STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

October 28, 2013

Mr. Mark Conan
10025 SW Allen Blvd.
Beaverton, OR 97005

Re: Further Action at the following Site:

- **Site Name:** Plaid Pantry 112
- **Site Address:** 1002 W Fourth Plain Blvd., Vancouver, WA 98660
- **Facility/Site No.:** 9158935
- **Cleanup Site ID No.:** 11759
- **VCP Project No.:** SW1314

Dear Mr. Conan:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Plaid Pantry 112 facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

YES. Ecology has determined that further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and it's implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Petroleum constituents into the soil.

During fuel system upgrades conducted at the Site in January and February 2012, a previously unknown UST was encountered immediately south of the fuel dispenser island near boring B-5 where soil contamination was previously identified. The steel 1,000-gallon UST was empty except for residual water and sludge. No specific information was found regarding the UST's prior use or contents. Laboratory analyses of tank sludge contents (Fig. 2) following decommissioning indicated the presence of TPH-G. Ecology was notified and the tank was decommissioned by removal in February 2012.

Approximately 13 cubic yards of petroleum contaminated soil (PCS) was excavated and transported to Hillsboro Landfill in Oregon for disposal. The final excavation was approximately 6 feet by 10 feet by 6 feet deep. Further excavation was limited by the existing fuel system infrastructure and the adjacent public sidewalk to the south. Confirmatory analytical results (Fig. 2) indicated that residual impacts exceed the MTCA Method A cleanup levels for TPH-G and benzene in soil. One 10-foot deep, 2-inch diameter well (SVE-1) was installed for future soil vapor extraction (SVE) testing, and four additional "place-holder" monuments were placed in locations surrounding the former UST as potential locations for future SVE well locations.

In August 2012, an additional Site assessment was conducted. Both soil and soil vapor samples were collected on the Plaid Pantry property as well in the Fourth Plain Boulevard right-of-way in an effort to fully define the Site (Fig. 1). SVE test wells were installed at the four previously constructed monuments and designated SVE-2 through SVE-5.

TPH-G and related constituent impacts to soil at concentrations exceeding the MTCA Method A cleanup levels for soil were identified beneath the on-Site fuel pump area, and extending off Site to the south beneath the sidewalk and the W. Fourth Plain Boulevard right-of-way. The extent of the contamination appears to cover an area measuring approximately 20 by 30 feet, extending to depths of less than 15 feet bgs. Soil vapor data showed the greatest concentrations centered at the Site fuel dispenser island.

Groundwater was not encountered in any of the borings that were advanced to depths exceeding 40 feet bgs. TPH-G-contaminated soils at the Site appear to be separated from groundwater by a minimum of 25 feet.

Non-gasoline VOCs detected in the soil vapor samples included tetrachloroethene and other chlorinated compounds typically associated with dry cleaning, degreasing, paint stripping, and other commercial/industrial activities. The greatest tetrachloroethene concentrations were detected at shallow SVE wells SVE-3 and SVE-5, located near the fuel dispenser area. Tetrachloroethene was identified at much lower, relatively uniform concentrations among four widespread, deeper soil gas samples (Fig. 2). These constituents were not found in soil samples. All soil sample results for these parameters were below the laboratory detection limits (Fig. 2).

On October 4 and 5, 2012, EES conducted a preliminary soil vapor extraction pilot test at the Site in an effort to evaluate the performance and potential effectiveness of this

2. **Establishment of cleanup standards.**

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA. MTCA Method A soil cleanup levels for unrestricted land use are being used for the Site.

Standard points of compliance are being used for the Site. The point of compliance for protection of groundwater shall be established in the soils throughout the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance shall be established in the soils throughout the Site from the ground surface to 15 feet bgs.

3. **Selection of cleanup action.**

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

SVE is an accepted method of remedial treatment. The system and operation as planned meets the substantive requirements of MTCA.

4. **Cleanup.**

Ecology has determined the cleanup you performed does not meet any cleanup standards at the Site.

Cleanup conducted to date include the removal of the one unknown UST and approximately 13 cubic yards of PCS. Sample analyses collected during the advancement of soil and SVE borings confirm that PCS still remains on the Site.

