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Technical Memorandum

Remedial Action Status Report

Date: April 12, 2023

To: Aaren Fiedler, LG, Washington Department of Ecology Voluntary Cleanup Program

Copies: Jonathan Polonsky and Brent Chadwick, Plaid Pantries, Inc.
Mr. Brian Fallon, Southwest Clean Air Agency

From: Steve Roberts; Daniele Peters, PE; and Paul Ecker, LHG

Regarding: Plaid Pantry Store #112
1002 W. Fourth Plain Boulevard
Vancouver, Washington
Department of Ecology Cleanup Site ID 11759 and VCP #SW1314
EES Project 1179-04

This memorandum provides a summary of Site cleanup progress through February 2023 for the Plaid Pantry Store #112 site (Site). The remedial action technology being applied is soil vapor extraction (SVE), which is being conducted in general accordance with the EES *Work Plan for Soil Vapor Extraction System Expansion* dated June 27, 2019.

During 2022, ongoing SVE operations resulted in greatly diminished vapor phase gasoline concentrations measured near or below Site action levels, although sporadic rebounding conditions have been observed at all three active SVE wells during the past year, particularly SVE-7. Gasoline mass appears to have been substantially mitigated across this historic source area, and continued SVE operations/rebound monitoring are planned for 2023 as the cleanup progresses.

BACKGROUND

The nature and extent of gasoline contamination at the Site was previously characterized, and cleanup levels were established as detailed in the EES *Remedial Investigation Report* dated September 19, 2018.

On a parallel track, EES installed and operated an SVE system at the Site's source area between August 2013 and December 2018 as an interim action to mitigate readily accessible gasoline-impacted soils on the Plaid Pantry Store #112 subject property (Property). The SVE system was operated using a five-well array (SVE-1 through SVE-5) screened at depths between 5 and 20 feet below ground surface (bgs) in the vicinity of the fuel distribution island near the southern Property margin. The SVE operations appear to have adequately mitigated on-Property soil and related subsurface vapor impacts with respect to Model Toxics Control Act (MTCA) compliance criteria, and the original SVE components were shut down in December 2018.

The zone of initial SVE operations was generally limited to the primary source area within Property boundaries and did not fully address residual gasoline impacts extending into the adjacent West Fourth Plain Boulevard right-of-way (ROW). In December 2019 and January 2020, SVE infrastructure was expanded beyond the southern Property boundary to focus on gasoline-impacted subsurface soil located in the ROW. On-Property SVE components remain inactive except for monitoring purposes, and SVE is currently only applied actively to the off-Property well infrastructure.

The expanded SVE system is plumbed to a three-horsepower regenerative blower that applies vacuum to the three horizontal wells (SVE-6 through -8) with 15- to 20-foot-long screened intervals intended to target the known 5- to 10-foot-deep pocket of soil contamination within the ROW. The three horizontal well components provide overlapping vacuum influence within the targeted off-Property treatment area. This SVE well configuration is shown on Figure 1.

SVE OPERATIONS 2020-PRESENT

The off-Property SVE system has operated continuously since startup in January 2020, except for periodic short-term shutdowns occurring during maintenance, power loss, and intentional contaminant rebound monitoring activity. Routine SVE performance is monitored during monthly system operations and maintenance (O&M) visits, with quarterly performance vapor sampling events scheduled for January, April, July, and December while the system is in operation. Focused rebound evaluation was conducted on a monthly basis after exceedances of the SVE operational target[1] were observed in August, 2022. System flow and vacuum are periodically modified during the monthly O&M events to optimize contaminant mass removal. Operational data collected through February 2023, are presented on the attached tables, figures, and charts, and summarized below.

AIR FLOW

Since startup in January 2020, the system has produced between approximately 28 and 62 cubic feet per minute (cfm) of air flow from the subsurface (see Table 1, “AWS Inlet”), with recent system flow rates around 50 cfm. Individual horizontal wells typically produce extraction flow rates ranging between 10 and 50 cfm, with recent flow rates from the active SVE wells between 15 and 20 cfm.

RADIUS OF INFLUENCE

Performance metrics including vacuum, volatile organic compound (VOC) concentrations, and biological degradation parameters were measured at nearby vertical monitoring wells to evaluate the SVE system’s radius of influence (ROI; Table 2). Based on observations at nearby vadose-zone monitoring wells, vapor extraction operations have established an ROI that generally covers the identified areas of contamination within the West Fourth Plain Boulevard right-of-way (Figure 2). The lateral ROI for each individual horizontal SVE well is estimated at 10 feet between 5 and 20 feet below ground surface (bgs).

[1] Operational targets based informally on Ecology's Subslab Soil Gas Screening Levels for Vapor Intrusion (2019) as referenced on attached Table 3, including gasoline (4,700 ug/m^3) and benzene (11 ug/m^3).

Vertically, the influence for each SVE well extends at least as deep as 20 feet in the target cleanup area (i.e., about 10 feet below the horizontal wells).

BIOGENIC DEGRADATION OF GASOLINE

One goal of SVE is to increase subsurface oxygen inflow and concentrations that promote natural biological degradation of gasoline vapors. Before operation of the SVE system, subsurface oxygen concentrations at wells within the targeted treatment area ranged between approximately 9 and 20%. As intended, active SVE operations have established and maintained more highly aerobic conditions (18-21% oxygen) at wells SVE-6 through SVE-8 and at monitoring wells within the SVE zone of influence (B-17, B-18, and SVE-1 through SVE-5), indicating the remedial system is promoting biodegradation of gasoline contaminants by increasing oxygen flow into the subsurface.

Oxygen measurements from February 2023 demonstrate aerobic conditions (19-20% oxygen) in the treatment area while the system is operating. Low levels of carbon dioxide (~1%) were also observed and serve as an indication of subsurface biodegradation.

CONTAMINANT CONCENTRATIONS AND OBSERVED MASS REMOVAL

Regular monitoring data is collected during SVE operations to evaluate the performance of this remedial action and as a basis to consider system adjustments. Following observed exceedances of operational targets at all three ROW SVE wells in August 2022, the performance vapor sampling frequency was increased from quarterly to monthly. Vapor samples were most recently collected on February 10, 2023, from SVE-6, SVE-7, and SVE-8 and submitted for laboratory analysis.

Monitoring data indicate the horizontal SVE wells are effective and have lateral and vertical influence that extends throughout the known contaminated portions of the ROW. Subsurface gasoline and related constituent vapor concentrations are exhibiting an overall decreasing trend within the off-Property treatment zone. Since the spring of 2021, gasoline vapor concentrations have generally been low but fluctuated between analytical reporting limits of less than 1,700 to approximately 30,000 micrograms per cubic meter (ug/m^3) during the rebound monitoring period.[2]

Findings for 2022 and January-February 2023 operations are summarized below, presented in Tables 3, 4A and 4B, and illustrated on Figure 3 and Chart sets 1 and 2. Copies of the laboratory analytical reports for the 2022-2023 monitoring events are presented in Attachment A.

GASOLINE CONCENTRATIONS & CONTAMINANT REBOUND MONITORING

Overall, gasoline and related constituent concentrations have greatly diminished since SVE startup in January 2020 and represent an overall decreasing contaminant concentration trend, with some short-term fluctuations observed (Table 3, Charts 1A/1B, Figure 3).

[2] One exception is the apparently anomalous gasoline "spike" of 650,000 ug/m^3 at SVE-7 during the December 2021 sampling event. No gasoline concentrations of similar magnitude have been detected since that time.

Rebound Monitoring Event (February-March 2022). Given the unexpected and significant vapor rebound observed at SVE-7 in December 2021, EES conducted supplemental rebound monitoring evaluation during February and March 2022. The SVE system was re-activated on February 15, 2022, to achieve equilibrium conditions prior to analytical testing. After a two-week operational period, EES conducted follow-up vapor sampling on March 1, 2022. Findings indicated:

- Concentrations of gasoline and benzene in each of the three individual wells SVE-6, SVE-7 and SVE-8 were all below laboratory reporting limits, and related constituent concentrations were all below SVE operational targets (4,700 and 11 ug/m^3, respectively).
- Gasoline vapor was detected in the combined system total sample (4,000 ug/m^3) at a concentration below the SVE operational target.

Based on overall decreasing vapor concentration trends observed during the 2020-2022 timeframe, and over the course of a series of rebound monitoring events through March 2022, the uniquely elevated gasoline concentration observed at SVE-7 in December 2021 is regarded as anomalous and the system was shut down on March 31, 2022, for the remainder of the wet season as previously planned, until midyear in 2022 when drier conditions predominated.

Rebound Monitoring Event (July 2022-February 2023). Following wet-season shutdown in March, the SVE system was restarted on July 27, 2022, for dry-season rebound monitoring. Vapor samples were collected for analysis at system restart (on July 27) and at approximately one-month intervals thereafter from the operating system. Samples were collected at each lateral as well as at the SVE blower inlet to evaluate the combined system effluent.

- July 27, 2022: Two samples were collected during system restart, one immediately after the system was activated and one about an hour after restart when field-measured concentrations appeared to peak.
  - Upon re-start, the initial gasoline concentrations collected from each lateral (SVE-6, SVE-7, SVE-8) were below laboratory method reporting limits. Gasoline vapor was detected in the combined system total sample (4,000 ug/m^3) at a concentration below the SVE operational target. Low-level gasoline concentrations from each SVE lateral likely contributed to the threshold-concentration detection reported at the system total.
  - The samples collected approximately one hour after startup, when field observations (photoionization detector readings) indicated peak vapor concentrations for that day, were below laboratory reporting limits for gasoline in the total system sample and at laterals SVE-7 and SVE-8. Gasoline vapor was detected in the sample from lateral SVE-6 (4,500 ug/m^3) at a concentration below the SVE operational target.
- August 25, 2022: Gasoline vapor concentrations slightly exceeding the SVE operational target were detected at each of the three SVE wells during this event, approximately one month following July startup. Gasoline concentrations in the laterals ranged from 5,300 ug/m^3 in SVE-6 to 7,800 ug/m^3 in SVE-8. The total system sample was below laboratory reporting limits, which could be explained by vapor concentrations fluctuating above and below the laboratory detection threshold at the low levels observed.
- September 30, 2022: After two months' full-time dry-season operations, the total system sample and all three SVE well samples were below method reporting limits for gasoline and constituent vapor concentrations.

- October 31, 2022: Gasoline concentrations increased in October, ranging from 2,700 ug/m^3 in SVE-6 to 11,000 ug/m^3 in SVE-7. The gasoline concentration at SVE-7 and the total system sample (8,400 ug/m^3) exceeded the SVE operational target.
- November 28, 2022, and December 19, 2022: The analytical laboratory indicated no definitive gasoline detection at SVE-7, but elevated reporting limits (360,000 ug/m^3) were reported during the November and December 2022 sampling events. These elevated reporting limits appear to be associated with elevated concentrations of butane detected in these samples that exceeded the calibration range of the laboratory instrument. The source of the butane detections is not known at this time. By contrast, the analytical reporting limits for SVE-6 and SVE-8 were typical for this site during November and December and gasoline was not detected in those samples.

Subsequent to the apparently anomalously high analytical reporting limits for the SVE-7 samples from the November and December 2022 events, vapor sample results from January and February 2023 appear to align with general decreasing trends noted previously in these wells.

- January 12, 2023: Gasoline concentrations at all three active SVE wells were below the SVE operational target.
- February 10, 2023: The gasoline concentration at SVE-7 (6,000 ug/m^3) exceeded the SVE operational target. Concentrations at SVE-6 and SVE-8 remained below reporting limits. The total system sample was 3,200 ug/m^3, which is below the SVE operational target.

GASOLINE MASS EXTRACTION RATE

Gasoline mass removal rates in July 2022-February 2023 ranged from 0.01 to 0.8 pounds per day, with approximately 41 pounds of gasoline removed during this time period. Since startup of the off-Property SVE component in January 2020, cumulative removal of gasoline range hydrocarbons is estimated to be 181 pounds, or approximately 30 gallons (Table 4A). Combined with prior on-Property system operations conducted between 2013 and 2019, a total of approximately 381 pounds of (~62 gallons) gasoline mass have been removed from the Site since the start of SVE operations (Table 4B and Chart set 3).

The calculated gasoline mass removal rates for November and December 2022 may be biased high due to the elevated reporting limits associated with those samples. The calculated gasoline mass removal rates from February 2023 (which are unaffected by the November-December 2022 elevated reporting limits) are in concert with pre-November 2022 rates. This overall similarity indicates that removal rates are relatively diminished, as expected, as the cleanup progresses.

AIR DISCHARGE COMPLIANCE

Since air emissions from the SVE system are expected to remain below Southwest Clean Air Authority (SWCAA) treatment criteria (SWCAA 400-109), SWCAA authorized system startup and continued operation of the system without the use of air emission controls. EES has continued to update the SWCAA on the operation of this system periodically.

In addition to gasoline, chlorinated solvent vapors, primarily tetrachloroethylene (PCE), are removed from the subsurface during SVE operations (Table 4A and 4B). Although not attributed to the gasoline

source or Plaid operations, total PCE concentrations in SVE system air emissions are monitored to demonstrate compliance with SWCAA discharge criteria. Gasoline constituents and PCE vapor emissions remain far below maximum allowable discharge limits, confirming that exhaust treatment is not required (Tables 4A and 4B).

2023 SVE OPERATIONS GOING FORWARD

Monitoring data collected to date indicate that the SVE system has been effective in the treatment area at removing gasoline contaminant mass, promoting hydrocarbon biodegradation, and limiting potential vapor migration. Gasoline mass at off-Property ROW locations has been greatly mitigated and diminished as a result of the horizontal SVE well operations. The most recent gasoline vapor concentration at SVE-7 as measured in February 2023 is above the operational threshold established informally at this Site for gasoline.[3] Sample results from the other active SVE wells (SVE-6 and SVE-8) are generally below analytical reporting limits. EES will continue SVE operations and performance vapor sampling through at least June 2023, or until vapor sampling results exhibit concentrations below operational targets. System information and analytical results will continue to be reviewed on a regular basis as EES proceeds with contaminant rebound monitoring protocols.

As indicated in the 2018 RI Report, vapor concentrations inform our understanding of cleanup progress, but final cleanup compliance is governed by demonstrating that protective gasoline concentrations are achieved in **soil** (2,619 mg/kg cleanup criteria). This will be demonstrated by soil sampling in the ROW when vapor screening criteria are reliably achieved. EES will continue with rebound monitoring protocols until gasoline concentrations remain below operational reference standards for three consecutive quarters. Once this metric is achieved, and assuming biodegradation indicators and mass removal rates corroborate the assessment, confirmation soil sampling will be conducted, as described above.

[3] MTCA Method B Sub-Slab Soil Gas Screening Criteria, 2019.

ATTACHMENTS

Figure 1: SVE System Layout
Figure 2: Radius of Influence
Figure 3: Gasoline Vapor Concentrations During SVE Operations (January 2020-February 2023)

Table 1: Soil Vapor Extraction Monitoring Data
Table 2: Biodegradation Parameter and Zone of Influence Data
Table 3: SVE Monitoring Analytical Results – Volatile Organic Compounds
Table 4A: Soil Vapor Extraction Mass Removal in Right-of-Way
Table 4B: Site Total Soil Vapor Extraction Mass Removal

Chart 1A: System Total Gasoline Vapor Concentrations During SVE Operations in ROW (Linear Scale)
Chart 1B: System Total Gasoline Vapor Concentrations During SVE Operations in ROW (Log Scale)
Chart 1C: System Total Gasoline Vapor Concentrations During SVE Operations (Sitewide – Log Scale)
Chart 2A: Gasoline Vapor Concentrations & Removal Rates During SVE Operations in ROW (Linear Scale)
Chart 2B: Gasoline Vapor Concentrations & Removal Rates During SVE Operations in ROW (Log Scale)
Chart 3A: Site Total Gasoline Mass Extraction Rates & Cumulative Mass Removal (Linear Scale)
Chart 3B: Site Total Gasoline Mass Extraction Rates & Cumulative Mass Removal (Log Scale)

Attachment A: Laboratory Analytical Data

Figures

LEGEND

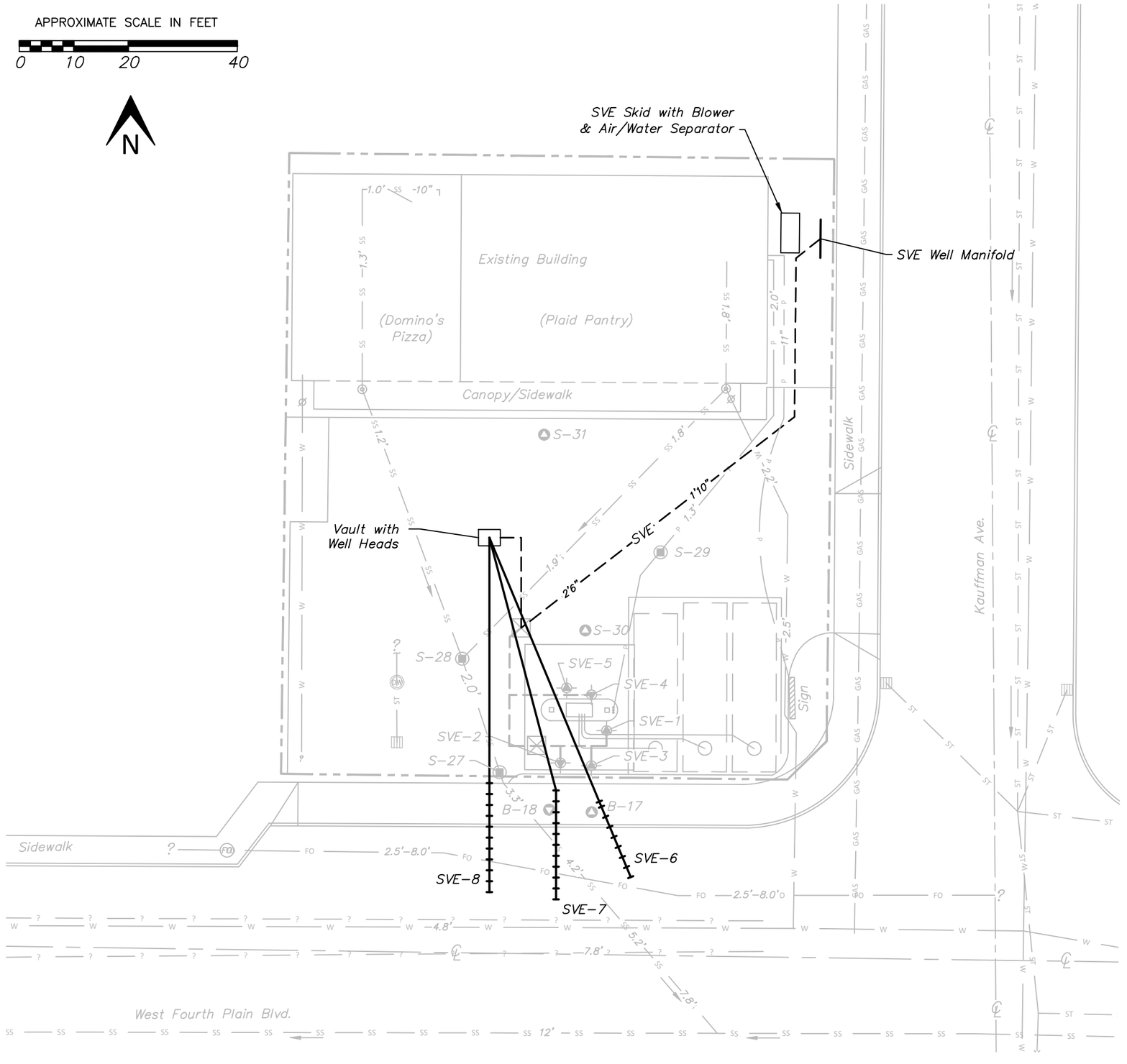
- Property Boundary
- Roadway Centerline
- Catch Basin
- DW — Dry Well
- Vault
- SVE–1 — Inactive Shallow SVE Well (Screened 5–10' bgs)
- SVE–2 — Inactive Deep SVE Well (Screened 15–20' bgs)
- S–28 — Utility Vapor Monitoring Well (Screened at Various Shallow Depths in Trench Backfill)
- B–17 — Shallow Vapor Monitoring Well (Screened 5–10' bgs)
- B–18 — Deep Vapor Monitoring Well (Screened 15–20' bgs)
- SVE — SVE–1 through SVE–5 Conveyance Piping
- SVE — SVE Conveyance Piping
- W — Water Line
- SS — Sanitary Sewer & Flow Direction
- ST — Storm Sewer & Flow Direction
- P — Power
- GAS — Natural Gas
- ? — Unknown Utility
- FO — Fiber Optic
- Arrows Indicate Flow Direction Where Known
- Approximate Utility Depths Indicated Where Known (Feet)
- SVE Well Casing
- SVE Screens

SITE FEATURES ARE APPROXIMATE.

APPROXIMATE SCALE IN FEET

0 10 20 40

N



PROJECT NO.	1179–04
DATE: 9–21–22	FIGURE NO. 1
FILE: 1179–04	
DRAWN: JJT	
APPROVED: DBP	

SVE SYSTEM LAYOUT

PLAID PANTRY #112
1002 W. FOURTH PLAIN BLVD.
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LEGEND

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- Road Centerline
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- Vault
- 10 — Approximate Gasoline Isoconcentration Contour (mg/kg, Sept 2015)
- -SVE- — SVE–1 through SVE–5 Conveyance Piping
- -SVE- — SVE Conveyance Piping
- SVE Well Casing
- SVE Screen
- ** = With all wells enabled

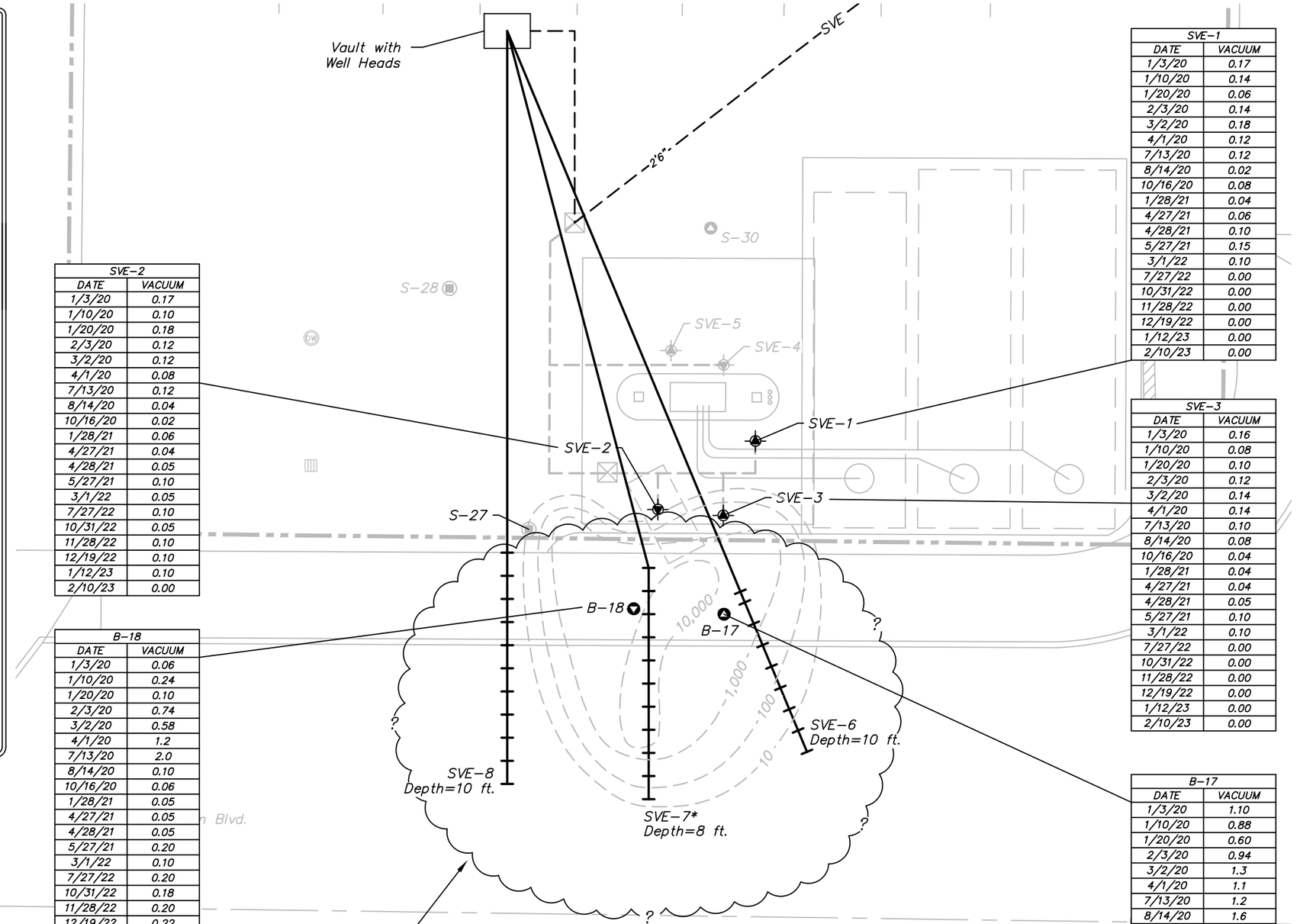
Vacuum measurements in inches of water column.

SITE FEATURES ARE APPROXIMATE.

APPROXIMATE SCALE IN FEET

0 10 20

N



SVE–2	
DATE	VACUUM
1/3/20	0.17
1/10/20	0.10
1/20/20	0.18
2/3/20	0.12
3/2/20	0.12
4/1/20	0.08
7/13/20	0.12
8/14/20	0.04
10/16/20	0.02
1/28/21	0.06
4/27/21	0.04
4/28/21	0.05
5/27/21	0.10
3/1/22	0.05
7/27/22	0.10
10/31/22	0.05
11/28/22	0.10
12/19/22	0.10
1/12/23	0.10
2/10/23	0.00

B–18	
DATE	VACUUM
1/3/20	0.06
1/10/20	0.24
1/20/20	0.10
2/3/20	0.74
3/2/20	0.58
4/1/20	1.2
7/13/20	2.0
8/14/20	0.10
10/16/20	0.06
1/28/21	0.05
4/27/21	0.05
4/28/21	0.05
5/27/21	0.20
3/1/22	0.10
7/27/22	0.20
10/31/22	0.18
11/28/22	0.20
12/19/22	0.22
1/12/23	0.18
2/10/23	0.00

SVE–1	
DATE	VACUUM
1/3/20	0.17
1/10/20	0.14
1/20/20	0.06
2/3/20	0.14
3/2/20	0.18
4/1/20	0.12
7/13/20	0.12
8/14/20	0.02
10/16/20	0.08
1/28/21	0.04
4/27/21	0.06
4/28/21	0.10
5/27/21	0.15
3/1/22	0.10
7/27/22	0.00
10/31/22	0.00
11/28/22	0.00
12/19/22	0.00
1/12/23	0.00
2/10/23	0.00

SVE–3	
DATE	VACUUM
1/3/20	0.16
1/10/20	0.08
1/20/20	0.10
2/3/20	0.12
3/2/20	0.14
4/1/20	0.14
7/13/20	0.10
8/14/20	0.08
10/16/20	0.04
1/28/21	0.04
4/27/21	0.04
4/28/21	0.05
5/27/21	0.10
3/1/22	0.10
7/27/22	0.00
10/31/22	0.00
11/28/22	0.00
12/19/22	0.00
1/12/23	0.00
2/10/23	0.00

B–17	
DATE	VACUUM
1/3/20	1.10
1/10/20	0.88
1/20/20	0.60
2/3/20	0.94
3/2/20	1.3
4/1/20	1.1
7/13/20	1.2
8/14/20	1.6
10/16/20	1.0
1/28/21	2.2
4/27/21	0.40
4/28/21	1.6
5/27/21	0.15
3/1/22	1.8
7/27/22	1.5
10/31/22	1.8
11/28/22	2.0
12/19/22	1.8
1/12/23	1.8
2/10/23	2.8

PROJECT NO. 1179–04 | FIGURE NO. 2
DATE: 4–11–23 | DRAWN: JJT
FILE: 1179–04 | APPROVED: SR

RADIUS OF INFLUENCE

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LEGEND

- Property Boundary
- Road Centerline
- Catch Basin
- Dry Well (DW)
- SVE–1 — Inactive Shallow SVE Well
- SVE–2 — Inactive Deep SVE Well
- S–28 — Utility Vapor Monitoring Well (Screened at Various Shallow Depths in Trench Backfill)
- B–17 — Shallow Vapor Monitoring Well (Screened 5–10' bgs)
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- Vault
- 10 — Approximate Gasoline Isoconcentration Contour (mg/kg, Sept 2015)
- -·SVE·- — SVE–1 through SVE–5 Conveyance Piping
- -·SVE·- — SVE Conveyance Piping
- SVE Well Casing
- SVE Screen

** = System disabled 5/27/21–7/9/21, 12/6/21–2/15/22, and 3/31/22–7/27/22 for contaminant rebound monitoring.

U = Undetected at method reporting limit shown.

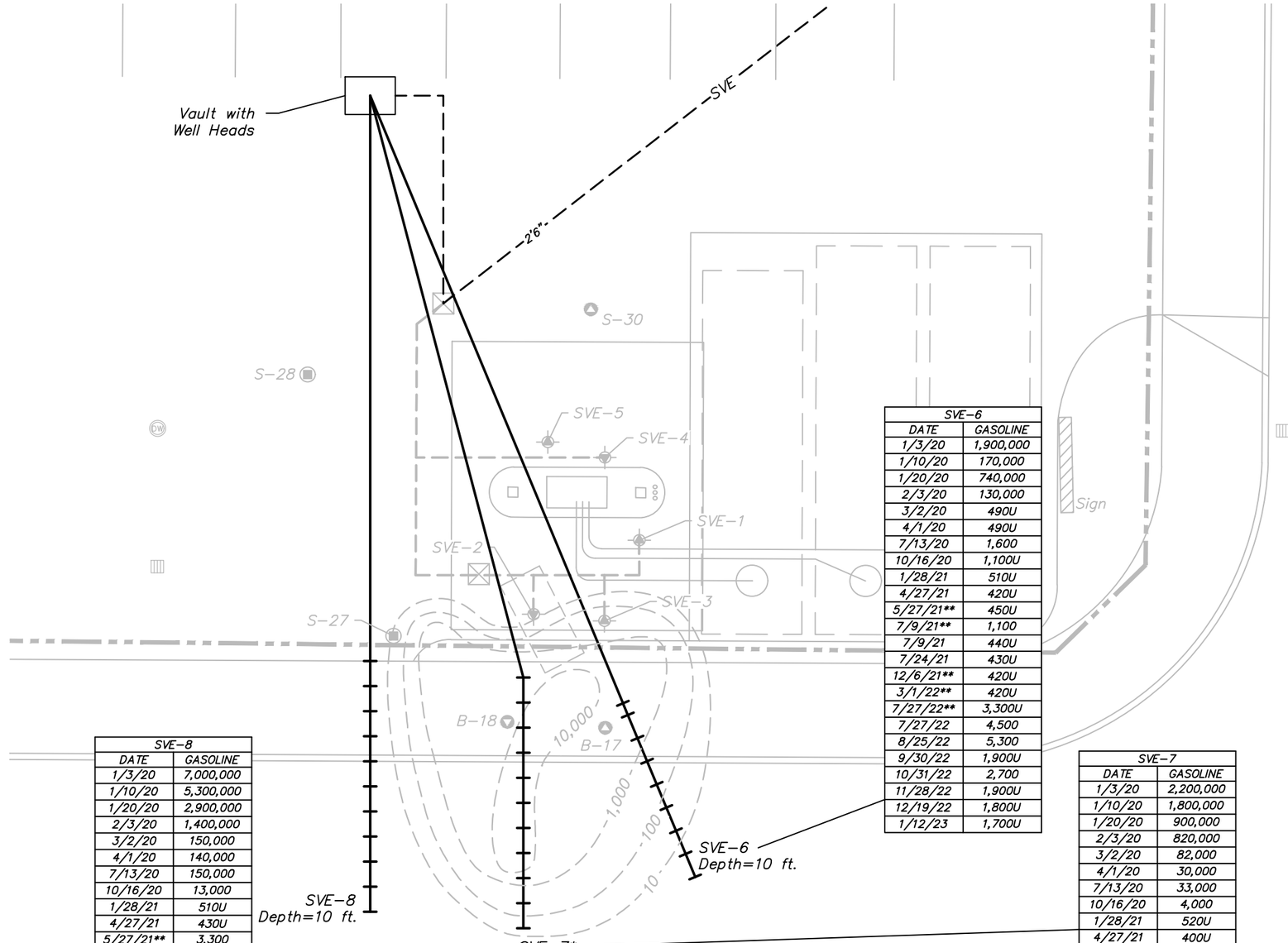
Soil Vapor Analytical Results in ug/m³

SITE FEATURES ARE APPROXIMATE.

APPROXIMATE SCALE IN FEET

0 10 20

N



SVE–6	
DATE	GASOLINE
1/3/20	1,900,000
1/10/20	170,000
1/20/20	740,000
2/3/20	130,000
3/2/20	490U
4/1/20	490U
7/13/20	1,600
10/16/20	1,100U
1/28/21	510U
4/27/21	420U
5/27/21**	450U
7/9/21**	1,100
7/9/21	440U
7/24/21	430U
12/6/21**	420U
3/1/22**	420U
7/27/22**	3,300U
7/27/22	4,500
8/25/22	5,300
9/30/22	1,900U
10/31/22	2,700
11/28/22	1,900U
12/19/22	1,800U
1/12/23	1,700U

SVE–8	
DATE	GASOLINE
1/3/20	7,000,000
1/10/20	5,300,000
1/20/20	2,900,000
2/3/20	1,400,000
3/2/20	150,000
4/1/20	140,000
7/13/20	150,000
10/16/20	13,000
1/28/21	510U
4/27/21	430U
5/27/21**	3,300
7/9/21**	5,700
7/9/21	32,000
7/24/21	8,200
12/6/21**	410U
3/1/22**	400U
7/27/22**	3,300U
7/27/22	3,300U
8/25/22	7,800
9/30/22	2,000U
10/31/22	3,000
11/28/22	2,900U
12/19/22	1,800U
1/12/23	1,900U
2/10/23	1,900U

SVE–7	
DATE	GASOLINE
1/3/20	2,200,000
1/10/20	1,800,000
1/20/20	900,000
2/3/20	820,000
3/2/20	82,000
4/1/20	30,000
7/13/20	33,000
10/16/20	4,000
1/28/21	520U
4/27/21	400U
5/27/21**	420U
7/9/21**	780
7/9/21	3,000
7/24/21	440U
12/6/21**	650,000
3/1/22**	410U
7/27/22**	3,600U
7/27/22	2,300U
8/25/22	6,500
9/30/22	1,800U
10/31/22	11,000
11/28/22	360,000U
12/19/22	360,000U
1/12/23	3,100
2/10/23	6,000

PROJECT NO. 1179–04 | FIGURE NO. 3

DATE: 2–22–23 | FILE: 1179–04 | DRAWN: JJT | APPROVED: SR

GASOLINE VAPOR CONCENTRATIONS DURING SVE OPERATIONS (JANUARY 2020– FEBRUARY 2023)

PLAID PANTRY #112
1002 W. FOURTH PLAIN BLVD.
VANCOUVER, WA.

