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Technical Memorandum

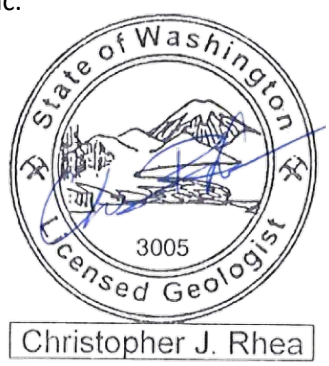
Status Report – SVE Monitoring (Fourth Quarter 2017)

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

From: Paul Ecker LHG, and Chris Rhea, LG

Date: December 22, 2017

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 late October 2017 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.

SVE OPERATION

The SVE system includes application of vacuum to five well locations in a known 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. Monitoring data collected through October 28, 2017 is presented on the attached tables, figures, and charts, and summarized below.

AIR FLOW

Since October 2016, the system has produced between around 90 and 120 cubic feet per minute (CFM) of air flow from the subsurface (see Table 1, "AWS Inlet"), averaging 86 CFM during 2017. 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 50 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

Aerobic conditions are expected to promote natural biological degradation of subsurface gasoline vapors. As expected, aerobic conditions (19-21% oxygen) are observed at active SVE wells (SVE-1 through SVE-5) while the system is operating, indicating the remedial system is promoting oxygen flow into the subsurface. Within the SVE system's observed zone of influence, the effects of active SVE are also evident at well B-17, where vacuum influence is consistently observed (Table 2). Fluctuating aerobic conditions observed at B-17 indicate that this well is in contact with gasoline contamination and near the perimeter of SVE influence. At other wells (B-18, S-27, S-28, S-30, and S-31) located outside of the gasoline source-area, and at or beyond the perimeter of the system's zone of influence, natural aerobic subsurface conditions (approximately 19-21% oxygen) are consistently observed. Among all site wells, S-29 is the only well located outside of the area of known gasoline contamination that usually exhibits anaerobic subsurface conditions. This well will continue to be monitored in the future. Biogenic degradation data is presented in Table 2.

CONTAMINANT CONCENTRATIONS AND MASS REMOVAL

On October 28, 2017, vapor samples were collected from the five active SVE wells for laboratory analysis to evaluate contaminant mass removal trends and to evaluate compliance with regulatory criteria for ongoing air discharges. Within the SVE treatment zone, gasoline and related constituent vapors continue to be removed from the subsurface at concentrations indicating generally diminishing residual impacts and mass removal rates. Observations during the October 2017 sampling event overall were generally consistent with long-term gasoline treatment trends over the past three years.

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

- Gasoline Concentrations: During the October 2017 event, gasoline and/or related vapor constituents were detected at all five SVE wells. Overall, gasoline and related constituent concentrations had diminished since dry-weather conditions earlier in July 2017, and within the range of variability observed during the past several years. The highest concentrations of gasoline (20,000 micrograms per cubic meter [ug/m^3]) and benzene (4.3 ug/m^3) were detected at well SVE-1. Detected gasoline constituents were observed at concentrations below MTCA Method B soil gas screening levels at all SVE wells. Note that the more elevated gasoline concentration previously observed at SVE-1 in January 2017 (Table 3, Figure 4) appears to have been a localized and short-term anomaly, as was a July 2017 anomaly at SVE-5.

- 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 0.099 pounds per day based on the October 2017 monitoring results. Since mass extraction rates stabilized in June 2015, approximately 48 pounds of gasoline mass were removed by SVE from the subsurface. Since 2013 startup, cumulative removal of gasoline range hydrocarbons is estimated to be 195 pounds, or approximately 32 gallons (Table 4, Chart 3). Chart 3 illustrates these gasoline mass removal trends.
- 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 4). Total PCE concentrations in SVE system exhaust are measured quarterly for regional air discharge compliance purposes. PCE in the system exhaust was detected in October 2017 at a concentration of 980 ug/m^3. This concentration exceeds Ecology's default regulatory soil gas screening level of 321 ug/m^3, but is far below air emissions permit thresholds and will continue to be monitored based on regulatory discharge criteria.
- Chlorinated Solvents Mass Extraction Rate: PCE mass extraction rates are very low but have varied since system startup in 2013. PCE extraction rates were elevated between July 2016 and January 2017 compared to prior monitoring events, but diminished between January and July 2017. Based on October 2017 data, the PCE mass removal rate was calculated at 0.011 pounds per day, an increase compared to earlier 2017 monitoring data. Cumulative PCE mass removal since 2013 startup is estimated to be 8.7 pounds, more than half of which was accumulated since July 2016 (Table 4, Chart 4).
- Air Discharge Compliance: Per Southwest Washington Clean Air Agency (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).

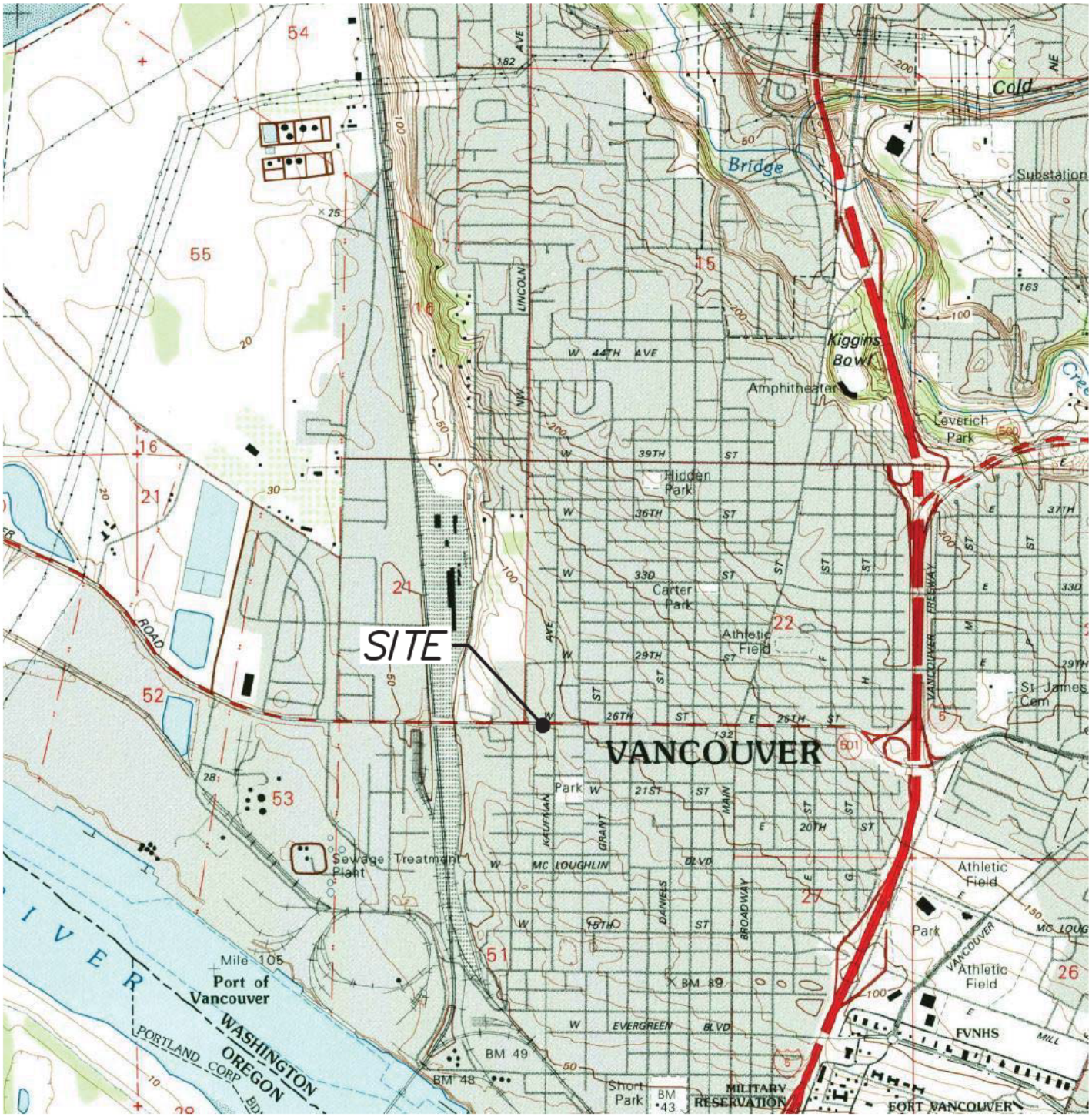
Note that gasoline impacts in soil extend beyond Property boundaries to the south under the right-of-way, outside of the influence of the current SVE system. Regulatory requirements and potential response actions for the right-of-way area are under evaluation.