Limitations of the Opinion

1. **Opinion does not settle liability with the state.**

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

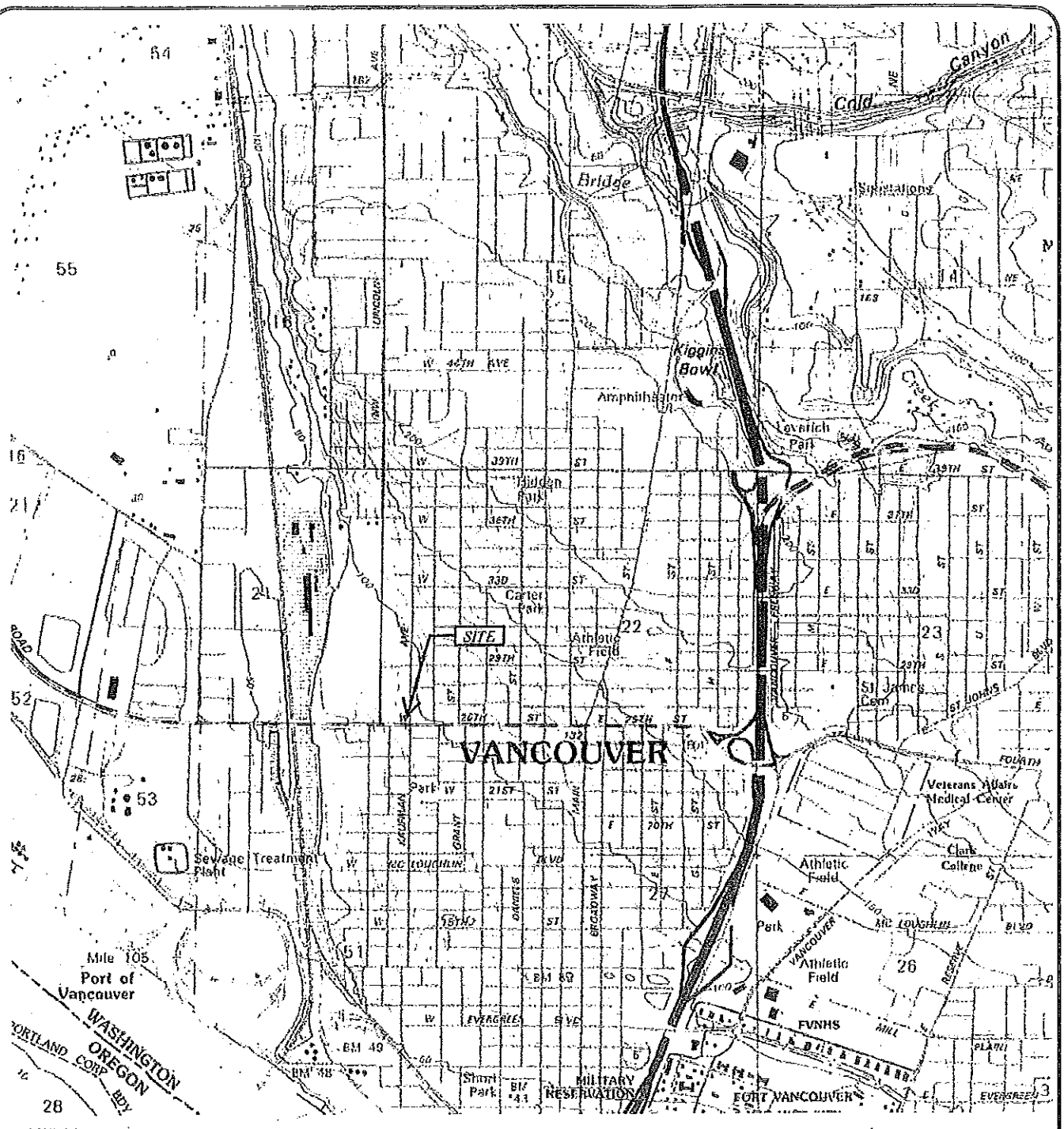
To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040 (4).

2. **Opinion does not constitute a determination of substantial equivalence.**

Enclosure A

Site Description and Location Maps

The subject Site is located at the northwest corner of Kauffman Avenue and West Fourth Plain Boulevard in Vancouver, Washington (Fig. 1). The 0.26-acre property is owned by Ms. Louise Piacentini and is occupied by a single commercial building. Current building tenants as of May 6, 2013 include a Plaid Pantry convenience market with retail gasoline station, and a Domino's Pizza restaurant. The Site operations include the retail convenience store and gas station, which were constructed in 1982 and opened for business in January 1993. The USTs include two 12,000-gallon tanks and a 10,000-gallon tank. During Plaid Pantry's operations, only gasoline has been stored and dispensed at the Site. Leaded gasoline may have been dispensed at the Site until phased out in the 1980s. Plaid Pantry did not store or dispense other hydrocarbons such as diesel fuel, bulk motor oil, or solvents at any time during its Site operation. Prior to 1982, former tenants included a gasoline service station, an auto repair shop, an auto detailing and upholstery shop, a dry cleaner, a barber shop, a dairy, a wood furniture refinishing shop, and a second-hand store. The USTs from the former gasoline station, a 3,000-gallon and a 5,000-gallon UST, were removed prior to Plaid Pantry's development in the early 1980s.



SOURCE:
USGS, VANCOUVER QUADRANGLE
WASHINGTON--OREGON
7.5 MINUTE QUADRANGLE, 1990
BASE MAP PROVIDED BY MAPTECH.

