103	70-130
Chloromethane	ppbv	5	119	70-130
F-114	ppbv	5	111	70-130
Isobutene	ppbv	5	120	70-130
Acetaldehyde	ppbv	5	126	70-130
Vinyl chloride	ppbv	5	115	70-130
1,3-Butadiene	ppbv	5	127	70-130
Bromomethane	ppbv	5	107	70-130
Chloroethane	ppbv	5	112	70-130
Ethanol	ppbv	5	115	70-130
Acetonitrile	ppbv	5	122	70-130
Acrolein	ppbv	5	110	70-130
Acrylonitrile	ppbv	5	112	70-130
Pentane	ppbv	5	119	70-130
Trichlorofluoromethane	ppbv	5	101	70-130
Acetone	ppbv	5	109	70-130
2-Propanol	ppbv	5	113	70-130
Isoprene	ppbv	5	105	70-130
Iodomethane	ppbv	5	95	70-130
1,1-Dichloroethene	ppbv	5	99	70-130
Methacrolein	ppbv	5	107	70-130
trans-1,2-Dichloroethene	ppbv	5	99	70-130
Cyclopentane	ppbv	5	120	70-130
Methyl vinyl ketone	ppbv	5	118	70-130
Butanal	ppbv	5	101	70-130
Methylene chloride	ppbv	5	90	70-130
CFC-113	ppbv	5	99	70-130
Carbon disulfide	ppbv	5	97	70-130
Methyl t-butyl ether (MTBE)	ppbv	5	105	70-130
Vinyl acetate	ppbv	5	109	70-130
1,1-Dichloroethane	ppbv	5	108	70-130
cis-1,2-Dichloroethene	ppbv	5	95	70-130
Hexane	ppbv	5	112	70-130
Chloroform	ppbv	5	107	70-130
2-Butanone (MEK)	ppbv	5	108	70-130
1,2-Dichloroethane (EDC)	ppbv	5	107	70-130
1,1,1-Trichloroethane	ppbv	5	105	70-130

Date of Report: 11/07/18
Date Received: 10/24/18
Project: Taylor Way-Ave 55, F&BI 810462

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
1-Butanol	ppbv	5	104	70-130
Carbon tetrachloride	ppbv	5	96	70-130
Benzene	ppbv	5	106	70-130
Cyclohexane	ppbv	5	104	70-130
2-Pentanone	ppbv	5	110	70-130
3-Pentanone	ppbv	5	115	70-130
Pentanal	ppbv	5	96	70-130
1,2-Dichloropropane	ppbv	5	102	70-130
1,4-Dioxane	ppbv	5	98	70-130
Bromodichloromethane	ppbv	5	103	70-130
Trichloroethene	ppbv	5	93	70-130
cis-1,3-Dichloropropene	ppbv	5	86	70-130
4-Methyl-2-pentanone	ppbv	5	93	70-130
trans-1,3-Dichloropropene	ppbv	5	95	70-130
Toluene	ppbv	5	89	70-130
1,1,2-Trichloroethane	ppbv	5	97	70-130
3-Hexanone	ppbv	5	93	70-130
2-Hexanone	ppbv	5	109	70-130
Hexanal	ppbv	5	101	70-130
Tetrachloroethene	ppbv	5	89	70-130
Dibromochloromethane	ppbv	5	106	70-130
1,2-Dibromoethane (EDB)	ppbv	5	102	70-130
Chlorobenzene	ppbv	5	102	70-130
Ethylbenzene	ppbv	5	101	70-130
1,1,2,2,-Tetrachloroethane	ppbv	5	120	70-130
m,p-Xylene	ppbv	10	109	70-130
o-Xylene	ppbv	5	116	70-130
Styrene	ppbv	5	101	70-130
Bromoform	ppbv	5	104	70-130
Benzyl chloride	ppbv	5	126	70-130
1,3,5-Trimethylbenzene	ppbv	5	100	70-130
1,2,4-Trimethylbenzene	ppbv	5	98	70-130
1,3-Dichlorobenzene	ppbv	5	108	70-130
1,4-Dichlorobenzene	ppbv	5	117	70-130
1,2,3-Trimethylbenzene	ppbv	5	105	70-130
1,2-Dichlorobenzene	ppbv	5	112	70-130
1,2,4-Trichlorobenzene	ppbv	5	91	70-130
Naphthalene	ppbv	5	96	70-130
Hexachloro-1,3-butadiene	ppbv	5	100	70-130

