



ENVIRONMENTAL CONSULTING, INC.

240 N. Broadway, Suite 203, Portland, Oregon 97227

(503) 847-2740

www.ees-environmental.com

Technical Memorandum

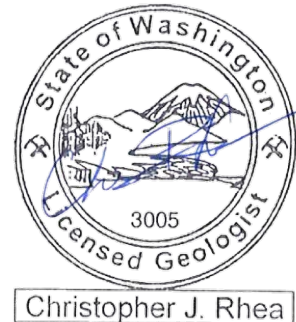
Status Report – SVE Monitoring (First Quarter 2018)

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

From: Paul Ecker LHG, and Chris Rhea, LG

Date: April 26, 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 March 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.

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.

The January 2018 quarterly monitoring event was postponed until February 2018 due to limited SVE operation during the winter months of December 2017 and January 2018. Limited operation during the winter season is caused by increased water being drawn into the SVE system, causing the system to shut down. Regular maintenance generally maintains continuous system operation, however prolonged wet weather conditions cause increased frequency of the SVE system shutdown. Quarterly monitoring was conducted on February 13 and 15, 2018 during a period of continuous SVE system operation.

Operational data collected through March 21, 2018 is presented on the attached tables, figures, and charts, and summarized below.

AIR FLOW

Since January 2017, 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 102 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 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. Biogenic conditions at select wells outside the radius of influence of the SVE system (S-27, S-28, S-29, and S-31) are considered defined and will no longer be monitored unless significant changes in site conditions are observed. Biogenic degradation data is presented in Table 2.

CONTAMINANT CONCENTRATIONS AND MASS REMOVAL

On February 13, 2018, vapor samples were collected from four of 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. A sample was not collected from SVE-2 due to water in the SVE line. EES purged water from all SVE transmission lines after the February 2018 sampling activities. All five active SVE wells are planned to be sampled during the next quarterly monitoring event scheduled for late April 2018.

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 February 2018 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 February 2018 event, gasoline and/or related vapor constituents were detected at all four sampled SVE wells. Overall, gasoline and related constituent concentrations had diminished since dry-weather conditions in July 2017, and within the range of variability observed during the past several years. The highest concentration of gasoline (11,000 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) was detected at well SVE-1. Benzene was not detected above laboratory method reporting limits (MRLs) at any of the sampled SVE wells during the February 2018 sampling event. Other gasoline constituents were detected at concentrations below MTCA Method B soil gas screening levels at each of the four SVE wells. Note that a relatively 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 0.039 pounds per day based on the February 2018 monitoring results. Since mass extraction rates stabilized in June 2015, approximately 51 pounds of gasoline mass were removed by SVE from the subsurface. Since 2013 startup, cumulative removal of gasoline range hydrocarbons is estimated to be 198 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 February 2018 at a concentration of $73 \mu\text{g}/\text{m}^3$. This concentration is below the published MTCA Method B soil gas screening level of $321 \mu\text{g}/\text{m}^3$, and 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 February 2018 data, the PCE mass removal rate was calculated at 0.0048 pounds per day, a decrease compared to the October 2017 monitoring data. Cumulative PCE mass removal since 2013 startup is estimated to be 9.1 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

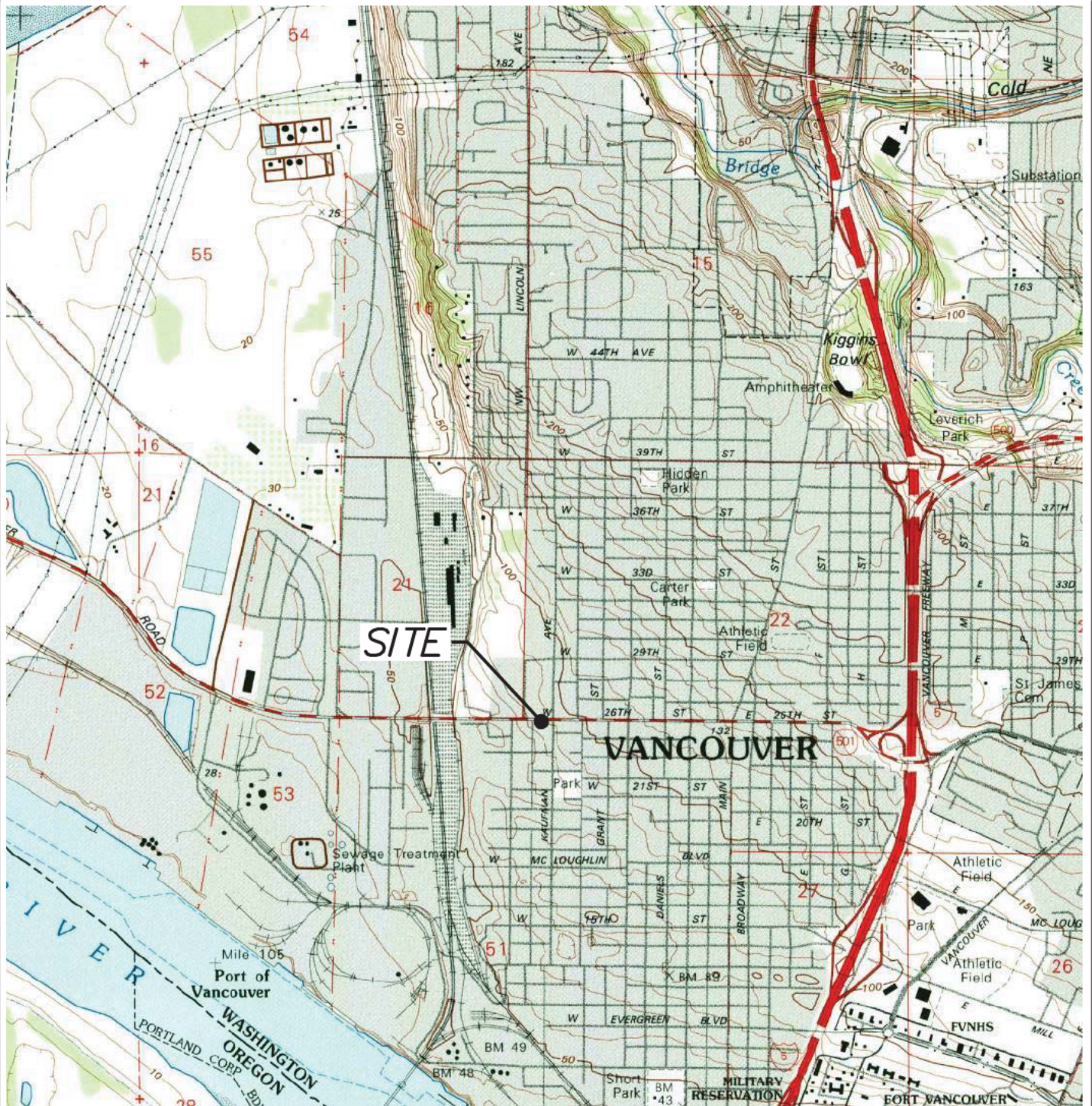
pounds/year, respectively) and exhaust treatment is not currently required by SWCAA based solely on gasoline/BTEX and PCE vapor exhausts (Table 4).