N

APPROXIMATE SCALE IN FEET

0 1000 2000 4000

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240 N Broadway #203, Portland, OR
(503) 847-2740
www.ees-environmental.com

SITE VICINITY MAP

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

DATE:	4-8-2013	PROJECT NO.
FILE:	1179-02	1179-02
DRAWN:	CJB	FIGURE NO.
APPROVED:	PDE	1

M:\PROJECTS\EES-VANCOUVER-KAUFMAN\dwg\ACAD-BASE MAP.dwg

Figure 1

Site Plan and Cross Section Showing

Borings and Maximum Gasoline Concentrations

In Soil

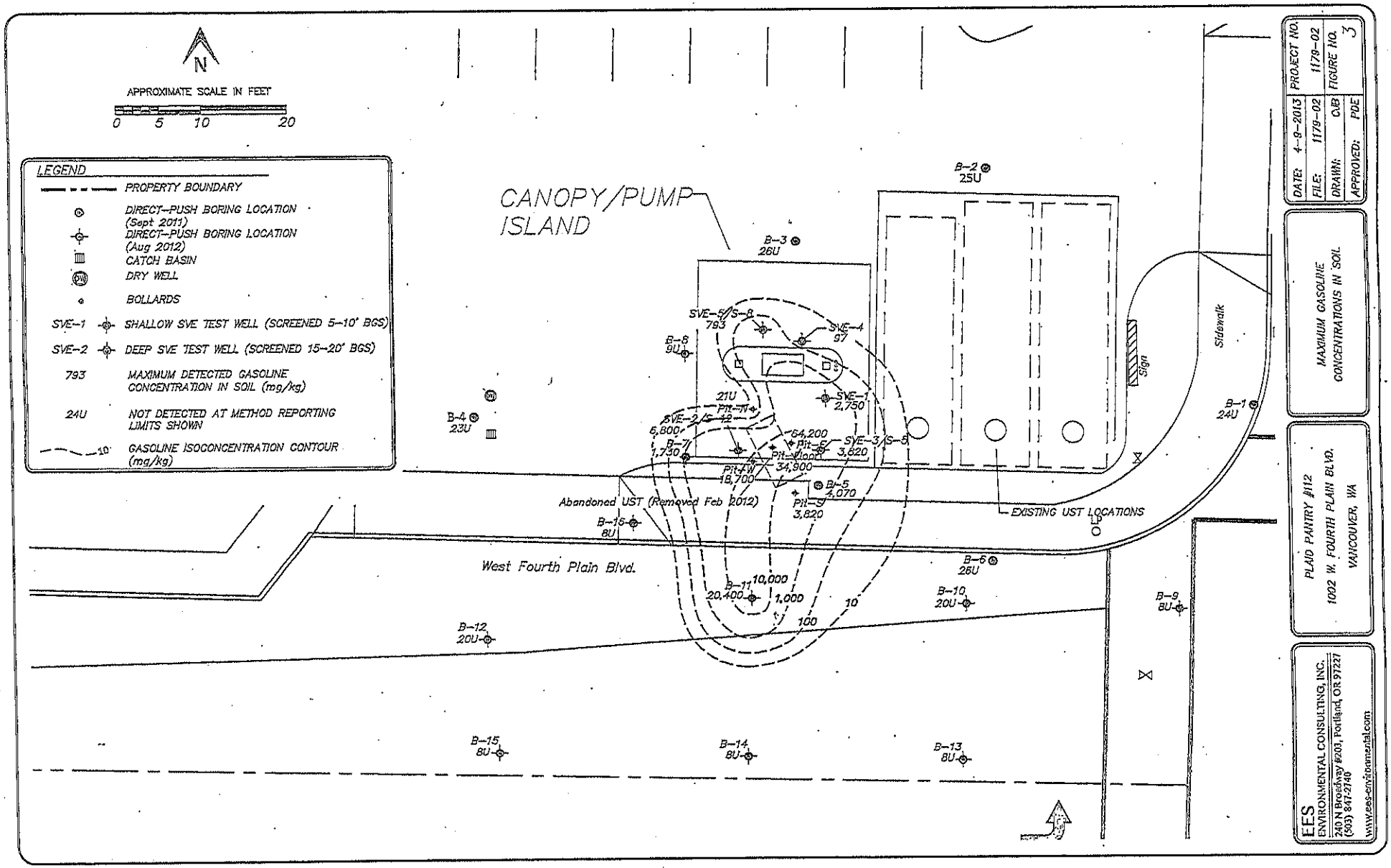
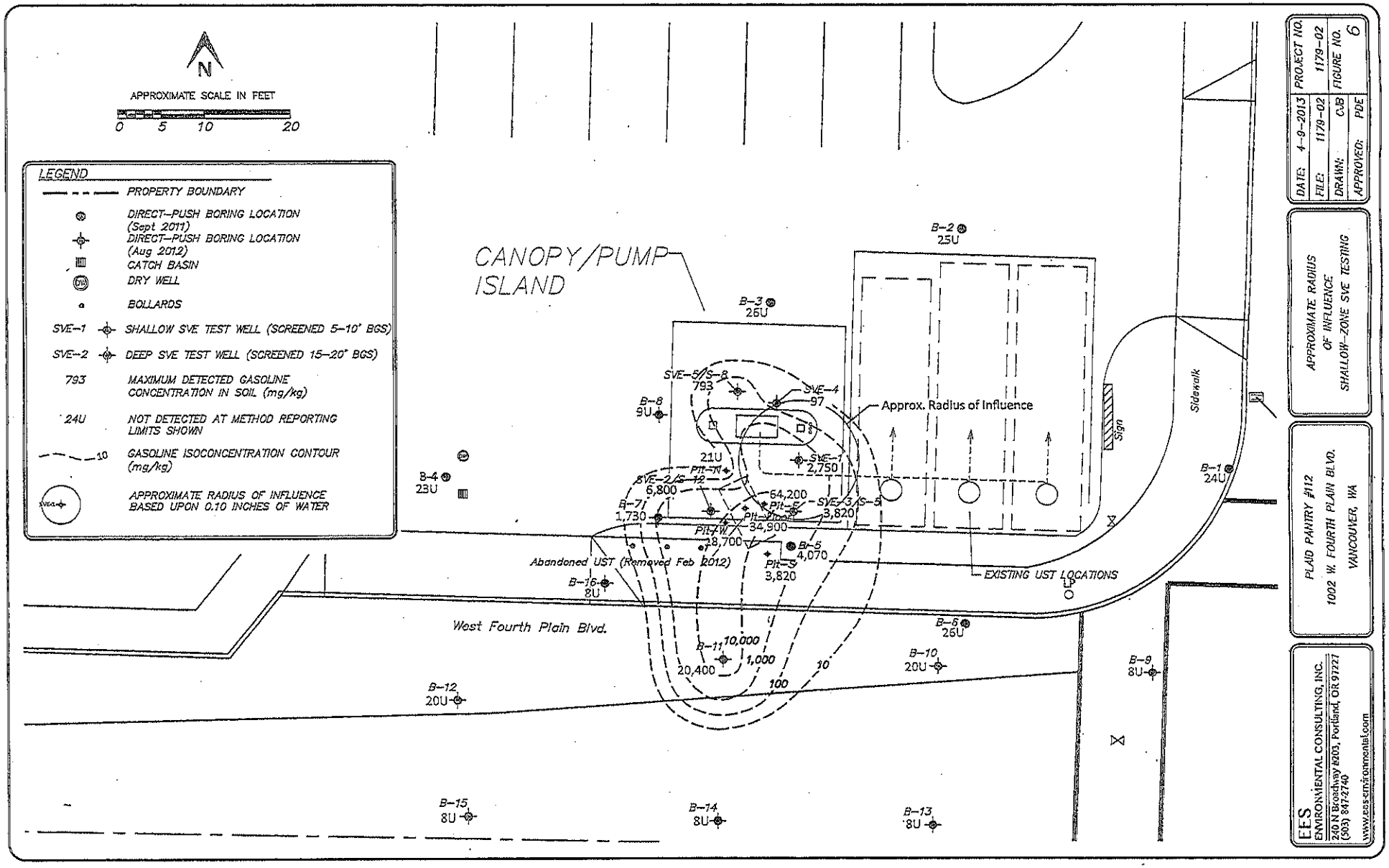