Date of Report: 11/07/18
Date Received: 10/24/18
Project: Taylor Way-Ave 55, F&BI 810462

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chlorodifluoromethane	ppbv	5	112	70-130
Propene	ppbv	5	103	70-130
Dichlorodifluoromethane	ppbv	5	94	70-130
Chloromethane	ppbv	5	112	70-130
F-114	ppbv	5	107	70-130
Isobutene	ppbv	5	115	70-130
Acetaldehyde	ppbv	5	123	70-130
Vinyl chloride	ppbv	5	111	70-130
1,3-Butadiene	ppbv	5	122	70-130
Bromomethane	ppbv	5	105	70-130
Chloroethane	ppbv	5	108	70-130
Ethanol	ppbv	5	98	70-130
Acetonitrile	ppbv	5	114	70-130
Acrolein	ppbv	5	115	70-130
Acrylonitrile	ppbv	5	110	70-130
Pentane	ppbv	5	115	70-130
Trichlorofluoromethane	ppbv	5	93	70-130
Acetone	ppbv	5	99	70-130
2-Propanol	ppbv	5	107	70-130
Isoprene	ppbv	5	101	70-130
Iodomethane	ppbv	5	84	70-130
1,1-Dichloroethene	ppbv	5	92	70-130
Methacrolein	ppbv	5	102	70-130
trans-1,2-Dichloroethene	ppbv	5	93	70-130
Cyclopentane	ppbv	5	121	70-130
Methyl vinyl ketone	ppbv	5	113	70-130
Butanal	ppbv	5	94	70-130
Methylene chloride	ppbv	5	72	70-130
CFC-113	ppbv	5	92	70-130
Carbon disulfide	ppbv	5	91	70-130
Methyl t-butyl ether (MTBE)	ppbv	5	96	70-130
Vinyl acetate	ppbv	5	107	70-130
1,1-Dichloroethane	ppbv	5	103	70-130
cis-1,2-Dichloroethene	ppbv	5	89	70-130
Hexane	ppbv	5	105	70-130
Chloroform	ppbv	5	99	70-130
2-Butanone (MEK)	ppbv	5	98	70-130
1,2-Dichloroethane (EDC)	ppbv	5	99	70-130
1,1,1-Trichloroethane	ppbv	5	97	70-130
1-Butanol	ppbv	5	95	70-130
Carbon tetrachloride	ppbv	5	91	70-130

Date of Report: 11/07/18
Date Received: 10/24/18
Project: Taylor Way-Ave 55, F&BI 810462

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ppbv	5	99	70-130
Cyclohexane	ppbv	5	101	70-130
2-Pentanone	ppbv	5	111	70-130
3-Pentanone	ppbv	5	111	70-130
Pentanal	ppbv	5	104	70-130
1,2-Dichloropropane	ppbv	5	102	70-130
1,4-Dioxane	ppbv	5	93	70-130
Bromodichloromethane	ppbv	5	101	70-130
Trichloroethene	ppbv	5	91	70-130
cis-1,3-Dichloropropene	ppbv	5	87	70-130
4-Methyl-2-pentanone	ppbv	5	88	70-130
trans-1,3-Dichloropropene	ppbv	5	92	70-130
Toluene	ppbv	5	86	70-130
1,1,2-Trichloroethane	ppbv	5	95	70-130
3-Hexanone	ppbv	5	94	70-130
2-Hexanone	ppbv	5	106	70-130
Hexanal	ppbv	5	98	70-130
Tetrachloroethene	ppbv	5	84	70-130
Dibromochloromethane	ppbv	5	101	70-130
1,2-Dibromoethane (EDB)	ppbv	5	98	70-130
Chlorobenzene	ppbv	5	93	70-130
Ethylbenzene	ppbv	5	94	70-130
1,1,2,2,-Tetrachloroethane	ppbv	5	114	70-130
m,p-Xylene	ppbv	10	101	70-130
o-Xylene	ppbv	5	108	70-130
Styrene	ppbv	5	95	70-130
Bromoform	ppbv	5	95	70-130
Benzyl chloride	ppbv	5	117	70-130
1,3,5-Trimethylbenzene	ppbv	5	92	70-130
1,2,4-Trimethylbenzene	ppbv	5	91	70-130
1,3-Dichlorobenzene	ppbv	5	99	70-130
1,4-Dichlorobenzene	ppbv	5	107	70-130
1,2,3-Trimethylbenzene	ppbv	5	98	70-130
1,2-Dichlorobenzene	ppbv	5	102	70-130
1,2,4-Trichlorobenzene	ppbv	5	81	70-130
Naphthalene	ppbv	5	89	70-130
Hexachloro-1,3-butadiene	ppbv	5	90	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

