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5317 NE St Johns Rd, Suite D
Vancouver, WA 98661
503.236.5885

Mr. Robert Hood
Oregon Department of Environmental Quality
700 NE Multnomah St., Suite #600
Portland, Oregon 97232

Friday, October 07, 2022

RE: June 2022 Sub-Slab Vapor Performance Monitoring Event – *October 2022 Revision*
ECSI Facility #6219
3912 N Vancouver Avenue
Portland, Oregon 97227

Mr. Hood,

Point Source Solutions (Point Source) has conducted sub-slab vapor performance monitoring at the The Brio Lofts, located at 3912 N Vancouver Avenue in Portland, Oregon (Site).

The Site is identified on a Site Location Map (**Figure 1**) and Sub-Slab Monitoring Probe Locations Map (**Figure 2**), all of which are located in the Figures attached to this memo.

Specific revisions to the initial draft of this sub-slab vapor performance monitoring event report which were requested via email on August 23, 2022, have been added in **bold type**.

BACKGROUND

Point Source completed an Operations, Maintenance and Monitoring Plan (OMMP) for the Site (Point Source Solutions Project Number OR210129-1, dated April 2, 2021). The following are excerpts from the OMMP:

> *A baseline monitoring event was completed on January 20, 2021. The purpose of this event was to confirm that vapor concentrations were compliant with applicable RBCs and that the installed system was working as designed.*
>
> *Concentrations of gasoline-range hydrocarbons and VOCs in vapor samples collected from the system vent riser and the two sub-slab sampling ports for the Baseline Monitoring Event were below the ODEQ Soil Gas Inhalation RBC for residential receptors.*
>
> *Performance monitoring will occur on a semi-annual basis for the first 1.5 years of passive system operation. The first performance monitoring event will occur approximately six months following the baseline monitoring event (anticipated June 2021). The second performance monitoring event will occur approximately six months following the first performance monitoring event (anticipated December 2021) and the third six months later (anticipated June 2022). Performance monitoring is intended to evaluate passive system performance and the need for contingency measures.*
>
> *If the results of the three performance monitoring events are consistent with the baseline monitoring event and/or demonstrate that contaminant concentrations within sub-slab vapor are less than applicable ODEQ RBCs for soil gas, Point Source will request that ODEQ release the requirement for future monitoring of the vapor barrier/ventilation system. Upon release from ODEQ for future monitoring, the passive system will remain in operation.*

The baseline monitoring event that was completed on January 20, 2021 was sampled using laboratory-

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provided sorbent tubes analyzed via Method TO-17. After the submittal of the OMMP to DEQ, DEQ requested that the analytical method be changed to Method TO-15 for all subsequent performance monitoring events, stating that Method TO-15 is a more appropriate method for evaluating vapor intrusion. For this reason, the analytical method was changed to Method TO-15 for all subsequent performance monitoring events, and all samples collected during the performance monitoring events used laboratory-provided summa canisters.

On June 28, 2021, Point Source conducted the 1st semi-annual sub-slab vapor monitoring event at the Site. None of the concentrations of contaminants of concern detected during the sampling event exceeded the most stringent RBCs applicable to this Site.

On December 3, 2022, Point Source conducted the 2nd semi-annual sub-slab vapor monitoring event at the Site. None of the concentrations of contaminants of concern detected during the sampling event exceeded the most stringent RBCs applicable.

SUB-SLAB VAPOR PERFORMANCE MONITORING EVENT – JUNE 2022

On June 21, 2022, Point Source conducted the 3rd semi-annual sub-slab vapor monitoring event at the Site.

Before sampling, a visual inspection of the vent riser and each sub-slab monitoring probe was completed. The overall condition of the riser and the monitoring probes were in accordance with engineering specifications.

The sub-slab vapor sampling from each monitoring probe was conducted as follows:

- A length of disposable Teflon™ tubing was connected to the monitoring point threaded fitting and routed to a handheld instrument to induce a vacuum and maintain a sampling flow at 100 ml/min. All connections were made with Swagelok fittings.

- Using the handheld instrument, the sub-slab monitoring probes were purged of at least 2 dead-air space volumes (a minimum of 3-minutes) from within the intake assembly and tubing. Purging was accomplished using the handheld instrument to induce a vacuum incorporated into the sampling assembly. Upon achieving sufficient purge volume, the purging was discontinued.

- Leak-detection was performed by soaking rags with isopropyl alcohol and the installation of a temporary water dam; the rags were placed over the sampling fitting and connection points within the sampling manifold.

- Samples were collected with a laboratory-provided summa canister by attaching the summa canister to a flow regulated sampling manifold and collecting a sample by drawing between 1 to 6 liters of sample into the canister (to ensure low reporting limits), which was then returned to the laboratory.

- A discharge vapor sample was also collected from the vertical vent riser using a summa canister.

It was discovered during the June 21 monitoring event that the summa canister allotted for sample PS1 was suspected to have leaked in transit. The lab inspected the canister's final pressure with a different flow controller upon arrival in order to confirm this. The sample that had been collected with the canister that leaked before the monitoring event in transit was not analyzed, and the lab sent a replacement canister for the recollection of sample PS1. The sampling event recollecting sample PS1 from the passive system vent riser was conducted on June 28, 2022 following the same sampling methodology detailed above.

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Vapor samples were transported under chain of custody to Friedman and Bruya of Seattle, Washington. Each sample was labeled for identification, and Chain of Custody was maintained for all samples. The samples were analyzed for gasoline range hydrocarbons and select VOCs (common gasoline constituents). A table summarizing the results of all target analytes analyzed for during the baseline monitoring event and all subsequent performance monitoring events is attached to this document as Table 1.

Copies of the laboratory analytical reports are provided in Appendix C.

Laboratory QA/QC measures were performed through data validation of available analytical data generated as part of these sampling events. Data validation considered the following:

- Method Detection and/or Reporting Limits
- Laboratory Matrix Blanks
- Sample Holding Times
- Surrogate and Matrix Spike Recoveries, and
- Laboratory Duplicate Analysis Results

Friedman & Bruya did not report qualifiers that would indicate problems with the sample results. According to the lab reports all analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Exceptions are qualified in the analytical report. In cases where there is insufficient sample material provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis. 2-Propanol was used as a leak check compound for the soil vapor samples. 2-Propanol was not detected or was detected at very low concentrations, indicating that the VOC sample results are valid.

SUMMARY AND CONCLUSIONS

Based on the results of this semi-annual sampling event, the following conclusions have been developed:

Benzene detected in June 2022 from the vent riser sample at 160.0 ug/m^3 is the only VOC concentration exceeding the ODEQ Soil Gas Inhalation RBC for Residential Receptors (72.0 ug/m^3) detected during the 3 performance monitoring events. This concentration falls below RBCs for receptors currently applicable to the Site—urban residential receptors (170 ug/m^3) and occupational receptors (1,600 ug/m^3).

The sub-slab sample results of SS1 and SS2 during the same monitoring event did not return Benzene detections exceeding their respective MDLs. The fact that Benzene concentrations are significantly lower and/or untraceable in sub-slab samples compared to the vent riser sample demonstrates the efficacy of the Absolute Barrier Y40BAC 40-mil liner installed. The sub-slab vapor monitoring points only penetrate through the buildings foundational slab, not the liner, and therefore when sampled, only draw from gases trapped in the interstitial space between the foundation slab and the liner. The vent riser draws from soil gas collected by the network of PVC pipe running beneath the liner, in closer contact to soil contamination remaining beneath. On-site receptors are only potentially exposed to soil gas that is being drawn from the sub-slab monitoring points, not the passive system vent riser. Although vent riser sample PS1 and sub-slab vapor

samples SS1 and SS2 were collected one week apart from each other due to unforeseeable sampling equipment issues, Point Source maintains that this gap in time is not significant enough to prevent their direct comparison.

Point Source contends that because the results derived from samples collected from the sub-slab monitoring points over the course of three performance monitoring events have returned results indicative of site conditions being protective of human health for onsite receptors, the performance objectives for the system have been achieved.

The performance monitoring is indicative of the passive soil vapor mitigation system operating as designed. Point Source requests that ODEQ release the requirement for future monitoring of the vapor barrier/ventilation system, consistent with the April 2021 OMMP prepared for the Site and issue a No Further Action determination for the Site.

If you have any questions regarding the information contained in this Plan, please do not hesitate to call Gil Cobb or Jeff Jackman at 503.236.5885.

Prepared by:
Gil Cobb, Registered Geologist (Oregon #G1440)

Expires 12/31/2022

Reviewed By:
Jeff Jackman, Environmental Professional

Point Source Solutions, LLC
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Phone: 503.236.5885

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Attachments:

Figure 1 – Site Location Map
Figure 2 – Sub-Slab Monitoring Probe Locations

Table 1, 2, 3, 4 – Laboratory Analytical Results

Appendix A – Laboratory Analytical Reports
Appendix B – Field Forms

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FIGURES

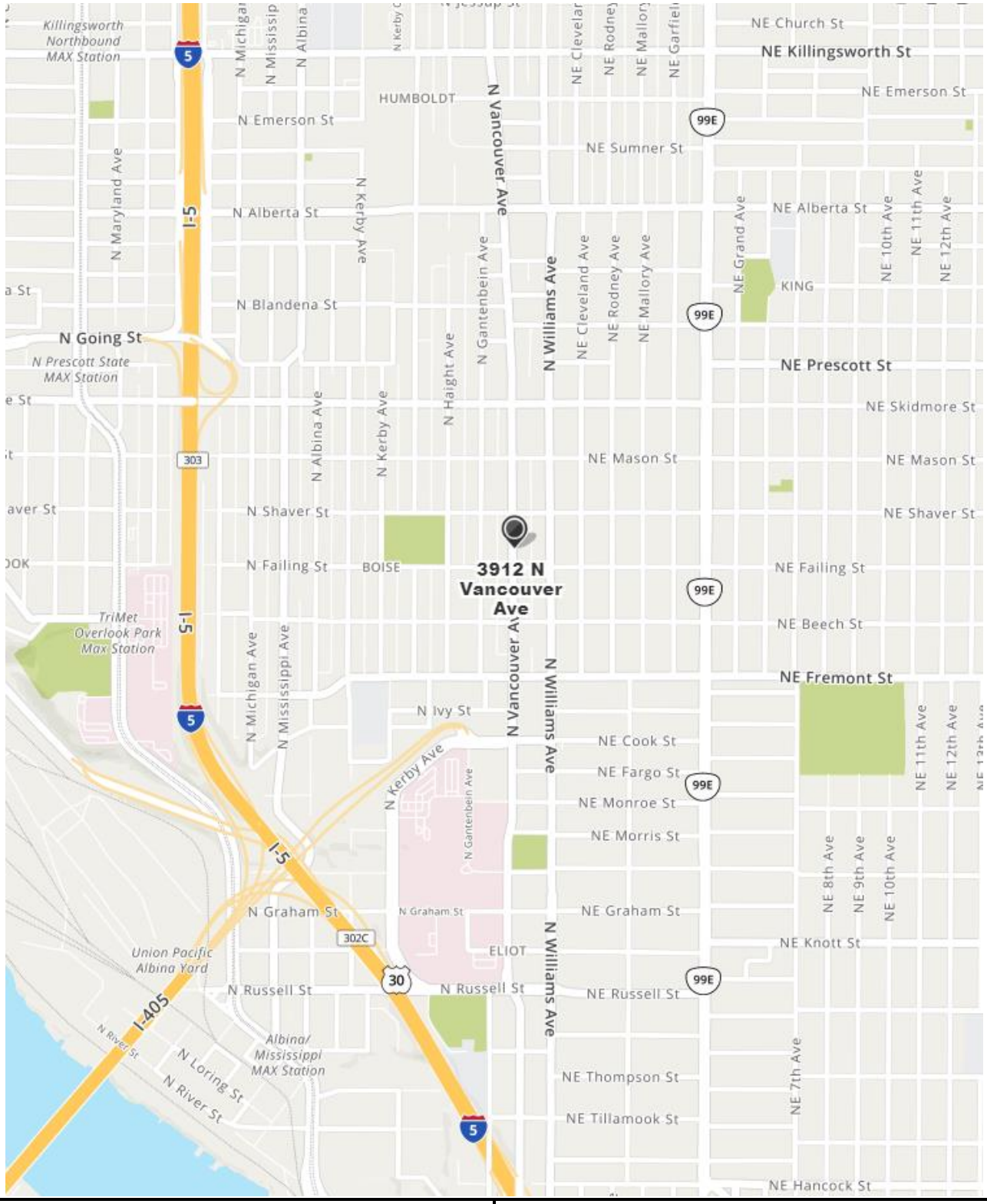

FIGURE 1 - SITE LOCATION MAP

Map from MapQuest N↑

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Site Name: ECSI Facility #6219
3912 N. Vancouver Avenue
Portland, Oregon 97227

Project Number: OR170712-3C

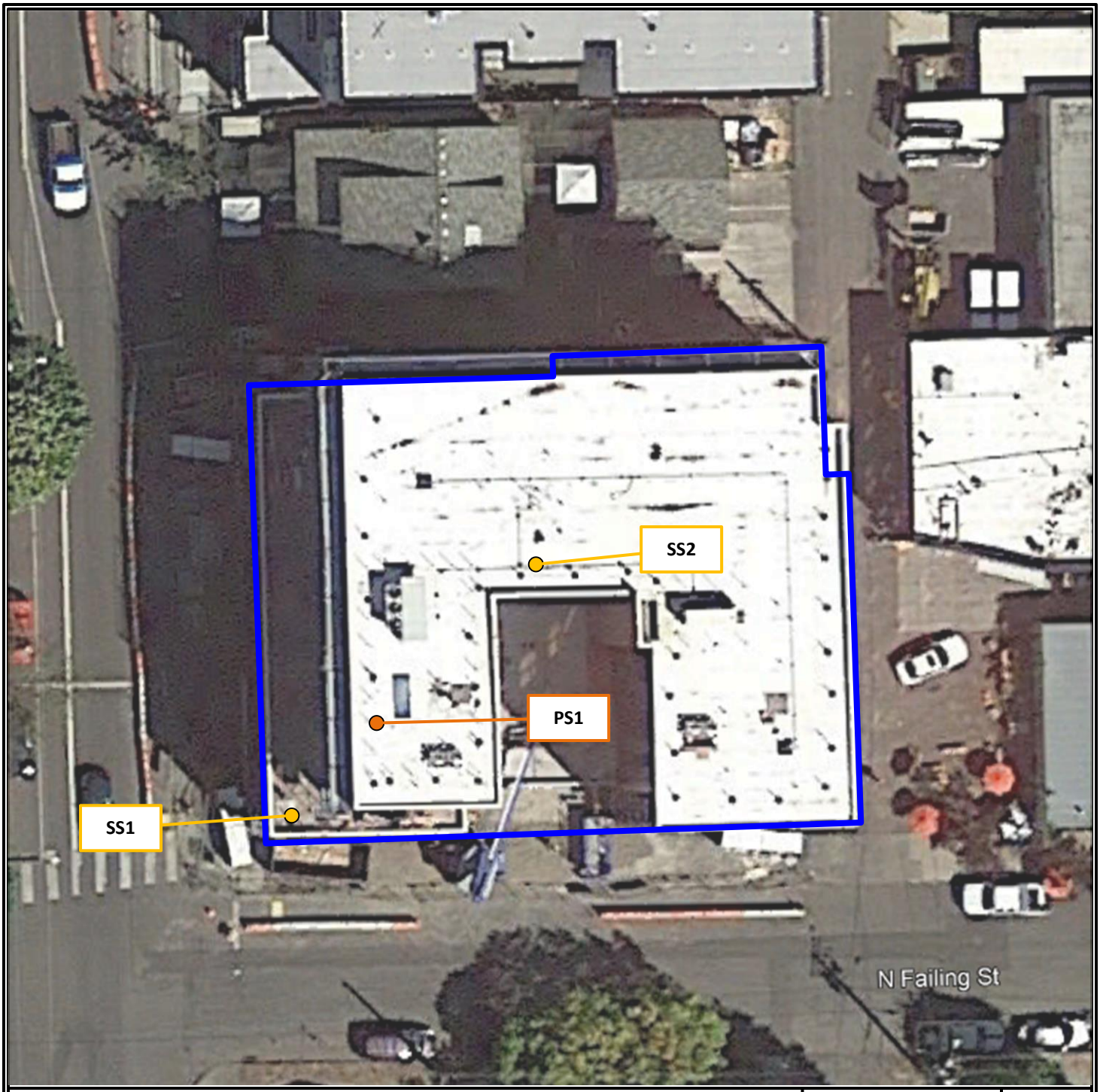

FIGURE 2: SUB-SLAB MONITORING PROBE LOCATIONS

Imagery from Google Earth (2020)

