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ENVIRONMENTAL CONSULTING, INC.
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Technical Memorandum

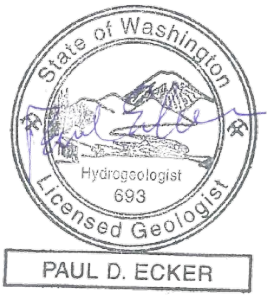
SVE Status Report and Shutdown Recommendation

To: Jonathan Polonsky and Brent Chadwick, Plaid Pantries, Inc.

From: Paul Ecker LHG, and Chris Rhea, LG

Date: December 13, 2018

Regarding: Plaid Pantry Store #112
1002 West Fourth Plain Boulevard
Vancouver, WA
Ecology VCP Site ID SW1314
UST Facility ID 9158935
EES Project 1179-02



This memorandum provides a summary of soil vapor extraction (SVE) monitoring results and performance through October 2018 for the Plaid Pantries, Inc. (Plaid) convenience market and retail fueling station #112, located at 1002 West Fourth Plain Boulevard in Vancouver, Washington (Figure 1). Plaid operates an SVE system at the subject Property as an interim action to mitigate gasoline impacts associated with prior Site operations (EES, 12/27/2013). Figure 2 illustrates Property features.

Based on operational performance observed during the past several years, this SVE system has achieved source-area treatment objectives within Property boundaries and may be shut down. The SVE system may be expanded in 2019 to address vadose-zone gasoline impacts that extend beyond Property boundaries to the adjacent right-of-way.

SVE OPERATION

The SVE system includes application of vacuum to five well locations in a historic gasoline release area near the southern Property margin. The SVE system has operated without major problems since full-time system startup in September 2013. SVE performance is monitored during routine system operations and maintenance visits, with quarterly vapor sampling events scheduled for January, April, July, and October while the system is in operation. On August 2, 2018, the SVE system was turned off to repair the system's air/water separator. The SVE system was restarted on September 7, 2018 and routine SVE operations were resumed. Operational data collected through October 4, 2018 is presented on the attached tables, figures, and charts, and summarized below.

AIR FLOW

Since October 2017, the system has produced between 90 and 110 cubic feet per minute (CFM) of air flow from the subsurface (see Table 1, "AWS Inlet"), averaging 103 CFM. The major source of air flow is obtained from wells SVE-2 and SVE-4 which are screened between 15 and 20 feet depth in relatively coarse-grained soils (sand/gravel), each with typical extraction flow rates of approximately 30 to 40 CFM. In comparison, flow rates from the three shallow extraction wells (screened in fine-grained soils between 5 and 10 feet depth) are all individually around 5 to 10 CFM.

RADIUS OF INFLUENCE

The system's zone of shallow vapor extraction influence generally covers the area of known historical gasoline soil impacts at the Property, with consistent measurable influence extending to off-Property sidewalk well B-17 (Figure 3, and Tables 1 and 2). The radius of influence for each SVE well is estimated at approximately 6 to 10 feet.

BIOGENIC DEGRADATION OF GASOLINE

Natural aerobic biodegradation of gasoline is generally expected to occur in the subsurface if sufficient oxygen is present, with greater degradation rates normally correlating with increasing oxygen concentrations. Conversely, when oxygen levels are low as is often the case within highly contaminated zones, the rate of aerobic biodegradation decreases, vapors may travel further before being biodegraded, and methane may be produced (Ecology 2016a; EPA 2015; ITRC 2014).

In order to evaluate conditions favorable to biodegradation, EES routinely measured subsurface oxygen, carbon dioxide, and methane concentrations in and around the treatment zone beginning in 2015 (after the system had operated for about two years). Biogenic degradation data is presented in Table 2. SVE operations at this site achieved the fundamental goal of enhancing oxygen flow and promoting aerobic conditions in the contaminant treatment zone, resulting in natural biological degradation of subsurface gasoline vapors that were initially observed and no longer persist in this specific area.

- Between 2016 and 2018, SVE operations induced highly aerobic conditions (over 20% oxygen) at active wells SVE-1 through SVE-5, indicating the remedial system was promoting rich oxygen flow into the subsurface treatment zone where gasoline mass formerly was present.
- Well B-17, located among contaminated soils about 10 feet south of the active treatment system and beneath the city sidewalk, shows excellent response to SVE following its installation (see Table 2). Between 2015 and early 2017, biogenic indicators showed significant petroleum contamination at B-17, as high gasoline vapor concentrations initially over 1,000 ppmV correlated with depleted oxygen (near/below 10%) and relatively elevated carbon dioxide (5 to 10%) and methane (up to 2.3%). Since mid-2017, conditions at B-17 have been restored to near-background conditions, with no evident gasoline vapors and near-ambient aerobic conditions (>20% oxygen; low carbon dioxide, no methane. This indicator well demonstrates effective SVE performance around the immediate perimeter of the active treatment zone.

- Other SVE monitoring points (B-18, S-27, S-28, S-30, and S-31) located outside of the gasoline source-area and near or beyond the perimeter of the system's zone of influence demonstrate that natural aerobic subsurface typically conditions occur elsewhere at the site, as expected for "background" uncontaminated shallow vadose-zone soils.

CONTAMINANT CONCENTRATIONS AND MASS REMOVAL

To evaluate current conditions and air quality discharge compliance, vapor samples were collected July 6 and October 4, 2018, from the five active SVE wells and submitted for laboratory analysis. Within the SVE treatment zone, gasoline and related constituent vapors concentrations indicated continued diminishing residual impacts and mass removal rates compared to prior monitoring periods.

Findings are summarized below, presented in Tables 3 and 4, and illustrated in Figure 4 and Charts 1 through 5. Copies of the laboratory analytical reports for this monitoring period are presented in Attachment A.

- Gasoline Concentrations: During the July 2018 event, gasoline was detected at three of the five SVE wells, SVE-1, SVE-3, and SVE-4. The highest concentration of gasoline (1,000 micrograms per cubic meter [ug/m^3]) was detected at well SVE-1. In October 2018, gasoline was detected at SVE wells SVE-1 and SVE-3 at concentrations of 1,400 and 500 ug/m^3, respectively. Benzene was not detected above laboratory method reporting limits (MRLs) at any of the SVE wells during the July or October 2018 sampling events. Other gasoline constituents were detected at low concentrations at each of the SVE wells during the July and October 2018 sampling events, except at SVE-5 where no gasoline related constituents were detected above laboratory MRLs. Where detected, gasoline constituent concentrations were all below the MTCA Method B soil gas screening levels for vapor intrusion. Overall, gasoline and related constituent concentrations have greatly diminished since SVE startup in 2013 and represent an overall decreasing contaminant concentration trend, with some short-term fluctuations (Table 3, Charts 3A/3B, Figure 4). During 2018, gasoline constituent concentrations have stabilized within the SVE treatment zone and are consistently below MTCA Method B vapor intrusion screening levels.
- Gasoline Mass Extraction Rate: Initial gasoline mass extraction rates at SVE startup in August 2013 were estimated at 1.4 pounds per day and decreased to approximately 0.3 pounds per day by November 2013. Since then, gasoline mass extraction rates have fluctuated but generally decreased, with removal rates near or below 0.1 pounds per day since June 2015. Gasoline removal rates were calculated to be approximately 0.015 and 0.0050 pounds per day based on the July and October 2018 monitoring results, respectively. Since 2013 startup, cumulative removal of gasoline range hydrocarbons is estimated to be 201 pounds, or approximately 33 gallons (Table 4, Chart 4). Gasoline mass removal trends (illustrated in Chart 4) indicate SVE mass removal rates have become asymptotic in 2018, and appear to be approaching the limit of gasoline contaminant removal within the current SVE zone of influence. During the past year, an estimated 6.6 pounds (about one gallon) of gasoline range hydrocarbons have been removed with SVE from the subsurface.

- Chlorinated Solvents: Non-gasoline chlorinated solvent vapors, primarily tetrachloroethylene (PCE), continue to be removed from the subsurface during SVE operations (Table 3, Figure 4, Chart 5). Although not attributed to the gasoline source or Plaid operations, total PCE concentrations in SVE system exhaust are measured quarterly to demonstrate air emission compliance with Southwest Clean Air Agency (SWCAA) discharge criteria. PCE was detected in the system exhaust at a concentration of 720 ug/m^3 in July 2018 and at 580 ug/m^3 in October 2018. These concentrations exceed the published MTCA Method B soil gas screening level for vapor intrusion of 321 ug/m^3, but are far below air emissions permit thresholds. Chlorinated solvent vapors will continue to be monitored based on regulatory discharge criteria while the system is in operation.
- Chlorinated Solvents Mass Extraction Rate: PCE mass extraction rates are very low but have varied and possibly not stabilized since system startup in 2013. The PCE mass removal rates for July and October 2018 were calculated at 0.0053 and 0.0062 pounds per day, respectively. Cumulative PCE mass removal since 2013 startup is estimated to be 10 pounds, more than half of which was accumulated since July 2016 (Table 4, Chart 4).
- Air Discharge Compliance: Per SWCAA approval, SVE exhaust treatment controls were discontinued on March 28, 2014 due to low total emissions. Extracted VOC concentrations indicate SVE emissions remain in compliance with agency requirements for untreated exhausts. Both PCE and gasoline-related vapor emissions are far below the maximum allowable discharge limits (500 and 2,000 pounds/year, respectively) and exhaust treatment is not currently required by SWCAA based solely on gasoline/BTEX and PCE vapor exhausts (Table 4).

Data collected through October 2018 indicate that the historic vadose-zone gasoline source appears to have been substantially removed within the current SVE treatment area. SVE operation in this area has successfully diminished gasoline vapor concentrations and vapor-phase mass removal rates to very low levels measured consistently during 2018, as illustrated in Charts 3A, 3B, and 4. Based on these observations and trends, EES recommends discontinuing SVE operations on the subject Property at this time.

Gasoline impacts in shallow vadose-zone soil extend beyond Property boundaries to the south, under the City right-of-way and outside the influence of the current SVE system. Regulatory requirements and potential response actions for the right-of-way area are under evaluation and will be addressed by Plaid in 2019.

ATTACHMENTS

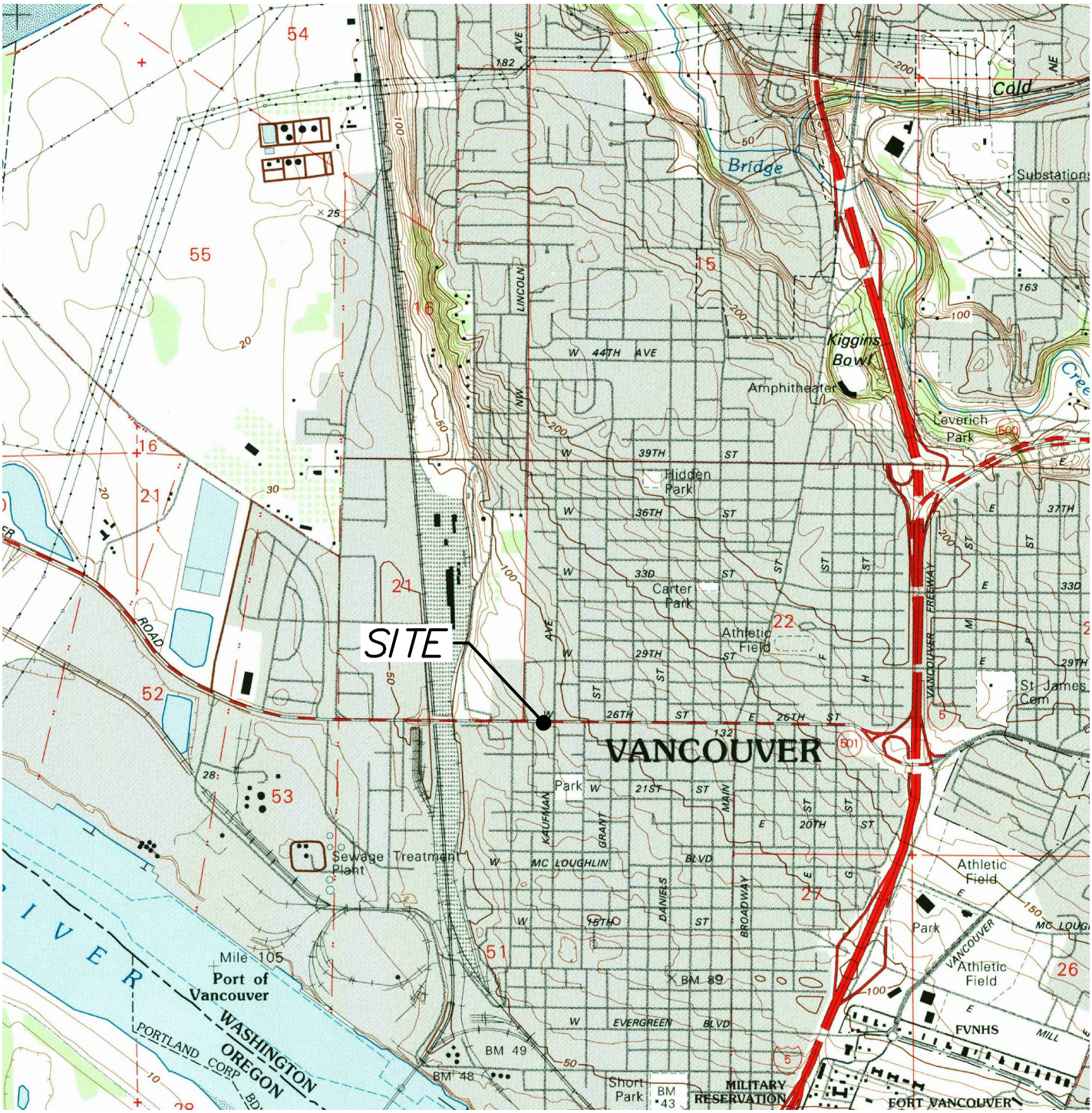
Figures
Figure 1: Vicinity Map
Figure 2: Site Features
Figure 3: Inferred Zone of Vacuum Influence
Figure 4: Contaminated Vapor Concentrations during SVE Operations

Tables
Table 1: Soil Vapor Extraction Monitoring Data
Table 2: Soil Vapor Extraction Radius of Influence Data
Table 3: Soil Vapor Analytical Results – Volatile Organic Compounds
Table 4: Soil Vapor Extraction Mass Removal

Attachments, continued

Charts	Chart 1: Gasoline Vapor Concentrations during SVE Operations
	Chart 2: Benzene Vapor Concentrations during SVE Operations
	Chart 3A: System Total Gasoline Vapor Concentrations During SVE Operations
	Chart 3B: System Total BTEX Concentrations During SVE Operations
	Chart 4: Gasoline Mass Extraction Rates and Cumulative Mass Removal
	Chart 5: PCE Mass Extraction Rates and Cumulative Mass Removal
Attachments	Attachment A: Laboratory Analytical Data

Figures



SOURCE:
USGS, VANCOUVER QUADRANGLE
WASHINGTON–OREGON
7.5 MINUTE SERIES (TOPOGRAPHIC)