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

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:	7–14–15	PROJECT NO.	
FILE:	1179–02	1179–02	
DRAWN:	JJT	FIGURE NO.	
APPROVED:	AG	1	

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LEGEND

Property Boundary

Catch Basin

Dry Well

SITE FEATURES ARE APPROXIMATE.

APPROXIMATE SCALE IN FEET

0 10 20 40

N

DATE:	7-30-15
FILE:	1179-01
DRAWN:	JJT
APPROVED:	AG
PROJECT NO.	1179-01
FIGURE NO.	2

SITE FEATURES

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

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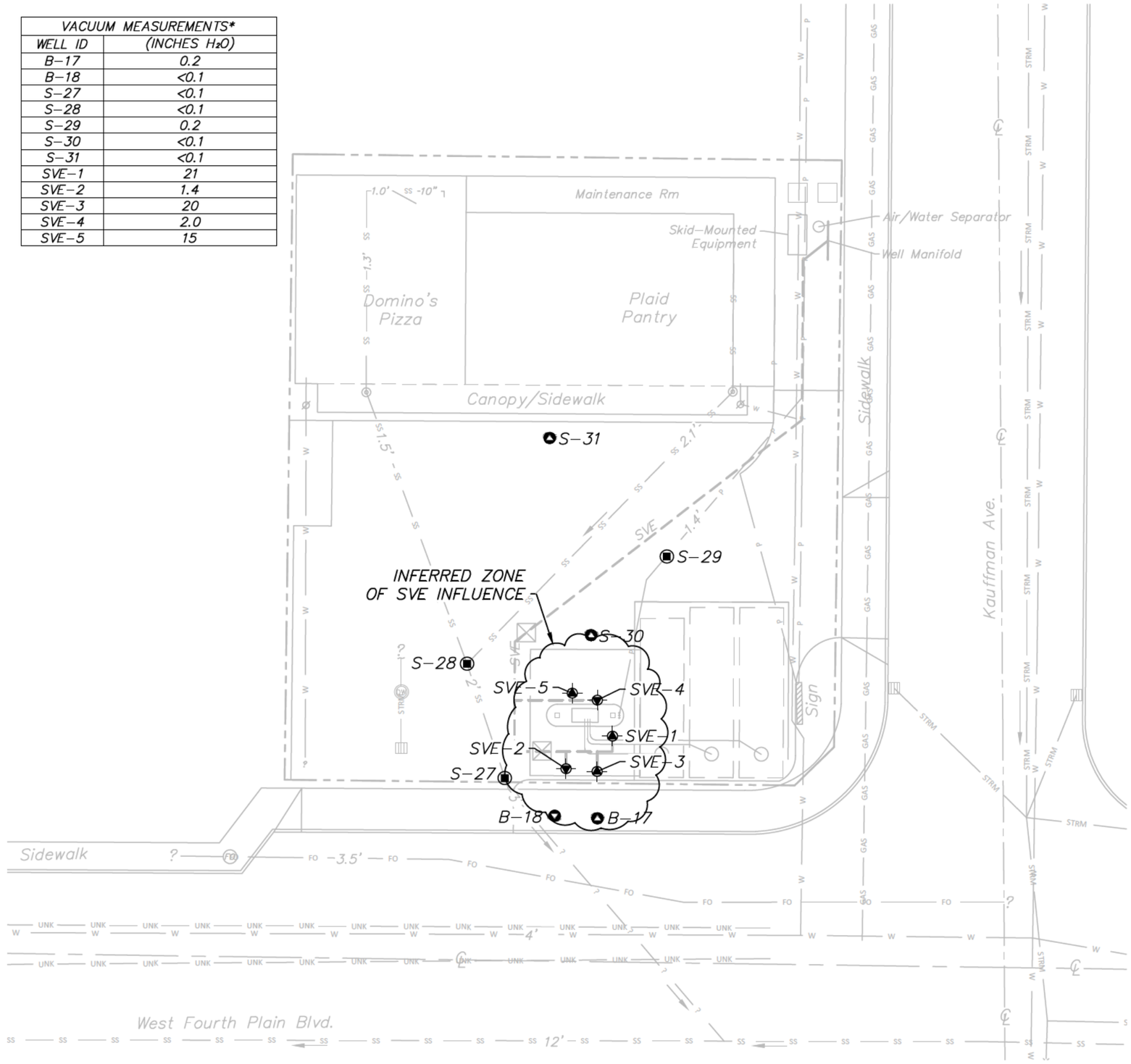
LEGEND

- 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
- * = Vacuum Measured at Wellhead
- Approximate Utility Depths Indicated Where Known (Feet)

SITE FEATURES ARE APPROXIMATE.

VACUUM MEASUREMENTS*	
WELL ID	(INCHES H_2O)
B–17	0.2
B–18	<0.1
S–27	<0.1
S–28	<0.1
S–29	0.2
S–30	<0.1
S–31	<0.1
SVE–1	21
SVE–2	1.4
SVE–3	20
SVE–4	2.0
SVE–5	15



N

APPROXIMATE SCALE IN FEET

0 10 20 40

INFERRED SVE RADIUS OF INFLUENCE (10/28/2017)

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

DATE:	12–11–17
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/m³)

* = 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

SITE FEATURES ARE APPROXIMATE

N

APPROXIMATE SCALE IN FEET

0 5 10 20

SVE–5

Date	G	B	PCE
8/22/13	8,600	17U	36U
12/4/13	8,100	19	18
2/10/14	110,000	4,000	63U
5/8/14	3,200U	51U	280
8/8/14	2,000	4.1U	8.7U
11/14/14	230U	3.6U	87
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	––

SVE–4

Date	G	B	PCE
8/22/13	250U	3.9U	8.5
12/4/13	53,000	15U	3,600
3/7/14	670	4.0U	1,200
5/8/14	950U	15U	2,700
8/8/14	2,700	4.0U	3,200
11/14/14	240U	3.8U	130
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	––

SVE–1

Date	G	B	PCE
8/22/13	11,000,000	97,000	2,100U
12/4/13	2,000,000	360U	760U
2/10/14	1,600,000	710	630U
5/8/14	2,100,000	220	410U
8/8/14	420,000	40U	620
11/14/14	460,000	65	79U
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	––

SVE–2

Date	G	B	PCE
8/22/13	250U	3.9U	14
3/7/14	560	4.0U	94
5/8/14	1,600U	26U	87
8/8/14	1,700	3.9U	170
11/14/14	240U	3.8U	26
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	––