N↑

Sub-Slab Probe Locations

Vent Riser Sampling Port

Parking Garage Boundary

Scale in Feet (Approximate)

30

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ENVIRONMENTAL CONSULTING AND CONTRACTING

Site Name: ECSI Facility #6219
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Portland, Oregon 97227

Project Number: OR170712-3C

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TABLES

TABLE 1 - JANUARY 2021 BASELINE MONITORING EVENT						
ANALYTE	RBCsg Residential	RBCsg Urban Residential	RBCsg Occupatoinal	PS1	SS1	SS2
SOIL GAS (UG/M3) – METHOD TO-17						
1,1-Dichloroethane	350	830	7,700	<5.0	<5.0	<5.0
1,1-Dichloroethene	42,000	42,000	880,000	<10.0	<10.0	<10.0
1,1,1-Trichloroethane	1,000,000	1,000,000	22,000,000	6.4	<5.0	10.0
1,1,2-Trichloroethane	35	42	770	<1.0	<1.0	<1.0
1,2-Dichlorobenzene	42,000	42,000	880,000	<1.0	<1.0	<1.0
1,2,4-TMB	13,000	13,000	260,000	2.6	3.1	3.6
1,3,5-TMB	13,000	13,000	260,000	<1.0	<1.0	<1.0
1,4-Dichlorobenzene	51	120	1,100	<1.0	<1.0	<1.0
1,4-Dioxane	110	270	2,500	NA	NA	NA
Benzene	72	170	1,600	40.0	<20.0	<20.0
Bromoform	510	1,200	11,000	<5.0	<5.0	<5.0
Bromomethane	1,000	1,000	22,000	NA	NA	NA
Carbon tetrachloride	94	220	2,000	<5.0	<5.0	<5.0
Chlorobenzene	10,000	10,000	220,000	<1.0	<1.0	<1.0
Chloroethane	2,100,000	2,100,000	44,000,000	NA	NA	NA
Chloroform	24	58	530	<5.0	<5.0	<5.0
Chloromethane	19,000	19,000	390,000	NA	NA	NA
EDB	0.94	2.2	20	<5.0	<5.0	<5.0
EDC	22	51	470	<5.0	<5.0	<5.0
Ethylbenzene	220	530	4,900	<5.0	<5.0	<5.0
GRO	79,000	79,000	1,700,000	<2500	<2500	<2500
Isopropylbenzene (Cumene)	83,000	83,000	1,800,000	<5.0	<5.0	<5.0
MTBE	2,200	5,100	47,000	<25.0	<25.0	<25.0
Naphthalene	17	39	360	<1.0	<1.0	<1.0
PCE	2,200	5,100	47,000	7.0	4.1	30.0
Styrene	210,000	210,000	4,400,000	<5.0	<5.0	<5.0
TCE	95	200	2,900	4.0	1.3	8.6
Toluene	1,000,000	1,000,000	22,000,000	8.5	7.4	7.7
Vinyl chloride	33	41	2,800	<5.0	<5.0	<5.0
Xylenes	21,000	21,000	440,000	<5.0	<5.0	<5.0
2-Propanol	-	-	-	<250.0	<250.0	<250.0

Notes:

- Concentrations are only presented for regulated compounds. Various compounds were detected in these samples without corresponding RBCs for the relevant exposure scenarios.
- 2-Propanol was used as a sample breakthrough compound. Concentrations of less than 5% (500,000 ug/m3) are acceptable.

Soil Gas exceeding RBCsg – Residential Receptors
Soil Gas exceeding RBCsg – Urban Residential Receptors
Soil Gas exceeding RBCsg – Occupational Receptors

TABLE 2 - JUNE 2021 BASELINE MONITORING EVENT						
ANALYTE	**RBCsg Residential**	**RBCsg Urban Residential**	**RBCsg Occupatoinal**	**PS1**	**SS1**	**SS2**
SOIL GAS (UG/M3) – METHOD TO-15						
1,1-Dichloroethane	350	830	7,700	<3.8	<2.4	<2.4
1,1-Dichloroethene	42,000	42,000	880,000	11.0	6.4	19.0
1,1,1-Trichloroethane	1,000,000	1,000,000	22,000,000	28.0	27.0	24.0
1,1,2-Trichloroethane	35	42	770	0.52	<0.33	<0.32
1,2-Dichlorobenzene	42,000	42,000	880,000	<5.7	<3.6	<3.5
1,2,4-TMB	13,000	13,000	260,000	29.0	<15.0	<15.0
1,3,5-TMB	13,000	13,000	260,000	<23.0	<15.0	<15.0
1,4-Dichlorobenzene	51	120	1,100	<2.2	<1.4	<1.3
1,4-Dioxane	110	270	2,500	3.7	<2.2	<2.1
Benzene	72	170	1,600	71.0	2.8	<1.9
Bromoform	510	1,200	11,000	<20.0	<12.0	<12.0
Bromomethane	1,000	1,000	22,000	<22.0	<14.0	<14.0
Carbon tetrachloride	94	220	2,000	3.3	3.1	3.1
Chlorobenzene	10,000	10,000	220,000	<4.4	<2.8	<2.7
Chloroethane	2,100,000	2,100,000	44,000,000	<25.0	<16.0	<16.0
Chloroform	24	58	530	7.9	8.7	3.8
Chloromethane	19,000	19,000	390,000	<35.0	<22.0	<22.0
EDB	0.94	2.2	20	<0.73	<0.46	<0.45
EDC	22	51	470	1.2	<0.24	<0.24
Ethylbenzene	220	530	4,900	17.0	8.2	4.3
GRO	79,000	79,000	1,700,000	17000.0	7400.0	3900.0
Isopropylbenzene (Cumene)	83,000	83,000	1,800,000	89.0	<15.0	<15.0
MTBE	2,200	5,100	47,000	<17.0	<11.0	<11.0
Naphthalene	17	39	360	<2.5	1.7	1.7
PCE	2,200	5,100	47,000	220.0	91.0	170.0
Styrene	210,000	210,000	4,400,000	78.0	18.0	10.0
TCE	95	200	2,900	21.0	19.0	20.0
Toluene	1,000,000	1,000,000	22,000,000	<180.0	<110.0	<110.0
Vinyl chloride	33	41	2,800	<2.4	<1.5	<1.5
Xylenes	21,000	21,000	440,000	64.0	44.0	23.0
2-Propanol	-	-	-	<82.0	<52.0	<51.0

Notes:

- Concentrations are only presented for regulated compounds. Various compounds were detected in these samples without corresponding RBCs for the relevant exposure scenarios.
- 2-Propanol was used as a sample breakthrough compound. Concentrations of less than 5% (500,000 ug/m3) are acceptable.

Soil Gas exceeding RBCsg – Residential Receptors

Soil Gas exceeding RBCsg – Urban Residential Receptors

Soil Gas exceeding RBCsg – Occupational Receptors

TABLE 3 – DECEMBER 2021 BASELINE MONITORING EVENT						
ANALYTE	**RBCsg Residential**	**RBCsg Urban Residential**	**RBCsg Occupatoinal**	**PS1**	**SS1**	**SS2**
SOIL GAS (UG/M3) – METHOD TO-15						
1,1-Dichloroethane	350	830	7,700	<2.2	<2.3	<2.3
1,1-Dichloroethene	42,000	42,000	880,000	<2.2	<2.2	<2.2
1,1,1-Trichloroethane	1,000,000	1,000,000	22,000,000	<3.0	<3.1	<3.1
1,1,2-Trichloroethane	35	42	770	<0.3	<0.31	<0.31
1,2-Dichlorobenzene	42,000	42,000	880,000	<3.3	<3.4	<3.4
1,2,4-TMB	13,000	13,000	260,000	<14.0	<14.0	<14.0
1,3,5-TMB	13,000	13,000	260,000	<14.0	<14.0	<14.0
1,4-Dichlorobenzene	51	120	1,100	<1.3	<1.3	<1.3
1,4-Dioxane	110	270	2,500	<2.0	<2.0	<2.0
Benzene	72	170	1,600	60.0	4.8	4.7
Bromoform	510	1,200	11,000	<11.0	<12.0	<12.0
Bromomethane	1,000	1,000	22,000	<13.0	<13.0	<13.0
Carbon tetrachloride	94	220	2,000	<1.7	<1.8	<1.8
Chlorobenzene	10,000	10,000	220,000	<2.5	<2.6	<2.6
Chloroethane	2,100,000	2,100,000	44,000,000	<15.0	<15.0	<15.0
Chloroform	24	58	530	3.3	<0.27	1.9
Chloromethane	19,000	19,000	390,000	<20.0	<21.0	<21.0
EDB	0.94	2.2	20	<0.42	<0.43	<0.43
EDC	22	51	470	<0.22	<0.23	<0.23
Ethylbenzene	220	530	4,900	20.0	11.0	14.0
GRO	79,000	79,000	1,700,000	2100.0	<1800.0	<1800.0
Isopropylbenzene (Cumene)	83,000	83,000	1,800,000	29.0	<14.0	<14.0
MTBE	2,200	5,100	47,000	<9.9	<10.0	<10.0
Naphthalene	17	39	360	<1.4	<1.5	<1.5
PCE	2,200	5,100	47,000	<37.0	<38.0	<38.0
Styrene	210,000	210,000	4,400,000	<4.7	<4.8	<4.8
TCE	95	200	2,900	1.5	<0.6	1.8
Toluene	1,000,000	1,000,000	22,000,000	230.0	130.0	130.0
Vinyl chloride	33	41	2,800	<1.4	<1.4	<1.4
Xylenes	21,000	21,000	440,000	104.0	60.0	76.0
2-Propanol	-	-	-	<47.0	<48.0	<48.0

Notes:

- Concentrations are only presented for regulated compounds. Various compounds were detected in these samples without corresponding RBCs for the relevant exposure scenarios.
- 2-Propanol was used as a sample breakthrough compound. Concentrations of less than 5% (500,000 ug/m3) are acceptable.

Soil Gas exceeding RBCsg – Residential Receptors

Soil Gas exceeding RBCsg – Urban Residential Receptors

Soil Gas exceeding RBCsg – Occupational Receptors

TABLE 4 – JUNE 2022 BASELINE MONITORING EVENT						
ANALYTE	**RBCsg Residential**	**RBCsg Urban Residential**	**RBCsg Occupatoinal**	**PS1**	**SS1**	**SS2**
SOIL GAS (UG/M3) – METHOD TO-15						
1,1-Dichloroethane	350	830	7,700	<7.7	<2.2	<2.7
1,1-Dichloroethene	42,000	42,000	880,000	<7.5	<2.2	<2.6
1,1,1-Trichloroethane	1,000,000	1,000,000	22,000,000	<10.0	<3.0	<3.6
1,1,2-Trichloroethane	35	42	770	<1.0	<0.3	<0.36
1,2-Dichlorobenzene	42,000	42,000	880,000	<11.0	<3.3	<4.0
1,2,4-TMB	13,000	13,000	260,000	<93.0	<27.0	<32.0
1,3,5-TMB	13,000	13,000	260,000	<93.0	<27.0	<32.0
1,4-Dichlorobenzene	51	120	1,100	<4.3	<1.3	<1.5
1,4-Dioxane	110	270	2,500	<6.8	<2.0	<2.4
Benzene	72	170	1,600	**160.0**	<1.8	<2.1
Bromoform	510	1,200	11,000	<39.0	<11.0	<14.0
Bromomethane	1,000	1,000	22,000	<74.0	<21.0	<26.0
Carbon tetrachloride	94	220	2,000	<6.0	<1.7	<2.1
Chlorobenzene	10,000	10,000	220,000	<8.7	<2.5	<3.0
Chloroethane	2,100,000	2,100,000	44,000,000	<50.0	<15.0	<17.0
Chloroform	24	58	530	4.4	<0.27	2.4
Chloromethane	19,000	19,000	390,000	<71.0	<20.0	<25.0
EDB	0.94	2.2	20	<1.5	<0.42	<0.51
EDC	22	51	470	<0.77	<0.22	<0.27
Ethylbenzene	220	530	4,900	<8.3	<2.4	<2.9
GRO	79,000	79,000	1,700,000	<6200.0	<1800.0	<2200.0
Isopropylbenzene (Cumene)	83,000	83,000	1,800,000	<190.0	<54.0	<65.0
MTBE	2,200	5,100	47,000	<140.0	<40.0	<48.0
Naphthalene	17	39	360	<5.0	<1.4	<1.7
PCE	2,200	5,100	47,000	<130.0	<37.0	100.0
Styrene	210,000	210,000	4,400,000	<16.0	<4.7	<5.6
TCE	95	200	2,900	2.2	<0.59	7.2
Toluene	1,000,000	1,000,000	22,000,000	<360.0	<100.0	<120.0
Vinyl chloride	33	41	2,800	<4.9	<1.4	<1.7
Xylenes	21,000	21,000	440,000	32.7	11.89	<5.7
2-Propanol	-	-	-	<160.0	<47.0	<57.0

Notes:

- Concentrations are only presented for regulated compounds. Various compounds were detected in these samples without corresponding RBCs for the relevant exposure scenarios.
- 2-Propanol was used as a sample breakthrough compound. Concentrations of less than 5% (500,000 ug/m3) are acceptable.