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
	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
Charts	Chart 1: Gasoline Vapor Concentrations during SVE Operations
	Chart 2: Benzene Vapor Concentrations during SVE Operations
	Chart 3: Gasoline Mass Extraction Rates and Cumulative Mass Removal
	Chart 4: 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)



APPROXIMATE SCALE IN FEET



EES

ENVIRONMENTAL CONSULTING, INC.

240 N Broadway #203, Portland, OR 97227
(503) 847-2740

www.ees-environmental.com

VICINITY MAP

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

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

C:\Users\Josh\Desktop\Autocad Backup\EES-Autocad\1179-01 Plaid Pantry #112\1179-01_Base-Master\1179-01_Base-Master-073015.dwg 12.19.2014

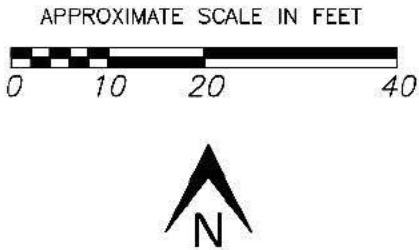
LEGEND

Property Boundary

Catch Basin

Dry Well

SITE FEATURES ARE APPROXIMATE.



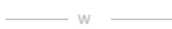
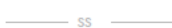
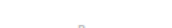
EES
ENVIRONMENTAL CONSULTING, INC.
240 N Broadway #203, Portland, OR 97227
(503) 847-2740
www.ees-environmental.com

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

SITE FEATURES

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

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 |

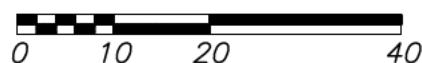
* = Vacuum Measured at Wellhead.
Wells B-17 & SVE-1 through
SVE-5 measured on 2/13/18.
Wells B-18 & S-31 measured
on 2/15/18.

Approximate Utility Depths
Indicated Where Known (Feet)

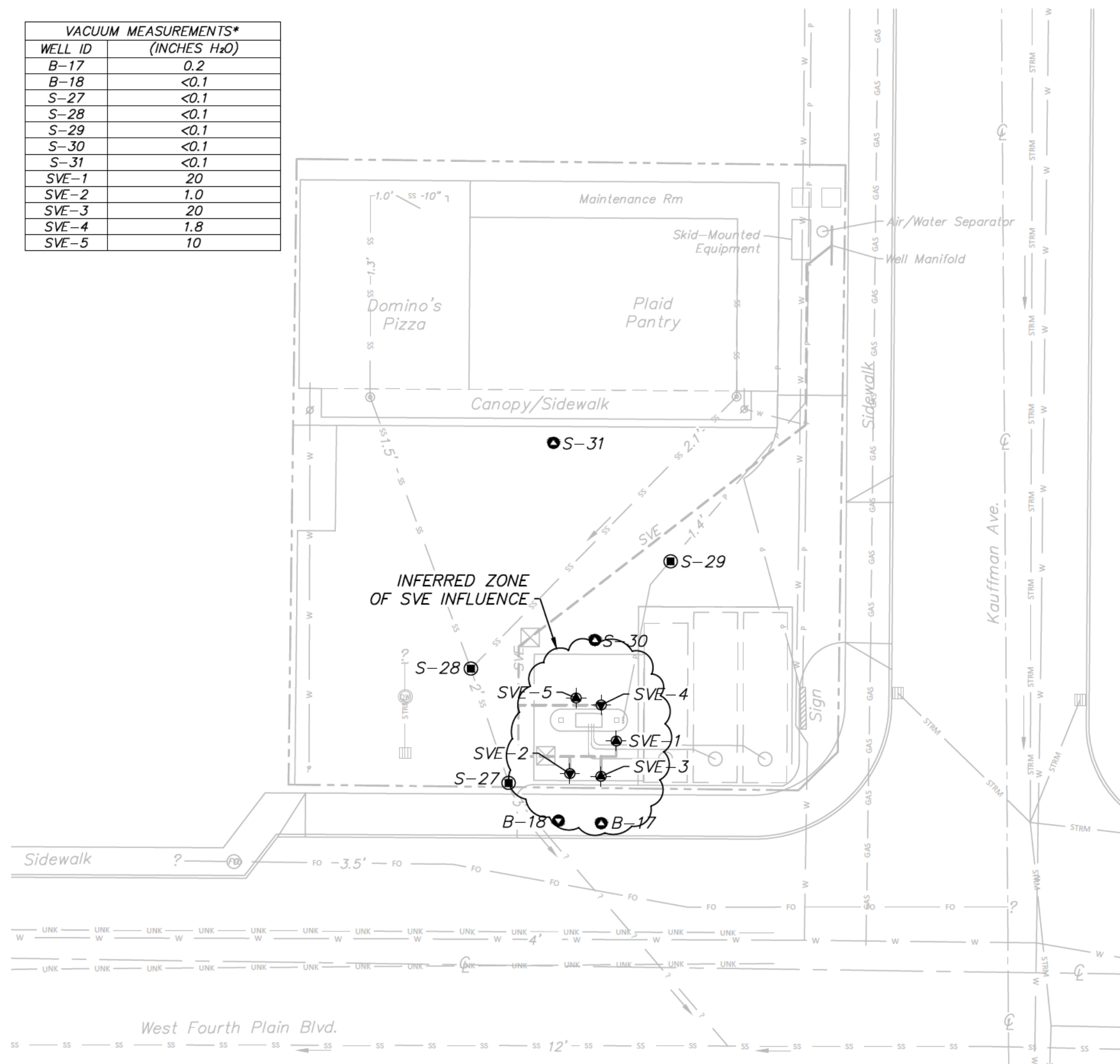
SITE FEATURES ARE APPROXIMATE.