SVE–3

Date	G	B	PCE
8/22/13	16,000	55	8.3U
1/4/13	160,000	72	8.1U
2/10/14	91,000	36	31U
5/8/14	1,300U	20U	43U
8/8/14	1,600	4.0U	8.6U
11/14/14	240U	3.7U	8.8
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	––

DATE:	12-11-17
FILE:	1179-02
DRAWN:	JJT
APPROVED:	DBP
PROJECT NO.	1179-02
FIGURE NO.	4

CONTAMINANT VAPOR CONCENTRATIONS DURING SVE OPERATIONS (THROUGH 10/28/17)

PLAID PANTRY #112
1002 W. FOURTH PLAIN BLVD.
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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
	10/21/2016	Yes	20	1.9	841	11
	12/30/2016	-	27	9.7	966	8
	01/30/2017	Yes	26	35	971	9
	02/27/2017	-	26	8.6	861	9
	03/10/2017	-	-	6.6	-	-
	03/17/2017	-	-	2.6	-	-
	03/21/2017	Yes	27	7.1	974	10
	04/04/2017	-	-	10	-	-
	04/13/2017	Yes	24	7.9	637	7
	05/17/2017	-	18	20	513	7
	05/17/2017	-	-	14	-	-
	06/21/2017	-	18	2.3	447	7
	07/06/2017	Yes	17	1.1	512	8
	08/28/2017	-	20	3.8	645	10
	09/29/2017	-	18	3.8	567	10
	10/28/2017	Yes	21	1.8	667	10
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
	10/21/2016	Yes	8.5	1.4	2,819	36
	12/30/2016	-	12	7.4	3,740	32
	01/30/2017	Yes	14	3.2	3,421	32
	02/27/2017	-	15	5.3	3,202	35
	03/10/2017	-	-	5.2	-	-
	03/17/2017	-	-	1.9	-	-
	03/21/2017	-	12	6.5	2,915	29
	04/04/2017	-	-	9.1	-	-
	04/13/2017	Yes	13	4.9	3,162	33
	05/17/2017	-	12	2.0	3,706	48
	05/17/2017	-	-	1.7	-	-

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)	06/21/2017	-	9.8	1.5	3,251	50
	07/06/2017	Yes	9.2	0.6	2,860	46
	08/28/2017	-	8.2	3.2	2,815	44
	09/29/2017	-	7.8	2.2	2,116	39
	10/28/2017	Yes	8.7	1.3	3,062	44
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
	10/21/2016	Yes	21	5.2	733	9
	12/30/2016	-	27	9.8	870	8
	01/30/2017	Yes	26	2.0	872	8
	02/27/2017	-	26	7.4	880	9
	03/10/2017	-	-	5.7	-	-
	03/17/2017	-	-	2.3	-	-
	03/21/2017	-	27	8.7	826	8
	04/04/2017	-	-	10	-	-
	04/13/2017	Yes	24	4.9	634	7
	05/17/2017	-	18	1.9	435	6
	05/17/2017	-	-	1.6	-	-
	06/21/2017	-	18	1.3	377	6
	07/06/2017	Yes	17	0.7	416	7
	08/28/2017	-	20	3.3	478	7
	09/29/2017	-	19	2.4	490	9
	10/28/2017	Yes	21	1.9	670	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
	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
	10/21/2016	Yes	7.6	2.4	2,605	33
	12/30/2016	-	11	8.5	3,853	33
	01/30/2017	Yes	12	2.8	3,427	32
	02/27/2017	-	12	13	3,085	33
	03/10/2017	-	-	6.2	-	-
	03/17/2017	-	-	2.6	-	-

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-4 (cont'd)	03/21/2017	-	15	7.4	3,393	33
	04/04/2017	-	-	12	-	-
	04/13/2017	Yes	15	6.6	3,563	38
	05/17/2017	-	10	4.8	2,907	38
	05/17/2017	-	-	3.6	-	-
	06/21/2017	-	9.7	2.4	3,075	47
	07/06/2017	Yes	8.9	1.7	3,027	49
	08/28/2017	-	8.8	3.8	2,586	40
	09/29/2017	-	8.4	2.6	2,015	37
	10/28/2017	Yes	9.5	1.7	2,831	41
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
	10/21/2016	Yes	20	0.2	575	7
	12/30/2016	-	27	8.7	873	8
	01/30/2017	Yes	26	2.4	784	7
	02/27/2017	-	26	13	982	11
	03/10/2017	-	-	4.2	-	-
	03/17/2017	-	-	2.3	-	-
	03/21/2017	-	27	7.5	930	9
	04/04/2017	-	-	12	-	-
	04/13/2017	Yes	24	5.7	600	6
	05/17/2017	-	18	4.2	416	5
	05/17/2017	-	-	2.3	-	-
	06/21/2017	-	18	1.7	402	6
	07/06/2017	Yes	17	17	357	6
	08/28/2017	-	20	3.7	427	7
	09/29/2017	-	18	2.4	488	9
	10/28/2017	Yes	21	1.5	555	8
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	-	-	-

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AWS Inlet (cont'd)	2016 Q2 Avg.	-	22	-	-	101
	2016 Q3 Avg.	-	20	-	-	98
	10/21/2016	-	22	-	-	97
	12/30/2016	-	28	-	-	89
	01/30/2017	-	26	-	-	89
	02/27/2017	-	26	-	-	97
	03/21/2017	-	28	-	-	89
	04/04/2017	-	28	-	-	-
	04/13/2017	-	25	-	-	97
	05/17/2017	-	19	-	-	104
	06/21/2017	-	19	-	-	115
	07/06/2017	-	18	-	-	116
	08/28/2017	-	21	-	-	108
	09/29/2017	-	20	-	-	104
	10/28/2017	-	22	-	-	112
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	1926	89
	10/21/2016	Yes	22	1.2	2,632	121
	12/30/2016	-	28	8.1	2,672	123
	01/30/2017	Yes	27	2.6	2,135	98
	02/27/2017	-	28	8.2	1,961	90
	03/10/2017	-	-	4.2	-	-
	03/17/2017	-	-	2.4	-	-
	03/21/2017	Yes	29	7.2	1,813	83
	04/04/2017	-	-	12	-	-
	04/13/2017	Yes	26	6.5	1,572	72
	05/17/2017	-	20	3.2	1,993	92
	06/21/2017	-	20	1.5	1,707	79
	07/06/2017	Yes	19	2.3	2,328	107
	08/28/2017	-	21	3.5	1,619	74
	09/29/2017	-	20	2.4	2,265	104
	10/28/2017	Yes	22	1.5	1,535	71
	2013 Q3 Avg.	-	-	76	-	-
	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	-	-

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Well ID	Date	Analytical Sampling	Induced Vacuum (inches H_2O)[a]	PID (ppmv)[a]	Approximate Velocity (fpm)[a]	Flow (scfm)[b]
SVE Blower Outlet[c]	2016 Q1 Avg.	-	0.2	2.9	-	-
(cont'd)	2016 Q2 Avg.	-	0.5	34	-	-
	2016 Q3 Avg.	-	0.5	3.1	-	-
	10/21/2016	-	0.5	1.3	-	-
	12/30/2016	-	0.5	5.9	-	-
	01/30/2017	-	0.4	6.9	-	-
	02/27/2017	-	0.5	8.1	-	-
	03/10/2017	-	-	4.2	-	-
	03/17/2017	-	-	2.0	-	-
	03/21/2017	-	0.4	8.0	-	-
	04/04/2017	-	-	8.9	-	-
	04/13/2017	-	0.4	5.7	-	-
	05/17/2017	-	0.4	3.4	-	-
	06/21/2017	-	0.5	1.3	-	-
	07/06/2017	-	0.4	1.7	-	-
	08/28/2017	-	0.5	3.4	-	-
	09/29/2017	-	-	2.3	-	-
	10/28/2017	-	0.4	2.3	-	-
GAC #2	2013 Q3 Avg.	-	-	0.0	-	-
	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]
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]
	10/28/20017	1.4	Yes	1.3[b]	0.0[b]	0.5[b]	20.5[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]
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]
SVE-5	11/23/2015	6	Yes	0.8	-	-	-
	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]
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	-	-	-	-