N
APPROXIMATE SCALE IN FEET
0 5 10 20
LEGEND
PROPERTY BOUNDARY
DIRECT-PUSH BORING LOCATION (Sept 2011)
DIRECT-PUSH BORING LOCATION (Aug 2012)
CATCH BASIN
DRY WELL
BOLLARDS
SVE-1 SHALLOW SVE TEST WELL (SCREENED 5-10' BGS)
SVE-2 DEEP SVE TEST WELL (SCREENED 15-20' BGS)
793 MAXIMUM DETECTED GASOLINE CONCENTRATION IN SOIL (mg/kg)
24U NOT DETECTED AT METHOD REPORTING LIMITS SHOWN
10 GASOLINE ISOCONCENTRATION CONTOUR (mg/kg)
CANOPY/PUMP ISLAND
B-2 25U
B-3 26U
SVE-5/S-8 793
SVE-4 97
B-8 9U
SVE-1 2,750
21U
Pit-N
SVE-2/S-12
6,800
64,200
Pit-E
SVE-3/S-8 3,620
B-7 1,730
Pit-Floor
Pit-W 34,900
18,700
B-5 4,070
Pit-S 3,820
B-4 23U
B-1 24U
Sidewalk
Sign
Abandoned UST (Removed Feb 2012)
EXISTING UST LOCATIONS
B-16 8U
West Fourth Plain Blvd.
B-6 26U
B-11 10,000
20,400
1,000
100
10
B-10 20U
B-9 8U
B-12 20U
B-15 8U
B-14 8U
B-13 8U
DATE: 4-9-2013
FILE: 1179-02
DRAWN: CVB
APPROVED: PDE
PROJECT NO. 1179-02
FIGURE NO. 3
MAXIMUM GASOLINE CONCENTRATIONS IN SOIL
PLAID PANTRY #112
1002 W. FOURTH PLAIN BLVD.
VANCOUVER, WA
EES
ENVIRONMENTAL CONSULTING, INC.
240 N Broadway #201, Portland, OR 97227
(503) 847-2740
www.ees-environmental.com