N

APPROXIMATE SCALE IN FEET

0 1000 2000 4000

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VICINITY MAP

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

DATE:	8–2–18	PROJECT NO.	
FILE:	1179–02		1179–02
DRAWN:	JJT	FIGURE NO.	
APPROVED:	DBP		1

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LEGEND

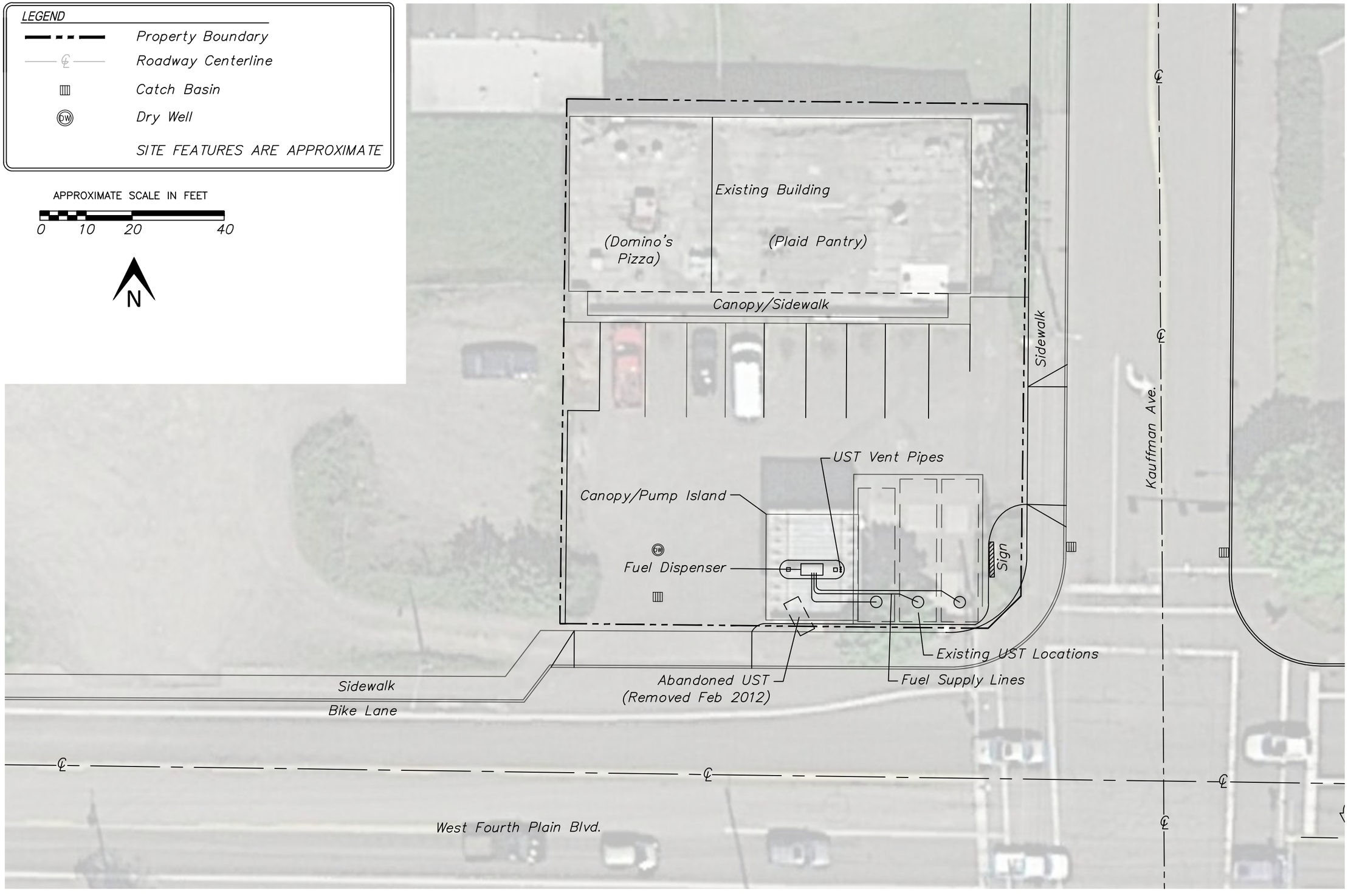
- Property Boundary
- Roadway Centerline
- Catch Basin
- Dry Well

SITE FEATURES ARE APPROXIMATE

APPROXIMATE SCALE IN FEET

0 10 20 40

N



PROJECT NO.	1179-02
DATE: 8-2-18	FIGURE NO. 2
FILE: 1179-02	
DRAWN: JJT	
APPROVED: DBP	

SITE FEATURES

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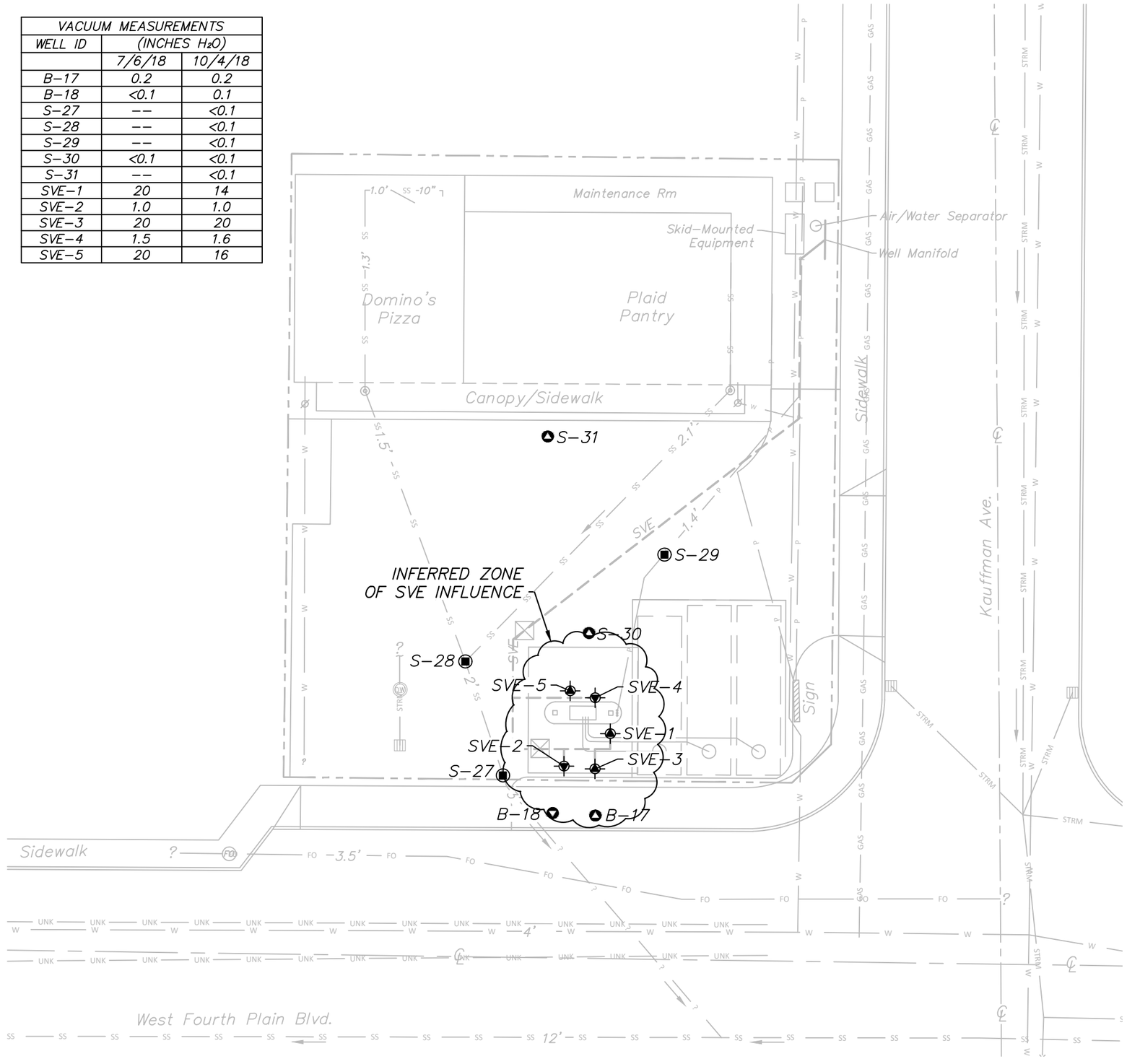
LEGEND

- Property Boundary
- Roadway Centerline
- Catch Basin
- Dry Well
- Vault
- SVE–1 — Shallow SVE Well (Screened 5–10' bgs)
- SVE–2 — 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 Piping
- W — Water Line
- SS — Sanitary Sewer & Flow Direction
- STRM — Storm Sewer & Flow Direction
- P — Power
- GAS — Natural Gas
- UNK — Unknown Utility
- FO — Fiber Optic
- Arrows Indicate Flow Direction Where Known
- -- = Not Measured
- Approximate Utility Depths Indicated Where Known (Feet)

SITE FEATURES ARE APPROXIMATE.

VACUUM MEASUREMENTS		
WELL ID	(INCHES H_2O)	
	7/6/18	10/4/18
B–17	0.2	0.2
B–18	<0.1	0.1
S–27	--	<0.1
S–28	--	<0.1
S–29	--	<0.1
S–30	<0.1	<0.1
S–31	--	<0.1
SVE–1	20	14
SVE–2	1.0	1.0
SVE–3	20	20
SVE–4	1.5	1.6
SVE–5	20	16



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APPROXIMATE SCALE IN FEET

0 10 20 40

INFERRED SVE RADIUS OF INFLUENCE (JULY AND OCTOBER 2018)

DATE:	10–30–18
FILE:	1179–02
DRAWN:	JJT
APPROVED:	DBP
PROJECT NO.	1179–02
FIGURE NO.	3

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LEGEND

- Property Boundary
- Catch Basin
- Dry Well
- Bollards
- Vault
- SVE-1 — Shallow SVE test well (screened 5–10' bgs)
- SVE-2 — Deep SVE test well (screened 15–20' bgs)
- Fiber Optic Manhole
- Water Valves
- Signal Control
- SS — Sanitary Sewer
- STRM — Storm
- W — Water
- FO — Fiber Optic
- P — Power
- SVE Piping

G = Gasoline

B = Benzene

PCE = Tetrachloroethylene

-- = Not Analyzed

RESULTS REPORTED IN MICROGRAMS PER CUBIC METER (ug/m^3)

* = SVE SYSTEM OFF 12/11/15 THROUGH 3/16/16 TO EVALUATE PERCHED GROUNDWATER CONDITIONS

** = RESAMPLED ON 3/21/17 BASED ON ANOMALOUSLY HIGH GASOLINE DETECTION

*** = THIS SAMPLE WAS NOT ANALYZED DUE TO CANISTER VACUUM ISSUES

**** = THIS SAMPLE WAS NOT ANALYZED DUE TO WATER IN SAMPLING LINE

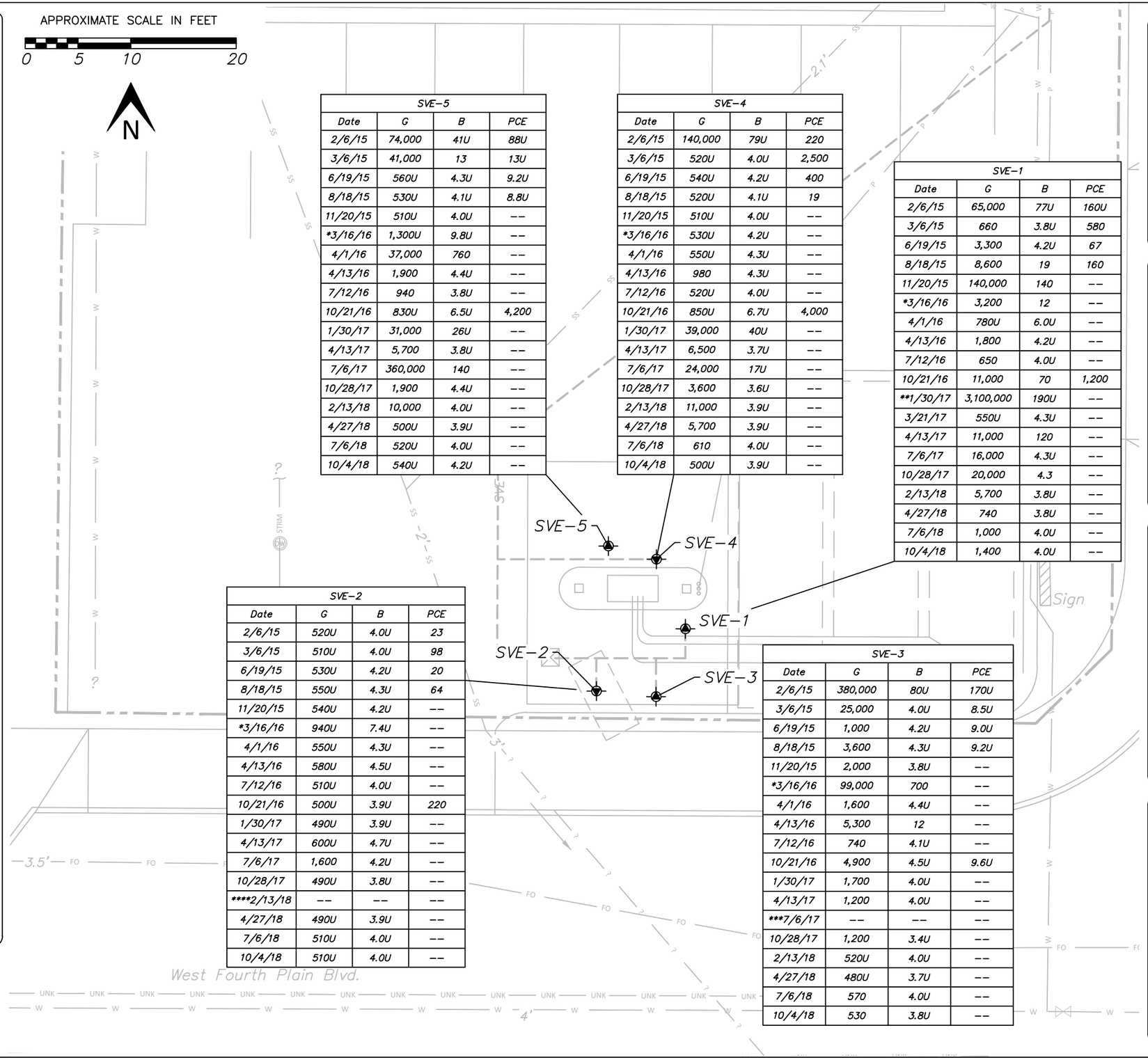
SVE SYSTEM OPERATIONS STARTED IN AUGUST 2013. SEE TABLES FOR COMPREHENSIVE LABORATORY RESULTS.

SITE FEATURES ARE APPROXIMATE

APPROXIMATE SCALE IN FEET

0 5 10 20

N



SVE-5

Date	G	B	PCE
2/6/15	74,000	41U	88U
3/6/15	41,000	13	13U
6/19/15	560U	4.3U	9.2U
8/18/15	530U	4.1U	8.8U
11/20/15	510U	4.0U	--
*3/16/16	1,300U	9.8U	--
4/1/16	37,000	760	--
4/13/16	1,900	4.4U	--
7/12/16	940	3.8U	--
10/21/16	830U	6.5U	4,200
1/30/17	31,000	26U	--
4/13/17	5,700	3.8U	--
7/6/17	360,000	140	--
10/28/17	1,900	4.4U	--
2/13/18	10,000	4.0U	--
4/27/18	500U	3.9U	--
7/6/18	520U	4.0U	--
10/4/18	540U	4.2U	--

SVE-4

Date	G	B	PCE
2/6/15	140,000	79U	220
3/6/15	520U	4.0U	2,500
6/19/15	540U	4.2U	400
8/18/15	520U	4.1U	19
11/20/15	510U	4.0U	--
*3/16/16	530U	4.2U	--
4/1/16	550U	4.3U	--
4/13/16	980	4.3U	--
7/12/16	520U	4.0U	--
10/21/16	850U	6.7U	4,000
1/30/17	39,000	40U	--
4/13/17	6,500	3.7U	--
7/6/17	24,000	17U	--
10/28/17	3,600	3.6U	--
2/13/18	11,000	3.9U	--
4/27/18	5,700	3.9U	--
7/6/18	610	4.0U	--
10/4/18	500U	3.9U	--

SVE-1

Date	G	B	PCE
2/6/15	65,000	77U	160U
3/6/15	660	3.8U	580
6/19/15	3,300	4.2U	67
8/18/15	8,600	19	160
11/20/15	140,000	140	--
*3/16/16	3,200	12	--
4/1/16	780U	6.0U	--
4/13/16	1,800	4.2U	--
7/12/16	650	4.0U	--
10/21/16	11,000	70	1,200
**1/30/17	3,100,000	190U	--
3/21/17	550U	4.3U	--
4/13/17	11,000	120	--
7/6/17	16,000	4.3U	--
10/28/17	20,000	4.3	--
2/13/18	5,700	3.8U	--
4/27/18	740	3.8U	--
7/6/18	1,000	4.0U	--
10/4/18	1,400	4.0U	--

SVE-2

Date	G	B	PCE
2/6/15	520U	4.0U	23
3/6/15	510U	4.0U	98
6/19/15	530U	4.2U	20
8/18/15	550U	4.3U	64
11/20/15	540U	4.2U	--
*3/16/16	940U	7.4U	--
4/1/16	550U	4.3U	--
4/13/16	580U	4.5U	--
7/12/16	510U	4.0U	--
10/21/16	500U	3.9U	220
1/30/17	490U	3.9U	--
4/13/17	600U	4.7U	--
7/6/17	1,600	4.2U	--
10/28/17	490U	3.8U	--
****2/13/18	--	--	--
4/27/18	490U	3.9U	--
7/6/18	510U	4.0U	--
10/4/18	510U	4.0U	--