APPROXIMATE SCALE IN FEET



VACUUM MEASUREMENTS*	
WELL ID	(INCHES H ₂ O)
B-17	0.2
B-18	<0.1
S-27	<0.1
S-28	<0.1
S-29	<0.1
S-30	<0.1
S-31	<0.1
SVE-1	20
SVE-2	1.0
SVE-3	20
SVE-4	1.8
SVE-5	10



DATE:	4-20-18	PROJECT NO.
FILE:	1179-02	1179-02
DRAWN:	JJT	FIGURE NO.
APPROVED:	DRP	3

INFERRED SVE RADIUS OF INFLUENCE
(FEBRUARY 2018)

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

EES
ENVIRONMENTAL CONSULTING, INC.
240 N Broadway #203, Portland, OR 97227
(503) 847-2740
www.ees-environmental.com

LEGEND

	<i>Property Boundary</i>
	<i>Catch Basin</i>
	<i>Dry Well</i>
	<i>Bollards</i>
	<i>Vault</i>

SVE-1 Shallow SVE test well (screened 5-10' bgs)

SVE-2  Deep SVE test well (screened 15-20' bgs)

(FO) Fiber Optic Manhole

⌘ *Water Valves*

SC 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 ($\mu\text{g}/\text{m}^3$)

* = 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

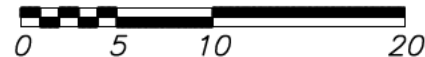
*** = THIS SAMPLE WAS NOT ANALYZED
DUE TO CANISTER VACUUM ISSUES

**** = 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



	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	--

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	--

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	--

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	--	--	--

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	--

DATE:	4-11-18	PROJECT NO. 1179-02
FILE:	1179-02	
DRAWN:	JJT	FIGURE NO. 4
APPROVED:	CJ	

CONTAMINANT VAPOR
CONCENTRATIONS DURING SVE
OPERATIONS (THROUGH 2/13/18)

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

EES
ENVIRONMENTAL CONSULTING, INC.
240 N Broadway #203, Portland, OR 972
(503) 847-2740
www.ees-environmental.com

Tables

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

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H ₂ O) ^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	11.9	935	9
	2017 Q2 Avg.	-	20	10.8	532	7
	2017 Q3 Avg.	-	18	2.9	575	10
	2017 Q4 Avg.	-	22	3.7	612	8
	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
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	2.0	2,597	43
	2017 Q4 Avg.	-	11	3.8	3,209	43
	02/13/2018	-	12	1.6	2,600	32
	02/15/2018	-	10	0.9	2,870	34
	03/21/2018	-	10	10.4	2,470	34
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

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

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H ₂ O) ^a	PID (ppmv) ^a	Approximate Velocity (fpm) ^a	Flow (scfm) ^b
SVE-3 (cont'd)	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
	2017 Q4 Avg.	-	22	7.3	627	8
	02/13/2018	-	22	3.0	768	10
	02/15/2018	-	22	1.0	525	6
	03/21/2018	-	22	7.8	658	9
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
	2016 Q4 Avg.	-	9.3	5.5	3,229	33
	2017 Q1 Avg.	-	13.0	6.4	3,302	33
	2017 Q2 Avg.	-	11.6	5.9	3,182	42
	2017 Q3 Avg.	-	8.7	2.7	2,543	42
	2017 Q4 Avg.	-	11.8	9.4	3,111	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
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

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

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H ₂ O) ^a	PID (ppmv) ^a	Approximate Velocity (fpm) ^a	Flow (scfm) ^b
SVE-5 (cont'd)	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
	2017 Q4 Avg.	-	22	6.7	578	8
	02/13/2018	-	22	1.1	624	8
	02/15/2018	-	22	3.7	561	7
	03/21/2018	-	22	15.7	538	7
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
	2017 Q4 Avg.	-	23	-	-	110
	02/13/2018	-	22	-	-	93
	02/15/2018	-	22	-	-	93
	03/21/2018	-	23	-	-	98
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

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

Well ID	Date	Analytical Sampling	Induced Vacuum (inches H ₂ O) ^a	PID (ppmv) ^a	Approximate Velocity (fpm) ^a	Flow (scfm) ^b
SVE Blower Inlet (cont'd)	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
	2016 Q4 Avg.	-	25	4.7	2,652	122
	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
	2017 Q4 Avg.	-	23	6.1	2,117	97
	02/13/2018	-	22	4.0	1,479	68
	02/15/2018	-	24	1.5	1,550	71
	03/21/2018	-	24	8.8	1,444	66
SVE Blower Outlet ^c	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	-	-
	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	-	-
	2017 Q4 Avg.	-	0.4	6.0	-	-
	02/13/2018	-	0.4	3.5	-	-
	02/15/2018	-	0.4	1.1	-	-
	03/21/2018	-	0.4	12.8	-	-
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	-	-	-

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

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 H₂O).

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 ₂ O) ^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
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
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
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
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
	02/13/2018	10	-	1.1 ^b	-	-	-
	02/15/2018	-	-	3.7 ^b	0.0 ^b	0.0 ^b	21.2 ^b
Vapor Monitoring Wells							
B-17	11/20/2015	0.30	-	-	-	-	-
	11/23/2015	0.22	No	123	-	-	-
	11/24/2015	0.02	-	307	-	-	-

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

Well ID	Date	Vacuum (inches H ₂ O) ^a	Flow Observed (Yes/No) ^c	PID (ppmv) ^a	CH ₄ (%) ^a	CO ₂ (%) ^a	O ₂ (%) ^a
B-17 (cont'd)	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
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
	02/13/2018	0.05	-	0.5	-	-	-
	02/15/2018	0.06	-	0.7	0.0	0.0	21.2
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	-	-	-	-

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

Well ID	Date	Vacuum (inches H ₂ O) ^a	Flow Observed (Yes/No) ^c	PID (ppmv) ^a	CH ₄ (%) ^a	CO ₂ (%) ^a	O ₂ (%) ^a
S-27 (cont'd)	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	-	-	-	-	-
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	-	-	-	-	-
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
	02/13/2018	0.08	-	-	-	-	-
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

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

Well ID	Date	Vacuum (inches H ₂ O) ^a	Flow Observed (Yes/No) ^c	PID (ppmv) ^a	CH ₄ (%) ^a	CO ₂ (%) ^a	O ₂ (%) ^a
S-30 (cont'd)	02/13/2018	0.00	-	0.6	-	-	-
	02/15/2018	0.02	-	0.7	0.0	1.6	20.8
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	-	-	-	-	-
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/m³)																		
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	-	-	-	-	-	-
	02/13/2018	5-10	5,700	3.8 U	4.5 U	5.2 U	6.0	5.2 U	-	-	-	12 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	