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Tables

TABLE 1
Soil Vapor Extraction Monitoring Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
SVE-6	01/03/2020	-	20	133	1,431	22
	01/03/2020	-	20	145	1,344	22
	01/03/2020	-	20	-	1,283	18
	01/03/2020	Yes	20	75	1,256	20
	01/06/2020	-	21	-	877	14
	01/10/2020	Yes	21	4.5	859	15
	01/10/2020	-	21	6.8	922	15
	01/17/2020	-	20	75	-	-
	01/17/2020	-	20	120	-	-
	01/20/2020	Yes	19	17	-	-
	01/20/2020	-	19	38	807	16
	02/03/2020	-	18	2.3	802	16
	02/03/2020	Yes	19	3.6	917	17
	02/17/2020	-	20	2.8	943	15
	02/17/2020	-	20	9.2	927	17
	03/02/2020	Yes	20	0.8	921	17
	03/16/2020	-	20	37	610	14
	04/01/2020	Yes	19	0.9	650	15
	04/01/2020	-	20	0.8	800	15
	05/01/2020	-	20	0.7	717	13
	05/19/2020	-	20	1.7	539	12
	05/26/2020	-	20	7.8	760	12
	06/12/2020	-	20	1.8	738	17
	07/13/2020	Yes	20	1.8	702	14
	08/14/2020	-	20	8.0	710	10
	08/14/2020[d]	-	0.10	-	-	-
	08/14/2020[d]	-	0.10	-	-	-
	08/14/2020[d]	-	0.10	-	-	-
	08/18/2020[d]	-	0.10	-	-	-
	09/18/2020[d]	-	0.00	-	-	-
	09/18/2020	-	20	3.1	654	13
	09/18/2020[d]	-	0.14	-	-	-
	10/16/2020[d]	-	0.12	-	-	-
	10/16/2020	Yes	20	9.3	762	14
	10/16/2020[d]	-	0.22	-	-	-
	12/01/2020[d]	-	0.12	-	-	-
	12/28/2020[d]	-	0.12	-	-	-
	01/28/2021[d]	-	0.12	-	-	-
	01/28/2021	Yes	20	4.8	611	12
	01/28/2021[d]	-	0.10	-	-	-
	02/27/2021[d]	-	0.04	-	-	-
	02/27/2021[d]	-	0.15	-	-	-
	02/27/2021[d]	-	0.12	-	-	-
	03/01/2021[d]	-	0.12	-	-	-
	03/25/2021[d]	-	0.10	-	-	-
	03/25/2021[d]	-	0.05	-	-	-
	04/27/2021[d]	-	0.10	-	-	-
	04/27/2021	-	12	1.2	421	15
	04/27/2021	-	12	1.1	440	15
	04/27/2021	-	12	1.1	448	15
	04/28/2021	-	18	5.0	794	19
	04/28/2021	Yes	18	3.5	781	18
	05/06/2021	-	18	0.9	648	17
	05/14/2021	-	18	1.4	645	15
	05/19/2021	-	18	1.8	662	16
	05/27/2021[e]	Yes	18	1.1	652	17
	07/09/2021[e]	Yes	18	7.2	660	16
	07/09/2021	-	18	2.6	761	16
	07/09/2021	-	18	1.9	652	15

TABLE 1
Soil Vapor Extraction Monitoring Data
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Vancouver, Washington

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
SVE-6 (cont'd)	07/09/2021	-	18	2.8	674	15
	07/09/2021	-	18	3.6	698	15
	07/09/2021	Yes	18	4.1	683	15
	07/10/2021	-	18	4.3	740	16
	07/11/2021	-	18	3.1	658	15
	07/12/2021	-	18	2.9	623	15
	07/13/2021	-	18	2.8	637	15
	07/24/2021	Yes	18	1.5	651	16
	07/30/2021	-	18	3.6	614	15
	08/05/2021	-	18	1.7	639	15
	08/05/2021[d]	-	0	-	0	0
	08/23/2021	-	20	2.2	753	49
	09/03/2021	-	20	1.1	788	46
	09/03/2021[d]	-	0	-	0	0
	09/22/2021	-	20	3.3	806	49
	10/08/2021	-	20	2.3	797	50
	10/08/2021[d]	-	-	-	0	0
	10/22/2021[d]	-	-	-	0	0
	11/09/2021	-	20	2.3	694	47
	11/09/2021[d]	-	-	-	0	0
	11/22/2021	-	20	2.4	652	16
	12/06/2021[e]	Yes	20	2.5	640	14
	02/15/2022[e]	-	20	0.8	1,049	16
	02/16/2022	-	20	0.9	981	16
	02/25/2022	-	20	0.6	-	-
	02/28/2022	-	20	0.8	936	16
	03/01/2022	Yes	20	0.6	940	16
	03/15/2022	-	20	1.3	827	15
	03/31/2022[e]	-	20	0.9	840	15
	07/27/2022[e]	Yes	20	1.4	736	15
	07/27/2022	-	20	1.4	718	15
	07/27/2022	-	20	1.4	721	15
	07/27/2022	Yes	20	1.2	714	15
	07/27/2022	-	20	1.2	729	15
	07/27/2022	-	20	1.3	722	15
	07/28/2022	-	20	1.1	741	15
	07/29/2022	-	20	1.5	730	15
	08/03/2022	-	20	1.2	746	15
	08/10/2022	-	20	1.0	837	16
	08/17/2022	-	20	9.2	925	16
	08/25/2022	Yes	21	4.6	727	14
	09/30/2022	Yes	20	5.2	850	16
	10/31/2022	Yes	20	4.4	842	16
	11/28/2022	Yes	20	6.2	833	16
	12/19/2022	Yes	20	6.9	856	16
	01/12/2023	Yes	20	0.3	901	18
	02/10/2023	No	20	0.2	-	-
SVE-7	01/03/2020	-	20	283	1,311	20
	01/03/2020	-	20	245	1,150	18
	01/03/2020	-	20	-	1,152	16
	01/03/2020	Yes	20	166	1,055	17
	01/06/2020	-	21	-	827	14
	01/10/2020	Yes	21	211	836	14
	01/10/2020	-	21	197	841	14
	01/17/2020	-	21	71	-	-
	01/17/2020	-	21	170	-	-
	01/20/2020	Yes	20	41	-	-
	01/20/2020	-	20	62	792	16
	02/03/2020	-	19	6.6	799	16

TABLE 1
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Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
SVE-7 (cont'd)	02/03/2020	Yes	20	7.1	841	15
	02/17/2020	-	21	6.1	949	15
	02/17/2020	-	20	13	909	17
	03/02/2020	Yes	20	3.3	851	15
	03/16/2020	-	20	16	679	16
	04/01/2020	Yes	20	1.4	752	17
	04/01/2020	-	20	1.5	862	16
	05/01/2020	-	20	1.4	785	15
	05/19/2020	-	20	3.1	620	14
	05/26/2020	-	20	4.7	807	12
	06/12/2020	-	21	1.6	781	18
	07/13/2020	Yes	21	1.1	776	16
	08/14/2020	-	20	8.8	739	11
	08/14/2020	-	22	10	835	22
	08/14/2020	-	28	14	900	15
	08/14/2020	-	23	-	778	15
	08/18/2020	-	23	12	802	15
	09/18/2020	-	7.0	1.9	193	26
	09/18/2020	-	20	3.2	624	22
	10/16/2020	Yes	24	2.9	816	20
	10/16/2020	-	20	2.5	824	22
	12/01/2020	-	30	1.2	861	23
	12/28/2020	-	31	0.2	920	20
	01/28/2021	Yes	25	2.3	645	22
	01/28/2021[d]	-	0.20	-	-	-
	01/28/2021[d]	-	0.20	-	-	-
	02/27/2021[d]	-	0.20	-	-	-
	02/27/2021	-	30	2.4	-	-
	02/27/2021	-	12	0.7	-	-
	02/27/2021	-	12	0.7	-	-
	02/27/2021	-	12	0.8	-	-
	02/27/2021	-	12	0.9	-	-
	03/01/2021	-	12	3.7	-	-
	03/25/2021	-	12	1.3	-	-
	03/25/2021[d]	-	0.05	-	-	-
	04/27/2021[d]	-	0.10	-	-	-
	04/27/2021	-	12	2.0	485	17
	04/27/2021	-	12	1.4	472	16
	04/27/2021	-	12	1.3	494	16
	04/28/2021	-	20	3.0	734	17
	04/28/2021	Yes	20	1.2	807	18
	05/06/2021	-	20	1.0	612	16
	05/14/2021	-	20	2.3	707	16
	05/19/2021	-	20	1.9	691	16
	05/27/2021[e]	Yes	20	0.8	641	17
	07/09/2021[e]	Yes	20	4.0	739	18
	07/09/2021	-	20	2.5	816	18
	07/09/2021	-	20	2.0	848	19
	07/09/2021	-	20	2.7	784	18
	07/09/2021	-	20	3.8	857	19
	07/09/2021	Yes	20	4.2	830	18
	07/10/2021	-	20	4.0	797	17
	07/11/2021	-	20	2.8	703	16
	07/12/2021	-	20	2.7	696	17
	07/13/2021	-	20	2.5	714	17
	07/24/2021	Yes	20	3.8	607	15
	07/30/2021	-	20	2.1	597	14
	08/05/2021	-	20	1.5	644	15
	08/05/2021[d]	-	0	-	0	0
	11/22/2021	-	20	2.3	681	16
	12/06/2021[e]	Yes	20	2.1	699	15

TABLE 1
Soil Vapor Extraction Monitoring Data
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Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
SVE-7 (cont'd)	02/15/2022[e]	-	20	0.1	1,043	15
	02/16/2022	-	20	0.3	1,020	16
	02/25/2022	-	21	7.5	-	-
	02/28/2022	-	20	4.9	983	17
	03/01/2022	Yes	20	50	950	16
	03/15/2022	-	20	16	962	17
	03/31/2022[e]	-	20	3.9	921	17
	07/27/2022[e]	Yes	20	0.9	864	18
	07/27/2022	-	20	1.0	804	17
	07/27/2022	-	20	1.0	809	17
	07/27/2022	Yes	20	0.9	799	17
	07/27/2022	-	20	0.8	806	17
	07/27/2022	-	20	0.9	808	17
	07/28/2022	-	20	0.9	827	17
	07/29/2022	-	20	1.0	816	17
	08/03/2022	-	20	0.7	833	17
	08/10/2022	-	20	0.6	862	17
	08/17/2022	-	17	9.3	1,226	21
	08/25/2022	Yes	23	4.2	848	17
	09/30/2022	Yes	20	4.4	847	16
	10/31/2022	Yes	20	3.7	825	16
	11/28/2022	Yes	20	3.1	839	16
	12/19/2022	Yes	20	3.6	821	16
	01/12/2023	Yes	20	1.4	852	17
	02/10/2023	Yes	20	1.9	651	13
SVE-8	01/03/2020	-	20	928	1,366	21
	01/03/2020	-	20	388	1,378	22
	01/03/2020	-	20	-	1,354	19
	01/03/2020	Yes	20	385	1,270	21
	01/06/2020	-	21	-	825	14
	01/10/2020	Yes	21	372	842	15
	01/10/2020	-	21	360	810	14
	01/17/2020	-	20	65	-	-
	01/17/2020	-	20	284	-	-
	01/20/2020	Yes	20	89	-	-
	01/20/2020	-	20	110	796	16
	02/03/2020	-	19	37	777	16
	02/03/2020	Yes	20	36	848	15
	02/17/2020	-	21	10	928	15
	02/17/2020	-	20	29	915	17
	03/02/2020	Yes	20	12	855	15
	03/16/2020	-	20	15	701	17
	04/01/2020	Yes	20	1.8	653	15
	04/01/2020	-	20	7.8	973	18
	05/01/2020	-	20	2.8	733	14
	05/19/2020	-	20	8.1	650	14
	05/26/2020	-	20	16	817	12
	06/12/2020	-	21	2.3	803	18
	07/13/2020	Yes	20	1.6	787	16
	08/14/2020	-	20	21	750	11
	08/14/2020	-	22	14	762	20
	08/14/2020	-	27	18	773	13
	08/14/2020	-	22	-	721	13
	08/18/2020	-	22	30	739	13
	09/18/2020	-	6.0	1.6	138	19
	09/18/2020	-	23	5.4	709	25
	10/16/2020	Yes	26	3.1	853	21
	10/16/2020	-	23	3.5	763	20
	12/01/2020	-	29	1.4	906	24
	12/28/2020	-	30	0.3	897	19

TABLE 1
Soil Vapor Extraction Monitoring Data
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Vancouver, Washington

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
SVE-8 (cont'd)	01/28/2021	Yes	24	1.4	690	24
	01/28/2021[d]	-	0.05	-	-	-
	01/28/2021	-	30	2.8	907	44
	02/27/2021	-	30	4.6	785	47
	02/27/2021[d]	-	0.05	-	-	-
	02/27/2021[d]	-	0.02	-	-	-
	02/27/2021[d]	-	0.02	-	-	-
	03/25/2021[d]	-	0.02	-	-	-
	03/25/2021	-	30	2.2	863	45
	04/27/2021	Yes	30	0.7	1,112	49
	04/27/2021	-	12	1.1	467	16
	04/27/2021	-	12	1.1	476	16
	04/27/2021	-	12	1.0	480	16
	04/28/2021	-	18	2.0	724	17
	04/28/2021	-	18	2.3	746	17
	05/06/2021	-	18	1.3	598	16
	05/14/2021	-	18	3.1	763	18
	05/19/2021	-	18	1.7	741	18
	05/27/2021[e]	Yes	18	0.9	615	16
	07/09/2021[e]	Yes	18	3.3	626	15
	07/09/2021	-	18	2.7	675	15
	07/09/2021	-	18	2.4	678	15
	07/09/2021	-	18	2.9	670	15
	07/09/2021	-	18	4.1	643	14
	07/09/2021	Yes	18	4.4	657	15
	07/10/2021	-	18	4.2	594	13
	07/11/2021	-	18	2.9	617	14
	07/12/2021	-	18	2.6	634	15
	07/13/2021	-	18	2.6	647	15
	07/24/2021	Yes	18	4.3	671	16
	07/30/2021	-	18	1.9	633	15
	08/05/2021	-	18	1.5	702	16
	08/05/2021	-	20	1.6	817	49
	08/23/2021	-	20	1.8	695	49
	08/23/2021[d]	-	0	-	0	0
	09/03/2021	-	20	1.8	751	46
	09/22/2021	-	20	4.1	492	49
	09/22/2021[d]	-	0	-	0	0
	10/08/2021	-	20	2.8	890	50
	10/22/2021	-	20	2.6	868	50
	10/22/2021[d]	-	-	-	0	0
	11/09/2021	-	20	2.6	782	47
	11/22/2021	-	20	2.8	777	19
	12/06/2021[e]	Yes	20	2.7	818	18
	02/15/2022[e]	-	20	0.3	1,290	19
	02/16/2022	-	20	0.3	1,147	18
	02/25/2022	-	21	0.6	-	-
	02/28/2022	-	20	0.8	1,026	18
	03/01/2022	Yes	20	1.1	1,019	18
	03/15/2022	-	20	0.9	979	18
	03/31/2022[e]	-	20	0.7	957	18
	07/27/2022[e]	Yes	20	0.4	819	17
	07/27/2022	-	20	0.5	811	17
	07/27/2022	-	20	0.6	790	17
	07/27/2022	Yes	20	0.5	798	17
	07/27/2022	-	20	0.6	804	17
	07/27/2022	-	20	0.5	793	17
	07/28/2022	-	20	0.7	814	17
	07/29/2022	-	20	0.9	830	17
	08/03/2022	-	20	0.6	822	17
	08/10/2022	-	20	0.7	850	16

TABLE 1
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Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
SVE-8 (cont'd)	08/17/2022	-	18	6.7	677	12
	08/25/2022	Yes	22	4.6	749	15
	09/30/2022	Yes	20	4.0	817	16
	10/31/2022	Yes	20	4.6	832	16
	11/28/2022	Yes	20	3.5	804	15
	12/19/2022	Yes	20	3.2	846	16
	01/12/2023	Yes	20	0.1	766	15
	02/10/2023	Yes	20	0.1	771	15
AWS Inlet	01/03/2020	-	20	-	1,425	62
	01/03/2020	-	20	118	1,418	62
	01/03/2020	-	20	386	1,237	54
	01/03/2020	Yes	20	-	1,340	58
	01/06/2020	-	21	-	943	42
	01/10/2020	Yes	20	-	991	44
	01/10/2020	-	20	-	974	43
	01/17/2020	-	20	40	758	48
	01/17/2020	-	21	114	703	45
	01/20/2020	Yes	20	86	803	50
	01/20/2020	-	20	95	819	47
	02/03/2020	-	20	30	842	47
	02/03/2020	Yes	22	33	853	47
	02/17/2020	-	21	7.2	1,147	45
	02/17/2020	-	20	25	875	50
	03/02/2020	Yes	20	8.4	859	47
	03/16/2020	-	20	16	635	47
	04/01/2020	Yes	20	1.4	737	47
	04/01/2020	-	20	12	829	49
	05/01/2020	-	20	2.1	715	42
	05/19/2020	-	20	6.4	721	40
	05/26/2020	-	21	10	759	36
	06/12/2020	-	21	2.9	744	52
	07/13/2020	Yes	20	2.9	762	46
	08/14/2020	-	20	23	767	32
	08/14/2020	-	22	18	765	43
	08/14/2020	-	27	19	715	28
	08/14/2020	-	23	-	753	28
	08/18/2020	-	22	32	774	28
	09/18/2020	-	4.8	5.5	145	45
	09/18/2020	-	24	6.5	795	46
	10/16/2020	Yes	26	1.5	809	41
	10/16/2020	-	26	4.6	786	41
	12/01/2020	-	30	1.3	1,097	47
	12/28/2020	-	30	0.1	950	39
	01/28/2021	Yes	24	1.8	718	46
	01/28/2021	-	20	3.5	750	48
	01/28/2021	-	30	2.2	907	44
	02/27/2021	-	30	3.8	793	47
	02/27/2021	-	30	1.2	762	41
	02/27/2021	-	12	0.9	906	45
	03/01/2021	-	12	2.5	831	46
	03/25/2021	-	12	1.0	499	46
	03/25/2021	-	30	1.3	907	45
	04/27/2021	-	30	0.6	984	49
	04/27/2021	-	12	1.0	517	48
	04/27/2021	-	12	0.9	529	47
	04/27/2021	-	12	0.9	535	47
	04/28/2021	-	18	1.6	763	53
	04/28/2021	Yes	18	2.4	759	52
	05/06/2021	-	18	1.1	810	50
	05/14/2021	-	18	3.1	707	49

TABLE 1
Soil Vapor Extraction Monitoring Data
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Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
AWS Inlet (cont'd)	05/19/2021	-	18	1.6	692	50
	05/27/2021[e]	Yes	18	0.8	732	51
	07/09/2021[e]	-	18	2.8	740	49
	07/09/2021	-	18	2.3	727	49
	07/09/2021	-	18	2.4	850	49
	07/09/2021	-	18	2.9	785	48
	07/09/2021	-	18	3.7	814	48
	07/09/2021	Yes	18	4.0	817	48
	07/10/2021	-	18	4.2	648	45
	07/11/2021	-	18	2.8	636	46
	07/12/2021	-	18	2.7	684	48
	07/13/2021	-	18	2.5	690	48
	07/24/2021	Yes	18	1.9	631	46
	07/30/2021	-	18	3.5	575	44
	08/05/2021	-	18	1.5	693	46
	08/05/2021	-	20	1.9	760	49
	08/22/2021	-	20	1.7	687	49
	08/22/2021	-	20	1.9	727	49
	09/03/2021	-	20	1.2	644	46
	09/03/2021	-	20	1.7	660	46
	09/22/2021	-	20	3.9	797	49
	09/22/2021	-	20	3.1	744	49
	10/08/2021	-	20	2.2	730	50
	10/08/2021	-	20	2.6	752	50
	10/22/2021	-	20	2.5	783	50
	10/22/2021	-	20	2.7	690	47
	11/09/2021	-	20	2.3	698	47
	11/09/2021	-	20	2.5	721	47
	11/22/2021	-	20	2.7	830	50
	12/06/2021[e]	Yes	20	2.4	763	48
	02/15/2022[e]	-	20	0.3	979	50
	02/16/2022	-	20	0.4	956	50
	02/25/2022	-	21	2.9	-	-
	02/28/2022	-	20	1.2	904	50
	03/01/2022	Yes	20	2.6	927	50
	03/15/2022	-	20	9.1	858	50
	03/31/2022[e]	-	20	3.3	839	50
	07/27/2022[e]	Yes	20	0.7	716	49
	07/27/2022	-	20	0.8	692	49
	07/27/2022	-	20	0.8	699	49
	07/27/2022	Yes	20	0.9	708	49
	07/27/2022	-	20	0.8	710	49
	07/27/2022	-	20	0.7	691	49
	07/28/2022	-	20	0.6	736	49
	07/29/2022	-	20	0.8	722	49
	08/03/2022	-	20	0.6	740	49
	08/10/2022	-	20	0.3	848	49
	08/17/2022	-	20	6.7	820	49
	08/25/2022	Yes	20	4.8	705	46
	09/30/2022	Yes	20	4.2	793	48
	10/31/2022	Yes	20	3.7	752	49
	11/28/2022	Yes	20	4.1	708	48
	12/19/2022	Yes	20	4.4	744	48
	01/12/2023	Yes	20	0.3	806	49
	02/10/2023	Yes	20	0.7	946	47
AWS Outlet	01/03/2020	-	22	-	-	-
	01/03/2020	-	22	-	-	-
	01/03/2020	-	22	-	-	-
	01/03/2020	-	22	-	-	-
	01/06/2020	-	23	-	-	-
	01/10/2020	-	23	-	-	-

TABLE 1
Soil Vapor Extraction Monitoring Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
AWS Outlet (cont'd)	01/10/2020	-	23	-	-	-
	01/17/2020	-	21	-	-	-
	01/17/2020	-	19	-	-	-
	01/20/2020	-	22	-	-	-
	01/20/2020	-	22	-	-	-
	02/03/2020	-	23	-	-	-
	02/03/2020	-	25	-	-	-
	02/17/2020	-	25	-	-	-
	02/17/2020	-	23	-	-	-
	03/02/2020	-	23	-	-	-
	03/16/2020	-	24	-	-	-
	04/01/2020	-	25	-	-	-
	04/01/2020	-	26	-	-	-
	05/01/2020	-	23	-	-	-
	05/19/2020	-	23	-	-	-
	05/26/2020	-	23	-	-	-
	06/12/2020	-	25	-	-	-
	07/13/2020	-	25	-	-	-
	08/14/2020	-	25	-	-	-
	08/14/2020	-	26	-	-	-
	08/14/2020	-	33	-	-	-
	08/14/2020	-	27	-	-	-
	08/18/2020	-	27	-	-	-
	09/18/2020	-	64	-	-	-
	09/18/2020	-	26	-	-	-
	10/16/2020	-	29	-	-	-
	10/16/2020	-	28	-	-	-
	12/01/2020	-	34	-	-	-
	12/28/2020	-	32	-	-	-
	01/28/2021	-	26	-	-	-
	01/28/2021	-	24	-	-	-
	01/28/2021	-	33	-	-	-
	02/27/2021	-	33	-	-	-
	02/27/2021	-	32	-	-	-
	02/27/2021	-	14	-	-	-
	03/01/2021	-	14	-	-	-
	03/25/2021	-	15	-	-	-
	03/25/2021	-	33	-	-	-
	04/27/2021	-	34	-	-	-
	04/27/2021	-	16	-	-	-
	04/27/2021	-	16	-	-	-
	04/27/2021	-	16	-	-	-
	04/28/2021	-	23	-	-	-
	04/28/2021	-	23	-	-	-
	05/06/2021	-	23	-	-	-
	05/14/2021	-	23	-	-	-
	05/19/2021	-	21	-	-	-
	05/27/2021[e]	-	21	-	-	-
	07/09/2021[e]	-	22	-	-	-
	07/09/2021	-	22	-	-	-
	07/09/2021	-	22	-	-	-
	07/09/2021	-	22	-	-	-
	07/09/2021	-	22	-	-	-
	07/09/2021	-	21	-	-	-
	07/10/2021	-	21	-	-	-
	07/11/2021	-	21	-	-	-
	07/12/2021	-	21	-	-	-
	07/13/2021	-	21	-	-	-
	07/24/2021	-	22	-	-	-
	07/30/2021	-	22	-	-	-

TABLE 1
Soil Vapor Extraction Monitoring Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
AWS Outlet (cont'd)	08/05/2021	-	22	-	-	-
	08/05/2021	-	24	-	-	-
	08/22/2021	-	24	-	-	-
	08/22/2021	-	24	-	-	-
	09/03/2021	-	24	-	-	-
	09/03/2021	-	24	-	-	-
	09/22/2021	-	24	-	-	-
	09/22/2021	-	25	-	-	-
	10/08/2021	-	25	-	-	-
	10/08/2021	-	25	-	-	-
	10/22/2021	-	25	-	-	-
	10/22/2021	-	25	-	-	-
	11/09/2021	-	24	-	-	-
	11/09/2021	-	24	-	-	-
	11/22/2021	-	24	-	-	-
	12/06/2021[e]	-	24	-	-	-
	02/15/2022[e]	-	24	-	-	-
	02/16/2022	-	24	-	-	-
	02/25/2022	-	26	-	-	-
	02/28/2022	-	24	-	-	-
	03/01/2022	-	24	-	-	-
	03/15/2022	-	24	-	-	-
	03/31/2022[e]	-	24	-	-	-
	07/27/2022[e]	-	24	-	-	-
	07/27/2022	-	24	-	-	-
	07/27/2022	-	24	-	-	-
	07/27/2022	-	24	-	-	-
	07/27/2022	-	24	-	-	-
	07/27/2022	-	24	-	-	-
	07/28/2022	-	24	-	-	-
	07/29/2022	-	24	-	-	-
	08/03/2022	-	24	-	-	-
	08/10/2022	-	24	-	-	-
	08/17/2022	-	28	-	-	-
	08/25/2022	-	31	-	-	-
	09/30/2022	-	23	-	-	-
	10/31/2022	-	24	-	-	-
	11/28/2022	-	24	-	-	-
	12/19/2022	-	24	-	-	-
	01/12/2023	-	24	-	-	-
	02/10/2023	-	23	-	-	-
Stack[c]	01/03/2020	-	0.15	77	-	-
	01/03/2020	-	0.14	71	2,153	166
	01/03/2020	-	0.08	64	2,305	177
	01/03/2020	-	0.06	61	2,285	174
	01/06/2020	-	0.15	44	2,404	187
	01/10/2020	-	0.14	31	2,267	178
	01/10/2020	-	0.13	34	2,306	180
	01/17/2020	-	0.12	14	2,337	187
	01/17/2020	-	0.14	10	2,489	200
	01/20/2020	-	0.14	55	2,262	175
	01/20/2020	-	0.14	53	2,096	161
	02/03/2020	-	0.16	30	2,235	175
	02/03/2020	-	0.16	30	2,186	171
	02/17/2020	-	0.16	6.4	2,091	161
	02/17/2020	-	0.10	13	2,159	167
	03/02/2020	-	0.12	6.4	2,217	174
	03/16/2020	-	0.10	9.7	2,052	157
	04/01/2020	-	0.09	1.3	2,234	174
	04/01/2020	-	0.10	8.5	2,121	164

TABLE 1
Soil Vapor Extraction Monitoring Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
Stack[c] (cont'd)	05/01/2020	-	0.06	1.3	1,922	147
	05/19/2020	-	0.08	12	1,889	140
	05/26/2020	-	0.10	7.3	1,890	138
	06/12/2020	-	0.08	2.0	1,826	140
	07/13/2020	-	0.10	2.0	1,816	132
	08/14/2020	-	0.05	10	1,977	142
	08/14/2020	-	0.05	13	1,870	134
	08/14/2020	-	0.05	16	1,778	127
	08/14/2020	-	0.05	-	-	-
	08/18/2020	-	0.06	16	1,878	137
	09/18/2020	-	0.04	7.0	840	65
	09/18/2020	-	0.06	3.9	1,789	134
	10/16/2020	-	0.05	1.3	1,902	146
	10/16/2020	-	0.06	2.2	1,817	135
	12/01/2020	-	0.05	1.1	1,906	150
	12/28/2020	-	0.04	0.0	1,877	145
	01/28/2021	-	0.05	1.2	1,992	153
	01/28/2021	-	0.06	2.8	2,114	163
	01/28/2021	-	0.06	1.8	1,897	146
	02/27/2021	-	0.05	2.3	1,933	148
	02/27/2021	-	0.06	1.0	1,999	153
	02/27/2021	-	0.08	0.8	2,318	179
	03/01/2021	-	0.08	1.8	2,329	176
	03/25/2021	-	0.07	0.7	2,347	180
	03/25/2021	-	0.06	1.0	1,808	135
	04/27/2021	-	0.12	0.4	1,822	136
	04/27/2021	-	0.08	1.0	2,071	157
	04/27/2021	-	0.08	1.0	2,133	161
	04/27/2021	-	0.08	0.8	2,104	159
	04/28/2021	-	0.10	0.9	2,127	161
	04/28/2021	-	0.10	1.5	2,116	160
	05/06/2021	-	0.10	0.8	2,096	157
	05/14/2021	-	0.10	2.8	1,912	139
	05/19/2021	-	0.11	1.4	2,133	159
	05/27/2021[e]	-	0.12	0.6	2,001	149
	07/09/2021[e]	-	0.12	2.5	1,993	146
	07/09/2021	-	0.12	2.0	2,031	148
	07/09/2021	-	0.12	2.0	1,984	144
	07/09/2021	-	0.12	2.5	1,998	144
	07/09/2021	-	0.12	3.3	2,086	149
	07/09/2021	-	0.12	3.6	2,037	145
	07/10/2021	-	0.11	3.8	2,115	151
	07/11/2021	-	0.12	2.7	2,087	152
	07/12/2021	-	0.11	2.5	2,059	152
	07/13/2021	-	0.10	2.1	2,073	155
	07/24/2021	-	0.10	1.2	1,849	134
	07/30/2021	-	0.10	3.0	1,896	134
	08/05/2021	-	0.10	1.0	1,973	148
	08/05/2021	-	0.10	0.9	1,909	142
	08/22/2021	-	0.10	1.1	1,876	138
	08/22/2021	-	0.10	1.5	1,914	140
	09/03/2021	-	0.10	0.9	1,877	138
	09/03/2021	-	0.10	1.1	1,794	132
	09/22/2021	-	0.10	2.9	1,823	131
	09/22/2021	-	0.10	2.7	1,846	133
	10/08/2021	-	0.10	1.9	1,781	134
	10/08/2021	-	0.10	2.0	1,820	136
	10/22/2021	-	0.10	2.2	1,874	141

TABLE 1
Soil Vapor Extraction Monitoring Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
Stack[c] (cont'd)	10/22/2021	-	0.10	2.6	1,833	138
	11/09/2021	-	0.10	2.1	1,901	144
	11/09/2021	-	0.10	2.2	1,876	142
	11/22/2021	-	0.10	2.5	1,844	141
	12/06/2021[e]	-	0.10	2.2	1,829	141
	02/15/2022[e]	-	0.10	0.4	2,104	161
	02/16/2022	-	0.10	0.4	2,085	158
	02/25/2022	-	0.05	0.2	-	-
	02/28/2022	-	0.10	0.4	1,953	150
	03/01/2022	-	0.10	0.4	2,034	156
	03/15/2022	-	0.10	0.9	2,070	157
	03/31/2022[e]	-	0.10	0.6	1,984	149
	07/27/2022[e]	-	0.10	0.7	1,857	136
	07/27/2022	-	0.10	0.6	1,932	141
	07/27/2022	-	0.10	0.7	1,916	140
	07/27/2022	-	0.10	0.7	1,950	142
	07/27/2022	-	0.10	0.6	1,926	140
	07/27/2022	-	0.10	0.6	1,942	141
	07/28/2022	-	0.10	0.5	1,893	138
	07/29/2022	-	0.10	0.6	1,920	139
	08/03/2022	-	0.10	0.3	1,972	144
	08/10/2022	-	0.10	0.5	1,805	133
	08/17/2022	-	0.10	0.0	1,510	105
	08/25/2022	-	0.05	4.5	1,682	122
	09/30/2022	-	0.10	4.0	1,831	139
	10/31/2022	-	0.10	3.4	1,796	139
	11/28/2022	-	0.10	3.3	1,786	142
	12/19/2022	-	0.10	3.4	1,812	145
	01/12/2023	-	0.10	0.4	1,780	140
	02/10/2023	-	0.10	0.8	1,225	97

Notes:
[a] Measured at SVE system manifold.
[b] Air flow calculated at individual well laterals (SVE-6 through -8), and measured at AWS Inlet (system total) using a pitot tube. Individual well air flow calculations corrected to reflect proportional contribution to the system total.
[c] Values in the vacuum column are positive pressure at the stack (inches H_2O).
[d] Well disabled.
[e] System disabled 05/27/2021-07/09/2021, 12/06/2021-02/15/2022, and 03/31/2022-07/27/2022 for contaminant rebound monitoring.
AWS = air/water separator
scfm = standard cubic feet per minute
fpm = feet per minute
ppmv = parts per million vapor
- = Not measured
cont'd = continued

TABLE 2
Biodegradation Parameter and Zone of Influence Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Time	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	O_2 (%)[a]	CO_2 (%)[a]	CH_4 (%)[a]
Active SVE Wells								
SVE-6	*1/2/2020*	*10:30*	*0.45*	-	*1,166*	*19.3*	*0.0*	*0.6*
	1/3/2020[b]	12:00	-	-	133	20.7	0.1	0.0
	1/3/2020	12:25	5.9	-	-	-	-	-
	1/3/2020	14:00	7.0	-	-	-	-	-
	2/3/2020[b]	14:30	-	-	2.9	20.7	0.1	0.1
	3/2/2020[b]	12:30	-	-	0.8	20.8	0.0	0.0
	4/1/2020[b]	14:00	-	-	0.8	20.8	0.0	0.0
	7/13/2020[b]	14:00	-	-	1.8	20.8	0.0	0.0
	8/14/2020[b,d]	13:50	0.10	Yes	-	-	-	-
	10/16/2020[b,d]	10:30	0.14	Yes	3.2	20.9	0.0	0.0
	1/28/2021[b,d]	12:00	0.12	Yes	2.1	20.7	0.0	0.0
	4/27/2021[d]	12:30	0.12	No	2.1	18.9	0.9	0.0
	4/28/2021	10:30	16	Yes	-	-	-	-
	5/27/2021	13:00	17	Yes	1.4	20.6	0.2	0.0
	5/27/2021	*14:30*	*0.00*	-	*1.3*	*20.6*	*0.1*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*2.1*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*3.2*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*11*	*14.9*	*1.7*	*0.0*
	3/1/2022	13:30	16	Yes	1.2	18.6	0.5	0.0
	7/6/2022	*13:00*	*0.00*	-	*5.9*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*4.1*	*19.0*	*1.3*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*5.3*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*5.6*	*18.7*	*1.6*	*0.0*
	7/27/2022	11:30	17	Yes	1.3	20.7	0.1	0.0
	2/10/2023[b]	11:00	-	-	0.8	20.6	0.0	0.0
SVE-7	*1/2/2020*	*10:30*	*0.00*	-	*1,951*	*20.4*	*0.0*	*1.1*
	1/3/2020[b]	12:00	-	-	283	20.3	0.5	0.0
	1/3/2020	12:25	20	-	-	-	-	-
	1/3/2020	14:00	20	-	-	-	-	-
	2/3/2020[b]	14:30	-	-	7.4	19.6	1.4	0.3
	3/2/2020[b]	12:30	-	-	3.3	19.9	1.0	0.0
	4/1/2020[b]	14:00	-	-	1.5	19.4	1.3	0.0
	7/13/2020[b]	14:00	-	-	1.1	19.5	1.5	0.0
	10/16/2020[b]	10:30	-	-	2.9	19.8	1.3	0.0
	1/28/2021[b]	12:00	-	-	2.3	20.1	1.5	0.0
	4/27/2021[d]	12:30	0.20	No	2.1	17.8	1.0	0.0
	4/28/2021	10:30	16	Yes	-	-	-	-
	5/27/2021	13:00	17	Yes	1.2	19.7	0.7	0.0
	5/27/2021	*14:30*	*0.00*	-	*1.0*	*20.0*	*0.6*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*1.9*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*3.1*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*14*	*6.7*	*6.5*	*0.0*
	3/1/2022	13:30	17	Yes	36	19.1	1.4	0.0
	7/6/2022	*13:00*	*0.00*	-	*28*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*25*	*19.2*	*2.0*	*0.0*

TABLE 2
Biodegradation Parameter and Zone of Influence Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Time	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	O_2 (%)[a]	CO_2 (%)[a]	CH_4 (%)[a]
SVE-7 (cont'd)	*7/21/2022*	*11:00*	*0.00*	-	*25*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*29*	*19.1*	*1.9*	*0.0*
	7/27/2022	11:30	18	Yes	1.1	20.1	0.8	0.0
	2/10/2023[b]	11:00	-	-	2.7	20.3	1.1	0.0
SVE-8	*1/2/2020*	*10:30*	*0.00*	-	*10,899*	*19.9*	*0.0*	*4.9*
	1/3/2020[b]	12:00	-	-	928	19.2	0.9	0.0
	1/3/2020	12:25	20	-	-	-	-	-
	1/3/2020	14:00	20	-	-	-	-	-
	2/3/2020[b]	14:30	-	-	36	19.8	1.1	0.4
	3/2/2020[b]	12:30	-	-	12	19.2	1.6	0.1
	4/1/2020[b]	14:00	-	-	7.8	19.0	1.6	0.0
	7/13/2020[b]	14:00	-	-	1.6	18.7	2.3	0.0
	10/16/2020[b]	10:30	-	-	3.1	18.9	2.1	0.0
	1/28/2021[b]	12:00	-	-	1.4	19.2	1.7	0.0
	4/27/2021[d]	12:30	0.20	No	2.1	17.8	1.0	0.0
	4/28/2021	10:30	14	Yes	-	-	-	-
	5/27/2021	13:00	17	Yes	1.1	19.0	1.1	0.0
	5/27/2021	*14:30*	*0.00*	-	*1.1*	*19.2*	*0.9*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*2.2*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*3.6*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*15*	*7.2*	*3.3*	*0.0*
	3/1/2022	13:30	17	Yes	1.8	19.3	0.4	0.0
	7/6/2022	*13:00*	*0.00*	-	*16*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*10*	*17.7*	*2.8*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*13*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*12*	*18.0*	*2.6*	*0.0*
	7/27/2022	11:30	17	Yes	0.7	19.3	1.0	0.0
	2/10/2023[b]	11:00	-	-	2.0	18.5	1.2	0.0
Inactive SVE Wells								
SVE-1	*1/2/2020*	*10:30*	*0.00*	-	*127*	*14.6*	*6.0*	*0.0*
	1/3/2020	12:25	0.16	-	-	-	-	-
	1/3/2020	14:00	0.17	-	4.8	15.5	4.6	0.1
	1/3/2020	16:00	0.17	-	-	14.0	6.3	0.0
	1/10/2020	13:00	0.14	-	-	-	-	-
	1/20/2020	14:30	0.06	-	-	-	-	-
	2/3/2020	14:30	0.14	Yes	1.2	21.1	0.5	0.0
	3/2/2020	12:30	0.18	-	6.4	20.5	0.6	0.0
	4/1/2020	14:00	0.12	-	2.6	20.9	0.0	0.0
	7/13/2020	14:00	0.12	-	2.0	20.9	0.0	0.0
	8/14/2020	13:50	0.02	No	-	-	-	-
	10/16/2020	10:30	0.08	No	1.5	20.6	0.5	0.0
	1/28/2021	12:00	0.04	No	2.2	19.8	0.4	0.0
	4/27/2021	12:30	0.06	No	1.8	20.1	0.4	0.0
	4/28/2021	10:30	0.10	No	-	-	-	-
	5/27/2021	13:00	0.15	No	1.0	20.6	0.2	0.0
	5/27/2021	*14:30*	*0.05*	-	*1.3*	*20.7*	*0.1*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*1.7*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*2.6*	-	-	-

TABLE 2
Biodegradation Parameter and Zone of Influence Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Time	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	O_2 (%)[a]	CO_2 (%)[a]	CH_4 (%)[a]
SVE-1 (cont'd)	*7/9/2021*	*10:00*	*0.00*	-	*1.1*	*13.3*	*7.6*	*0.0*
	3/1/2022	13:30	0.10	No	0.9	12.0	8.1	0.0
	7/6/2022	*13:00*	*0.00*	-	*1.6*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*1.0*	*11.8*	*7.9*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*1.7*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*1.6*	*12.2*	*8.0*	*0.0*
	7/27/2022	11:30	0.00	-	1.5	12.4	7.3	0.0
	10/31/2022	12:30	0.00	-	-	-	-	-
	11/28/2022	12:30	0.00	-	-	-	-	-
	12/19/2022	6:00	0.00	-	-	-	-	-
	1/12/2023	12:00	0.00	-	-	-	-	-
	2/10/2023	11:00	0.00	-	1.3	20.4	0.6	0.0
SVE-2	*1/2/2020*	*10:30*	*0.00*	-	*184*	*20.4*	*0.6*	*0.0*
	1/3/2020	12:25	0.06	-	-	-	-	-
	1/3/2020	14:00	0.17	-	4.4	18.1	2.1	0.0
	1/3/2020	16:00	-	-	-	18.1	2.2	0.0
	1/10/2020	13:00	0.10	-	-	-	-	-
	1/20/2020	14:30	0.18	-	-	-	-	-
	2/3/2020	14:30	0.12	Yes	2.2	20.9	0.1	0.0
	3/2/2020	12:30	0.12	-	4.8	18.6	2.1	0.0
	4/1/2020	14:00	0.08	-	2.1	18.6	1.9	0.0
	7/13/2020	14:00	0.12	-	1.7	18.9	2.3	0.0
	8/14/2020	13:50	0.04	No	-	-	-	-
	10/16/2020	10:30	0.02	No	1.0	18.0	3.1	0.0
	1/28/2021	12:00	0.06	No	1.6	19.8	0.7	0.0
	4/27/2021	12:30	0.04	No	1.4	19.3	1.4	0.0
	4/28/2021	10:30	0.05	No	-	-	-	-
	5/27/2021	13:00	0.10	No	0.7	20.8	0.1	0.0
	5/27/2021	*14:30*	*0.02*	-	*1.3*	*20.7*	*0.1*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*1.9*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*2.6*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*1.3*	*16.9*	*3.4*	*0.0*
	3/1/2022	13:30	0.05	No	1.6	17.8	2.0	0.0
	7/6/2022	*13:00*	*0.00*	-	*2.5*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*1.2*	*16.7*	*2.9*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*2.0*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*1.8*	*16.9*	*2.7*	*0.0*
	7/27/2022	11:30	0.10	-	1.9	16.7	2.7	0.0
	10/31/2022	12:30	0.05	-	-	-	-	-
	11/28/2022	12:30	0.10	-	-	-	-	-
	12/19/2022	6:00	0.10	-	-	-	-	-
	1/12/2023	12:00	0.10	-	-	-	-	-
	2/10/2023	11:00	0.00	-	1.0	18.7	1.2	0.0
SVE-3	*1/2/2020*	*10:30*	*0.00*	-	*153*	*16.6*	*4.2*	*0.0*
	1/3/2020	12:25	0.15	-	-	-	-	-
	1/3/2020	14:00	0.16	-	4.4	17.7	3.4	0.0
	1/3/2020	16:00	-	-	-	18.3	3.2	0.0
	1/10/2020	13:00	0.08	-	-	-	-	-
	1/20/2020	14:30	0.10	-	-	-	-	-