Figure 2

Site Plan Showing Approximate

Radius of Influence Shallow-Zone SVE Testing



APPROXIMATE RADIUS OF INFLUENCE
SHALLOW-ZONE SVE TESTING

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

PROJECT NO.	1179-02
DATE:	4-9-2013
FILE:	1179-02
DRAWN:	CJB
APPROVED:	PDE
FIGURE NO.	6

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Figure 3

Soil and Soil Vapor

Analytical Results

TABLE 1
Soil Analytical Results - Gasoline, Diesel, and Related Constituents (mg/kg)
Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet)	Gasoline	Diesel	Heavy Oil/Lube	Benzene	Toluene	Ethylbenzene	Xylenes	EDB	EDC	MTBE	Naphthalene	Lead	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
MTCA Method A[c] Soil Cleanup Levels																			
Unrestricted Use			100,30[d]	2,000	2,000	0.03	7	6	9	0.005	NA	0.1	5	250	0.05	0.03	NA	NA	2
B1-3	09/08/2011	3	24 U	59 U	118 U	0.01 U	0.04 U	0.02 U	0.07 U	0.02 U	0.02 U	0.04 U	0.09 U	-	0.02 U	0.02 U	0.44 U	0.02 U	0.02 U
B1-9	09/08/2011	9	22 U	54 U	108 U	0.01 U	0.05 U	0.03 U	0.08 U	0.03 U	0.03 U	0.05 U	0.10 U	8.3	0.03 U	0.03 U	0.51 U	0.03 U	0.03 U
B1-15	09/08/2011	15	21 U	52 U	103 U	0.01 U	0.05 U	0.03 U	0.08 U	0.03 U	0.03 U	0.05 U	0.10 U	-	0.03 U	0.03 U	0.52 U	0.03 U	0.03 U
B2-3	09/07/2011	3	21 U	53 U	107 U	0.01 U	0.04 U	0.02 U	0.06 U	0.02 U	0.02 U	0.04 U	0.09 U	-	0.02 U	0.02 U	0.43 U	0.02 U	0.02 U
B2-9	09/07/2011	9	25 U	25 U[b1]	54 [b1]	0.01 U	0.04 U	0.02 U	0.05 U	0.02 U	0.02 U	0.04 U	0.01 U[f]	-	0.02 U	0.02 U	0.35 U	0.02 U	0.02 U
B2-15	09/09/2011	15	21 U	53 U	105 U	0.01 U	0.03 U	0.01 U	0.04 U	0.01 U	0.01 U	0.03 U	0.05 U	-	0.01 U	0.01 U	0.27 U	0.01 U	0.01 U
B3-3	09/07/2011	3	23 U	57 U	113 U	0.01 U	0.05 U	0.02 U	0.07 U	0.02 U	0.02 U	0.05 U	0.09 U	-	0.02 U	0.02 U	0.47 U	0.02 U	0.02 U
B3-9	09/07/2011	9	26 U	64 U	128 U	0.01 U	0.06 U	0.03 U	0.08 U	0.03 U	0.03 U	0.06 U	0.11 U	12	0.03 U	0.03 U	0.55 U	0.03 U	0.03 U
B4-3	09/07/2011	3	23 U	57 U	114 U	0.01 U	0.05 U	0.03 U	0.08 U	0.03 U	0.03 U	0.05 U	0.10 U	-	0.03 U	0.03 U	0.51 U	0.03 U	0.03 U
B4-9	09/07/2011	9	21 U	53 U	106 U	0.01 U	0.05 U	0.02 U	0.07 U	0.02 U	0.02 U	0.05 U	0.10 U	-	0.02 U	0.02 U	0.49 U	0.02 U	0.02 U
B5-3	09/08/2011	3	22 U	56 U	112 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B5-6	09/08/2011	6	2,900 [a]	>57 [a]	114 U	0.28 U	1.12 U	12	74	0.56 U	0.56 U	1.1 U	14	21	0.56 U	0.56 U	11 U	0.56 U	0.56 U
B5-9	09/08/2011	9	4,070 [a]	>54 [a]	108 U	0.24 U	0.95 U	29	121	0.48 U	0.48 U	0.95 U	8.8	11	0.48 U	0.48 U	9.5 U	0.48 U	0.48 U
B5-12.5	09/08/2011	12.5	444 [a]	638 [b,e]	50 U[b]	2.1	0.13 U	5.3	21	0.06 U	0.06 U	0.13 U	1.1	13	0.06 U	0.06 U	1.26 U	0.06 U	0.13 U
B5-20	09/08/2011	20	2.9 U[a]	-	-	0.01 U	0.03 U	0.01 U	0.04 U	0.01 U	0.01 U	0.03 U	0.06 U	-	0.01 U	0.01 U	0.29 U	0.01 U	0.01 U
B6-3	09/08/2011	3	22 U	54 U	107 U	0.01 U	0.04 U	0.02 U	0.06 U	0.02 U	0.02 U	0.04 U	0.08 U	-	0.02 U	0.02 U	0.38 U	0.02 U	0.02 U
B6-9	09/08/2011	9	23 U	58 U	116 U	0.01 U	0.04 U	0.02 U	0.06 U	0.02 U	0.02 U	0.04 U	0.07 U	-	0.02 U	0.02 U	0.37 U	0.02 U	0.02 U
B6-12	09/09/2011	12	26 U	64 U	128 U	0.01 U	0.04 U	0.02 U	0.07 U	0.02 U	0.02 U	0.04 U	0.09 U	-	0.02 U	0.02 U	0.44 U	0.02 U	0.02 U
SVE-1/5.0	02/03/2012	5	22 U	55 U	110 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SVE-1/10.0	02/03/2012	10	2,750 [a]	>56.1 [a]	112 U	0.39	48	40	301	0.19 U	0.16 U	0.62 U	13	7.6	0.31 U	0.31 U	6.2 U	0.31 U	0.31 U
PIT S/1.5	02/14/2012	1.5	23 U	25 U[b]	116 [b]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tank Sludge	02/14/2012	N/A	2,410 [a]	172 U[e]	345 U	0.04 J	1.9	2.7	19	0.090 U	0.090 U	0.19 U	7.1 [g]	-	0.09 U	0.09 U	2.8 U	0.09 U	0.09 U
PIT N/2	02/14/2012	2	21 U	52 U	104 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT N/6	02/14/2012	6	8.7 U[e]	57 [e]	113 U	0.02 U	0.09 U	0.04 U	0.14	0.04 U	0.04 U	0.09 U	0.17 U	-	0.04 U	0.04 U	0.87 U	0.04 U	0.04 U
PIT S/2	02/14/2012	2	1,320 [a]	54 [e]	109 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT S/6	02/14/2012	6	5,800 [a]	62 [e]	124 U	3.4	23	78	411	0.81 U	0.81 U	1.6 U	34	-	0.81 U	0.81 U	16 U	0.81 U	0.81 U
PIT E/2	02/14/2012	2	24 U	60 U	120 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT E/6	02/14/2012	6	64,200 [a]	62 [e]	123 U	93	3,570	1,350	9,090	6.5 U	6.5 U	13 U	241	-	6.5 U	6.5 U	182 U	6.5 U	6.5 U
PIT W/2	02/14/2012	2	1,210 [a]	59 [e]	118 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PIT W/6	02/14/2012	6	18,700 [a]	61 [e]	122 U	26	572	296	1,693	1.6 U	1.6 U	3.2 U	67	-	1.6 U	1.6 U	48 U	1.6 U	1.6 U
PIT Floor/6	02/14/2012	6	34,900 [a]	2,660 [b]	81 U[b]	56	1,460	609	3,605	0.81 U	0.81 U	1.6 U	27 [g]	-	0.81 U	0.81 U	105 U	0.81 U	0.81 U