TABLE 3
Soil Vapor Analytical Results - Volatile Organic Compounds (µg/m³)
 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)	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	-	-	-	-	-
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	-	-	-	-	-
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	-	-	-	-	-

TABLE 3
Soil Vapor Analytical Results - Volatile Organic Compounds (µg/m³)
 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)	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	-	-	-	-	-
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	-	-	-	-	-
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 U	25 U	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

TABLE 3
Soil Vapor Analytical Results - Volatile Organic Compounds (µg/m³)
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	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
(cont'd)	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
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/m³ = 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
Estimated Emissions During Last 12 Months (Pounds/Year):									30	2.7
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.

ft³/min = Cubic feet per minute

mg/m³ = 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/m³)
 Plaid Pantry No. 112
 Vancouver, Washington

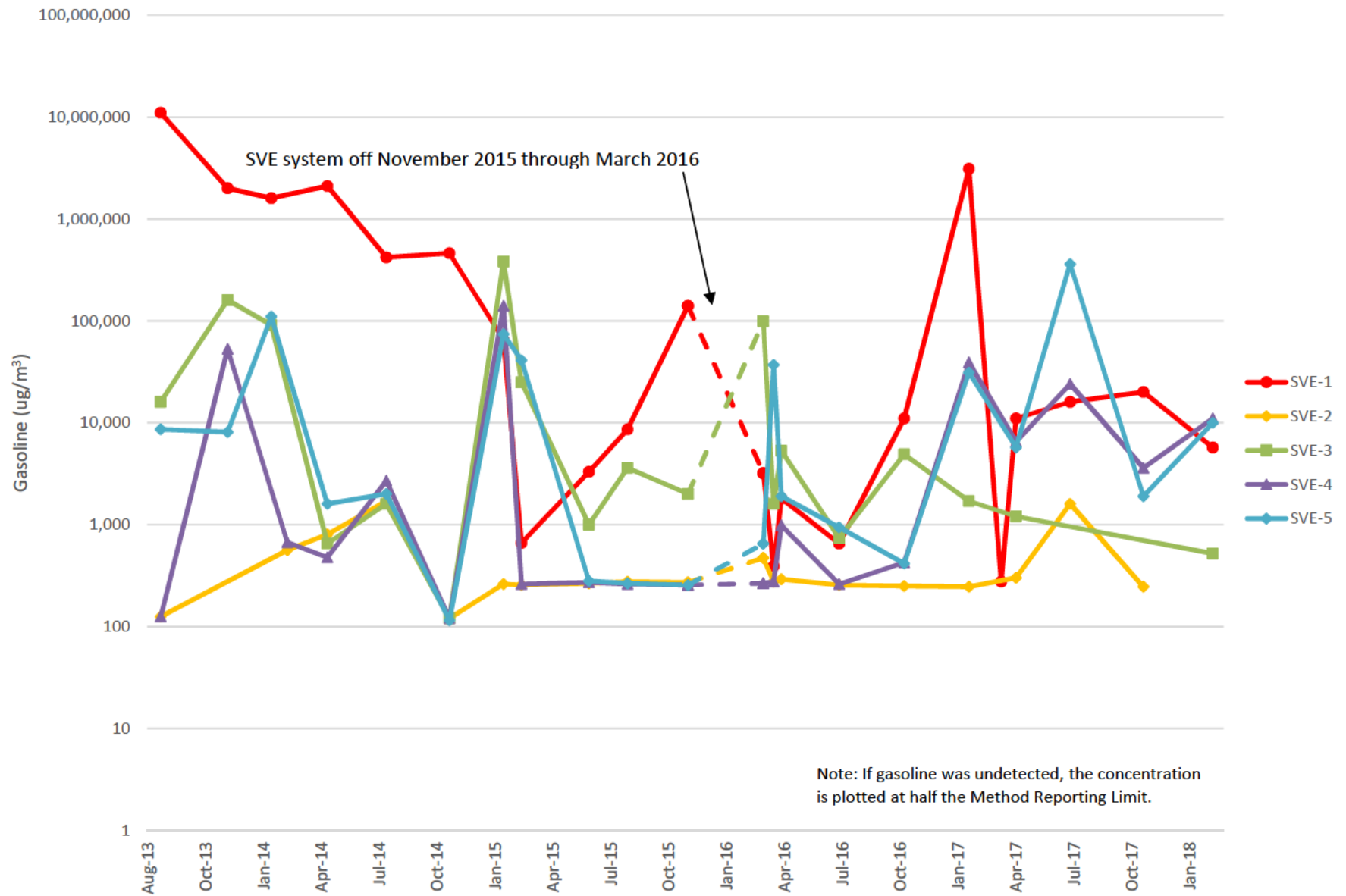


CHART 2
Benzene Vapor Concentrations During SVE Operations (ug/m³)
 Plaid Pantry No. 112
 Vancouver, Washington