SVE-3

Date	G	B	PCE
2/6/15	380,000	80U	170U
3/6/15	25,000	4.0U	8.5U
6/19/15	1,000	4.2U	9.0U
8/18/15	3,600	4.3U	9.2U
11/20/15	2,000	3.8U	--
*3/16/16	99,000	700	--
4/1/16	1,600	4.4U	--
4/13/16	5,300	12	--
7/12/16	740	4.1U	--
10/21/16	4,900	4.5U	9.6U
1/30/17	1,700	4.0U	--
4/13/17	1,200	4.0U	--
***7/6/17	--	--	--
10/28/17	1,200	3.4U	--
2/13/18	520U	4.0U	--
4/27/18	480U	3.7U	--
7/6/18	570	4.0U	--
10/4/18	530	3.8U	--

PROJECT NO.	1179-02
DATE: 10-30-18	FIGURE NO. 4
FILE: 1179-02	DRAWN: JJT
	APPROVED: DBP

CONTAMINANT VAPOR CONCENTRATIONS DURING SVE OPERATIONS (THROUGH 10/4/18)

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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-1	2013 Q3 Avg.	-	22	1,129	637	8
	2013 Q4 Avg.	-	41	205	1,099	9
	2014 Q1 Avg.	-	35	180	919	11
	2014 Q2 Avg.	-	26	101	807	9
	2014 Q3 Avg.	-	23	56	1,079	11
	2014 Q4 Avg.	-	25	17	933	11
	2015 Q1 Avg.	-	28	1.4	779	7
	2015 Q2 Avg.	-	25	5.8	813	8
	2015 Q3 Avg.	-	21	5.7	881	10
	2015 Q4 Avg.	-	21	2.9	816	10
	2016 Q1 Avg.	-	23	1.1	627	-
	2016 Q2 Avg.	-	22	11	594	7
	2016 Q3 Avg.	-	18	6.4	510	7
	2016 Q4 Avg.	-	24	5.8	904	10
	2017 Q1 Avg.	-	26	12	935	9
	2017 Q2 Avg.	-	20	11	532	7
	2017 Q3 Avg.	-	18	2.9	575	10
	10/28/2017		21	1.8	667	10
	11/21/2017		23	2.3	635	9
	12/29/2017		21	7.1	535	7
	02/13/2018	Yes	22	1.3	608	8
	02/15/2018	-	22	1.1	608	7
	03/21/2018	-	22	7.7	617	8
	04/18/2018	-	22	-	636	-
	04/27/2018	Yes	20	3.0	521	8
	05/30/2018	-	20	5.7	447	6
	06/15/2018	-	23	6.1	791	11
	07/06/2018	Yes	20	2.1	539	8
	08/02/2018	-	22	6.8	472	8
	09/07/2018	-	12	5.4	310	7
	09/10/2018	-	18	5.5	557	10
	10/04/2018	Yes	17	1.6	619	11
SVE-2	2013 Q3 Avg.	-	6.9	4.0	2,470	29
	2013 Q4 Avg.	-	9.1	3.9	3,043	32
	2014 Q1 Avg.	-	8.0	20	1,597	15
	2014 Q2 Avg.	-	12	6.5	2,664	29
	2014 Q3 Avg.	-	8.5	1.2	3,046	32
	2014 Q4 Avg.	-	11	0.8	2,414	31
	2015 Q1 Avg.	-	12	0.1	3,500	32
	2015 Q2 Avg.	-	9.2	0.5	3,272	35
	2015 Q3 Avg.	-	7.7	0.5	2,886	33
	2015 Q4 Avg.	-	8.5	0.6	2,562	32
	2016 Q1 Avg.	-	11	0.8	3,025	-
	2016 Q2 Avg.	-	9.4	3.3	3,665	42
	2016 Q3 Avg.	-	7.5	5.4	2,843	39
	2016 Q4 Avg.	-	10	4.4	3,280	34
	2017 Q1 Avg.	-	14	4.4	3,179	32
	2017 Q2 Avg.	-	12	3.8	3,373	45
	2017 Q3 Avg.	-	8.4	2.0	2,597	43
	10/28/2017	Yes	8.7	1.3	3062	44
	11/21/2017	-	12	1.5	2884	40
	12/29/2017	-	11	8.5	3680	45

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-2 (cont'd)	02/13/2018	Yes	12	1.6	2,600	32
	02/15/2018	-	10	0.9	2,870	34
	03/21/2018	-	10	10.4	2,470	34
	04/18/2018	-	12	-	2,670	-
	04/27/2018	Yes	12	2.1	2,504	40
	05/30/2018	-	8.2	7.0	2,841	39
	06/15/2018	-	7.0	3.3	2,739	38
	07/06/2018	Yes	8.0	1.4	2,663	41
	08/02/2018	-	8.5	4.6	2,299	41
	09/07/2018	-	5.0	4.7	1,963	42
	09/10/2018	-	8.0	4.8	1,940	35
	10/04/2018	Yes	8.0	0.9	2,244	41
SVE-3	2013 Q3 Avg.	-	22	27	732	9
	2013 Q4 Avg.	-	39	11	1,077	9
	2014 Q1 Avg.	-	36	18	1,107	9
	2014 Q2 Avg.	-	26	6.1	808	8
	2014 Q3 Avg.	-	23	1.2	890	9
	2014 Q4 Avg.	-	26	3.7	951	11
	2015 Q1 Avg.	-	28	3.0	769	7
	2015 Q2 Avg.	-	24	1.6	763	8
	2015 Q3 Avg.	-	21	1.5	746	9
	2015 Q4 Avg.	-	21	0.8	588	7
	2016 Q1 Avg.	-	23	8.0	607	-
	2016 Q2 Avg.	-	21	236	535	6
	2016 Q3 Avg.	-	19	5.8	463	7
	2016 Q4 Avg.	-	24	7.5	802	8
	2017 Q1 Avg.	-	26	5.2	859	9
	2017 Q2 Avg.	-	20	3.9	482	6
	2017 Q3 Avg.	-	19	2.1	461	8
	10/28/2017	Yes	21	1.9	670	10
	11/21/2017	-	23	1.5	580	8
	12/29/2017	-	21	19	632	8
	02/13/2018	Yes	22	3.0	768	10
	02/15/2018	-	22	1.0	525	6
	03/21/2018	-	22	7.8	658	9
	04/18/2018	-	20	-	621	-
	04/27/2018	Yes	20	2.4	512	8
	05/30/2018	-	20	6.1	557	8
	06/15/2018	-	23	3.7	818	11
	07/06/2018	Yes	21	1.6	637	10
	08/02/2018	-	22	3.6	516	9
	09/07/2018	-	12	5.2	271	6
	09/10/2018	-	18	4.1	609	11
	10/04/2018	Yes	16	1.3	551	10
SVE-4	2013 Q3 Avg.	-	8.2	4.1	2,767	33
	2013 Q4 Avg.	-	13	9.0	2,743	27
	2014 Q1 Avg.	-	15	8.9	3,382	32
	2014 Q2 Avg.	-	15	5.1	3,525	40
	2014 Q3 Avg.	-	8.5	1.4	2,940	29
	2014 Q4 Avg.	-	11	2.9	2,489	32
	2015 Q1 Avg.	-	12	3.4	3,833	35
	2015 Q2 Avg.	-	9.4	1.1	3,254	33

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-4 (cont'd)	2015 Q3 Avg.	-	8.3	1.8	3,116	36
	2015 Q4 Avg.	-	8.5	1.1	3,187	39
	2016 Q1 Avg.	-	13	1.1	3,583	-
	2016 Q2 Avg.	-	9.9	5.1	3,401	39
	2016 Q3 Avg.	-	8.0	7.1	2,750	38
	2016 Q4 Avg.	-	9.3	5.5	3,229	33
	2017 Q1 Avg.	-	13	6.4	3,302	33
	2017 Q2 Avg.	-	12	5.9	3,182	42
	2017 Q3 Avg.	-	9	2.7	2,543	42
	10/28/2017	Yes	10	1.7	2831	41
	11/21/2017	-	14	4.8	3123	43
	12/29/2017	-	12	21.7	3378	42
	02/13/2018	Yes	13	0.6	2,900	36
	02/15/2018	-	12	3.2	3,370	39
	03/21/2018	-	12	9.3	2,897	39
	04/18/2018	-	12	-	2,461	-
	04/27/2018	Yes	10	3.7	2,536	40
	05/30/2018	-	8.3	5.4	3,052	42
	06/15/2018	-	8.0	8.1	2,409	33
	07/06/2018	Yes	7.0	2.6	2,452	38
	08/02/2018	-	7.0	5.7	2,084	37
	09/07/2018	-	4.5	4.4	1,682	36
	09/10/2018	-	9.0	4.6	2,048	37
	10/04/2018	Yes	7.5	2.2	1,903	35
SVE-5	2013 Q3 Avg.	-	22	6.9	674	8
	2013 Q4 Avg.	-	39	10	1,079	9
	2014 Q1 Avg.	-	35	18	889	7
	2014 Q2 Avg.	-	26	7.8	790	9
	2014 Q3 Avg.	-	23	1.2	886	9
	2014 Q4 Avg.	-	25	2.7	766	9
	2015 Q1 Avg.	-	28	2.8	862	8
	2015 Q2 Avg.	-	24	0.6	812	8
	2015 Q3 Avg.	-	21	0.6	895	10
	2015 Q4 Avg.	-	21	3.9	559	7
	2016 Q1 Avg.	-	23	1.1	515	-
	2016 Q2 Avg.	-	21	6.2	556	7
	2016 Q3 Avg.	-	18	12	446	6
	2016 Q4 Avg.	-	24	4.5	724	7
	2017 Q1 Avg.	-	26	5.9	899	9
	2017 Q2 Avg.	-	20	5.1	473	6
	2017 Q3 Avg.	-	18	7.6	424	7
	10/28/2017	Yes	21	1.5	555	8
	11/21/2017	-	23	4.3	770	11
	12/29/2017	-	21	14.3	409	5
	02/13/2018	Yes	22	1.1	624	8
	02/15/2018	-	22	3.7	561	7
	03/21/2018	-	22	15.7	538	7
	04/18/2018	-	22	-	577	-
	04/27/2018	Yes	20	2.2	526	8
	05/30/2018	-	20	4.6	438	6

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-5 (cont'd)	06/15/2018	-	22	5.3	650	9
	07/06/2018	Yes	21	2.5	450	7
	08/02/2018	-	21	3.7	434	8
	09/07/2018	-	12	4.1	292	6
	09/10/2018	-	17	4.7	475	9
	10/04/2018	Yes	17	1.3	584	11
AWS Inlet	2013 Q3 Avg.	-	23	-	-	86
	2013 Q4 Avg.	-	42	-	-	65
	2014 Q1 Avg.	-	34	-	-	58
	2014 Q2 Avg.	-	27	-	-	87
	2014 Q3 Avg.	-	25	-	-	89
	2014 Q4 Avg.	-	26	-	-	93
	2015 Q1 Avg.	-	29	-	-	88
	2015 Q2 Avg.	-	26	-	-	91
	2015 Q3 Avg.	-	21	-	-	98
	2015 Q4 Avg.	-	22	-	-	95
	2016 Q1 Avg.	-	22	-	-	-
	2016 Q2 Avg.	-	22	-	-	101
	2016 Q3 Avg.	-	20	-	-	98
	2016 Q4 Avg.	-	25	-	-	93
	2017 Q1 Avg.	-	28	-	-	92
	2017 Q2 Avg.	-	23	-	-	105
	2017 Q3 Avg.	-	20	-	-	109
	10/28/2017	-	22	-	-	112
	11/21/2017	-	24	-	-	110
	12/29/2017	-	22	-	-	107
	02/13/2018	-	22	-	-	93
	02/15/2018	-	22	-	-	93
	03/21/2018	-	23	-	-	98
	04/18/2018	-	23	-	-	-
	04/27/2018	-	22	-	-	105
	05/30/2018	-	21	-	-	102
	06/15/2018	-	23	-	-	103
	07/06/2018	-	22	-	-	104
	08/02/2018	-	22	-	-	104
	09/07/2018	-	12	-	-	96
	09/10/2018	-	18	-	-	101
	10/04/2018	-	17	-	-	109
SVE Blower Inlet	2013 Q3 Avg.	-	24	37	1,744	80
	2013 Q4 Avg.	-	43	21	1,643	76
	2014 Q1 Avg.	-	35	10	1,686	79
	2014 Q2 Avg.	-	28	3.6	1,918	88
	2014 Q3 Avg.	-	25	3.3	1,777	82
	2014 Q4 Avg.	-	27	1.7	1,874	86
	2015 Q1 Avg.	-	30	1.4	2,353	108
	2015 Q2 Avg.	-	27	0.6	2,203	101
	2015 Q3 Avg.	-	23	1.8	2,380	109
	2015 Q4 Avg.	-	22	0.9	2,223	102
	2016 Q1 Avg.	-	24	1.4	1,983	91
	2016 Q2 Avg.	-	23	31	2,294	106
	2016 Q3 Avg.	-	21	3.7	1,926	89

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 Blower Inlet	2016 Q4 Avg.	-	25	4.7	2,652	122
(cont'd)	2017 Q1 Avg.	-	28	4.9	1,970	91
	2017 Q2 Avg.	-	22	5.7	1,757	81
	2017 Q3 Avg.	-	20	2.7	2,071	95
	10/28/2017	Yes	22	1.5	1535	71
	11/21/2017	-	25	3.5	1659	76
	12/29/2017	-	23	13.2	3158	145
	02/13/2018	Yes	22	4.0	1,479	68
	02/15/2018	-	24	1.5	1,550	71
	03/21/2018	-	24	8.8	1,444	66
	04/18/2018	-	-	-	-	-
	04/27/2018	Yes	23	2.8	2,266	104
	05/30/2018	-	21	4.6	2,469	114
	06/15/2018	-	25	5.9	1,958	90
	07/06/2018	Yes	23	2.0	2,228	102
	08/02/2018	-	23	4.4	2,023	93
	09/07/2018	-	14	4.8	1,649	76
	09/10/2018	-	20	4.7	1,961	90
	10/04/2018	Yes	18	1.5	2,322	107
SVE Blower Outlet[c]	2013 Q3 Avg.	-	-	76	-	-
(GAC #1)	2013 Q4 Avg.	-	-	24	-	-
	2014 Q1 Avg.	-	9.3	25	-	-
	2014 Q2 Avg.	-	0.4	4.5	-	-
	2014 Q3 Avg.	-	0.3	6.0	-	-
	2014 Q4 Avg.	-	0.4	4.2	-	-
	2015 Q1 Avg.	-	0.3	1.9	-	-
	2015 Q2 Avg.	-	0.3	0.7	-	-
	2015 Q3 Avg.	-	0.4	2.0	-	-
	2015 Q4 Avg.	-	0.4	1.7	-	-
	2016 Q1 Avg.	-	0.2	2.9	-	-
	2016 Q2 Avg.	-	0.5	34	-	-
	2016 Q3 Avg.	-	0.5	3.1	-	-
	2016 Q4 Avg.	-	0.5	3.6	-	-
	2017 Q1 Avg.	-	0.4	5.8	-	-
	2017 Q2 Avg.	-	0.4	4.8	-	-
	2017 Q3 Avg.	-	0.4	2.5	-	-
	10/28/2017	-	0.4	2.3	-	-
	11/21/2017	-	0.4	3.1	-	-
	12/29/2017	-	0.4	12.6	-	-
	02/13/2018	-	0.4	3.5	-	-
	02/15/2018	-	0.4	1.1	-	-
	03/21/2018	-	0.4	12.8	-	-
	04/18/2018	-	-	-	-	-
	04/27/2018	-	0.4	2.3	-	-
	05/30/2018	-	0.4	4.2	-	-
	06/15/2018	-	0.4	4.2	-	-
	07/06/2018	-	0.4	1.5	-	-
	08/02/2018	-	0.4	5.2	-	-
	09/07/2018	-	0.4	4.6	-	-
	09/10/2018	-	0.4	5.6	-	-
	10/04/2018	-	0.4	1.4	-	-
GAC #2	2013 Q3 Avg.	-	-	0.0	-	-

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]
GAC #2 (cont'd)	2013 Q4 Avg.	-	-	0.9	-	-
	2014 Q1 Avg.	-	-	2.9	-	-
	2014 Q2 Avg.	-	-	1.4	-	-
Post GAC	2013 Q3 Avg.	-	-	0.0	-	-
	2013 Q4 Avg.	-	-	0.0	-	-
	2014 Q1 Avg.	-	0.2	1.4	-	-
	2014 Q2 Avg.	-	0.1	2.5	-	-
	2014 Q3 Avg.	-	0.1	5.2	-	-
	2014 Q4 Avg.	-	0.1	-	-	-
	2015 Q1 Avg.	-	0.1	-	-	-