Soil Gas exceeding RBCsg – Residential Receptors

Soil Gas exceeding RBCsg – Urban Residential Receptors

Soil Gas exceeding RBCsg – Occupational Receptors

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APPENDICES

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APPENDIX A

LABORATORY ANALYTICAL 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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
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www.friedmanandbruya.com

January 28, 2021

Gil Cobb, Project Manager
Point Source Solutions
10445 SW Canyon Rd., Ste. 266
Beaverton, OR 97005

Dear Mr Cobb:

Included are the results from the testing of material submitted on January 21, 2021 from the BRIO, F&BI 101276 project. There are 7 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
PSS0128R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 21, 2020 by Friedman & Bruya, Inc. from the Point Source Solutions BRIO, F&BI 101276 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Point Source Solutions
101276 -01	PS1
101276 -02	SS1
101276 -03	SS2

The hexane and 2-butanone (MEK) concentration in sample PS1 exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	PS1	Client:	Point Source Solutions
Date Received:	01/21/21	Project:	BRIO, F&BI 101276
Date Collected:	01/20/21	Lab ID:	101276-01
Date Analyzed:	01/21/21	Data File:	012110.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3	Compounds:	Concentration ug/m3
Dichlorodifluoromethane	26	1,2-Dibromoethane (EDB)	<5
Vinyl chloride	<5	Chlorobenzene	<1
2-Propanol	<250	Ethylbenzene	<5
1,1-Dichloroethene	<10	1,1,1,2-Tetrachloroethane	<5
Hexane	310 ve	m,p-Xylene	<10
t-Butyl alcohol (TBA)	<250	o-Xylene	<5
Methyl t-butyl ether (MTBE)	<25	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<5	Bromobenzene	<1
Chloroform	<5	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	1,200 ve	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	6.4	2-Chlorotoluene	<1
1,1-Dichloropropene	<5	4-Chlorotoluene	<1
Carbon tetrachloride	<5	tert-Butylbenzene	<1
Benzene	40	1,2,4-Trimethylbenzene	2.6
Trichloroethene	4.0	sec-Butylbenzene	<1
1,2-Dichloropropane	<5	p-Isopropyltoluene	<2
Bromodichloromethane	<5	1,3-Dichlorobenzene	<1
Dibromomethane	<5	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<5	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<1
Toluene	8.5	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<25	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<1	2-Methylnaphthalene	<10
Tetrachloroethene	7.0	1-Methylnaphthalene	<10
Dibromochloromethane	5.3	Gasoline Range Organics	<2500

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	SS1	Client:	Point Source Solutions
Date Received:	01/21/21	Project:	BRIO, F&BI 101276
Date Collected:	01/20/21	Lab ID:	101276-02
Date Analyzed:	01/21/21	Data File:	012111.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3	Compounds:	Concentration ug/m3
Dichlorodifluoromethane	<25	1,2-Dibromoethane (EDB)	<5
Vinyl chloride	<5	Chlorobenzene	<1
2-Propanol	<250	Ethylbenzene	<5
1,1-Dichloroethene	<10	1,1,1,2-Tetrachloroethane	<5
Hexane	<25	m,p-Xylene	<10
t-Butyl alcohol (TBA)	<250	o-Xylene	<5
Methyl t-butyl ether (MTBE)	<25	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<5	Bromobenzene	<1
Chloroform	<5	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<25	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<1
1,1-Dichloropropene	<5	4-Chlorotoluene	<1
Carbon tetrachloride	<5	tert-Butylbenzene	<1
Benzene	<20	1,2,4-Trimethylbenzene	3.1
Trichloroethene	1.3	sec-Butylbenzene	<1
1,2-Dichloropropane	<5	p-Isopropyltoluene	<2
Bromodichloromethane	<5	1,3-Dichlorobenzene	<1
Dibromomethane	<5	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<5	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<1
Toluene	7.4	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<25	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<1	2-Methylnaphthalene	<10
Tetrachloroethene	4.1	1-Methylnaphthalene	<10
Dibromochloromethane	<5	Gasoline Range Organics	<2500

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	SS2	Client:	Point Source Solutions
Date Received:	01/21/21	Project:	BRIO, F&BI 101276
Date Collected:	01/20/21	Lab ID:	101276-03
Date Analyzed:	01/21/21	Data File:	012112.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3	Compounds:	Concentration ug/m3
Dichlorodifluoromethane	33	1,2-Dibromoethane (EDB)	<5
Vinyl chloride	<5	Chlorobenzene	<1
2-Propanol	<250	Ethylbenzene	<5
1,1-Dichloroethene	<10	1,1,1,2-Tetrachloroethane	<5
Hexane	<25	m,p-Xylene	<10
t-Butyl alcohol (TBA)	<250	o-Xylene	<5
Methyl t-butyl ether (MTBE)	<25	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<5	Bromobenzene	<1
Chloroform	<5	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<25	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	10	2-Chlorotoluene	<1
1,1-Dichloropropene	<5	4-Chlorotoluene	<1
Carbon tetrachloride	<5	tert-Butylbenzene	<1
Benzene	<20	1,2,4-Trimethylbenzene	3.6
Trichloroethene	8.6	sec-Butylbenzene	<1
1,2-Dichloropropane	<5	p-Isopropyltoluene	<2
Bromodichloromethane	<5	1,3-Dichlorobenzene	<1
Dibromomethane	<5	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<5	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<1
Toluene	7.7	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<25	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<1	2-Methylnaphthalene	<10
Tetrachloroethene	30	1-Methylnaphthalene	<10
Dibromochloromethane	<5	Gasoline Range Organics	<2500

Analysis For Volatile Compounds By Method TO-17

Client Sample ID:	Method Blank	Client:	Point Source Solutions
Date Received:	Not Applicable	Project:	BRIO, F&BI 101276
Date Collected:	Not Applicable	Lab ID:	01-167 mb
Date Analyzed:	01/21/21	Data File:	012109.D
Matrix:	Air	Instrument:	GCMS10
Units:	ug/m3	Operator:	bat

Compounds:	Concentration ug/m3	Compounds:	Concentration ug/m3
Dichlorodifluoromethane	<25	1,2-Dibromoethane (EDB)	<5
Vinyl chloride	<5	Chlorobenzene	<1
2-Propanol	<250	Ethylbenzene	<5
1,1-Dichloroethene	<10	1,1,1,2-Tetrachloroethane	<5
Hexane	<25	m,p-Xylene	<10
t-Butyl alcohol (TBA)	<250	o-Xylene	<5
Methyl t-butyl ether (MTBE)	<25	Styrene	<5
trans-1,2-Dichloroethene	<5	Isopropylbenzene	<5
1,1-Dichloroethane	<5	Bromoform	<5
2,2-Dichloropropane	<5	n-Propylbenzene	<1
cis-1,2-Dichloroethene	<5	Bromobenzene	<1
Chloroform	<5	1,3,5-Trimethylbenzene	<1
2-Butanone (MEK)	<25	1,1,2,2-Tetrachloroethane	<1
1,2-Dichloroethane (EDC)	<5	1,2,3-Trichloropropane	<1
1,1,1-Trichloroethane	<5	2-Chlorotoluene	<1
1,1-Dichloropropene	<5	4-Chlorotoluene	<1
Carbon tetrachloride	<5	tert-Butylbenzene	<1
Benzene	<20	1,2,4-Trimethylbenzene	<1
Trichloroethene	<1	sec-Butylbenzene	<1
1,2-Dichloropropane	<5	p-Isopropyltoluene	<2
Bromodichloromethane	<5	1,3-Dichlorobenzene	<1
Dibromomethane	<5	1,4-Dichlorobenzene	<1
4-Methyl-2-pentanone	<5	1,2-Dichlorobenzene	<1
cis-1,3-Dichloropropene	<5	1,2-Dibromo-3-chloropropane	<1
Toluene	<5	1,2,4-Trichlorobenzene	<1
trans-1,3-Dichloropropene	<1	Hexachlorobutadiene	<1
1,1,2-Trichloroethane	<1	Naphthalene	<1
2-Hexanone	<25	1,2,3-Trichlorobenzene	<5
1,3-Dichloropropane	<1	2-Methylnaphthalene	<10
Tetrachloroethene	<1	1-Methylnaphthalene	<10
Dibromochloromethane	<5	Gasoline Range Organics	<2500

Date of Report: 01/28/21
Date Received: 01/21/21
Project: BRIO, F&BI 101276

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-17

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	ng/tube	50	81	70-130
Vinyl chloride	ng/tube	50	97	70-130
2-Propanol	ng/tube	250	115	70-130
1,1-Dichloroethene	ng/tube	50	98	70-130
Hexane	ng/tube	50	84	70-130
t-Butyl alcohol (TBA)	ng/tube	250	99	70-130
Methyl t-butyl ether (MTBE)	ng/tube	50	97	70-130
trans-1,2-Dichloroethene	ng/tube	50	100	70-130
1,1-Dichloroethane	ng/tube	50	99	70-130
2,2-Dichloropropane	ng/tube	50	99	70-130
cis-1,2-Dichloroethene	ng/tube	50	98	70-130
Chloroform	ng/tube	50	99	70-130
2-Butanone (MEK)	ng/tube	50	91	70-130
1,2-Dichloroethane (EDC)	ng/tube	50	98	70-130
1,1,1-Trichloroethane	ng/tube	50	100	70-130
1,1-Dichloropropene	ng/tube	50	95	70-130
Carbon tetrachloride	ng/tube	50	101	70-130
Benzene	ng/tube	50	87	70-130
Trichloroethene	ng/tube	50	100	70-130
1,2-Dichloropropane	ng/tube	50	97	70-130
Bromodichloromethane	ng/tube	50	100	70-130
Dibromomethane	ng/tube	50	100	70-130
4-Methyl-2-pentanone	ng/tube	50	95	70-130
cis-1,3-Dichloropropene	ng/tube	50	98	70-130
Toluene	ng/tube	50	93	70-130
trans-1,3-Dichloropropene	ng/tube	50	96	70-130
1,1,2-Trichloroethane	ng/tube	50	92	70-130
2-Hexanone	ng/tube	50	104	70-130
1,3-Dichloropropane	ng/tube	50	93	70-130
Tetrachloroethene	ng/tube	50	97	70-130
Dibromochloromethane	ng/tube	50	99	70-130
1,2-Dibromoethane (EDB)	ng/tube	50	97	70-130
Chlorobenzene	ng/tube	50	98	70-130
Ethylbenzene	ng/tube	50	95	70-130
1,1,1,2-Tetrachloroethane	ng/tube	50	98	70-130
m,p-Xylene	ng/tube	100	97	70-130
o-Xylene	ng/tube	50	96	70-130
Styrene	ng/tube	50	94	70-130
Isopropylbenzene	ng/tube	50	95	70-130
Bromoform	ng/tube	50	98	70-130
n-Propylbenzene	ng/tube	50	95	70-130
Bromobenzene	ng/tube	50	98	70-130
1,3,5-Trimethylbenzene	ng/tube	50	93	70-130
1,1,2,2-Tetrachloroethane	ng/tube	50	93	70-130
1,2,3-Trichloropropane	ng/tube	50	94	70-130
2-Chlorotoluene	ng/tube	50	94	70-130
4-Chlorotoluene	ng/tube	50	95	70-130
tert-Butylbenzene	ng/tube	50	94	70-130
1,2,4-Trimethylbenzene	ng/tube	50	94	70-130
sec-Butylbenzene	ng/tube	50	95	70-130
p-Isopropyltoluene	ng/tube	50	95	70-130
1,3-Dichlorobenzene	ng/tube	50	96	70-130
1,4-Dichlorobenzene	ng/tube	50	96	70-130
1,2-Dichlorobenzene	ng/tube	50	96	70-130
1,2-Dibromo-3-chloropropane	ng/tube	50	89	70-130
1,2,4-Trichlorobenzene	ng/tube	50	93	70-130
Hexachlorobutadiene	ng/tube	50	96	70-130
Naphthalene	ng/tube	50	93	70-130
1,2,3-Trichlorobenzene	ng/tube	50	95	70-130
2-Methylnaphthalene	ng/tube	50	90	70-130
1-Methylnaphthalene	ng/tube	50	91	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 analyte 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 due to sample matrix effects.

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.

101276

SAMPLE CHAIN OF CUSTODY

01-21-20

CI2

Page # 1 of 1

Report To Gil Cobb

Company Point Source Solutions

Address 10445 SW Canyon Rd Ste 266

City, State, ZIP Beaverton, OR 97005

Phone (503) 916-9254 Email gil@pointsourcesolutions.com

SAMPLERS (*signature*)

PROJECT NAME: BRIO

PO #

REMARKS

INVOICE TO

TURNAROUND TIME
- [x] Standard (10 Business Days)
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [ ] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample Name	Lab ID	Tube ID	Collection Information: Sample Date	Pre-Flow Rate	Post-Flow Rate	Start Time	End Time	Volume Sampled	TO-17 Analytes Requested: Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	TPH-DRO	2-Propanol	TPH-GRO	Full list VOCs	Notes
PS1	01	309145	1/20/21	100 ml/min	100 ml/min	10:16	10:26	1 L							X	X	X	
SS1	02	311369	1/20/21	100 ml/min	100 ml/min	10:39	10:49	1 L							X	X	X	
SS2	03	322153	1/20/21	100 ml/min	100 ml/min	11:14	11:24	1 L							X	X	X	
																		Samples received at 4 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kyle Fisher	PSS	1/20/21	15:57
Received by:	Ann W-Bruya	FRB	1/21/20	1050
Relinquished by:				
Received by:				

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
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(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 13, 2021

Gil Cobb, Project Manager
Point Source Solutions
10445 SW Canyon Rd., Ste. 266
Beaverton, OR 97005

Dear Mr Cobb:

Included are the results from the testing of material submitted on June 30, 2021 from the BRIO, F&BI 106541 project. There are 10 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: Johnny@PointSourceSolutions.com
PSS0713R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 30, 2021 by Friedman & Bruya, Inc. from the Point Source Solutions BRIO, F&BI 106541 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Point Source Solutions
106541 -01	PS1
106541 -02	SS1
106541 -03	SS2

The TO-15 acetone and 2-Butanone (MEK) concentration for sample PS1 exceeded the calibration range. The data were flagged accordingly.