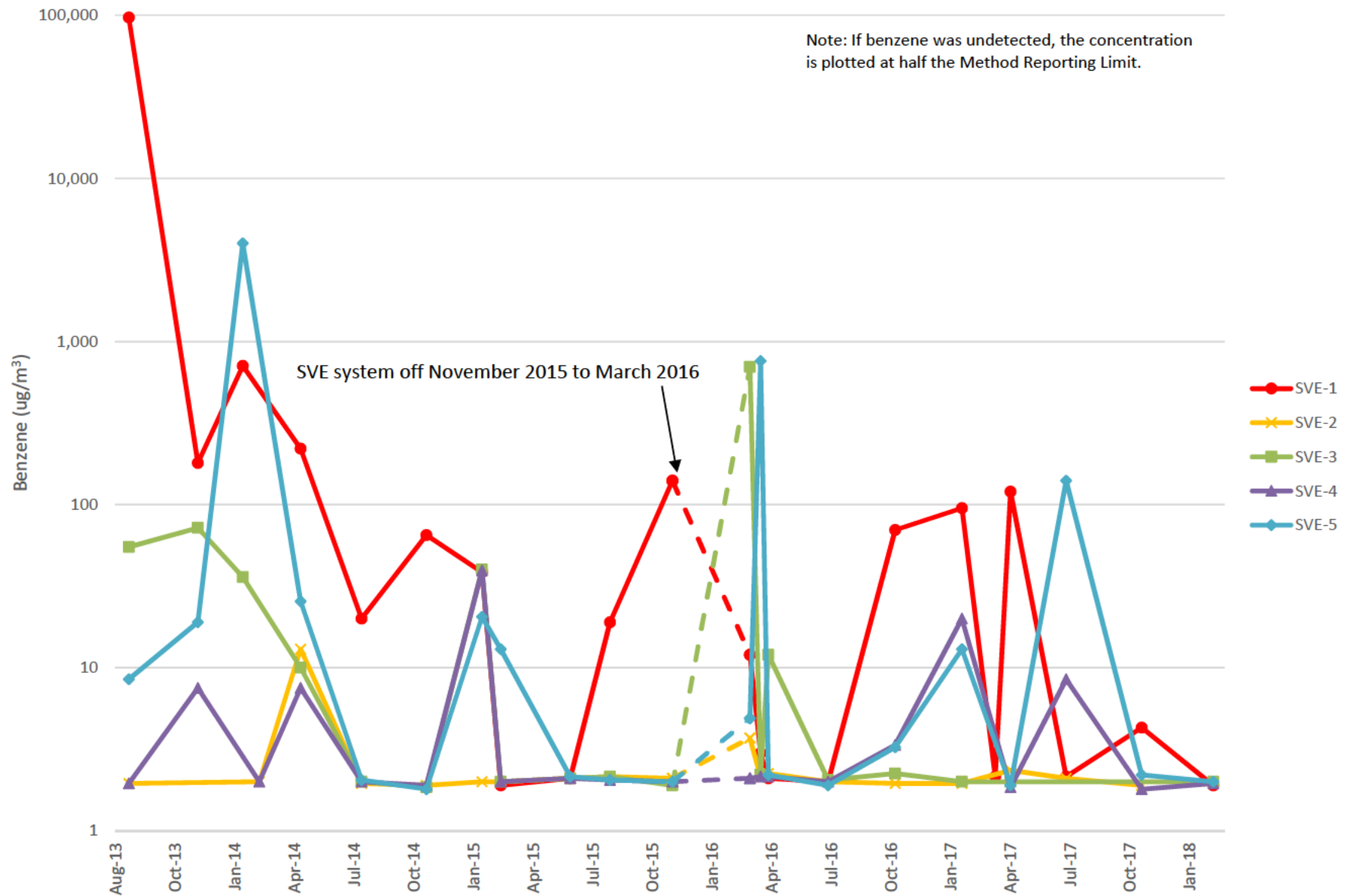


CHART 3
Gasoline Mass Extraction Rates and Cumulative Mass Removal
 Plaid Pantry No. 112
 Vancouver, Washington

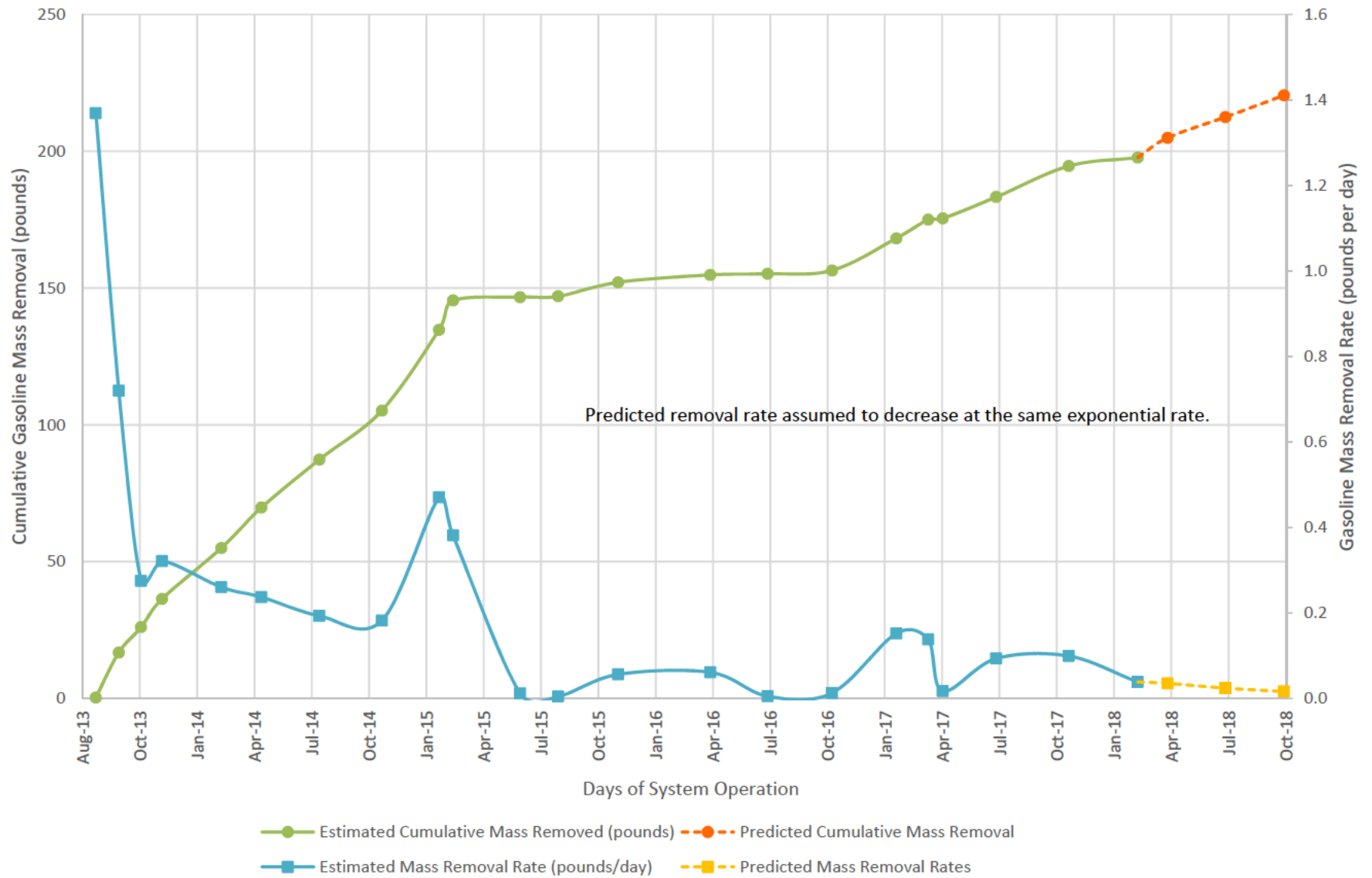
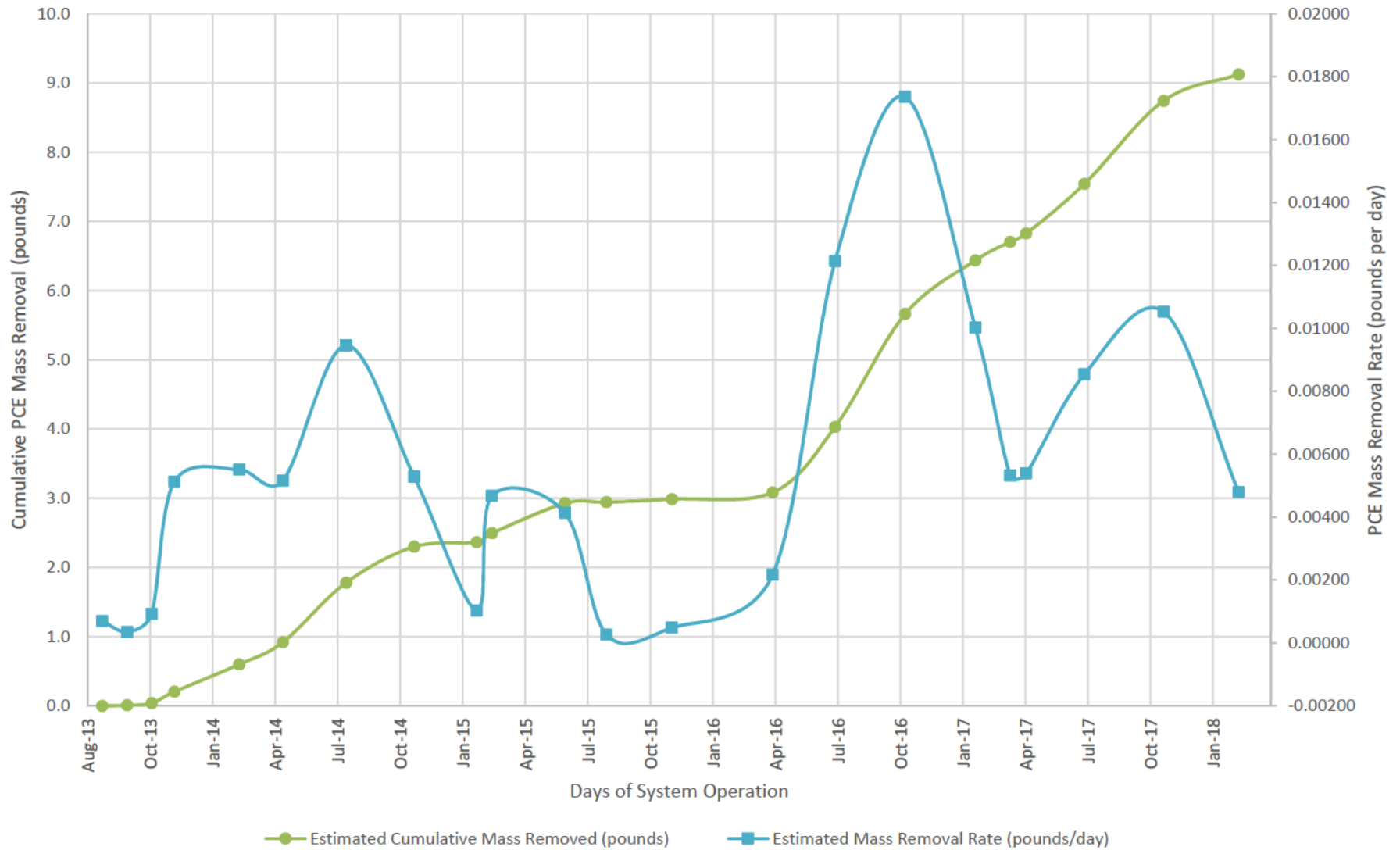