810462

SAMPLE CHAIN OF CUSTODY ME 10-24-18

Page # 1 of 2

Report To Tom Colligan
Company Floyd Snider
Address 601 Union St., Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206-292-2078 Email tom.colligan@floydsnider.com

SAMPLERS (*signature*): Kara, Gabe

PROJECT NAME: Taylor Way-Ave 55

PO #:

REPORTING LEVEL
- ☐ Indoor Air
- ☐ Deep Soil Gas
- ☑ Sub Slab/Soil Gas
- ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME
- ☑ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☑ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs		Notes
VP-2-102418	01	3311	242	10/24/18	29	7:59	4.5	8:05	X	X	X		
VP-4-102418	02	3257	257		28	0838	4.5	0843	X	X	X		
VP-1-102418 DUP	03	3390	256		27.5	0838	4.5	0843	X	X	X		
VP-3-102418	04	3483	258		28.5	9:03	4.5	9:08	X	X	X		
VP-5-102418	05	3255	240		29.5	9:51	4.5	9:57	X	X	X		
VP-8-102418	06	3676	241		29.5	10:41	4.5	10:46	X	X	X		
VP-11-102418	07	2436	230		29.5	11:27	4.5	11:33	X	X	X		Samples received at 21 °C
VP-9-102418	08	3347	244		29	12:02	4.5	12:07	X	X	X		

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kara Hitchko	Floyd Snider	10/24/18	13:16
Received by:	Eric Cl	F-B	10/24/18	3:16
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

810462

SAMPLE CHAIN OF CUSTODY ME 10-24-18

Page # 2 of 2

Report To Tom Colligan
Company Floyd|Snider
Address 601 Union St. Ste. 600
City, State, ZIP Seattle, WA 98101
Phone 206 292-2078 Email

SAMPLERS (signature)

PROJECT NAME: Ave 55 - Taylor Way
PO #:

REPORTING LEVEL
☐ Indoor Air ☐ Deep Soil Gas
☒ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO:

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs		Notes
VP-4-102418	09	~~3668~~ 3670	101	10/24/18	30	0909	4.5	0913	X	X	X		
VP-6-102418	10	2299	204		28.5	0937	4.5	0942	X	X	X		
VP-7-102418	11	3344	224		30	1002	4.5	1008	X	X	X		
VP-12-102418	12	3672	243		29.5	~~1035~~ 1030	4.5	1035	X	X	X		
VP-13-102418	13	3387	203		30	~~1448~~ 1048	4.5	1054	X	X	X		
VP-14-102418	14	3260	221		30	1121	4.5	1127	X	X	X		Samples received at 2 °C
VP-10-102418	15	2433	17	↓	29	1155	4.0	1201	X	X	X		
VP-LB-102418	16	2434	111		30	1121	0.0	1122	X	X	X		Archive

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Karen Hitchko	Floyd Snider	10/24/18	13:16
Received by:	Eric Cha	F+S	10/24/18	13:16
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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Seattle, WA 98119-2029
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fbi@isomedia.com
www.friedmanandbruya.com

November 16, 2018

Tom Colligan, Project Manager
Floyd-Snider
Two Union Square, Suite 600
601 Union St
Seattle, WA 98101

Dear Mr Colligan:

Included are the additional results from the testing of material submitted on October 24, 2018 from the Taylor Way-Ave 55, F&BI 810462 project. There are 20 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Gabe Cisneros
FDS1116R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 24, 2018 by Friedman & Bruya, Inc. from the Floyd-Snider Taylor Way-Ave 55, F&BI 810462 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Floyd-Snider
810462 -01	VP-2-102418
810462 -02	VP-1-102418
810462 -03	VP-1-102418 Dup
810462 -04	VP-3-102418
810462 -05	VP-5-102418
810462 -06	VP-8-102418
810462 -07	VP-11-102418
810462 -08	VP-9-102418
810462 -09	VP-4-102418
810462 -10	VP-6-102418
810462 -11	VP-7-102418
810462 -12	VP-12-102418
810462 -13	VP-13-102418
810462 -14	VP-14-102418
810462 -15	VP-10-102418
810462 -16	VP-LB-102418

An opening APH calibration standard was not analyzed on 10/26/18. The data were qualified accordingly. A full list TO15 calibration standard was analyzed and was within acceptance limits.

The APH EC5-8 aliphatics concentration for sample VP-6-102418 exceeded the calibration range. The data were flagged accordingly.

Non-petroleum compounds with Q values over 85 were subtracted from the APH EC5-8 and EC9-12 aliphatics ranges, if present.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-2-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-01 1/3.3
Date Analyzed:	10/26/18	Data File:	102608.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,200 ca
APH EC9-12 aliphatics	340 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-1-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-02 1/5
Date Analyzed:	11/09/18	Data File:	110911.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	BAT/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,600
APH EC9-12 aliphatics	2,000
APH EC9-10 aromatics	170

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-1-102418 Dup	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-03 1/5
Date Analyzed:	11/09/18	Data File:	110912.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	BAT/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,200
APH EC9-12 aliphatics	1,700
APH EC9-10 aromatics	160

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-3-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-04 1/3.3
Date Analyzed:	10/26/18	Data File:	102611.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	89	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	790
APH EC9-12 aliphatics	370
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-5-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-05 1/3.3
Date Analyzed:	10/26/18	Data File:	102612.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	89	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	750 ca
APH EC9-12 aliphatics	370 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-8-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-06 1/5
Date Analyzed:	11/09/18	Data File:	110913.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	BAT/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	82	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	3,000
APH EC9-12 aliphatics	330
APH EC9-10 aromatics	<120

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-11-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-07 1/3.3
Date Analyzed:	11/09/18	Data File:	110914.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	BAT/MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	87	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	1,200
APH EC9-12 aliphatics	790
APH EC9-10 aromatics	<82

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-9-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-08 1/3.3
Date Analyzed:	10/26/18	Data File:	102615.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	690 ca
APH EC9-12 aliphatics	200 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-4-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-09 1/3.3
Date Analyzed:	10/26/18	Data File:	102616.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	480 ca
APH EC9-12 aliphatics	140 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-6-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-10 1/3.3
Date Analyzed:	10/26/18	Data File:	102617.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	4,700 ve ca
APH EC9-12 aliphatics	580 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-7-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-11 1/3.3
Date Analyzed:	10/26/18	Data File:	102618.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	2,800 ca
APH EC9-12 aliphatics	340 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-12-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-12 1/3.3
Date Analyzed:	10/26/18	Data File:	102619.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	740 ca
APH EC9-12 aliphatics	250 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-13-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-13 1/3.3
Date Analyzed:	10/26/18	Data File:	102620.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	770 ca
APH EC9-12 aliphatics	180 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-14-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-14 1/3.3
Date Analyzed:	10/26/18	Data File:	102621.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	94	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	710 ca
APH EC9-12 aliphatics	390 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-10-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-15 1/3.3
Date Analyzed:	10/26/18	Data File:	102622.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	92	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	470 ca
APH EC9-12 aliphatics	320 ca
APH EC9-10 aromatics	<82 ca

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VP-LB-102418	Client:	Floyd-Snider
Date Received:	10/24/18	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	10/24/18	Lab ID:	810462-16 1/10
Date Analyzed:	11/03/18	Data File:	110226.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	91	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	470
APH EC9-12 aliphatics	<350
APH EC9-10 aromatics	<250