The TO-15 gasoline range organics concentration was determined using a single point calibration at 80 ppbv.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	PS1	Client:	Point Source Solutions
Date Received:	06/30/21	Project:	BRIO, F&BI 106541
Date Collected:	06/28/21	Lab ID:	106541-01 1/9.5
Date Analyzed:	07/07/21	Data File:	070715.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
Propene	<11	<6.6	1,2-Dichloropropane	<2.2	<0.47
Dichlorodifluoromethane	44	9.0	1,4-Dioxane	3.7	1.0
Chloromethane	<35	<17	2,2,4-Trimethylpentane	<44	<9.5
F-114	<6.6	<0.95	Methyl methacrylate	<39	<9.5
Vinyl chloride	<2.4	<0.95	Heptane	<39	<9.5
1,3-Butadiene	<0.26	<0.19	Bromodichloromethane	<0.64	<0.095
Butane	<45	<19	Trichloroethene	21	3.9
Bromomethane	<22	<5.7	cis-1,3-Dichloropropene	<4.3	<0.95
Chloroethane	<25	<9.5	4-Methyl-2-pentanone	<39	<9.5
Vinyl bromide	<4.2	<0.95	trans-1,3-Dichloropropene	<4.3	<0.95
Ethanol	<72	<38	Toluene	<180	<47
Acrolein	1.1	0.48	1,1,2-Trichloroethane	0.52	0.095
Pentane	<28	<9.5	2-Hexanone	<39	<9.5
Trichlorofluoromethane	<21	<3.8	Tetrachloroethene	220	32
Acetone	11,000 ve	4,500 ve	Dibromochloromethane	<0.81	<0.095
2-Propanol	<82	<33	1,2-Dibromoethane (EDB)	<0.73	<0.095
1,1-Dichloroethene	11	2.8	Chlorobenzene	<4.4	<0.95
trans-1,2-Dichloroethene	<3.8	<0.95	Ethylbenzene	17	3.9
Methylene chloride	<330	<95	1,1,2,2-Tetrachloroethane	<1.3	<0.19
t-Butyl alcohol (TBA)	170	56	Nonane	<50	<9.5
3-Chloropropene	<15	<4.7	Isopropylbenzene	89	18
CFC-113	<7.3	<0.95	2-Chlorotoluene	<49	<9.5
Carbon disulfide	<59	<19	Propylbenzene	<23	<4.7
Methyl t-butyl ether (MTBE)	<17	<4.7	4-Ethyltoluene	<23	<4.7
Vinyl acetate	<67	<19	m,p-Xylene	40	9.3
1,1-Dichloroethane	<3.8	<0.95	o-Xylene	24	5.5
cis-1,2-Dichloroethene	<3.8	<0.95	Styrene	78	18
Hexane	500	140	Bromoform	<20	<1.9
Chloroform	7.9	1.6	Benzyl chloride	0.79	0.15
Ethyl acetate	<68	<19	1,3,5-Trimethylbenzene	<23	<4.7
Tetrahydrofuran	270	93	1,2,4-Trimethylbenzene	29	6.0
2-Butanone (MEK)	50,000 ve	17,000 ve	1,3-Dichlorobenzene	<5.7	<0.95
1,2-Dichloroethane (EDC)	1.2	0.29	1,4-Dichlorobenzene	<2.2	<0.36
1,1,1-Trichloroethane	28	5.2	1,2-Dichlorobenzene	<5.7	<0.95
Carbon tetrachloride	3.3	0.53	1,2,4-Trichlorobenzene	<7.1	<0.95
Benzene	71	22	Naphthalene	<2.5	<0.47
Cyclohexane	<65	<19	Hexachlorobutadiene	<2	<0.19
Gasoline Range Organics	17,000	4,200			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS1	Client:	Point Source Solutions
Date Received:	06/30/21	Project:	BRIO, F&BI 106541
Date Collected:	06/28/21	Lab ID:	106541-02 1/6
Date Analyzed:	07/07/21	Data File:	070714.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	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<7.2	<4.2	1,2-Dichloropropane	<1.4	<0.3
Dichlorodifluoromethane	38	7.6	1,4-Dioxane	<2.2	<0.6
Chloromethane	<22	<11	2,2,4-Trimethylpentane	<28	<6
F-114	<4.2	<0.6	Methyl methacrylate	<25	<6
Vinyl chloride	<1.5	<0.6	Heptane	<25	<6
1,3-Butadiene	<0.27	<0.12	Bromodichloromethane	<0.4	<0.06
Butane	<29	<12	Trichloroethene	19	3.6
Bromomethane	<14	<3.6	cis-1,3-Dichloropropene	<2.7	<0.6
Chloroethane	<16	<6	4-Methyl-2-pentanone	<25	<6
Vinyl bromide	<2.6	<0.6	trans-1,3-Dichloropropene	<2.7	<0.6
Ethanol	48	25	Toluene	<110	<30
Acrolein	0.94	0.41	1,1,2-Trichloroethane	<0.33	<0.06
Pentane	<18	<6	2-Hexanone	<25	<6
Trichlorofluoromethane	<13	<2.4	Tetrachloroethene	91	13
Acetone	150	62	Dibromochloromethane	<0.51	<0.06
2-Propanol	<52	<21	1,2-Dibromoethane (EDB)	<0.46	<0.06
1,1-Dichloroethene	6.4	1.6	Chlorobenzene	<2.8	<0.6
trans-1,2-Dichloroethene	<2.4	<0.6	Ethylbenzene	8.2	1.9
Methylene chloride	<210	<60	1,1,2,2-Tetrachloroethane	<0.82	<0.12
t-Butyl alcohol (TBA)	81	27	Nonane	<31	<6
3-Chloropropene	<9.4	<3	Isopropylbenzene	<15	<3
CFC-113	<4.6	<0.6	2-Chlorotoluene	<31	<6
Carbon disulfide	<37	<12	Propylbenzene	<15	<3
Methyl t-butyl ether (MTBE)	<11	<3	4-Ethyltoluene	<15	<3
Vinyl acetate	<42	<12	m,p-Xylene	31	7.2
1,1-Dichloroethane	<2.4	<0.6	o-Xylene	13	3.1
cis-1,2-Dichloroethene	<2.4	<0.6	Styrene	18	4.2
Hexane	320	89	Bromoform	<12	<1.2
Chloroform	8.7	1.8	Benzyl chloride	0.34	0.066
Ethyl acetate	<43	<12	1,3,5-Trimethylbenzene	<15	<3
Tetrahydrofuran	24	8.0	1,2,4-Trimethylbenzene	<15	<3
2-Butanone (MEK)	<18	<6	1,3-Dichlorobenzene	<3.6	<0.6
1,2-Dichloroethane (EDC)	<0.24	<0.06	1,4-Dichlorobenzene	<1.4	<0.23
1,1,1-Trichloroethane	27	4.9	1,2-Dichlorobenzene	<3.6	<0.6
Carbon tetrachloride	3.1	0.49	1,2,4-Trichlorobenzene	<4.5	<0.6
Benzene	2.8	0.86	Naphthalene	1.7	0.32
Cyclohexane	<41	<12	Hexachlorobutadiene	<1.3	<0.12
Gasoline Range Organics	7,400	1,800			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS2	Client:	Point Source Solutions
Date Received:	06/30/21	Project:	BRIO, F&BI 106541
Date Collected:	06/28/21	Lab ID:	106541-03 1/5.9
Date Analyzed:	07/07/21	Data File:	070712.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<7.1	<4.1	1,2-Dichloropropane	<1.4	<0.29
Dichlorodifluoromethane	35	7.0	1,4-Dioxane	<2.1	<0.59
Chloromethane	<22	<11	2,2,4-Trimethylpentane	<28	<5.9
F-114	<4.1	<0.59	Methyl methacrylate	<24	<5.9
Vinyl chloride	<1.5	<0.59	Heptane	<24	<5.9
1,3-Butadiene	<0.26	<0.12	Bromodichloromethane	<0.4	<0.059
Butane	<28	<12	Trichloroethene	20	3.8
Bromomethane	<14	<3.5	cis-1,3-Dichloropropene	<2.7	<0.59
Chloroethane	<16	<5.9	4-Methyl-2-pentanone	<24	<5.9
Vinyl bromide	<2.6	<0.59	trans-1,3-Dichloropropene	<2.7	<0.59
Ethanol	<44	<24	Toluene	<110	<29
Acrolein	<0.65	<0.3	1,1,2-Trichloroethane	<0.32	<0.059
Pentane	<17	<5.9	2-Hexanone	<24	<5.9
Trichlorofluoromethane	<13	<2.4	Tetrachloroethene	170	25
Acetone	35	15	Dibromochloromethane	<0.5	<0.059
2-Propanol	<51	<21	1,2-Dibromoethane (EDB)	<0.45	<0.059
1,1-Dichloroethene	19	4.9	Chlorobenzene	<2.7	<0.59
trans-1,2-Dichloroethene	<2.3	<0.59	Ethylbenzene	4.3	0.99
Methylene chloride	<200	<59	1,1,2,2-Tetrachloroethane	<0.81	<0.12
t-Butyl alcohol (TBA)	<72	<24	Nonane	<31	<5.9
3-Chloropropene	<9.2	<2.9	Isopropylbenzene	<15	<2.9
CFC-113	<4.5	<0.59	2-Chlorotoluene	<31	<5.9
Carbon disulfide	<37	<12	Propylbenzene	<15	<2.9
Methyl t-butyl ether (MTBE)	<11	<2.9	4-Ethyltoluene	<15	<2.9
Vinyl acetate	<42	<12	m,p-Xylene	16	3.7
1,1-Dichloroethane	<2.4	<0.59	o-Xylene	7.0	1.6
cis-1,2-Dichloroethene	<2.3	<0.59	Styrene	10	2.4
Hexane	130	35	Bromoform	<12	<1.2
Chloroform	3.8	0.78	Benzyl chloride	0.34	0.065
Ethyl acetate	<43	<12	1,3,5-Trimethylbenzene	<15	<2.9
Tetrahydrofuran	12	4.0	1,2,4-Trimethylbenzene	<15	<2.9
2-Butanone (MEK)	<17	<5.9	1,3-Dichlorobenzene	<3.5	<0.59
1,2-Dichloroethane (EDC)	<0.24	<0.059	1,4-Dichlorobenzene	<1.3	<0.22
1,1,1-Trichloroethane	24	4.3	1,2-Dichlorobenzene	<3.5	<0.59
Carbon tetrachloride	3.1	0.49	1,2,4-Trichlorobenzene	<4.4	<0.59
Benzene	<1.9	<0.59	Naphthalene	1.7	0.33
Cyclohexane	<41	<12	Hexachlorobutadiene	<1.3	<0.12
Gasoline Range Organics	3,900	950			

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Point Source Solutions
Date Received:	Not Applicable	Project:	BRIO, F&BI 106541
Date Collected:	Not Applicable	Lab ID:	01-1515 MB
Date Analyzed:	07/07/21	Data File:	070711.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<4.8	<2	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<0.11	<0.05	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.59	<0.2	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	0.21 lc	0.020 lc
Gasoline Range Organics	<330	<80			

Date of Report: 07/13/21
Date Received: 06/30/21
Project: BRIO, F&BI 106541

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

Laboratory Code: 106541-03 1/5.9 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<7.1	<7.1	nm
Dichlorodifluoromethane	ug/m3	35	38	8
Chloromethane	ug/m3	<22	<22	nm
F-114	ug/m3	<4.1	<4.1	nm
Vinyl chloride	ug/m3	<1.5	<1.5	nm
1,3-Butadiene	ug/m3	<0.26	<0.26	nm
Butane	ug/m3	<28	<28	nm
Bromomethane	ug/m3	<14	<14	nm
Chloroethane	ug/m3	<16	<16	nm
Vinyl bromide	ug/m3	<2.6	<2.6	nm
Ethanol	ug/m3	<44	<44	nm
Acrolein	ug/m3	<0.65	<0.65	nm
Pentane	ug/m3	<17	<17	nm
Trichlorofluoromethane	ug/m3	<13	<13	nm
Acetone	ug/m3	35	34	3
2-Propanol	ug/m3	<51	<51	nm
1,1-Dichloroethene	ug/m3	19	19	0
trans-1,2-Dichloroethene	ug/m3	<2.3	<2.3	nm
Methylene chloride	ug/m3	<200	<200	nm
t-Butyl alcohol (TBA)	ug/m3	<72	<72	nm
3-Chloropropene	ug/m3	<9.2	<9.2	nm
CFC-113	ug/m3	<4.5	<4.5	nm
Carbon disulfide	ug/m3	<37	<37	nm
Methyl t-butyl ether (MTBE)	ug/m3	<11	<11	nm
Vinyl acetate	ug/m3	<42	<42	nm
1,1-Dichloroethane	ug/m3	<2.4	<2.4	nm
cis-1,2-Dichloroethene	ug/m3	<2.3	<2.3	nm
Hexane	ug/m3	130	120	8
Chloroform	ug/m3	3.8	3.8	0
Ethyl acetate	ug/m3	<43	<43	nm
Tetrahydrofuran	ug/m3	12	12	0
2-Butanone (MEK)	ug/m3	<17	<17	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.24	<0.24	nm
1,1,1-Trichloroethane	ug/m3	24	24	0
Carbon tetrachloride	ug/m3	3.1	3.1	0
Benzene	ug/m3	<1.9	<1.9	nm
Cyclohexane	ug/m3	<41	<41	nm
1,2-Dichloropropane	ug/m3	<1.4	<1.4	nm
1,4-Dioxane	ug/m3	<2.1	<2.1	nm
2,2,4-Trimethylpentane	ug/m3	<28	<28	nm

Date of Report: 07/13/21
Date Received: 06/30/21
Project: BRIO, F&BI 106541

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

Laboratory Code: 106541-03 1/5.9 (Duplicate) (continuied)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<24	<24	nm
Heptane	ug/m3	<24	<24	nm
Bromodichloromethane	ug/m3	<0.4	<0.4	nm
Trichloroethene	ug/m3	20	21	5
cis-1,3-Dichloropropene	ug/m3	<2.7	<2.7	nm
4-Methyl-2-pentanone	ug/m3	<24	<24	nm
trans-1,3-Dichloropropene	ug/m3	<2.7	<2.7	nm
Toluene	ug/m3	<110	<110	nm
1,1,2-Trichloroethane	ug/m3	<0.32	<0.32	nm
2-Hexanone	ug/m3	<24	<24	nm
Tetrachloroethene	ug/m3	170	170	0
Dibromochloromethane	ug/m3	<0.5	<0.5	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.45	<0.45	nm
Chlorobenzene	ug/m3	<2.7	<2.7	nm
Ethylbenzene	ug/m3	4.3	4.4	2
1,1,2,2-Tetrachloroethane	ug/m3	<0.81	<0.81	nm
Nonane	ug/m3	<31	<31	nm
Isopropylbenzene	ug/m3	<15	<15	nm
2-Chlorotoluene	ug/m3	<31	<31	nm
Propylbenzene	ug/m3	<15	<15	nm
4-Ethyltoluene	ug/m3	<15	<15	nm
m,p-Xylene	ug/m3	16	16	0
o-Xylene	ug/m3	7.0	7.8	11
Styrene	ug/m3	10	9.8	2
Bromoform	ug/m3	<12	<12	nm
Benzyl chloride	ug/m3	0.34	0.40	16
1,3,5-Trimethylbenzene	ug/m3	<15	<15	nm
1,2,4-Trimethylbenzene	ug/m3	<15	<15	nm
1,3-Dichlorobenzene	ug/m3	<3.5	<3.5	nm
1,4-Dichlorobenzene	ug/m3	<1.3	<1.3	nm
1,2-Dichlorobenzene	ug/m3	<3.5	<3.5	nm
1,2,4-Trichlorobenzene	ug/m3	<4.4	<4.4	nm
Naphthalene	ug/m3	1.7	1.9	11
Hexachlorobutadiene	ug/m3	<1.3	<1.3	nm