CHART 4
PCE Mass Extraction Rates and Cumulative Mass Removal
 Plaid Pantry No. 112
 Vancouver, Washington



Attachment A

3/2/2018

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

Project Name: PLAID 112

Project #: 1179-02

Workorder #: 1802391

Dear Mr. Chris Rhea

The following report includes the data for the above referenced project for sample(s) received on 2/19/2018 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

WORK ORDER #: 1802391

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 112
DATE RECEIVED:	02/19/2018	CONTACT:	Kelly Buettner
DATE COMPLETED:	03/02/2018		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SVE-1	TO-15	4.5 "Hg	15 psi
02A	SVE-3	TO-15	5.9 "Hg	15.2 psi
03A	SVE-4	TO-15	5.3 "Hg	14.7 psi
04A	SVE-5	TO-15	5.5 "Hg	15.4 psi
05A	SVE INLET	TO-15	7.1 "Hg	15 psi
06A	Lab Blank	TO-15	NA	NA
07A	CCV	TO-15	NA	NA
08A	LCS	TO-15	NA	NA
08AA	LCSD	TO-15	NA	NA

CERTIFIED BY:



Technical Director

DATE: 03/02/18

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

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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# 1802391

Five 1 Liter Summa Canister samples were received on February 19, 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 CCV 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

Summary of Detected Compounds

EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVE-1

Lab ID#: 1802391-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
m,p-Xylene	1.2	1.4	5.2	6.0
TPH ref. to Gasoline (MW=100)	120	1400	490	5700

Client Sample ID: SVE-3

Lab ID#: 1802391-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.3	1.4	4.8	5.4
m,p-Xylene	1.3	1.5	5.5	6.7

Client Sample ID: SVE-4

Lab ID#: 1802391-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	2.1	4.6	7.9
m,p-Xylene	1.2	1.5	5.3	6.6
TPH ref. to Gasoline (MW=100)	120	2800	500	11000

Client Sample ID: SVE-5

Lab ID#: 1802391-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Toluene	1.2	11	4.7	40
m,p-Xylene	1.2	1.4	5.4	6.3
TPH ref. to Gasoline (MW=100)	120	2500	510	10000

Client Sample ID: SVE INLET

Lab ID#: 1802391-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	5.3	52	10	98
2-Propanol	5.3	210	13	520

Summary of Detected Compounds

EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SVE INLET

Lab ID#: 1802391-05A

Hexane	1.3	2.8	4.7	9.8
Tetrahydrofuran	1.3	2.0	3.9	5.8
Cyclohexane	1.3	4.9	4.6	17
2,2,4-Trimethylpentane	1.3	7.5	6.2	35
Tetrachloroethene	1.3	11	9.0	73
1,3-Dichlorobenzene	1.3	2.2	8.0	13
TPH ref. to Gasoline (MW=100)	130	1200	540	4900