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Plaid Pantry No. 112
Vancouver, Washington

Location	Date	Sample Depth (feet)	Gasoline	Diesel	Heavy Oil/Lube	Benzene	Toluene	Ethylbenzene	Xylenes	EDB	EDC	MTBE	Naphthalene	Lead	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
MTCA Method A[a] Soil Cleanup Levels																			
Unrestricted Use			100,30[d]	2,000	2,000	0.03	7	6	9	0.005	NA	0.1	5	250	0.05	0.03	NA	NA	2
B-7/6	08/16/2012	6	473 x	-	-	0.21 U	0.86 U	2.1	12	0.01 U[e]	0.43 U	0.86 U	1.7 U	-	0.43 U	0.43 U	8.6 U	0.43 U	0.43 U
B-7/9	08/16/2012	9	1,730 x	-	-	0.80	0.82 U	0.89	1.2 U	0.41 U	0.41 U	0.82 U	1.6 U	-	0.41 U	0.41 U	8.2 U	0.41 U	0.41 U
B-7/13	08/16/2012	13	303 x	-	-	0.15	0.09 U	0.17	0.25	0.01 U[e]	0.04 U	0.09 U	0.30	-	0.04 U	0.04 U	0.89 U	0.04 U	0.04 U
B-7/14	08/16/2012	14	5.8 U x	-	-	0.01 U	0.06 U	0.03 U	0.09 U	0.01 U[e]	0.03 U	0.06 U	0.12 U	-	0.03 U	0.03 U	0.58 U	0.03 U	0.03 U
B-8/6	08/16/2012	6	8.4 U x	-	-	0.03	0.08 U	0.07	0.30	0.01 U[e]	0.04 U	0.08 U	0.17 U	-	0.04 U	0.04 U	0.84 U	0.04 U	0.04 U
B-8/9	08/16/2012	9	7.4 U x	-	-	0.04	0.07 U	0.04 U	0.25	0.04 U	0.04 U	0.07 U	0.15 U	-	0.04 U	0.04 U	0.74 U	0.04 U	0.04 U
B-8/13	08/16/2012	13	8.9 U x	-	-	0.02 U	0.09 U	0.04 U	0.13 U	0.01 U[e]	0.04 U	0.09 U	0.18 U	-	0.04 U	0.04 U	0.88 U	0.04 U	0.04 U
B-9/3	08/13/2012	3	5.7 U x	59 U	117 U	0.01 U	0.06 U	0.03 U	0.09 U	0.03 U	0.03 U	0.06 U	0.11 U	-	0.03 U	0.03 U	0.57 U	0.03 U	0.03 U
B-9/6	08/13/2012	6	5.2 U x	-	-	0.01 U	0.05 U	0.03 U	0.08 U	0.03 U	0.03 U	0.05 U	0.10 U	-	0.03 U	0.03 U	0.52 U	0.03 U	0.03 U
B-9/9	08/13/2012	9	8.2 U x	-	-	0.02 U	0.08 U	0.04 U	0.12 U	0.04 U	0.04 U	0.08 U	0.16 U	-	0.04 U	0.04 U	0.82 U	0.04 U	0.04 U
B-9/13	08/13/2012	13	5.9 U x	-	-	0.01 U	0.06 U	0.03 U	0.09 U	0.03 U	0.03 U	0.06 U	0.12 U	-	0.03 U	0.03 U	0.59 U	0.03 U	0.03 U
B-10/3	08/13/2012	3	5.4 U x	55 U	109 U	0.01 U	0.05 U	0.03 U	0.08 U	0.03 U	0.03 U	0.05 U	0.11 U	-	0.03 U	0.03 U	0.54 U	0.03 U	0.03 U
B-10/6	08/13/2012	6	9.2 U x	-	-	0.02 U	0.09 U	0.05 U	0.14 U	0.05 U	0.05 U	0.09 U	0.18 U	-	0.05 U	0.05 U	0.92 U	0.05 U	0.05 U
B-10/9	08/13/2012	9	11 U x	-	-	0.03 U	0.11 U	0.06 U	0.17 U	0.06 U	0.06 U	0.11 U	0.22 U	-	0.06 U	0.06 U	1.1 U	0.06 U	0.06 U
B-10/13	08/13/2012	13	4.7 U x	-	-	0.01 U	0.05 U	0.02 U	0.07 U	0.02 U	0.02 U	0.05 U	0.09 U	-	0.02 U	0.02 U	0.47 U	0.02 U	0.02 U
B-10/18	08/13/2012	18	20 U	51 U	102 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-11/3	08/14/2012	3	13 x	56 U	113 U	0.02 U	0.07 U	0.03 U	0.10 U	0.03 U	0.03 U	0.07 U	0.14 U	-	0.03 U	0.03 U	0.68 U	0.03 U	0.03 U
B-11/6	08/14/2012	6	20,400 x	62 X	123 U	3.7	0.81 U	3.9	1.6 U	0.41 U	0.41 U	0.81 U	57	24	0.41 U	0.41 U	8.1 U	0.41 U	0.41 U
B-11/9	08/14/2012	9	1,560 x	-	-	0.47	0.10 U	0.62	0.14 U	0.05 U	0.05 U	0.10 U	1.9	-	0.05 U	0.05 U	2.7 U	0.05 U	0.05 U
B-11/11	08/14/2012	11	5.7 U x	-	-	0.01 U	0.06 U	0.03 U	0.09 U	0.01 U[e]	0.03 U	0.06 U	0.11 U	3.3	0.03 U	0.03 U	0.57 U	0.03 U	0.03 U