Notes:
[a] Measured at SVE system manifold.
[b] Air flow calculated at individual well laterals (SVE-1 through -5), and measured at AWS Inlet (system total) using a dedicated 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 SVE Blower Outlet (inches H_2O).
Avg. = average
AWS = air/water separator
scfm = standard cubic feet per minute
cont'd = continued
fpm = feet per minute
ppmv = parts per million vapor
- = Not measured
GAC = Granular activated carbon

TABLE 2
Biodegradation Parameter Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	CH_4 (%)[a]	CO_2 (%)[a]	O_2 (%)[a]
SVE Wells							
SVE-1	11/23/2015	20	Yes	2.8	-	-	-
	07/12/2016	19	Yes	19[b]	0.0[b]	1.0[b]	19.7[b]
	10/21/2016	19	Yes	1.9[b]	0.0[b]	0.1[b]	20.5[b]
	01/30/2017	26	Yes	35[b]	0.5[b]	0.2[b]	20.4[b]
	04/13/2017	21	-	1.7[b]	0.0[b]	0.4[b]	20.3[b]
	07/06/2017	17	Yes	1.1[b]	0.0[b]	0.6[b]	20.2[b]
	10/28/2017	21	Yes	1.8[b]	0.0[b]	0.3[b]	20.5[b]
	02/13/2018	20	-	1.3[b]	-	-	-
	02/15/2018	-	-	1.1[b]	0.0[b]	2.2[b]	19.8[b]
	04/27/2018	20	-	1.8[b]	0.0[b]	0.0[b]	21.7[b]
	07/06/2018	20	-	0.5[b]	0.0[b]	0.0[b]	21.7[b]
	10/04/2018	14	-	0.5[b]	0.0[b]	0.0[b]	20.0[b]
SVE-2	11/23/2015	4.0	Yes	1.9	-	-	-
	07/12/2016	1.2	Yes	17[b]	0.0[b]	1.7[b]	19.3[b]
	10/21/2016	1.5	Yes	1.4[b]	0.0[b]	0.3[b]	20.5[b]
	01/30/2017	2.0	Yes	3.2[b]	0.0[b]	0.3[b]	20.5[b]
	04/13/2017	2.5	-	1.0[b]	0.0[b]	0.2[b]	20.5[b]
	07/06/2017	1.3	Yes	0.6[b]	0.0[b]	0.8[b]	20.2[b]
	10/28/2017	1.4	Yes	1.3[b]	0.0[b]	0.5[b]	20.5[b]
	02/13/2018	1.0	-	1.6[b]	-	-	-
	02/15/2018	-	-	0.9[b]	0.0[b]	2.3[b]	19.9[b]
	04/27/2018	1.0	-	0.9[b]	0.0[b]	0.0[b]	21.5[b]
	07/06/2018	1.0	-	0.3[b]	0.0[b]	0.0[b]	21.7[b]
	10/04/2018	1.0	-	0.7[b]	0.0[b]	0.0[b]	20.0[b]
SVE-3	11/23/2015	21	Yes	2.8	-	-	-
	07/12/2016	19	Yes	17[b]	0.0[b]	0.3[b]	20.5[b]
	10/21/2016	16	Yes	5.2[b]	0.0[b]	0.5[b]	19.9[b]
	01/30/2017	25	Yes	2.0[b]	0.0[b]	0.1[b]	20.8[b]
	04/13/2017	24	-	0.5[b]	0.0[b]	0.0[b]	20.9[b]
	07/06/2017	17	Yes	0.7[b]	0.0[b]	0.0[b]	20.7[b]
	10/28/2017	20	Yes	1.9[b]	0.0[b]	0.2[b]	20.7[b]
	02/13/2018	20	-	3.0[b]	-	-	-
	02/15/2018	-	-	1.0[b]	0.0[b]	0.2[b]	21.0[b]
	04/27/2018	20	-	1.9[b]	0.0[b]	0.0[b]	21.5[b]
	07/06/2018	20	-	0.7[b]	0.0[b]	0.0[b]	21.7[b]
	10/04/2018	20	-	0.7[b]	0.0[b]	0.0[b]	20.2[b]
SVE-4	11/23/2015	1.8	Yes	0.9	-	-	-
	07/12/2016	1.5	Yes	17[b]	0.0[b]	1.3[b]	19.4[b]
	10/21/2016	1.8	Yes	2.4[b]	0.0[b]	0.3[b]	20.3[b]
	01/30/2017	2.0	Yes	2.8[b]	0.0[b]	0.3[b]	20.5[b]
	04/13/2017	2.8	-	1.0[b]	0.0[b]	0.3[b]	20.5[b]
	07/06/2017	1.8	Yes	1.7[b]	0.0[b]	0.6[b]	20.3[b]
	10/28/2017	2.0	Yes	1.7[b]	0.0[b]	0.5[b]	20.4[b]
	02/13/2018	1.8	-	0.6[b]	-	-	-
	02/15/2018	-	-	3.2[b]	0.0[b]	1.8[b]	20.2[b]
	04/27/2018	2.0	-	2.5[b]	0.0[b]	0.0[b]	21.7[b]
	07/06/2018	1.5	-	0.7[b]	0.0[b]	0.0[b]	21.8[b]
	10/04/2018	1.6	-	0.4[b]	0.0[b]	0.0[b]	20.9[b]
SVE-5	11/23/2015	6.0	Yes	0.8	-	-	-

TABLE 2
Biodegradation Parameter Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	CH_4 (%)[a]	CO_2 (%)[a]	O_2 (%)[a]
SVE-5 (cont'd)	07/12/2016	20	Yes	15[b]	0.0[b]	0.1[b]	20.5[b]
	10/21/2016	10	Yes	1.7[b]	0.0[b]	0.2[b]	20.2[b]
	01/30/2017	20	Yes	2.4[b]	0.0[b]	0.2[b]	20.6[b]
	04/13/2017	27	-	1.1[b]	0.0[b]	0.2[b]	20.5[b]
	07/06/2017	16	Yes	16.7[b]	0.0[b]	0.0[b]	20.9[b]
	10/28/2017	15	Yes	1.5[b]	0.0[b]	1.0[b]	19.9[b]
	02/13/2018	10	-	1.1[b]	-	-	-
	02/15/2018	-	-	3.7[b]	0.0[b]	0.0[b]	21.2[b]
	04/27/2018	8.0	-	1.7[b]	0.0[b]	0.0[b]	21.7[b]
	07/06/2018	20	-	0.7[b]	0.0[b]	0.0[b]	21.7[b]
	10/04/2018	16	-	0.4[b]	0.0[b]	0.0[b]	20.8[b]
Vapor Monitoring Wells							
B-17	11/20/2015	0.30	-	-	-	-	-
	11/23/2015	0.22	No	123	-	-	-
	11/24/2015	*0.02*	-	*307*	-	-	-
	12/11/2015	0.21	-	1,210	-	-	-
	03/16/2016	*0.00*	-	*287*	-	-	-
	03/16/2016[1]	0.01	-	1,469	1.3	7.1	8.2
	03/16/2016[2]	0.03	-	359	0.6	9.5	5.4
	03/22/2016	1.5	-	-	-	-	-
	03/28/2016	0.25	-	-	-	-	-
	04/01/2016	0.24	No	315	0.3	4.0	15.4
	04/08/2016	0.24	-	-	-	-	-
	04/13/2016	0.25	-	-	-	-	-
	05/13/2016	0.30	Yes	-	-	-	-
	07/12/2016	0.21	Yes	2.6	0.0	4.6	15.3
	10/21/2016	0.30	Yes	305	0.2	8.8	9.7
	01/30/2017	0.40	Yes	840	2.3	13	0.5
	04/13/2017	0.20	-	49.2	0.0	8.2	6.2
	07/06/2017	0.32	No	1.2	0.0	0.0	20.6
	10/28/2017	0.21	Yes	1.7	0.0	1.1	19.5
	02/13/2018	-	Yes	0.5	-	-	-
	02/15/2018	0.16	-	0.7	0.0	1.6	20.1
	04/27/2018	0.17	-	0.9	0.0	0.6	21.0
	07/06/2018	0.20	-	3.1	0.0	0.0	21.7
	10/04/2018	0.16	-	1.0	0.0	0.8	19.4
B-18	11/20/2015	0.05	-	-	-	-	-
	11/23/2015	0.08	No	28	-	-	-
	11/24/2015	*0.00*	-	*0.6*	-	-	-
	12/11/2015	0.03	-	0.9	-	-	-
	03/16/2016	*0.00*	-	*1.3*	-	-	-
	03/16/2016[1]	0.02	-	1.4	0.1	0.9	20.1
	03/16/2016[2]	+0.04	-	1.5	0.1	1.6	19.3
	03/22/2016	0.09	-	-	-	-	-
	03/28/2016	0.07	-	-	-	-	-
	04/01/2016	0.06	No	1.3	0.0	1.7	18.8
	04/08/2016	0.05	-	-	-	-	-
	04/13/2016	0.06	-	-	-	-	-
	05/13/2016	0.08	No	-	-	-	-
	07/12/2016	0.07	-	2.7	0.0	2.0	18.4
	10/21/2016	0.18	No	0.9	0.0	2.2	18.4

TABLE 2
Biodegradation Parameter Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	CH_4 (%)[a]	CO_2 (%)[a]	O_2 (%)[a]
B-18 (cont'd)	01/30/2017	0.20	Yes	6.9	0.0	0.6	20.1
	04/13/2017	0.25	-	2.4	0.0	2.2	18.4
	07/06/2017	0.14	Yes	0.4	0.0	1.1	19.8
	10/28/2017	0.08	-	1.6	0.0	1.1	19.7
	02/13/2018	0.05	-	0.5	-	-	-
	02/15/2018	0.06	-	0.7	0.0	0.0	21.2
	04/27/2018	0.10	-	1.2	0.0	2.1	19.9
	07/06/2018	0.08	-	2.8	0.0	1.4	20.3
	10/04/2018	0.10	-	0.7	0.0	1.3	19.4
S-27	11/20/2015	0.02	-	-	-	-	-
	11/23/2015	0.01	No	5.5	-	-	-
	11/24/2015	*0.00*	-	*0.8*	-	-	-
	12/11/2015	0.10	-	0.5	-	-	-
	03/16/2016	*0.00*	-	*1.3*	-	-	-
	03/16/2016[1]	0.00	-	1.4	0.0	0.5	19.8
	03/16/2016[2]	0.00	-	1.9	0.1	0.9	18.9
	03/22/2016	0.02	-	-	-	-	-
	03/28/2016	0.02	-	-	-	-	-
	04/01/2016	0.02	No	0.9	0.0	0.2	20.7
	04/08/2016	0.02		-	-	-	-
	05/13/2016	0.05	No	-	-	-	-
	07/12/2016	0.03	-	2.3	0.0	0.1	20.3
	10/21/2016	0.05	-	0.8	0.0	0.2	20.6
	01/30/2017	0.10	No	7.5	0.0	0.1	20.8
	04/13/2017	0.12	-	1.6	0.0	0.1	20.8
	07/06/2017	0.06	-	0.5	0.0	0.0	20.5
	10/28/2017	0.02	-	1.7	0.0	0.1	20.8
	02/13/2018	0.00	-	-	-	-	-
	04/27/2018	0.03	-	1.8	0.0	0.0	21.3
	10/04/2018	0.00	-	1.0	0.0	0.1	20.5
S-28	11/20/2015	0.03	-	-	-	-	-
	11/23/2015	0.00	No	0.8	-	-	-
	11/24/2015	*+0.75*	-	*1.0*	-	-	-
	12/11/2015	3.40	-	-	-	-	-
	03/16/2016	*+0.04*	-	-	-	-	-
	05/13/2016	0+	-	-	-	-	-
	07/12/2016	0.00	-	3.3	0.0	1.7	17.8
	10/21/2016	0.04	-	0.9	0.0	1.0	17.6
	01/30/2017	0.60	No	6.4	0.0	0.6	18.4
	04/13/2017	0.01	No	1.5	0.0	0.2	19.4
	07/06/2017	0.09	-	0.6	0.0	0.5	19.7
	10/28/2017	0.08	-	1.7	0.0	0.5	19.9
	02/13/2018	0.00	-	-	-	-	-
	04/27/2018	0.00	-	1.7	0.0	1.5	18.7
	10/04/2018	0.00	-	0.9	0.0	1.4	18.7
S-29	11/20/2015	0.02	-	-	-	-	-
	11/23/2015	0.00	No	2.6	-	-	-
	11/24/2015	*0.00*	-	*1.0*	-	-	-
	12/11/2015	0.09	-	0.4	-	-	-
	03/16/2016	*0.02*	-	-	-	-	-

TABLE 2
Biodegradation Parameter Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	CH_4 (%)[a]	CO_2 (%)[a]	O_2 (%)[a]
S-29 (cont'd)	05/13/2016	0.00	No	-	-	-	-
	07/12/2016	0.10	No	3.7	1.2	0.0	1.2
	10/21/2016	0.20	No	1.5	0.2	0.0	0.0
	01/30/2017	0+	-	1.5	0.4	0.0	0.8
	04/13/2017	0.02	-	5.5	0.2	0.0	2.9
	07/06/2017	0.00	-	0.9	0.0	0.0	20.7
	10/28/2017	0.24	-	2.0	0.0	0.0	13.9
	02/13/2018	0.08	-	-	-	-	-
	04/27/2018	0.00	-	0.3	0.1	0.0	6.7
	10/04/2018	0.00	-	1.3	0.0	0.1	9.8
S-30	11/20/2015	0.00	-	-	-	-	-
	11/23/2015	0.00	No	1.0	-	-	-
	11/24/2015	*0.02*	-	*0.8*	-	-	-
	12/11/2015	0.08	-	0.5	-	-	-
	03/16/2016	*0.00*	-	-	-	-	-
	04/01/2016	0.05	No	1.0	0.0	1.2	20.2
	04/08/2016	0.08	-	-	-	-	-
	04/13/2016	0.06	-	-	-	-	-
	05/13/2016	0.06	No	-	-	-	-
	07/12/2016	0.06	-	4.0	0.0	1.1	19.2
	10/21/2016	0.05	-	2.8	0.0	0.8	19.6
	01/30/2017	0.08	-	5.7	0.0	0.5	20.3
	04/13/2017	0.19	-	7.8	0.0	0.7	20.1
	07/06/2017	0.13	No	0.5	0.0	0.6	19.8
	10/28/2017	0.09	-	1.4	0.0	0.7	19.7
	02/13/2018	0.00	-	0.6	-	-	-
	02/15/2018	0.02	-	0.7	0.0	1.6	20.8
	04/27/2018	0.03	-	1.5	0.0	1.4	20.7
	07/06/2018	0.07	-	2.7	0.0	1.2	20.2
	10/04/2018	0.03	-	0.9	0.0	1.0	19.6
S-31	11/20/2015	0.02	-	-	-	-	-
	11/23/2015	0.03	No	3.6	-	-	-
	11/24/2015	*0.00*	-	*0.9*	-	-	-
	12/11/2015	0.05	-	0.5	-	-	-
	03/16/2016	*0.04*	-	-	-	-	-
	05/13/2016	0.00	No	-	-	-	-
	06/22/2016	-	-	*21*	*0.0*	*1.3*	*19.7*
	07/12/2016	0.06	-	5.3	0.0	1.2	19.3
	10/21/2016	0.01	-	2.6	0.0	1.3	19.7
	01/30/2017	0.03	-	4.8	0.0	0.8	19.9
	04/13/2017	0.00	-	3.0	0.0	0.8	19.8
	07/06/2017	0.00	-	1.2	0.0	0.4	20.0
	10/28/2017	0.00	-	1.5	0.0	1.0	20.1
	02/13/2018	0.03	-	-	-	-	-
	04/27/2018	0.05	-	1.5	0.0	0.8	20.8
	10/04/2018	0.00	-	1.4	0.0	1.4	19.4

TABLE 2
Biodegradation Parameter Data
Plaid Pantry No. 112
Vancouver, Washington

Well ID	Date	Vacuum (inches H_2O)[a]	Flow Observed (Yes/No)[c]	PID (ppmv)[a]	CH_4 (%)[a]	CO_2 (%)[a]	O_2 (%)[a]
Tier 1 Soil Gas Borings							
S-33	*6/22/2016*	-	-	*16*	*0.0*	*1.4*	*19.5*
S-34	*6/22/2016*	-	-	*20*	*0.0*	*1.8*	*19.5*
S-35	*6/22/2016*	-	-	*15*	*0.0*	*2.8*	*18.7*
S-36	*6/22/2016*	-	-	*27*	*0.0*	*1.3*	*19.5*
Tier 2 Sub-Slab Vapor Borings							
A-1ss	*9/22/2016*	-	-	*0.7*	*0.0*	*0.3*	*19.9*
A-2ss	*9/22/2016*	-	-	*2.6*	*0.0*	*0.6*	*19.8*
A-3ss	*9/22/2016*	-	-	*1.6*	*0.0*	*0.3*	*19.5*

Notes:

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

[b] Measured at SVE system manifold.