Client Sample ID: SVE-1

Lab ID#: 1802391-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022312	Date of Collection:	2/13/18 11:08:00 AM
Dil. Factor:	2.38	Date of Analysis:	2/23/18 04:47 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	Not Detected	4.5	Not Detected
m,p-Xylene	1.2	1.4	5.2	6.0
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	1400	490	5700

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	110	70-130

Client Sample ID: SVE-3

Lab ID#: 1802391-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022310	Date of Collection: 2/13/18 11:30:00 AM
Dil. Factor:	2.53	Date of Analysis: 2/23/18 03:54 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	1.4	4.8	5.4
m,p-Xylene	1.3	1.5	5.5	6.7
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	95	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	111	70-130

Client Sample ID: SVE-4

Lab ID#: 1802391-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022314	Date of Collection:	2/13/18 1:00:00 PM
Dil. Factor:	2.43	Date of Analysis:	2/23/18 05:40 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	2.1	4.6	7.9
m,p-Xylene	1.2	1.5	5.3	6.6
o-Xylene	1.2	Not Detected	5.3	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected
TPH ref. to Gasoline (MW=100)	120	2800	500	11000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: SVE-5

Lab ID#: 1802391-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022313	Date of Collection:	2/13/18 12:40:00 PM
Dil. Factor:	2.51	Date of Analysis:	2/23/18 05:13 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	11	4.7	40
m,p-Xylene	1.2	1.4	5.4	6.3
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	2500	510	10000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	111	70-130



Air Toxics

Client Sample ID: SVE INLET

Lab ID#: 1802391-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022311	Date of Collection:	2/13/18 12:10:00 PM
Dil. Factor:	2.65	Date of Analysis:	2/23/18 04:21 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.6	Not Detected
Freon 114	1.3	Not Detected	9.3	Not Detected
Chloromethane	13	Not Detected	27	Not Detected
Vinyl Chloride	1.3	Not Detected	3.4	Not Detected
1,3-Butadiene	1.3	Not Detected	2.9	Not Detected
Bromomethane	13	Not Detected	51	Not Detected
Chloroethane	5.3	Not Detected	14	Not Detected
Freon 11	1.3	Not Detected	7.4	Not Detected
Ethanol	5.3	52	10	98
Freon 113	1.3	Not Detected	10	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Acetone	13	Not Detected	31	Not Detected
2-Propanol	5.3	210	13	520
Carbon Disulfide	5.3	Not Detected	16	Not Detected
3-Chloropropene	5.3	Not Detected	16	Not Detected
Methylene Chloride	13	Not Detected	46	Not Detected
Methyl tert-butyl ether	5.3	Not Detected	19	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Hexane	1.3	2.8	4.7	9.8
1,1-Dichloroethane	1.3	Not Detected	5.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.3	Not Detected	16	Not Detected
cis-1,2-Dichloroethene	1.3	Not Detected	5.2	Not Detected
Tetrahydrofuran	1.3	2.0	3.9	5.8
Chloroform	1.3	Not Detected	6.5	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Cyclohexane	1.3	4.9	4.6	17
Carbon Tetrachloride	1.3	Not Detected	8.3	Not Detected
2,2,4-Trimethylpentane	1.3	7.5	6.2	35
Benzene	1.3	Not Detected	4.2	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.4	Not Detected
Heptane	1.3	Not Detected	5.4	Not Detected
Trichloroethene	1.3	Not Detected	7.1	Not Detected
1,2-Dichloropropane	1.3	Not Detected	6.1	Not Detected
1,4-Dioxane	5.3	Not Detected	19	Not Detected
Bromodichloromethane	1.3	Not Detected	8.9	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	6.0	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.4	Not Detected
Toluene	1.3	Not Detected	5.0	Not Detected
trans-1,3-Dichloropropene	1.3	Not Detected	6.0	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	7.2	Not Detected
Tetrachloroethene	1.3	11	9.0	73
2-Hexanone	5.3	Not Detected	22	Not Detected



Air Toxics

Client Sample ID: SVE INLET

Lab ID#: 1802391-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022311	Date of Collection:	2/13/18 12:10:00 PM
Dil. Factor:	2.65	Date of Analysis:	2/23/18 04:21 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	10	Not Detected
Chlorobenzene	1.3	Not Detected	6.1	Not Detected
Ethyl Benzene	1.3	Not Detected	5.8	Not Detected
m,p-Xylene	1.3	Not Detected	5.8	Not Detected
o-Xylene	1.3	Not Detected	5.8	Not Detected
Styrene	1.3	Not Detected	5.6	Not Detected
Bromoform	1.3	Not Detected	14	Not Detected
Cumene	1.3	Not Detected	6.5	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	9.1	Not Detected
Propylbenzene	1.3	Not Detected	6.5	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.5	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.5	Not Detected
1,3-Dichlorobenzene	1.3	2.2	8.0	13
1,4-Dichlorobenzene	1.3	Not Detected	8.0	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.8	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	8.0	Not Detected
1,2,4-Trichlorobenzene	5.3	Not Detected	39	Not Detected
Hexachlorobutadiene	5.3	Not Detected	56	Not Detected
Naphthalene	2.6	Not Detected	14	Not Detected
TPH ref. to Gasoline (MW=100)	130	1200	540	4900

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	96	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802391-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022309	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	2/23/18 02:29 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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1802391-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022309	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 02:29 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	98	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	109	70-130

Client Sample ID: CCV

Lab ID#: 1802391-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022307	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 01:04 PM

Compound	%Recovery
Freon 12	106
Freon 114	102
Chloromethane	73
Vinyl Chloride	84
1,3-Butadiene	77
Bromomethane	94
Chloroethane	89
Freon 11	109
Ethanol	73
Freon 113	101
1,1-Dichloroethene	96
Acetone	81
2-Propanol	82
Carbon Disulfide	85
3-Chloropropene	95
Methylene Chloride	82
Methyl tert-butyl ether	102
trans-1,2-Dichloroethene	99
Hexane	93
1,1-Dichloroethane	92
2-Butanone (Methyl Ethyl Ketone)	93
cis-1,2-Dichloroethene	105
Tetrahydrofuran	87
Chloroform	103
1,1,1-Trichloroethane	105
Cyclohexane	102
Carbon Tetrachloride	112
2,2,4-Trimethylpentane	94
Benzene	104
1,2-Dichloroethane	118
Heptane	106
Trichloroethene	117
1,2-Dichloropropane	98
1,4-Dioxane	104
Bromodichloromethane	115
cis-1,3-Dichloropropene	116
4-Methyl-2-pentanone	102
Toluene	111
trans-1,3-Dichloropropene	104
1,1,2-Trichloroethane	100
Tetrachloroethene	114
2-Hexanone	98