TABLE 2
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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-17 (cont'd)	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
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
	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
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
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

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S-28 (cont'd)	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
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*	-	-	-	-	-
	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
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
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
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*

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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	4.3	10	5.7 U	6.4	5.7 U	-	-	-	*14 U*	-	-	-	-	-
SVE-2	08/22/2013	15-20	250 U	3.9 U	4.6 U	5.3 U	5.3 U	5.3 U	*9.4 U*	5.0 U	4.4 U	-	14	6.6 U	290	7.7 U	6.7 U
	03/07/2014	15-20	560	4.0 U	4.7 U	5.4 U	5.6	5.4 U	*9.6 U*	5.1 U	4.5 U	-	94	6.7 U	86	7.9 U	6.8 U
	05/08/2014	15-20	1,600 U	26 U	30 U	35 U	35 U	35 U	*62 U*	*32 U*	29 U	-	87	*43 U*	95 U	*51 U*	44 U
	08/08/2014	15-20	1,700	3.9 U	17	5.3 U	16	6.6	*9.3 U*	4.9 U	4.4 U	-	170	20	28	7.6 U	6.6 U
	11/14/2014	15-20	240 U	3.8 U	4.5 U	5.2 U	6.7	5.2 U	*9.1 U*	4.8 U	4.3 U	-	26	6.4 U	14	7.5 U	6.5 U
	02/06/2015	15-20	520 U	4.0 U	4.8	5.5 U	5.5 U	5.5 U	*9.7 U*	5.1 U	4.5 U	*26 U*	23	6.8 U	15 U	7.9 U	6.9 U

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)	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*	-	-	-	-	-
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*	-	-	-	-	-
SVE-4	08/22/2013	15-20	250 U	3.9 U	4.6 U	5.3 U	5.3 U	5.3 U	*9.4 U*	5.0 U	4.4 U	-	8.5	6.6 U	450	7.7 U	6.7 U
	12/04/2013	15-20	53,000	15 U	460	21 U	21 U	21 U	*36 U*	*19 U*	17 U	-	**3,600**	26 U	56 U	30 U	26 U
	03/07/2014	15-20	670	4.0 U	4.7 U	5.4 U	6.5	5.4 U	*9.5 U*	5.0 U	4.5 U	-	**1,200**	6.7 U	21	7.8 U	6.8 U
	05/08/2014	15-20	950 U	15 U	18 U	20 U	20 U	20 U	*36 U*	*19 U*	17 U	-	**2,700**	25 U	55 U	29 U	25 U
	08/08/2014	15-20	2,700	4.0 U	35	6.7	24	8.7	*9.6 U*	5.0 U	4.5 U	-	**3,200**	6.7 U	46	7.9 U	6.8 U
	11/14/2014	15-20	240 U	3.8 U	4.5 U	5.2 U	6.0	5.2 U	*9.2 U*	4.8 U	4.3 U	-	130	6.4 U	14 U	7.5 U	6.5 U
	02/06/2015	15-20	140,000	*79 U*	93 U	110 U	110 U	110 U	*190 U*	*100 U*	89 U	*520 U*	220	*130 U*	290 U	*160 U*	130 U
	03/06/2015	15-20	520 U	4.0 U	4.7 U	5.5 U	5.5 U	5.5 U	*9.7 U*	5.1 U	4.5 U	*26 U*	**2,500**	6.8 U	15 U	7.9 U	6.9 U
	06/19/2015	15-20	540 U	4.2 U	5.0	5.7 U	5.7 U	5.7 U	*10 U*	5.3 U	4.8 U	*14 U*	400	7.1 U	16 U	8.3 U	7.2 U
	08/18/2015	15-20	520 U	4.1 U	4.8 U	5.6 U	5.6 U	5.6 U	*9.9 U*	5.2 U	4.6 U	*13 U*	19	6.9 U	15 U	8.1 U	7.0 U
	11/20/2015	15-20	510 U	4.0 U	5.0	5.4 U	5.4 U	5.4 U	-	-	-	*26 U*	-	-	-	-	-
	03/16/2016	15-20	530 U	4.2 U	4.9 U	5.7 U	5.7 U	5.7 U	-	-	-	*14 U*	-	-	-	-	-
	04/01/2016	15-20	550 U	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	-	-	-	*28 U*	-	-	-	-	-
	04/13/2016	15-20	980	4.3 U	5.1 U	5.9 U	5.9 U	5.9 U	-	-	-	*14 U*	-	-	-	-	-
	07/12/2016	15-20	520 U	4.0 U	4.8 U	5.5 U	5.5 U	5.5 U	-	-	-	*13 U*	-	-	-	-	-

TABLE 3

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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)	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*	-	-	-	-	-
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*	-	-	-	-	-
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	03/07/2014	NA	50,000	8.3	65	70	1,100	470	*18 U*	*9.7 U*	8.6 U	-	**410**	*13 U*	28 U	*15 U*	13 U
	05/08/2014	NA	24,000	*39 U*	46 U	54 U	510	290	*95 U*	*50 U*	44 U	-	**1,200**	*66 U*	140 U	*78 U*	67 U
	08/08/2014	NA	25,000	3.8 U	35	8.3	130	100	*9.1 U*	*4.8 U*	4.2 U	-	**1,200**	9.4	21	7.4 U	6.4 U
	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
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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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
Post-GAC (cont'd)	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
								Estimated Emissions During Last 12 Months (Pounds/Year):	38	3.1
								Annual Emissions Threshold (Pounds/Year):	2,000[c]	500[d]

Notes:

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

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

[c] 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

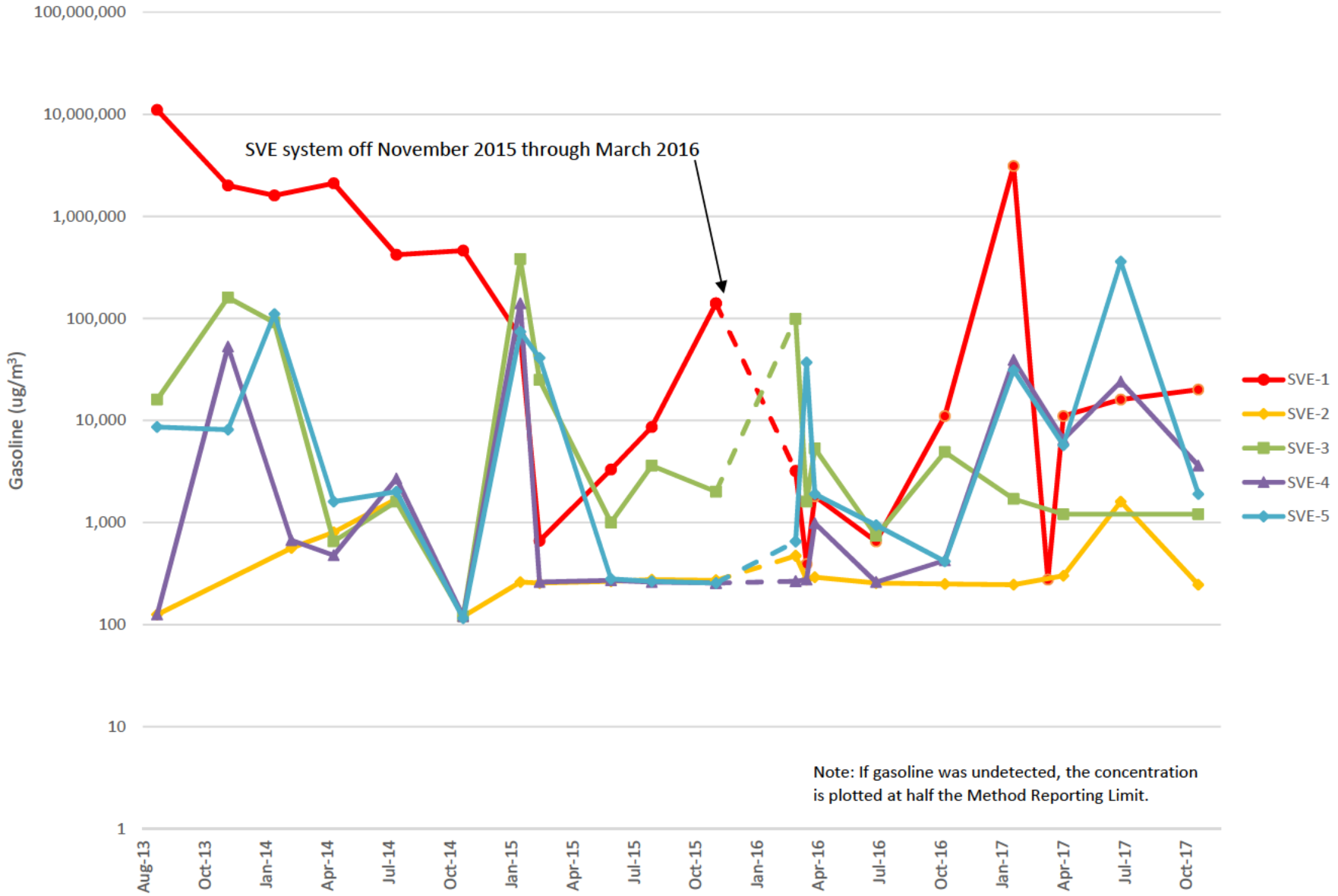


CHART 2

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

Plaid Pantry No. 112

Vancouver, Washington

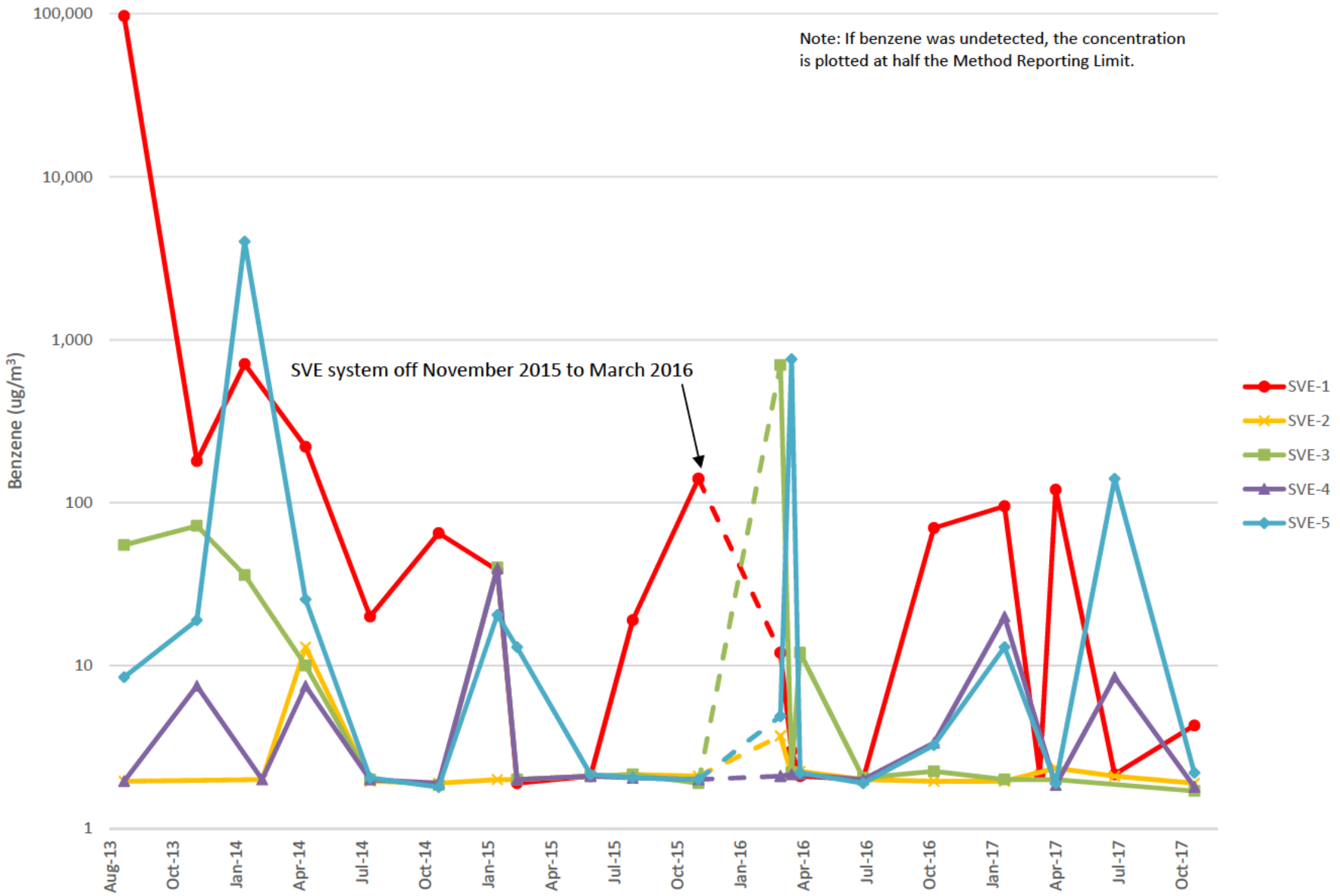


CHART 3

Gasoline Mass Extraction Rates and Cumulative Mass Removal

Plaid Pantry No. 112

Vancouver, Washington

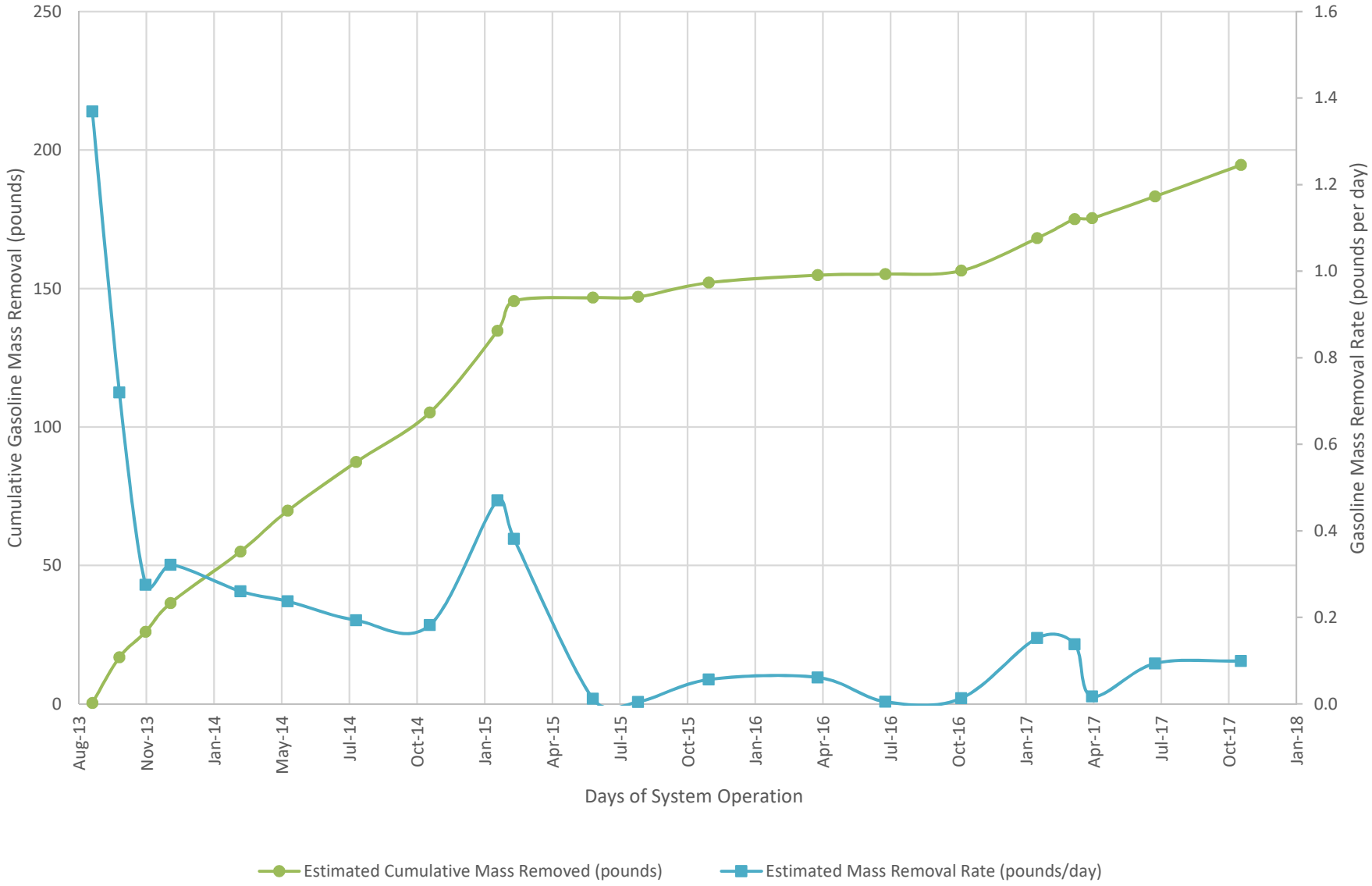
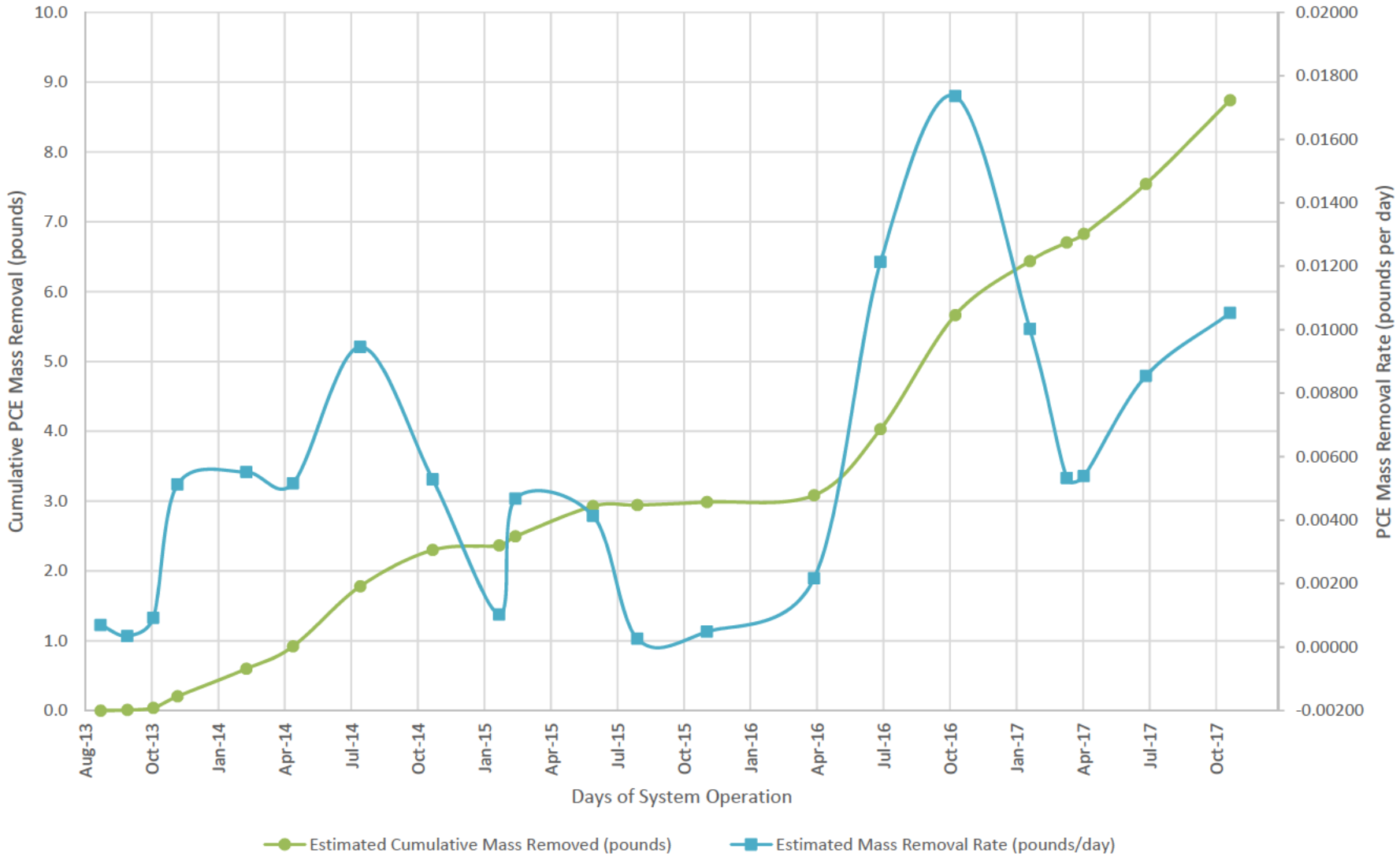


CHART 4
PCE Mass Extraction Rates and Cumulative Mass Removal
Plaid Pantry No. 112
Vancouver, Washington



Attachment A

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11/14/2017
Mr. Chris Rhea
EES Environmental Consulting, Inc.
240 N Broadway
Suite 203
Portland OR 97227

Project Name: PLAID PANTRY #112
Project #: 1179-02
Workorder #: 1711020

Dear Mr. Chris Rhea

The following report includes the data for the above referenced project for sample(s) received on 11/1/2017 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 #: 1711020

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:	11/01/2017	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	11/14/2017		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SVE BLOWER INLET	TO-15	5.7 "Hg	15 psi
02A	SVE-2	TO-15	4.7 "Hg	15.1 psi
03A	SVE-3	TO-15	1.8 "Hg	15.2 psi
04A	SVE-1	TO-15	6.7 "Hg	15.1 psi
05A	SVE-4	TO-15	3.5 "Hg	15 psi
06A	SVE-5	TO-15	8 "Hg	15.1 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: 11/14/17

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# 1711020

Six 1 Liter Summa Canister samples were received on November 01, 2017. 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

The recovery of surrogate 1,2-Dichloroethane-d4 in sample SVE-1 was outside laboratory control limits due to high level hydrocarbon matrix interference. The surrogate recovery is flagged.