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

[1] Measurements taken while only SVE-2 open at SVE manifold.

[2] Measurements taken while only SVE-3 open at SVE manifold.

Italics indicate measurements were collected while the SVE system was off.

ppmv = parts per million vapor

- = Not measured

TABLE 3

Soil Vapor 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	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
Soil Gas Screening Levels MTCA Method B[1]			NA	10.7/32.1	76,200/229,000	15,200/45,700	1,520/4,570[2]	1,520/4,570	0.139/0.417	3.21/9.62	321/962	2.45/7.35	321/962	12.3/37	NA	13.9/41.7	76,200/229,000
August 2012 Soil Vapor Sampling																	
S-1	08/14/2012	5	-	6.1	50	9.6	37	12	*1.3 U*	0.68 U	0.60 U	**4.4**	3.7	0.90 U	30	3.8	0.92 U
S-2	08/15/2012	5	-	8.7	72	31	120	43	*1.2 U*	0.65 U	0.58 U	**4.4**	32	0.86 U	52	10	0.88 U
S-3	08/15/2012	5	-	3.8	18	2.6	8.2	3.3	*1.2 U*	0.62 U	0.55 U	**4.4**	28	0.82 U	16	8.4	0.83 U
S-4	08/14/2012	5	-	10	130	49	180	66	*1.2 U*	0.63 U	0.56 U	**6.2**	2.5	0.83 U	38	0.98 U	0.84 U
S-5/SVE-3	08/17/2012	5-10	-	**82,000**	**860,000**	**210,000**	**900,000**	**340,000**	*2,000 U*	*1,100 U*	*950 U*	*5,500 U*	**2,200**	*1,400 U*	3,100 U	*1,600 U*	1,400 U
S-6	08/14/2012	5	-	2.9	11	2.0	6.6	2.6	*1.4 U*	0.74 U	0.66 U	*4.8 U*	1.7	0.98 U	33	1.2 U	1.0 U
S-7	08/16/2012	5	-	7.7	14	3.1	9.0	5.0	*1.3 U*	0.71 U	0.63 U	**19**	2.0	0.94 U	32	1.1 U	0.95 U
S-8/SVE-5	08/17/2012	5-10	-	**7,900**	**220,000**	**86,000**	**340,000**	**160,000**	*1,000 U*	*530 U*	*470 U*	**7,700**	**2,500**	*710 U*	1,600 U	*830 U*	720 U
S-9	08/15/2012	5	-	2.1	8.1	1.7	6.0	2.5	*1.3 U*	0.66 U	0.59 U	*4.3 U*	6.8	0.88 U	16	1.2	0.89 U
S-10	08/14/2012	5	-	1.7	7.0	1.8	7.1	2.6	*1.1 U*	0.59 U	0.53 U	**6.4**	22	0.78 U	19	0.92 U	0.80 U
S-11	08/14/2012	15	-	1.3	9.7	2.2	6.6	2.1	*1.3 U*	0.69 U	0.62 U	4.5 U	100	0.92 U	12	3.5	1.1
S-12/SVE-2	08/20/2012	15-20	-	**3,900**	22,000	1,400	**25,000**	**17,000**	*120 U*	*65 U*	75	*340 U*	130	17 U	47 U	20 U	17 U
S-13	08/15/2012	15	-	1.1	11	0.71	3.1	1.2	*1.2 U*	0.65 U	0.58 U	4.2 U	230	0.86 U	5.9	**52**	0.88 U
SVE-4	08/17/2012	15-20	-	**560**	12,000	4,800	**22,000**	**9,300**	*130 U*	*66 U*	59 U	**620**	170	*88 U*	190 U	*100 U*	89 U
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
SVE System Monitoring																	
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

TABLE 3

Soil Vapor 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	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
Soil Gas Screening Levels MTCA Method B[1]			NA	10.7/32.1	76,200/229,000	15,200/45,700	1,520/4,570[2]	1,520/4,570	0.139/0.417	3.21/9.62	321/962	2.45/7.35	321/962	12.3/37	NA	13.9/41.7	76,200/229,000
SVE-2 (cont'd)	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*	-	-	-	-	-
	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

TABLE 3

Soil Vapor 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	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
Soil Gas Screening Levels MTCA Method B[1]			NA	10.7/32.1	76,200/229,000	15,200/45,700	1,520/4,570[2]	1,520/4,570	0.139/0.417	3.21/9.62	321/962	2.45/7.35	321/962	12.3/37	NA	13.9/41.7	76,200/229,000
SVE-4 (cont'd)	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
	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*	-	-	-	-	-
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
	12/18/2013	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3

Soil Vapor 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	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
Soil Gas Screening Levels MTCA Method B[1]			NA	10.7/32.1	76,200/229,000	15,200/45,700	1,520/4,570[2]	1,520/4,570	0.139/0.417	3.21/9.62	321/962	2.45/7.35	321/962	12.3/37	NA	13.9/41.7	76,200/229,000
SVE Blower Inlet	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
(cont'd)	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
	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
	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
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

[1] Washington Department of Ecology (WDOE), CLARC database values (August 2015).

The numerator value is the screening level for sub-slab (<15 foot depth) soil gas measurements; the denominator value is for deep (>=15 foot depth) soil gas measurements.

[2] Screening levels for m-xylene

[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.

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 Method B soil gas screening level for representative sample depth.

Italics indicate analytical reporting limits exceed Method B soil gas screening level for representative sample depth.

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 4
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	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
05/09/2014	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	2.5 [e]	1.0 [e]	0.38	0.0047	145	2.5	101	1.9
06/19/2015	607	87	0.59 U	0.038	0.012	0.0041	147	2.9	102	2.3
08/18/2015	667	96	0.54 U	0.026	0.0047	0.00026	147	2.9	102	2.3
11/20/2015	758	89	13	0.090	0.056	0.00048	152	3.0	107	2.4
04/13/2016	803	112	0.54 U	0.39	0.061	0.0022	155	3.1	110	2.5
07/12/2016	881	96	0.56 U	2.2	0.0052	0.012	155	4.0	110	3.4
10/21/2016	975	97	2.4	1.8	0.013	0.017	156	5.7	112	5.0
01/30/2017	1052	89	34	0.60	0.15	0.010	168	6.4	123	5.8
03/21/2017	1102	89	0.52	-	0.14	0.0053	175	6.7	130	6.1
04/13/2017	1125	97	3.6	0.69	0.017	0.0054	175	6.8	131	6.2
07/06/2017	1209	116	16	1.1	0.094	0.0085	183	7.5	138	6.9
10/28/2017	1323	110	3.6	0.98	0.099	0.011	195	8.7	150	8.1
02/13/2018	1403	93	4.9	0.073	0.039	0.0048	198	9.1	153	8.5
04/27/2018	1468	105	2.6	0.40	0.033	0.0021	200	9.3	155	8.6
07/06/2018	1538	104	0.52 U	0.72	0.015	0.0053	201	9.6	156	9.0
10/04/2018	1592	109	0.52 U	0.58	0.0050	0.0062	201	10.0	156	9.3
								Estimated Emissions During Last 12 Months (Pounds/Year):	6.6	1.2
								Annual Emissions Threshold (Pounds/Year):	2,000[c]	500[d]

TABLE 4

Soil Vapor Extraction Mass Removal

Plaid Pantry No. 112

Vancouver, Washington

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] Small Quantity Emissions Rate (SQER), per SWCAA 400, General Regulations for Air Pollution Sources, dated 11/15/09.

[d] Registration exemption threshold for criteria pollutants and VOCs, per Chapter 173-460 WAC, Controls for New Sources of Toxic Air Pollutants, dated 8/21/98.

[e] Estimated mass based upon historic data trends.

ft^3/min = Cubic feet per minute

mg/m^3 = Milligrams per cubic meter

- = Not measured

SVE system off from December 2015 through March 2016 for rebound monitoring and perched GW evaluation.

Charts

CHART 1

Gasoline Vapor Concentrations During SVE Operations (ug/m^3)

Plaid Pantry No. 112

Vancouver, Washington

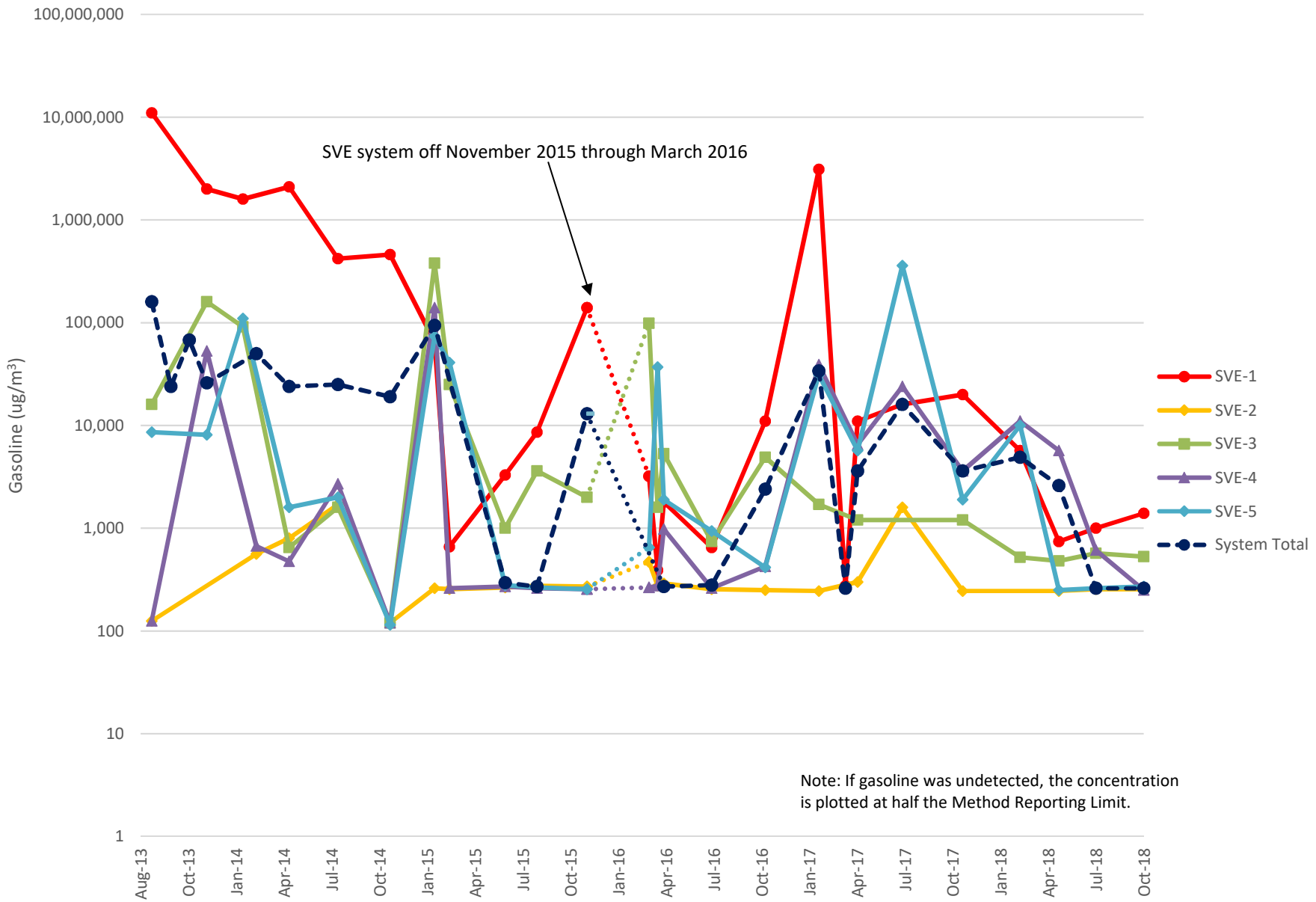


CHART 2

Benzene Vapor Concentrations During SVE Operations (ug/m^3)

Plaid Pantry No. 112

Vancouver, Washington

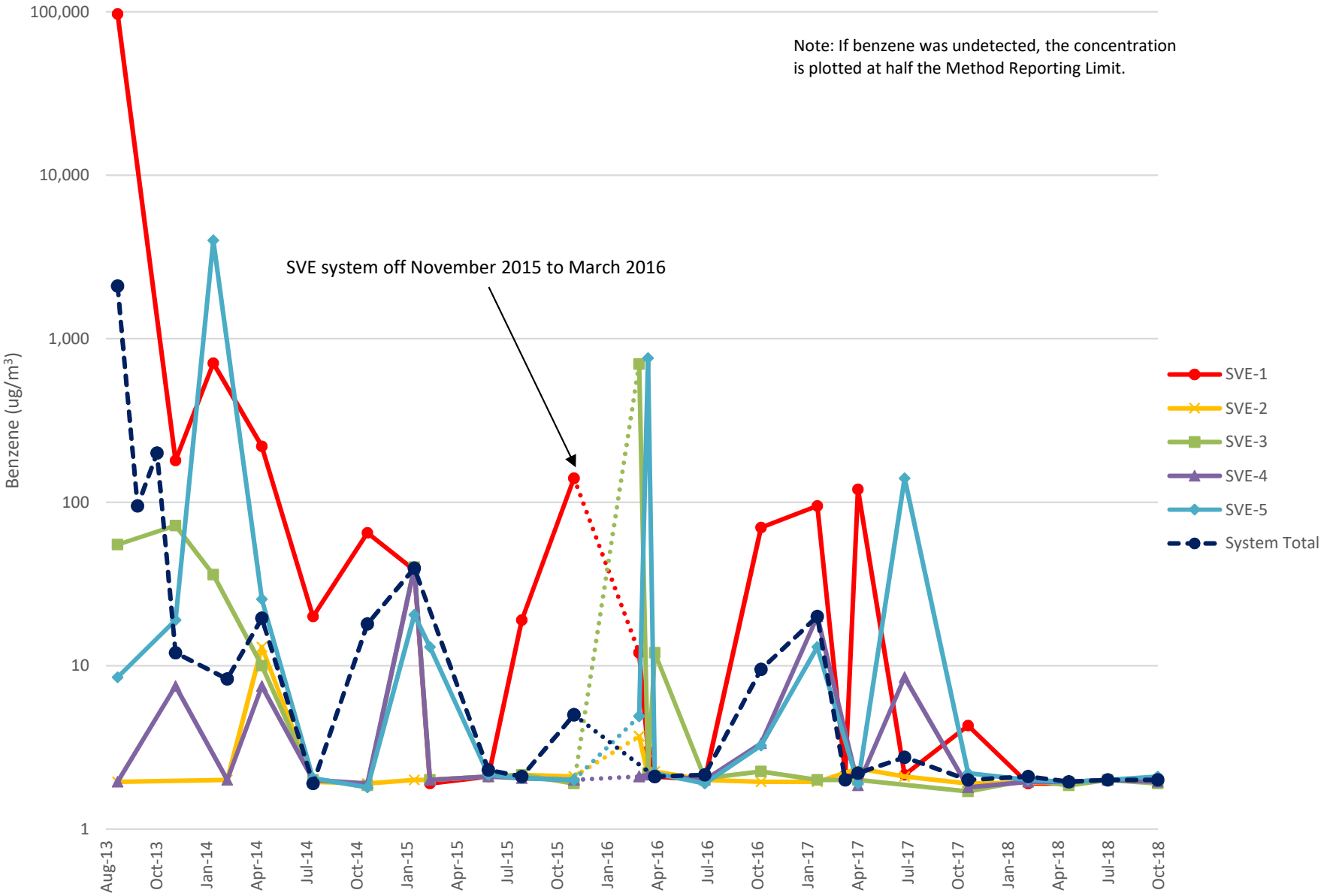


CHART 3A

System Total Gasoline Vapor Concentrations During SVE Operations (ug/m^3)