Date of Report: 07/13/21
Date Received: 06/30/21
Project: BRIO, F&BI 106541

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
Propene	ug/m3	23	109	70-130
Dichlorodifluoromethane	ug/m3	67	111	70-130
Chloromethane	ug/m3	28	112	70-130
F-114	ug/m3	94	107	70-130
Vinyl chloride	ug/m3	35	93	70-130
1,3-Butadiene	ug/m3	30	90	70-130
Butane	ug/m3	32	98	70-130
Bromomethane	ug/m3	52	108	70-130
Chloroethane	ug/m3	36	104	70-130
Vinyl bromide	ug/m3	59	105	70-130
Ethanol	ug/m3	25	92	70-130
Acrolein	ug/m3	31	102	70-130
Pentane	ug/m3	40	90	70-130
Trichlorofluoromethane	ug/m3	76	104	70-130
Acetone	ug/m3	32	97	70-130
2-Propanol	ug/m3	33	91	70-130
1,1-Dichloroethene	ug/m3	54	101	70-130
trans-1,2-Dichloroethene	ug/m3	54	97	70-130
Methylene chloride	ug/m3	94	95	70-130
t-Butyl alcohol (TBA)	ug/m3	41	94	70-130
3-Chloropropene	ug/m3	42	91	70-130
CFC-113	ug/m3	100	108	70-130
Carbon disulfide	ug/m3	42	106	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	84	70-130
Vinyl acetate	ug/m3	48	79	70-130
1,1-Dichloroethane	ug/m3	55	102	70-130
cis-1,2-Dichloroethene	ug/m3	54	94	70-130
Hexane	ug/m3	48	79	70-130
Chloroform	ug/m3	66	102	70-130
Ethyl acetate	ug/m3	49	101	70-130
Tetrahydrofuran	ug/m3	40	86	70-130
2-Butanone (MEK)	ug/m3	40	88	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	100	70-130
1,1,1-Trichloroethane	ug/m3	74	104	70-130
Carbon tetrachloride	ug/m3	85	105	70-130
Benzene	ug/m3	43	93	70-130
Cyclohexane	ug/m3	46	83	70-130
1,2-Dichloropropane	ug/m3	62	108	70-130
1,4-Dioxane	ug/m3	49	98	70-130
2,2,4-Trimethylpentane	ug/m3	63	96	70-130

Date of Report: 07/13/21
Date Received: 06/30/21
Project: BRIO, F&BI 106541

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
Methyl methacrylate	ug/m3	55	104	70-130
Heptane	ug/m3	55	97	70-130
Bromodichloromethane	ug/m3	90	114	70-130
Trichloroethene	ug/m3	73	107	70-130
cis-1,3-Dichloropropene	ug/m3	61	104	70-130
4-Methyl-2-pentanone	ug/m3	55	98	70-130
trans-1,3-Dichloropropene	ug/m3	61	105	70-130
Toluene	ug/m3	51	102	70-130
1,1,2-Trichloroethane	ug/m3	74	115	70-130
2-Hexanone	ug/m3	55	104	70-130
Tetrachloroethene	ug/m3	92	126	70-130
Dibromochloromethane	ug/m3	120	118	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	104	70-130
Chlorobenzene	ug/m3	62	104	70-130
Ethylbenzene	ug/m3	59	86	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	104	70-130
Nonane	ug/m3	71	92	70-130
Isopropylbenzene	ug/m3	66	109	70-130
2-Chlorotoluene	ug/m3	70	99	70-130
Propylbenzene	ug/m3	66	93	70-130
4-Ethyltoluene	ug/m3	66	89	70-130
m,p-Xylene	ug/m3	120	93	70-130
o-Xylene	ug/m3	59	97	70-130
Styrene	ug/m3	58	91	70-130
Bromoform	ug/m3	140	120	70-130
Benzyl chloride	ug/m3	70	115	70-130
1,3,5-Trimethylbenzene	ug/m3	66	101	70-130
1,2,4-Trimethylbenzene	ug/m3	66	89	70-130
1,3-Dichlorobenzene	ug/m3	81	112	70-130
1,4-Dichlorobenzene	ug/m3	81	106	70-130
1,2-Dichlorobenzene	ug/m3	81	107	70-130
1,2,4-Trichlorobenzene	ug/m3	100	98	70-130
Naphthalene	ug/m3	71	91	70-130
Hexachlorobutadiene	ug/m3	140	119	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 analyte 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 due to sample matrix effects.

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.

106541

SAMPLE CHAIN OF CUSTODY

06-30-21

Page # 1 of 1

Report To Gil Cobb
Company Point Source Solutions
Address 10445 SW Canyon Rd Ste 266
City, State, ZIP Beaverton, OR 97005
Phone (503) 916-9254 Email gil@pointsourcesolutions.com

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: BRIO

PO #

NOTES: CC: Johnny@pointsourcesolutions.com

INVOICE TO

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	2-propanol	Full List VOCs TPH - GRO / Notes
PS1	01	3412	17	IA / (SG)	6/28/21	30	9:06	5	9:06						✓	✓ ✓
SS1	02	3287	111	IA / (SG)	6/28/21	30	9:21	5	9:27						✓	✓ ✓
SS2	03	3386	18	IA / (SG)	6/28/21	30	9:41	5	9:47						✓	✓ ✓
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Samples received at 22 °C

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kyle Fisher	PSS	6/28/21	10:32
Received by: D. W-B	Liz Webber-Bruya	F?B	6/30/21	1140
Relinquished by:				
Received by:				

FORMS\COC\COCTO-15.DOC

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
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 15, 2021

Gil Cobb, Project Manager
Point Source Solutions
10445 SW Canyon Rd., Ste. 266
Beaverton, OR 97005

Dear Mr Cobb:

Included are the results from the testing of material submitted on December 6, 2021 from the 3912 N Vancouver Ave, F&BI 112088 project. There are 10 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: Johnny Ramus, Jeff Jackman, Kyle Fisher
PSS1215R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 6, 2021 by Friedman & Bruya, Inc. from the Point Source Solutions 3912 N Vancouver Ave, F&BI 112088 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Point Source Solutions
112088 -01	PS1
112088 -02	SS1
112088 -03	SS2

The TO-15 gasoline range concentrations were quantified using a single point calibration at 80 ppbv.

The concentration of several analytes exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	PS1	Client:	Point Source Solutions
Date Received:	12/06/21	Project:	3912 N Vancouver Ave
Date Collected:	12/03/21	Lab ID:	112088-01 1/5.5
Date Analyzed:	12/10/21	Data File:	120924.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	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.6	<3.8	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	2.8	0.56	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	32	6.8
F-114	<3.8	<0.55	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	<0.24	<0.11	Bromodichloromethane	<0.37	<0.055
Butane	27	11	Trichloroethene	1.5	0.28
Bromomethane	<13	<3.3	cis-1,3-Dichloropropene	<2.5	<0.55
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	<23	<5.5
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	<41	<22	Toluene	230 ve	62 ve
Acrolein	<0.63	<0.28	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	<16	<5.5	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	170 ve	72 ve	Dibromochloromethane	<0.47	<0.055
2-Propanol	<47	<19	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	<2.2	<0.55	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	20	4.5
Methylene chloride	<190	<55	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	<29	<5.5
3-Chloropropene	<8.6	<2.7	Isopropylbenzene	29	6.0
CFC-113	<4.2	<0.55	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<14	<2.7
Methyl t-butyl ether (MTBE)	<9.9	<2.7	4-Ethyltoluene	<14	<2.7
Vinyl acetate	<39	<11	m,p-Xylene	80	18
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	24	5.5
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	3.3	0.67	Benzyl chloride	<0.28	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.7
Tetrahydrofuran	<3.2	<1.1	1,2,4-Trimethylbenzene	<14	<2.7
2-Butanone (MEK)	590 ve	200 ve	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3	<0.55	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	<1.7	<0.28	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	60	19	Naphthalene	<1.4	<0.28
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11
Gasoline Range Organics	2,100	520			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS1	Client:	Point Source Solutions
Date Received:	12/06/21	Project:	3912 N Vancouver Ave
Date Collected:	12/03/21	Lab ID:	112088-02 1/5.6
Date Analyzed:	12/10/21	Data File:	120926.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	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.7	<3.9	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.8	<0.56	1,4-Dioxane	<2	<0.56
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<26	<5.6
F-114	<3.9	<0.56	Methyl methacrylate	<23	<5.6
Vinyl chloride	<1.4	<0.56	Heptane	<23	<5.6
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.056
Butane	<27	<11	Trichloroethene	<0.6	<0.11
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.5	<0.56
Chloroethane	<15	<5.6	4-Methyl-2-pentanone	<23	<5.6
Vinyl bromide	<2.4	<0.56	trans-1,3-Dichloropropene	<2.5	<0.56
Ethanol	<42	<22	Toluene	130	35
Acrolein	<0.64	<0.28	1,1,2-Trichloroethane	<0.31	<0.056
Pentane	<17	<5.6	2-Hexanone	<23	<5.6
Trichlorofluoromethane	<13	<2.2	Tetrachloroethene	<38	<5.6
Acetone	<27	<11	Dibromochloromethane	<0.48	<0.056
2-Propanol	<48	<20	1,2-Dibromoethane (EDB)	<0.43	<0.056
1,1-Dichloroethene	<2.2	<0.56	Chlorobenzene	<2.6	<0.56
trans-1,2-Dichloroethene	<2.2	<0.56	Ethylbenzene	11	2.6
Methylene chloride	<190	<56	1,1,2,2-Tetrachloroethane	<0.77	<0.11
t-Butyl alcohol (TBA)	<68	<22	Nonane	<29	<5.6
3-Chloropropene	<8.8	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	<4.3	<0.56	2-Chlorotoluene	<29	<5.6
Carbon disulfide	<35	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<39	<11	m,p-Xylene	46	11
1,1-Dichloroethane	<2.3	<0.56	o-Xylene	14	3.3
cis-1,2-Dichloroethene	<2.2	<0.56	Styrene	<4.8	<1.1
Hexane	<20	<5.6	Bromoform	<12	<1.1
Chloroform	<0.27	<0.056	Benzyl chloride	<0.29	<0.056
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	<3.3	<1.1	1,2,4-Trimethylbenzene	<14	<2.8
2-Butanone (MEK)	<17	<5.6	1,3-Dichlorobenzene	<3.4	<0.56
1,2-Dichloroethane (EDC)	<0.23	<0.056	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3.1	<0.56	1,2-Dichlorobenzene	<3.4	<0.56
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.56
Benzene	4.8	1.5	Naphthalene	<1.5	<0.28
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11
Gasoline Range Organics	<1,800	<450			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS2	Client:	Point Source Solutions
Date Received:	12/06/21	Project:	3912 N Vancouver Ave
Date Collected:	12/03/21	Lab ID:	112088-03 1/5.6
Date Analyzed:	12/10/21	Data File:	120927.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	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.7	<3.9	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<2.8	<0.56	1,4-Dioxane	<2	<0.56
Chloromethane	<21	<10	2,2,4-Trimethylpentane	<26	<5.6
F-114	<3.9	<0.56	Methyl methacrylate	<23	<5.6
Vinyl chloride	<1.4	<0.56	Heptane	<23	<5.6
1,3-Butadiene	<0.25	<0.11	Bromodichloromethane	<0.38	<0.056
Butane	<27	<11	Trichloroethene	1.8	0.34
Bromomethane	<13	<3.4	cis-1,3-Dichloropropene	<2.5	<0.56
Chloroethane	<15	<5.6	4-Methyl-2-pentanone	<23	<5.6
Vinyl bromide	<2.4	<0.56	trans-1,3-Dichloropropene	<2.5	<0.56
Ethanol	<42	<22	Toluene	130	35
Acrolein	<0.64	<0.28	1,1,2-Trichloroethane	<0.31	<0.056
Pentane	<17	<5.6	2-Hexanone	<23	<5.6
Trichlorofluoromethane	<13	<2.2	Tetrachloroethene	<38	<5.6
Acetone	<27	<11	Dibromochloromethane	<0.48	<0.056
2-Propanol	<48	<20	1,2-Dibromoethane (EDB)	<0.43	<0.056
1,1-Dichloroethene	<2.2	<0.56	Chlorobenzene	<2.6	<0.56
trans-1,2-Dichloroethene	<2.2	<0.56	Ethylbenzene	14	3.3
Methylene chloride	<190	<56	1,1,2,2-Tetrachloroethane	<0.77	<0.11
t-Butyl alcohol (TBA)	<68	<22	Nonane	<29	<5.6
3-Chloropropene	<8.8	<2.8	Isopropylbenzene	<14	<2.8
CFC-113	<4.3	<0.56	2-Chlorotoluene	<29	<5.6
Carbon disulfide	<35	<11	Propylbenzene	<14	<2.8
Methyl t-butyl ether (MTBE)	<10	<2.8	4-Ethyltoluene	<14	<2.8
Vinyl acetate	<39	<11	m,p-Xylene	58	13
1,1-Dichloroethane	<2.3	<0.56	o-Xylene	18	4.1
cis-1,2-Dichloroethene	<2.2	<0.56	Styrene	<4.8	<1.1
Hexane	<20	<5.6	Bromoform	<12	<1.1
Chloroform	1.9	0.38	Benzyl chloride	<0.29	<0.056
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<14	<2.8
Tetrahydrofuran	<3.3	<1.1	1,2,4-Trimethylbenzene	<14	<2.8
2-Butanone (MEK)	<17	<5.6	1,3-Dichlorobenzene	<3.4	<0.56
1,2-Dichloroethane (EDC)	<0.23	<0.056	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3.1	<0.56	1,2-Dichlorobenzene	<3.4	<0.56
Carbon tetrachloride	<1.8	<0.28	1,2,4-Trichlorobenzene	<4.2	<0.56
Benzene	4.7	1.5	Naphthalene	<1.5	<0.28
Cyclohexane	<39	<11	Hexachlorobutadiene	<1.2	<0.11
Gasoline Range Organics	<1,800	<450			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Point Source Solutions
Date Received:	Not Applicable	Project:	3912 N Vancouver Ave
Date Collected:	Not Applicable	Lab ID:	01-2815 MB
Date Analyzed:	12/09/21	Data File:	120914.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	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<4.8	<2	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<0.11	<0.05	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.59	<0.2	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02
Gasoline Range Organics	<330	<80			

Date of Report: 12/15/21
Date Received: 12/06/21
Project: 3912 N Vancouver Ave, F&BI 112088

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

Laboratory Code: 112088-01 1/5.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6.6	<6.6	nm
Dichlorodifluoromethane	ug/m3	2.8	<2.7	nm
Chloromethane	ug/m3	<20	<20	nm
F-114	ug/m3	<3.8	<3.8	nm
Vinyl chloride	ug/m3	<1.4	<1.4	nm
1,3-Butadiene	ug/m3	<0.24	<0.24	nm
Butane	ug/m3	27	<26	nm
Bromomethane	ug/m3	<13	<13	nm
Chloroethane	ug/m3	<15	<15	nm
Vinyl bromide	ug/m3	<2.4	<2.4	nm
Ethanol	ug/m3	<41	<41	nm
Acrolein	ug/m3	<0.63	<0.63	nm
Pentane	ug/m3	<16	<16	nm
Trichlorofluoromethane	ug/m3	<12	<12	nm
Acetone	ug/m3	170	170	0
2-Propanol	ug/m3	<47	<47	nm
1,1-Dichloroethene	ug/m3	<2.2	<2.2	nm
trans-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Methylene chloride	ug/m3	<190	<190	nm
t-Butyl alcohol (TBA)	ug/m3	<67	<67	nm
3-Chloropropene	ug/m3	<8.6	<8.6	nm
CFC-113	ug/m3	<4.2	<4.2	nm
Carbon disulfide	ug/m3	<34	<34	nm
Methyl t-butyl ether (MTBE)	ug/m3	<9.9	<9.9	nm
Vinyl acetate	ug/m3	<39	<39	nm
1,1-Dichloroethane	ug/m3	<2.2	<2.2	nm
cis-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Hexane	ug/m3	<19	<19	nm
Chloroform	ug/m3	3.3	3.1	6
Ethyl acetate	ug/m3	<40	<40	nm
Tetrahydrofuran	ug/m3	<3.2	<3.2	nm
2-Butanone (MEK)	ug/m3	590	530	11
1,2-Dichloroethane (EDC)	ug/m3	<0.22	<0.22	nm
1,1,1-Trichloroethane	ug/m3	<3	<3	nm
Carbon tetrachloride	ug/m3	<1.7	<1.7	nm
Benzene	ug/m3	60	58	3
Cyclohexane	ug/m3	<38	<38	nm
1,2-Dichloropropane	ug/m3	<1.3	<1.3	nm
1,4-Dioxane	ug/m3	<2	<2	nm
2,2,4-Trimethylpentane	ug/m3	32	32	0