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	Floyd-Snider
Date Received:	Not Applicable	Project:	Taylor Way-Ave 55, F&BI 810462
Date Collected:	Not Applicable	Lab ID:	08-2484 mb
Date Analyzed:	11/09/18	Data File:	110907.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	79	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	<46
APH EC9-12 aliphatics	<35
APH EC9-10 aromatics	<25

Date of Report: 11/16/18
Date Received: 10/24/18
Project: Taylor Way-Ave 55, F&BI 810462

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	45	112	70-130
APH EC9-12 aliphatics	ug/m3	45	129	70-130
APH EC9-10 aromatics	ug/m3	45	107	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

810462

SAMPLE CHAIN OF CUSTODY ME 10-24-18

Page # 1 of 2

Report To Tom Colligan
Company Floyd Snider
Address 601 Union St., Suite 600
City, State, ZIP Seattle, WA 98101
Phone 206-292-2078 Email tom.colligan@floydsnider.com

SAMPLERS (*signature*): Kara, Gabe

PROJECT NAME: Taylor Way - Ave 55

PO #:

REPORTING LEVEL: ☐ Indoor Air ☐ Deep Soil Gas ☑ Sub Slab/Soil Gas ☐ SVE/Grab

INVOICE TO: Tom Colligan

TURNAROUND TIME: ☑ Standard ☐ RUSH ____ Rush charges authorized by: ____

SAMPLE DISPOSAL: ☑ Dispose after 30 days ☐ Archive Samples ☐ Other ____

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs	APH	Notes
VP-2-102418	01	3311	242	10/24/18	29	7:59	4.5	8:05	X	X	X	(X)	(X) - per GC 11/8/16 MC
VP-1-102418	02	3257	252		28	0838	4.5	0843	X	X	X		
VP-1-102418 DUP	03	3390	256		27.5	0838	4.5	0843	X	X	X		
VP-3-102418	04	3483	258		28.5	9:03	4.5	9:08	X	X	X		
VP-5-102418	05	3255	240		29.5	9:51	4.5	9:57	X	X	X		
VP-8-102418	06	3676	241		29.5	10:41	4.5	10:46	X	X	X		
VP-11-102418	07	2436	230		29.5	11:27	4.5	11:33	X	X	X		Samples received at 21 °C
VP-9-102418	08	3347	244	↓	29	12:02	4.5	12:07	X	X	X	↓	

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kara Hitchko	Floyd Snider	10/24/18	13:16
Received by:	Eric Clar	F-B	10/24/18	3:16
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

810462

SAMPLE CHAIN OF CUSTODY ME 10-24-18

Page # 2 of 2

Report To Tom Colligan
Company Floyd|Snider
Address 601 Union St. Ste. 600
City, State, ZIP Seattle, WA 98101
Phone 206 292-2078 Email

SAMPLERS (signature)

PROJECT NAME: Ave 55 - Taylor Way

PO #

REPORTING LEVEL
- ☐ Indoor Air
- ☐ Deep Soil Gas
- ☒ Sub Slab/Soil Gas
- ☐ SVE/Grab

INVOICE TO

TURNAROUND TIME
- ☒ Standard
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

ANALYSIS REQUESTED

Sample Name	Lab ID	Canister ID	Flow Contr. ID	Date Sampled	Field Initial Press. (Hg)	Field Initial Time	Field Final Press. (Hg)	Field Final Time	TO-15 Full Scan	TO-15 BTEXN	TO-15 cVOCs	APH	Notes
VP-4-102418	09	~~3668~~	101	10/24/18	30	0909	4.5	0913	X	X	X	(X)	
VP-6-102418	10	2299	204		28.5	0937	4.5	0942	X	X	X		
VP-7-102418	11	3344	224		30	1002	4.5	1008	X	X	X		
VP-12-102418	12	3672	243		29.5	~~1025~~ 1030	4.5	1035	X	X	X		
VP-13-102418	13	3387	203		30	~~1048~~ 1048	4.5	1054	X	X	X		
VP-14-102418	14	3260	221		30	1121	4.5	1127	X	X	X		Samples received at 2 °C
VP-10-102418	15	2433	17	↓	29	1155	4.0	1201	X	X	X		
VP-LB-102418	16	2434	111	1	30	1121	0.0	1122	X	X	X		Archive