B-11/17	08/14/2012	17	5.6 U x	-	-	0.01 U	0.06 U	0.03 U	0.08 U	0.03 U	0.03 U	0.06 U	0.11 U	-	0.03 U	0.03 U	0.56 U	0.03 U	0.03 U
B-11/23	08/14/2012	23	20 U	51 U	102 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-11/29	08/14/2012	29	20 U	51 U	102 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-12/3	08/14/2012	3	5.2 U x	58 U	116 U	0.01 U	0.05 U	0.03 U	0.08 U	0.03 U	0.03 U	0.05 U	0.10 U	-	0.03 U	0.03 U	0.52 U	0.03 U	0.03 U
B-12/6	08/14/2012	6	8.1 U x	-	-	0.02 U	0.08 U	0.04 U	0.12 U	0.04 U	0.04 U	0.08 U	0.16 U	-	0.04 U	0.04 U	0.81 U	0.04 U	0.04 U
B-12/9	08/14/2012	9	9.6 U x	-	-	0.02 U	0.10 U	0.05 U	0.14 U	0.05 U	0.05 U	0.10 U	0.19 U	-	0.05 U	0.05 U	0.96 U	0.05 U	0.05 U
B-12/13	08/14/2012	13	8.1 U x	-	-	0.02 U	0.08 U	0.04 U	0.12 U	0.04 U	0.04 U	0.08 U	0.16 U	-	0.04 U	0.04 U	0.81 U	0.04 U	0.04 U
B-12/18	08/14/2012	18	20 U	50 U	100 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-13/3	08/15/2012	3	7.8 U x	-	-	0.02 U	0.08 U	0.04 U	0.12 U	0.04 U	0.04 U	0.08 U	0.16 U	-	0.04 U	0.04 U	0.78 U	0.04 U	0.04 U
B-13/6	08/15/2012	6	6.5 U x	-	-	0.02 U	0.06 U	0.03 U	0.10 U	0.03 U	0.03 U	0.06 U	0.13 U	-	0.03 U	0.03 U	0.65 U	0.03 U	0.03 U
B-13/9	08/15/2012	9	6.9 U x	-	-	0.02 U	0.07 U	0.03 U	0.10 U	0.03 U	0.03 U	0.07 U	0.14 U	-	0.03 U	0.03 U	0.69 U	0.03 U	0.03 U
B-13/13	08/15/2012	13	8.0 U x	-	-	0.02 U	0.08 U	0.04 U	0.12 U	0.04 U	0.04 U	0.08 U	0.16 U	-	0.04 U	0.04 U	0.80 U	0.04 U	0.04 U
B-14/3	08/15/2012	3	6.6 U x	-	-	0.02 U	0.07 U	0.03 U	0.10 U	0.03 U	0.03 U	0.07 U	0.13 U	-	0.03 U	0.03 U	0.66 U	0.03 U	0.03 U
B-14/6	08/15/2012	6	7.0 U x	-	-	0.02 U	0.07 U	0.04 U	0.11 U	0.04 U	0.04 U	0.07 U	0.14 U	-	0.04 U	0.04 U	0.70 U	0.04 U	0.04 U
B-14/9	08/15/2012	9	7.6 U x	-	-	0.02 U	0.08 U	0.04 U	0.11 U	0.04 U	0.04 U	0.08 U	0.15 U	-	0.04 U	0.04 U	0.76 U	0.04 U	0.04 U
B-14/13	08/15/2012	13	6.2 U x	-	-	0.02 U	0.06 U	0.03 U	0.09 U	0.03 U	0.03 U	0.06 U	0.13 U	-	0.03 U	0.03 U	0.62 U	0.03 U	0.03 U
B-15/3	08/15/2012	3	6.6 U x	-	-	0.02 U	0.07 U	0.03 U	0.10 U	0.03 U	0.03 U	0.07 U	0.13 U	-	0.03 U	0.03 U	0.66 U	0.03 U	0.03 U
B-15/6	08/15/2012	6	7.9 U x	-	-	0.02 U	0.08 U	0.04 U	0.12 U	0.04 U	0.04 U	0.08 U	0.16 U	-	0.04 U	0.04 U	0.79 U	0.04 U	0.04 U
B-15/9	08/15/2012	9	7.6 U x	-	-	0.02 U	0.08 U	0.04 U	0.11 U	0.04 U	0.04 U	0.08 U	0.15 U	-	0.04 U	0.04 U	0.76 U	0.04 U	0.04 U
B-15/13	08/15/2012	13	6.2 U x	-	-	0.02 U	0.06 U	0.03 U	0.09 U	0.03 U	0.03 U	0.06 U	0.12 U	-	0.03 U	0.03 U	0.62 U	0.03 U	0.03 U
B-16/6	08/16/2012	6	5.8 U x	-	-	0.01 U	0.06 U	0.03 U	0.09 U	0.01 U[e]	0.03 U	0.06 U	0.17 U	11	0.03 U	0.03 U	0.58 U	0.03 U	0.03 U
B-16/9	08/16/2012	9	8.0 U x	-	-	0.02 U	0.08 U	0.04 U	1.2 U	0.04 U	0.04 U	0.08 U	0.16 U	12	0.04 U	0.04 U	0.80 U	0.04 U	0.04 U
B-16/13	08/16/2012	13	5.9 U x	-	-	0.01 U	0.06 U	0.03 U	0.09 U	0.01 U[e]	0.03 U	0.06 U	0.12 U	-	0.03 U	0.03 U	0.59 U	0.03 U	0.03 U