The hydrocarbon profile present in sample SVE-1 did not resemble that of commercial gasoline. Results were calculated using the response factor derived from the gasoline calibration.

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.

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 BLOWER INLET

Lab ID#: 1711020-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 11	1.2	1.9	7.0	11
Ethanol	5.0	28	9.4	52
2-Propanol	5.0	480	12	1200
Cyclohexane	1.2	2.4	4.3	8.3
2,2,4-Trimethylpentane	1.2	99	5.8	460
Toluene	1.2	3.2	4.7	12
Tetrachloroethene	1.2	140	8.4	980
m,p-Xylene	1.2	1.8	5.4	7.8
TPH ref. to Gasoline (MW=100)	120	880	510	3600

Client Sample ID: SVE-2

Lab ID#: 1711020-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	1.8	4.5	6.9
m,p-Xylene	1.2	1.2	5.2	5.2

Client Sample ID: SVE-3

Lab ID#: 1711020-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.1	2.4	4.1	9.1
m,p-Xylene	1.1	1.4	4.7	6.2
TPH ref. to Gasoline (MW=100)	110	300	440	1200

Client Sample ID: SVE-1

Lab ID#: 1711020-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	1.4	4.2	4.3
Toluene	1.3	2.7	4.9	10
m,p-Xylene	1.3	1.5	5.7	6.4

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

Client Sample ID: SVE-1

Lab ID#: 1711020-04A

TPH ref. to Gasoline (MW=100)	130	4800	530	20000

Client Sample ID: SVE-4

Lab ID#: 1711020-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.1	6.3	4.3	24
m,p-Xylene	1.1	1.6	5.0	6.7
TPH ref. to Gasoline (MW=100)	110	890	470	3600

Client Sample ID: SVE-5

Lab ID#: 1711020-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.4	2.2	5.2	8.2
TPH ref. to Gasoline (MW=100)	140	460	560	1900

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Client Sample ID: SVE BLOWER INLET

Lab ID#: 1711020-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110321**	**Date of Collection:**	**10/28/17 11:17:00 A**
Dil. Factor:	**2.49**	**Date of Analysis:**	**11/3/17 11:03 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.2	Not Detected
Freon 114	1.2	Not Detected	8.7	Not Detected
Chloromethane	12	Not Detected	26	Not Detected
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,3-Butadiene	1.2	Not Detected	2.8	Not Detected
Bromomethane	12	Not Detected	48	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	1.2	1.9	7.0	11
Ethanol	5.0	28	9.4	52
Freon 113	1.2	Not Detected	9.5	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Acetone	12	Not Detected	30	Not Detected
2-Propanol	5.0	480	12	1200
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	5.0	Not Detected	16	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Hexane	1.2	Not Detected	4.4	Not Detected
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.7	Not Detected
Chloroform	1.2	Not Detected	6.1	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Cyclohexane	1.2	2.4	4.3	8.3
Carbon Tetrachloride	1.2	Not Detected	7.8	Not Detected
2,2,4-Trimethylpentane	1.2	99	5.8	460
Benzene	1.2	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	Not Detected	5.1	Not Detected
Trichloroethene	1.2	Not Detected	6.7	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.8	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.3	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.1	Not Detected
Toluene	1.2	3.2	4.7	12
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Tetrachloroethene	1.2	140	8.4	980
2-Hexanone	5.0	Not Detected	20	Not Detected

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Client Sample ID: SVE BLOWER INLET

Lab ID#: 1711020-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110321**	**Date of Collection: 10/28/17 11:17:00 A**	
Dil. Factor:	**2.49**	**Date of Analysis: 11/3/17 11:03 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.6	Not Detected
Chlorobenzene	1.2	Not Detected	5.7	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	1.8	5.4	7.8
o-Xylene	1.2	Not Detected	5.4	Not Detected
Styrene	1.2	Not Detected	5.3	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.1	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.5	Not Detected
Propylbenzene	1.2	Not Detected	6.1	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.1	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.5	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.5	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.4	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.5	Not Detected
1,2,4-Trichlorobenzene	5.0	Not Detected	37	Not Detected
Hexachlorobutadiene	5.0	Not Detected	53	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	120	880	510	3600

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	115	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: SVE-2

Lab ID#: 1711020-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110320**	**Date of Collection: 10/28/17 11:37:00 A**	
Dil. Factor:	**2.40**	**Date of Analysis: 11/3/17 10:37 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	5.2	Not Detected
Toluene	1.2	1.8	4.5	6.9
m,p-Xylene	1.2	1.2	5.2	5.2
o-Xylene	1.2	Not Detected	5.2	Not Detected
Naphthalene	2.4	Not Detected	12	Not Detected
TPH ref. to Gasoline (MW=100)	120	Not Detected	490	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: SVE-3

Lab ID#: 1711020-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110319**	**Date of Collection: 10/28/17 11:51:00 A**	
Dil. Factor:	**2.16**	**Date of Analysis: 11/3/17 10:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.1	Not Detected	3.4	Not Detected
Ethyl Benzene	1.1	Not Detected	4.7	Not Detected
Toluene	1.1	2.4	4.1	9.1
m,p-Xylene	1.1	1.4	4.7	6.2
o-Xylene	1.1	Not Detected	4.7	Not Detected
Naphthalene	2.2	Not Detected	11	Not Detected
TPH ref. to Gasoline (MW=100)	110	300	440	1200

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: SVE-1

Lab ID#: 1711020-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110318**	**Date of Collection: 10/28/17 12:08:00 P**	
Dil. Factor:	**2.61**	**Date of Analysis: 11/3/17 09:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.3	1.4	4.2	4.3
Ethyl Benzene	1.3	Not Detected	5.7	Not Detected
Toluene	1.3	2.7	4.9	10
m,p-Xylene	1.3	1.5	5.7	6.4
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	4800	530	20000

Q = Exceeds Quality Control limits.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	135 Q	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: SVE-4

Lab ID#: 1711020-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110317**	**Date of Collection: 10/28/17 12:20:00 P**	
Dil. Factor:	**2.29**	**Date of Analysis: 11/3/17 09:18 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.1	Not Detected	3.6	Not Detected
Ethyl Benzene	1.1	Not Detected	5.0	Not Detected
Toluene	1.1	6.3	4.3	24
m,p-Xylene	1.1	1.6	5.0	6.7
o-Xylene	1.1	Not Detected	5.0	Not Detected
Naphthalene	2.3	Not Detected	12	Not Detected
TPH ref. to Gasoline (MW=100)	110	890	470	3600

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: SVE-5

Lab ID#: 1711020-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110316**	**Date of Collection: 10/28/17 12:33:00 P**	
Dil. Factor:	**2.76**	**Date of Analysis: 11/3/17 08:52 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.4	Not Detected	4.4	Not Detected
Ethyl Benzene	1.4	Not Detected	6.0	Not Detected
Toluene	1.4	2.2	5.2	8.2
m,p-Xylene	1.4	Not Detected	6.0	Not Detected
o-Xylene	1.4	Not Detected	6.0	Not Detected
Naphthalene	2.8	Not Detected	14	Not Detected
TPH ref. to Gasoline (MW=100)	140	460	560	1900

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1711020-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110309**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 02:58 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#: 1711020-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110309**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 02:58 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	109	70-130
4-Bromofluorobenzene	91	70-130

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Client Sample ID: CCV

Lab ID#: 1711020-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 10:10 AM**	