TABLE 2
Biodegradation Parameter and Zone of Influence Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Time	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	O_2 (%)[a]	CO_2 (%)[a]	CH_4 (%)[a]
SVE-3 (cont'd)	2/3/2020	14:30	0.12	Yes	2.0	20.6	0.9	0.0
	3/2/2020	12:30	0.14	-	6.7	20.1	0.9	0.0
	4/1/2020	14:00	0.14	-	2.0	20.3	0.6	0.0
	7/13/2020	14:00	0.10	-	1.6	20.5	0.6	0.0
	8/14/2020	13:50	0.08	No	-	-	-	-
	10/16/2020	10:30	0.04	No	1.2	20.6	0.6	0.0
	1/28/2021	12:00	0.04	No	1.7	19.2	1.4	0.0
	4/27/2021	12:30	0.04	No	2.0	19.7	1.6	0.0
	4/28/2021	10:30	0.05	No	-	-	-	-
	5/27/2021	13:00	0.10	No	0.9	20.8	0.1	0.0
	5/27/2021	*14:30*	*0.05*	-	*1.2*	*20.8*	*0.1*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*2.1*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*2.8*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*1.2*	*14.7*	*5.3*	*0.0*
	3/1/2022	13:30	0.10	No	1.8	18.2	1.1	0.0
	7/6/2022	*13:00*	*0.00*	-	*2.1*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*3.0*	*15.4*	*4.7*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*2.0*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*3.3*	*16.1*	*5.0*	*0.0*
	7/27/2022	11:30	0.00	-	2.8	15.9	5.1	0.0
	10/31/2022	12:30	0.00	-	-	-	-	-
	11/28/2022	12:30	0.00	-	-	-	-	-
	12/19/2022	6:00	0.00	-	-	-	-	-
	1/12/2023	12:00	0.00	-	-	-	-	-
	2/10/2023	11:00	0.00	-	1.4	19.9	0.8	0.0
SVE-4	*1/2/2020*	*10:30*	*0.00*	-	*52*	*19.2*	*1.5*	*0.0*
	1/3/2020	12:25	0.02	-	-	-	-	-
	1/3/2020	14:00	0.00	-	2.9	18.1	1.9	0.0
	1/10/2020	13:00	0.12	-	-	-	-	-
	1/20/2020	14:30	0.12	-	-	-	-	-
	2/3/2020	14:30	0.08	No	1.5	20.6	0.3	0.0
	3/2/2020	12:30	0.06	-	5.8	19.0	1.5	0.0
	4/1/2020	14:00	0.08	-	1.6	19.0	0.4	0.0
	7/13/2020	14:00	0.06	-	2.1	19.9	0.9	0.0
	6/11/2021	*11:30*	*0.00*	-	*1.4*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*2.2*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*5.0*	*17.5*	*2.8*	*0.0*
	3/1/2022	13:30	0.00	-	4.2	18.0	1.9	0.0
	7/6/2022	*13:00*	*0.00*	-	*4.5*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*4.0*	*17.1*	*2.6*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*4.1*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*4.4*	*17.3*	*2.0*	*0.0*
	7/27/2022	11:30	0.00	-	4.0	17.2	1.8	0.0
	10/31/2022	12:30	0.00	-	-	-	-	-
	11/28/2022	12:30	0.00	-	-	-	-	-
	12/19/2022	6:00	0.00	-	-	-	-	-
	1/12/2023	12:00	0.00	-	-	-	-	-
	2/10/2023	11:00	0.00	-	3.8	18.1	1.6	0.0
SVE-5	*1/2/2020*	*10:30*	*0.02*	-	*33*	*20.8*	*0.2*	*0.0*

TABLE 2
Biodegradation Parameter and Zone of Influence Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Time	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	O_2 (%)[a]	CO_2 (%)[a]	CH_4 (%)[a]
SVE-5 (cont'd)	1/3/2020	12:25	0.10	-	-	-	-	-
	1/3/2020	14:00	0.06	-	2.8	20.1	0.3	0.0
	1/10/2020	13:00	0.02	-	-	-	-	-
	1/20/2020	14:30	0.22	-	-	-	-	-
	2/3/2020	14:30	0+	No	1.4	17.8	1.8	0.0
	3/2/2020	12:30	0.04	-	4.4	18.2	1.2	0.0
	4/1/2020	14:00	0.10	-	1.8	17.9	0.7	0.0
	7/13/2020	14:00	0.10	-	3.0	20.4	0.4	0.0
	6/11/2021	*11:30*	*0.00*	-	*1.4*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*2.1*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*4.6*	*18.7*	*1.5*	*0.0*
	3/1/2022	13:30	0+	-	3.0	19.2	1.1	0.0
	7/6/2022	*13:00*	*0.00*	-	*3.4*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*3.7*	*18.8*	*1.4*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*3.2*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*3.6*	*18.9*	*1.3*	*0.0*
	7/27/2022	11:30	0.00	-	3.3	19.0	1.4	0.0
	10/31/2022	12:30	0.00	-	-	-	-	-
	11/28/2022	12:30	0.00	-	-	-	-	-
	12/19/2022	6:00	0.00	-	-	-	-	-
	1/12/2023	12:00	0.00	-	-	-	-	-
	2/10/2023	11:00	0.00	-	3.0	19.1	1.0	0.0
Vapor Monitoring Wells								
B-17	*1/2/2020*	*10:30*	*0.00*	-	*27.5*	*8.9*	*9.1*	*0.0*
	1/3/2020	12:25	1.20	-	-	-	-	-
	1/3/2020	14:00	1.10	-	3.0	19.4	2.8	0.0
	1/3/2020	16:00	-	-	-	20.9	0.5	0.0
	1/10/2020	13:00	0.88	-	-	-	-	-
	1/20/2020	14:30	0.60	-	-	-	-	-
	2/3/2020	14:30	0.94	Yes	3.7	20.1	1.3	0.0
	3/2/2020	12:30	1.3	-	3.6	20.4	0.7	0.0
	4/1/2020	14:00	1.1	-	1.8	20.2	0.8	0.0
	7/13/2020	14:00	1.2	-	2.3	20.8	1.3	0.0
	8/14/2020	13:50	1.6	Yes	-	-	-	-
	10/16/2020	10:30	1.0	Yes	1.0	20.4	0.8	0.0
	1/28/2021	12:00	2.2	Yes	1.4	20.2	0.3	0.0
	4/27/2021	12:30	0.40	Yes	1.0	20.4	0.4	0.0
	4/28/2021	10:30	1.6	Yes	-	-	-	-
	5/27/2021	13:00	1.9	Yes	0.8	19.9	0.7	0.0
	5/27/2021	*14:30*	*0.15*	-	*0.9*	*19.9*	*0.7*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*1.4*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*2.7*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*2.9*	*9.8*	*6.9*	*0.0*
	3/1/2022	13:30	1.8	Yes	2.2	10.3	7.2	0.0
	7/6/2022	*13:00*	*0.00*	*No*	*2.6*	-	-	-
	7/14/2022	*12:00*	*1.4*	*Yes*	*2.0*	*10.5*	*7.4*	*0.0*
	7/21/2022	*11:00*	*1.6*	*Yes*	*2.5*	-	-	-
	7/27/2022	*8:30*	*1.4*	*Yes*	*2.6*	*11.0*	*7.3*	*0.0*
	7/27/2022	11:30	1.5	Yes	2.6	10.6	7.4	0.0

TABLE 2
Biodegradation Parameter and Zone of Influence Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Time	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	O_2 (%)[a]	CO_2 (%)[a]	CH_4 (%)[a]
B-17 (cont'd)	10/31/2022	12:30	1.8	Yes	-	-	-	-
	11/28/2022	12:30	2.0	Yes	-	-	-	-
	12/19/2022	6:00	1.8	Yes	-	-	-	-
	1/12/2023	12:00	1.8	Yes	-	-	-	-
	2/10/2023	11:00	2.8	Yes	1.7	20.4	0.4	0.0
B-18	*1/2/2020*	*10:30*	*0.00*	-	*31*	*18.5*	*1.9*	*0.0*
	1/3/2020	12:25	0.04	-	-	-	-	-
	1/3/2020	14:00	0.06	-	3.3	19.2	1.2	0.0
	1/3/2020	16:00	-	-	-	18.1	2.3	0.0
	1/10/2020	13:00	0.24	-	-	-	-	-
	1/20/2020	14:30	0.10	-	-	-	-	-
	2/3/2020	14:30	0.74	Yes	2.2	18.0	2.6	0.0
	3/2/2020	12:30	0.58	-	2.7	18.8	1.9	0.0
	4/1/2020	14:00	1.2	-	2.0	18.4	2.0	0.0
	7/13/2020	14:00	2.0	-	2.7	17.8	2.3	0.0
	8/14/2020	13:50	0.10	No	-	-	-	-
	10/16/2020	10:30	0.06	No	1.2	17.7	3.1	0.0
	1/28/2021	12:00	0.05	No	1.4	20.2	0.8	0.0
	4/27/2021	12:30	0.05	No	2.0	19.4	1.3	0.0
	4/28/2021	10:30	0.05	No	-	-	-	-
	5/27/2021	13:00	0.20	No	0.6	18.3	2.3	0.0
	5/27/2021	*14:30*	*0.05*	*No*	*1.0*	*18.1*	*2.4*	*0.0*
	6/11/2021	*11:30*	*0.00*	-	*1.3*	-	-	-
	6/21/2021	*12:30*	*0.00*	-	*2.1*	-	-	-
	7/9/2021	*10:00*	*0.00*	-	*1.2*	*16.6*	*3.4*	*0.0*
	3/1/2022	13:30	0.10	No	1.0	18.3	2.8	0.0
	7/6/2022	*13:00*	*0.00*	-	*1.2*	-	-	-
	7/14/2022	*12:00*	*0.00*	-	*2.8*	*17.2*	*2.3*	*0.0*
	7/21/2022	*11:00*	*0.00*	-	*1.1*	-	-	-
	7/27/2022	*8:30*	*0.00*	-	*2.2*	*17.4*	*2.4*	*0.0*
	7/27/2022	11:30	0.20	No	2.0	17.5	2.4	0.0
	10/31/2022	11:00	0.18	No	-	-	-	-
	11/28/2022	11:00	0.20	No	-	-	-	-
	12/19/2022	6:00	0.22	No	-	-	-	-
	1/12/2023	12:00	0.18	No	-	-	-	-
	2/10/2023	11:00	0.00	No	1.8	19.4	1.6	0.0
S-27	*1/2/2020*	*10:30*	*0.00*	-	*42*	*19.7*	*0.8*	*0.0*
	1/3/2020	12:25	0.13	-	-	-	-	-
	1/3/2020	14:00	0.12	-	3.4	20.3	0.9	0.0
	1/10/2020	13:00	0.04	-	-	-	-	-
	1/20/2020	14:30	0.04	-	-	-	-	-
	2/3/2020	14:30	0.04	No	1.9	20.8	0.4	0.0
	3/2/2020	12:30	0.00	-	3.9	20.7	0.4	0.0
	4/1/2020	14:00	0.00	-	2.9	19.6	0.6	0.0
	7/13/2020	14:00	0.00	-	3.1	19.8	0.9	0.0
S-28	*1/2/2020*	*10:30*	*0.11*	-	*53*	*17.7*	*0.6*	*0.0*
	1/3/2020	12:25	0+	-	-	-	-	-
	1/3/2020	14:00	0+	-	3.2	17.6	0.7	0.0

TABLE 2
Biodegradation Parameter and Zone of Influence Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Time	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	O_2 (%)[a]	CO_2 (%)[a]	CH_4 (%)[a]
S-28 (cont'd)	1/10/2020	13:00	0+	-	-	-	-	-
	1/20/2020	14:30	0+	-	-	-	-	-
	2/3/2020	14:30	0+	-	-	-	-	-
S-30	1/10/2020	13:00	0.12	-	-	-	-	-
	1/17/2020	11:00	0.12	-	-	-	-	-
	1/20/2020	14:30	0.06	-	-	-	-	-
	2/3/2020	14:30	0.46	-	-	-	-	-
	3/2/2020	11:00	0.96	-	-	-	-	-
	4/1/2020	14:00	1.3	-	-	-	-	-
	7/13/2020	14:00	1.0	-	-	-	-	-

Notes:

[a] Vacuum, PID and biodegradation parameters measured at wellhead unless otherwise indicated.

[b] PID, O_2, CO_2, and CH_4 measured at SVE system manifold.

[c] Qualitative field observation based on relative deflation rate of a 1-liter tedlar bag at the wellhead.

[d] Well disabled.

[*] Water in line

Italics indicate measurements were collected while the SVE system was off for contaminant rebound monitoring

ppmv = parts per million vapor

- = Not measured

TABLE 3
SVE Monitoring Analytical Results - Volatile Organic Compounds (µg/m^3)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	EDB	EDC	MTBE	Naphthalene	Butane	Pentane	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
SVE Operational Target[1]			4,700	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	-	-	-	-	-	-
MTCA Vapor Intrusion Soil Gas Screening Levels[2]																			
MTCA Method B			1,500	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	460	320	11	76,000	14	76,000
Commercial Worker[2a]			13,000	50	650,000	130,000	13,000[3]	13,000[3]	0.65	15	1,500	11	-	-	1,500	95	650,000	65	650,000
October 2012 SVE Pilot Test																			
SVE-1 START	10/04/2012	5-10	**59,000,000**	**240,000**	**2,100,000**	**200,000**	**1,100,000**	**380,000**	*14,000 U*	*7,300 U*	*6,500 U*	-	-	-	*12,000 U*	*9,700 U*	21,000 U	*11,000 U*	9,800 U
SVE-1 STOP	10/04/2012	5-10	**74,000,000**	**330,000**	**3,400,000**	**490,000**	**2,800,000**	**1,000,000**	*19,000 U*	*10,000 U*	*8,900 U*	-	-	-	*17,000 U*	*13,000 U*	29,000 U	*16,000 U*	13,000 U
SVE-2 START	10/05/2012	5-10	**20,000**	**50**	1,100	230	1,200	460	*91 U*	*48 U*	43 U	-	-	-	120	*64 U*	140 U	*75 U*	65 U
SVE-2 STOP	10/05/2012	5-10	**42,000**	**36**	1,300	410	**3,000**	1,200	*18 U*	*9.3 U*	8.3 U	-	-	-	130	*12 U*	27 U	**18**	12 U
On-Property SVE Wells																			
SVE-1	08/22/2013	5-10	**11,000,000**	**97,000**	**350,000**	15,000	**82,000**	**25,000**	*2,400 U*	*1,200 U*	*1,100 U*	-	-	-	*2,100 U*	*1,600 U*	6,900	*1,900 U*	1,700 U
	12/04/2013	5-10	**2,000,000**	*360 U*	2,000	2,200	**62,000**	**31,000**	*860 U*	*450 U*	*400 U*	-	-	-	*760 U*	*600 U*	1,300 U	*700 U*	610 U
	02/10/2014	5-10	**1,600,000**	**710**	3,300	3,600	**38,000**	**15,000**	*710 U*	*370 U*	*330 U*	-	-	-	*630 U*	*500 U*	1,100 U	*580 U*	500 U
	05/08/2014	5-10	**2,100,000**	**220**	1,100	3,400	**60,000**	**34,000**	*460 U*	*240 U*	220 U	-	-	-	*410 U*	*320 U*	710 U	*380 U*	330 U
	08/08/2014	5-10	**420,000**	*40 U*	96	77	**3,700**	**3,300**	*95 U*	*50 U*	45 U	-	-	-	**620**	**73**	150 U	*78 U*	68 U
	11/14/2014	5-10	**460,000** [a]	**65**	44 U	50 U	50 U	50 U	*90 U*	*47 U*	42 U	-	-	-	79 U	*63 U*	140 U	*73 U*	64 U
	02/06/2015	5-10	**65,000**	*77 U*	91 U	100 U	100 U	100 U	*190 U*	*98 U*	87 U	*510 U*	-	-	160 U	*130 U*	290 U	*150 U*	130 U
	03/06/2015	5-10	660	3.8 U	13	5.2	11	5.2 U	*9.2 U*	*4.8 U*	4.3 U	*25 U*	-	-	**580**	6.4 U	14 U	7.6 U	6.5 U
	06/19/2015	5-10	3,300	4.2 U	8.0	5.8 U	5.8 U	5.8 U	*10 U*	*5.4 U*	4.8 U	*14 U*	-	-	67	7.1 U	17	8.3 U	7.2 U
	08/18/2015	5-10	**8,600**	**19**	71	6.8	27	11	*10 U*	*5.5 U*	4.9 U	*14 U*	-	-	160	7.3 U	24	8.6 U	7.4 U
	11/20/2015	5-10	**140,000**	**140**	100 U	120 U	120 U	120 U	-	-	-	*570 U*	-	-	-	-	-	-	-
	03/16/2016	5-10	3,200	**12**	14 U	16 U	16 U	16 U	-	-	-	*39 U*	-	-	-	-	-	-	-
	04/01/2016	5-10	780 U	6.0 U	7.1 U	8.2 U	8.2 U	8.2 U	-	-	-	*40 U*	-	-	-	-	-	-	-
	04/13/2016	5-10	1,800	4.2 U	5.0 U	5.7 U	5.7 U	5.7 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	07/12/2016	5-10	650	4.0 U	4.8 U	5.5 U	5.5 U	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/21/2016	5-10	**11,000**	**70**	140	13	28	22	-	-	-	*27 U*	-	-	**1,200**	-	-	-	-
	01/30/2017	5-10	**3,100,000** [a]	*190 U*	230 U	260 U	260 U	260 U	-	-	-	*1,300 U*	-	-	-	-	-	-	-
	03/21/2017	5-10	550 U	4.3 UJ	37 J	5.8 U	7.2	5.8 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	04/13/2017	5-10	**11,000**	**120**	120	55	360	330	-	-	-	*14 U*	-	-	-	-	-	-	-
	07/06/2017	5-10	**16,000**	4.3 U	16	5.8 U	12	5.8 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	10/28/2017	5-10	**20,000** [a]	4.3	10	5.7 U	6.4	5.7 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	02/13/2018	5-10	**5,700**	3.8 U	4.5 U	5.2 U	6.0	5.2 U	-	-	-	*12 U*	-	-	-	-	-	-	-
	04/27/2018	5-10	740 [a]	3.8 U	4.4 U	5.1 U	5.1 U	5.1 U	-	-	-	*12 U*	-	-	-	-	-	-	-
	07/06/2018	5-10	1,000	4.0 U	7.0	5.4 U	14	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/04/2018	5-10	1,400	4.0 U	19	5.4 U	11	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
SVE-2	08/22/2013	15-20	250 U	3.9 U	4.6 U	5.3 U	5.3 U	5.3 U	*9.4 U*	5.0 U	4.4 U	-	-	-	14	6.6 U	290	7.7 U	6.7 U
	03/07/2014	15-20	560	4.0 U	4.7 U	5.4 U	5.6	5.4 U	*9.6 U*	5.1 U	4.5 U	-	-	-	94	6.7 U	86	7.9 U	6.8 U
	05/08/2014	15-20	1,600 U	26 U	30 U	35 U	35 U	35 U	*62 U*	*32 U*	29 U	-	-	-	87	*43 U*	95 U	*51 U*	44 U
	08/08/2014	15-20	1,700	3.9 U	17	5.3 U	16	6.6	*9.3 U*	4.9 U	4.4 U	-	-	-	170	**20**	28	7.6 U	6.6 U
	11/14/2014	15-20	240 U	3.8 U	4.5 U	5.2 U	6.7	5.2 U	*9.1 U*	4.8 U	4.3 U	-	-	-	26	6.4 U	14	7.5 U	6.5 U
	02/06/2015	15-20	520 U	4.0 U	4.8	5.5 U	5.5 U	5.5 U	*9.7 U*	5.1 U	4.5 U	*26 U*	-	-	23	6.8 U	15 U	7.9 U	6.9 U
	03/06/2015	15-20	510 U	4.0 U	4.8	5.4 U	5.9	5.4 U	*9.6 U*	5.0 U	4.5 U	*26 U*	-	-	98	6.7 U	15 U	7.9 U	6.8 U
	06/19/2015	15-20	530 U	4.2 U	4.9 U	5.6 U	5.6 U	5.6 U	*10 U*	5.3 U	4.7 U	*14 U*	-	-	20	7.0 U	15 U	8.2 U	7.1 U
	08/18/2015	15-20	550 U	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	*10 U*	5.5 U	4.9 U	*14 U*	-	-	64	7.2 U	16 U	8.5 U	7.4 U
	11/20/2015	15-20	540 U	4.2 U	4.9 U	5.7 U	5.7 U	5.7 U	-	-	-	*27 U*	-	-	-	-	-	-	-
	03/16/2016	15-20	940 U	7.4 U	8.7 U	10 U	10 U	10 U	-	-	-	*24 U*	-	-	-	-	-	-	-
	04/01/2016	15-20	550 U	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	-	-	-	*28 U*	-	-	-	-	-	-	-
	04/13/2016	15-20	580 U	4.5 U	5.3 U	6.1 U	6.1 U	6.1 U	-	-	-	*15 U*	-	-	-	-	-	-	-
	07/12/2016	15-20	510 U	4.0 U	4.7 U	5.4 U	5.4 U	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/21/2016	15-20	500 U	3.9 U	4.6 U	5.4 U	5.4 U	5.4 U	-	-	-	*26 U*	-	-	220	-	-	-	-
	01/30/2017	15-20	490 U	3.9 U	4.6 U	5.2 U	5.2 U	5.2 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/13/2017	15-20	600 U	4.7 U	42	6.4 U	9.5	6.4 U	-	-	-	*15 U*	-	-	-	-	-	-	-
	07/06/2017	15-20	1,600	4.2 U	19	5.7 U	12	5.7 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	10/28/2017	15-20	490 U	3.8 U	6.9	5.2 U	5.2	5.2 U	-	-	-	*12 U*	-	-	-	-	-	-	-
	04/27/2018	15-20	490 U	3.9 U	4.6 U	5.2 U	5.2 U	5.2 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	07/06/2018	15-20	510 U	4.0 U	4.7 U	5.4 U	5.6	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-

TABLE 3
SVE Monitoring Analytical Results - Volatile Organic Compounds (µg/m^3)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	EDB	EDC	MTBE	Naphthalene	Butane	Pentane	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
SVE Operational Target[1]			4,700	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	-	-	-	-	-	-
MTCA Vapor Intrusion Soil Gas Screening Levels[2]																			
MTCA Method B			1,500	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	460	320	11	76,000	14	76,000
Commercial Worker[2a]			13,000	50	650,000	130,000	13,000[3]	13,000[3]	0.65	15	1,500	11	-	-	1,500	95	650,000	65	650,000
SVE-2 (cont'd)	10/04/2018	15-20	510 U	4.0 U	17	5.4 U	11	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
SVE-3	08/22/2013	5-10	**16,000**	**55**	15	5.3 U	8.3	5.3 U	*9.4 U*	*4.9 U*	4.4 U	-	-	-	8.3 U	6.6 U	1,600 E	7.7 U	6.6 U
	12/04/2013	5-10	**160,000**	**72**	720	57	730	360	*9.1 U*	*4.8 U*	4.3 U	-	-	-	8.1 U	6.4 U	38	7.5 U	6.5 U
	02/10/2014	5-10	**91,000**	**36**	130	30	240	150	*35 U*	*19 U*	16 U	-	-	-	31 U	*25 U*	54 U	*29 U*	25 U
	05/08/2014	5-10	1,300 U	*20 U*	24 U	27 U	27 U	27 U	*48 U*	*25 U*	23 U	-	-	-	43 U	*34 U*	74 U	*40 U*	34 U
	08/08/2014	5-10	1,600	4.0 U	17	5.5 U	16	6.7	*9.8 U*	*5.1 U*	4.6 U	-	-	-	8.6 U	6.8 U	25	8.0 U	6.9 U
	11/14/2014	5-10	240 U	3.7 U	4.4 U	5.0 U	5.0 U	5.0 U	*8.9 U*	*4.7 U*	4.2 U	-	-	-	8.8	6.2 U	14 U	7.3 U	6.3 U
	02/06/2015	5-10	**380,000**	*80 U*	95 U	110 U	110 U	110 U	*190 U*	*100 U*	91 U	*530 U*	-	-	170 U	*140 U*	300 U	*160 U*	140 U
	03/06/2015	5-10	**25,000**	4.0 U	5.7	5.4 U	5.9	5.4 U	*9.6 U*	*5.1 U*	4.5 U	*26 U*	-	-	8.5 U	6.7 U	15 U	7.9 U	6.8 U
	06/19/2015	5-10	1,000	4.2 U	5.4	5.8 U	5.8 U	5.8 U	*10 U*	*5.4 U*	4.8 U	*14 U*	-	-	9.0 U	7.1 U	16 U	8.4 U	7.2 U
	08/18/2015	5-10	3,600	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	*10 U*	*5.5 U*	4.9 U	*14 U*	-	-	9.2 U	7.3 U	23	8.6 U	7.4 U
	11/20/2015	5-10	2,000	3.8 U	12	5.2 U	5.2 U	5.2 U	-	-	-	*25 U*	-	-	-	-	-	-	-
	03/16/2016	5-10	**99,000**	**700**	7,800	360	1,300	510	-	-	-	*54 U*	-	-	-	-	-	-	-
	04/01/2016	5-10	1,600	4.4 U	5.2 U	6.0 U	6.0 U	6.0 U	-	-	-	*29 U*	-	-	-	-	-	-	-
	04/13/2016	5-10	**5,300**	**12**	160	17	74	97	-	-	-	*14 U*	-	-	-	-	-	-	-
	07/12/2016	5-10	740	4.1 U	4.8 U	5.5 U	5.5 U	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/21/2016	5-10	**4,900**	4.5 U	7.0	6.1 U	6.1 U	6.1 U	-	-	-	*30 U*	-	-	9.6 U	-	-	-	-
	01/30/2017	5-10	1,700	4.0 U	4.7 U	5.4 U	5.4 U	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/13/2017	5-10	1,200	4.0 U	30	5.4 U	6.6	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	07/06/2017[d]	5-10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10/28/2017	5-10	1,200	3.4 U	9.1	4.7 U	6.2	4.7 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	02/13/2018	5-10	520 U	4.0 U	5.4	5.5 U	6.7	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/27/2018	5-10	480 U	3.7 U	4.4 U	5.0 U	5.0 U	5.0 U	-	-	-	*12 U*	-	-	-	-	-	-	-
	07/06/2018	5-10	570	4.0 U	5.9	5.5 U	11	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/04/2018	5-10	530	3.8 U	14	5.1 U	11	5.1 U	-	-	-	*12 U*	-	-	-	-	-	-	-
SVE-4	08/22/2013	15-20	250 U	3.9 U	4.6 U	5.3 U	5.3 U	5.3 U	*9.4 U*	5.0 U	4.4 U	-	-	-	8.5	6.6 U	450	7.7 U	6.7 U
	12/04/2013	15-20	**53,000**	15 U	460	21 U	21 U	21 U	*36 U*	*19 U*	17 U	-	-	-	**3,600**	*26 U*	56 U	*30 U*	26 U
	03/07/2014	15-20	670	4.0 U	4.7 U	5.4 U	6.5	5.4 U	*9.5 U*	5.0 U	4.5 U	-	-	-	**1,200**	6.7 U	21	7.8 U	6.8 U
	05/08/2014	15-20	950 U	15 U	18 U	20 U	20 U	20 U	*36 U*	*19 U*	17 U	-	-	-	**2,700**	*25 U*	55 U	*29 U*	25 U
	08/08/2014	15-20	2,700	4.0 U	35	6.7	24	8.7	*9.6 U*	5.0 U	4.5 U	-	-	-	**3,200**	6.7 U	46	7.9 U	6.8 U
	11/14/2014	15-20	240 U	3.8 U	4.5 U	5.2 U	6.0	5.2 U	*9.2 U*	4.8 U	4.3 U	-	-	-	130	6.4 U	14 U	7.5 U	6.5 U
	02/06/2015	15-20	**140,000**	*79 U*	93 U	110 U	110 U	110 U	*190 U*	*100 U*	89 U	*520 U*	-	-	220	*130 U*	290 U	*160 U*	130 U
	03/06/2015	15-20	520 U	4.0 U	4.7 U	5.5 U	5.5 U	5.5 U	*9.7 U*	5.1 U	4.5 U	*26 U*	-	-	**2,500**	6.8 U	15 U	7.9 U	6.9 U
	06/19/2015	15-20	540 U	4.2 U	5.0	5.7 U	5.7 U	5.7 U	*10 U*	5.3 U	4.8 U	*14 U*	-	-	400	7.1 U	16 U	8.3 U	7.2 U
	08/18/2015	15-20	520 U	4.1 U	4.8 U	5.6 U	5.6 U	5.6 U	*9.9 U*	5.2 U	4.6 U	*13 U*	-	-	19	6.9 U	15 U	8.1 U	7.0 U
	11/20/2015	15-20	510 U	4.0 U	5.0	5.4 U	5.4 U	5.4 U	-	-	-	*26 U*	-	-	-	-	-	-	-
	03/16/2016	15-20	530 U	4.2 U	4.9 U	5.7 U	5.7 U	5.7 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	04/01/2016	15-20	550 U	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	-	-	-	*28 U*	-	-	-	-	-	-	-
	04/13/2016	15-20	980	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	07/12/2016	15-20	520 U	4.0 U	4.8 U	5.5 U	5.5 U	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/21/2016	15-20	850 U	6.7 U	22	9.1 U	10	9.1 U	-	-	-	*44 U*	-	-	**4,000**	-	-	-	-
	01/30/2017	15-20	**39,000**	*40 U*	47 U	55 U	55 U	55 U	-	-	-	*130 U*	-	-	-	-	-	-	-
	04/13/2017	15-20	**6,500**	3.7 U	37	5.0 U	10	5.0 U	-	-	-	*12 U*	-	-	-	-	-	-	-
	07/06/2017	15-20	**24,000**	*17 U*	20 U	23 U	23 U	23 U	-	-	-	*55 U*	-	-	-	-	-	-	-
	10/28/2017	15-20	3,600	3.6 U	24	5.0 U	6.7	5.0 U	-	-	-	*12 U*	-	-	-	-	-	-	-
	02/13/2018	15-20	**11,000**	3.9 U	7.9	5.3 U	6.6	5.3 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/27/2018	15-20	**5,700** [a]	3.9 U	4.6 U	5.4 U	5.4 U	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	07/06/2018	15-20	610	4.0 U	7.8	5.5 U	12	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/04/2018	15-20	500 U	3.9 U	12	5.3 U	8.0	5.3 U	-	-	-	*13 U*	-	-	-	-	-	-	-
SVE-5	08/22/2013	5-10	**8,600**	*17 U*	20 U	23 U	23 U	23 U	*41 U*	*21 U*	19 U	-	-	-	36 U	*28 U*	4,500	*33 U*	29 U
	12/04/2013	5-10	**8,100**	**19**	640	53	180	92	*8.8 U*	*4.6 U*	4.1 U	-	-	-	18	6.2 U	20	7.2 U	6.2 U
	02/10/2014	5-10	**110,000**	**4,000**	8,400	810	**2,800**	970	*71 U*	*38 U*	34 U	-	-	-	63 U	*50 U*	110 U	*58 U*	51 U

TABLE 3
SVE Monitoring Analytical Results - Volatile Organic Compounds (µg/m^3)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	EDB	EDC	MTBE	Naphthalene	Butane	Pentane	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
SVE Operational Target[1]			4,700	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	-	-	-	-	-	-
MTCA Vapor Intrusion Soil Gas Screening Levels[2]																			
MTCA Method B			1,500	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	460	320	11	76,000	14	76,000
Commercial Worker[2a]			13,000	50	650,000	130,000	13,000[3]	13,000[3]	0.65	15	1,500	11	-	-	1,500	95	650,000	65	650,000
SVE-5 (cont'd)	05/08/2014	5-10	3,200 U	*51 U*	60 U	69 U	69 U	69 U	*120 U*	*64 U*	57 U	-	-	-	280	*85 U*	200	*100 U*	86 U
	08/08/2014	5-10	2,000	4.1 U	18	5.6 U	18	7.8	*9.8 U*	*5.2 U*	4.6 U	-	-	-	8.7 U	6.9 U	37	8.0 U	7.0 U
	11/14/2014	5-10	230 U	3.6 U	4.3 U	5.0 U	13	5.0 U	*8.8 U*	*4.6 U*	4.1 U	-	-	-	87	6.2 U	14 U	7.2 U	6.2 U
	02/06/2015	5-10	**74,000**	*41 U*	49 U	56 U	56 U	56 U	*99 U*	*52 U*	46 U	*270 U*	-	-	88 U	*69 U*	150 U	*81 U*	70 U
	03/06/2015	5-10	**41,000**	**13**	990	69	760	330	*14 U*	*7.6 U*	6.8 U	*39 U*	-	-	13 U	10 U	22 U	12 U	10 U
	06/19/2015	5-10	560 U	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	*10 U*	*5.5 U*	4.9 U	*14 U*	-	-	9.2 U	7.3 U	18	8.6 U	7.4 U
	08/18/2015	5-10	530 U	4.1 U	4.9 U	5.6 U	5.6 U	5.6 U	*9.9 U*	*5.2 U*	4.6 U	*14 U*	-	-	8.8 U	6.9 U	21	8.1 U	7.0 U
	11/20/2015	5-10	510 U	4.0 U	4.7 U	5.4 U	5.4 U	5.4 U	-	-	-	*26 U*	-	-	-	-	-	-	-
	03/16/2016	5-10	1,300 U	9.8 U	12 U	13 U	13 U	13 U	-	-	-	*32 U*	-	-	-	-	-	-	-
	04/01/2016	5-10	**37,000**	**760**	1,200	40	170	67	-	-	-	*26 U*	-	-	-	-	-	-	-
	04/13/2016	5-10	1,900	4.4 U	5.2	6.0 U	82	100	-	-	-	*14 U*	-	-	-	-	-	-	-
	07/12/2016	5-10	940	3.8 U	7.1	5.2 U	10	12	-	-	-	*12 U*	-	-	-	-	-	-	-
	10/21/2016	5-10	830 U	6.5 U	8.6	8.8 U	8.8 U	8.8 U	-	-	-	*42 U*	-	-	**4,200**	-	-	-	-
	01/30/2017	5-10	**31,000**	*26 U*	31 U	36 U	36 U	36 U	-	-	-	*86 U*	-	-	-	-	-	-	-
	04/13/2017	5-10	**5,700**	3.8 U	33	5.2 U	8.9	5.2 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	07/06/2017	5-10	**360,000**	**140**	4,300	1,400	**9,000**	**4,600**	-	-	-	*66 U*	-	-	-	-	-	-	-
	10/28/2017	5-10	1,900	4.4 U	8.2	6.0 U	6.0 U	6.0 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	02/13/2018	5-10	**10,000**	4.0 U	40	5.4 U	6.3	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/27/2018	5-10	500 U	3.9 U	4.6 U	5.3 U	5.5	5.3 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	07/06/2018	5-10	520 U	4.0 U	4.8 U	5.5 U	5.5 U	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/04/2018	5-10	540 U	4.2 U	5.0 U	5.7 U	5.7 U	5.7 U	-	-	-	*14 U*	-	-	-	-	-	-	-
Off-Property SVE Wells																			
SVE-6	01/03/2020	10	**1,900,000**	*100 U*	120 U	140 U	140 U	140 U	-	-	-	*680 U*	-	-	-	-	-	-	-
	01/10/2020	10	**170,000**	*39 U*	46 U	52 U	52 U	52 U	-	-	-	*250 U*	-	-	-	-	-	-	-
	01/20/2020	10	**740,000**	*67 U*	79 U	91 U	91 U	91 U	-	-	-	*220 U*	-	-	-	-	-	-	-
	02/03/2020	10	**130,000**	*52 U*	62 U	71 U	71 U	71 U	-	-	-	*170 U*	-	-	-	-	-	-	-
	03/02/2020	10	490 U	3.8 U	4.5 U	5.2 U	5.2 U	5.2 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/01/2020	10	490 U	3.8 U	4.5 U	5.2 U	5.2 U	5.2 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	07/13/2020	10	1,600	4.1 U	14	18	66	34	-	-	-	*14 U*	-	-	-	-	-	-	-
	10/16/2020	10	1,100 U	8.4 U	9.9 U	11 U	11 U	11 U	-	-	-	*28 U*	-	-	-	-	-	-	-
	01/28/2021	10	510 U	4.0 U	4.7 U	5.4 U	5.4 U	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/28/2021	10	420 U	3.2 U	3.8 U	4.4 U	4.4 U	4.4 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	05/27/2021[f]	10	450 U	3.5 U	4.1 U	4.8 U	4.8 U	4.8 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/09/2021[f]	10	1,100 [a]	**32**	33	4.5 U	4.5 U	4.5 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/09/2021	10	440 U	3.5 U	4.1 U	4.7 U	4.7 U	4.7 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/24/2021	10	430 U	3.4 U	4.0 U	4.6 U	4.6 U	4.6 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	12/06/2021	10	420 U	3.2 U	3.8 U	4.4 U	4.4 U	4.4 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	03/01/2022	10	420 U	3.3 U	3.9 U	4.5 U	5.0	4.5 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/27/2022[f]	10	3,300 U	3.2 U	190 U	4.3 U	8.7 U	4.3 U	-	-	-	*2.6 U*	-	-	-	-	-	-	-
	07/27/2022[f]	10	4,500	**25**	420	17	45	12	-	-	-	*2.6 U*	-	-	-	-	-	-	-
	08/25/2022	10	**5,300**	3.2 U	190 U	4.3 U	8.7 U	4.3 U	-	-	-	2.1 U[g]	-	-	-	-	-	-	-
	09/30/2022	10	1,900 U	1.9 U	110 U	2.6 U	5.1 U	2.6 U	-	-	-	1.5 U	-	-	-	-	-	-	-
	10/31/2022	10	2,700	2.0 U	120 U	2.7 U	5.5 U	2.7 U	-	-	-	1.7 U	-	-	-	-	-	-	-
	11/28/2022	10	1,900 U	1.9 U	110 U	2.5 U	5.0 U	2.5 U	-	-	-	1.5 U	-	-	-	-	-	-	-
	12/19/2022	10	1,800 U	1.7 U	100 U	2.3 U	4.7 U	2.3 U	-	-	-	1.4 U	-	-	-	-	-	-	-
	01/12/2023	10	1,700 U	1.7 U	100 U	2.3 U	4.6 U	2.3 U	-	-	-	1.4 U	-	-	-	-	-	-	-
SVE-7	01/03/2020	8	**2,200,000**	*140 U*	160 U	190 U	190 U	190 U	-	-	-	*900 U*	-	-	-	-	-	-	-
	01/10/2020	8	**1,800,000**	*36 U*	43 U	50 U	50 U	50 U	-	-	-	*240 U*	-	-	-	-	-	-	-
	01/20/2020	8	**900,000**	9.9 U	12 U	13 U	13 U	13 U	-	-	-	*32 U*	-	-	-	-	-	-	-
	02/03/2020	8	**820,000**	*53 U*	63 U	72 U	72 U	72 U	-	-	-	*180 U*	-	-	-	-	-	-	-
	03/02/2020	8	**82,000**	*78 U*	92 U	100 U	100 U	100 U	-	-	-	*260 U*	-	-	-	-	-	-	-
	04/01/2020	8	**30,000**	3.9 U	4.6 U	5.2 U	5.2 U	5.2 U	-	-	-	*13 U*	-	-	-	-	-	-	-