Date of Report: 12/15/21
Date Received: 12/06/21
Project: 3912 N Vancouver Ave, F&BI 112088

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

Laboratory Code: 112088-01 1/5.5 (Duplicate, continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<23	<23	nm
Heptane	ug/m3	<23	<23	nm
Bromodichloromethane	ug/m3	<0.37	<0.37	nm
Trichloroethene	ug/m3	1.5	1.4	7
cis-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
4-Methyl-2-pentanone	ug/m3	<23	<23	nm
trans-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
Toluene	ug/m3	230	230	0
1,1,2-Trichloroethane	ug/m3	<0.3	<0.3	nm
2-Hexanone	ug/m3	<23	<23	nm
Tetrachloroethene	ug/m3	<37	<37	nm
Dibromochloromethane	ug/m3	<0.47	<0.47	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.42	<0.42	nm
Chlorobenzene	ug/m3	<2.5	<2.5	nm
Ethylbenzene	ug/m3	20	19	5
1,1,2,2-Tetrachloroethane	ug/m3	<0.76	<0.76	nm
Nonane	ug/m3	<29	<29	nm
Isopropylbenzene	ug/m3	29	31	7
2-Chlorotoluene	ug/m3	<28	<28	nm
Propylbenzene	ug/m3	<14	<14	nm
4-Ethyltoluene	ug/m3	<14	<14	nm
m,p-Xylene	ug/m3	80	78	3
o-Xylene	ug/m3	24	24	0
Styrene	ug/m3	<4.7	<4.7	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.28	<0.28	nm
1,3,5-Trimethylbenzene	ug/m3	<14	<14	nm
1,2,4-Trimethylbenzene	ug/m3	<14	<14	nm
1,3-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,4-Dichlorobenzene	ug/m3	<1.3	<1.3	nm
1,2-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,2,4-Trichlorobenzene	ug/m3	<4.1	<4.1	nm
Naphthalene	ug/m3	<1.4	<1.4	nm
Hexachlorobutadiene	ug/m3	<1.2	<1.2	nm

Date of Report: 12/15/21
Date Received: 12/06/21
Project: 3912 N Vancouver Ave, F&BI 112088

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
Propene	ug/m3	23	76	70-130
Dichlorodifluoromethane	ug/m3	67	97	70-130
Chloromethane	ug/m3	28	92	70-130
F-114	ug/m3	94	101	70-130
Vinyl chloride	ug/m3	35	87	70-130
1,3-Butadiene	ug/m3	30	84	70-130
Butane	ug/m3	32	88	70-130
Bromomethane	ug/m3	52	100	70-130
Chloroethane	ug/m3	36	93	70-130
Vinyl bromide	ug/m3	59	93	70-130
Ethanol	ug/m3	25	87	70-130
Acrolein	ug/m3	31	80	70-130
Pentane	ug/m3	40	78	70-130
Trichlorofluoromethane	ug/m3	76	101	70-130
Acetone	ug/m3	32	93	70-130
2-Propanol	ug/m3	33	79	70-130
1,1-Dichloroethene	ug/m3	54	95	70-130
trans-1,2-Dichloroethene	ug/m3	54	93	70-130
Methylene chloride	ug/m3	94	146 vo	70-130
t-Butyl alcohol (TBA)	ug/m3	41	88	70-130
3-Chloropropene	ug/m3	42	78	70-130
CFC-113	ug/m3	100	97	70-130
Carbon disulfide	ug/m3	42	95	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	85	70-130
Vinyl acetate	ug/m3	48	72	70-130
1,1-Dichloroethane	ug/m3	55	91	70-130
cis-1,2-Dichloroethene	ug/m3	54	94	70-130
Hexane	ug/m3	48	81	70-130
Chloroform	ug/m3	66	93	70-130
Ethyl acetate	ug/m3	49	84	70-130
Tetrahydrofuran	ug/m3	40	82	70-130
2-Butanone (MEK)	ug/m3	40	84	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	89	70-130
1,1,1-Trichloroethane	ug/m3	74	97	70-130
Carbon tetrachloride	ug/m3	85	99	70-130
Benzene	ug/m3	43	90	70-130
Cyclohexane	ug/m3	46	77	70-130
1,2-Dichloropropane	ug/m3	62	91	70-130
1,4-Dioxane	ug/m3	49	94	70-130
2,2,4-Trimethylpentane	ug/m3	63	87	70-130

Date of Report: 12/15/21
Date Received: 12/06/21
Project: 3912 N Vancouver Ave, F&BI 112088

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
Methyl methacrylate	ug/m3	55	88	70-130
Heptane	ug/m3	55	82	70-130
Bromodichloromethane	ug/m3	90	98	70-130
Trichloroethene	ug/m3	73	95	70-130
cis-1,3-Dichloropropene	ug/m3	61	100	70-130
4-Methyl-2-pentanone	ug/m3	55	105	70-130
trans-1,3-Dichloropropene	ug/m3	61	100	70-130
Toluene	ug/m3	51	97	70-130
1,1,2-Trichloroethane	ug/m3	74	99	70-130
2-Hexanone	ug/m3	55	82	70-130
Tetrachloroethene	ug/m3	92	109	70-130
Dibromochloromethane	ug/m3	120	112	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	98	70-130
Chlorobenzene	ug/m3	62	105	70-130
Ethylbenzene	ug/m3	59	92	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	97	70-130
Nonane	ug/m3	71	77	70-130
Isopropylbenzene	ug/m3	66	97	70-130
2-Chlorotoluene	ug/m3	70	94	70-130
Propylbenzene	ug/m3	66	93	70-130
4-Ethyltoluene	ug/m3	66	87	70-130
m,p-Xylene	ug/m3	120	96	70-130
o-Xylene	ug/m3	59	100	70-130
Styrene	ug/m3	58	98	70-130
Bromoform	ug/m3	140	112	70-130
Benzyl chloride	ug/m3	70	104	70-130
1,3,5-Trimethylbenzene	ug/m3	66	91	70-130
1,2,4-Trimethylbenzene	ug/m3	66	86	70-130
1,3-Dichlorobenzene	ug/m3	81	109	70-130
1,4-Dichlorobenzene	ug/m3	81	97	70-130
1,2-Dichlorobenzene	ug/m3	81	103	70-130
1,2,4-Trichlorobenzene	ug/m3	100	78	70-130
Naphthalene	ug/m3	71	82	70-130
Hexachlorobutadiene	ug/m3	140	100	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 analyte 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 due to sample matrix effects.

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.

SAMPLE CHAIN OF CUSTODY

112088

12-06-21

Page # 1 of 1

Report To Gil Cobb

Company Point Source Solutions

Address 10445 SW Canyon Rd STE 200

City, State, ZIP Beaverton, OR 97005

Phone (971) 4706313 Email

SAMPLERS (signature) JohnRam

PROJECT NAME & ADDRESS: 3912 N Vancouver Ave

PO #:

NOTES:

INVOICE TO:

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

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	2-propanol Helium	GRO	Notes
PS1	01	3412	35	IA / (SG)	12-3-21	29	10:31	5	10:36	X				X	X	
SS1	02	3386	117	IA / (SG)	12-3-21	30	10:37	5	10:42	X				X	X	
SS2	03	3378	108	IA / (SG)	12-3-21	30	10:45	5	10:49	X				X	X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												Samples received at 12 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: JohnRam	John Ramos	Point Source	12-3-21	11:09
Received by:	Khoi Hoang	FBI	12/6/21	16:17
Relinquished by:				
Received by:				

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
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Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

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fbi@isomedia.com
www.friedmanandbruya.com

July 1, 2022

Gil Cobb, Project Manager
Point Source Solutions
5317 NE St Johns Rd, Suite D
Vancouver, WA 98661

Dear Mr Cobb:

Included are the results from the testing of material submitted on June 22, 2022 from the The Brio, F&BI 206372 project. There are 9 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: Johnny Ramus, Jeff Jackman, Kyle Fisher
PSS0701R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 22, 2022 by Friedman & Bruya, Inc. from the Point Source Solutions The Brio, F&BI 206372 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Point Source Solutions
206372 -01	SS2
206372 -02	SS1
206372 -03	PS1

The TO-15 gasoline range concentrations were quantified using a single point calibration at 80 ppbv.

Methylene chloride was detected in the analysis of sample SS1. The data were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS2	Client:	Point Source Solutions
Date Received:	06/22/22	Project:	The Brio, F&BI 206372
Date Collected:	06/21/22	Lab ID:	206372-01 1/6.6
Date Analyzed:	06/28/22	Data File:	062725.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<8	<4.6	1,2-Dichloropropane	<1.5	<0.33
Dichlorodifluoromethane	<6.5	<1.3	1,4-Dioxane	<2.4	<0.66
Chloromethane	<25	<12	2,2,4-Trimethylpentane	<31	<6.6
F-114	<14	<2	Methyl methacrylate	<27	<6.6
Vinyl chloride	<1.7	<0.66	Heptane	<27	<6.6
1,3-Butadiene	<0.29	<0.13	Bromodichloromethane	<0.44	<0.066
Butane	<31	<13	Trichloroethene	7.2	1.3
Bromomethane	<26	<6.6	cis-1,3-Dichloropropene	<6	<1.3
Chloroethane	<17	<6.6	4-Methyl-2-pentanone	<27	<6.6
Vinyl bromide	<2.9	<0.66	trans-1,3-Dichloropropene	<3	<0.66
Ethanol	<50	<26	Toluene	<120	<33
Acrolein	<0.76	<0.33	1,1,2-Trichloroethane	<0.36	<0.066
Pentane	<39	<13	2-Hexanone	<27	<6.6
Trichlorofluoromethane	<15	<2.6	Tetrachloroethene	100	15
Acetone	<31	<13	Dibromochloromethane	<0.56	<0.066
2-Propanol	<57	<23	1,2-Dibromoethane (EDB)	<0.51	<0.066
1,1-Dichloroethene	<2.6	<0.66	Chlorobenzene	<3	<0.66
trans-1,2-Dichloroethene	<2.6	<0.66	Ethylbenzene	<2.9	<0.66
Methylene chloride	<230	<66	1,1,2,2-Tetrachloroethane	<0.91	<0.13
t-Butyl alcohol (TBA)	<80	<26	Nonane	<35	<6.6
3-Chloropropene	<21	<6.6	Isopropylbenzene	<65	<13
CFC-113	<5.1	<0.66	2-Chlorotoluene	<34	<6.6
Carbon disulfide	<41	<13	Propylbenzene	<32	<6.6
Methyl t-butyl ether (MTBE)	<48	<13	4-Ethyltoluene	<32	<6.6
Vinyl acetate	<46	<13	m,p-Xylene	<5.7	<1.3
1,1-Dichloroethane	<2.7	<0.66	o-Xylene	<2.9	<0.66
cis-1,2-Dichloroethene	<2.6	<0.66	Styrene	<5.6	<1.3
Hexane	<23	<6.6	Bromoform	<14	<1.3
Chloroform	2.4	0.49	Benzyl chloride	<0.34	<0.066
Ethyl acetate	<48	<13	1,3,5-Trimethylbenzene	<32	<6.6
Tetrahydrofuran	<3.9	<1.3	1,2,4-Trimethylbenzene	<32	<6.6
2-Butanone (MEK)	<39	<13	1,3-Dichlorobenzene	<4	<0.66
1,2-Dichloroethane (EDC)	<0.27	<0.066	1,4-Dichlorobenzene	<1.5	<0.25
1,1,1-Trichloroethane	<3.6	<0.66	1,2-Dichlorobenzene	<4	<0.66
Carbon tetrachloride	<2.1	<0.33	1,2,4-Trichlorobenzene	<4.9	<0.66
Benzene	<2.1	<0.66	Naphthalene	<1.7	<0.33
Cyclohexane	<45	<13	Hexachlorobutadiene	<1.4	<0.13
Gasoline Rage Organics	<2,200	<530			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SS1	Client:	Point Source Solutions
Date Received:	06/22/22	Project:	The Brio, F&BI 206372
Date Collected:	06/21/22	Lab ID:	206372-02 1/5.5
Date Analyzed:	06/28/22	Data File:	062726.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	83	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<6.6	<3.8	1,2-Dichloropropane	<1.3	<0.28
Dichlorodifluoromethane	<5.4	<1.1	1,4-Dioxane	<2	<0.55
Chloromethane	<20	<9.9	2,2,4-Trimethylpentane	<26	<5.5
F-114	<12	<1.6	Methyl methacrylate	<23	<5.5
Vinyl chloride	<1.4	<0.55	Heptane	<23	<5.5
1,3-Butadiene	<0.24	<0.11	Bromodichloromethane	<0.37	<0.055
Butane	<26	<11	Trichloroethene	<0.59	<0.11
Bromomethane	<21	<5.5	cis-1,3-Dichloropropene	<5	<1.1
Chloroethane	<15	<5.5	4-Methyl-2-pentanone	<23	<5.5
Vinyl bromide	<2.4	<0.55	trans-1,3-Dichloropropene	<2.5	<0.55
Ethanol	<41	<22	Toluene	<100	<27
Acrolein	<0.63	<0.28	1,1,2-Trichloroethane	<0.3	<0.055
Pentane	<32	<11	2-Hexanone	<23	<5.5
Trichlorofluoromethane	<12	<2.2	Tetrachloroethene	<37	<5.5
Acetone	<26	<11	Dibromochloromethane	<0.47	<0.055
2-Propanol	<47	<19	1,2-Dibromoethane (EDB)	<0.42	<0.055
1,1-Dichloroethene	<2.2	<0.55	Chlorobenzene	<2.5	<0.55
trans-1,2-Dichloroethene	<2.2	<0.55	Ethylbenzene	<2.4	<0.55
Methylene chloride	270 lc	79 lc	1,1,2,2-Tetrachloroethane	<0.76	<0.11
t-Butyl alcohol (TBA)	<67	<22	Nonane	<29	<5.5
3-Chloropropene	<17	<5.5	Isopropylbenzene	<54	<11
CFC-113	<4.2	<0.55	2-Chlorotoluene	<28	<5.5
Carbon disulfide	<34	<11	Propylbenzene	<27	<5.5
Methyl t-butyl ether (MTBE)	<40	<11	4-Ethyltoluene	<27	<5.5
Vinyl acetate	<39	<11	m,p-Xylene	8.6	2.0
1,1-Dichloroethane	<2.2	<0.55	o-Xylene	3.3	0.75
cis-1,2-Dichloroethene	<2.2	<0.55	Styrene	<4.7	<1.1
Hexane	<19	<5.5	Bromoform	<11	<1.1
Chloroform	<0.27	<0.055	Benzyl chloride	<0.28	<0.055
Ethyl acetate	<40	<11	1,3,5-Trimethylbenzene	<27	<5.5
Tetrahydrofuran	<3.2	<1.1	1,2,4-Trimethylbenzene	<27	<5.5
2-Butanone (MEK)	<32	<11	1,3-Dichlorobenzene	<3.3	<0.55
1,2-Dichloroethane (EDC)	<0.22	<0.055	1,4-Dichlorobenzene	<1.3	<0.21
1,1,1-Trichloroethane	<3	<0.55	1,2-Dichlorobenzene	<3.3	<0.55
Carbon tetrachloride	<1.7	<0.28	1,2,4-Trichlorobenzene	<4.1	<0.55
Benzene	<1.8	<0.55	Naphthalene	<1.4	<0.28
Cyclohexane	<38	<11	Hexachlorobutadiene	<1.2	<0.11
Gasoline Rage Organics	<1,800	<440			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Point Source Solutions
Date Received:	Not Applicable	Project:	The Brio, F&BI 206372
Date Collected:	Not Applicable	Lab ID:	02-1442 mb
Date Analyzed:	06/27/22	Data File:	062714.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	85	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.99	<0.2	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<2.1	<0.3	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<4.8	<2	Trichloroethene	<0.11	<0.02
Bromomethane	<3.9	<1	cis-1,3-Dichloropropene	<0.91	<0.2
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<0.11	<0.05	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<3.1	<1	Isopropylbenzene	<9.8	<2
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<4.9	<1
Methyl t-butyl ether (MTBE)	<7.2	<2	4-Ethyltoluene	<4.9	<1
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<4.9	<1
Tetrahydrofuran	<0.59	<0.2	1,2,4-Trimethylbenzene	<4.9	<1
2-Butanone (MEK)	<5.9	<2	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02
Gasoline Rage Organics	<330	<80			