Compound	%Recovery
Freon 12	115
Freon 114	105
Chloromethane	128
Vinyl Chloride	120
1,3-Butadiene	114
Bromomethane	112
Chloroethane	111
Freon 11	109
Ethanol	122
Freon 113	98
1,1-Dichloroethene	105
Acetone	116
2-Propanol	114
Carbon Disulfide	108
3-Chloropropene	103
Methylene Chloride	122
Methyl tert-butyl ether	102
trans-1,2-Dichloroethene	113
Hexane	111
1,1-Dichloroethane	113
2-Butanone (Methyl Ethyl Ketone)	113
cis-1,2-Dichloroethene	107
Tetrahydrofuran	122
Chloroform	114
1,1,1-Trichloroethane	103
Cyclohexane	106
Carbon Tetrachloride	100
2,2,4-Trimethylpentane	112
Benzene	115
1,2-Dichloroethane	126
Heptane	126
Trichloroethene	112
1,2-Dichloropropane	115
1,4-Dioxane	113
Bromodichloromethane	120
cis-1,3-Dichloropropene	112
4-Methyl-2-pentanone	123
Toluene	114
trans-1,3-Dichloropropene	115
1,1,2-Trichloroethane	112
Tetrachloroethene	107
2-Hexanone	123

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Client Sample ID: CCV

Lab ID#: 1711020-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110302**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 10:10 AM**	

Compound	%Recovery
Dibromochloromethane	112
1,2-Dibromoethane (EDB)	114
Chlorobenzene	108
Ethyl Benzene	114
m,p-Xylene	120
o-Xylene	116
Styrene	128
Bromoform	107
Cumene	118
1,1,2,2-Tetrachloroethane	114
Propylbenzene	117
4-Ethyltoluene	117
1,3,5-Trimethylbenzene	123
1,2,4-Trimethylbenzene	115
1,3-Dichlorobenzene	108
1,4-Dichlorobenzene	111
alpha-Chlorotoluene	115
1,2-Dichlorobenzene	108
1,2,4-Trichlorobenzene	103
Hexachlorobutadiene	114
Naphthalene	79
TPH ref. to Gasoline (MW=100)	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	112	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCS

Lab ID#: 1711020-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 11:00 AM**	

Compound	%Recovery	Method Limits
Freon 12	116	70-130
Freon 114	110	70-130
Chloromethane	122	70-130
Vinyl Chloride	128	70-130
1,3-Butadiene	115	70-130
Bromomethane	115	70-130
Chloroethane	117	70-130
Freon 11	113	70-130
Ethanol	133 Q	70-130
Freon 113	97	70-130
1,1-Dichloroethene	108	70-130
Acetone	118	70-130
2-Propanol	127	70-130
Carbon Disulfide	96	70-130
3-Chloropropene	103	70-130
Methylene Chloride	123	70-130
Methyl tert-butyl ether	102	70-130
trans-1,2-Dichloroethene	98	70-130
Hexane	115	70-130
1,1-Dichloroethane	111	70-130
2-Butanone (Methyl Ethyl Ketone)	112	70-130
cis-1,2-Dichloroethene	116	70-130
Tetrahydrofuran	126	70-130
Chloroform	113	70-130
1,1,1-Trichloroethane	103	70-130
Cyclohexane	109	70-130
Carbon Tetrachloride	103	70-130
2,2,4-Trimethylpentane	117	70-130
Benzene	109	70-130
1,2-Dichloroethane	116	70-130
Heptane	117	70-130
Trichloroethene	108	70-130
1,2-Dichloropropane	112	70-130
1,4-Dioxane	107	70-130
Bromodichloromethane	116	70-130
cis-1,3-Dichloropropene	103	70-130
4-Methyl-2-pentanone	120	70-130
Toluene	109	70-130
trans-1,3-Dichloropropene	110	70-130
1,1,2-Trichloroethane	105	70-130
Tetrachloroethene	102	70-130
2-Hexanone	121	70-130

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Client Sample ID: LCS

Lab ID#: 1711020-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 11:00 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	107	70-130
1,2-Dibromoethane (EDB)	109	70-130
Chlorobenzene	103	70-130
Ethyl Benzene	110	70-130
m,p-Xylene	116	70-130
o-Xylene	116	70-130
Styrene	124	70-130
Bromoform	104	70-130
Cumene	114	70-130
1,1,2,2-Tetrachloroethane	110	70-130
Propylbenzene	114	70-130
4-Ethyltoluene	114	70-130
1,3,5-Trimethylbenzene	119	70-130
1,2,4-Trimethylbenzene	114	70-130
1,3-Dichlorobenzene	105	70-130
1,4-Dichlorobenzene	109	70-130
alpha-Chlorotoluene	115	70-130
1,2-Dichlorobenzene	107	70-130
1,2,4-Trichlorobenzene	122	70-130
Hexachlorobutadiene	116	70-130
Naphthalene	94	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCSD

Lab ID#: 1711020-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110308**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 01:42 PM**	

Compound	%Recovery	Method Limits
Freon 12	116	70-130
Freon 114	109	70-130
Chloromethane	120	70-130
Vinyl Chloride	126	70-130
1,3-Butadiene	111	70-130
Bromomethane	112	70-130
Chloroethane	115	70-130
Freon 11	112	70-130
Ethanol	130	70-130
Freon 113	96	70-130
1,1-Dichloroethene	108	70-130
Acetone	114	70-130
2-Propanol	126	70-130
Carbon Disulfide	96	70-130
3-Chloropropene	98	70-130
Methylene Chloride	122	70-130
Methyl tert-butyl ether	100	70-130
trans-1,2-Dichloroethene	97	70-130
Hexane	114	70-130
1,1-Dichloroethane	110	70-130
2-Butanone (Methyl Ethyl Ketone)	112	70-130
cis-1,2-Dichloroethene	114	70-130
Tetrahydrofuran	124	70-130
Chloroform	112	70-130
1,1,1-Trichloroethane	101	70-130
Cyclohexane	106	70-130
Carbon Tetrachloride	100	70-130
2,2,4-Trimethylpentane	114	70-130
Benzene	110	70-130
1,2-Dichloroethane	116	70-130
Heptane	116	70-130
Trichloroethene	109	70-130
1,2-Dichloropropane	112	70-130
1,4-Dioxane	108	70-130
Bromodichloromethane	118	70-130
cis-1,3-Dichloropropene	102	70-130
4-Methyl-2-pentanone	119	70-130
Toluene	110	70-130
trans-1,3-Dichloropropene	110	70-130
1,1,2-Trichloroethane	106	70-130
Tetrachloroethene	102	70-130
2-Hexanone	121	70-130

eurofins | Air Toxics

Client Sample ID: LCSD

Lab ID#: 1711020-09AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**p110308**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 11/3/17 01:42 PM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	109	70-130
1,2-Dibromoethane (EDB)	109	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	109	70-130
m,p-Xylene	115	70-130
o-Xylene	117	70-130
Styrene	124	70-130
Bromoform	104	70-130
Cumene	114	70-130
1,1,2,2-Tetrachloroethane	111	70-130
Propylbenzene	114	70-130
4-Ethyltoluene	116	70-130
1,3,5-Trimethylbenzene	119	70-130
1,2,4-Trimethylbenzene	114	70-130
1,3-Dichlorobenzene	107	70-130
1,4-Dichlorobenzene	111	70-130
alpha-Chlorotoluene	116	70-130
1,2-Dichlorobenzene	107	70-130
1,2,4-Trichlorobenzene	121	70-130
Hexachlorobutadiene	117	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	108	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	101	70-130