TABLE 3
SVE Monitoring Analytical Results - Volatile Organic Compounds (µg/m^3)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	EDB	EDC	MTBE	Naphthalene	Butane	Pentane	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
SVE Operational Target[1]			4,700	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	-	-	-	-	-	-
MTCA Vapor Intrusion Soil Gas Screening Levels[2]																			
MTCA Method B			1,500	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	460	320	11	76,000	14	76,000
Commercial Worker[2a]			13,000	50	650,000	130,000	13,000[3]	13,000[3]	0.65	15	1,500	11	-	-	1,500	95	650,000	65	650,000
SVE-7 (cont'd)	07/13/2020	8	**33,000**	4.1 U	14	25	100	52	-	-	-	*14 U*	-	-	-	-	-	-	-
	10/16/2020	8	4,000	4.3 U	6.0	5.8 U	5.8 U	5.8 U	-	-	-	*14 U*	-	-	-	-	-	-	-
	01/28/2021	8	520 U	4.0 U	4.8 U	5.5 U	5.5 U	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/28/2021	8	400 U	3.2 U	3.7 U	4.3 U	4.3 U	4.3 U	-	-	-	*10 U*	-	-	-	-	-	-	-
	05/27/2021[f]	8	420 U	3.3 U	3.9 U	4.5 U	4.5 U	4.5 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/09/2021[f]	8	780 [a]	4.1	4.1	4.8 U	4.8 U	4.8 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/09/2021	8	3,000	3.4 U	4.0 U	4.6 U	4.6 U	4.6 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/24/2021	8	440 U	3.4 U	4.0 U	4.6 U	4.6 U	4.6 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	12/06/2021	8	**650,000**	*110 U*	130 U	150 U	150 U	150 U	-	-	-	*710 U*	-	-	-	-	-	-	-
	03/01/2022	8	410 U	3.2 U	8.5	4.4 U	6.0	4.4 U	-	-	-	*10 U*	-	-	-	-	-	-	-
	07/27/2022[f]	8	3,600 U	3.5 U	210 U	4.8 U	9.6 U	4.8 U	-	-	-	*2.9 U*	-	-	-	-	-	-	-
	07/27/2022[f]	8	2,300 U	2.2 U	130 U	3.0 U	6.1 U	3.0 U	-	-	-	1.8 U	-	-	-	-	-	-	-
	08/25/2022	8	**6,500**	3.5 U	210 U	4.8 U	9.6 U	4.8 U	-	-	-	2.3 U[g]	-	-	-	-	-	-	-
	09/30/2022	8	1,800 U	1.8 U	110 U	2.4 U	4.9 U	2.4 U	-	-	-	1.5 U	-	-	-	-	-	-	-
	10/31/2022	8	**11,000**	5.8 U	340 U	7.8 U	16 U	7.8 U	-	-	-	4.7 U	-	-	-	-	-	-	-
	11/28/2022	8	*360,000 U*	*350 U*	21,000 U	480 U	960 U	480 U	-	-	-	*290 U*	480,000 [i]	47,000	-	-	-	-	-
	12/19/2022	8	*360,000 U*	*350 U*	21,000 U	480 U	960 U	480 U	-	-	-	*290 U*	450,000 [i]	36,000	-	-	-	-	-
	01/12/2023	8	3,100	2.7 U	160 U	3.7 U	7.5 U	3.7 U	-	-	-	2.3 U	-	-	-	-	-	-	-
	02/10/2023	8	**6,000**	1.8 U	100 U	2.4 U	4.8 U	2.4 U	-	-	-	1.4 U	-	-	-	-	-	-	-
SVE-8	01/03/2020	10	**7,000,000**	*130 U*	160 U	180 U	180 U	180 U	-	-	-	*880 U*	-	-	-	-	-	-	-
	01/10/2020	10	**5,300,000**	*39 U*	46 U	54 U	54 U	54 U	-	-	-	*260 U*	-	-	-	-	-	-	-
	01/20/2020	10	**2,900,000**	*27 U*	32 U	36 U	36 U	36 U	-	-	-	*88 U*	-	-	-	-	-	-	-
	02/03/2020	10	**1,400,000**	*52 U*	61 U	70 U	70 U	70 U	-	-	-	*170 U*	-	-	-	-	-	-	-
	03/02/2020	10	**150,000**	*78 U*	92 U	100 U	100 U	100 U	-	-	-	*260 U*	-	-	-	-	-	-	-
	04/01/2020	10	**140,000**	7.7 U	9.1 U	10 U	10 U	10 U	-	-	-	*25 U*	-	-	-	-	-	-	-
	07/13/2020	10	**150,000**	4.0 U	16	27	100	56	-	-	-	*13 U*	-	-	-	-	-	-	-
	10/16/2020	10	**13,000**	3.9 U	5.6	5.3 U	5.3 U	5.3 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	01/28/2021	10	510 U	4.0 U	4.7 U	5.4 U	5.4 U	5.4 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/27/2021	10	430 U	3.3 U	3.9 U	4.5 U	4.5 U	4.5 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	05/27/2021[f]	10	3,300	3.4 U	4.0 U	4.7 U	4.7 U	4.7 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/09/2021[f]	10	**5,700** [a, e]	4.7 U	5.5 U	6.4 U	6.4 U	6.4 U	-	-	-	*15 U*	-	-	-	-	-	-	-
	07/09/2021	10	**32,000**	3.5 U	4.1 U	4.8 U	4.8 U	4.8 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	07/24/2021	10	**8,200**	3.4 U	4.0 U	4.6 U	4.6 U	4.6 U	-	-	-	*11 U*	-	-	-	-	-	-	-
	12/06/2021	10	410 U	3.2 U	3.7 U	4.3 U	4.3 U	4.3 U	-	-	-	*10 U*	-	-	-	-	-	-	-
	03/01/2022	10	400 U	3.2 U	3.7 U	4.3 U	4.3 U	4.3 U	-	-	-	*10 U*	-	-	-	-	-	-	-
	07/27/2022[f]	10	3,300 U	**14**	190 U	9.5	8.7 U	4.3 U	-	-	-	*2.6 U*	-	-	-	-	-	-	-
	07/27/2022[f]	10	3,300 U	3.2 U	190 U	4.3 U	8.7 U	4.3 U	-	-	-	*2.6 U*	-	-	-	-	-	-	-
	08/25/2022	10	**7,800**	3.5 U	210 U	4.8 U	9.6 U	4.8 U	-	-	-	2.3 U[g]	-	-	-	-	-	-	-
	09/30/2022	10	2,000 U	1.9 U	110 U	2.6 U	5.2 U	2.6 U	-	-	-	1.6 U	-	-	-	-	-	-	-
	10/31/2022	10	3,000	1.9 U	110 U	2.6 U	5.1 U	2.6 U	-	-	-	1.5 U	-	-	-	-	-	-	-
	11/28/2022	10	2,900 U	2.8 U	170 U	3.8 U	7.6 U	3.8 U	-	-	-	2.3 U	-	-	-	-	-	-	-
	12/19/2022	10	1,800 U	1.7 U	100 U	2.3 U	4.7 U	2.3 U	-	-	-	1.4 U	-	-	-	-	-	-	-
	01/12/2023	10	1,900 U	1.9 U	110 U	2.6 U	5.3 U	2.6 U	-	-	-	1.6 U	-	-	-	-	-	-	-
	02/10/2023	10	1,900 U	1.9 U	110 U	2.5 U	5.0 U	2.5 U	-	-	-	1.5 U	-	-	-	-	-	-	-
System Totals[h]																			
SVE Blower Inlet	08/22/2013	NA	**160,000**	**2,100**	2,100	65	290	85	*92 U*	*48 U*	43 U	-	-	-	81 U	*64 U*	140 U	*76 U*	65 U
	09/27/2013	NA	**24,000**	**95**	92	5.2	18	5.2 U	*9.2 U*	*4.8 U*	4.3 U	-	-	-	8.1 U	6.4 U	14 U	7.5 U	6.5 U
	11/01/2013	NA	**68,000**	**200**	1,200	450	**2,200**	630	*18 U*	*9.7 U*	8.6 U	-	-	-	300	*13 U*	28 U	*15 U*	13 U
	12/04/2013	NA	**26,000**	**12**	1,500	16	130	52	*8.8 U*	*4.6 U*	4.1 U	-	-	-	**1,200**	6.2 U	14 U	7.2 U	6.2 U
	03/07/2014	NA	**50,000**	8.3	65	70	1,100	470	*18 U*	*9.7 U*	8.6 U	-	-	-	**410**	*13 U*	28 U	*15 U*	13 U
	05/08/2014	NA	**24,000**	*39 U*	46 U	54 U	510	290	*95 U*	*50 U*	44 U	-	-	-	**1,200**	*66 U*	140 U	*78 U*	67 U
	08/08/2014	NA	**25,000**	3.8 U	35	8.3	130	100	*9.1 U*	*4.8 U*	4.2 U	-	-	-	**1,200**	9.4	21	7.4 U	6.4 U

TABLE 3
SVE Monitoring Analytical Results - Volatile Organic Compounds (µg/m^3)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet bgs)	Gasoline	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	EDB	EDC	MTBE	Naphthalene	Butane	Pentane	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
SVE Operational Target[1]			4,700	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	-	-	-	-	-	-
MTCA Vapor Intrusion Soil Gas Screening Levels[2]																			
MTCA Method B			1,500	11	76,000	15,000	1,500[3]	1,500[3]	0.14	3.2	320	2.5	-	460	320	11	76,000	14	76,000
Commercial Worker[2a]			13,000	50	650,000	130,000	13,000[3]	13,000[3]	0.65	15	1,500	11	-	-	1,500	95	650,000	65	650,000
SVE Blower Inlet	11/14/2014	NA	**19,000** [a]	*36 U*	43 U	49 U	50 U	50 U	*88 U*	*46 U*	41 U	-	-	-	77 U	*61 U*	130 U	*72 U*	62 U
(cont'd)	02/06/2015	NA	**94,000**	*79 U*	93 U	110 U	110 U	110 U	*190 U*	*100 U*	89 U	*520 U*	-	-	170 U	**150**	290 U	*160 U*	140 U
	06/19/2015	NA	590 U	4.6 U	5.4 U	6.2 U	6.2 U	6.2 U	*11 U*	*5.8 U*	5.2 U	*15 U*	-	-	38	7.7 U	17 U	9.1 U	7.8 U
	08/18/2015	NA	540 U	4.2 U	5.0 U	5.8 U	5.8 U	5.8 U	*10 U*	*5.4 U*	4.8 U	*14 U*	-	-	26	7.1 U	16 U	8.3 U	7.2 U
	11/20/2015	NA	**13,000**	10 U	12 U	14 U	14 U	14 U	*24 U*	*13 U*	11 U	*33 U*	-	-	90	*17 U*	37 U	*20 U*	17 U
	04/13/2016	NA	540 U	4.2 U	10	5.7 U	5.7 U	5.7 U	*10 U*	*5.3 U*	4.7 U	*14 U*	-	-	**390**	7.1 U	16 U	8.3 U	7.2 U
	07/12/2016	NA	560 U	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	-	-	-	*14 U*	-	-	**2,200**	-	-	-	-
	10/21/2016	NA	2,400	9.5	29	5.8 U	6.7	5.8 U	*10 U*	*5.4 U*	19 U	*14 U*	-	-	**1,800**	7.2 U	16 U	8.5 U	7.3 U
	01/30/2017	NA	**34,000**	*40 U*	48 U	55 U	55 U	55 U	*97 U*	*51 U*	180 U	*130 U*	-	-	**600**	*68 U*	150 U	*80 U*	69 U
	03/21/2017	NA	520 U	4.0 UJ	25 J	5.5 U	5.5 U	5.5 U	-	-	-	*13 U*	-	-	-	-	-	-	-
	04/13/2017	NA	3,600	4.4 U	39	5.9 U	13	5.9 U	*10 U*	*5.5 U*	20 U	*14 U*	-	-	**690**	7.3 U	16 U	8.6 U	7.4 U
	07/06/2017	NA	**16,000**	5.5 U	75	18	130	59	*13 U*	*7.0 U*	25 U	*18 U*	-	-	**1,100**	9.2 U	20 U	11 U	9.4 U
	10/28/2017	NA	3,600	4.0 U	12	5.4 U	7.8	5.4 U	*9.6 U*	*5.0 U*	18 U	*13 U*	-	-	**980**	6.7 U	15 U	7.8 U	6.8 U
	02/13/2018	NA	**4,900**	4.2 U	5.0 U	5.8 U	5.8	5.8 U	*10 U*	*5.4 U*	19 U	*14 U*	-	-	73	7.1 U	16 U	8.3 U	7.2 U
	04/27/2018	NA	2,600 [a]	3.9 U	4.6 U	5.3 U	5.3 U	5.3 U	*9.4 U*	*4.9 U*	18 U	*13 U*	-	-	**400**	6.6 U	180	7.7 U	6.6 U
	07/06/2018	NA	520 U	4.0 U	5.2	5.5 U	8.0	5.5 U	*9.8 U*	*5.1 U*	18 U	*13 U*	-	-	**720**	6.8 U	56	8.0 U	6.9 U
	10/04/2018	NA	520 U	4.0 U	5.2	5.5 U	5.5 U	5.5 U	*9.7 U*	*5.1 U*	18 U	*13 U*	-	-	**580**	6.8 U	17	8.0 U	6.9 U
	01/03/2020	NA	**2,800,000**	*200 U*	240 U	270 U	270 U	270 U	*480 U*	*250 U*	230 U	*1,300 U*	-	-	*430 U*	*340 U*	6,600	*400 U*	340 U
	01/10/2020	NA	**1,300,000**	*38 U*	45 U	52 U	52 U	52 U	*91 U*	*48 U*	43 U	*250 U*	-	-	81 U	*64 U*	400	*75 U*	65 U
	01/20/2020	NA	**130,000**	3.7 U	4.4 U	5.0 U	5.0 U	5.0 U	*9.0 U*	*4.7 U*	17 U	*12 U*	-	-	33	6.3 U	170	7.3 U	6.4 U
	02/03/2020	NA	**13,000**	4.0 U	4.7 U	5.4 U	5.4 U	5.4 U	*9.5 U*	*5.0 U*	18 U	*13 U*	-	-	8.4 U	6.7 U	15 U	7.8 U	6.8 U
	03/02/2020	NA	**13,000**	7.6 U	9.0 U	10 U	10 U	10 U	*18 U*	*9.7 U*	34 U	*25 U*	-	-	16 U	*13 U*	28 U	*15 U*	13 U
	04/01/2020	NA	**18,000**	3.8 U	4.4 U	5.1 U	5.1 U	5.1 U	*9.1 U*	*4.8 U*	17 U	*12 U*	-	-	8.0 U	6.3 U	14 U	7.4 U	6.4 U
	07/13/2020	NA	**20,000**	4.0 U	5.7	10	36	20	*9.7 U*	*5.1 U*	18 U	*13 U*	-	-	8.5 U	6.8 U	19	7.9 U	6.9 U
	10/16/2020	NA	**13,000**	4.0 U	4.7 U	5.4 U	5.4 U	5.4 U	*9.5 U*	*5.0 U*	18 U	*13 U*	-	-	16	6.7 U	100	7.8 U	6.8 U
	01/28/2021	NA	*7,000 U*	*55 U*	64 U	74 U	74 U	74 U	*130 U*	*69 U*	250 U	*180 U*	-	-	120 U	*92 U*	200 U	*110 U*	93 U
	04/28/2021	NA	420 U	3.3 U	3.9 U	4.4 U	4.4 U	4.4 U	*7.9 U*	*4.1 U*	15 U	*11 U*	-	-	7.0 U	5.5 U	12 U	6.4 U	5.6 U
	05/27/2021[f]	NA	460 U	3.6 U	4.2 U	4.9 U	4.9 U	4.9 U	*8.6 U*	*4.5 U*	16 U	*12 U*	-	-	7.6 U	6.0 U	13 U	7.0 U	6.1 U
	07/09/2021[f]	NA	740	3.6 U	4.2 U	4.9 U	4.9 U	4.9 U	*8.6 U*	*4.5 U*	16 U	*12 U*	-	-	7.6 U	6.0 U	13 U	7.0 U	6.1 U
	07/24/2021	NA	430 U	3.4 U	4.0 U	4.6 U	4.6 U	4.6 U	*8.1 U*	*4.2 U*	15 U	*11 U*	-	-	7.1 U	5.6 U	12 U	6.6 U	5.7 U
	12/06/2021	NA	**37,000**	*33 U*	39 U	45 U	45 U	45 U	*80 U*	*42 U*	150 U	*110 U*	-	-	70 U	*56 U*	120 U	*65 U*	56 U
	03/01/2022	NA	4,000	3.3 U	3.9 U	4.5 U	7.9	4.5 U	*7.9 U*	*4.2 U*	15 U	*11 U*	-	-	7.0 U	5.5 U	14	6.5 U	5.6 U
	07/27/2022[f]	NA	4,000	3.5 U	210 U	4.8 U	9.6 U	4.8 U	*0.85 U*	0.45 U	79 U	*2.9 U*	-	-	75 U	1.2 U	140	3.5 U	6.0 U
	07/27/2022[f]	NA	2,100 U	3.3	120 U	6.5	19	6.3	*0.48 U*	0.25 U	45 U	1.7 U	-	-	43 U	0.68 U	81	2.0 U	3.4 U
	08/25/2022	NA	2,500 U	2.4 U	140 U	3.2 U	6.4 U	3.2 U	*0.57 U*	0.30 U	53 U	1.9 U	-	-	50 U	0.80 U	44 U	2.3 U	4.0 U
	09/30/2022	NA	2,000 U	2.0 U	120 U	2.7 U	5.4 U	70	*0.48 U*	0.25 U	45 U	1.6 U	-	-	42 U	0.67 U	37 U	2.0 U	3.4 U
	10/31/2022	NA	**8,400**	2.1 U	120 U	2.9 U	5.7 U	2.9 U	*0.51 U*	0.27 U	48 U	1.7 U	12,000 [i]	2,400 [i]	45 U	0.71 U	39 U	2.1 U	3.6 U
	11/28/2022	NA	*180,000 U*	*180 U*	11,000 U	240 U	490 U	240 U	*43 U*	*23 U*	*4,000 U*	*150 U*	170,000 [i]	18,000	3,800 U	60 U	3,300 U	88,000 UE	310 U
	12/19/2022	NA	*200,000 U*	*190 U*	11,000 U	260 U	530 U	260 U	*47 U*	*25 U*	*4,400 U*	*160 U*	220,000 [i]	20,000	4,100 U	66 U	3,600 U	9,500 UE	330 U
	01/12/2023	NA	2,000 U	2.0 U	120 U	2.7 U	5.4 U	2.7 U	*0.48 U*	*0.25 U*	45 U	1.6 U	77	37 U	42 U	0.67 U	37 U	2.0 U	3.4 U
	02/10/2023	NA	3,200	1.9 U	110 U	2.6 U	5.2 U	2.6 U	*0.46 U*	*0.24 U*	43 U	1.6 U	1,800 [i]	99	41 U	0.64 U	35 U	1.9 U	3.3 U
Post-GAC	08/22/2013	NA	230 U	3.6 U	4.3 U	4.9 U	4.9 U	4.9 U	*8.7 U*	*4.6 U*	4.1 U	-	-	-	7.7 U	6.1 U	13	7.1 U	6.2 U
	09/27/2013	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11/01/2013	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/04/2013	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12/18/2013	NA	1,900	3.8 U	5.4	5.2 U	5.2 U	5.2 U	*9.2 U*	*4.8 U*	4.3 U	-	-	-	8.1 U	6.4 U	14 U	7.6 U	6.5 U
	03/07/2014	NA	**43,000**	*37 U*	44 U	51 U	51 U	51 U	*90 U*	*47 U*	42 U	-	-	-	79 U	*63 U*	140 U	*74 U*	64 U
	05/08/2014[b]	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3

SVE Monitoring Analytical Results - Volatile Organic Compounds (µg/m^3)

Plaid Pantry No. 112

Vancouver, Washington

Notes:

[1] Sub-Slab Soil Gas Screening Levels for Vapor Intrusion (rounded to two significant figures). Washington Department of Ecology (WDOE) Opinion Letter. February 20, 2019.

[2] WDOE, Cleanup Levels and Risk Calculation (CLARC) database values (July 2022). Shown for reference only.

[2a] Vapor Intrusion Screening Levels for Workers. Supporting material for CLARC. WDOE – Toxics Cleanup Program. July 2022.

[3] Screening levels for total xylenes.

[a] The hydrocarbon profile present did not resemble that of commercial gasoline. Results calculated using the response factor derived from the gasoline calibration.

[b] Carbon treatment for system exhaust discontinued on March 28, 2014.

[c] Reporting limits were raised due to high levels of non-target analytes.

[d] This sample was not analyzed due to canister vacuum issues.

[e] Dilution was performed on sample due to the presence of high level target species.

[f] System disabled 05/27/2021-07/09/2021, 12/06/2021-02/15/2022, and 03/31/2022-07/27/2022 for contaminant rebound monitoring.

[g] The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

[h] On-property SVE operations conducted between 2013 and 2018. Off-property operations conducted between January 2020 and present.

[i] The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

Volatiles by EPA Method TO-15

MTBE = Methyl tert-butyl ether

EDB = 1,2-Dibromoethane

EDC = 1,2-Dichloroethane

PCE = Tetrachloroethene

TCE = Trichloroethene

µg/m^3 = Micrograms per cubic meter

Bold values indicate concentrations exceed the SVE Operational Target.

Italics indicate analytical reporting limits exceed the SVE Operational Target.

U = Undetected at method reporting limit shown

J = Estimated concentration. The associated numerical value is the approximate concentration of the analyte in the sample. See data validation report for additional information.

NA = Not Applicable/Not Available

E = Estimated concentration. Result exceeds calibration range for the instrument.

- = not analyzed for this parameter

TABLE 4A
Soil Vapor Extraction Mass Removal in Right-of-Way
Plaid Pantry No. 112
Vancouver, Washington

Date	Cumulative Operating Days	Total System Flow (ft^3/min)	Pre-Treatment Lab Analysis (mg/m^3)			Estimated Mass Removal Rate Per Cycle (Pounds/Day)[a]			Estimated Cumulative Mass Removed & Discharge Emissions (Pounds)		
			Gasoline	Benzene	PCE	Gasoline	Benzene	PCE	Gasoline	Benzene	PCE
01/03/2020	0.4	58	2,800	0.20 U	0.43 U	15	0.0010	0.0023	6.0	0.00043	0.00092
01/10/2020	7	44	1,300	0.038 U	0.081 U	9.4	0.00055	0.0012	70	0.0042	0.0089
01/20/2020	17	50	130	0.0037 U	0.033	3.0	0.000088	0.00024	101	0.0050	0.011
02/03/2020	31	47	13	0.0040 U	0.0084 U	0.31	0.000017	0.000091	105	0.0053	0.013
03/02/2020	59	47	13	0.0076 U	0.016 U	0.055	0.000025	0.000052	107	0.0060	0.014
04/01/2020	80	47	18	0.0038 U	0.0080 U	0.066	0.000024	0.000051	108	0.0065	0.015
07/13/2020	183	46	20	0.0040 U	0.0085 U	0.080	0.000016	0.000035	116	0.0082	0.019
10/16/2020	278	41	13	0.0040 U	0.016	0.065	0.000016	0.000048	122	0.0097	0.023
01/28/2021	382	46	7.0 U	0.055 U	0.12 U	0.039	0.00011	0.00026	126	0.022	0.051
04/28/2021	472	52	0.42 U	0.0033 U	0.0070 U	0.016	0.00013	0.00028	128	0.033	0.076
05/27/2021 [d]	501	51	0.46 U	0.0036 U	0.0076 U	0.0020	0.000016	0.000034	128	0.034	0.077
07/09/2021 [d]	501	48	0.74	0.0036 U	0.0076 U	-	-	-	128	0.034	0.077
07/24/2021	516	46	0.43 U	0.0034 U	0.0071 U	0.0025	0.000015	0.000031	128	0.034	0.077
12/06/2021 [d]	651	48	37	0.033 U	0.070 U	0.079	0.000077	0.00016	139	0.044	0.099
03/01/2022	665	50	4.0	0.0033 U	0.0070 U	0.090	0.000080	0.00017	140	0.045	0.10
07/27/2022 [d]	665	49	4.0	0.0035 U	0.075 U	-	-	-	140	0.045	0.10
07/27/2022	665	49	2.1 U	0.0033	0.043 U	0.013	0.000015	0.00026	140	0.045	0.10
08/25/2022	694	46	2.5 U	0.0024 U	0.050 U	0.010	0.000012	0.00020	140	0.046	0.11
09/30/2022	730	48	2.0 U	0.0020 U	0.042 U	0.010	0.0000093	0.00020	141	0.046	0.11
10/31/2022	761	49	8.4	0.0021 U	0.045 U	0.023	0.0000089	0.00019	141	0.046	0.12
11/28/2022	789	48	180 U	0.18 U	3.8 U	0.41	0.00039	0.0083	153	0.057	0.35
12/19/2022	810	48	200 U	0.19 U	4.1 U	0.82	0.00079	0.017	170	0.074	0.71
01/12/2023	834	49	2.0 U	0.0020 U	0.042 U	0.44	0.00042	0.0090	180	0.084	0.93
02/10/2023	863	47	3.2	0.0019 U	0.041 U	0.011	0.0000085	0.00018	181	0.084	0.93
								Estimated Emissions During Last 12 Months (Pounds/Year):	41	0.039	0.83
								Annual Emissions Threshold (Pounds/Year):	NE[b]	20[c]	500[c]

TABLE 4A

Soil Vapor Extraction Mass Removal in Right-of-Way

Plaid Pantry No. 112

Vancouver, Washington

Notes:

[a] Concentrations are averaged between start and end of each time period.

[b] No emission threshold established for gasoline. Registration exemption threshold for the sum of total criteria pollutants and VOCs is 2,000 pounds per year, per SWCAA Chapter 400-109, Air Discharge Permits - Exempt Emission Thresholds, dated 03/21/2020.

[c] Small Quantity Emissions Rate (SQER), per SWCAA 400, General Regulations for Air Pollution Sources, dated 03/21/2020.

[d] System disabled 05/27/2021-07/09/2021, 12/06/2021-02/15/2022, and 03/31/2022-07/27/2022 for contaminant rebound monitoring.

ft^3/min = cubic feet per minute

mg/m^3 = milligrams per cubic meter

NE = not established

Sample Calculations:

Estimated Gasoline Mass Removal Rate on 01/10/2020:

$$\left(\frac{58\ \frac{ft^3}{min}+44\ \frac{ft^3}{min}}{2}\right)\times\left(\frac{2{,}800\frac{mg}{m^3}+1{,}300\frac{mg}{m^3}}{2}\right)\times\frac{1\ m^3}{35.3146667\ ft^3}\times\frac{1\ pound}{453592.37\ mg}\times\frac{1440\ min}{day}=9.4\ \frac{pounds}{day}$$

Estimated Cumulative Gasoline Emissions on 01/10/2020:

$$(7\ days\ -0.4\ day)\times\left(\frac{58\ \frac{ft^3}{min}+44\ \frac{ft^3}{min}}{2}\right)\times\left(\frac{2{,}800\frac{mg}{m^3}+1{,}300\frac{mg}{m^3}}{2}\right)\times\frac{1\ m^3}{35.3146667\ ft^3}\times\frac{1\ pound}{453592.37\ mg}\times\frac{1440\ min}{day}+6.0\ pounds=70\ pounds$$

TABLE 4B
Site Total Soil Vapor Extraction Mass Removal
Plaid Pantry No. 112
Vancouver, Washington

Date	Cumulative Operating Days	Total System Flow (ft^3/min)	Pre-Treatment Lab Analysis (mg/m^3)		Estimated Mass Removal Rate Per Cycle (Pounds/Day)[a]		Estimated Cumulative Mass Removed (Pounds)		Estimated Cumulative Discharge Emissions (Pounds)[b]	
			Gasoline	PCE	Gasoline	PCE	Gasoline	PCE	Gasoline	PCE
08/22/2013 [f]	0.25	95	160	0.081 U	1.4	0.00069	0.34	0.00017	0.00049	0.000016
09/27/2013	23	79	24	0.0081 U	0.72	0.00035	17	0.0081	0.042	0.0014
11/01/2013	57	54	68	0.30	0.28	0.00092	26	0.039	0.088	0.0029
12/04/2013	89	98	26	1.2	0.32	0.0051	36	0.20	0.32	0.0047
03/07/2014	160	55	50	0.41	0.26	0.0055	55	0.60	11	0.026
05/08/2014	223	88	24	1.2	0.24	0.0052	70	0.92	25	0.28
08/08/2014	314	87	25	1.2	0.19	0.0095	87	1.8	42	1.1
11/14/2014	412	97	19	0.077 U	0.18	0.0053	105	2.3	60	1.7
02/06/2015	475	88	94	0.17 U	0.47	0.0010	135	2.4	90	1.7
03/06/2015	503	88	0.0 [e]	0.0 [e]	0.37	0.0007	145	2.4	100	1.7
06/19/2015	607	87	0.59 U	0.038	0.002	0.0001	145	2.4	100	1.8
08/18/2015	667	96	0.54 U	0.026	0.0047	0.00026	146	2.4	101	1.8
11/20/2015 [h]	758	89	13	0.090	0.056	0.00048	151	2.5	106	1.8
04/13/2016 [h]	803	112	0.54 U	0.39	0.061	0.0022	154	2.6	109	1.9
07/12/2016	881	96	0.56 U	2.2	0.0052	0.012	154	3.5	109	2.9
10/21/2016	975	97	2.4	1.8	0.013	0.017	155	5.1	110	4.5
01/30/2017	1,052	89	34	0.60	0.15	0.010	167	5.9	122	5.3
03/21/2017	1,102	89	0.52	-	0.14	0.0053	174	6.2	129	5.5
04/13/2017	1,125	97	3.6	0.69	0.017	0.0054	174	6.3	129	5.6
07/06/2017	1,209	116	16	1.1	0.094	0.0085	182	7.0	137	6.4
10/28/2017	1,323	110	3.6	0.98	0.099	0.011	193	8.2	148	7.6
02/13/2018	1,403	93	4.9	0.073	0.039	0.0048	196	8.6	151	7.9
04/27/2018	1,468	105	2.6	0.40	0.033	0.0021	199	8.7	154	8.1
07/06/2018	1,538	104	0.52 U	0.72	0.015	0.0053	200	9.1	155	8.4
10/04/2018 [f]	1,592	109	0.52 U	0.58	0.0050	0.0062	200	9	155	8.8
01/03/2020 [g]	1,592	58	2,800	0.43 U	15	0.0023	206	9	161	8.8
01/10/2020	1,599	44	1,300	0.081 U	9.4	0.0012	270	9	225	8.8
01/20/2020	1,609	50	130	0.033 U	3.0	0.00024	301	9	256	8.8
02/03/2020	1,623	47	13	0.0084 U	0.31	0.000091	305	9	260	8.8
03/02/2020	1,651	47	13	0.016 U	0.055	0.000052	307	9	262	8.8
04/01/2020	1,672	47	18	0.0080 U	0.066	0.000051	308	9	263	8.8
07/13/2020	1,775	46	20	0.0085 U	0.080	0.000035	316	9	271	8.8
10/16/2020	1,870	41	13	0.016	0.065	0.000048	322	9	277	8.8
01/28/2021	1,974	46	7.0 U	0.12 U	0.039	0.00026	326	9	281	8.8
04/28/2021	2,064	52	0.42 U	0.0070 U	0.016	0.00028	328	10	283	8.9

TABLE 4B
Site Total Soil Vapor Extraction Mass Removal
Plaid Pantry No. 112
Vancouver, Washington

Date	Cumulative Operating Days	Total System Flow (ft^3/min)	Pre-Treatment Lab Analysis (mg/m^3)		Estimated Mass Removal Rate Per Cycle (Pounds/Day)[a]		Estimated Cumulative Mass Removed (Pounds)		Estimated Cumulative Discharge Emissions (Pounds)[b]	
			Gasoline	PCE	Gasoline	PCE	Gasoline	PCE	Gasoline	PCE
05/27/2021 [h]	2,093	51	0.46 U	0.0076 U	0.0020	0.000034	328	10	283	8.9
07/09/2021 [h]	2,093	48	0.74 U	0.0076 U	-	-	328	10	283	8.9
07/24/2021	2,108	46	0.43 U	0.0071 U	0.0025	0.000031	328	10	283	8.9
12/06/2021 [h]	2,243	48	37	0.070 U	0.079	0.00016	339	10	294	8.9
03/01/2022	2,257	50	4.0	0.0070 U	0.090	0.00017	340	10	295	8.9
07/27/2022 [h]	2,257	49	4.0	0.075 U	-	-	340	10	295	8.9
07/27/2022	2,257	49	2.1 U	0.043 U	0.013	0.00026	340	10	295	8.9
08/25/2022	2,286	46	2.5 U	0.050 U	0.010	0.00020	340	10	295	8.9
09/30/2022	2,322	48	2.0 U	0.042 U	0.010	0.00020	340	10	296	8.9
10/31/2022	2,353	49	8.4	0.045 U	0.023	0.00019	341	10	296	8.9
11/28/2022	2,381	48	180 U	3.8 U	0.41	0.0083	353	10	308	9.1
12/19/2022	2,402	48	200 U	4.1 U	0.82	0.017	370	10	325	9.5
01/12/2023	2,426	49	2.0 U	0.042 U	0.44	0.0090	380	10	335	9.7
02/10/2023	2,455	47	3.2	0.041 U	0.011	0.00018	381	10	336	9.7
							Estimated Emissions During Last 12 Months (Pounds/Year):		41	0.83
							Annual Emissions Threshold (Pounds/Year):		NE[c]	500[d]

Notes:

[a] Concentrations are averaged between start and end of each time period.

[b] Granular activated carbon used to treat emissions prior to discharge between 8/22/13 and 3/28/14. Emissions treatment discontinued on 3/28/14.

[c] No emission threshold established for gasoline. Registration exemption threshold for the sum of total criteria pollutants and VOCs is 2,000 pounds per year, per SWCAA Chapter 400-109, Air Discharge Permits - Exempt Emission Thresholds, dated 03/21/2020.

[d] Small Quantity Emissions Rate (SQER), per SWCAA 400, General Regulations for Air Pollution Sources, dated 03/21/2020.

[e] Estimated mass based upon historic data trends.

[f] SVE operated on-Property between August 2013 and December 2018.

[g] Off-property SVE operations in the West Fourth Plain Boulevard right-of-way began January 3, 2020.

[h] System disabled 12/04/2015-03/16/2016, 05/27/2021-07/09/2021, 12/06/2021-02/15/2022, and 03/31/2022-07/27/2022 for contaminant rebound monitoring.

ft^3/min = Cubic feet per minute

mg/m^3 = Milligrams per cubic meter

NE = not established

- = Not measured

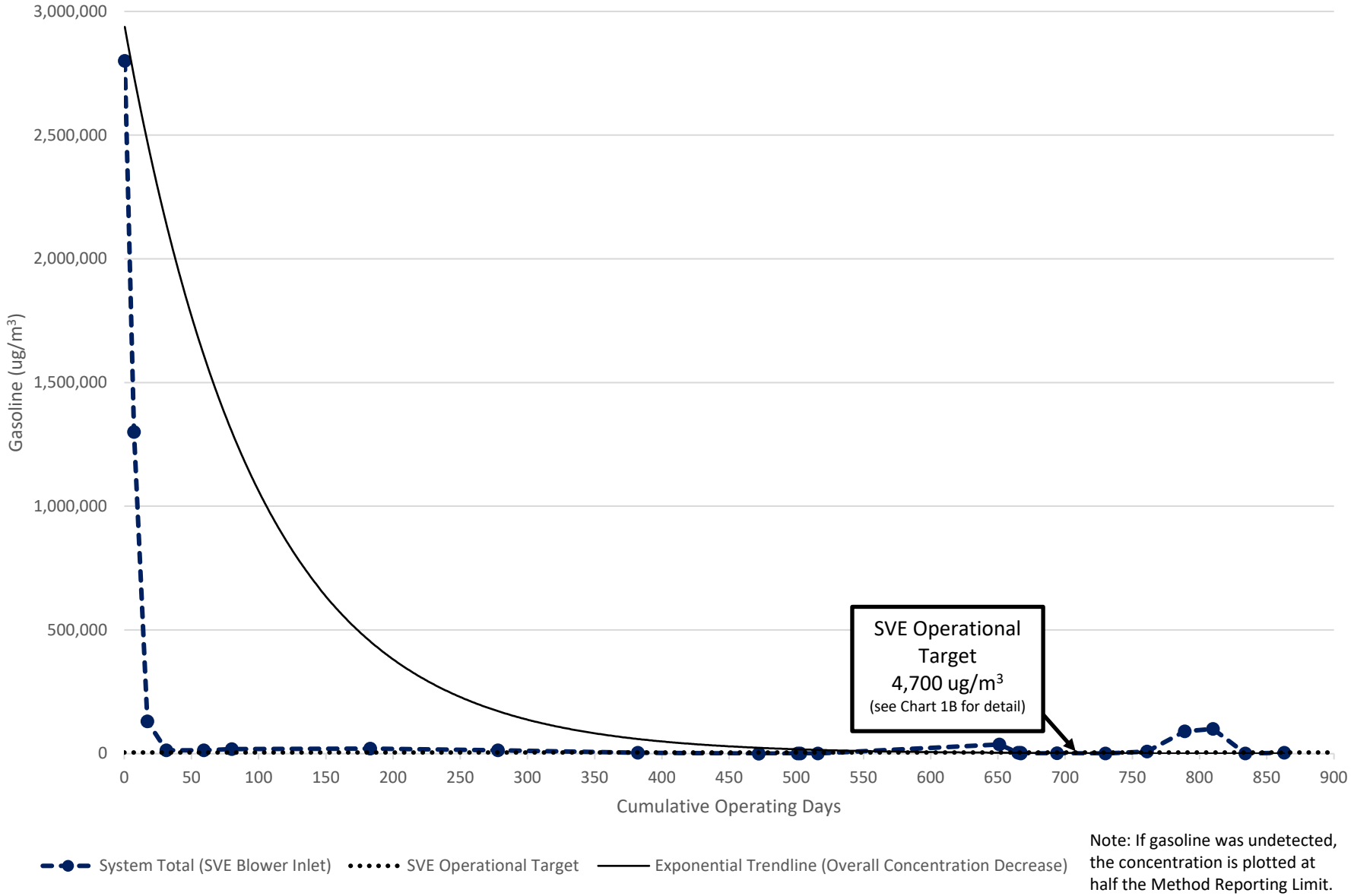
Charts

CHART 1A

System Total Gasoline Vapor Concentrations During SVE Operations in Right-of-Way (Linear Scale)

Plaid Pantry No. 112

Vancouver, Washington



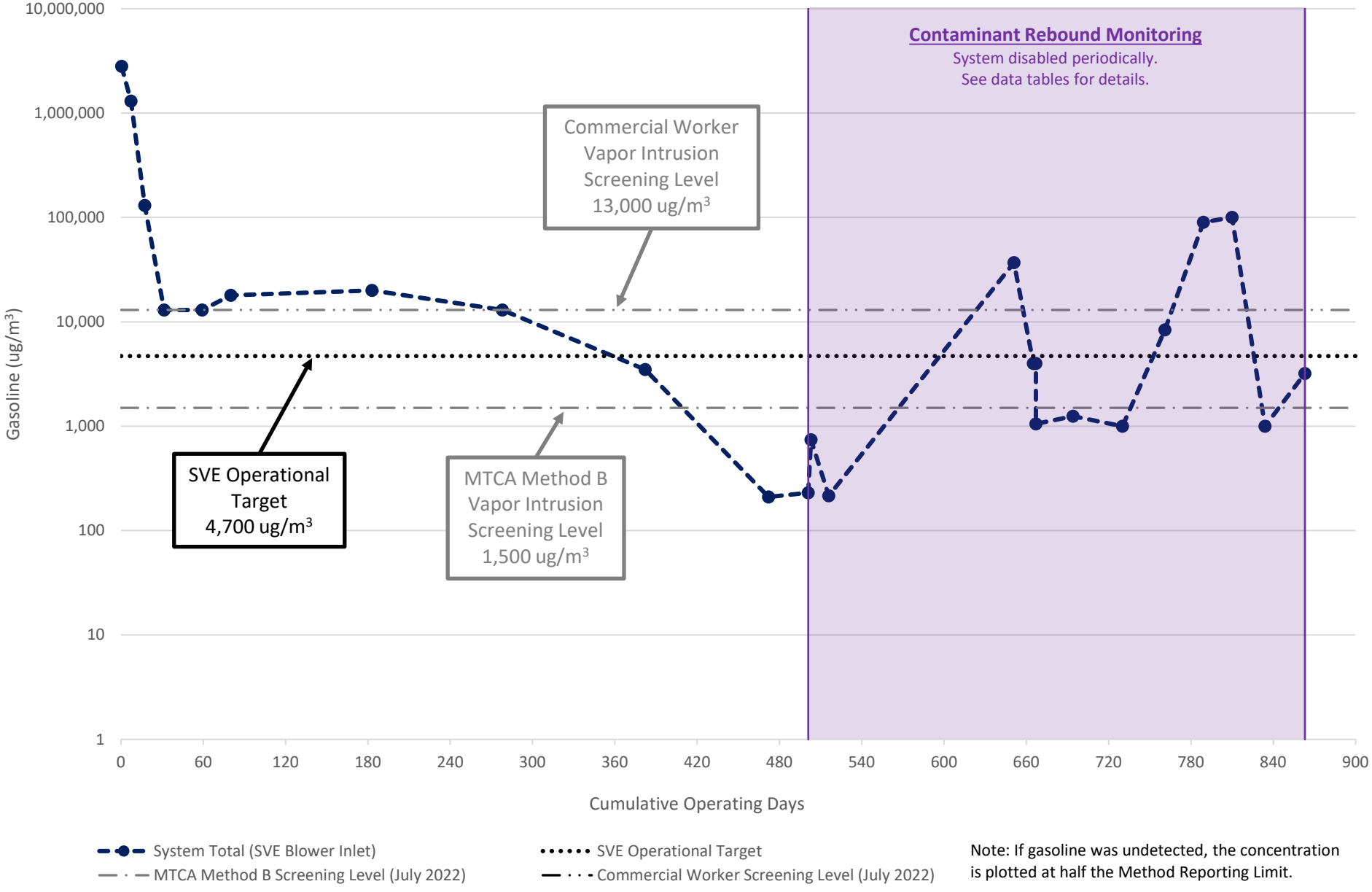
Note: If gasoline was undetected, the concentration is plotted at half the Method Reporting Limit.