Date of Report: 07/01/22
Date Received: 06/22/22
Project: The Brio, F&BI 206372

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

Laboratory Code: 206431-01 1/5.1 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	42	43	2
Dichlorodifluoromethane	ug/m3	<5	<5	nm
Chloromethane	ug/m3	<19	<19	nm
F-114	ug/m3	<11	<11	nm
Vinyl chloride	ug/m3	<1.3	<1.3	nm
1,3-Butadiene	ug/m3	3.7	3.7	0
Butane	ug/m3	<24	<24	nm
Bromomethane	ug/m3	<20	<20	nm
Chloroethane	ug/m3	<13	<13	nm
Vinyl bromide	ug/m3	<2.2	<2.2	nm
Ethanol	ug/m3	<38	<38	nm
Acrolein	ug/m3	1.8	1.8	0
Pentane	ug/m3	<30	<30	nm
Trichlorofluoromethane	ug/m3	<11	<11	nm
Acetone	ug/m3	58	57	2
2-Propanol	ug/m3	<44	<44	nm
1,1-Dichloroethene	ug/m3	<2	<2	nm
trans-1,2-Dichloroethene	ug/m3	<2	<2	nm
Methylene chloride	ug/m3	<180	<180	nm
t-Butyl alcohol (TBA)	ug/m3	<62	<62	nm
3-Chloropropene	ug/m3	<16	<16	nm
CFC-113	ug/m3	<3.9	<3.9	nm
Carbon disulfide	ug/m3	<32	<32	nm
Methyl t-butyl ether (MTBE)	ug/m3	<37	<37	nm
Vinyl acetate	ug/m3	<36	<36	nm
1,1-Dichloroethane	ug/m3	<2.1	<2.1	nm
cis-1,2-Dichloroethene	ug/m3	<2	<2	nm
Hexane	ug/m3	<18	<18	nm
Chloroform	ug/m3	0.37	0.37	0
Ethyl acetate	ug/m3	<37	<37	nm
Tetrahydrofuran	ug/m3	<3	<3	nm
2-Butanone (MEK)	ug/m3	<30	<30	nm
1,2-Dichloroethane (EDC)	ug/m3	0.56	0.56	0
1,1,1-Trichloroethane	ug/m3	<2.8	<2.8	nm
Carbon tetrachloride	ug/m3	<1.6	<1.6	nm
Benzene	ug/m3	2.3	2.3	0
Cyclohexane	ug/m3	<35	<35	nm
1,2-Dichloropropane	ug/m3	<1.2	<1.2	nm
1,4-Dioxane	ug/m3	<1.8	<1.8	nm
2,2,4-Trimethylpentane	ug/m3	<24	<24	nm

Date of Report: 07/01/22
Date Received: 06/22/22
Project: The Brio, F&BI 206372

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

Laboratory Code: 206431-01 1/5.1 (Duplicate) (continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<21	<21	nm
Heptane	ug/m3	<21	<21	nm
Bromodichloromethane	ug/m3	<0.34	<0.34	nm
Trichloroethene	ug/m3	<0.55	<0.55	nm
cis-1,3-Dichloropropene	ug/m3	<4.6	<4.6	nm
4-Methyl-2-pentanone	ug/m3	<21	<21	nm
trans-1,3-Dichloropropene	ug/m3	<2.3	<2.3	nm
Toluene	ug/m3	<96	<96	nm
1,1,2-Trichloroethane	ug/m3	<0.28	<0.28	nm
2-Hexanone	ug/m3	<21	<21	nm
Tetrachloroethene	ug/m3	<35	<35	nm
Dibromochloromethane	ug/m3	<0.43	<0.43	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.39	<0.39	nm
Chlorobenzene	ug/m3	<2.3	<2.3	nm
Ethylbenzene	ug/m3	<2.2	<2.2	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.7	<0.7	nm
Nonane	ug/m3	<27	<27	nm
Isopropylbenzene	ug/m3	<50	<50	nm
2-Chlorotoluene	ug/m3	<26	<26	nm
Propylbenzene	ug/m3	<25	<25	nm
4-Ethyltoluene	ug/m3	<25	<25	nm
m,p-Xylene	ug/m3	6.8	6.6	3
o-Xylene	ug/m3	3.4	3.4	0
Styrene	ug/m3	4.6	4.6	0
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.26	<0.26	nm
1,3,5-Trimethylbenzene	ug/m3	<25	<25	nm
1,2,4-Trimethylbenzene	ug/m3	<25	<25	nm
1,3-Dichlorobenzene	ug/m3	<3.1	<3.1	nm
1,4-Dichlorobenzene	ug/m3	<1.2	<1.2	nm
1,2-Dichlorobenzene	ug/m3	<3.1	<3.1	nm
1,2,4-Trichlorobenzene	ug/m3	<3.8	<3.8	nm
Naphthalene	ug/m3	<1.3	<1.3	nm
Hexachlorobutadiene	ug/m3	<1.1	<1.1	nm

Date of Report: 07/01/22
Date Received: 06/22/22
Project: The Brio, F&BI 206372

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
Propene	ug/m3	23	117	70-130
Dichlorodifluoromethane	ug/m3	67	98	70-130
Chloromethane	ug/m3	28	95	70-130
F-114	ug/m3	94	102	70-130
Vinyl chloride	ug/m3	35	102	70-130
1,3-Butadiene	ug/m3	30	98	70-130
Butane	ug/m3	32	88	70-130
Bromomethane	ug/m3	52	125	70-130
Chloroethane	ug/m3	36	102	70-130
Vinyl bromide	ug/m3	59	96	70-130
Ethanol	ug/m3	25	121	70-130
Acrolein	ug/m3	31	75	70-130
Pentane	ug/m3	40	77	70-130
Trichlorofluoromethane	ug/m3	76	109	70-130
Acetone	ug/m3	32	112	70-130
2-Propanol	ug/m3	33	96	70-130
1,1-Dichloroethene	ug/m3	54	103	70-130
trans-1,2-Dichloroethene	ug/m3	54	100	70-130
Methylene chloride	ug/m3	94	106	70-130
t-Butyl alcohol (TBA)	ug/m3	41	88	70-130
3-Chloropropene	ug/m3	42	80	70-130
CFC-113	ug/m3	100	107	70-130
Carbon disulfide	ug/m3	42	100	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	85	70-130
Vinyl acetate	ug/m3	48	80	70-130
1,1-Dichloroethane	ug/m3	55	100	70-130
cis-1,2-Dichloroethene	ug/m3	54	98	70-130
Hexane	ug/m3	48	78	70-130
Chloroform	ug/m3	66	104	70-130
Ethyl acetate	ug/m3	49	93	70-130
Tetrahydrofuran	ug/m3	40	83	70-130
2-Butanone (MEK)	ug/m3	40	102	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	99	70-130
1,1,1-Trichloroethane	ug/m3	74	104	70-130
Carbon tetrachloride	ug/m3	85	106	70-130
Benzene	ug/m3	43	93	70-130
Cyclohexane	ug/m3	46	82	70-130
1,2-Dichloropropane	ug/m3	62	105	70-130
1,4-Dioxane	ug/m3	49	107	70-130
2,2,4-Trimethylpentane	ug/m3	63	95	70-130

Date of Report: 07/01/22
Date Received: 06/22/22
Project: The Brio, F&BI 206372

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
Methyl methacrylate	ug/m3	55	93	70-130
Heptane	ug/m3	55	90	70-130
Bromodichloromethane	ug/m3	90	115	70-130
Trichloroethene	ug/m3	73	107	70-130
cis-1,3-Dichloropropene	ug/m3	61	110	70-130
4-Methyl-2-pentanone	ug/m3	55	109	70-130
trans-1,3-Dichloropropene	ug/m3	61	105	70-130
Toluene	ug/m3	51	102	70-130
1,1,2-Trichloroethane	ug/m3	74	119	70-130
2-Hexanone	ug/m3	55	93	70-130
Tetrachloroethene	ug/m3	92	126	70-130
Dibromochloromethane	ug/m3	120	125	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	116	70-130
Chlorobenzene	ug/m3	62	113	70-130
Ethylbenzene	ug/m3	59	90	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	111	70-130
Nonane	ug/m3	71	75	70-130
Isopropylbenzene	ug/m3	66	100	70-130
2-Chlorotoluene	ug/m3	70	108	70-130
Propylbenzene	ug/m3	66	103	70-130
4-Ethyltoluene	ug/m3	66	95	70-130
m,p-Xylene	ug/m3	120	97	70-130
o-Xylene	ug/m3	59	100	70-130
Styrene	ug/m3	58	98	70-130
Bromoform	ug/m3	140	116	70-130
Benzyl chloride	ug/m3	70	107	70-130
1,3,5-Trimethylbenzene	ug/m3	66	101	70-130
1,2,4-Trimethylbenzene	ug/m3	66	97	70-130
1,3-Dichlorobenzene	ug/m3	81	125	70-130
1,4-Dichlorobenzene	ug/m3	81	122	70-130
1,2-Dichlorobenzene	ug/m3	81	124	70-130
1,2,4-Trichlorobenzene	ug/m3	100	137 vo	70-130
Naphthalene	ug/m3	71	125	70-130
Hexachlorobutadiene	ug/m3	140	126	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 analyte 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 due to sample matrix effects.

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.

206372

SAMPLE CHAIN OF CUSTODY 06-22-22

Page # 1 of 1

Report To Gil Cobb

Company Point Source Solutions

Address 5317 NE St John Rd Ste D.

City, State, ZIP Vancouver, WA 98661

Phone _____ Email _____

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: The Brio

PO #

NOTES:

INVOICE TO

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

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	Full-List VOCs	TPH-GRO 2-prop Notes
SS2	01	3432	101	IA / (SG)	6/21/22	30	9:29	5	9:34						✓	✓ ✓
SS1	02	3386	229	IA / (SG)	"	30	9:46	5	9:58						✓	✓ ✓
PS1	03	2434	108	IA / (SG)	"	21	10:39	5	10:43						✓	✓ ✓ HOLD -03 ef 6/22
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

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

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kyle Fisher	PSS	6/21/22	11:22
Received by:	Mark Bruya	F&B	6/22/22	1010
Relinquished by:				
Received by:		Samples received at 21 °C		

FORMS\COC\COCTO-15.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

July 11, 2022

Gil Cobb, Project Manager
Point Source Solutions
5317 NE St Johns Rd, Suite D
Vancouver, WA 98661

Dear Mr Cobb:

Included are the results from the testing of material submitted on June 29, 2022 from the BRIO, F&BI 206524 project. There are 8 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: Johnny Ramus, Jeff Jackman, Kyle Fisher
PSS0711R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 29, 2022 by Friedman & Bruya, Inc. from the Point Source Solutions BRIO, F&BI 206524 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Point Source Solutions
206524 -01	PS1

The TO-15 gasoline range concentrations were quantified using a single point calibration at 80 ppbv.

The concentration of several analytes in sample PS1 exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	PS1	Client:	Point Source Solutions
Date Received:	06/29/22	Project:	BRIO, F&BI 206524
Date Collected:	06/28/22	Lab ID:	206524-01 1/19
Date Analyzed:	07/02/22	Data File:	070124.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	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<23	<13	1,2-Dichloropropane	<4.4	<0.95
Dichlorodifluoromethane	<19	<3.8	1,4-Dioxane	<6.8	<1.9
Chloromethane	<71	<34	2,2,4-Trimethylpentane	<89	<19
F-114	<40	<5.7	Methyl methacrylate	<78	<19
Vinyl chloride	<4.9	<1.9	Heptane	<78	<19
1,3-Butadiene	<0.84	<0.38	Bromodichloromethane	<1.3	<0.19
Butane	<90	<38	Trichloroethene	2.2	0.42
Bromomethane	<74	<19	cis-1,3-Dichloropropene	<17	<3.8
Chloroethane	<50	<19	4-Methyl-2-pentanone	<78	<19
Vinyl bromide	<8.3	<1.9	trans-1,3-Dichloropropene	<8.6	<1.9
Ethanol	<140	<76	Toluene	<360	<95
Acrolein	<2.2	<0.95	1,1,2-Trichloroethane	<1	<0.19
Pentane	<110	<38	2-Hexanone	<78	<19
Trichlorofluoromethane	<43	<7.6	Tetrachloroethene	<130	<19
Acetone	2,200 ve	920 ve	Dibromochloromethane	<1.6	<0.19
2-Propanol	<160	<66	1,2-Dibromoethane (EDB)	<1.5	<0.19
1,1-Dichloroethene	<7.5	<1.9	Chlorobenzene	<8.7	<1.9
trans-1,2-Dichloroethene	<7.5	<1.9	Ethylbenzene	<8.3	<1.9
Methylene chloride	<660	<190	1,1,2,2-Tetrachloroethane	<2.6	<0.38
t-Butyl alcohol (TBA)	<230	<76	Nonane	<100	<19
3-Chloropropene	<59	<19	Isopropylbenzene	<190	<38
CFC-113	<15	<1.9	2-Chlorotoluene	<98	<19
Carbon disulfide	<120	<38	Propylbenzene	<93	<19
Methyl t-butyl ether (MTBE)	<140	<38	4-Ethyltoluene	<93	<19
Vinyl acetate	<130	<38	m,p-Xylene	24	5.5
1,1-Dichloroethane	<7.7	<1.9	o-Xylene	8.7	2.0
cis-1,2-Dichloroethene	<7.5	<1.9	Styrene	<16	<3.8
Hexane	<67	<19	Bromoform	<39	<3.8
Chloroform	4.4	0.89	Benzyl chloride	<0.98	<0.19
Ethyl acetate	<140	<38	1,3,5-Trimethylbenzene	<93	<19
Tetrahydrofuran	<11	<3.8	1,2,4-Trimethylbenzene	<93	<19
2-Butanone (MEK)	8,400 ve	2,800 ve	1,3-Dichlorobenzene	<11	<1.9
1,2-Dichloroethane (EDC)	<0.77	<0.19	1,4-Dichlorobenzene	<4.3	<0.72
1,1,1-Trichloroethane	<10	<1.9	1,2-Dichlorobenzene	<11	<1.9
Carbon tetrachloride	<6	<0.95	1,2,4-Trichlorobenzene	<14	<1.9
Benzene	160	49	Naphthalene	<5	<0.95
Cyclohexane	<130	<38	Hexachlorobutadiene	<4.1	<0.38
Gasoline Range Organics	<6,200	<1,500			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Point Source Solutions
Date Received:	Not Applicable	Project:	BRIO, F&BI 206524
Date Collected:	Not Applicable	Lab ID:	02-1506 MB
Date Analyzed:	07/01/22	Data File:	070111.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	84	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.99	<0.2	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<2.1	<0.3	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<4.8	<2	Trichloroethene	<0.11	<0.02
Bromomethane	<3.9	<1	cis-1,3-Dichloropropene	<0.91	<0.2
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<0.11	<0.05	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<3.1	<1	Isopropylbenzene	<9.8	<2
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<4.9	<1
Methyl t-butyl ether (MTBE)	<7.2	<2	4-Ethyltoluene	<4.9	<1
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<4.9	<1
Tetrahydrofuran	<0.59	<0.2	1,2,4-Trimethylbenzene	<4.9	<1
2-Butanone (MEK)	<5.9	<2	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02
Gasoline Range Organics	<330	<80			