Friedman & Bruya, Inc.
3012 16th Avenue West
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FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kara Hotchko	Floyd Snider	10/24/18	13:16
Received by:	Eric Cha	F-B	10/24/18	13:16
Relinquished by:				
Received by:				

Attachment 6
Johnson and Ettinger Model Inputs and Results

Building A

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building A
Report Date: Mon Nov 26 2018 06:24:19 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 420[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: 1,2,4-Trimethylbenzene CAS Number: 95636
Molecular Weight: 120.2 [g/mole] Henrys Constant: 0.1315008 [unitless]
Diffusivity in Air: 6.060e-2 [cm^2/sec] Diffusivity in Water: 7.920e-6 [cm^2/sec]
Unit Risk Factor: 0 [(µg/m^3)$^{-1}$] Reference Concentration: 0.00595 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 150000[m^2]
Subsurface Foundation Area: 150060[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.006118[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000002089

[1]Low Indoor Air Prediction: 4.210e-4 [µg/m^3] or 8.568e-5 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 7.075e-5

Best Estimate Indoor Air Prediction: 8.775e-4[µg/m^3] or 1.786e-4 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 1.475e-4

[2]High Indoor Air Prediction: 0.001631[µg/m^3] or 3.320e-4 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 2.741e-4

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building A
Report Date: Mon Nov 26 2018 07:16:55 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 47[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: 1,3-Butadiene CAS Number: 106990
Molecular Weight: 54.09 [g/mole] Henrys Constant: 2.300116 [unitless]
Diffusivity in Air: 0.2490 [cm^2/sec] Diffusivity in Water: 1.080e-5 [cm^2/sec]
Unit Risk Factor: 0.00028 [(µg/m^3)$^{-1}$] Reference Concentration: 0 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 150000[m^2]
Subsurface Foundation Area: 150060[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.02514[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000007861

[1]Low Indoor Air Prediction: 1.572e-4 [µg/m^3] or 7.110e-5 [ppbv]
Cancer Risk of this concentration: 1.809e-8 Hazard Risk of this concentration: 0.

Best Estimate Indoor Air Prediction: 3.695e-4[µg/m^3] or 1.671e-4 [ppbv]
Cancer Risk of this concentration: 4.252e-8 Hazard Risk of this concentration: 0.

[2]High Indoor Air Prediction: 7.167e-4[µg/m^3] or 3.242e-4 [ppbv]
Cancer Risk of this concentration: 8.247e-8 Hazard Risk of this concentration: 0.

Based on parameter analysis: Diffusion is the dominant mechanism across foundation. Diffusion through foundation is the overall rate-limiting process for the subsurface to indoor-air pathway.

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building A
Report Date: Mon Nov 26 2018 07:31:04 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 9.2[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: Acrolein CAS Number: 107028
Molecular Weight: 56.1 [g/mole] Henrys Constant: 0.003375252 [unitless]
Diffusivity in Air: 0.1050 [cm^2/sec] Diffusivity in Water: 1.220e-5 [cm^2/sec]
Unit Risk Factor: 0 [(µg/m^3)$^{-1}$] Reference Concentration: 0.00002 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 150000[m^2]
Subsurface Foundation Area: 150060[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.01061[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000003451

[1]Low Indoor Air Prediction: 1.443e-5 [µg/m^3] or 6.294e-6 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 7.216e-4

Best Estimate Indoor Air Prediction: 3.175e-5[µg/m^3] or 1.385e-5 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 0.001588

[2]High Indoor Air Prediction: 6.036e-5[µg/m^3] or 2.632e-5 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 0.003018

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building A
Report Date: Mon Nov 26 2018 07:33:01 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 25[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: Acrylonitrile CAS Number: 107131
Molecular Weight: 53.06 [g/mole] Henrys Constant: 0.002598185 [unitless]
Diffusivity in Air: 0.1220 [cm^2/sec] Diffusivity in Water: 1.340e-5 [cm^2/sec]
Unit Risk Factor: 0.000068 [(µg/m^3)$^{-1}$] Reference Concentration: 0.002 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 150000[m^2]
Subsurface Foundation Area: 150060[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.01233[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000003974