CHART 1B

System Total Gasoline Vapor Concentrations During SVE Operations in Right-of-Way (Log Scale)

Plaid Pantry No. 112

Vancouver, Washington



Note: If gasoline was undetected, the concentration is plotted at half the Method Reporting Limit.

CHART 1C

System Total Gasoline Vapor Concentrations During SVE Operations (Sitewide - Log Scale)

Plaid Pantry No. 112

Vancouver, Washington

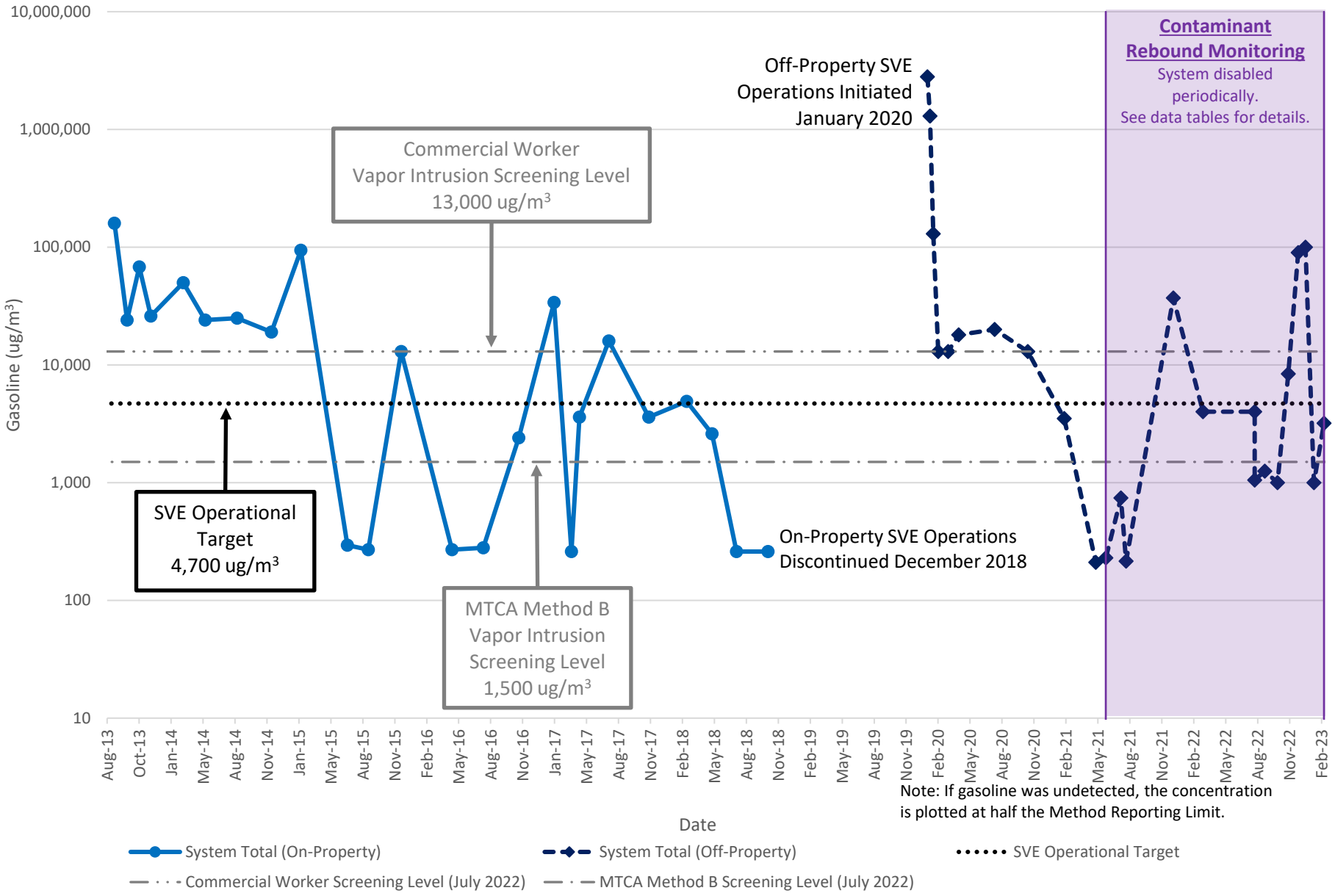
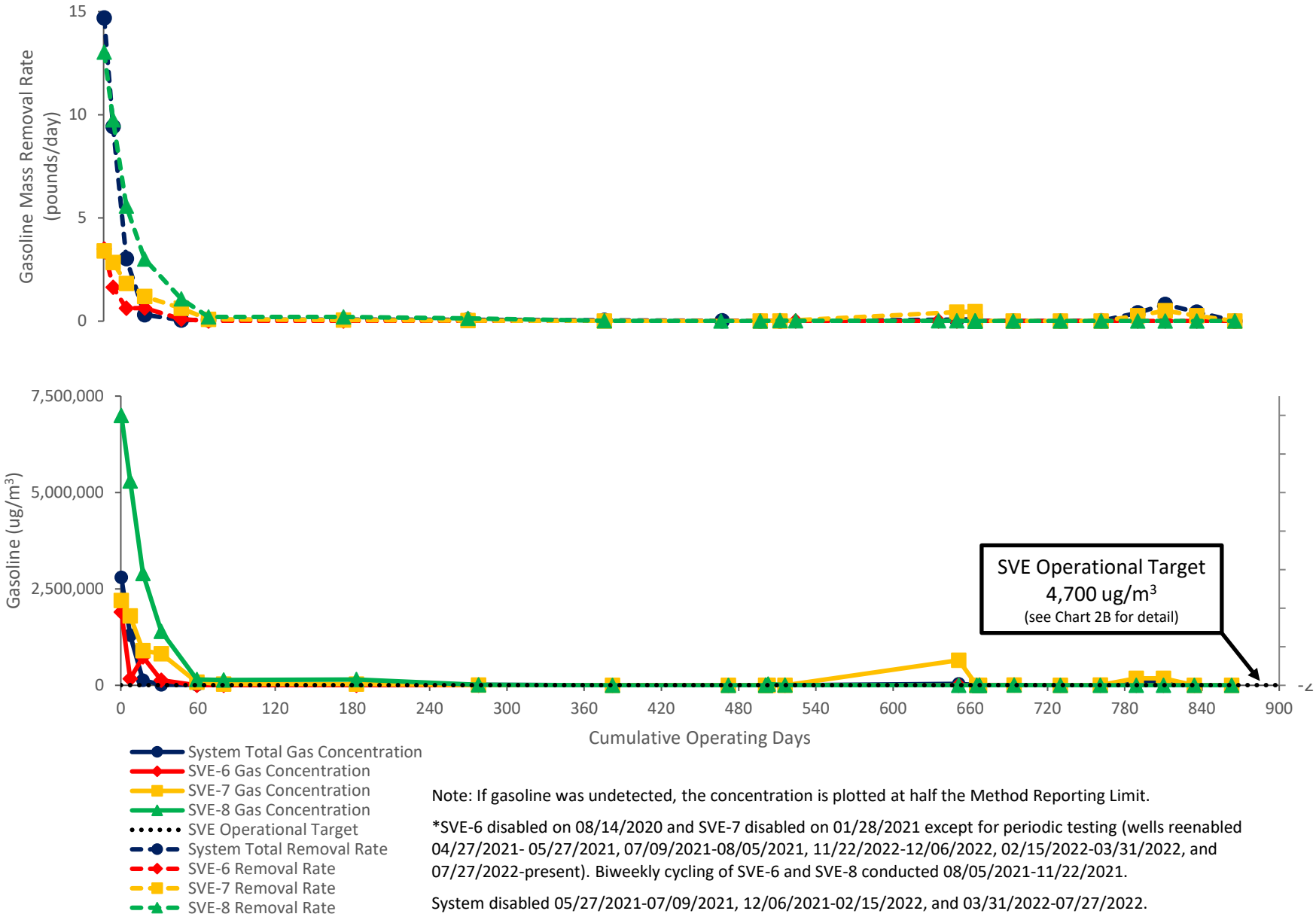


CHART 2A

Gasoline Vapor Concentrations and Removal Rates During SVE Operations in Right-of-Way (Linear Scale)

Plaid Pantry No. 112

Vancouver, Washington



Note: If gasoline was undetected, the concentration is plotted at half the Method Reporting Limit.

*SVE-6 disabled on 08/14/2020 and SVE-7 disabled on 01/28/2021 except for periodic testing (wells reenabled 04/27/2021- 05/27/2021, 07/09/2021-08/05/2021, 11/22/2022-12/06/2022, 02/15/2022-03/31/2022, and 07/27/2022-present). Biweekly cycling of SVE-6 and SVE-8 conducted 08/05/2021-11/22/2021.

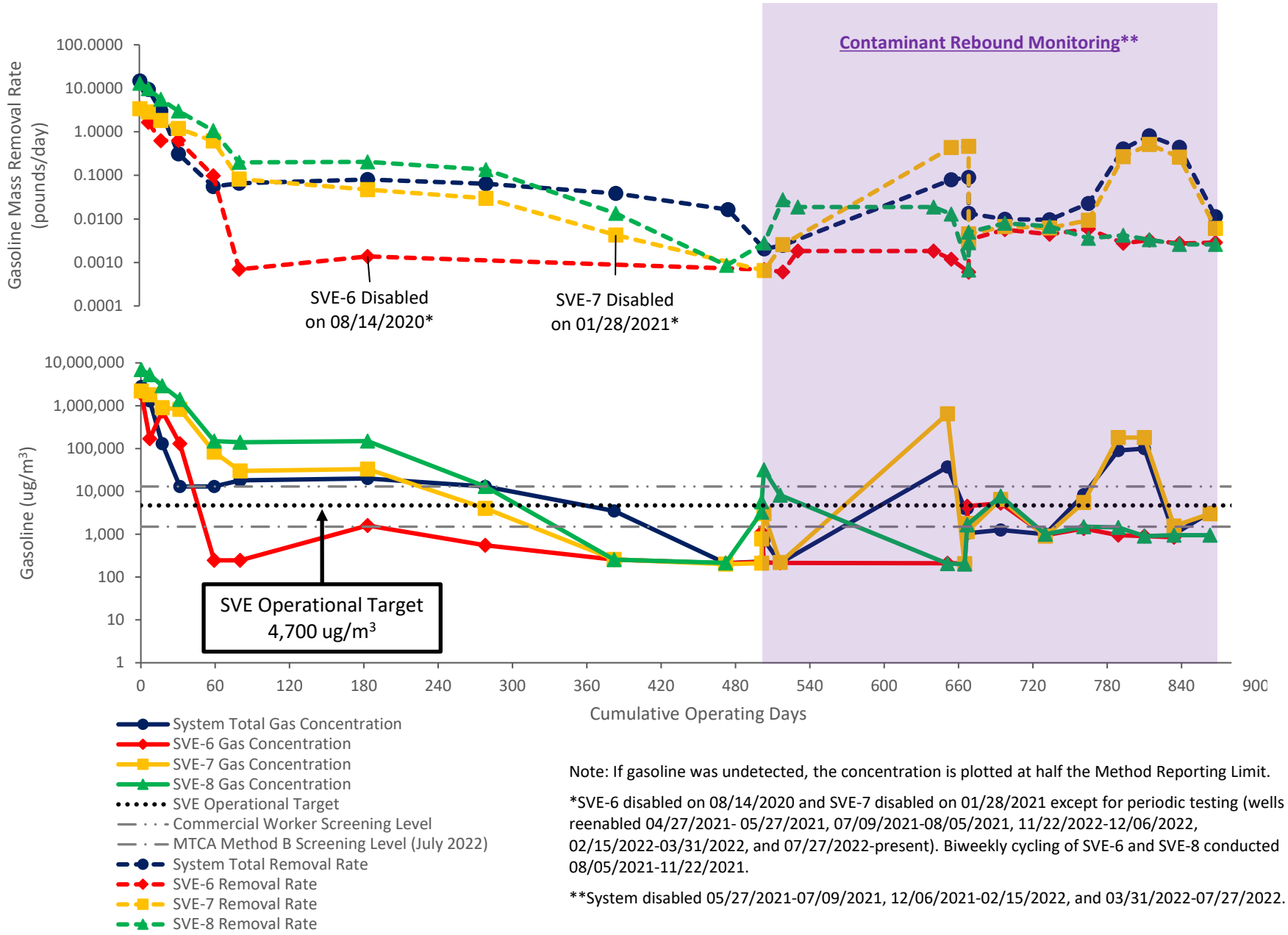
System disabled 05/27/2021-07/09/2021, 12/06/2021-02/15/2022, and 03/31/2022-07/27/2022.

CHART 2B

Gasoline Vapor Concentrations and Removal Rates During SVE Operations in Right-of-Way (Log Scale)

Plaid Pantry No. 112

Vancouver, Washington



Note: If gasoline was undetected, the concentration is plotted at half the Method Reporting Limit.

*SVE-6 disabled on 08/14/2020 and SVE-7 disabled on 01/28/2021 except for periodic testing (wells reenabled 04/27/2021- 05/27/2021, 07/09/2021-08/05/2021, 11/22/2022-12/06/2022, 02/15/2022-03/31/2022, and 07/27/2022-present). Biweekly cycling of SVE-6 and SVE-8 conducted 08/05/2021-11/22/2021.

**System disabled 05/27/2021-07/09/2021, 12/06/2021-02/15/2022, and 03/31/2022-07/27/2022.

CHART 3A

Site Total Gasoline Mass Extraction Rates and Cumulative Mass Removal (Linear Scale)

Plaid Pantry No. 112

Vancouver, Washington

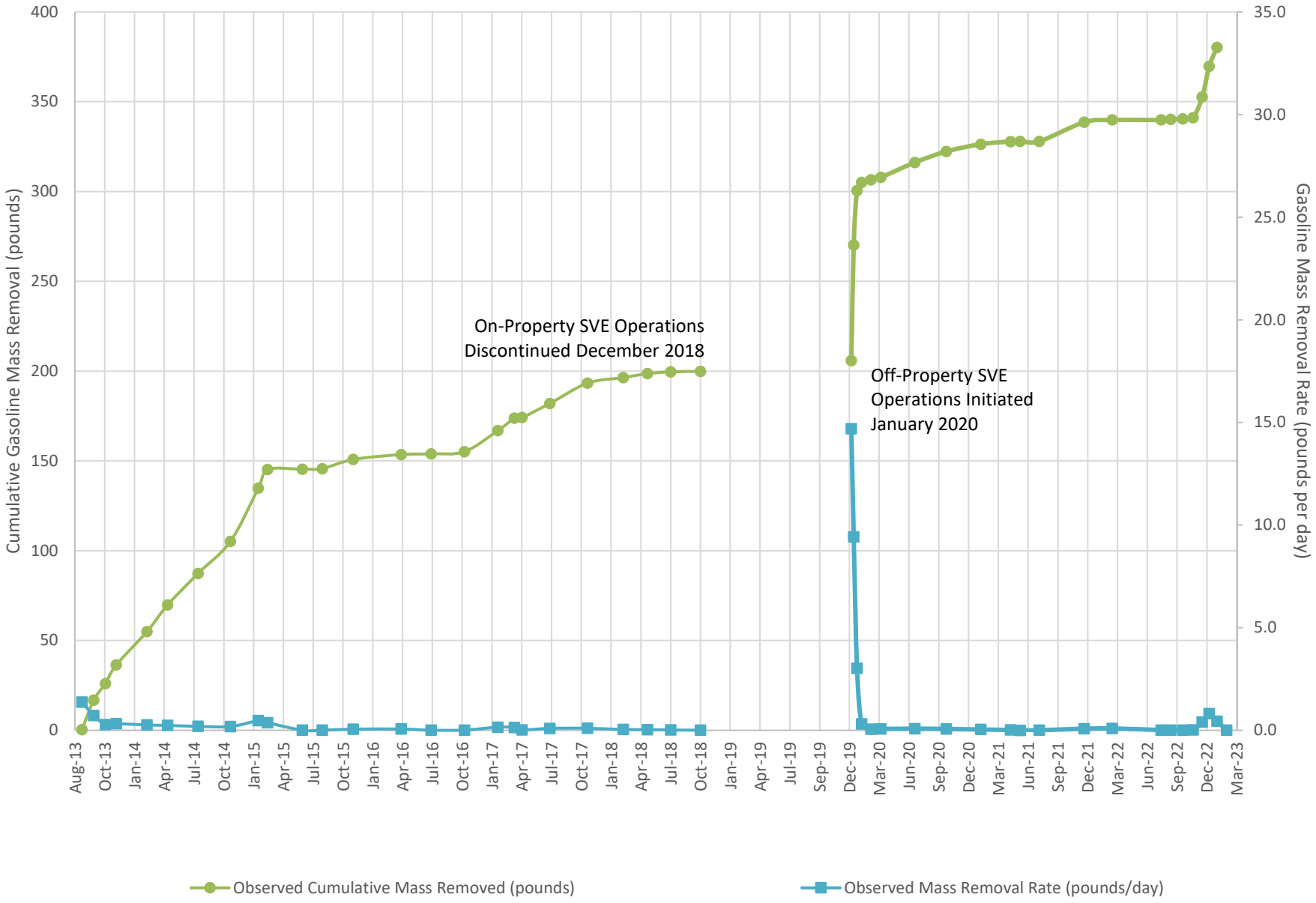
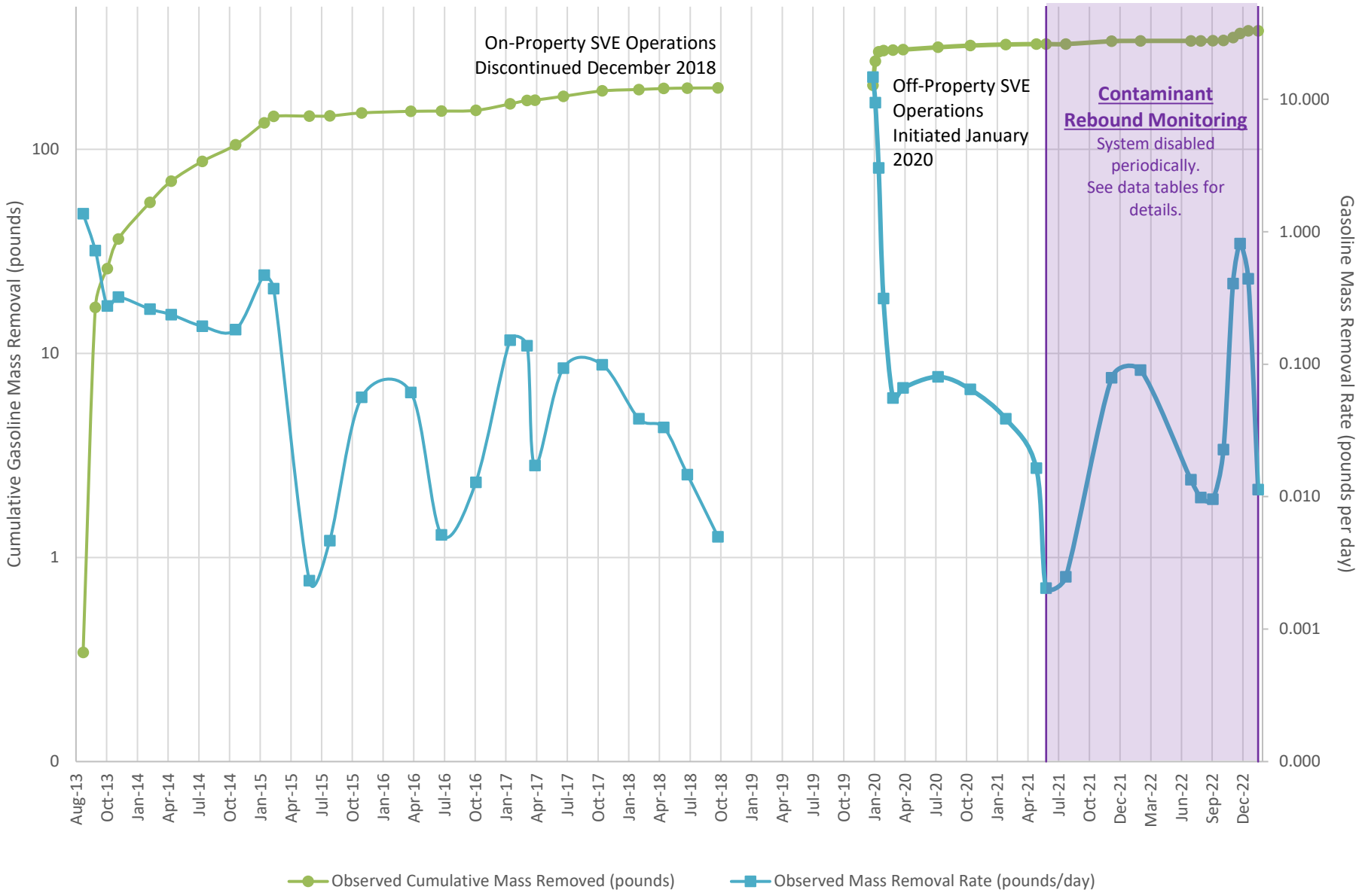


CHART 3B

Site Total Gasoline Mass Extraction Rates and Cumulative Mass Removal (Log Scale)

Plaid Pantry No. 112

Vancouver, Washington



Attachment A

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3/16/2022
Ms. Daniele Peters
EES Environmental Consulting, Inc.
240 N Broadway
Suite 203
Portland OR 97227

Project Name: PP # 112
Project #: 1179-04
Workorder #: 2203205A

Dear Ms. Daniele Peters

The following report includes the data for the above referenced project for sample(s) received on 3/3/2022 at Eurofins Air Toxics LLC.

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

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

Regards,

Monica Tran

Project Manager

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WORK ORDER #: 2203205A

Work Order Summary

CLIENT:	Ms. Daniele Peters EES Environmental Consulting, Inc. 240 N Broadway Suite 203 Portland, OR 97227	**BILL TO:**	Ms. Daniele Peters EES Environmental Consulting, Inc. 240 N Broadway Suite 203 Portland, OR 97227
PHONE:	530-847-2740	**P.O. #**	
FAX:		**PROJECT #**	1179-04 PP # 112
DATE RECEIVED:	03/03/2022	**CONTACT:**	Monica Tran
DATE COMPLETED:	03/16/2022		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SVE-6	TO-15	5.5 "Hg	10 psi
02A	SVE-7	TO-15	5.0 "Hg	10 psi
03A	SVE-8	TO-15	4.5 "Hg	10 psi
04A	MANIFOLD	TO-15	5.5 "Hg	10 psi
05A	Lab Blank	TO-15	NA	NA
06A	CCV	TO-15	NA	NA
07A	LCS	TO-15	NA	NA
07AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 03/16/22

Technical Director

Certification numbers: AZ Licensure AZ0775, FL NELAP – E87680, LA NELAP – 02089, NH NELAP - 209221, NJ NELAP - CA016, NY NELAP - 11291, TX NELAP - T104704434-21-17, UT NELAP – CA009332021-13, VA NELAP - 10615, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005-015, Effective date: 10/18/2021, Expiration date: 10/17/2022.
Eurofins Air Toxics, LLC certifies that the test results contained in this report meet all requirements of the NELAC standards

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

LABORATORY NARRATIVE
EPA Method TO-15
EES Environmental Consulting, Inc.
Workorder# 2203205A

Four 1 Liter Summa Canister samples were received on March 03, 2022. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

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

N - The identification is based on presumptive evidence.

M - Reported value may be biased due to apparent matrix interferences.

CN - See Case Narrative.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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

Client Sample ID: SVE-6

Lab ID#: 2203205A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
m,p-Xylene	1.0	1.1	4.5	5.0

Client Sample ID: SVE-7

Lab ID#: 2203205A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.0	2.3	3.8	8.5
m,p-Xylene	1.0	1.4	4.4	6.0

Client Sample ID: SVE-8

Lab ID#: 2203205A-03A

No Detections Were Found.

Client Sample ID: MANIFOLD

Lab ID#: 2203205A-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	10	18	24	42
2-Propanol	4.1	6.1	10	15
2-Butanone (Methyl Ethyl Ketone)	4.1	4.6	12	14
Tetrahydrofuran	1.0	15	3.0	43
m,p-Xylene	1.0	1.8	4.5	7.9
4-Ethyltoluene	1.0	1.2	5.1	6.0
1,2,4-Trimethylbenzene	1.0	1.2	5.1	6.0
TPH ref. to Gasoline (MW=100)	100	980	420	4000

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Client Sample ID: SVE-6

Lab ID#: 2203205A-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031507**	**Date of Collection: 3/1/22 12:39:00 PM**	
Dil. Factor:	**2.06**	**Date of Analysis: 3/15/22 02:17 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.0	Not Detected	3.3	Not Detected
Ethyl Benzene	1.0	Not Detected	4.5	Not Detected
Toluene	1.0	Not Detected	3.9	Not Detected
m,p-Xylene	1.0	1.1	4.5	5.0
o-Xylene	1.0	Not Detected	4.5	Not Detected
Naphthalene	2.1	Not Detected	11	Not Detected
TPH ref. to Gasoline (MW=100)	100	Not Detected	420	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: SVE-7

Lab ID#: 2203205A-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031508**	**Date of Collection: 3/1/22 12:40:00 PM**	
Dil. Factor:	**2.02**	**Date of Analysis: 3/15/22 02:46 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.0	Not Detected	3.2	Not Detected
Ethyl Benzene	1.0	Not Detected	4.4	Not Detected
Toluene	1.0	2.3	3.8	8.5
m,p-Xylene	1.0	1.4	4.4	6.0
o-Xylene	1.0	Not Detected	4.4	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
TPH ref. to Gasoline (MW=100)	100	Not Detected	410	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: SVE-8

Lab ID#: 2203205A-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031509**	**Date of Collection: 3/1/22 12:45:00 PM**	
Dil. Factor:	**1.98**	**Date of Analysis: 3/15/22 03:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	0.99	Not Detected	3.2	Not Detected
Ethyl Benzene	0.99	Not Detected	4.3	Not Detected
Toluene	0.99	Not Detected	3.7	Not Detected
m,p-Xylene	0.99	Not Detected	4.3	Not Detected
o-Xylene	0.99	Not Detected	4.3	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected
TPH ref. to Gasoline (MW=100)	99	Not Detected	400	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: MANIFOLD

Lab ID#: 2203205A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031510**	**Date of Collection: 3/1/22 12:50:00 PM**	
Dil. Factor:	**2.06**	**Date of Analysis: 3/15/22 03:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.0	Not Detected	5.1	Not Detected
Freon 114	1.0	Not Detected	7.2	Not Detected
Chloromethane	10	Not Detected	21	Not Detected
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,3-Butadiene	1.0	Not Detected	2.3	Not Detected
Bromomethane	10	Not Detected	40	Not Detected
Chloroethane	4.1	Not Detected	11	Not Detected
Freon 11	1.0	Not Detected	5.8	Not Detected
Ethanol	10	Not Detected	19	Not Detected
Freon 113	1.0	Not Detected	7.9	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Acetone	10	18	24	42
2-Propanol	4.1	6.1	10	15
Carbon Disulfide	4.1	Not Detected	13	Not Detected
3-Chloropropene	4.1	Not Detected	13	Not Detected
Methylene Chloride	10	Not Detected	36	Not Detected
Methyl tert-butyl ether	4.1	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Hexane	1.0	Not Detected	3.6	Not Detected
1,1-Dichloroethane	1.0	Not Detected	4.2	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.1	4.6	12	14
cis-1,2-Dichloroethene	1.0	Not Detected	4.1	Not Detected
Tetrahydrofuran	1.0	15	3.0	43
Chloroform	1.0	Not Detected	5.0	Not Detected
1,1,1-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Cyclohexane	1.0	Not Detected	3.5	Not Detected
Carbon Tetrachloride	1.0	Not Detected	6.5	Not Detected
2,2,4-Trimethylpentane	1.0	Not Detected	4.8	Not Detected
Benzene	1.0	Not Detected	3.3	Not Detected
1,2-Dichloroethane	1.0	Not Detected	4.2	Not Detected
Heptane	1.0	Not Detected	4.2	Not Detected
Trichloroethene	1.0	Not Detected	5.5	Not Detected
1,2-Dichloropropane	1.0	Not Detected	4.8	Not Detected
1,4-Dioxane	4.1	Not Detected	15	Not Detected
Bromodichloromethane	1.0	Not Detected	6.9	Not Detected
cis-1,3-Dichloropropene	1.0	Not Detected	4.7	Not Detected
4-Methyl-2-pentanone	1.0	Not Detected	4.2	Not Detected
Toluene	1.0	Not Detected	3.9	Not Detected
trans-1,3-Dichloropropene	1.0	Not Detected	4.7	Not Detected
1,1,2-Trichloroethane	1.0	Not Detected	5.6	Not Detected
Tetrachloroethene	1.0	Not Detected	7.0	Not Detected
2-Hexanone	4.1	Not Detected	17	Not Detected

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Client Sample ID: MANIFOLD

Lab ID#: 2203205A-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031510**	**Date of Collection: 3/1/22 12:50:00 PM**	
Dil. Factor:	**2.06**	**Date of Analysis: 3/15/22 03:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.0	Not Detected	8.8	Not Detected
1,2-Dibromoethane (EDB)	1.0	Not Detected	7.9	Not Detected
Chlorobenzene	1.0	Not Detected	4.7	Not Detected
Ethyl Benzene	1.0	Not Detected	4.5	Not Detected
m,p-Xylene	1.0	1.8	4.5	7.9
o-Xylene	1.0	Not Detected	4.5	Not Detected
Styrene	1.0	Not Detected	4.4	Not Detected
Bromoform	1.0	Not Detected	11	Not Detected
Cumene	1.0	Not Detected	5.1	Not Detected
1,1,2,2-Tetrachloroethane	1.0	Not Detected	7.1	Not Detected
Propylbenzene	1.0	Not Detected	5.1	Not Detected
4-Ethyltoluene	1.0	1.2	5.1	6.0
1,3,5-Trimethylbenzene	1.0	Not Detected	5.1	Not Detected
1,2,4-Trimethylbenzene	1.0	1.2	5.1	6.0
1,3-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,4-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
alpha-Chlorotoluene	1.0	Not Detected	5.3	Not Detected
1,2-Dichlorobenzene	1.0	Not Detected	6.2	Not Detected
1,2,4-Trichlorobenzene	4.1	Not Detected	30	Not Detected
Hexachlorobutadiene	4.1	Not Detected	44	Not Detected
Naphthalene	2.1	Not Detected	11	Not Detected
TPH ref. to Gasoline (MW=100)	100	980	420	4000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: Lab Blank

Lab ID#: 2203205A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031506c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 12:30 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	5.0	Not Detected	9.4	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 2203205A-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031506c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 12:30 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	1.0	Not Detected	5.2	Not Detected
TPH ref. to Gasoline (MW=100)	50	Not Detected	200	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: CCV

Lab ID#: 2203205A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031502**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 10:13 AM**

Compound	%Recovery
Freon 12	102
Freon 114	108
Chloromethane	112
Vinyl Chloride	118
1,3-Butadiene	121
Bromomethane	94
Chloroethane	109
Freon 11	96
Ethanol	109
Freon 113	97
1,1-Dichloroethene	110
Acetone	105
2-Propanol	106
Carbon Disulfide	104
3-Chloropropene	116
Methylene Chloride	102
Methyl tert-butyl ether	106
trans-1,2-Dichloroethene	112
Hexane	112
1,1-Dichloroethane	109
2-Butanone (Methyl Ethyl Ketone)	108
cis-1,2-Dichloroethene	111
Tetrahydrofuran	117
Chloroform	106
1,1,1-Trichloroethane	98
Cyclohexane	106
Carbon Tetrachloride	99
2,2,4-Trimethylpentane	112
Benzene	109
1,2-Dichloroethane	98
Heptane	116
Trichloroethene	110
1,2-Dichloropropane	105
1,4-Dioxane	113
Bromodichloromethane	105
cis-1,3-Dichloropropene	114
4-Methyl-2-pentanone	106
Toluene	106
trans-1,3-Dichloropropene	108
1,1,2-Trichloroethane	106
Tetrachloroethene	103
2-Hexanone	110

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Client Sample ID: CCV

Lab ID#: 2203205A-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 10:13 AM**	

Compound	%Recovery
Dibromochloromethane	103
1,2-Dibromoethane (EDB)	109
Chlorobenzene	104
Ethyl Benzene	107
m,p-Xylene	108
o-Xylene	109
Styrene	116
Bromoform	103
Cumene	112
1,1,2,2-Tetrachloroethane	101
Propylbenzene	102
4-Ethyltoluene	105
1,3,5-Trimethylbenzene	104
1,2,4-Trimethylbenzene	107
1,3-Dichlorobenzene	100
1,4-Dichlorobenzene	101
alpha-Chlorotoluene	107
1,2-Dichlorobenzene	99
1,2,4-Trichlorobenzene	97
Hexachlorobutadiene	94
Naphthalene	103
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

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

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Client Sample ID: LCS

Lab ID#: 2203205A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 10:42 AM**	

Compound	%Recovery	Method Limits
Freon 12	107	70-130
Freon 114	107	70-130
Chloromethane	105	70-130
Vinyl Chloride	117	70-130
1,3-Butadiene	120	70-130
Bromomethane	97	70-130
Chloroethane	116	70-130
Freon 11	101	70-130
Ethanol	111	70-130
Freon 113	100	70-130
1,1-Dichloroethene	115	70-130
Acetone	105	70-130
2-Propanol	120	70-130
Carbon Disulfide	109	70-130
3-Chloropropene	121	70-130
Methylene Chloride	104	70-130
Methyl tert-butyl ether	113	70-130
trans-1,2-Dichloroethene	121	70-130
Hexane	116	70-130
1,1-Dichloroethane	117	70-130
2-Butanone (Methyl Ethyl Ketone)	117	70-130
cis-1,2-Dichloroethene	118	70-130
Tetrahydrofuran	123	70-130
Chloroform	110	70-130
1,1,1-Trichloroethane	103	70-130
Cyclohexane	113	70-130
Carbon Tetrachloride	105	70-130
2,2,4-Trimethylpentane	118	70-130
Benzene	106	70-130
1,2-Dichloroethane	96	70-130
Heptane	114	70-130
Trichloroethene	111	70-130
1,2-Dichloropropane	104	70-130
1,4-Dioxane	108	70-130
Bromodichloromethane	100	70-130
cis-1,3-Dichloropropene	113	70-130
4-Methyl-2-pentanone	104	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	112	70-130
1,1,2-Trichloroethane	110	70-130
Tetrachloroethene	106	70-130
2-Hexanone	113	70-130

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Client Sample ID: LCS

Lab ID#: 2203205A-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 10:42 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	105	70-130
1,2-Dibromoethane (EDB)	111	70-130
Chlorobenzene	106	70-130
Ethyl Benzene	109	70-130
m,p-Xylene	110	70-130
o-Xylene	110	70-130
Styrene	117	70-130
Bromoform	104	70-130
Cumene	112	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	105	70-130
4-Ethyltoluene	105	70-130
1,3,5-Trimethylbenzene	105	70-130
1,2,4-Trimethylbenzene	108	70-130
1,3-Dichlorobenzene	101	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	107	70-130
1,2-Dichlorobenzene	100	70-130
1,2,4-Trichlorobenzene	107	70-130
Hexachlorobutadiene	104	70-130
Naphthalene	107	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCSD

Lab ID#: 2203205A-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 11:11 AM**	

Compound	%Recovery	Method Limits
Freon 12	104	70-130
Freon 114	105	70-130
Chloromethane	103	70-130
Vinyl Chloride	122	70-130
1,3-Butadiene	121	70-130
Bromomethane	96	70-130
Chloroethane	111	70-130
Freon 11	98	70-130
Ethanol	113	70-130
Freon 113	99	70-130
1,1-Dichloroethene	112	70-130
Acetone	106	70-130
2-Propanol	116	70-130
Carbon Disulfide	107	70-130
3-Chloropropene	116	70-130
Methylene Chloride	103	70-130
Methyl tert-butyl ether	111	70-130
trans-1,2-Dichloroethene	117	70-130
Hexane	114	70-130
1,1-Dichloroethane	114	70-130
2-Butanone (Methyl Ethyl Ketone)	111	70-130
cis-1,2-Dichloroethene	118	70-130
Tetrahydrofuran	121	70-130
Chloroform	107	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	110	70-130
Carbon Tetrachloride	102	70-130
2,2,4-Trimethylpentane	116	70-130
Benzene	108	70-130
1,2-Dichloroethane	96	70-130
Heptane	116	70-130
Trichloroethene	111	70-130
1,2-Dichloropropane	106	70-130
1,4-Dioxane	111	70-130
Bromodichloromethane	101	70-130
cis-1,3-Dichloropropene	114	70-130
4-Methyl-2-pentanone	107	70-130
Toluene	103	70-130
trans-1,3-Dichloropropene	108	70-130
1,1,2-Trichloroethane	106	70-130
Tetrachloroethene	104	70-130
2-Hexanone	112	70-130