Plaid Pantry No. 112

Vancouver, Washington

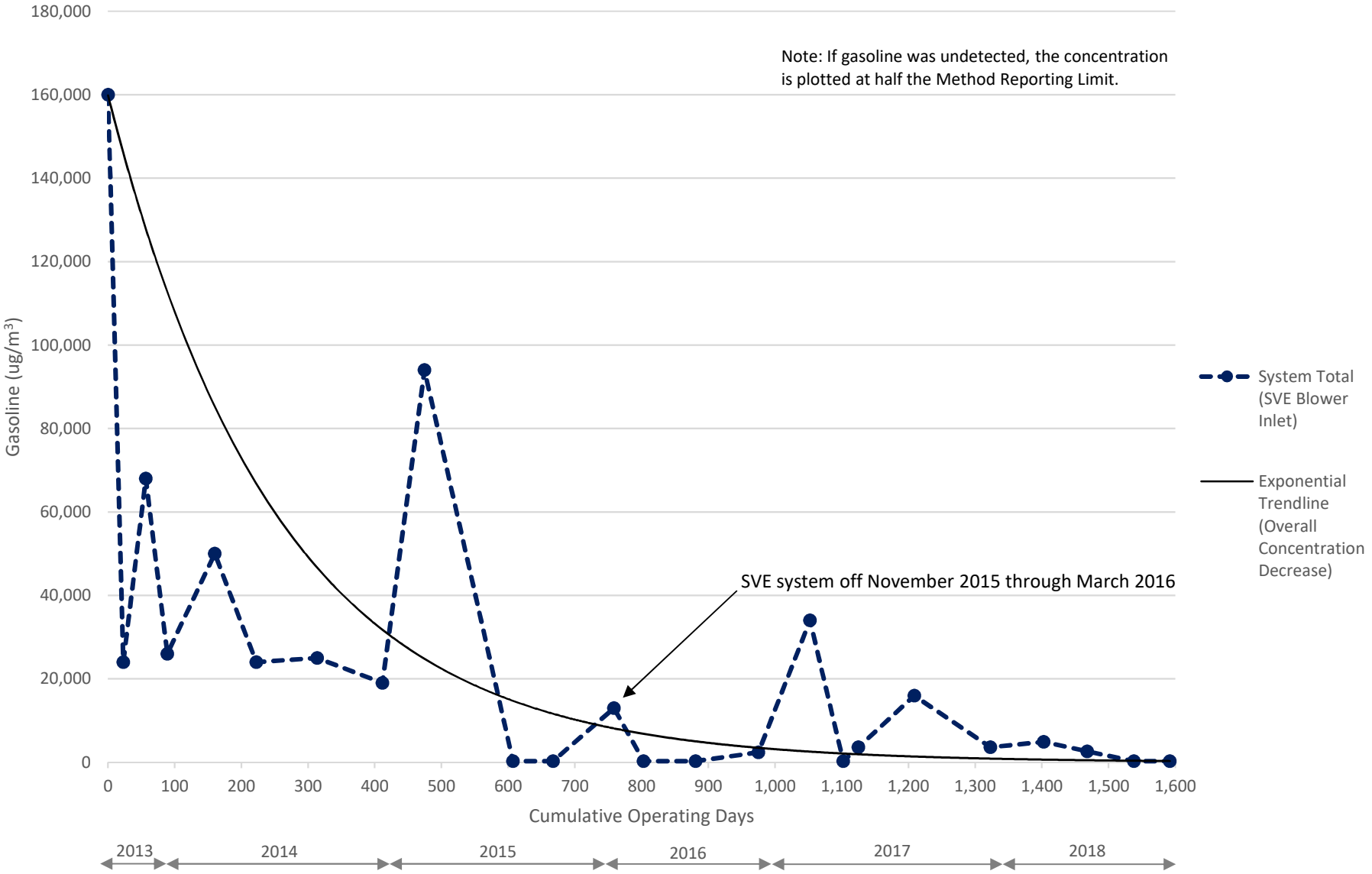


CHART 3B

System Total BTEX Vapor Concentrations During SVE Operations (ug/m^3)

Plaid Pantry No. 112

Vancouver, Washington

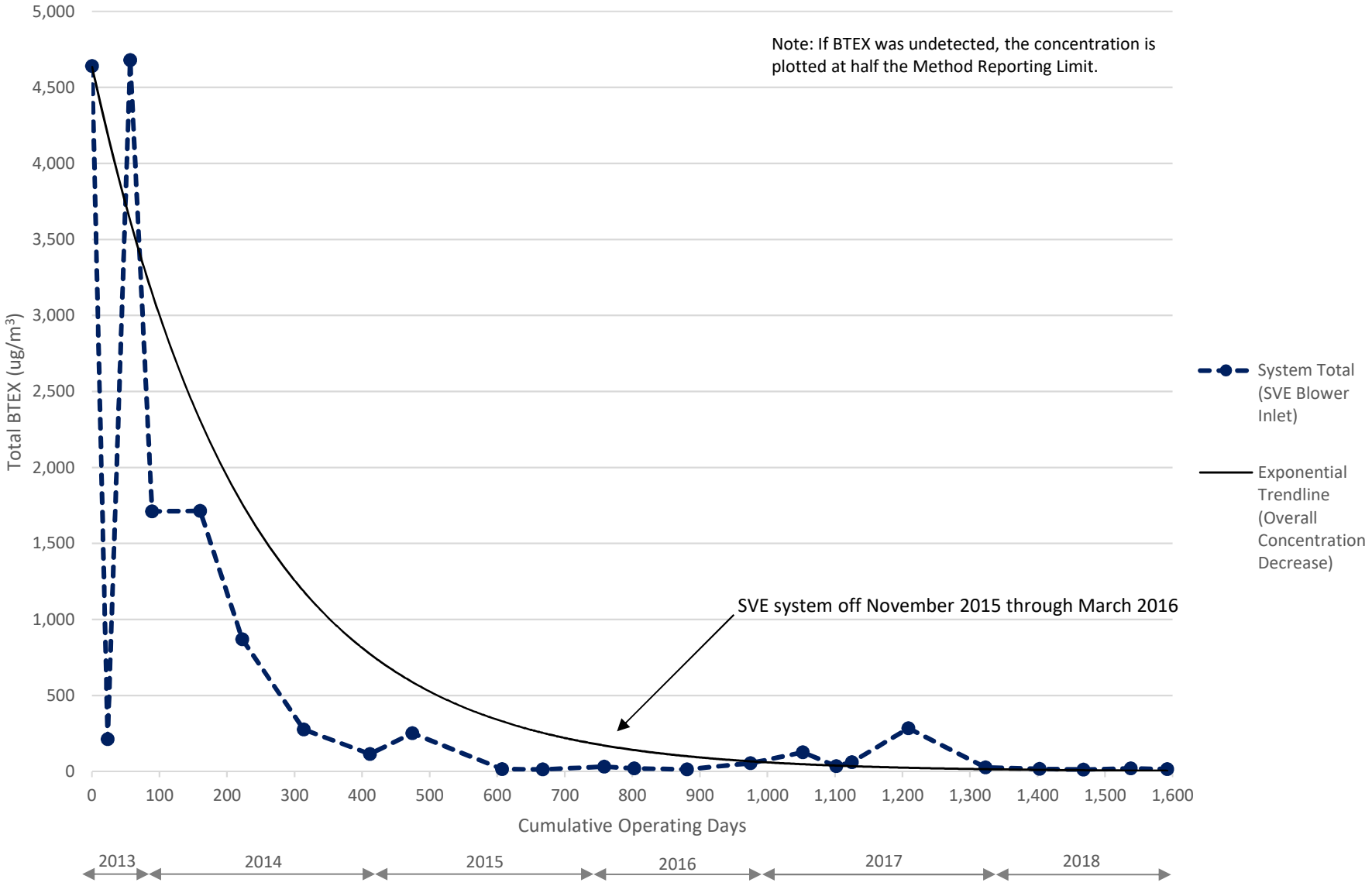


CHART 4

Gasoline Mass Extraction Rates and Cumulative Mass Removal

Plaid Pantry No. 112

Vancouver, Washington

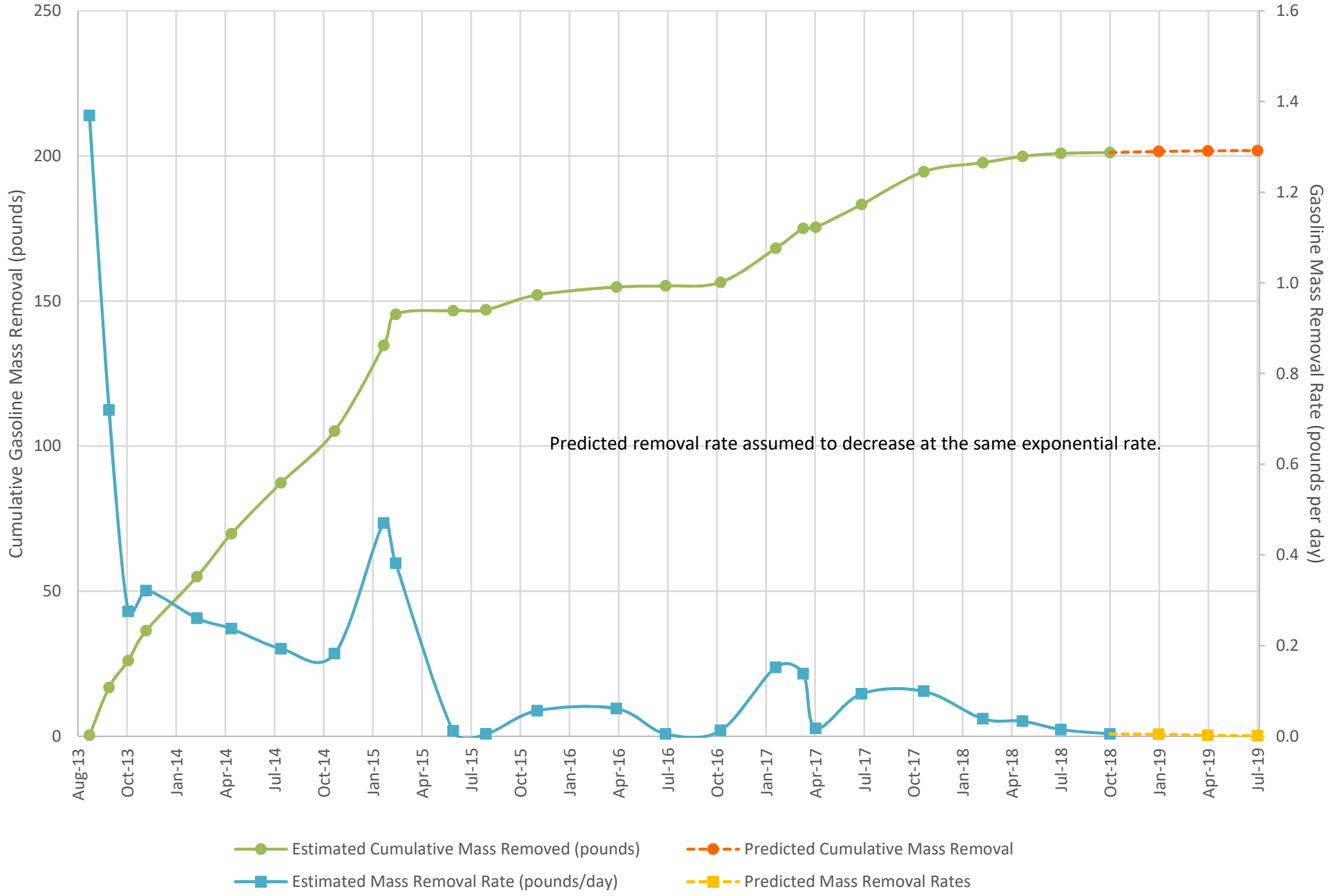
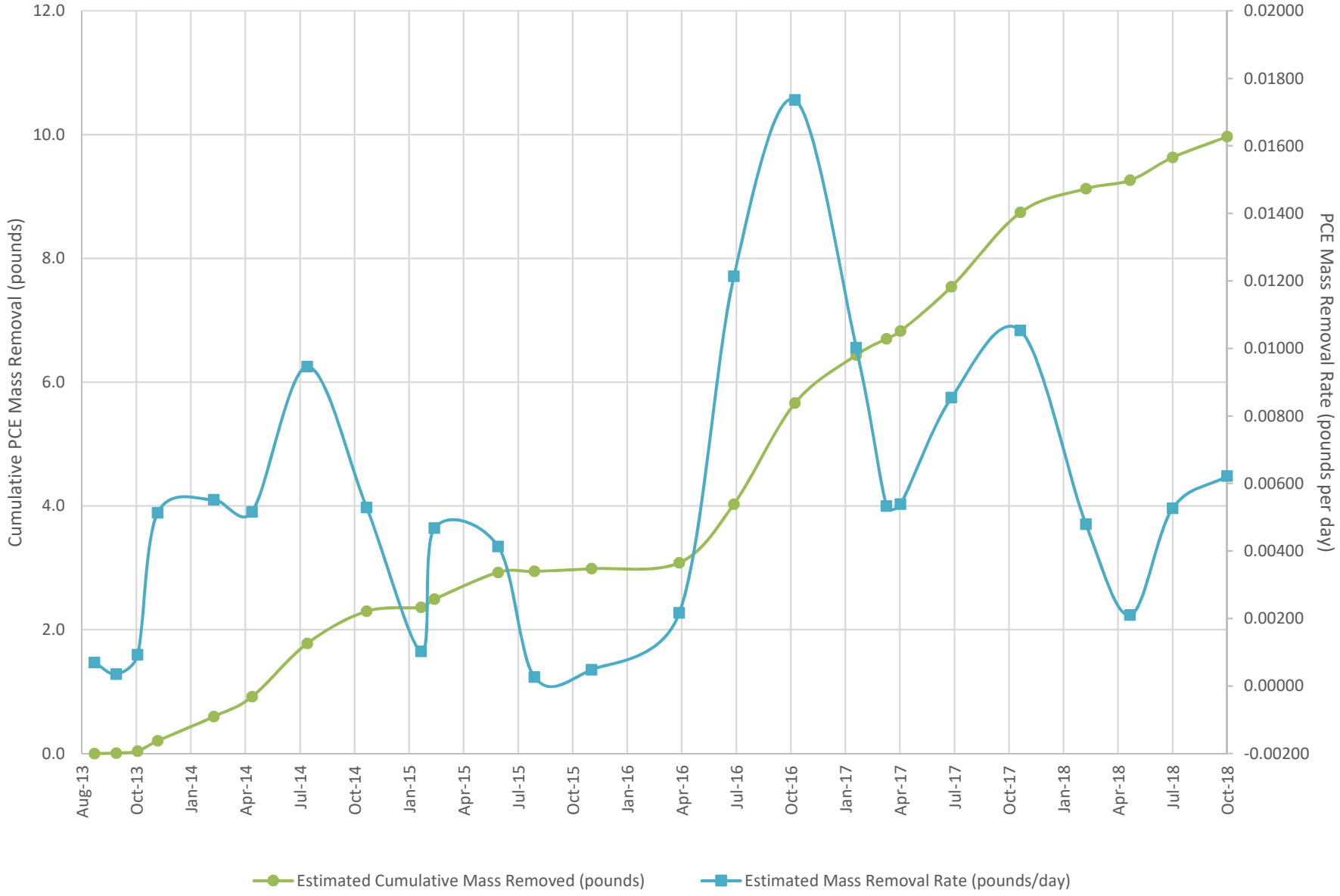


CHART 5

PCE Mass Extraction Rates and Cumulative Mass Removal

Plaid Pantry No. 112

Vancouver, Washington



Attachment A

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7/23/2018

Mr. Chris Rhea
EES Environmental Consulting, Inc.
240 N Broadway
Suite 203
Portland OR 97227

Project Name: Plaid Pantry 112
Project #: 1179-02
Workorder #: 1807140

Dear Mr. Chris Rhea

The following report includes the data for the above referenced project for sample(s) received on 7/10/2018 at Air Toxics Ltd.