[1]Low Indoor Air Prediction: 4.471e-5 [µg/m^3] or 2.062e-5 [ppbv]
Cancer Risk of this concentration: 1.249e-9 Hazard Risk of this concentration: 2.235e-5

Best Estimate Indoor Air Prediction: 9.934e-5[µg/m^3] or 4.581e-5 [ppbv]
Cancer Risk of this concentration: 2.776e-9 Hazard Risk of this concentration: 4.967e-5

[2]High Indoor Air Prediction: 1.897e-4[µg/m^3] or 8.745e-5 [ppbv]
Cancer Risk of this concentration: 5.300e-9 Hazard Risk of this concentration: 9.483e-5

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building A
Report Date: Mon Nov 26 2018 07:34:04 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 33[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: Naphthalene CAS Number: 91203
Molecular Weight: 128.18 [g/mole] Henrys Constant: 0.009593771 [unitless]
Diffusivity in Air: 5.900e-2 [cm^2/sec] Diffusivity in Water: 7.500e-6 [cm^2/sec]
Unit Risk Factor: 0 [(µg/m^3)$^{-1}$] Reference Concentration: 0.003 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 150000[m^2]
Subsurface Foundation Area: 150060[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.005959[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000002041

[1]Low Indoor Air Prediction: 3.256e-5 [µg/m^3] or 6.215e-6 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 1.085e-5

Best Estimate Indoor Air Prediction: 6.736e-5[µg/m^3] or 1.286e-5 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 2.245e-5

[2]High Indoor Air Prediction: 1.250e-4[µg/m^3] or 2.385e-5 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 4.166e-5

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

Building B

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building B
Report Date: Mon Nov 26 2018 07:14:34 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 320[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: Acetaldehyde CAS Number: 75070
Molecular Weight: 44.05 [g/mole] Henrys Constant: 0.002312649 [unitless]
Diffusivity in Air: 0.1240 [cm^2/sec] Diffusivity in Water: 1.410e-5 [cm^2/sec]
Unit Risk Factor: 0.0000022 [(µg/m^3)$^{-1}$] Reference Concentration: 0.009 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 51900[m^2]
Subsurface Foundation Area: 52000[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.01254[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000004492

[1]Low Indoor Air Prediction: 7.407e-4 [µg/m^3] or 4.114e-4 [ppbv]
Cancer Risk of this concentration: 6.697e-10 Hazard Risk of this concentration: 8.230e-5

Best Estimate Indoor Air Prediction: 0.001438[µg/m^3] or 7.984e-4 [ppbv]
Cancer Risk of this concentration: 1.300e-9 Hazard Risk of this concentration: 1.597e-4

[2]High Indoor Air Prediction: 0.002609[µg/m^3] or 0.001449 [ppbv]
Cancer Risk of this concentration: 2.359e-9 Hazard Risk of this concentration: 2.899e-4

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building B
Report Date: Mon Nov 26 2018 06:51:45 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 3.9[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: Acrolein CAS Number: 107028
Molecular Weight: 56.1 [g/mole] Henrys Constant: 0.003375252 [unitless]
Diffusivity in Air: 0.1050 [cm^2/sec] Diffusivity in Water: 1.220e-5 [cm^2/sec]
Unit Risk Factor: 0 [(µg/m^3)$^{-1}$] Reference Concentration: 0.00002 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 51900[m^2]
Subsurface Foundation Area: 52000[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.01061[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000003912

[1]Low Indoor Air Prediction: 8.106e-6 [µg/m^3] or 3.535e-6 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 4.053e-4

Best Estimate Indoor Air Prediction: 1.526e-5[µg/m^3] or 6.654e-6 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 7.629e-4

[2]High Indoor Air Prediction: 2.733e-5[µg/m^3] or 1.192e-5 [ppbv]
Cancer Risk of this concentration: 0. Hazard Risk of this concentration: 0.001367

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building B
Report Date: Mon Nov 26 2018 07:00:49 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 16[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: Acrylonitrile CAS Number: 107131
Molecular Weight: 53.06 [g/mole] Henrys Constant: 0.002598185 [unitless]
Diffusivity in Air: 0.1220 [cm^2/sec] Diffusivity in Water: 1.340e-5 [cm^2/sec]
Unit Risk Factor: 0.000068 [$(µg/m^3)^{-1}$] Reference Concentration: 0.002 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 51900[m^2]
Subsurface Foundation Area: 52000[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.01233[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.00000443