TABLE 2

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

Plaid Pantry No. 112

Vancouver, Washington

Location	Sample Depth (feet bgs)	Date	Gasoline	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	EDB	EDC	MTBE	Naphthalene	PCE	TCE	2-Butanone	Carbon Tetrachloride	1,1,1-Trichloroethane
WDOE Soil Gas Screening Levels[a]																	
Method B			-	3.2/32	7	4,600/46,000	460/4,600[b]	460/4,600	0.11/1.1	0.96/9.6	96/960	14/140	4.2/42	1/10	NA	1.7/17	48,000/480,000
Method C			-	32/320	49,000/490,000	10,000/100,000	1,000/10,000[b]	1,000/10,000	1.1/11	9.6/96	960/9,600	30/300	42/420	10/100	NA	17/170	110,000/1,100,000
August 2012 Soil Vapor Sampling																	
S-1	5	08/14/2012	-	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	5	08/15/2012	-	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	5	08/15/2012	-	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	5	08/14/2012	-	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)	5-10	08/17/2012	-	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	5	08/14/2012	-	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	5	08/16/2012	-	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-8)	5-10	08/17/2012	-	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	5	08/15/2012	-	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	5	08/14/2012	-	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	15	08/14/2012	-	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)	15-20	08/20/2012	-	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	15	08/15/2012	-	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	15-20	08/17/2012	-	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 Pilot Test																	
SVE-1 START	5-10	10/04/2012	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	5-10	10/04/2012	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	15-20	10/05/2012	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	15-20	10/05/2012	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

Notes:

[a] Washington Department of Ecology (WDOE) Soil Vapor Intrusion DRAFT Guidance, Method B and Method C Soil Gas Screening Levels (WDOE, October 2009)

[b] Screening levels for m-xylene

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 above a listed screening level

U = Undetected at method reporting limit shown

NA = not applicable

bgs - below ground surface

- = not analyzed for this parameter