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 Inc. 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: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1807140

Work Order Summary

CLIENT:	Mr. Chris Rhea EES Environmental Consulting, Inc. 240 N Broadway Suite 203 Portland, OR 97227	**BILL TO:**	Mr. Chris Rhea EES Environmental Consulting, Inc. 240 N Broadway Suite 203 Portland, OR 97227
PHONE:	530-847-2740	**P.O. #**	
FAX:		**PROJECT #**	1179-02 Plaid Pantry 112
DATE RECEIVED:	07/10/2018	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	07/23/2018		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SVE-2	TO-15	5.7 "Hg	14.9 psi
02A	SVE-3	TO-15	6.1 "Hg	15 psi
03A	SVE-1	TO-15	5.7 "Hg	14.9 psi
04A	SVE-4	TO-15	5.5 "Hg	15.5 psi
05A	SVE-5	TO-15	6.1 "Hg	15 psi
06A	SVE-Inlet	TO-15	5.9 "Hg	15.3 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 07/23/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-16-11, UT NELAP CA0093332016-7, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2016, Expiration date: 10/17/2017.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

LABORATORY NARRATIVE
EPA Method TO-15
EES Environmental Consulting, Inc.
Workorder# 1807140

Six 1 Liter Summa Canister samples were received on July 10, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

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-2

Lab ID#: 1807140-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
m,p-Xylene	1.2	1.3	5.4	5.6

Client Sample ID: SVE-3

Lab ID#: 1807140-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.3	1.6	4.8	5.9
m,p-Xylene	1.3	2.6	5.5	11
TPH ref. to Gasoline (MW=100)	130	140	520	570

Client Sample ID: SVE-1

Lab ID#: 1807140-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	1.9	4.7	7.0
m,p-Xylene	1.2	3.1	5.4	14
TPH ref. to Gasoline (MW=100)	120	250	510	1000

Client Sample ID: SVE-4

Lab ID#: 1807140-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.3	2.1	4.7	7.8
m,p-Xylene	1.3	2.9	5.5	12
TPH ref. to Gasoline (MW=100)	130	150	520	610

Client Sample ID: SVE-5

Lab ID#: 1807140-05A

No Detections Were Found.

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

Client Sample ID: SVE-Inlet

Lab ID#: 1807140-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	1.3	2.1	7.1	12
Ethanol	5.1	150	9.6	280
Acetone	13	39	30	92
2-Propanol	5.1	47	12	120
2-Butanone (Methyl Ethyl Ketone)	5.1	19	15	56
Tetrahydrofuran	1.3	32	3.7	95
2,2,4-Trimethylpentane	1.3	2.6	5.9	12
Toluene	1.3	1.4	4.8	5.2
Tetrachloroethene	1.3	110	8.6	720
m,p-Xylene	1.3	1.8	5.5	8.0
1,3-Dichlorobenzene	1.3	1.5	7.6	8.9

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Client Sample ID: SVE-2

Lab ID#: 1807140-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071313**	**Date of Collection: 7/6/18 10:50:00 AM**	
Dil. Factor:	**2.48**	**Date of Analysis: 7/13/18 06:23 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	4.0	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
Toluene	1.2	Not Detected	4.7	Not Detected
m,p-Xylene	1.2	1.3	5.4	5.6
o-Xylene	1.2	Not Detected	5.4	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	120	Not Detected	510	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: SVE-3

Lab ID#: 1807140-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071314**	**Date of Collection: 7/6/18 11:10:00 AM**	
Dil. Factor:	**2.54**	**Date of Analysis: 7/13/18 06:50 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	Not Detected	4.0	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
Toluene	1.3	1.6	4.8	5.9
m,p-Xylene	1.3	2.6	5.5	11
o-Xylene	1.3	Not Detected	5.5	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	130	140	520	570

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	89	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: SVE-1

Lab ID#: 1807140-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071315**	**Date of Collection: 7/6/18 11:30:00 AM**	
Dil. Factor:	**2.48**	**Date of Analysis: 7/13/18 07:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	4.0	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
Toluene	1.2	1.9	4.7	7.0
m,p-Xylene	1.2	3.1	5.4	14
o-Xylene	1.2	Not Detected	5.4	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	120	250	510	1000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: SVE-4

Lab ID#: 1807140-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071316**	**Date of Collection: 7/6/18 11:50:00 AM**	
Dil. Factor:	**2.52**	**Date of Analysis: 7/13/18 07:42 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	Not Detected	4.0	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
Toluene	1.3	2.1	4.7	7.8
m,p-Xylene	1.3	2.9	5.5	12
o-Xylene	1.3	Not Detected	5.5	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	130	150	520	610

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	88	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: SVE-5

Lab ID#: 1807140-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071317**	**Date of Collection: 7/6/18 12:10:00 PM**	
Dil. Factor:	**2.54**	**Date of Analysis: 7/13/18 08:08 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	Not Detected	4.0	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
Toluene	1.3	Not Detected	4.8	Not Detected
m,p-Xylene	1.3	Not Detected	5.5	Not Detected
o-Xylene	1.3	Not Detected	5.5	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	130	Not Detected	520	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	88	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: SVE-Inlet

Lab ID#: 1807140-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071318**	**Date of Collection: 7/6/18 12:30:00 PM**	
Dil. Factor:	**2.54**	**Date of Analysis: 7/13/18 08:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.3	Not Detected
Freon 114	1.3	Not Detected	8.9	Not Detected
Chloromethane	13	Not Detected	26	Not Detected
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	13	Not Detected	49	Not Detected
Chloroethane	5.1	Not Detected	13	Not Detected
Freon 11	1.3	2.1	7.1	12
Ethanol	5.1	150	9.6	280
Freon 113	1.3	Not Detected	9.7	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Acetone	13	39	30	92
2-Propanol	5.1	47	12	120
Carbon Disulfide	5.1	Not Detected	16	Not Detected
3-Chloropropene	5.1	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	44	Not Detected
Methyl tert-butyl ether	5.1	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Hexane	1.3	Not Detected	4.5	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.1	19	15	56
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrahydrofuran	1.3	32	3.7	95
Chloroform	1.3	Not Detected	6.2	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Cyclohexane	1.3	Not Detected	4.4	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.0	Not Detected
2,2,4-Trimethylpentane	1.3	2.6	5.9	12
Benzene	1.3	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.1	Not Detected
Heptane	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
1,2-Dichloropropane	1.3	Not Detected	5.9	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected
Bromodichloromethane	1.3	Not Detected	8.5	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.2	Not Detected
Toluene	1.3	1.4	4.8	5.2
trans-1,3-Dichloropropene	1.3	Not Detected	5.8	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Tetrachloroethene	1.3	110	8.6	720
2-Hexanone	5.1	Not Detected	21	Not Detected

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Client Sample ID: SVE-Inlet

Lab ID#: 1807140-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071318**	**Date of Collection: 7/6/18 12:30:00 PM**	
Dil. Factor:	**2.54**	**Date of Analysis: 7/13/18 08:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.8	Not Detected
Chlorobenzene	1.3	Not Detected	5.8	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
m,p-Xylene	1.3	1.8	5.5	8.0
o-Xylene	1.3	Not Detected	5.5	Not Detected
Styrene	1.3	Not Detected	5.4	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.2	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.7	Not Detected
Propylbenzene	1.3	Not Detected	6.2	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.2	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,3-Dichlorobenzene	1.3	1.5	7.6	8.9
1,4-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.6	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
1,2,4-Trichlorobenzene	5.1	Not Detected	38	Not Detected
Hexachlorobutadiene	5.1	Not Detected	54	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	130	Not Detected	520	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1807140-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071307**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 01:55 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	2.0	Not Detected	3.8	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#: 1807140-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071307**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 01:55 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	101	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CCV

Lab ID#: 1807140-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071304**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 11:56 AM**

Compound	%Recovery
Freon 12	93
Freon 114	96
Chloromethane	100
Vinyl Chloride	100
1,3-Butadiene	99
Bromomethane	105
Chloroethane	96
Freon 11	89
Ethanol	95
Freon 113	94
1,1-Dichloroethene	92
Acetone	93
2-Propanol	92
Carbon Disulfide	94
3-Chloropropene	92
Methylene Chloride	95
Methyl tert-butyl ether	91
trans-1,2-Dichloroethene	96
Hexane	96
1,1-Dichloroethane	98
2-Butanone (Methyl Ethyl Ketone)	93
cis-1,2-Dichloroethene	96
Tetrahydrofuran	91
Chloroform	92
1,1,1-Trichloroethane	90
Cyclohexane	96
Carbon Tetrachloride	97
2,2,4-Trimethylpentane	104
Benzene	93
1,2-Dichloroethane	95
Heptane	93
Trichloroethene	96
1,2-Dichloropropane	97
1,4-Dioxane	89
Bromodichloromethane	94
cis-1,3-Dichloropropene	92
4-Methyl-2-pentanone	96
Toluene	90
trans-1,3-Dichloropropene	92
1,1,2-Trichloroethane	96
Tetrachloroethene	101
2-Hexanone	90

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Client Sample ID: CCV

Lab ID#: 1807140-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 11:56 AM**	

Compound	%Recovery
Dibromochloromethane	103
1,2-Dibromoethane (EDB)	101
Chlorobenzene	102
Ethyl Benzene	102
m,p-Xylene	103
o-Xylene	101
Styrene	98
Bromoform	106
Cumene	99
1,1,2,2-Tetrachloroethane	93
Propylbenzene	96
4-Ethyltoluene	98
1,3,5-Trimethylbenzene	104
1,2,4-Trimethylbenzene	101
1,3-Dichlorobenzene	106
1,4-Dichlorobenzene	103
alpha-Chlorotoluene	99
1,2-Dichlorobenzene	105
1,2,4-Trichlorobenzene	112
Hexachlorobutadiene	109
Naphthalene	89
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	89	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCS

Lab ID#: 1807140-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 11:05 AM**	

Compound	%Recovery	Method Limits
Freon 12	100	70-130
Freon 114	105	70-130
Chloromethane	103	70-130
Vinyl Chloride	106	70-130
1,3-Butadiene	104	70-130
Bromomethane	105	70-130
Chloroethane	106	70-130
Freon 11	96	70-130
Ethanol	102	70-130
Freon 113	97	70-130
1,1-Dichloroethene	99	70-130
Acetone	100	70-130
2-Propanol	97	70-130
Carbon Disulfide	104	70-130
3-Chloropropene	101	70-130
Methylene Chloride	100	70-130
Methyl tert-butyl ether	93	70-130
trans-1,2-Dichloroethene	114	70-130
Hexane	100	70-130
1,1-Dichloroethane	105	70-130
2-Butanone (Methyl Ethyl Ketone)	103	70-130
cis-1,2-Dichloroethene	94	70-130
Tetrahydrofuran	95	70-130
Chloroform	100	70-130
1,1,1-Trichloroethane	95	70-130
Cyclohexane	96	70-130
Carbon Tetrachloride	100	70-130
2,2,4-Trimethylpentane	108	70-130
Benzene	98	70-130
1,2-Dichloroethane	98	70-130
Heptane	93	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	101	70-130
1,4-Dioxane	88	70-130
Bromodichloromethane	98	70-130
cis-1,3-Dichloropropene	102	70-130
4-Methyl-2-pentanone	97	70-130
Toluene	92	70-130
trans-1,3-Dichloropropene	93	70-130
1,1,2-Trichloroethane	98	70-130
Tetrachloroethene	100	70-130
2-Hexanone	91	70-130

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Client Sample ID: LCS

Lab ID#: 1807140-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 11:05 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	104	70-130
1,2-Dibromoethane (EDB)	101	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	100	70-130
m,p-Xylene	101	70-130
o-Xylene	100	70-130
Styrene	92	70-130
Bromoform	108	70-130
Cumene	97	70-130
1,1,2,2-Tetrachloroethane	92	70-130
Propylbenzene	93	70-130
4-Ethyltoluene	96	70-130
1,3,5-Trimethylbenzene	101	70-130
1,2,4-Trimethylbenzene	98	70-130
1,3-Dichlorobenzene	104	70-130
1,4-Dichlorobenzene	102	70-130
alpha-Chlorotoluene	98	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	108	70-130
Hexachlorobutadiene	104	70-130
Naphthalene	94	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	90	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: LCSD

Lab ID#: 1807140-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071305**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 12:35 PM**	

Compound	%Recovery	Method Limits
Freon 12	97	70-130
Freon 114	100	70-130
Chloromethane	98	70-130
Vinyl Chloride	105	70-130
1,3-Butadiene	98	70-130
Bromomethane	102	70-130
Chloroethane	104	70-130
Freon 11	93	70-130
Ethanol	98	70-130
Freon 113	94	70-130
1,1-Dichloroethene	98	70-130
Acetone	97	70-130
2-Propanol	95	70-130
Carbon Disulfide	100	70-130
3-Chloropropene	99	70-130
Methylene Chloride	98	70-130
Methyl tert-butyl ether	90	70-130
trans-1,2-Dichloroethene	110	70-130
Hexane	100	70-130
1,1-Dichloroethane	102	70-130
2-Butanone (Methyl Ethyl Ketone)	101	70-130
cis-1,2-Dichloroethene	92	70-130
Tetrahydrofuran	93	70-130
Chloroform	96	70-130
1,1,1-Trichloroethane	93	70-130
Cyclohexane	95	70-130
Carbon Tetrachloride	96	70-130
2,2,4-Trimethylpentane	103	70-130
Benzene	99	70-130
1,2-Dichloroethane	100	70-130
Heptane	96	70-130
Trichloroethene	102	70-130
1,2-Dichloropropane	101	70-130
1,4-Dioxane	94	70-130
Bromodichloromethane	102	70-130
cis-1,3-Dichloropropene	103	70-130
4-Methyl-2-pentanone	102	70-130
Toluene	94	70-130
trans-1,3-Dichloropropene	95	70-130
1,1,2-Trichloroethane	100	70-130
Tetrachloroethene	102	70-130
2-Hexanone	93	70-130

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Client Sample ID: LCSD

Lab ID#: 1807140-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a071305**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/13/18 12:35 PM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	107	70-130
1,2-Dibromoethane (EDB)	103	70-130
Chlorobenzene	102	70-130
Ethyl Benzene	101	70-130
m,p-Xylene	104	70-130
o-Xylene	102	70-130
Styrene	94	70-130
Bromoform	110	70-130
Cumene	100	70-130
1,1,2,2-Tetrachloroethane	94	70-130
Propylbenzene	97	70-130
4-Ethyltoluene	102	70-130
1,3,5-Trimethylbenzene	104	70-130
1,2,4-Trimethylbenzene	103	70-130
1,3-Dichlorobenzene	109	70-130
1,4-Dichlorobenzene	107	70-130
alpha-Chlorotoluene	103	70-130
1,2-Dichlorobenzene	106	70-130
1,2,4-Trichlorobenzene	114	70-130
Hexachlorobutadiene	110	70-130
Naphthalene	97	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	88	70-130
4-Bromofluorobenzene	100	70-130

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Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Chris Rhea

Collected by: (Print and Sign) Nicholas Geach

Company FES Email chris@ees-env.com

Address 240 N. Broadway #203 City Portland State OR Zip 97227

Phone 503 847 2740 Fax —

Project Info:
P.O. # 1179-02 (NA)
Project # 1179-02
Project Name PlaidPantry 112

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	SVE-2	1L2347	7/6/18	1050	BTEX+N+Gx EPA TO-15	30	4		
02A	SVE-3	1L3107	7/6/18	1110	↓	29	4		
03A	SVE-1	1L3054	7/6/18	1130	↓	30	4		
04A	SVE-4	1L2871	7/6/18	1158	↓	30	4		
05A	SVE-5	1L2845	7/6/18	1210	↓	30	4		
06A	~~AWS Inlet~~ (NA) SVE Inlet	1L3125	7/6/18	1230	full VOC's EPA TO-15	26	6		

Relinquished by: (signature) Date/Time: 7/6/18 1545
Received by: (signature) Date/Time: 7/10/18

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Notes:

Lab Use Only

Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
FedEx		NA	Good	Yes No None	1807140

Form 1293 rev.11

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10/19/2018
Mr. Chris Rhea
EES Environmental Consulting, Inc.
240 N Broadway
Suite 203
Portland OR 97227

Project Name: Plaid Pantry #112
Project #: 1179-02
Workorder #: 1810159

Dear Mr. Chris Rhea

The following report includes the data for the above referenced project for sample(s) received on 10/8/2018 at Air Toxics Ltd.

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 Inc. 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: Kelly Buettner at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1810159

Work Order Summary

CLIENT:	Mr. Chris Rhea EES Environmental Consulting, Inc. 240 N Broadway Suite 203 Portland, OR 97227	**BILL TO:**	Mr. Chris Rhea EES Environmental Consulting, Inc. 240 N Broadway Suite 203 Portland, OR 97227
PHONE:	530-847-2740	**P.O. #**	
FAX:		**PROJECT #**	1179-02 Plaid Pantry #112
DATE RECEIVED:	10/08/2018	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	10/19/2018		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SVE 2	TO-15	5.7 "Hg	14.9 psi
02A	SVE 3	TO-15	4.9 "Hg	14.4 psi
03A	SVE 1	TO-15	5.5 "Hg	15.1 psi
04A	SVE 4	TO-15	5.5 "Hg	14.8 psi
05A	SVE 5	TO-15	6.5 "Hg	15.7 psi
06A	SVE Inlet	TO-15	5.7 "Hg	15.4 psi
07A	Lab Blank	TO-15	NA	NA
08A	CCV	TO-15	NA	NA
09A	LCS	TO-15	NA	NA
09AA	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 10/19/18

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704434-15-9, UT NELAP CA0093332015-6, VA NELAP - 8113, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2015, Expiration date: 10/17/2016.
Eurofins Air Toxics Inc.. 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) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
EES Environmental Consulting, Inc.
Workorder# 1810159

Six 1 Liter Summa Canister samples were received on October 08, 2018. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

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.