Date of Report: 07/11/22
Date Received: 06/29/22
Project: BRIO, F&BI 206524

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

Laboratory Code: 206542-01 1/5.4 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6.5	<6.5	nm
Dichlorodifluoromethane	ug/m3	<5.3	<5.3	nm
Chloromethane	ug/m3	<20	<20	nm
F-114	ug/m3	<11	<11	nm
Vinyl chloride	ug/m3	<1.4	<1.4	nm
1,3-Butadiene	ug/m3	<0.24	<0.24	nm
Butane	ug/m3	26	<26	nm
Bromomethane	ug/m3	<21	<21	nm
Chloroethane	ug/m3	<14	<14	nm
Vinyl bromide	ug/m3	<2.4	<2.4	nm
Ethanol	ug/m3	<41	<41	nm
Acrolein	ug/m3	<0.62	<0.62	nm
Pentane	ug/m3	<32	<32	nm
Trichlorofluoromethane	ug/m3	<12	<12	nm
Acetone	ug/m3	140	150	7
2-Propanol	ug/m3	<46	<46	nm
1,1-Dichloroethene	ug/m3	<2.1	<2.1	nm
trans-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
Methylene chloride	ug/m3	<190	<190	nm
t-Butyl alcohol (TBA)	ug/m3	<65	<65	nm
3-Chloropropene	ug/m3	<17	<17	nm
CFC-113	ug/m3	<4.1	<4.1	nm
Carbon disulfide	ug/m3	<34	<34	nm
Methyl t-butyl ether (MTBE)	ug/m3	<39	<39	nm
Vinyl acetate	ug/m3	<38	<38	nm
1,1-Dichloroethane	ug/m3	<2.2	<2.2	nm
cis-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
Hexane	ug/m3	<19	<19	nm
Chloroform	ug/m3	0.26	0.26	0
Ethyl acetate	ug/m3	<39	<39	nm
Tetrahydrofuran	ug/m3	<3.2	<3.2	nm
2-Butanone (MEK)	ug/m3	<32	<32	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.22	<0.22	nm
1,1,1-Trichloroethane	ug/m3	<2.9	<2.9	nm
Carbon tetrachloride	ug/m3	<1.7	<1.7	nm
Benzene	ug/m3	3.1	3.1	0
Cyclohexane	ug/m3	<37	<37	nm
1,2-Dichloropropane	ug/m3	<1.2	<1.2	nm
1,4-Dioxane	ug/m3	<1.9	<1.9	nm
2,2,4-Trimethylpentane	ug/m3	<25	<25	nm

Date of Report: 07/11/22
Date Received: 06/29/22
Project: BRIO, F&BI 206524

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

Laboratory Code: 206542-01 1/5.4 (Duplicate) (continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<22	<22	nm
Heptane	ug/m3	34	33	3
Bromodichloromethane	ug/m3	<0.36	<0.36	nm
Trichloroethene	ug/m3	<0.58	<0.58	nm
cis-1,3-Dichloropropene	ug/m3	<4.9	<4.9	nm
4-Methyl-2-pentanone	ug/m3	<22	<22	nm
trans-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
Toluene	ug/m3	100	110	10
1,1,2-Trichloroethane	ug/m3	<0.29	<0.29	nm
2-Hexanone	ug/m3	<22	<22	nm
Tetrachloroethene	ug/m3	<37	<37	nm
Dibromochloromethane	ug/m3	<0.46	<0.46	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.41	<0.41	nm
Chlorobenzene	ug/m3	22	22	0
Ethylbenzene	ug/m3	4.1	4.1	0
1,1,2,2-Tetrachloroethane	ug/m3	<0.74	<0.74	nm
Nonane	ug/m3	<28	<28	nm
Isopropylbenzene	ug/m3	<53	<53	nm
2-Chlorotoluene	ug/m3	<28	<28	nm
Propylbenzene	ug/m3	<27	<27	nm
4-Ethyltoluene	ug/m3	<27	<27	nm
m,p-Xylene	ug/m3	7.3	7.4	1
o-Xylene	ug/m3	<2.3	<2.3	nm
Styrene	ug/m3	<4.6	<4.6	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.28	<0.28	nm
1,3,5-Trimethylbenzene	ug/m3	<27	<27	nm
1,2,4-Trimethylbenzene	ug/m3	<27	<27	nm
1,3-Dichlorobenzene	ug/m3	<3.2	<3.2	nm
1,4-Dichlorobenzene	ug/m3	<1.2	<1.2	nm
1,2-Dichlorobenzene	ug/m3	<3.2	<3.2	nm
1,2,4-Trichlorobenzene	ug/m3	<4	<4	nm
Naphthalene	ug/m3	<1.4	<1.4	nm
Hexachlorobutadiene	ug/m3	<1.2	<1.2	nm

Date of Report: 07/11/22
Date Received: 06/29/22
Project: BRIO, F&BI 206524

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
Propene	ug/m3	23	83	70-130
Dichlorodifluoromethane	ug/m3	67	105	70-130
Chloromethane	ug/m3	28	101	70-130
F-114	ug/m3	94	109	70-130
Vinyl chloride	ug/m3	35	103	70-130
1,3-Butadiene	ug/m3	30	96	70-130
Butane	ug/m3	32	85	70-130
Bromomethane	ug/m3	52	112	70-130
Chloroethane	ug/m3	36	103	70-130
Vinyl bromide	ug/m3	59	99	70-130
Ethanol	ug/m3	25	81	70-130
Acrolein	ug/m3	31	75	70-130
Pentane	ug/m3	40	76	70-130
Trichlorofluoromethane	ug/m3	76	107	70-130
Acetone	ug/m3	32	100	70-130
2-Propanol	ug/m3	33	86	70-130
1,1-Dichloroethene	ug/m3	54	105	70-130
trans-1,2-Dichloroethene	ug/m3	54	100	70-130
Methylene chloride	ug/m3	94	110	70-130
t-Butyl alcohol (TBA)	ug/m3	41	86	70-130
3-Chloropropene	ug/m3	42	81	70-130
CFC-113	ug/m3	100	111	70-130
Carbon disulfide	ug/m3	42	98	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	89	70-130
Vinyl acetate	ug/m3	48	75	70-130
1,1-Dichloroethane	ug/m3	55	101	70-130
cis-1,2-Dichloroethene	ug/m3	54	98	70-130
Hexane	ug/m3	48	79	70-130
Chloroform	ug/m3	66	104	70-130
Ethyl acetate	ug/m3	49	96	70-130
Tetrahydrofuran	ug/m3	40	82	70-130
2-Butanone (MEK)	ug/m3	40	97	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	101	70-130
1,1,1-Trichloroethane	ug/m3	74	105	70-130
Carbon tetrachloride	ug/m3	85	105	70-130
Benzene	ug/m3	43	95	70-130
Cyclohexane	ug/m3	46	78	70-130
1,2-Dichloropropane	ug/m3	62	107	70-130
1,4-Dioxane	ug/m3	49	99	70-130
2,2,4-Trimethylpentane	ug/m3	63	96	70-130

Date of Report: 07/11/22
Date Received: 06/29/22
Project: BRIO, F&BI 206524

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

Laboratory Code: Laboratory Control Sample (contnued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	92	70-130
Heptane	ug/m3	55	93	70-130
Bromodichloromethane	ug/m3	90	115	70-130
Trichloroethene	ug/m3	73	111	70-130
cis-1,3-Dichloropropene	ug/m3	61	109	70-130
4-Methyl-2-pentanone	ug/m3	55	100	70-130
trans-1,3-Dichloropropene	ug/m3	61	103	70-130
Toluene	ug/m3	51	102	70-130
1,1,2-Trichloroethane	ug/m3	74	118	70-130
2-Hexanone	ug/m3	55	96	70-130
Tetrachloroethene	ug/m3	92	124	70-130
Dibromochloromethane	ug/m3	120	124	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	111	70-130
Chlorobenzene	ug/m3	62	111	70-130
Ethylbenzene	ug/m3	59	93	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	113	70-130
Nonane	ug/m3	71	86	70-130
Isopropylbenzene	ug/m3	66	116	70-130
2-Chlorotoluene	ug/m3	70	109	70-130
Propylbenzene	ug/m3	66	106	70-130
4-Ethyltoluene	ug/m3	66	97	70-130
m,p-Xylene	ug/m3	120	102	70-130
o-Xylene	ug/m3	59	105	70-130
Styrene	ug/m3	58	95	70-130
Bromoform	ug/m3	140	119	70-130
Benzyl chloride	ug/m3	70	107	70-130
1,3,5-Trimethylbenzene	ug/m3	66	100	70-130
1,2,4-Trimethylbenzene	ug/m3	66	99	70-130
1,3-Dichlorobenzene	ug/m3	81	124	70-130
1,4-Dichlorobenzene	ug/m3	81	118	70-130
1,2-Dichlorobenzene	ug/m3	81	123	70-130
1,2,4-Trichlorobenzene	ug/m3	100	126	70-130
Naphthalene	ug/m3	71	112	70-130
Hexachlorobutadiene	ug/m3	140	126	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 analyte 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 due to sample matrix effects.

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.

SAMPLE CHAIN OF CUSTODY

206524 Gil Cobb 6/29/22

Report To: Gobb gil@pointsourcesolutions.com

Company: Point Source Solutions

Address: 5317 NE St. Johns

City, State, ZIP: Vancouver, WA 98664

Phone: 503.916.9204 Email: gil@pointsourcesolutions.com

SAMPLERS (*signature*): Johnny Ramos & Conor McGeehan

PROJECT NAME & ADDRESS: 3R10

PO #:

NOTES:

INVOICE TO:

Page # ____ of ____

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

SAMPLE DISPOSAL
- ☐ Default: Clean after 3 days
- ☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED							
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	TPH - ERO	Full List VOCs	2-propanol Notes
PS1	01	3390	398	IA / (SG)	6/20/22	-29	9[11]	-5	921						X	X	X
				IA / SG													
				IA / SG													
				IA / SG													
				IA / SG													
				IA / SG													
				IA / SG													
				IA / SG													

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

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	John Ram	John Ramos	PSS	6/29/22	16:14
Received by:	W. Madden	Windy Madden	F+BI	6/29/22	16:14
Relinquished by:					
Received by:			Samples received at 22 °C		

FORMS\COC\COCTO-15.DOC

point source solutions, llc

10445 SW Canyon Road, Suite 266
Beaverton, Oregon 97005
503.236.5885

APPENDIX B

FIELD FORMS

PROJECT:	Brio - 3912 N Vancouver	PM:	Gil Cobb	DATE:	6/21/22
CONDITIONS:	60s, overcast				
LOCATION:	Center	SAMPLE ID:	SS2		
Soil Gas or Sub-slab (circle one)	TO-15 or TO-17 (circle one)	SN:	3432	T_i 9:29	T_f 9:34
SAMPLE DEPTH: N/A	Flow Rate: N/A	Reg ID:	101	P_i 30	P_f 5

Time	Task Description
9:23	Purged for 3 min at 100 ml/min, no change in water level introduced to well noted as primary leak check.
9:29	Set 2-prop leak check, opened canister
9:34	collected SS2

LOCATION:	SW garage floor	SAMPLE ID:	SS1		
Soil Gas or Sub-slab (circle one)	TO-15 or TO-17 (circle one)	SN:	3386	T_i 9:46	T_f 9:58
SAMPLE DEPTH: N/A	Flow Rate: N/A	Reg ID:	229	P_i 30	P_f 5

Time	Task Description
9:40	Purged for 3 min at 100 ml/min, no change in water level introduced to well noted as primary leak check
9:46	Set 2-prop leak check, opened canister
9:58	collected SS1

LOCATION:	Passive System Stub-Up	SAMPLE ID:	PS1		
Soil Gas or Sub-slab (circle one)	TO-15 or TO-17 (circle one)	SN:	2434	T_i 10:39	T_f 10:43
SAMPLE DEPTH: N/A	Flow Rate: N/A	Reg ID:	108	P_i 21	P_f 5

Time	Task Description
10:35	Purged for 3 min at 100 ml/min
10:39	Set 2-prop leak check, opened canister
10:43	collected PS1
	called Eric at F&B. Said could not check can with either flow controller w/o contaminating can with other sample. Said to sample any way with low initial pressure and eval. later

PROJECT: 3912 N Vancouver / Brio		PM: Gil Cobb		DATE: 6/28/22
CONDITIONS: 60s, clear				
LOCATION: 3912 N Vancouver		SAMPLE ID: PS1 (passive system		
Soil Gas or Sub-slab (circle one)	TO-15 or TO-17 (circle one)	SN: 3390	T_i 9:11	T_f 9:21
SAMPLE DEPTH: NA	Flow Rate: NA	Reg ID: 308	P_i 29	P_f 5

Time	Task Description
9:05	Purged system for 3 minutes @ 100 mL/min
9:08	Set 2-prop leak check.
9:11	collected PS1 → recollect due to prior canister malfunction.

LOCATION:		SAMPLE ID:		
Soil Gas or Sub-slab (circle one)	TO-15 or TO-17 (circle one)	SN:	T_i	T_f
SAMPLE DEPTH:	Flow Rate:	Reg ID:	P_i	P_f

Time	Task Description

LOCATION:		SAMPLE ID:		
Soil Gas or Sub-slab (circle one)	TO-15 or TO-17 (circle one)	SN:	T_i	T_f
SAMPLE DEPTH:	Flow Rate:	Reg ID:	P_i	P_f

Time	Task Description