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Client Sample ID: LCSD

Lab ID#: 2203205A-07AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p031504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/15/22 11:11 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	102	70-130
1,2-Dibromoethane (EDB)	109	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	106	70-130
m,p-Xylene	108	70-130
o-Xylene	107	70-130
Styrene	115	70-130
Bromoform	101	70-130
Cumene	110	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	103	70-130
4-Ethyltoluene	100	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	105	70-130
1,3-Dichlorobenzene	98	70-130
1,4-Dichlorobenzene	99	70-130
alpha-Chlorotoluene	106	70-130
1,2-Dichlorobenzene	97	70-130
1,2,4-Trichlorobenzene	112	70-130
Hexachlorobutadiene	108	70-130
Naphthalene	113	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	97	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
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September 7, 2022

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on August 26, 2022 from the Plaid Pantry 112 1179-04, F&BI 208422 project. There are 11 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: Rachel Greene, Paul Ecker
EES0907R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 26, 2022 by Friedman & Bruya, Inc. from the EES Environmental Consulting Plaid Pantry 112 1179-04, F&BI 208422 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
208422 -01	SVE-6
208422 -02	SVE-7
208422 -03	SVE-8
208422 -04	MANIFOLD

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

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-6	Client:	EES Environmental Consulting
Date Received:	08/26/22	Project:	Plaid Pantry 112 1179-04
Date Collected:	08/25/22	Lab ID:	208422-01 1/10
Date Analyzed:	09/01/22	Data File:	083128.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<3.2	<1
Toluene	<190	<50
Ethylbenzene	<4.3	<1
m,p-Xylene	<8.7	<2
o-Xylene	<4.3	<1
Naphthalene	<2.1 j	<0.4 j
Gasoline Range Organics	5,300	1,300

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	08/26/22	Project:	Plaid Pantry 112 1179-04
Date Collected:	08/25/22	Lab ID:	208422-02 1/11
Date Analyzed:	09/01/22	Data File:	083127.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<3.5	<1.1
Toluene	<210	<55
Ethylbenzene	<4.8	<1.1
m,p-Xylene	<9.6	<2.2
o-Xylene	<4.8	<1.1
Naphthalene	<2.3 j	<0.44 j
Gasoline Range Organics	6,500	1,600

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	08/26/22	Project:	Plaid Pantry 112 1179-04
Date Collected:	08/25/22	Lab ID:	208422-03 1/11
Date Analyzed:	09/01/22	Data File:	083126.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<3.5	<1.1
Toluene	<210	<55
Ethylbenzene	<4.8	<1.1
m,p-Xylene	<9.6	<2.2
o-Xylene	<4.8	<1.1
Naphthalene	<2.3 j	<0.44 j
Gasoline Range Organics	7,800	1,900

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	08/26/22	Project:	Plaid Pantry 112 1179-04
Date Collected:	08/25/22	Lab ID:	208422-04 1/7.4
Date Analyzed:	09/01/22	Data File:	083125.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<8.9	<5.2	1,2-Dichloropropane	<1.7	<0.37
Dichlorodifluoromethane	<7.3	<1.5	1,4-Dioxane	<2.7	<0.74
Chloromethane	<28	<13	2,2,4-Trimethylpentane	<35	<7.4
F-114	<16	<2.2	Methyl methacrylate	<30	<7.4
Vinyl chloride	<1.9	<0.74	Heptane	<30	<7.4
1,3-Butadiene	<0.33	<0.15	Bromodichloromethane	<0.5	<0.074
Butane	<35	<15	Trichloroethene	<0.8	<0.15
Bromomethane	<29	<7.4	cis-1,3-Dichloropropene	<6.7	<1.5
Chloroethane	<20	<7.4	4-Methyl-2-pentanone	<30	<7.4
Vinyl bromide	<3.2	<0.74	trans-1,3-Dichloropropene	<3.4	<0.74
Ethanol	<56	<30	Toluene	<140	<37
Acrolein	<0.85	<0.37	1,1,2-Trichloroethane	<0.4	<0.074
Pentane	<44	<15	2-Hexanone	<30	<7.4
Trichlorofluoromethane	<17	<3	Tetrachloroethene	<50	<7.4
Acetone	<35	<15	Dibromochloromethane	<0.63	<0.074
2-Propanol	<64	<26	1,2-Dibromoethane (EDB)	<0.57	<0.074
1,1-Dichloroethene	<2.9	<0.74	Chlorobenzene	<3.4	<0.74
trans-1,2-Dichloroethene	<2.9	<0.74	Ethylbenzene	<3.2	<0.74
Methylene chloride	<260	<74	1,1,2,2-Tetrachloroethane	<1	<0.15
t-Butyl alcohol (TBA)	<90	<30	Nonane	<39	<7.4
3-Chloropropene	<23	<7.4	Isopropylbenzene	<73	<15
CFC-113	<5.7	<0.74	2-Chlorotoluene	<38	<7.4
Carbon disulfide	<46	<15	Propylbenzene	<36	<7.4
Methyl t-butyl ether (MTBE)	<53	<15	4-Ethyltoluene	<36	<7.4
Vinyl acetate	<52	<15	m,p-Xylene	<6.4	<1.5
1,1-Dichloroethane	<3	<0.74	o-Xylene	<3.2	<0.74
cis-1,2-Dichloroethene	<2.9	<0.74	Styrene	<6.3	<1.5
Hexane	<26	<7.4	Bromoform	<15	<1.5
Chloroform	0.87	0.18	Benzyl chloride	<0.38	<0.074
Ethyl acetate	<53	<15	1,3,5-Trimethylbenzene	<36	<7.4
Tetrahydrofuran	<4.4	<1.5	1,2,4-Trimethylbenzene	<36	<7.4
2-Butanone (MEK)	<44	<15	1,3-Dichlorobenzene	<4.4	<0.74
1,2-Dichloroethane (EDC)	<0.3	<0.074	1,4-Dichlorobenzene	<1.7	<0.28
1,1,1-Trichloroethane	<4	<0.74	1,2-Dichlorobenzene	<4.4	<0.74
Carbon tetrachloride	<2.3	<0.37	1,2,4-Trichlorobenzene	<5.5	<0.74
Benzene	<2.4	<0.74	Naphthalene	<1.9	<0.37
Cyclohexane	<51	<15	Hexachlorobutadiene	<1.6	<0.15
Gasoline Range Organics	<2,500	<600			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	Plaid Pantry 112 1179-04
Date Collected:	Not Applicable	Lab ID:	02-1962 MB
Date Analyzed:	08/31/22	Data File:	083111.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
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	<0.21 j	<0.04 j
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02
Gasoline Range Organics	<330	<80			

Date of Report: 09/07/22
Date Received: 08/26/22
Project: Plaid Pantry 112 1179-04, F&BI 208422

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

Laboratory Code: 208409-01 1/8.8 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<11	<11	nm
Dichlorodifluoromethane	ug/m3	<8.7	<8.7	nm
Chloromethane	ug/m3	<33	<33	nm
F-114	ug/m3	<18	<18	nm
Vinyl chloride	ug/m3	<2.2	<2.2	nm
1,3-Butadiene	ug/m3	<0.39	<0.39	nm
Butane	ug/m3	<42	<42	nm
Bromomethane	ug/m3	<34	<34	nm
Chloroethane	ug/m3	<23	<23	nm
Vinyl bromide	ug/m3	<3.8	<3.8	nm
Ethanol	ug/m3	<66	<66	nm
Acrolein	ug/m3	<1	<1	nm
Pentane	ug/m3	79	79	0
Trichlorofluoromethane	ug/m3	110	110	0
Acetone	ug/m3	<42	<42	nm
2-Propanol	ug/m3	<76	<76	nm
1,1-Dichloroethene	ug/m3	<3.5	<3.5	nm
trans-1,2-Dichloroethene	ug/m3	<3.5	<3.5	nm
Methylene chloride	ug/m3	<310	<310	nm
t-Butyl alcohol (TBA)	ug/m3	<110	<110	nm
3-Chloropropene	ug/m3	<28	<28	nm
CFC-113	ug/m3	<6.7	<6.7	nm
Carbon disulfide	ug/m3	<55	<55	nm
Methyl t-butyl ether (MTBE)	ug/m3	<63	<63	nm
Vinyl acetate	ug/m3	<62	<62	nm
1,1-Dichloroethane	ug/m3	<3.6	<3.6	nm
cis-1,2-Dichloroethene	ug/m3	<3.5	<3.5	nm
Hexane	ug/m3	54	55	2
Chloroform	ug/m3	1.8	1.8	0
Ethyl acetate	ug/m3	<63	<63	nm
Tetrahydrofuran	ug/m3	<5.2	<5.2	nm
2-Butanone (MEK)	ug/m3	<52	<52	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.36	<0.36	nm
1,1,1-Trichloroethane	ug/m3	<4.8	<4.8	nm
Carbon tetrachloride	ug/m3	<2.8	<2.8	nm
Benzene	ug/m3	15	15	0
Cyclohexane	ug/m3	<61	<61	nm
1,2-Dichloropropane	ug/m3	<2	<2	nm
1,4-Dioxane	ug/m3	<3.2	<3.2	nm
2,2,4-Trimethylpentane	ug/m3	<41	<41	nm

Date of Report: 09/07/22
Date Received: 08/26/22
Project: Plaid Pantry 112 1179-04, F&BI 208422

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

Laboratory Code: 208409-01 1/8.8 (Duplicate, continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<36	<36	nm
Heptane	ug/m3	47	45	4
Bromodichloromethane	ug/m3	<0.59	<0.59	nm
Trichloroethene	ug/m3	<0.95	<0.95	nm
cis-1,3-Dichloropropene	ug/m3	<8	<8	nm
4-Methyl-2-pentanone	ug/m3	<36	<36	nm
trans-1,3-Dichloropropene	ug/m3	<4	<4	nm
Toluene	ug/m3	<170	<170	nm
1,1,2-Trichloroethane	ug/m3	<0.48	<0.48	nm
2-Hexanone	ug/m3	<36	<36	nm
Tetrachloroethene	ug/m3	<60	<60	nm
Dibromochloromethane	ug/m3	<0.75	<0.75	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.68	<0.68	nm
Chlorobenzene	ug/m3	<4.1	<4.1	nm
Ethylbenzene	ug/m3	20	20	0
1,1,2,2-Tetrachloroethane	ug/m3	<1.2	<1.2	nm
Nonane	ug/m3	<46	<46	nm
Isopropylbenzene	ug/m3	<87	<87	nm
2-Chlorotoluene	ug/m3	<46	<46	nm
Propylbenzene	ug/m3	<43	<43	nm
4-Ethyltoluene	ug/m3	<43	<43	nm
m,p-Xylene	ug/m3	24	24	0
o-Xylene	ug/m3	13	13	0
Styrene	ug/m3	<7.5	<7.5	nm
Bromoform	ug/m3	<18	<18	nm
Benzyl chloride	ug/m3	<0.46	<0.46	nm
1,3,5-Trimethylbenzene	ug/m3	<43	<43	nm
1,2,4-Trimethylbenzene	ug/m3	<43	<43	nm
1,3-Dichlorobenzene	ug/m3	<5.3	<5.3	nm
1,4-Dichlorobenzene	ug/m3	<2	<2	nm
1,2-Dichlorobenzene	ug/m3	<5.3	<5.3	nm
1,2,4-Trichlorobenzene	ug/m3	<6.5	<6.5	nm
Naphthalene	ug/m3	<2.3	<2.3	nm
Hexachlorobutadiene	ug/m3	<1.9	<1.9	nm

Date of Report: 09/07/22
Date Received: 08/26/22
Project: Plaid Pantry 112 1179-04, F&BI 208422

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	101	70-130
Dichlorodifluoromethane	ug/m3	67	99	70-130
Chloromethane	ug/m3	28	94	70-130
F-114	ug/m3	94	99	70-130
Vinyl chloride	ug/m3	35	95	70-130
1,3-Butadiene	ug/m3	30	93	70-130
Butane	ug/m3	32	103	70-130
Bromomethane	ug/m3	52	103	70-130
Chloroethane	ug/m3	36	100	70-130
Vinyl bromide	ug/m3	59	102	70-130
Ethanol	ug/m3	25	89	70-130
Acrolein	ug/m3	31	94	70-130
Pentane	ug/m3	40	97	70-130
Trichlorofluoromethane	ug/m3	76	103	70-130
Acetone	ug/m3	32	91	70-130
2-Propanol	ug/m3	33	92	70-130
1,1-Dichloroethene	ug/m3	54	100	70-130
trans-1,2-Dichloroethene	ug/m3	54	101	70-130
Methylene chloride	ug/m3	94	94	70-130
t-Butyl alcohol (TBA)	ug/m3	41	101	70-130
3-Chloropropene	ug/m3	42	92	70-130
CFC-113	ug/m3	100	100	70-130
Carbon disulfide	ug/m3	42	103	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	103	70-130
Vinyl acetate	ug/m3	48	101	70-130
1,1-Dichloroethane	ug/m3	55	99	70-130
cis-1,2-Dichloroethene	ug/m3	54	100	70-130
Hexane	ug/m3	48	95	70-130
Chloroform	ug/m3	66	101	70-130
Ethyl acetate	ug/m3	49	99	70-130
Tetrahydrofuran	ug/m3	40	95	70-130
2-Butanone (MEK)	ug/m3	40	99	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	95	70-130
1,1,1-Trichloroethane	ug/m3	74	102	70-130
Carbon tetrachloride	ug/m3	85	106	70-130
Benzene	ug/m3	43	99	70-130
Cyclohexane	ug/m3	46	101	70-130
1,2-Dichloropropane	ug/m3	62	98	70-130
1,4-Dioxane	ug/m3	49	102	70-130
2,2,4-Trimethylpentane	ug/m3	63	102	70-130

Date of Report: 09/07/22
Date Received: 08/26/22
Project: Plaid Pantry 112 1179-04, F&BI 208422

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	98	70-130
Heptane	ug/m3	55	92	70-130
Bromodichloromethane	ug/m3	90	109	70-130
Trichloroethene	ug/m3	73	105	70-130
cis-1,3-Dichloropropene	ug/m3	61	99	70-130
4-Methyl-2-pentanone	ug/m3	55	103	70-130
trans-1,3-Dichloropropene	ug/m3	61	103	70-130
Toluene	ug/m3	51	98	70-130
1,1,2-Trichloroethane	ug/m3	74	100	70-130
2-Hexanone	ug/m3	55	90	70-130
Tetrachloroethene	ug/m3	92	109	70-130
Dibromochloromethane	ug/m3	120	113	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	97	70-130
Chlorobenzene	ug/m3	62	105	70-130
Ethylbenzene	ug/m3	59	102	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	107	70-130
Nonane	ug/m3	71	98	70-130
Isopropylbenzene	ug/m3	66	113	70-130
2-Chlorotoluene	ug/m3	70	108	70-130
Propylbenzene	ug/m3	66	102	70-130
4-Ethyltoluene	ug/m3	66	109	70-130
m,p-Xylene	ug/m3	120	105	70-130
o-Xylene	ug/m3	59	106	70-130
Styrene	ug/m3	58	101	70-130
Bromoform	ug/m3	140	129	70-130
Benzyl chloride	ug/m3	70	111	70-130
1,3,5-Trimethylbenzene	ug/m3	66	102	70-130
1,2,4-Trimethylbenzene	ug/m3	66	100	70-130
1,3-Dichlorobenzene	ug/m3	81	114	70-130
1,4-Dichlorobenzene	ug/m3	81	100	70-130
1,2-Dichlorobenzene	ug/m3	81	108	70-130
1,2,4-Trichlorobenzene	ug/m3	100	113	70-130
Naphthalene	ug/m3	71	112	70-130
Hexachlorobutadiene	ug/m3	140	112	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.

208422

SAMPLE CHAIN OF CUSTODY

ME 08-26-22

Page # 1 of 1

Report To DANIELE PETERS

Company EES ENVIRONMENTAL

Address 514 NW 11TH AVE, STE 209

City, State, ZIP PORTLAND, OR, 97209

Phone 503-847-7710 Email DANIELE@EES-ENV.COM

SAMPLERS (signature): Daniele Diane Peters

PROJECT NAME & ADDRESS: PLAID PANTRY #112, 1002 W. 4TH PLAIN BLVD. VANCOUVER, WA

PO # 1179-04

NOTES:

INVOICE TO: DANIELE PETERS @ EES

TURNAROUND TIME
- [x] Standard
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- Default: Clean following final report delivery
- [ ] Hold (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-GX	Notes
SVE-6	01	105	—	IA / (SG)	8/25/22	30	1012	8	1016		X				X	SN 3250
SVE-7	02	101	—	IA / (SG)	↓	30	1017	8	1021		X				X	SN 4176
SVE-8	03	117	—	IA / (SG)	↓	30	1022	8	1027		X				X	SN 9565
MANIFOLD	04	106		IA / (SG)	↓	29	1028	8	1032	X					X	SN 3412
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Samples received at 22 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Daniele Diane Peters	DANIELE PETERS	EES	8/25/22	1345
Received by: D. M-B	Liz Webber-Bruya	F?B	8/26/22	1454
Relinquished by:				
Received by:				

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

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

August 10, 2022

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on July 28, 2022 from the PP No. 112 1179-04, F&BI 207480 project. There are 13 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: Rachel Greene, Paul Ecker
EES0810R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2022 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP No. 112 1179-04, F&BI 207480 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
207480 -01	SVE-6
207480 -02	SVE-7
207480 -03	SVE-8
207480 -04	MANIFOLD
207480 -05	SVE-6
207480 -06	SVE-7
207480 -07	SVE-8
207480 -08	MANIFOLD

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:	SVE-6	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-01 1/10
Date Analyzed:	08/05/22	Data File:	080510.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<3.2	<1
Toluene	<190	<50
Ethylbenzene	<4.3	<1
m,p-Xylene	<8.7	<2
o-Xylene	<4.3	<1
Naphthalene	<2.6	<0.5
Gasoline Range Organics	<3,300	<800

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-02 1/11
Date Analyzed:	08/05/22	Data File:	080511.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<3.5	<1.1
Toluene	<210	<55
Ethylbenzene	<4.8	<1.1
m,p-Xylene	<9.6	<2.2
o-Xylene	<4.8	<1.1
Naphthalene	<2.9	<0.55
Gasoline Range Organics	<3,600	<880

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-03 1/10
Date Analyzed:	08/05/22	Data File:	080512.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	14	4.2
Toluene	<190	<50
Ethylbenzene	9.5	2.2
m,p-Xylene	<8.7	<2
o-Xylene	<4.3	<1
Naphthalene	<2.6	<0.5
Gasoline Range Organics	<3,300	<800

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-04 1/11
Date Analyzed:	08/05/22	Data File:	080513.D
Matrix:	Air	Instrument:	GCMS8
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	<13	<7.7	1,2-Dichloropropane	<2.5	<0.55
Dichlorodifluoromethane	<11	<2.2	1,4-Dioxane	<4	<1.1
Chloromethane	<41	<20	2,2,4-Trimethylpentane	87	19
F-114	<23	<3.3	Methyl methacrylate	<45	<11
Vinyl chloride	<2.8	<1.1	Heptane	130	31
1,3-Butadiene	<0.49	<0.22	Bromodichloromethane	<0.74	<0.11
Butane	<52	<22	Trichloroethene	<1.2	<0.22
Bromomethane	<43	<11	cis-1,3-Dichloropropene	<10	<2.2
Chloroethane	<29	<11	4-Methyl-2-pentanone	<45	<11
Vinyl bromide	<4.8	<1.1	trans-1,3-Dichloropropene	<5	<1.1
Ethanol	<83	<44	Toluene	<210	<55
Acrolein	12	5.4	1,1,2-Trichloroethane	<0.6	<0.11
Pentane	<65	<22	2-Hexanone	120	28
Trichlorofluoromethane	<25	<4.4	Tetrachloroethene	<75	<11
Acetone	240	100	Dibromochloromethane	<0.94	<0.11
2-Propanol	<95	<38	1,2-Dibromoethane (EDB)	<0.85	<0.11
1,1-Dichloroethene	<4.4	<1.1	Chlorobenzene	<5.1	<1.1
trans-1,2-Dichloroethene	<4.4	<1.1	Ethylbenzene	<4.8	<1.1
Methylene chloride	<380	<110	1,1,2,2-Tetrachloroethane	<1.5	<0.22
t-Butyl alcohol (TBA)	<130	<44	Nonane	<58	<11
3-Chloropropene	<34	<11	Isopropylbenzene	<110	<22
CFC-113	<8.4	<1.1	2-Chlorotoluene	<57	<11
Carbon disulfide	<69	<22	Propylbenzene	<54	<11
Methyl t-butyl ether (MTBE)	<79	<22	4-Ethyltoluene	<54	<11
Vinyl acetate	<77	<22	m,p-Xylene	<9.6	<2.2
1,1-Dichloroethane	<4.5	<1.1	o-Xylene	<4.8	<1.1
cis-1,2-Dichloroethene	<4.4	<1.1	Styrene	<9.4	<2.2
Hexane	95	27	Bromoform	<23	<2.2
Chloroform	5.9	1.2	Benzyl chloride	<0.57	<0.11
Ethyl acetate	<79	<22	1,3,5-Trimethylbenzene	<54	<11
Tetrahydrofuran	4,700 ve	1,600 ve	1,2,4-Trimethylbenzene	<54	<11
2-Butanone (MEK)	140	49	1,3-Dichlorobenzene	<6.6	<1.1
1,2-Dichloroethane (EDC)	<0.45	<0.11	1,4-Dichlorobenzene	<2.5	<0.42
1,1,1-Trichloroethane	<6	<1.1	1,2-Dichlorobenzene	<6.6	<1.1
Carbon tetrachloride	<3.5	<0.55	1,2,4-Trichlorobenzene	<8.2	<1.1
Benzene	<3.5	<1.1	Naphthalene	<2.9	<0.55
Cyclohexane	120	36	Hexachlorobutadiene	<2.3	<0.22

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-6	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-05 1/10
Date Analyzed:	08/05/22	Data File:	080514.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	25	7.8
Toluene	420	110
Ethylbenzene	17	3.8
m,p-Xylene	45	10
o-Xylene	12	2.8
Naphthalene	<2.6	<0.5
Gasoline Range Organics	4,500	1,100

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-06 1/7.0
Date Analyzed:	08/05/22	Data File:	080515.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<2.2	<0.7
Toluene	<130	<35
Ethylbenzene	<3	<0.7
m,p-Xylene	<6.1	<1.4
o-Xylene	<3	<0.7
Naphthalene	<1.8	<0.35
Gasoline Range Organics	<2,300	<560

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-07 1/10
Date Analyzed:	08/05/22	Data File:	080516.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<3.2	<1
Toluene	<190	<50
Ethylbenzene	<4.3	<1
m,p-Xylene	<8.7	<2
o-Xylene	<4.3	<1
Naphthalene	<2.6	<0.5
Gasoline Range Organics	<3,300	<800

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04
Date Collected:	07/27/22	Lab ID:	207480-08 1/6.3
Date Analyzed:	08/05/22	Data File:	080517.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	13	7.8	1,2-Dichloropropane	<1.5	<0.31
Dichlorodifluoromethane	<6.2	<1.3	1,4-Dioxane	<2.3	<0.63
Chloromethane	<23	<11	2,2,4-Trimethylpentane	<29	<6.3
F-114	<13	<1.9	Methyl methacrylate	<26	<6.3
Vinyl chloride	<1.6	<0.63	Heptane	51	12
1,3-Butadiene	<0.28	0.13	Bromodichloromethane	<0.42	<0.063
Butane	<30	<13	Trichloroethene	<0.68	<0.13
Bromomethane	<24	<6.3	cis-1,3-Dichloropropene	<5.7	<1.3
Chloroethane	<17	<6.3	4-Methyl-2-pentanone	<26	<6.3
Vinyl bromide	<2.8	<0.63	trans-1,3-Dichloropropene	<2.9	<0.63
Ethanol	<47	<25	Toluene	<120	<31
Acrolein	4.3	1.9	1,1,2-Trichloroethane	<0.34	<0.063
Pentane	<37	<13	2-Hexanone	90	22
Trichlorofluoromethane	<14	<2.5	Tetrachloroethene	<43	<6.3
Acetone	230 ve	99 ve	Dibromochloromethane	<0.54	<0.063
2-Propanol	<54	<22	1,2-Dibromoethane (EDB)	<0.48	<0.063
1,1-Dichloroethene	<2.5	<0.63	Chlorobenzene	<2.9	<0.63
trans-1,2-Dichloroethene	<2.5	<0.63	Ethylbenzene	6.5	1.5
Methylene chloride	<220	<63	1,1,2,2-Tetrachloroethane	<0.86	<0.13
t-Butyl alcohol (TBA)	<76	<25	Nonane	<33	<6.3
3-Chloropropene	<20	<6.3	Isopropylbenzene	<62	<13
CFC-113	<4.8	<0.63	2-Chlorotoluene	<33	<6.3
Carbon disulfide	<39	<13	Propylbenzene	<31	<6.3
Methyl t-butyl ether (MTBE)	<45	<13	4-Ethyltoluene	<31	<6.3
Vinyl acetate	<44	<13	m,p-Xylene	19	4.4
1,1-Dichloroethane	<2.5	<0.63	o-Xylene	6.3	1.5
cis-1,2-Dichloroethene	<2.5	<0.63	Styrene	<5.4	<1.3
Hexane	<22	<6.3	Bromoform	<13	<1.3
Chloroform	0.74	0.15	Benzyl chloride	<0.33	<0.063
Ethyl acetate	<45	<13	1,3,5-Trimethylbenzene	<31	<6.3
Tetrahydrofuran	70	24	1,2,4-Trimethylbenzene	<31	<6.3
2-Butanone (MEK)	81	28	1,3-Dichlorobenzene	<3.8	<0.63
1,2-Dichloroethane (EDC)	<0.25	<0.063	1,4-Dichlorobenzene	<1.4	<0.24
1,1,1-Trichloroethane	<3.4	<0.63	1,2-Dichlorobenzene	<3.8	<0.63
Carbon tetrachloride	<2	<0.31	1,2,4-Trichlorobenzene	<4.7	<0.63
Benzene	3.3	1.0	Naphthalene	<1.7	<0.31
Cyclohexane	<43	<13	Hexachlorobutadiene	<1.3	<0.13

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP No. 112 1179-04
Date Collected:	Not Applicable	Lab ID:	02-1800 mb
Date Analyzed:	08/05/22	Data File:	080509.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	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	<0.99	<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	0.094	0.014
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	0.071	0.013
Pentane	<5.9	<2	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	0.094	0.011
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	0.10	0.013
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	0.073	0.015	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)	0.053 lc	0.013 lc	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: 08/10/22
Date Received: 07/28/22
Project: PP No. 112 1179-04, F&BI 207480

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	99	70-130
Dichlorodifluoromethane	ug/m3	67	98	70-130
Chloromethane	ug/m3	28	92	70-130
F-114	ug/m3	94	94	70-130
Vinyl chloride	ug/m3	35	92	70-130
1,3-Butadiene	ug/m3	30	84	70-130
Butane	ug/m3	32	91	70-130
Bromomethane	ug/m3	52	88	70-130
Chloroethane	ug/m3	36	83	70-130
Vinyl bromide	ug/m3	59	99	70-130
Ethanol	ug/m3	25	93	70-130
Acrolein	ug/m3	31	92	70-130
Pentane	ug/m3	40	88	70-130
Trichlorofluoromethane	ug/m3	76	107	70-130
Acetone	ug/m3	32	86	70-130
2-Propanol	ug/m3	33	90	70-130
1,1-Dichloroethene	ug/m3	54	93	70-130
trans-1,2-Dichloroethene	ug/m3	54	89	70-130
Methylene chloride	ug/m3	94	79	70-130
t-Butyl alcohol (TBA)	ug/m3	41	91	70-130
3-Chloropropene	ug/m3	42	97	70-130
CFC-113	ug/m3	100	98	70-130
Carbon disulfide	ug/m3	42	97	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	83	70-130
Vinyl acetate	ug/m3	48	88	70-130
1,1-Dichloroethane	ug/m3	55	94	70-130
cis-1,2-Dichloroethene	ug/m3	54	90	70-130
Hexane	ug/m3	48	82	70-130
Chloroform	ug/m3	66	93	70-130
Ethyl acetate	ug/m3	49	92	70-130
Tetrahydrofuran	ug/m3	40	87	70-130
2-Butanone (MEK)	ug/m3	40	81	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	93	70-130
1,1,1-Trichloroethane	ug/m3	74	98	70-130
Carbon tetrachloride	ug/m3	85	105	70-130
Benzene	ug/m3	43	84	70-130
Cyclohexane	ug/m3	46	83	70-130
1,2-Dichloropropane	ug/m3	62	92	70-130
1,4-Dioxane	ug/m3	49	95	70-130
2,2,4-Trimethylpentane	ug/m3	63	92	70-130

Date of Report: 08/10/22
Date Received: 07/28/22
Project: PP No. 112 1179-04, F&BI 207480

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	92	70-130
Heptane	ug/m3	55	94	70-130
Bromodichloromethane	ug/m3	90	108	70-130
Trichloroethene	ug/m3	73	97	70-130
cis-1,3-Dichloropropene	ug/m3	61	100	70-130
4-Methyl-2-pentanone	ug/m3	55	97	70-130
trans-1,3-Dichloropropene	ug/m3	61	103	70-130
Toluene	ug/m3	51	92	70-130
1,1,2-Trichloroethane	ug/m3	74	99	70-130
2-Hexanone	ug/m3	55	93	70-130
Tetrachloroethene	ug/m3	92	105	70-130
Dibromochloromethane	ug/m3	120	117	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	96	70-130
Chlorobenzene	ug/m3	62	95	70-130
Ethylbenzene	ug/m3	59	87	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	98	70-130
Nonane	ug/m3	71	94	70-130
Isopropylbenzene	ug/m3	66	95	70-130
2-Chlorotoluene	ug/m3	70	97	70-130
Propylbenzene	ug/m3	66	95	70-130
4-Ethyltoluene	ug/m3	66	94	70-130
m,p-Xylene	ug/m3	120	88	70-130
o-Xylene	ug/m3	59	89	70-130
Styrene	ug/m3	58	89	70-130
Bromoform	ug/m3	140	120	70-130
Benzyl chloride	ug/m3	70	109	70-130
1,3,5-Trimethylbenzene	ug/m3	66	90	70-130
1,2,4-Trimethylbenzene	ug/m3	66	86	70-130
1,3-Dichlorobenzene	ug/m3	81	101	70-130
1,4-Dichlorobenzene	ug/m3	81	93	70-130
1,2-Dichlorobenzene	ug/m3	81	97	70-130
1,2,4-Trichlorobenzene	ug/m3	100	82	70-130
Naphthalene	ug/m3	71	85	70-130
Hexachlorobutadiene	ug/m3	140	93	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

207480 Report To DANIELE PETERS

Company EES ENVIRONMENTAL

Address 514 NW 11th AVE STE 209

City, State, ZIP PORTLAND OR 97209

Phone 503 847 2740 Email DANIELE@EES-ENV.com

SAMPLERS (*signature*) 7/28/22

PROJECT NAME & ADDRESS: PP# 112

PO # 1179-04

NOTES:

INVOICE TO 1179-04

Page # 1 of 1

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	TO15 6-X	Notes
SVE-6	01	8539	304	IA / (SG)	7-27-22	30	0937	8	0942		X				X	
SVE-7	02	7798	50	IA / (SG)		28	0940	6	0946		X				X	
SVE-8	03	8537	67	IA / (SG)		30	0943	8	0947		X				X	
MANIFOLD	04	8546	242	IA / (SG)		29	0946	7	0951	X						
SVE-6	05	8211	66	IA / (SG)		28	1038	6	1043		X				X	
SVE-7	06	8539	52	IA / (SG)		30	1041	7	1045		X				X	
SVE-8	07	8531	55	IA / (SG)		30	1042	8	1047		X				X	
MANIFOLD	08	9569	244	IA / (SG)	↓	30	1044	7	1049	X						

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	PEERIS THIEME	EES	7-27-22	1240
Received by: W. Madden	W. Madden	F+BJ	7/27/22	12:30
Relinquished by:				
Received by:		Samples received at 2.7 °C		

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

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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October 13, 2022

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on October 3, 2022 from the PP 112 1179-04, F&BI 210013 project. There are 11 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: Rachel Greene, Paul Ecker
EES1013R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 3, 2022 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP 112 1179-04, F&BI 210013 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
210013 -01	SVE-6
210013 -02	SVE-7
210013 -03	SVE-8
210013 -04	Manifold

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

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-6	Client:	EES Environmental Consulting
Date Received:	10/03/22	Project:	PP 112 1179-04, F&BI 210013
Date Collected:	09/30/22	Lab ID:	210013-01 1/5.9
Date Analyzed:	10/06/22	Data File:	100522.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.9	<0.59
Toluene	<110	<29
Ethylbenzene	<2.6	<0.59
m,p-Xylene	<5.1	<1.2
o-Xylene	<2.6	<0.59
Naphthalene	<1.5	<0.29
Gasoline Range Organics	<1,900	<470

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	10/03/22	Project:	PP 112 1179-04, F&BI 210013
Date Collected:	09/30/22	Lab ID:	210013-02 1/5.6
Date Analyzed:	10/06/22	Data File:	100521.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.8	<0.56
Toluene	<110	<28
Ethylbenzene	<2.4	<0.56
m,p-Xylene	<4.9	<1.1
o-Xylene	<2.4	<0.56
Naphthalene	<1.5	<0.28
Gasoline Range Organics	<1,800	<450

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	10/03/22	Project:	PP 112 1179-04, F&BI 210013
Date Collected:	09/30/22	Lab ID:	210013-03 1/6
Date Analyzed:	10/06/22	Data File:	100520.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.9	<0.6
Toluene	<110	<30
Ethylbenzene	<2.6	<0.6
m,p-Xylene	<5.2	<1.2
o-Xylene	<2.6	<0.6
Naphthalene	<1.6	<0.3
Gasoline Range Organics	<2,000	<480

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Manifold	Client:	EES Environmental Consulting
Date Received:	10/03/22	Project:	PP 112 1179-04, F&BI 210013
Date Collected:	09/30/22	Lab ID:	210013-04 1/6.2
Date Analyzed:	10/06/22	Data File:	100519.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<7.5	<4.3	1,2-Dichloropropane	<1.4	<0.31
Dichlorodifluoromethane	<6.1	<1.2	1,4-Dioxane	<2.2	<0.62
Chloromethane	<23	<11	2,2,4-Trimethylpentane	110	23
F-114	<13	<1.9	Methyl methacrylate	<25	<6.2
Vinyl chloride	<1.6	<0.62	Heptane	<25	<6.2
1,3-Butadiene	<0.27	<0.12	Bromodichloromethane	<0.42	<0.062
Butane	<29	<12	Trichloroethene	<0.67	<0.12
Bromomethane	<24	<6.2	cis-1,3-Dichloropropene	<5.6	<1.2
Chloroethane	<16	<6.2	4-Methyl-2-pentanone	<25	<6.2
Vinyl bromide	<2.7	<0.62	trans-1,3-Dichloropropene	<2.8	<0.62
Ethanol	<47	<25	Toluene	<120	<31
Acrolein	<0.71	<0.31	1,1,2-Trichloroethane	<0.34	<0.062
Pentane	<37	<12	2-Hexanone	<25	<6.2
Trichlorofluoromethane	<14	<2.5	Tetrachloroethene	<42	<6.2
Acetone	<29	<12	Dibromochloromethane	<0.53	<0.062
2-Propanol	<53	<22	1,2-Dibromoethane (EDB)	<0.48	<0.062
1,1-Dichloroethene	<2.5	<0.62	Chlorobenzene	<2.9	<0.62
trans-1,2-Dichloroethene	<2.5	<0.62	Ethylbenzene	<2.7	<0.62
Methylene chloride	<220	<62	1,1,2,2-Tetrachloroethane	<0.85	<0.12
t-Butyl alcohol (TBA)	<75	<25	Nonane	<33	<6.2
3-Chloropropene	<19	<6.2	Isopropylbenzene	<61	<12
CFC-113	<4.8	<0.62	2-Chlorotoluene	<32	<6.2
Carbon disulfide	<39	<12	Propylbenzene	<30	<6.2
Methyl t-butyl ether (MTBE)	<45	<12	4-Ethyltoluene	<30	<6.2
Vinyl acetate	<44	<12	m,p-Xylene	<5.4	<1.2
1,1-Dichloroethane	<2.5	<0.62	o-Xylene	70	16
cis-1,2-Dichloroethene	<2.5	<0.62	Styrene	<5.3	<1.2
Hexane	<22	<6.2	Bromoform	<13	<1.2
Chloroform	1.8	0.37	Benzyl chloride	<0.32	<0.062
Ethyl acetate	<45	<12	1,3,5-Trimethylbenzene	<30	<6.2
Tetrahydrofuran	<3.7	<1.2	1,2,4-Trimethylbenzene	<30	<6.2
2-Butanone (MEK)	<37	<12	1,3-Dichlorobenzene	<3.7	<0.62
1,2-Dichloroethane (EDC)	<0.25	<0.062	1,4-Dichlorobenzene	<1.4	<0.24
1,1,1-Trichloroethane	<3.4	<0.62	1,2-Dichlorobenzene	<3.7	<0.62
Carbon tetrachloride	<2	<0.31	1,2,4-Trichlorobenzene	<4.6	<0.62
Benzene	<2	<0.62	Naphthalene	<1.6	<0.31
Cyclohexane	<43	<12	Hexachlorobutadiene	<1.3	<0.12
Gasoline Range Organics	<2,000	<500			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP 112 1179-04, F&BI 210013
Date Collected:	Not Applicable	Lab ID:	02-2321 mb
Date Analyzed:	10/05/22	Data File:	100511.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	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: 10/13/22
Date Received: 10/03/22
Project: PP 112 1179-04, F&BI 210013

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

Laboratory Code: 210041-02 1/5.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6.3	<6.3	nm
Dichlorodifluoromethane	ug/m3	<5.1	<5.1	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	<0.23	0.26	nm
Butane	ug/m3	<25	<25	nm
Bromomethane	ug/m3	<20	<20	nm
Chloroethane	ug/m3	<14	<14	nm
Vinyl bromide	ug/m3	<2.3	<2.3	nm
Ethanol	ug/m3	<39	<39	nm
Acrolein	ug/m3	<0.6	<0.6	nm
Pentane	ug/m3	<31	<31	nm
Trichlorofluoromethane	ug/m3	<12	<12	nm
Acetone	ug/m3	<25	<25	nm
2-Propanol	ug/m3	<45	<45	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	<180	<180	nm
t-Butyl alcohol (TBA)	ug/m3	<63	<63	nm
3-Chloropropene	ug/m3	<16	<16	nm
CFC-113	ug/m3	<4	<4	nm
Carbon disulfide	ug/m3	<32	<32	nm
Methyl t-butyl ether (MTBE)	ug/m3	<37	<37	nm
Vinyl acetate	ug/m3	<37	<37	nm
1,1-Dichloroethane	ug/m3	<2.1	<2.1	nm
cis-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
Hexane	ug/m3	<18	<18	nm
Chloroform	ug/m3	<0.25	<0.25	nm
Ethyl acetate	ug/m3	<37	<37	nm
Tetrahydrofuran	ug/m3	<3.1	<3.1	nm
2-Butanone (MEK)	ug/m3	<31	<31	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.21	<0.21	nm
1,1,1-Trichloroethane	ug/m3	<2.8	<2.8	nm
Carbon tetrachloride	ug/m3	<1.6	<1.6	nm
Benzene	ug/m3	<1.7	<1.7	nm
Cyclohexane	ug/m3	<36	<36	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	<24	<24	nm
Methyl methacrylate	ug/m3	<21	<21	nm