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

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 2

Lab ID#: 1810159-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	4.5	4.7	17
m,p-Xylene	1.2	2.5	5.4	11

Client Sample ID: SVE 3

Lab ID#: 1810159-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	3.6	4.5	14
m,p-Xylene	1.2	2.4	5.1	11
TPH ref. to Gasoline (MW=100)	120	130	480	530

Client Sample ID: SVE 1

Lab ID#: 1810159-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	5.0	4.7	19
m,p-Xylene	1.2	2.5	5.4	11
TPH ref. to Gasoline (MW=100)	120	340	510	1400

Client Sample ID: SVE 4

Lab ID#: 1810159-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	3.2	4.6	12
m,p-Xylene	1.2	1.8	5.3	8.0

Client Sample ID: SVE 5

Lab ID#: 1810159-05A

No Detections Were Found.

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

Client Sample ID: SVE Inlet

Lab ID#: 1810159-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	1.3	2.0	7.1	11
Ethanol	5.1	23	9.5	43
Acetone	13	14	30	33
2-Butanone (Methyl Ethyl Ketone)	5.1	5.8	15	17
Tetrahydrofuran	1.3	1.8	3.7	5.3
2,2,4-Trimethylpentane	1.3	4.0	5.9	19
Toluene	1.3	1.4	4.8	5.2
Tetrachloroethene	1.3	85	8.6	580

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Client Sample ID: SVE 2

Lab ID#: 1810159-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101209**	**Date of Collection: 10/4/18 11:03:00 AM**	
Dil. Factor:	**2.48**	**Date of Analysis: 10/12/18 03:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	4.0	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
Toluene	1.2	4.5	4.7	17
m,p-Xylene	1.2	2.5	5.4	11
o-Xylene	1.2	Not Detected	5.4	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	120	Not Detected	510	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: SVE 3

Lab ID#: 1810159-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101210**	**Date of Collection: 10/4/18 11:20:00 AM**	
Dil. Factor:	**2.37**	**Date of Analysis: 10/12/18 04:10 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	3.8	Not Detected
Ethyl Benzene	1.2	Not Detected	5.1	Not Detected
Toluene	1.2	3.6	4.5	14
m,p-Xylene	1.2	2.4	5.1	11
o-Xylene	1.2	Not Detected	5.1	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected
TPH ref. to Gasoline (MW=100)	120	130	480	530

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: SVE 1

Lab ID#: 1810159-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101211**	**Date of Collection: 10/4/18 11:40:00 AM**	
Dil. Factor:	**2.48**	**Date of Analysis: 10/12/18 04:36 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	4.0	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
Toluene	1.2	5.0	4.7	19
m,p-Xylene	1.2	2.5	5.4	11
o-Xylene	1.2	Not Detected	5.4	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	120	340	510	1400

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: SVE 4

Lab ID#: 1810159-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101212**	**Date of Collection: 10/4/18 12:00:00 PM**	
Dil. Factor:	**2.46**	**Date of Analysis: 10/12/18 05:02 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	Not Detected	3.9	Not Detected
Ethyl Benzene	1.2	Not Detected	5.3	Not Detected
Toluene	1.2	3.2	4.6	12
m,p-Xylene	1.2	1.8	5.3	8.0
o-Xylene	1.2	Not Detected	5.3	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	120	Not Detected	500	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: SVE 5

Lab ID#: 1810159-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101213**	**Date of Collection: 10/4/18 12:10:00 PM**	
Dil. Factor:	**2.64**	**Date of Analysis: 10/12/18 05:29 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	Not Detected	4.2	Not Detected
Ethyl Benzene	1.3	Not Detected	5.7	Not Detected
Toluene	1.3	Not Detected	5.0	Not Detected
m,p-Xylene	1.3	Not Detected	5.7	Not Detected
o-Xylene	1.3	Not Detected	5.7	Not Detected
Naphthalene	2.6	Not Detected	14	Not Detected
TPH ref. to Gasoline (MW=100)	130	Not Detected	540	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: SVE Inlet

Lab ID#: 1810159-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101214**	**Date of Collection:**	**10/4/18 12:28:00 PM**
Dil. Factor:	**2.53**	**Date of Analysis:**	**10/12/18 05:55 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.2	Not Detected
Freon 114	1.3	Not Detected	8.8	Not Detected
Chloromethane	13	Not Detected UJ	26	Not Detected UJ
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	13	Not Detected	49	Not Detected
Chloroethane	5.1	Not Detected	13	Not Detected
Freon 11	1.3	2.0	7.1	11
Ethanol	5.1	23	9.5	43
Freon 113	1.3	Not Detected	9.7	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Acetone	13	14	30	33
2-Propanol	5.1	Not Detected	12	Not Detected
Carbon Disulfide	5.1	Not Detected	16	Not Detected
3-Chloropropene	5.1	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	44	Not Detected
Methyl tert-butyl ether	5.1	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Hexane	1.3	Not Detected	4.4	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.1	5.8	15	17
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrahydrofuran	1.3	1.8	3.7	5.3
Chloroform	1.3	Not Detected	6.2	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Cyclohexane	1.3	Not Detected	4.4	Not Detected
Carbon Tetrachloride	1.3	Not Detected	8.0	Not Detected
2,2,4-Trimethylpentane	1.3	4.0	5.9	19
Benzene	1.3	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.1	Not Detected
Heptane	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
1,2-Dichloropropane	1.3	Not Detected	5.8	Not Detected
1,4-Dioxane	5.1	Not Detected	18	Not Detected
Bromodichloromethane	1.3	Not Detected	8.5	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	5.7	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.2	Not Detected
Toluene	1.3	1.4	4.8	5.2
trans-1,3-Dichloropropene	1.3	Not Detected	5.7	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Tetrachloroethene	1.3	85	8.6	580
2-Hexanone	5.1	Not Detected	21	Not Detected

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Client Sample ID: SVE Inlet

Lab ID#: 1810159-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101214**	**Date of Collection: 10/4/18 12:28:00 PM**	
Dil. Factor:	**2.53**	**Date of Analysis: 10/12/18 05:55 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.7	Not Detected
Chlorobenzene	1.3	Not Detected	5.8	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
m,p-Xylene	1.3	Not Detected	5.5	Not Detected
o-Xylene	1.3	Not Detected	5.5	Not Detected
Styrene	1.3	Not Detected	5.4	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.2	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.7	Not Detected
Propylbenzene	1.3	Not Detected	6.2	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.2	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
alpha-Chlorotoluene	1.3	Not Detected UJ	6.5	Not Detected UJ
1,2-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
1,2,4-Trichlorobenzene	5.1	Not Detected	38	Not Detected
Hexachlorobutadiene	5.1	Not Detected	54	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	130	Not Detected	520	Not Detected

UJ = Analyte associated with low bias in the CCV.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1810159-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101208**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 01:25 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 UJ	10	Not Detected UJ
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	2.0	Not Detected	3.8	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#: 1810159-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101208**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 01:25 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 UJ	2.6	Not Detected UJ
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

UJ = Analyte associated with low bias in the CCV.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: CCV

Lab ID#: 1810159-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101203**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 10:12 AM**

Compound	%Recovery
Freon 12	100
Freon 114	100
Chloromethane	66 Q
Vinyl Chloride	114
1,3-Butadiene	102
Bromomethane	101
Chloroethane	98
Freon 11	102
Ethanol	87
Freon 113	94
1,1-Dichloroethene	98
Acetone	98
2-Propanol	92
Carbon Disulfide	96
3-Chloropropene	93
Methylene Chloride	100
Methyl tert-butyl ether	99
trans-1,2-Dichloroethene	100
Hexane	99
1,1-Dichloroethane	95
2-Butanone (Methyl Ethyl Ketone)	96
cis-1,2-Dichloroethene	100
Tetrahydrofuran	91
Chloroform	97
1,1,1-Trichloroethane	98
Cyclohexane	99
Carbon Tetrachloride	100
2,2,4-Trimethylpentane	97
Benzene	103
1,2-Dichloroethane	104
Heptane	104
Trichloroethene	98
1,2-Dichloropropane	98
1,4-Dioxane	89
Bromodichloromethane	105
cis-1,3-Dichloropropene	101
4-Methyl-2-pentanone	98
Toluene	102
trans-1,3-Dichloropropene	102
1,1,2-Trichloroethane	100
Tetrachloroethene	102
2-Hexanone	92

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Client Sample ID: CCV

Lab ID#: 1810159-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101203**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 10:12 AM**

Compound	%Recovery
Dibromochloromethane	103
1,2-Dibromoethane (EDB)	104
Chlorobenzene	102
Ethyl Benzene	113
m,p-Xylene	113
o-Xylene	109
Styrene	109
Bromoform	104
Cumene	109
1,1,2,2-Tetrachloroethane	99
Propylbenzene	106
4-Ethyltoluene	109
1,3,5-Trimethylbenzene	113
1,2,4-Trimethylbenzene	110
1,3-Dichlorobenzene	106
1,4-Dichlorobenzene	104
alpha-Chlorotoluene	69 Q
1,2-Dichlorobenzene	104
1,2,4-Trichlorobenzene	106
Hexachlorobutadiene	106
Naphthalene	93
TPH ref. to Gasoline (MW=100)	100

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: LCS

Lab ID#: 1810159-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 10:38 AM**	

Compound	%Recovery	Method Limits
Freon 12	104	70-130
Freon 114	103	70-130
Chloromethane	85	70-130
Vinyl Chloride	121	70-130
1,3-Butadiene	112	70-130
Bromomethane	107	70-130
Chloroethane	104	70-130
Freon 11	104	70-130
Ethanol	102	70-130
Freon 113	96	70-130
1,1-Dichloroethene	103	70-130
Acetone	104	70-130
2-Propanol	102	70-130
Carbon Disulfide	102	70-130
3-Chloropropene	103	70-130
Methylene Chloride	104	70-130
Methyl tert-butyl ether	101	70-130
trans-1,2-Dichloroethene	111	70-130
Hexane	104	70-130
1,1-Dichloroethane	97	70-130
2-Butanone (Methyl Ethyl Ketone)	106	70-130
cis-1,2-Dichloroethene	96	70-130
Tetrahydrofuran	100	70-130
Chloroform	99	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	104	70-130
Carbon Tetrachloride	101	70-130
2,2,4-Trimethylpentane	104	70-130
Benzene	103	70-130
1,2-Dichloroethane	103	70-130
Heptane	106	70-130
Trichloroethene	99	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	102	70-130
Bromodichloromethane	108	70-130
cis-1,3-Dichloropropene	111	70-130
4-Methyl-2-pentanone	105	70-130
Toluene	104	70-130
trans-1,3-Dichloropropene	106	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	103	70-130
2-Hexanone	104	70-130

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Client Sample ID: LCS

Lab ID#: 1810159-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101204**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 10:38 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	108	70-130
1,2-Dibromoethane (EDB)	108	70-130
Chlorobenzene	106	70-130
Ethyl Benzene	117	70-130
m,p-Xylene	117	70-130
o-Xylene	114	70-130
Styrene	112	70-130
Bromoform	110	70-130
Cumene	114	70-130
1,1,2,2-Tetrachloroethane	104	70-130
Propylbenzene	110	70-130
4-Ethyltoluene	115	70-130
1,3,5-Trimethylbenzene	115	70-130
1,2,4-Trimethylbenzene	113	70-130
1,3-Dichlorobenzene	108	70-130
1,4-Dichlorobenzene	109	70-130
alpha-Chlorotoluene	111	70-130
1,2-Dichlorobenzene	107	70-130
1,2,4-Trichlorobenzene	106	70-130
Hexachlorobutadiene	106	70-130
Naphthalene	95	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCSD

Lab ID#: 1810159-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101205**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 11:05 AM**	

Compound	%Recovery	Method Limits
Freon 12	102	70-130
Freon 114	100	70-130
Chloromethane	80	70-130
Vinyl Chloride	118	70-130
1,3-Butadiene	107	70-130
Bromomethane	105	70-130
Chloroethane	103	70-130
Freon 11	102	70-130
Ethanol	98	70-130
Freon 113	95	70-130
1,1-Dichloroethene	100	70-130
Acetone	104	70-130
2-Propanol	101	70-130
Carbon Disulfide	100	70-130
3-Chloropropene	103	70-130
Methylene Chloride	102	70-130
Methyl tert-butyl ether	99	70-130
trans-1,2-Dichloroethene	109	70-130
Hexane	104	70-130
1,1-Dichloroethane	95	70-130
2-Butanone (Methyl Ethyl Ketone)	102	70-130
cis-1,2-Dichloroethene	91	70-130
Tetrahydrofuran	99	70-130
Chloroform	97	70-130
1,1,1-Trichloroethane	98	70-130
Cyclohexane	102	70-130
Carbon Tetrachloride	99	70-130
2,2,4-Trimethylpentane	103	70-130
Benzene	100	70-130
1,2-Dichloroethane	100	70-130
Heptane	101	70-130
Trichloroethene	97	70-130
1,2-Dichloropropane	97	70-130
1,4-Dioxane	99	70-130
Bromodichloromethane	105	70-130
cis-1,3-Dichloropropene	107	70-130
4-Methyl-2-pentanone	101	70-130
Toluene	100	70-130
trans-1,3-Dichloropropene	102	70-130
1,1,2-Trichloroethane	97	70-130
Tetrachloroethene	99	70-130
2-Hexanone	98	70-130

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Client Sample ID: LCSD

Lab ID#: 1810159-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p101205**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/12/18 11:05 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	103	70-130
1,2-Dibromoethane (EDB)	102	70-130
Chlorobenzene	100	70-130
Ethyl Benzene	111	70-130
m,p-Xylene	112	70-130
o-Xylene	110	70-130
Styrene	107	70-130
Bromoform	104	70-130
Cumene	109	70-130
1,1,2,2-Tetrachloroethane	100	70-130
Propylbenzene	106	70-130
4-Ethyltoluene	115	70-130
1,3,5-Trimethylbenzene	108	70-130
1,2,4-Trimethylbenzene	108	70-130
1,3-Dichlorobenzene	104	70-130
1,4-Dichlorobenzene	104	70-130
alpha-Chlorotoluene	107	70-130
1,2-Dichlorobenzene	104	70-130
1,2,4-Trichlorobenzene	104	70-130
Hexachlorobutadiene	102	70-130
Naphthalene	96	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	106	70-130

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Sample Transportation Notice
Relinquishing signature on this document indicates that sample is being shipped in compliance with all applicable local, State, Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics Limited against any claim, demand, or action, of any kind, related to the collection, handling, or shipping of samples. D.O.T. Hotline (800) 467-4922

180 BLUE RAVINE ROAD, SUITE B
FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Project Manager Chris Rhea
Collected by: (Print and Sign) Nicolas Gach
Company EES Email chris@ees-env.com
Address 240 N Broadway #203 City Portland State OR Zip 97227
Phone 503 847 2740 Fax —

Project Info:
P.O. # —
Project # 1179-02
Project Name Plaid Pantry #112

Turn Around Time:
☑ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	SVE 2	A7240	10/4/18	1103	TPH-Gx, BTEX+N TO15	30	7		
02A	SVE 3	IL2679		1120	TPH-Gx, BTEX+N TO15	30	7		
03A	SVE 1	IL2333		1140	TPH-Gx, BTEX+N TO15	30	7		
04A	SVE 4	IL3159		1200	TPH-Gx, BTEX+N TO15	30	7		
05A	SVE 5	IL3049		1210	TPH-Gx, BTEX+N TO15	29	7		
06A	SVE Inlet	IL3873		~~1210~~ 1228	Gx + Full VOC TO15	29.5	7		

Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
	10/4/18 1700		10/08/18 EAT 1300
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time
Relinquished by: (signature)	Date/Time	Received by: (signature)	Date/Time

Notes:

Lab Use Only

Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
FedEx		NA	Good	Yes No None	1810159

Form 1293 rev.11