Client Sample ID: CCV

Lab ID#: 1802391-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022307	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 01:04 PM

Compound	%Recovery
Dibromochloromethane	112
1,2-Dibromoethane (EDB)	107
Chlorobenzene	106
Ethyl Benzene	110
m,p-Xylene	110
o-Xylene	113
Styrene	110
Bromoform	118
Cumene	116
1,1,2,2-Tetrachloroethane	94
Propylbenzene	106
4-Ethyltoluene	115
1,3,5-Trimethylbenzene	113
1,2,4-Trimethylbenzene	119
1,3-Dichlorobenzene	117
1,4-Dichlorobenzene	120
alpha-Chlorotoluene	111
1,2-Dichlorobenzene	119
1,2,4-Trichlorobenzene	132 Q
Hexachlorobutadiene	124
Naphthalene	139
TPH ref. to Gasoline (MW=100)	100

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	108	70-130

Client Sample ID: LCS

Lab ID#: 1802391-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name: 3022303

Date of Collection: NA

Dil. Factor: 1.00

Date of Analysis: 2/23/18 10:11 AM

Compound	%Recovery	Method Limits
Freon 12	108	70-130
Freon 114	105	70-130
Chloromethane	74	70-130
Vinyl Chloride	84	70-130
1,3-Butadiene	79	70-130
Bromomethane	95	70-130
Chloroethane	92	70-130
Freon 11	112	70-130
Ethanol	79	70-130
Freon 113	100	70-130
1,1-Dichloroethene	94	70-130
Acetone	84	70-130
2-Propanol	85	70-130
Carbon Disulfide	75	70-130
3-Chloropropene	89	70-130
Methylene Chloride	84	70-130
Methyl tert-butyl ether	98	70-130
trans-1,2-Dichloroethene	83	70-130
Hexane	93	70-130
1,1-Dichloroethane	90	70-130
2-Butanone (Methyl Ethyl Ketone)	90	70-130
cis-1,2-Dichloroethene	114	70-130
Tetrahydrofuran	87	70-130
Chloroform	103	70-130
1,1,1-Trichloroethane	106	70-130
Cyclohexane	102	70-130
Carbon Tetrachloride	112	70-130
2,2,4-Trimethylpentane	94	70-130
Benzene	105	70-130
1,2-Dichloroethane	122	70-130
Heptane	105	70-130
Trichloroethene	115	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	121	70-130
cis-1,3-Dichloropropene	108	70-130
4-Methyl-2-pentanone	101	70-130
Toluene	112	70-130
trans-1,3-Dichloropropene	106	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	116	70-130
2-Hexanone	98	70-130

Client Sample ID: LCS

Lab ID#: 1802391-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022303	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 10:11 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	116	70-130
1,2-Dibromoethane (EDB)	108	70-130
Chlorobenzene	106	70-130
Ethyl Benzene	110	70-130
m,p-Xylene	111	70-130
o-Xylene	118	70-130
Styrene	112	70-130
Bromoform	121	70-130
Cumene	117	70-130
1,1,2,2-Tetrachloroethane	96	70-130
Propylbenzene	108	70-130
4-Ethyltoluene	117	70-130
1,3,5-Trimethylbenzene	113	70-130
1,2,4-Trimethylbenzene	118	70-130
1,3-Dichlorobenzene	118	70-130
1,4-Dichlorobenzene	119	70-130
alpha-Chlorotoluene	112	70-130
1,2-Dichlorobenzene	118	70-130
1,2,4-Trichlorobenzene	130	70-130
Hexachlorobutadiene	122	70-130
Naphthalene	123	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	107	70-130

Client Sample ID: LCSD

Lab ID#: 1802391-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name: 3022304

Date of Collection: NA

Dil. Factor: 1.00

Date of Analysis: 2/23/18 10:34 AM

Compound	%Recovery	Method Limits
Freon 12	109	70-130
Freon 114	107	70-130
Chloromethane	78	70-130
Vinyl Chloride	86	70-130
1,3-Butadiene	78	70-130
Bromomethane	98	70-130
Chloroethane	94	70-130
Freon 11	113	70-130
Ethanol	82	70-130
Freon 113	100	70-130
1,1-Dichloroethene	95	70-130
Acetone	83	70-130
2-Propanol	85	70-130
Carbon Disulfide	76	70-130
3-Chloropropene	90	70-130
Methylene Chloride	84	70-130
Methyl tert-butyl ether	100	70-130
trans-1,2-Dichloroethene	86	70-130
Hexane	92	70-130
1,1-Dichloroethane	91	70-130
2-Butanone (Methyl Ethyl Ketone)	91	70-130
cis-1,2-Dichloroethene	114	70-130
Tetrahydrofuran	87	70-130
Chloroform	102	70-130
1,1,1-Trichloroethane	106	70-130
Cyclohexane	101	70-130
Carbon Tetrachloride	112	70-130
2,2,4-Trimethylpentane	94	70-130
Benzene	104	70-130
1,2-Dichloroethane	122	70-130
Heptane	106	70-130
Trichloroethene	115	70-130
1,2-Dichloropropane	99	70-130
1,4-Dioxane	103	70-130
Bromodichloromethane	120	70-130
cis-1,3-Dichloropropene	107	70-130
4-Methyl-2-pentanone	101	70-130
Toluene	111	70-130
trans-1,3-Dichloropropene	107	70-130
1,1,2-Trichloroethane	102	70-130
Tetrachloroethene	116	70-130
2-Hexanone	97	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1802391-08AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3022304	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 2/23/18 10:34 AM

Compound	%Recovery	Method Limits
Dibromochloromethane	116	70-130
1,2-Dibromoethane (EDB)	109	70-130
Chlorobenzene	107	70-130
Ethyl Benzene	110	70-130
m,p-Xylene	112	70-130
o-Xylene	117	70-130
Styrene	113	70-130
Bromoform	123	70-130
Cumene	118	70-130
1,1,2,2-Tetrachloroethane	97	70-130
Propylbenzene	109	70-130
4-Ethyltoluene	118	70-130
1,3,5-Trimethylbenzene	115	70-130
1,2,4-Trimethylbenzene	121	70-130
1,3-Dichlorobenzene	120	70-130
1,4-Dichlorobenzene	122	70-130
alpha-Chlorotoluene	115	70-130
1,2-Dichlorobenzene	122	70-130
1,2,4-Trichlorobenzene	130	70-130
Hexachlorobutadiene	123	70-130
Naphthalene	124	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	94	70-130
4-Bromofluorobenzene	110	70-130