Date of Report: 10/13/22
Date Received: 10/03/22
Project: PP 112 1179-04, F&BI 210013

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

Laboratory Code: 210041-02 1/5.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Heptane	ug/m3	<21	<21	nm
Bromodichloromethane	ug/m3	<0.35	<0.35	nm
Trichloroethene	ug/m3	<0.56	<0.56	nm
cis-1,3-Dichloropropene	ug/m3	<4.7	<4.7	nm
4-Methyl-2-pentanone	ug/m3	<21	<21	nm
trans-1,3-Dichloropropene	ug/m3	<2.4	<2.4	nm
Toluene	ug/m3	<98	<98	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	<0.44	<0.44	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.4	<0.4	nm
Chlorobenzene	ug/m3	<2.4	<2.4	nm
Ethylbenzene	ug/m3	<2.3	<2.3	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.71	<0.71	nm
Nonane	ug/m3	<27	<27	nm
Isopropylbenzene	ug/m3	<51	<51	nm
2-Chlorotoluene	ug/m3	<27	<27	nm
Propylbenzene	ug/m3	<26	<26	nm
4-Ethyltoluene	ug/m3	<26	<26	nm
m,p-Xylene	ug/m3	<4.5	<4.5	nm
o-Xylene	ug/m3	<2.3	<2.3	nm
Styrene	ug/m3	<4.4	<4.4	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.27	<0.27	nm
1,3,5-Trimethylbenzene	ug/m3	<26	<26	nm
1,2,4-Trimethylbenzene	ug/m3	<26	<26	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	<3.9	<3.9	nm
Naphthalene	ug/m3	<1.4	<1.4	nm
Hexachlorobutadiene	ug/m3	<1.1	<1.1	nm

Date of Report: 10/13/22
Date Received: 10/03/22
Project: PP 112 1179-04, F&BI 210013

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	93	70-130
Dichlorodifluoromethane	ug/m3	67	103	70-130
Chloromethane	ug/m3	28	108	70-130
F-114	ug/m3	94	94	70-130
Vinyl chloride	ug/m3	35	103	70-130
1,3-Butadiene	ug/m3	30	93	70-130
Butane	ug/m3	32	92	70-130
Bromomethane	ug/m3	52	98	70-130
Chloroethane	ug/m3	36	102	70-130
Vinyl bromide	ug/m3	59	93	70-130
Ethanol	ug/m3	25	107	70-130
Acrolein	ug/m3	31	94	70-130
Pentane	ug/m3	40	92	70-130
Trichlorofluoromethane	ug/m3	76	103	70-130
Acetone	ug/m3	32	95	70-130
2-Propanol	ug/m3	33	87	70-130
1,1-Dichloroethene	ug/m3	54	100	70-130
trans-1,2-Dichloroethene	ug/m3	54	99	70-130
Methylene chloride	ug/m3	94	98	70-130
t-Butyl alcohol (TBA)	ug/m3	41	89	70-130
3-Chloropropene	ug/m3	42	99	70-130
CFC-113	ug/m3	100	99	70-130
Carbon disulfide	ug/m3	42	92	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	84	70-130
Vinyl acetate	ug/m3	48	94	70-130
1,1-Dichloroethane	ug/m3	55	104	70-130
cis-1,2-Dichloroethene	ug/m3	54	93	70-130
Hexane	ug/m3	48	84	70-130
Chloroform	ug/m3	66	104	70-130
Ethyl acetate	ug/m3	49	92	70-130
Tetrahydrofuran	ug/m3	40	82	70-130
2-Butanone (MEK)	ug/m3	40	88	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	105	70-130
1,1,1-Trichloroethane	ug/m3	74	99	70-130
Carbon tetrachloride	ug/m3	85	102	70-130
Benzene	ug/m3	43	92	70-130
Cyclohexane	ug/m3	46	79	70-130
1,2-Dichloropropane	ug/m3	62	128	70-130
1,4-Dioxane	ug/m3	49	110	70-130
2,2,4-Trimethylpentane	ug/m3	63	111	70-130
Methyl methacrylate	ug/m3	55	117	70-130

Date of Report: 10/13/22
Date Received: 10/03/22
Project: PP 112 1179-04, F&BI 210013

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
Heptane	ug/m3	55	115	70-130
Bromodichloromethane	ug/m3	90	131 vo	70-130
Trichloroethene	ug/m3	73	124	70-130
cis-1,3-Dichloropropene	ug/m3	61	111	70-130
4-Methyl-2-pentanone	ug/m3	55	132 vo	70-130
trans-1,3-Dichloropropene	ug/m3	61	113	70-130
Toluene	ug/m3	51	106	70-130
1,1,2-Trichloroethane	ug/m3	74	125	70-130
2-Hexanone	ug/m3	55	115	70-130
Tetrachloroethene	ug/m3	92	124	70-130
Dibromochloromethane	ug/m3	120	131 vo	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	118	70-130
Chlorobenzene	ug/m3	62	100	70-130
Ethylbenzene	ug/m3	59	88	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	113	70-130
Nonane	ug/m3	71	114	70-130
Isopropylbenzene	ug/m3	66	101	70-130
2-Chlorotoluene	ug/m3	70	99	70-130
Propylbenzene	ug/m3	66	109	70-130
4-Ethyltoluene	ug/m3	66	100	70-130
m,p-Xylene	ug/m3	120	93	70-130
o-Xylene	ug/m3	59	101	70-130
Styrene	ug/m3	58	98	70-130
Bromoform	ug/m3	140	109	70-130
Benzyl chloride	ug/m3	70	109	70-130
1,3,5-Trimethylbenzene	ug/m3	66	103	70-130
1,2,4-Trimethylbenzene	ug/m3	66	104	70-130
1,3-Dichlorobenzene	ug/m3	81	123	70-130
1,4-Dichlorobenzene	ug/m3	81	112	70-130
1,2-Dichlorobenzene	ug/m3	81	113	70-130
1,2,4-Trichlorobenzene	ug/m3	100	87	70-130
Naphthalene	ug/m3	71	86	70-130
Hexachlorobutadiene	ug/m3	140	97	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.

210013

SAMPLE CHAIN OF CUSTODY

10/03/22 — Page # 1 of 1

Report To DANIELLE PETERS
Company EES ENVIRONMENTAL
Address 574 NW 14TH AVE STE 209
City, State, ZIP PORTLAND, OR, 97209
Phone 503 847-2740 Email DANIELLE@EES-ENV.com

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: PP # 112

PO #: 1179-04

NOTES:

INVOICE TO: 1179-04

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	GX	Notes
SVE-6	01	3756	68	IA / SG	9-30-22	30	1225	8	1230		X				X	
SVE-7	02	8098	280	IA / SG	↓	29	1230	7	1236		X				X	
SVE-8	03	3254	244	IA / SG	↓	30	1235	8	1240		X				X	
MANIFOLD	04	3674	70	IA / SG	↓	30	1240	8	1245	X					X	
				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:		PIERCE THIEME	EES	9-30-22	1340
Received by:		ANH PHAN	F&B	10/03/22	12:41
Relinquished by:					
Received by:			Samples received at 20°C		

FORMS\COC\COCTO-15.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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November 18, 2022

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on November 1, 2022 from the PP 112 1179-04, F&BI 211011 project. There are 11 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: Rachel Greene, Paul Ecker, Steve Roberts
EES1118R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 1, 2022 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP 112 1179-04 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
211011 -01	SVE-6
211011 -02	SVE-7
211011 -03	SVE-8
211011 -04	MAINFOLD

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

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-6	Client:	EES Environmental Consulting
Date Received:	11/01/22	Project:	PP 112 1179-04, F&BI 211011
Date Collected:	10/31/22	Lab ID:	211011-01 1/6.3
Date Analyzed:	11/10/22	Data File:	110918.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<2	<0.63
Toluene	<120	<31
Ethylbenzene	<2.7	<0.63
m,p-Xylene	<5.5	<1.3
o-Xylene	<2.7	<0.63
Naphthalene	<1.7	<0.31
Gasoline Range Organics	2,700	650

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	11/01/22	Project:	PP 112 1179-04, F&BI 211011
Date Collected:	10/31/22	Lab ID:	211011-02 1/18
Date Analyzed:	11/10/22	Data File:	110919.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<5.8	<1.8
Toluene	<340	<90
Ethylbenzene	<7.8	<1.8
m,p-Xylene	<16	<3.6
o-Xylene	<7.8	<1.8
Naphthalene	<4.7	<0.9
Gasoline Range Organics	11,000	2,700

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	11/01/22	Project:	PP 112 1179-04, F&BI 211011
Date Collected:	10/31/22	Lab ID:	211011-03 1/5.9
Date Analyzed:	11/09/22	Data File:	110917.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.9	<0.59
Toluene	<110	<29
Ethylbenzene	<2.6	<0.59
m,p-Xylene	<5.1	<1.2
o-Xylene	<2.6	<0.59
Naphthalene	<1.5	<0.29
Gasoline Range Organics	3,000	730

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MAINFOLD	Client:	EES Environmental Consulting
Date Received:	11/01/22	Project:	PP 112 1179-04, F&BI 211011
Date Collected:	10/31/22	Lab ID:	211011-04 1/6.6
Date Analyzed:	11/09/22	Data File:	110916.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	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	2,700 ve	580 ve
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	12,000 ve	5,200 ve	Trichloroethene	<0.71	<0.13
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	2,400 ve	800 ve	2-Hexanone	<27	<6.6
Trichlorofluoromethane	<15	<2.6	Tetrachloroethene	<45	<6.6
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	59	17	Bromoform	<14	<1.3
Chloroform	2.1	0.44	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	120	36	Hexachlorobutadiene	<1.4	<0.13
Gasoline Range Organics	8,400	2,100			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP 112 1179-04, F&BI 211011
Date Collected:	Not Applicable	Lab ID:	02-2642 MB
Date Analyzed:	11/09/22	Data File:	110911.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
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: 11/18/22
Date Received: 11/01/22
Project: PP 112 1179-04, F&BI 211011

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

Laboratory Code: 210476-01 1/5.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6.3	<6.3	nm
Dichlorodifluoromethane	ug/m3	<5.1	<5.1	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	<0.23	<0.23	nm
Butane	ug/m3	<25	<25	nm
Bromomethane	ug/m3	<20	<20	nm
Chloroethane	ug/m3	<14	<14	nm
Vinyl bromide	ug/m3	<2.3	<2.3	nm
Ethanol	ug/m3	<39	<39	nm
Acrolein	ug/m3	3.4	3.6	6
Pentane	ug/m3	<31	<31	nm
Trichlorofluoromethane	ug/m3	<12	<12	nm
Acetone	ug/m3	64	65	2
2-Propanol	ug/m3	<45	<45	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	<180	<180	nm
t-Butyl alcohol (TBA)	ug/m3	<63	<63	nm
3-Chloropropene	ug/m3	<16	<16	nm
CFC-113	ug/m3	<4	<4	nm
Carbon disulfide	ug/m3	<32	<32	nm
Methyl t-butyl ether (MTBE)	ug/m3	<37	<37	nm
Vinyl acetate	ug/m3	<37	<37	nm
1,1-Dichloroethane	ug/m3	<2.1	<2.1	nm
cis-1,2-Dichloroethene	ug/m3	<2.1	<2.1	nm
Hexane	ug/m3	<18	<18	nm
Chloroform	ug/m3	<0.25	0.25	nm
Ethyl acetate	ug/m3	<37	<37	nm
Tetrahydrofuran	ug/m3	230	270	16
2-Butanone (MEK)	ug/m3	74	75	1
1,2-Dichloroethane (EDC)	ug/m3	<0.21	<0.21	nm
1,1,1-Trichloroethane	ug/m3	<2.8	<2.8	nm
Carbon tetrachloride	ug/m3	<1.6	<1.6	nm
Benzene	ug/m3	<1.7	<1.7	nm
Cyclohexane	ug/m3	<36	<36	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	<24	<24	nm

Date of Report: 11/18/22
Date Received: 11/01/22
Project: PP 112 1179-04, F&BI 211011

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

Laboratory Code: 210476-01 1/5.2 (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	<0.35	<0.35	nm
Trichloroethene	ug/m3	<0.56	<0.56	nm
cis-1,3-Dichloropropene	ug/m3	<4.7	<4.7	nm
4-Methyl-2-pentanone	ug/m3	<21	<21	nm
trans-1,3-Dichloropropene	ug/m3	<2.4	<2.4	nm
Toluene	ug/m3	<98	<98	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	<0.44	<0.44	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.4	<0.4	nm
Chlorobenzene	ug/m3	<2.4	<2.4	nm
Ethylbenzene	ug/m3	<2.3	<2.3	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.71	<0.71	nm
Nonane	ug/m3	<27	<27	nm
Isopropylbenzene	ug/m3	<51	<51	nm
2-Chlorotoluene	ug/m3	<27	<27	nm
Propylbenzene	ug/m3	<26	<26	nm
4-Ethyltoluene	ug/m3	<26	<26	nm
m,p-Xylene	ug/m3	8.0	8.3	4
o-Xylene	ug/m3	3.0	3.1	3
Styrene	ug/m3	<4.4	<4.4	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.27	<0.27	nm
1,3,5-Trimethylbenzene	ug/m3	<26	<26	nm
1,2,4-Trimethylbenzene	ug/m3	<26	<26	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	<3.9	<3.9	nm
Naphthalene	ug/m3	<1.4	1.6	nm
Hexachlorobutadiene	ug/m3	<1.1	<1.1	nm

Date of Report: 11/18/22
Date Received: 11/01/22
Project: PP 112 1179-04, F&BI 211011

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	98	70-130
Dichlorodifluoromethane	ug/m3	67	100	70-130
Chloromethane	ug/m3	28	88	70-130
F-114	ug/m3	94	92	70-130
Vinyl chloride	ug/m3	35	95	70-130
1,3-Butadiene	ug/m3	30	100	70-130
Butane	ug/m3	32	97	70-130
Bromomethane	ug/m3	52	100	70-130
Chloroethane	ug/m3	36	96	70-130
Vinyl bromide	ug/m3	59	97	70-130
Ethanol	ug/m3	25	79	70-130
Acrolein	ug/m3	31	96	70-130
Pentane	ug/m3	40	104	70-130
Trichlorofluoromethane	ug/m3	76	97	70-130
Acetone	ug/m3	32	88	70-130
2-Propanol	ug/m3	33	103	70-130
1,1-Dichloroethene	ug/m3	54	94	70-130
trans-1,2-Dichloroethene	ug/m3	54	99	70-130
Methylene chloride	ug/m3	94	91	70-130
t-Butyl alcohol (TBA)	ug/m3	41	108	70-130
3-Chloropropene	ug/m3	42	108	70-130
CFC-113	ug/m3	100	101	70-130
Carbon disulfide	ug/m3	42	96	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	113	70-130
Vinyl acetate	ug/m3	48	105	70-130
1,1-Dichloroethane	ug/m3	55	94	70-130
cis-1,2-Dichloroethene	ug/m3	54	98	70-130
Hexane	ug/m3	48	105	70-130
Chloroform	ug/m3	66	92	70-130
Ethyl acetate	ug/m3	49	99	70-130
Tetrahydrofuran	ug/m3	40	97	70-130
2-Butanone (MEK)	ug/m3	40	100	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	94	70-130
1,1,1-Trichloroethane	ug/m3	74	98	70-130
Carbon tetrachloride	ug/m3	85	97	70-130
Benzene	ug/m3	43	95	70-130
Cyclohexane	ug/m3	46	114	70-130
1,2-Dichloropropane	ug/m3	62	83	70-130
1,4-Dioxane	ug/m3	49	99	70-130
2,2,4-Trimethylpentane	ug/m3	63	94	70-130

Date of Report: 11/18/22
Date Received: 11/01/22
Project: PP 112 1179-04, F&BI 211011

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	93	70-130
Bromodichloromethane	ug/m3	90	82	70-130
Trichloroethene	ug/m3	73	86	70-130
cis-1,3-Dichloropropene	ug/m3	61	93	70-130
4-Methyl-2-pentanone	ug/m3	55	125	70-130
trans-1,3-Dichloropropene	ug/m3	61	92	70-130
Toluene	ug/m3	51	99	70-130
1,1,2-Trichloroethane	ug/m3	74	86	70-130
2-Hexanone	ug/m3	55	88	70-130
Tetrachloroethene	ug/m3	92	105	70-130
Dibromochloromethane	ug/m3	120	88	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	87	70-130
Chlorobenzene	ug/m3	62	102	70-130
Ethylbenzene	ug/m3	59	95	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	84	70-130
Nonane	ug/m3	71	96	70-130
Isopropylbenzene	ug/m3	66	107	70-130
2-Chlorotoluene	ug/m3	70	110	70-130
Propylbenzene	ug/m3	66	105	70-130
4-Ethyltoluene	ug/m3	66	108	70-130
m,p-Xylene	ug/m3	120	104	70-130
o-Xylene	ug/m3	59	103	70-130
Styrene	ug/m3	58	110	70-130
Bromoform	ug/m3	140	99	70-130
Benzyl chloride	ug/m3	70	104	70-130
1,3,5-Trimethylbenzene	ug/m3	66	113	70-130
1,2,4-Trimethylbenzene	ug/m3	66	114	70-130
1,3-Dichlorobenzene	ug/m3	81	108	70-130
1,4-Dichlorobenzene	ug/m3	81	106	70-130
1,2-Dichlorobenzene	ug/m3	81	106	70-130
1,2,4-Trichlorobenzene	ug/m3	100	110	70-130
Naphthalene	ug/m3	71	102	70-130
Hexachlorobutadiene	ug/m3	140	117	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 11/1/22

211011

Report To DANZELE PETERS
Company EES ENVIRONMENTAL
Address 514 NW 11th AVE STE 209
City, State, ZIP PORTLAND, OR, 97209-
Phone 503-847-2743 Email DANZELE@EES-ENV.com

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS	PO #
PP # 112	1179-04
NOTES:	INVOICE TO 1179-04

Page # 1 of 1

TURNAROUND TIME
☑ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Default: Clean following final report delivery
☐ Hold (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	Gas	Notes
SVE-6	01	3254	117	IA / (SG)	10-31-22	30	1205	9	1210		X				X	
SVE-7	02	3675	07	IA / (SG)	↓	29	1210	8	1215		X				X	
SVE-8	03	3669	109	IA / (SG)		28	1216	7	1221		X				X	
MANIFOLD	04	3674	39	IA / (SG)	↓	30	1222	9	1228	X					X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												Samples received at 19 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	PIERRE THIENE	EES	10-31-22	810
Received by:	ANH PHAN	F&B	11/1/22	12:06
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.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

December 23, 2022

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on November 29, 2022 from the PP 112 1179-04, F&BI 211402 project. There are 11 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: Rachel Greene, Paul Ecker, Steve Roberts
EES1223R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on November 29, 2022 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP 112 1179-04, F&BI 211402 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
211402 -01	SVE-6
211402 -02	SVE-7
211402 -03	SVE-8
211402 -04	MANIFOLD

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

The TO-15 calibration standard failed the acceptance criteria for several analytes. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-6	Client:	EES Environmental Consulting
Date Received:	11/29/22	Project:	PP 112 1179-04, F&BI 211402
Date Collected:	11/28/22	Lab ID:	211402-01 1/5.8
Date Analyzed:	12/14/22	Data File:	121333.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	ppbv
Benzene	<1.9	<0.58
Toluene	<110	<29
Ethylbenzene	<2.5	<0.58
m,p-Xylene	<5	<1.2
o-Xylene	<2.5	<0.58
Naphthalene	<1.5	<0.29
Gasoline Range Organics	<1,900	<460

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	11/29/22	Project:	PP 112 1179-04, F&BI 211402
Date Collected:	11/28/22	Lab ID:	211402-02 1/1100
Date Analyzed:	12/14/22	Data File:	121336.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	ppbv
Benzene	<350	<110
Toluene	<21,000	<5,500
Ethylbenzene	<480	<110
m,p-Xylene	<960	<220
o-Xylene	<480	<110
Naphthalene	<290	<55
Butane	480,000 ve	200,000 ve
Pentane	47,000	16,000
Gasoline Range Organics	<360,000	<88,000

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	11/29/22	Project:	PP 112 1179-04, F&BI 211402
Date Collected:	11/28/22	Lab ID:	211402-03 1/8.8
Date Analyzed:	12/14/22	Data File:	121334.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
Benzene	<2.8	<0.88
Toluene	<170	<44
Ethylbenzene	<3.8	<0.88
m,p-Xylene	<7.6	<1.8
o-Xylene	<3.8	<0.88
Naphthalene	<2.3	<0.44
Gasoline Range Organics	<2,900	<700

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	11/29/22	Project:	PP 112 1179-04, F&BI 211402
Date Collected:	11/28/22	Lab ID:	211402-04 1/560
Date Analyzed:	12/14/22	Data File:	121335.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<670	<390	1,2-Dichloropropane	<130	<28
Dichlorodifluoromethane	<550	<110	1,4-Dioxane	<200	<56
Chloromethane	<2,100	<1,000	2,2,4-Trimethylpentane	<2,600	<560
F-114	<1,200	<170	Methyl methacrylate	<2,300	<560
Vinyl chloride	<140	<56	Heptane	<2,300	<560
1,3-Butadiene	<25	<11	Bromodichloromethane	<95,000	<1,400
Butane	170,000 ve	73,000 ve	Trichloroethene	<60	<11
Bromomethane	<2,200	<560	cis-1,3-Dichloropropene	<510	<110
Chloroethane	<1,500	<560	4-Methyl-2-pentanone	<2,400	<590
Vinyl bromide	<240	<56	trans-1,3-Dichloropropene	<250	<56
Ethanol	<4,200	<2,200	Toluene	<11,000	<2,800
Acrolein	<64	<28	1,1,2-Trichloroethane	<31	<5.6
Pentane	18,000	6,200	2-Hexanone	<2,300	<560
Trichlorofluoromethane	<1,300	<220	Tetrachloroethene	<3,800	<560
Acetone	4,200	1,800	Dibromochloromethane	<12,000	<1,400
2-Propanol	<4,800	<2,000	1,2-Dibromoethane (EDB)	<43	<5.6
1,1-Dichloroethene	<220	<56	Chlorobenzene	<260	<56
trans-1,2-Dichloroethene	<220	<56	Ethylbenzene	<240	<56
Methylene chloride	<19,000	<5,600	1,1,2,2-Tetrachloroethane	<77	<11
t-Butyl alcohol (TBA)	<6,800	<2,200	Nonane	<2,900	<560
3-Chloropropene	<2,800	<890	Isopropylbenzene	<5,500	<1,100
CFC-113	<430	<56	2-Chlorotoluene	<2,900	<560
Carbon disulfide	<3,500	<1,100	Propylbenzene	<2,800	<560
Methyl t-butyl ether (MTBE)	<4,000	<1,100	4-Ethyltoluene	<2,800	<560
Vinyl acetate	<3,900	<1,100	m,p-Xylene	<490	<110
1,1-Dichloroethane	<230	<56	o-Xylene	<240	<56
cis-1,2-Dichloroethene	<220	<56	Styrene	<480	<110
Hexane	<2,000	<560	Bromoform	<14,000 ca	<1,400 ca
Chloroform	<27	<5.6	Benzyl chloride	<29 ca	<5.6 ca
Ethyl acetate	<4,000	<1,100	1,3,5-Trimethylbenzene	<2,800	<560
Tetrahydrofuran	<330	<110	1,2,4-Trimethylbenzene	<2,800	<560
2-Butanone (MEK)	<3,300	<1,100	1,3-Dichlorobenzene	<340	<56
1,2-Dichloroethane (EDC)	<23	<5.6	1,4-Dichlorobenzene	<130	<21
1,1,1-Trichloroethane	<310	<56	1,2-Dichlorobenzene	<340	<56
Carbon tetrachloride	<88,000 ca	<1,400ca	1,2,4-Trichlorobenzene	<420	<56
Benzene	<180	<56	Naphthalene	<150	<28
Cyclohexane	<3,900	<1,100	Hexachlorobutadiene	<120	<11
Gasoline Range Organics	<180,000	<45,000			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP 112 1179-04, F&BI 211402
Date Collected:	Not Applicable	Lab ID:	02-2958 MB
Date Analyzed:	12/13/22	Data File:	121312.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	<17	<2.5
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	<8.2	<2
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	<21	<2.5
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	<6.3	<2	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	<25 ca	<2.5 ca
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052 ca	<0.01 ca
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	<16 ca	<2.5 ca	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: 12/23/22
Date Received: 11/29/22
Project: PP 112 1179-04, F&BI 211402

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

Laboratory Code: 212012-01 1/5.0 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<6	<6	nm
Dichlorodifluoromethane	ug/m3	<4.9	<4.9	nm
Chloromethane	ug/m3	<19	<19	nm
F-114	ug/m3	<10	<10	nm
Vinyl chloride	ug/m3	<1.3	<1.3	nm
1,3-Butadiene	ug/m3	<0.22	<0.22	nm
Butane	ug/m3	<24	<24	nm
Bromomethane	ug/m3	<19	<19	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	<0.57	<0.57	nm
Pentane	ug/m3	<30	<30	nm
Trichlorofluoromethane	ug/m3	<11	<11	nm
Acetone	ug/m3	<24	<24	nm
2-Propanol	ug/m3	<43	<43	nm
1,1-Dichloroethene	ug/m3	<2	<2	nm
trans-1,2-Dichloroethene	ug/m3	<2	<2	nm
Methylene chloride	ug/m3	<170	<170	nm
t-Butyl alcohol (TBA)	ug/m3	<61	<61	nm
3-Chloropropene	ug/m3	<6.3	<6.3	nm
CFC-113	ug/m3	<3.8	<3.8	nm
Carbon disulfide	ug/m3	<31	<31	nm
Methyl t-butyl ether (MTBE)	ug/m3	<36	<36	nm
Vinyl acetate	ug/m3	<35	<35	nm
1,1-Dichloroethane	ug/m3	<2	<2	nm
cis-1,2-Dichloroethene	ug/m3	<2	<2	nm
Hexane	ug/m3	<18	<18	nm
Chloroform	ug/m3	<0.24	<0.24	nm
Ethyl acetate	ug/m3	<36	<36	nm
Tetrahydrofuran	ug/m3	<2.9	<2.9	nm
2-Butanone (MEK)	ug/m3	<29	<29	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.2	<0.2	nm
1,1,1-Trichloroethane	ug/m3	<2.7	<2.7	nm
Carbon tetrachloride	ug/m3	<1.6	<1.6	nm
Benzene	ug/m3	<1.6	<1.6	nm
Cyclohexane	ug/m3	<34	<34	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	<23	<23	nm

Date of Report: 12/23/22
Date Received: 11/29/22
Project: PP 112 1179-04, F&BI 211402

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

Laboratory Code: 212012-01 1/5.0 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<20	<20	nm
Heptane	ug/m3	<20	<20	nm
Bromodichloromethane	ug/m3	<0.34	<0.34	nm
Trichloroethene	ug/m3	<0.54	<0.54	nm
cis-1,3-Dichloropropene	ug/m3	<4.5	<4.5	nm
4-Methyl-2-pentanone	ug/m3	<8.2	<8.2	nm
trans-1,3-Dichloropropene	ug/m3	<2.3	<2.3	nm
Toluene	ug/m3	<94	<94	nm
1,1,2-Trichloroethane	ug/m3	<0.27	<0.27	nm
2-Hexanone	ug/m3	<20	<20	nm
Tetrachloroethene	ug/m3	<34	<34	nm
Dibromochloromethane	ug/m3	<0.43	<0.43	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.38	<0.38	nm
Chlorobenzene	ug/m3	<2.3	<2.3	nm
Ethylbenzene	ug/m3	<2.2	<2.2	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.69	<0.69	nm
Nonane	ug/m3	<26	<26	nm
Isopropylbenzene	ug/m3	<49	<49	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	<4.3	<4.3	nm
o-Xylene	ug/m3	<2.2	<2.2	nm
Styrene	ug/m3	<4.3	<4.3	nm
Bromoform	ug/m3	<10	<10	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	<3	nm
1,4-Dichlorobenzene	ug/m3	<1.1	<1.1	nm
1,2-Dichlorobenzene	ug/m3	<3	<3	nm
1,2,4-Trichlorobenzene	ug/m3	<3.7	<3.7	nm
Naphthalene	ug/m3	<1.3	<1.3	nm
Hexachlorobutadiene	ug/m3	<1.1	<1.1	nm

Date of Report: 12/23/22
Date Received: 11/29/22
Project: PP 112 1179-04, F&BI 211402

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	122	70-130
Dichlorodifluoromethane	ug/m3	67	109	70-130
Chloromethane	ug/m3	28	110	70-130
F-114	ug/m3	94	111	70-130
Vinyl chloride	ug/m3	35	101	70-130
1,3-Butadiene	ug/m3	30	92	70-130
Butane	ug/m3	32	106	70-130
Bromomethane	ug/m3	52	100	70-130
Chloroethane	ug/m3	36	110	70-130
Vinyl bromide	ug/m3	59	117	70-130
Ethanol	ug/m3	25	86	70-130
Acrolein	ug/m3	31	90	70-130
Pentane	ug/m3	40	104	70-130
Trichlorofluoromethane	ug/m3	76	109	70-130
Acetone	ug/m3	32	90	70-130
2-Propanol	ug/m3	33	96	70-130
1,1-Dichloroethene	ug/m3	54	97	70-130
trans-1,2-Dichloroethene	ug/m3	54	98	70-130
Methylene chloride	ug/m3	94	103	70-130
t-Butyl alcohol (TBA)	ug/m3	41	105	70-130
3-Chloropropene	ug/m3	42	117	70-130
CFC-113	ug/m3	100	108	70-130
Carbon disulfide	ug/m3	42	104	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	97	70-130
Vinyl acetate	ug/m3	48	105	70-130
1,1-Dichloroethane	ug/m3	55	108	70-130
cis-1,2-Dichloroethene	ug/m3	54	95	70-130
Hexane	ug/m3	48	94	70-130
Chloroform	ug/m3	66	110	70-130
Ethyl acetate	ug/m3	49	106	70-130
Tetrahydrofuran	ug/m3	40	98	70-130
2-Butanone (MEK)	ug/m3	40	100	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	110	70-130
1,1,1-Trichloroethane	ug/m3	74	113	70-130
Carbon tetrachloride	ug/m3	85	111	70-130
Benzene	ug/m3	43	102	70-130
Cyclohexane	ug/m3	46	92	70-130
1,2-Dichloropropane	ug/m3	62	111	70-130
1,4-Dioxane	ug/m3	49	97	70-130
2,2,4-Trimethylpentane	ug/m3	63	102	70-130

Date of Report: 12/23/22
Date Received: 11/29/22
Project: PP 112 1179-04, F&BI 211402

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
Methyl methacrylate	ug/m3	55	110	70-130
Heptane	ug/m3	55	102	70-130
Bromodichloromethane	ug/m3	90	120	70-130
Trichloroethene	ug/m3	73	104	70-130
cis-1,3-Dichloropropene	ug/m3	61	109	70-130
4-Methyl-2-pentanone	ug/m3	55	94	70-130
trans-1,3-Dichloropropene	ug/m3	61	109	70-130
Toluene	ug/m3	51	99	70-130
1,1,2-Trichloroethane	ug/m3	74	116	70-130
2-Hexanone	ug/m3	55	113	70-130
Tetrachloroethene	ug/m3	92	108	70-130
Dibromochloromethane	ug/m3	120	116	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	110	70-130
Chlorobenzene	ug/m3	62	102	70-130
Ethylbenzene	ug/m3	59	93	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	112	70-130
Nonane	ug/m3	71	102	70-130
Isopropylbenzene	ug/m3	66	103	70-130
2-Chlorotoluene	ug/m3	70	101	70-130
Propylbenzene	ug/m3	66	102	70-130
4-Ethyltoluene	ug/m3	66	91	70-130
m,p-Xylene	ug/m3	120	94	70-130
o-Xylene	ug/m3	59	96	70-130
Styrene	ug/m3	58	92	70-130
Bromoform	ug/m3	140	111	70-130
Benzyl chloride	ug/m3	70	106	70-130
1,3,5-Trimethylbenzene	ug/m3	66	102	70-130
1,2,4-Trimethylbenzene	ug/m3	66	82	70-130
1,3-Dichlorobenzene	ug/m3	81	105	70-130
1,4-Dichlorobenzene	ug/m3	81	101	70-130
1,2-Dichlorobenzene	ug/m3	81	104	70-130
1,2,4-Trichlorobenzene	ug/m3	100	79	70-130
Naphthalene	ug/m3	71	78	70-130
Hexachlorobutadiene	ug/m3	140	105	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

~~211342~~ (AP) 211402

11/29/22

Page # 1 of 1

Report To DANIELLE PETERS

Company EES ENVIRONMENTAL

Address 534 NW 11TH AVE STE 207

City, State, ZIP PORTLAND OR 97209

Phone 503-847-2740 Email DANIELLE@EES-ENV.COM

SAMPLERS (signature) [redacted]

PROJECT NAME & ADDRESS: PP #112

PO #: 1179-04

NOTES:

INVOICE TO: 1179-04

TURNAROUND TIME: ~~Standard~~ RUSH

Rush charges authorized by: [redacted]

SAMPLE DISPOSAL: ~~Default:~~ Clean following final report delivery; Hold (Fee may

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	GX	Notes
SVE-6	01	3297	204	IA / (SG)	112822	29	1236	8	1241		X				X	
SVE-7	02	3476	229	IA / (SG)	↓	30	1242	9	1247		X				X	+butane+pentane per PP ME
SVE-8	03	2301	230	IA / (SG)		30	1250	9	1256		X				X	
MANIFOLD	04	4179	224	IA / (SG)		30	1297	9	1302	X					X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [redacted]	PIERCE THEUME	EES		
Received by: [redacted]	ANH PHAN	FBB	11/29/22	12:56
Relinquished by:				
Received by:		Samples received at 17°C		

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

NP

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.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

January 6, 2023

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on December 19, 2022 from the PP 112 1179-04, F&BI 212306 project. There are 11 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: Rachel Greene, Paul Ecker, Steve Roberts
EES0106R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 19, 2022 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP 112 1179-04, F&BI 212306 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
212306 -01	SVE-6
212306 -02	SVE-7
212306 -03	SVE-8
212306 -04	MANIFOLD

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.