[1]Low Indoor Air Prediction: 3.658e-5 [µg/m^3] or 1.687e-5 [ppbv]
Cancer Risk of this concentration: 1.022e-9 Hazard Risk of this concentration: 1.829e-5

Best Estimate Indoor Air Prediction: 7.089e-5[µg/m^3] or 3.269e-5 [ppbv]
Cancer Risk of this concentration: 1.981e-9 Hazard Risk of this concentration: 3.544e-5

[2]High Indoor Air Prediction: 1.285e-4[µg/m^3] or 5.927e-5 [ppbv]
Cancer Risk of this concentration: 3.592e-9 Hazard Risk of this concentration: 6.427e-5

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.

INDOOR AIR SIMULATION RESULTS

Screening-Level Johnson and Ettinger Model

Site Name: Ave 55 - Taylor Way Building B
Report Date: Mon Nov 26 2018 07:07:57 GMT-0800 (Pacific Standard Time)
Report Generated From: https://www3.epa.gov/ceampubl/learn2model/part-two/onsite/JnE_lite_forward.htm
Type of sample: SOIL GAS Concentration = 94[µg/m^3]
Depth of soil gas sample: 0.85ft +/- 0ft
Average soil/ground water temperature: 15C

CHEMICAL PROPERTIES
Chemical of Concern: Trichloroethylene CAS Number: 79016
Molecular Weight: 131.39 [g/mole] Henrys Constant: 0.2642082 [unitless]
Diffusivity in Air: 7.900e-2 [cm^2/sec] Diffusivity in Water: 9.100e-6 [cm^2/sec]
Unit Risk Factor: 0.00011 [(µg/m^3)$^{-1}$] Reference Concentration: 0.04 [mg/m^3]

SOIL PROPERTIES
Soil Type: Sandy Loam Total Porosity: 0.387
Unsaturated Zone Moisture Content:
low= 0.039 best estimate= 0.103 high= 0.17
Capillary Zone Moisture Content: 0.32 Height of Capillary Rise: 0.25 [m]
Soil-Gas Flow Rate into Building: 5 [L/min]

BUILDING PROPERTIES
Building Type: Slab-on-Grade Air Exchange Rate: 0.45[hr^{-1}]
Building Mixing Height: 10[m] Building Footprint Area: 51900[m^2]
Subsurface Foundation Area: 52000[m^2] Building Crack Ratio: 0.00038[unitless]
Foundation Slab Thickness: 0.1[m]

EXPOSURE PARAMETERS
Exposure Duration: carcinogens 30 [years] non-carcinogens: 30 [years]
Exposure Frequency: carcinogens 350 [days/year] non-carcinogens: 365 [days/year]
Averaging Time: carcinogens 70 [years] non-carcinogens: 30 [years]

JOHNSON & ETTINGER SIMULATION RESULTS
Effective Diffusion Coefficient (D_{eff}): 0.007976[cm^2/s]
Soil Gas to Indoor Air Attenuation Factor (α_{SG}) = 0.000003124

[1]Low Indoor Air Prediction: 1.660e-4 [µg/m^3] or 3.091e-5 [ppbv]
Cancer Risk of this concentration: 7.504e-9 Hazard Risk of this concentration: 4.150e-6

Best Estimate Indoor Air Prediction: 2.936e-4[µg/m^3] or 5.468e-5 [ppbv]
Cancer Risk of this concentration: 1.327e-8 Hazard Risk of this concentration: 7.341e-6

[2]High Indoor Air Prediction: 5.118e-4[µg/m^3] or 9.529e-5 [ppbv]
Cancer Risk of this concentration: 2.313e-8 Hazard Risk of this concentration: 1.279e-5

Based on parameter analysis:

[1]"Low Prediction" concentrations produced with HIGHEST moisture content.
[2]"High Prediction" concentrations produced with LOWEST moisture content.

Building Mixing Height is outside the recommended range for this building type.
Building Footpring Area is outside the recommended range for this building type.
Subsurface Foundation Area is outside the recommended range for this building type.