The TO-15 laboratory control sample exceeded the acceptance criteria for several analytes. The compounds were not detected, therefore the data were acceptable.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-6	Client:	EES Environmental Consulting
Date Received:	12/19/23	Project:	PP 112 1179-04, F&BI 212306
Date Collected:	12/19/22	Lab ID:	212306-01 1/5.4
Date Analyzed:	12/30/22	Data File:	122926.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	ppbv
Benzene	<1.7	<0.54
Toluene	<100	<27
Ethylbenzene	<2.3	<0.54
m,p-Xylene	<4.7	<1.1
o-Xylene	<2.3	<0.54
Naphthalene	<1.4	<0.27
Gasoline Range Organics	<1,800	<430

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	12/19/23	Project:	PP 112 1179-04, F&BI 212306
Date Collected:	12/19/22	Lab ID:	212306-02 1/1100
Date Analyzed:	12/30/22	Data File:	122929.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	ppbv
Butane	450,000 ve	190,000 ve
Pentane	36,000	12,000
Benzene	<350	<110
Toluene	<21,000	<5,500
Ethylbenzene	<480	<110
m,p-Xylene	<960	<220
o-Xylene	<480	<110
Naphthalene	<290	<55
Gasoline Range Organics	<360,000	<88,000

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	12/19/23	Project:	PP 112 1179-04, F&BI 212306
Date Collected:	12/19/22	Lab ID:	212306-03 1/5.4
Date Analyzed:	12/30/22	Data File:	122927.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	ppbv
Benzene	<1.7	<0.54
Toluene	<100	<27
Ethylbenzene	<2.3	<0.54
m,p-Xylene	<4.7	<1.1
o-Xylene	<2.3	<0.54
Naphthalene	<1.4	<0.27
Gasoline Range Organics	<1,800	<430

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	12/19/23	Project:	PP 112 1179-04, F&BI 212306
Date Collected:	12/19/22	Lab ID:	212306-04 1/610
Date Analyzed:	12/30/22	Data File:	122928.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	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	1,500	890	1,2-Dichloropropane	<140	<30
Dichlorodifluoromethane	<600	<120	1,4-Dioxane	<220	<61
Chloromethane	<2,300	<1,100	2,2,4-Trimethylpentane	3,300	710
F-114	<1,300	<180	Methyl methacrylate	<2,500	<610
Vinyl chloride	<160	<61	Heptane	<2,500	<610
1,3-Butadiene	<27	<12	Bromodichloromethane	<10,000	<1,500
Butane	220,000 ve	93,000 ve	Trichloroethene	<66	<12
Bromomethane	<2,400	<610	cis-1,3-Dichloropropene	<550	<120
Chloroethane	<1,600	<610	4-Methyl-2-pentanone	<5,000	<1,200
Vinyl bromide	<270	<61	trans-1,3-Dichloropropene	<280	<61
Ethanol	<4,600	<2,400	Toluene	<11,000	<3,000
Acrolein	<70	<30	1,1,2-Trichloroethane	<33	<6.1
Pentane	20,000	6,700	2-Hexanone	<2,500	<610
Trichlorofluoromethane	<1,400	<240	Tetrachloroethene	<4,100	<610
Acetone	<2,900	<1,200	Dibromochloromethane	<13,000	<1,500
2-Propanol	<5,200	<2,100	1,2-Dibromoethane (EDB)	<47	<6.1
1,1-Dichloroethene	<240	<61	Chlorobenzene	<280	<61
trans-1,2-Dichloroethene	<240	<61	Ethylbenzene	<260	<61
Methylene chloride	<21,000	<6,100	1,1,2,2-Tetrachloroethane	<84	<12
t-Butyl alcohol (TBA)	<7,400	<2,400	Nonane	<3,200	<610
3-Chloropropene	<3,800	<1,200	Isopropylbenzene	<6,000	<1,200
CFC-113	<470	<61	2-Chlorotoluene	<3,200	<610
Carbon disulfide	<3,800	<1,200	Propylbenzene	<3,000	<610
Methyl t-butyl ether (MTBE)	<4,400	<1,200	4-Ethyltoluene	<3,000	<610
Vinyl acetate	<4,300	<1,200	m,p-Xylene	<530	<120
1,1-Dichloroethane	<250	<61	o-Xylene	<260	<61
cis-1,2-Dichloroethene	<240	<61	Styrene	<520	<120
Hexane	<2,200	<610	Bromoform	<15,000 ca	<1,500 ca
Chloroform	<30	<6.1	Benzyl chloride	<32 ca	<6.1 ca
Ethyl acetate	<4,400	<1,200	1,3,5-Trimethylbenzene	<3,000	<610
Tetrahydrofuran	<360	<120	1,2,4-Trimethylbenzene	<3,000	<610
2-Butanone (MEK)	<3,600	<1,200	1,3-Dichlorobenzene	<370	<61
1,2-Dichloroethane (EDC)	<25	<6.1	1,4-Dichlorobenzene	<140	<23
1,1,1-Trichloroethane	<330	<61	1,2-Dichlorobenzene	<370	<61
Carbon tetrachloride	<9,500 ca	<1,500 ca	1,2,4-Trichlorobenzene	<450	<61
Benzene	<190	<61	Naphthalene	<160	<30
Cyclohexane	<4,200	<1,200	Hexachlorobutadiene	<130	<12
Gasoline Range Organics	<200,000	<49,000			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP 112 1179-04, F&BI 212306
Date Collected:	Not Applicable	Lab ID:	02-2989 MB
Date Analyzed:	12/29/22	Data File:	122912.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	<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	<17	<2.5
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	<8.2	<2
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	<21	<2.5
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	<6.3	<2	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	<25 ca	<2.5 ca
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052 ca	<0.01 ca
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	<16 ca	<2.5 ca	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: 01/06/23
Date Received: 12/19/22
Project: PP 112 1179-04, F&BI 212306

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

Laboratory Code: 212306-01 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	<26	<26	nm
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	<6.3	<6.3	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	nm
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	<1.7	<1.7	nm
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: 01/06/23
Date Received: 12/19/22
Project: PP 112 1179-04, F&BI 212306

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

Laboratory Code: 212306-01 1/5.4 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<22	<22	nm
Heptane	ug/m3	<22	<22	nm
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	<8.2	<8.2	nm
trans-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
Toluene	ug/m3	<100	<100	nm
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	<2.5	<2.5	nm
Ethylbenzene	ug/m3	<2.3	<2.3	nm
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	<4.7	<4.7	nm
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: 01/06/23
Date Received: 12/19/22
Project: PP 112 1179-04, F&BI 212306

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	110	70-130
Dichlorodifluoromethane	ug/m3	67	116	70-130
Chloromethane	ug/m3	28	109	70-130
F-114	ug/m3	94	109	70-130
Vinyl chloride	ug/m3	35	103	70-130
1,3-Butadiene	ug/m3	30	90	70-130
Butane	ug/m3	32	103	70-130
Bromomethane	ug/m3	52	104	70-130
Chloroethane	ug/m3	36	111	70-130
Vinyl bromide	ug/m3	59	99	70-130
Ethanol	ug/m3	25	99	70-130
Acrolein	ug/m3	31	83	70-130
Pentane	ug/m3	40	97	70-130
Trichlorofluoromethane	ug/m3	76	119	70-130
Acetone	ug/m3	32	100	70-130
2-Propanol	ug/m3	33	105	70-130
1,1-Dichloroethene	ug/m3	54	102	70-130
trans-1,2-Dichloroethene	ug/m3	54	102	70-130
Methylene chloride	ug/m3	94	111	70-130
t-Butyl alcohol (TBA)	ug/m3	41	107	70-130
3-Chloropropene	ug/m3	42	102	70-130
CFC-113	ug/m3	100	113	70-130
Carbon disulfide	ug/m3	42	104	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	96	70-130
Vinyl acetate	ug/m3	48	97	70-130
1,1-Dichloroethane	ug/m3	55	109	70-130
cis-1,2-Dichloroethene	ug/m3	54	98	70-130
Hexane	ug/m3	48	90	70-130
Chloroform	ug/m3	66	116	70-130
Ethyl acetate	ug/m3	49	97	70-130
Tetrahydrofuran	ug/m3	40	93	70-130
2-Butanone (MEK)	ug/m3	40	101	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	116	70-130
1,1,1-Trichloroethane	ug/m3	74	118	70-130
Carbon tetrachloride	ug/m3	85	120	70-130
Benzene	ug/m3	43	103	70-130
Cyclohexane	ug/m3	46	91	70-130
1,2-Dichloropropane	ug/m3	62	116	70-130
1,4-Dioxane	ug/m3	49	104	70-130
2,2,4-Trimethylpentane	ug/m3	63	105	70-130

Date of Report: 01/06/23
Date Received: 12/19/22
Project: PP 112 1179-04, F&BI 212306

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
Methyl methacrylate	ug/m3	55	108	70-130
Heptane	ug/m3	55	107	70-130
Bromodichloromethane	ug/m3	90	131 vo	70-130
Trichloroethene	ug/m3	73	115	70-130
cis-1,3-Dichloropropene	ug/m3	61	124	70-130
4-Methyl-2-pentanone	ug/m3	55	110	70-130
trans-1,3-Dichloropropene	ug/m3	61	120	70-130
Toluene	ug/m3	51	108	70-130
1,1,2-Trichloroethane	ug/m3	74	123	70-130
2-Hexanone	ug/m3	55	109	70-130
Tetrachloroethene	ug/m3	92	127	70-130
Dibromochloromethane	ug/m3	120	134 vo	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	128	70-130
Chlorobenzene	ug/m3	62	114	70-130
Ethylbenzene	ug/m3	59	103	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	134 vo	70-130
Nonane	ug/m3	71	99	70-130
Isopropylbenzene	ug/m3	66	117	70-130
2-Chlorotoluene	ug/m3	70	114	70-130
Propylbenzene	ug/m3	66	116	70-130
4-Ethyltoluene	ug/m3	66	103	70-130
m,p-Xylene	ug/m3	120	104	70-130
o-Xylene	ug/m3	59	109	70-130
Styrene	ug/m3	58	98	70-130
Bromoform	ug/m3	140	127	70-130
Benzyl chloride	ug/m3	70	126	70-130
1,3,5-Trimethylbenzene	ug/m3	66	121	70-130
1,2,4-Trimethylbenzene	ug/m3	66	94	70-130
1,3-Dichlorobenzene	ug/m3	81	128	70-130
1,4-Dichlorobenzene	ug/m3	81	117	70-130
1,2-Dichlorobenzene	ug/m3	81	128	70-130
1,2,4-Trichlorobenzene	ug/m3	100	85	70-130
Naphthalene	ug/m3	71	76	70-130
Hexachlorobutadiene	ug/m3	140	144 vo	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.

212306

SAMPLE CHAIN OF CUSTODY

12/19/22

Page # 1 of 1

Report To DANIELLE PETERS
Company EES ENVIRONMENTAL
Address 514 NW 11th AVE STE 207
City, State, ZIP PORTLAND OR 97209
Phone 503 847 2740 Email DANIELLE@EES-ENVI-

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: PP # 112

PO # 1179-04

NOTES:

INVOICE TO 1179-04

TURNAROUND TIME
~~Standard~~
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
~~Default~~: Clean following final report delivery
Hold (Fee may apply):

SAMPLE INFORMATION

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	ANALYSIS REQUESTED: TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium	GX	Notes
SVE-6	01	3875	230	IA / (SG)	12-19-22	30	0633	9	0638		X				X	
SVE-7	02	3311	231	IA / (SG)		30	0638	9	0644		X				X	
SVE-8	03	3312	299	IA / (SG)		30	0643	9	0648		X				X	+B, toluene pentane per DP ME 1/6/23
MANIFOLD	04	3294	228	IA / (SG)	↓	30	0649	9	0654	X					X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	PIERCE THIENE	EES	12/19/22	1300
Received by:	Nhan Phan	FEBT	12/19/22	1330
Relinquished by:				
Received by:		Samples received at 18 °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.

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www.friedmanandbruya.com

January 23, 2023

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on January 13, 2023 from the PP 112 1179-04, F&BI 301200 project. There are 11 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: Rachel Greene, Paul Ecker, Steve Roberts
EES0123R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 13, 2023 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP 112 1179-04, F&BI 301200 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
301200 -01	SVE-6
301200 -02	SVE-7
301200 -03	SVE-8
301200 -04	MANIFOLD

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

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-6	Client:	EES Environmental Consulting
Date Received:	01/13/23	Project:	PP 112 1179-04, F&BI 301200
Date Collected:	01/12/23	Lab ID:	301200-01 1/5.3
Date Analyzed:	01/20/23	Data File:	011923.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.7	<0.53
Toluene	<100	<26
Ethylbenzene	<2.3	<0.53
m,p-Xylene	<4.6	<1.1
o-Xylene	<2.3	<0.53
Naphthalene	<1.4	<0.26
Gasoline Range Organics	<1,700	<420

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-7	Client:	EES Environmental Consulting
Date Received:	01/13/23	Project:	PP 112 1179-04, F&BI 301200
Date Collected:	01/12/23	Lab ID:	301200-02 1/8.6
Date Analyzed:	01/20/23	Data File:	011924.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	ppbv
Benzene	<2.7	<0.86
Toluene	<160	<43
Ethylbenzene	<3.7	<0.86
m,p-Xylene	<7.5	<1.7
o-Xylene	<3.7	<0.86
Naphthalene	<2.3	<0.43
Gasoline Range Organics	3,100	760

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	01/13/23	Project:	PP 112 1179-04, F&BI 301200
Date Collected:	01/12/23	Lab ID:	301200-03 1/6.1
Date Analyzed:	01/20/23	Data File:	011922.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Benzene	<1.9	<0.61
Toluene	<110	<30
Ethylbenzene	<2.6	<0.61
m,p-Xylene	<5.3	<1.2
o-Xylene	<2.6	<0.61
Naphthalene	<1.6	<0.3
Gasoline Range Organics	<1,900	<480

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	01/13/23	Project:	PP 112 1179-04, F&BI 301200
Date Collected:	01/12/23	Lab ID:	301200-04 1/6.2
Date Analyzed:	01/20/23	Data File:	011921.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	<7.5	<4.3	1,2-Dichloropropane	<1.4	<0.31
Dichlorodifluoromethane	<6.1	<1.2	1,4-Dioxane	<2.2	<0.62
Chloromethane	<23	<11	2,2,4-Trimethylpentane	<29	<6.2
F-114	<13	<1.9	Methyl methacrylate	<25	<6.2
Vinyl chloride	<1.6	<0.62	Heptane	<25	<6.2
1,3-Butadiene	<0.27	<0.12	Bromodichloromethane	<0.42	<0.062
Butane	77	32	Trichloroethene	<0.67	<0.12
Bromomethane	<24	<6.2	cis-1,3-Dichloropropene	<5.6	<1.2
Chloroethane	<16	<6.2	4-Methyl-2-pentanone	<25	<6.2
Vinyl bromide	<2.7	<0.62	trans-1,3-Dichloropropene	<2.8	<0.62
Ethanol	<47	<25	Toluene	<120	<31
Acrolein	<0.71 ca	<0.31 ca	1,1,2-Trichloroethane	<0.34	<0.062
Pentane	<37	<12	2-Hexanone	<25 ca	<6.2 ca
Trichlorofluoromethane	<14	<2.5	Tetrachloroethene	<42	<6.2
Acetone	<29	<12	Dibromochloromethane	<0.53	<0.062
2-Propanol	<53	<22	1,2-Dibromoethane (EDB)	<0.48	<0.062
1,1-Dichloroethene	<2.5	<0.62	Chlorobenzene	<2.9	<0.62
trans-1,2-Dichloroethene	<2.5	<0.62	Ethylbenzene	<2.7	<0.62
Methylene chloride	<220	<62	1,1,2,2-Tetrachloroethane	<0.85	<0.12
t-Butyl alcohol (TBA)	<75	<25	Nonane	<33	<6.2
3-Chloropropene	<19	<6.2	Isopropylbenzene	<61	<12
CFC-113	<4.8	<0.62	2-Chlorotoluene	<32	<6.2
Carbon disulfide	<39	<12	Propylbenzene	<30	<6.2
Methyl t-butyl ether (MTBE)	<45	<12	4-Ethyltoluene	<30	<6.2
Vinyl acetate	<44	<12	m,p-Xylene	<5.4	<1.2
1,1-Dichloroethane	<2.5	<0.62	o-Xylene	<2.7	<0.62
cis-1,2-Dichloroethene	<2.5	<0.62	Styrene	<5.3	<1.2
Hexane	<22	<6.2	Bromoform	<13	<1.2
Chloroform	0.73	0.15	Benzyl chloride	<0.32	<0.062
Ethyl acetate	<45	<12	1,3,5-Trimethylbenzene	<30	<6.2
Tetrahydrofuran	<3.7	<1.2	1,2,4-Trimethylbenzene	<30	<6.2
2-Butanone (MEK)	<37	<12	1,3-Dichlorobenzene	<3.7	<0.62
1,2-Dichloroethane (EDC)	<0.25	<0.062	1,4-Dichlorobenzene	<1.4	<0.24
1,1,1-Trichloroethane	<3.4	<0.62	1,2-Dichlorobenzene	<3.7	<0.62
Carbon tetrachloride	<2	<0.31	1,2,4-Trichlorobenzene	<4.6	<0.62
Benzene	<2	<0.62	Naphthalene	<1.6	<0.31
Cyclohexane	<43	<12	Hexachlorobutadiene	<1.3	<0.12
Gasoline Range Organics	<2,000	<500			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP 112 1179-04, F&BI 301200
Date Collected:	01/19/23	Lab ID:	03-0081 MB
Date Analyzed:	01/19/23	Data File:	011912.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	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 ca	<0.05 ca	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<5.9	<2	2-Hexanone	<4.1 ca	<1 ca
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: 01/23/23
Date Received: 01/13/23
Project: PP 112 1179-04, F&BI 301200

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

Laboratory Code: 301175-01 1/7.8 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<9.4	<9.4	nm
Dichlorodifluoromethane	ug/m3	<7.7	<7.7	nm
Chloromethane	ug/m3	<29	<29	nm
F-114	ug/m3	<16	<16	nm
Vinyl chloride	ug/m3	<2	<2	nm
1,3-Butadiene	ug/m3	<0.35	<0.35	nm
Butane	ug/m3	<37	<37	nm
Bromomethane	ug/m3	<30	<30	nm
Chloroethane	ug/m3	<21	<21	nm
Vinyl bromide	ug/m3	<3.4	<3.4	nm
Ethanol	ug/m3	<59	<59	nm
Acrolein	ug/m3	<0.89	<0.89	nm
Pentane	ug/m3	<46	<46	nm
Trichlorofluoromethane	ug/m3	<18	<18	nm
Acetone	ug/m3	<37	<37	nm
2-Propanol	ug/m3	<67	<67	nm
1,1-Dichloroethene	ug/m3	<3.1	<3.1	nm
trans-1,2-Dichloroethene	ug/m3	<3.1	<3.1	nm
Methylene chloride	ug/m3	<270	<270	nm
t-Butyl alcohol (TBA)	ug/m3	<95	<95	nm
3-Chloropropene	ug/m3	<24	<24	nm
CFC-113	ug/m3	<6	<6	nm
Carbon disulfide	ug/m3	<49	<49	nm
Methyl t-butyl ether (MTBE)	ug/m3	<56	<56	nm
Vinyl acetate	ug/m3	<55	<55	nm
1,1-Dichloroethane	ug/m3	<3.2	<3.2	nm
cis-1,2-Dichloroethene	ug/m3	<3.1	<3.1	nm
Hexane	ug/m3	<27	<27	nm
Chloroform	ug/m3	<0.38	<0.38	nm
Ethyl acetate	ug/m3	<56	<56	nm
Tetrahydrofuran	ug/m3	<4.6	<4.6	nm
2-Butanone (MEK)	ug/m3	<46	<46	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.32	<0.32	nm
1,1,1-Trichloroethane	ug/m3	<4.3	<4.3	nm
Carbon tetrachloride	ug/m3	<2.5	<2.5	nm
Benzene	ug/m3	<2.5	<2.5	nm
Cyclohexane	ug/m3	<54	<54	nm
1,2-Dichloropropane	ug/m3	<1.8	<1.8	nm
1,4-Dioxane	ug/m3	<2.8	<2.8	nm
2,2,4-Trimethylpentane	ug/m3	<36	<36	nm

Date of Report: 01/23/23
Date Received: 01/13/23
Project: PP 112 1179-04, F&BI 301200

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

Laboratory Code: 301175-01 1/7.8 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<32	<32	nm
Heptane	ug/m3	<32	<32	nm
Bromodichloromethane	ug/m3	<0.52	<0.52	nm
Trichloroethene	ug/m3	<0.84	<0.84	nm
cis-1,3-Dichloropropene	ug/m3	<7.1	<7.1	nm
4-Methyl-2-pentanone	ug/m3	<32	<32	nm
trans-1,3-Dichloropropene	ug/m3	<3.5	<3.5	nm
Toluene	ug/m3	<150	<150	nm
1,1,2-Trichloroethane	ug/m3	<0.43	<0.43	nm
2-Hexanone	ug/m3	<32	<32	nm
Tetrachloroethene	ug/m3	<53	<53	nm
Dibromochloromethane	ug/m3	<0.66	<0.66	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.6	<0.6	nm
Chlorobenzene	ug/m3	<3.6	<3.6	nm
Ethylbenzene	ug/m3	<3.4	<3.4	nm
1,1,2,2-Tetrachloroethane	ug/m3	<1.1	<1.1	nm
Nonane	ug/m3	<41	<41	nm
Isopropylbenzene	ug/m3	<77	<77	nm
2-Chlorotoluene	ug/m3	<40	<40	nm
Propylbenzene	ug/m3	<38	<38	nm
4-Ethyltoluene	ug/m3	<38	<38	nm
m,p-Xylene	ug/m3	<6.8	<6.8	nm
o-Xylene	ug/m3	<3.4	<3.4	nm
Styrene	ug/m3	<6.6	<6.6	nm
Bromoform	ug/m3	<16	<16	nm
Benzyl chloride	ug/m3	<0.4	<0.4	nm
1,3,5-Trimethylbenzene	ug/m3	<38	<38	nm
1,2,4-Trimethylbenzene	ug/m3	<38	<38	nm
1,3-Dichlorobenzene	ug/m3	<4.7	<4.7	nm
1,4-Dichlorobenzene	ug/m3	<1.8	<1.8	nm
1,2-Dichlorobenzene	ug/m3	<4.7	<4.7	nm
1,2,4-Trichlorobenzene	ug/m3	<5.8	<5.8	nm
Naphthalene	ug/m3	<2	<2	nm
Hexachlorobutadiene	ug/m3	<1.7	<1.7	nm

Date of Report: 01/23/23
Date Received: 01/13/23
Project: PP 112 1179-04, F&BI 301200

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	90	70-130
Dichlorodifluoromethane	ug/m3	67	98	70-130
Chloromethane	ug/m3	28	83	70-130
F-114	ug/m3	94	98	70-130
Vinyl chloride	ug/m3	35	95	70-130
1,3-Butadiene	ug/m3	30	88	70-130
Butane	ug/m3	32	86	70-130
Bromomethane	ug/m3	52	99	70-130
Chloroethane	ug/m3	36	93	70-130
Vinyl bromide	ug/m3	59	106	70-130
Ethanol	ug/m3	25	73	70-130
Acrolein	ug/m3	31	38 vo	70-130
Pentane	ug/m3	40	93	70-130
Trichlorofluoromethane	ug/m3	76	99	70-130
Acetone	ug/m3	32	113	70-130
2-Propanol	ug/m3	33	99	70-130
1,1-Dichloroethene	ug/m3	54	98	70-130
trans-1,2-Dichloroethene	ug/m3	54	96	70-130
Methylene chloride	ug/m3	94	99	70-130
t-Butyl alcohol (TBA)	ug/m3	41	99	70-130
3-Chloropropene	ug/m3	42	84	70-130
CFC-113	ug/m3	100	99	70-130
Carbon disulfide	ug/m3	42	109	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	96	70-130
Vinyl acetate	ug/m3	48	94	70-130
1,1-Dichloroethane	ug/m3	55	96	70-130
cis-1,2-Dichloroethene	ug/m3	54	93	70-130
Hexane	ug/m3	48	90	70-130
Chloroform	ug/m3	66	95	70-130
Ethyl acetate	ug/m3	49	93	70-130
Tetrahydrofuran	ug/m3	40	75	70-130
2-Butanone (MEK)	ug/m3	40	93	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	97	70-130
1,1,1-Trichloroethane	ug/m3	74	101	70-130
Carbon tetrachloride	ug/m3	85	103	70-130
Benzene	ug/m3	43	88	70-130
Cyclohexane	ug/m3	46	89	70-130
1,2-Dichloropropane	ug/m3	62	99	70-130
1,4-Dioxane	ug/m3	49	95	70-130
2,2,4-Trimethylpentane	ug/m3	63	91	70-130

Date of Report: 01/23/23
Date Received: 01/13/23
Project: PP 112 1179-04, F&BI 301200

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
Methyl methacrylate	ug/m3	55	99	70-130
Heptane	ug/m3	55	88	70-130
Bromodichloromethane	ug/m3	90	102	70-130
Trichloroethene	ug/m3	73	98	70-130
cis-1,3-Dichloropropene	ug/m3	61	103	70-130
4-Methyl-2-pentanone	ug/m3	55	94	70-130
trans-1,3-Dichloropropene	ug/m3	61	104	70-130
Toluene	ug/m3	51	94	70-130
1,1,2-Trichloroethane	ug/m3	74	101	70-130
2-Hexanone	ug/m3	55	68 vo	70-130
Tetrachloroethene	ug/m3	92	104	70-130
Dibromochloromethane	ug/m3	120	108	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	101	70-130
Chlorobenzene	ug/m3	62	101	70-130
Ethylbenzene	ug/m3	59	94	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	96	70-130
Nonane	ug/m3	71	89	70-130
Isopropylbenzene	ug/m3	66	98	70-130
2-Chlorotoluene	ug/m3	70	103	70-130
Propylbenzene	ug/m3	66	101	70-130
4-Ethyltoluene	ug/m3	66	93	70-130
m,p-Xylene	ug/m3	120	96	70-130
o-Xylene	ug/m3	59	97	70-130
Styrene	ug/m3	58	92	70-130
Bromoform	ug/m3	140	112	70-130
Benzyl chloride	ug/m3	70	119	70-130
1,3,5-Trimethylbenzene	ug/m3	66	99	70-130
1,2,4-Trimethylbenzene	ug/m3	66	96	70-130
1,3-Dichlorobenzene	ug/m3	81	105	70-130
1,4-Dichlorobenzene	ug/m3	81	103	70-130
1,2-Dichlorobenzene	ug/m3	81	104	70-130
1,2,4-Trichlorobenzene	ug/m3	100	96	70-130
Naphthalene	ug/m3	71	82	70-130
Hexachlorobutadiene	ug/m3	140	95	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

01/13/23

301200

Report To DANIELLE PETERS

Company EES ENVIRONMENTAL

Address 4 4 NW 11th AVE STE 203

City, State, ZIP PORTLAND OR 97209

Phone 503 841 2740 Email DANIELLE@EES-ENV.com

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: PP # 112

PO # 1179-04

NOTES:

INVOICE TO 1179-04

TURNAROUND TIME
Standard
RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
Default: Clean following final report delivery
Hold (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	O2 CO2	Notes
SVE-6	01	3389	220	IA / (SG)	1-12-23	30	1135	9	1140		X				X	
SVE-7	02	3672	225	IA / (SG)	"	30	1140	9	1145		X				X	
SVE-8	03	2295	206	IA / (SG)	"	29	1145	8	1150		X				X	
MANIFOLD	04	2438	231	IA / (SG)	"	30	1150	9	1155	X					X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	PIERRE THEVENIN	EES	1-12-23	1300
Received by:	ANH PHAN	FSB	01/13/23	13:26
Relinquished by:				
Received by:		Samples received at 19 °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.

5500 4th Avenue South
Seattle, WA 98108
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 17, 2023

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the results from the testing of material submitted on February 13, 2023 from the PP 112 1179-04, F&BI 302176 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: Rachel Greene, Paul Ecker, Steve Roberts
EES0217R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 13, 2023 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP 112 1179-04, F&BI 302176 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
302176 -01	SVE-7
302176 -02	SVE-8
302176 -03	MANIFOLD

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:	SVE-7	Client:	EES Environmental Consulting
Date Received:	02/13/23	Project:	PP 112 1179-04, F&BI 302176
Date Collected:	02/10/23	Lab ID:	302176-01 1/5.5
Date Analyzed:	02/15/23	Data File:	021431.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	ppbv
Benzene	<1.8	<0.55
Toluene	<100	<27
Ethylbenzene	<2.4	<0.55
m,p-Xylene	<4.8	<1.1
o-Xylene	<2.4	<0.55
Naphthalene	<1.4	<0.28
Gasoline Range Organics	6,000	1,500

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	SVE-8	Client:	EES Environmental Consulting
Date Received:	02/13/23	Project:	PP 112 1179-04, F&BI 302176
Date Collected:	02/10/23	Lab ID:	302176-02 1/5.8
Date Analyzed:	02/15/23	Data File:	021429.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	ppbv
Benzene	<1.9	<0.58
Toluene	<110	<29
Ethylbenzene	<2.5	<0.58
m,p-Xylene	<5	<1.2
o-Xylene	<2.5	<0.58
Naphthalene	<1.5	<0.29
Gasoline Range Organics	<1,900	<460

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	02/13/23	Project:	PP 112 1179-04, F&BI 302176
Date Collected:	02/10/23	Lab ID:	302176-03 1/6.0
Date Analyzed:	02/15/23	Data File:	021430.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	<5.9	<1.2	1,4-Dioxane	<2.2	<0.6
Chloromethane	<22	<11	2,2,4-Trimethylpentane	1,300 ve	280 ve
F-114	<13	<1.8	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	1,800 ve	760 ve	Trichloroethene	<0.64	<0.12
Bromomethane	<23	<6	cis-1,3-Dichloropropene	<5.4	<1.2
Chloroethane	<16	<6	4-Methyl-2-pentanone	<25	<6
Vinyl bromide	<2.6	<0.6	trans-1,3-Dichloropropene	<2.7	<0.6
Ethanol	<45	<24	Toluene	<110	<30
Acrolein	<0.69	<0.3	1,1,2-Trichloroethane	<0.33	<0.06
Pentane	99	33	2-Hexanone	<25	<6
Trichlorofluoromethane	<13	<2.4	Tetrachloroethene	<41	<6
Acetone	<29	<12	Dibromochloromethane	<0.51	<0.06
2-Propanol	<52	<21	1,2-Dibromoethane (EDB)	<0.46	<0.06
1,1-Dichloroethene	<2.4	<0.6	Chlorobenzene	<2.8	<0.6
trans-1,2-Dichloroethene	<2.4	<0.6	Ethylbenzene	<2.6	<0.6
Methylene chloride	<210	<60	1,1,2,2-Tetrachloroethane	<0.82	<0.12
t-Butyl alcohol (TBA)	<73	<24	Nonane	<31	<6
3-Chloropropene	<19	<6	Isopropylbenzene	<59	<12
CFC-113	<4.6	<0.6	2-Chlorotoluene	<31	<6
Carbon disulfide	<37	<12	Propylbenzene	<29	<6
Methyl t-butyl ether (MTBE)	<43	<12	4-Ethyltoluene	<29	<6
Vinyl acetate	<42	<12	m,p-Xylene	<5.2	<1.2
1,1-Dichloroethane	<2.4	<0.6	o-Xylene	<2.6	<0.6
cis-1,2-Dichloroethene	<2.4	<0.6	Styrene	<5.1	<1.2
Hexane	<21	<6	Bromoform	<12	<1.2
Chloroform	0.73	0.15	Benzyl chloride	<0.31	<0.06
Ethyl acetate	<43	<12	1,3,5-Trimethylbenzene	<29	<6
Tetrahydrofuran	<3.5	<1.2	1,2,4-Trimethylbenzene	<29	<6
2-Butanone (MEK)	<35	<12	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	<3.3	<0.6	1,2-Dichlorobenzene	<3.6	<0.6
Carbon tetrachloride	<1.9	<0.3	1,2,4-Trichlorobenzene	<4.5	<0.6
Benzene	<1.9	<0.6	Naphthalene	<1.6	<0.3
Cyclohexane	<41	<12	Hexachlorobutadiene	<1.3	<0.12
Gasoline Range Organics	3,200	780			

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP 112 1179-04, F&BI 302176
Date Collected:	Not Applicable	Lab ID:	03-0327 MB
Date Analyzed:	02/15/23	Data File:	021423.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	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: 02/17/23
Date Received: 02/13/23
Project: PP 112 1179-04, F&BI 302176

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

Laboratory Code: 302140-03 1/8.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	18	19	5
Dichlorodifluoromethane	ug/m3	<8.1	<8.1	nm
Chloromethane	ug/m3	<30	<30	nm
F-114	ug/m3	<17	<17	nm
Vinyl chloride	ug/m3	<2.1	<2.1	nm
1,3-Butadiene	ug/m3	<0.36	<0.36	nm
Butane	ug/m3	57	56	2
Bromomethane	ug/m3	<32	<32	nm
Chloroethane	ug/m3	<22	<22	nm
Vinyl bromide	ug/m3	<3.6	<3.6	nm
Ethanol	ug/m3	<62	<62	nm
Acrolein	ug/m3	<0.94	<0.94	nm
Pentane	ug/m3	<48	<48	nm
Trichlorofluoromethane	ug/m3	<18	<18	nm
Acetone	ug/m3	69	72	4
2-Propanol	ug/m3	110	110	0
1,1-Dichloroethene	ug/m3	<3.3	<3.3	nm
trans-1,2-Dichloroethene	ug/m3	<3.3	<3.3	nm
Methylene chloride	ug/m3	<280	<280	nm
t-Butyl alcohol (TBA)	ug/m3	<99	<99	nm
3-Chloropropene	ug/m3	<26	<26	nm
CFC-113	ug/m3	<6.3	<6.3	nm
Carbon disulfide	ug/m3	<51	<51	nm
Methyl t-butyl ether (MTBE)	ug/m3	<59	<59	nm
Vinyl acetate	ug/m3	<58	<58	nm
1,1-Dichloroethane	ug/m3	<3.3	<3.3	nm
cis-1,2-Dichloroethene	ug/m3	<3.3	<3.3	nm
Hexane	ug/m3	<29	<29	nm
Chloroform	ug/m3	<0.4	<0.4	nm
Ethyl acetate	ug/m3	<59	<59	nm
Tetrahydrofuran	ug/m3	<4.8	<4.8	nm
2-Butanone (MEK)	ug/m3	<48	<48	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.33	<0.33	nm
1,1,1-Trichloroethane	ug/m3	<4.5	<4.5	nm
Carbon tetrachloride	ug/m3	<2.6	<2.6	nm
Benzene	ug/m3	<2.6	<2.6	nm
Cyclohexane	ug/m3	<56	<56	nm
1,2-Dichloropropane	ug/m3	<1.9	<1.9	nm
1,4-Dioxane	ug/m3	<3	<3	nm
2,2,4-Trimethylpentane	ug/m3	<38	<38	nm

Date of Report: 02/17/23
Date Received: 02/13/23
Project: PP 112 1179-04, F&BI 302176

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

Laboratory Code: 302140-03 1/8.2 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<34	<34	nm
Heptane	ug/m3	<34	<34	nm
Bromodichloromethane	ug/m3	<0.55	<0.55	nm
Trichloroethene	ug/m3	<0.88	<0.88	nm
cis-1,3-Dichloropropene	ug/m3	<7.4	<7.4	nm
4-Methyl-2-pentanone	ug/m3	<34	<34	nm
trans-1,3-Dichloropropene	ug/m3	<3.7	<3.7	nm
Toluene	ug/m3	<150	<150	nm
1,1,2-Trichloroethane	ug/m3	<0.45	<0.45	nm
2-Hexanone	ug/m3	<34	<34	nm
Tetrachloroethene	ug/m3	120	120	0
Dibromochloromethane	ug/m3	<0.7	<0.7	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.63	<0.63	nm
Chlorobenzene	ug/m3	<3.8	<3.8	nm
Ethylbenzene	ug/m3	17	17	0
1,1,2,2-Tetrachloroethane	ug/m3	<1.1	<1.1	nm
Nonane	ug/m3	<43	<43	nm
Isopropylbenzene	ug/m3	<81	<81	nm
2-Chlorotoluene	ug/m3	<42	<42	nm
Propylbenzene	ug/m3	<40	<40	nm
4-Ethyltoluene	ug/m3	<40	<40	nm
m,p-Xylene	ug/m3	62	63	2
o-Xylene	ug/m3	16	17	6
Styrene	ug/m3	<7	<7	nm
Bromoform	ug/m3	<17	<17	nm
Benzyl chloride	ug/m3	<0.42	<0.42	nm
1,3,5-Trimethylbenzene	ug/m3	<40	<40	nm
1,2,4-Trimethylbenzene	ug/m3	<40	<40	nm
1,3-Dichlorobenzene	ug/m3	<4.9	<4.9	nm
1,4-Dichlorobenzene	ug/m3	<1.9	<1.9	nm
1,2-Dichlorobenzene	ug/m3	<4.9	<4.9	nm
1,2,4-Trichlorobenzene	ug/m3	<6.1	<6.1	nm
Naphthalene	ug/m3	<2.1	<2.1	nm
Hexachlorobutadiene	ug/m3	<1.7	<1.7	nm

Date of Report: 02/17/23
Date Received: 02/13/23
Project: PP 112 1179-04, F&BI 302176

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	106	70-130
Chloromethane	ug/m3	28	109	70-130
F-114	ug/m3	94	110	70-130
Vinyl chloride	ug/m3	35	110	70-130
1,3-Butadiene	ug/m3	30	106	70-130
Butane	ug/m3	32	116	70-130
Bromomethane	ug/m3	52	111	70-130
Chloroethane	ug/m3	36	119	70-130
Vinyl bromide	ug/m3	59	123	70-130
Ethanol	ug/m3	25	106	70-130
Acrolein	ug/m3	31	116	70-130
Pentane	ug/m3	40	100	70-130
Trichlorofluoromethane	ug/m3	76	112	70-130
Acetone	ug/m3	32	96	70-130
2-Propanol	ug/m3	33	105	70-130
1,1-Dichloroethene	ug/m3	54	108	70-130
trans-1,2-Dichloroethene	ug/m3	54	109	70-130
Methylene chloride	ug/m3	94	115	70-130
t-Butyl alcohol (TBA)	ug/m3	41	111	70-130
3-Chloropropene	ug/m3	42	105	70-130
CFC-113	ug/m3	100	111	70-130
Carbon disulfide	ug/m3	42	110	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	99	70-130
Vinyl acetate	ug/m3	48	99	70-130
1,1-Dichloroethane	ug/m3	55	109	70-130
cis-1,2-Dichloroethene	ug/m3	54	106	70-130
Hexane	ug/m3	48	106	70-130
Chloroform	ug/m3	66	109	70-130
Ethyl acetate	ug/m3	49	109	70-130
Tetrahydrofuran	ug/m3	40	91	70-130
2-Butanone (MEK)	ug/m3	40	121	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	112	70-130
1,1,1-Trichloroethane	ug/m3	74	107	70-130
Carbon tetrachloride	ug/m3	85	111	70-130
Benzene	ug/m3	43	102	70-130
Cyclohexane	ug/m3	46	102	70-130
1,2-Dichloropropane	ug/m3	62	109	70-130
1,4-Dioxane	ug/m3	49	107	70-130
2,2,4-Trimethylpentane	ug/m3	63	106	70-130

Date of Report: 02/17/23
Date Received: 02/13/23
Project: PP 112 1179-04, F&BI 302176

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
Methyl methacrylate	ug/m3	55	106	70-130
Heptane	ug/m3	55	107	70-130
Bromodichloromethane	ug/m3	90	111	70-130
Trichloroethene	ug/m3	73	108	70-130
cis-1,3-Dichloropropene	ug/m3	61	109	70-130
4-Methyl-2-pentanone	ug/m3	55	115	70-130
trans-1,3-Dichloropropene	ug/m3	61	102	70-130
Toluene	ug/m3	51	100	70-130
1,1,2-Trichloroethane	ug/m3	74	111	70-130
2-Hexanone	ug/m3	55	106	70-130
Tetrachloroethene	ug/m3	92	111	70-130
Dibromochloromethane	ug/m3	120	112	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	106	70-130
Chlorobenzene	ug/m3	62	106	70-130
Ethylbenzene	ug/m3	59	98	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	105	70-130
Nonane	ug/m3	71	106	70-130
Isopropylbenzene	ug/m3	66	107	70-130
2-Chlorotoluene	ug/m3	70	110	70-130
Propylbenzene	ug/m3	66	112	70-130
4-Ethyltoluene	ug/m3	66	103	70-130
m,p-Xylene	ug/m3	120	107	70-130
o-Xylene	ug/m3	59	107	70-130
Styrene	ug/m3	58	102	70-130
Bromoform	ug/m3	140	115	70-130
Benzyl chloride	ug/m3	70	115	70-130
1,3,5-Trimethylbenzene	ug/m3	66	109	70-130
1,2,4-Trimethylbenzene	ug/m3	66	105	70-130
1,3-Dichlorobenzene	ug/m3	81	112	70-130
1,4-Dichlorobenzene	ug/m3	81	112	70-130
1,2-Dichlorobenzene	ug/m3	81	113	70-130
1,2,4-Trichlorobenzene	ug/m3	100	99	70-130
Naphthalene	ug/m3	71	95	70-130
Hexachlorobutadiene	ug/m3	140	107	70-130

Data Qualifiers & Definitions

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

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

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

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

cf - The sample was centrifuged prior to analysis.

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

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

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The 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

302176

02/13/23

Page # 1 of 1

Report To DANIELLE PETERS

Company EES ENVIRONMENTAL

Address 514 NW 11th AVE

City, State, ZIP PORTLAND OR 97209

Phone 5038497274 Email DANIELLE@EES-ENV.COM

SAMPLERS (*signature*)

PROJECT NAME & ADDRESS: PP# 112

PO # 1179-04

NOTES: ALL UNTAGGED MEDIA IS UNUSED

INVOICE TO 1179-04

TURNAROUND TIME: (Standard) RUSH

Rush charges authorized by:

SAMPLE DISPOSAL: (Default: Clean following final report delivery) Hold (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	GX	Notes
SVE-7	01	8207	62	IA / (SG)	2-10-23	30	1020	8.0	1029		X				X	
SVE-8	02	8928	303	IA / (SG)	"	29	1025	6.0	1030		X				X	
MANIFOLD	03	8530	68	IA / (SG)	"	29	1030	8.0	1035	X					X	
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG								Samples received at 14 °C				
				IA / SG												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	PERLE THIEME	EES	2-10-23	1200
Received by:	ANHPHAN	FSB	02/13/23	10:57
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044

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

September 19, 2022

Daniele Peters, Project Manager
EES Environmental Consulting, Inc.
514 NW 11th Ave, Suite 209
Portland, OR 97209

Dear Ms Peters:

Included are the additional results from the testing of material submitted on July 28, 2022 from the PP No. 112 1179-04, F&BI 207480 project. There are 5 pages included in this report

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

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Rachel Greene, Paul Ecker
EES0919R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on July 28, 2020 by Friedman & Bruya, Inc. from the EES Environmental Consulting PP No. 112 1179-04, F&BI 207480 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	EES Environmental Consulting
207480 -01	SVE-6
207480 -02	SVE-7
207480 -03	SVE-8
207480 -04	MANIFOLD
207480 -05	SVE-6
207480 -06	SVE-7
207480 -07	SVE-8
207480 -08	MANIFOLD

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

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04, F&BI 207480
Date Collected:	07/27/22	Lab ID:	207480-04 1/11
Date Analyzed:	08/05/22	Data File:	080513.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Gasoline Range Organics	4,000	990

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MANIFOLD	Client:	EES Environmental Consulting
Date Received:	07/28/22	Project:	PP No. 112 1179-04, F&BI 207480
Date Collected:	07/27/22	Lab ID:	207480-08 1/6.3
Date Analyzed:	08/05/22	Data File:	080517.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Gasoline Range Organics	<2,100	<500

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	EES Environmental Consulting
Date Received:	Not Applicable	Project:	PP No. 112 1179-04, F&BI 207480
Date Collected:	08/05/22	Lab ID:	02-1800 mb
Date Analyzed:	08/05/22	Data File:	080509.D
Matrix:	Air	Instrument:	GCMS8
Units:	ug/m3	Operator:	bat

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

Compounds:	Concentration ug/m3	ppbv
Gasoline Range Organics	<330	<80

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.