



## **PROGRESS REPORT - FOURTH QUARTER 2012**

Fred Meyer Property (aka Bethel Texaco, Facility Site ID #2641)

Port Orchard, Washington

Ecology Site ID #2555, Agreed Order No. DE 9040

Prepared for:

**Fred Meyer Stores, Inc.**

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**Washington State Department of Ecology**

Toxics Cleanup Program

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Prepared by:

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February 2013

Project No. 9-61M-102820



February 27, 2013

Project No. 9-61M-102820

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Carrie Pederson  
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Dear Mr. Hermann and Ms. Pederson:

**Re: Progress Report - Fourth Quarter 2012  
Fred Meyer Property (aka Bethel Texaco, Facility Site ID #2614)  
1900 SE Sedgewick Road  
Port Orchard, Washington  
Ecology Site ID #2555, Agreed Order No. DE 9040**

AMEC Environment & Infrastructure, Inc. (AMEC) is pleased to submit this Progress Report for the above referenced Site as provided in Agreed Order No. DE 9040. This report summarizes the results of the groundwater quality monitoring and other activities conducted at the Site during the fourth quarter of 2012. We appreciate the opportunity to assist Fred Meyer in implementing this project. If you have any questions or comments regarding this report, please contact the undersigned at (503) 639 3400.

Sincerely,

**AMEC Environment & Infrastructure, Inc.**

**Reviewed by:**

Dennis Sullivan, PG  
Senior Geologist

Kurt Harrington, PE  
Project Manager

Attachments

JE/DS/cw



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**PROGRESS REPORT**  
**FOURTH QUARTER 2012**  
Fred Meyer Property (aka Bethel Texaco, Facility Site ID #2614)  
Port Orchard, Washington

**1.0 INTRODUCTION**

AMEC Environment & Infrastructure, Inc. (AMEC) has prepared this Progress Report on behalf of Fred Meyer Stores, Inc. (Fred Meyer) to document groundwater quality monitoring and remediation system maintenance performed by AMEC at the Fred Meyer-Port Orchard service station (Site) on November 14, 2012. The Report is being prepared and submitted pursuant to Agreed Order No. DE 9040, Section VIII.H

The Site is located at the southeastern corner of the intersection of SE Sedgewick Road and Bethel Road SE in Port Orchard, Washington (Figure 1). Historical releases from a pre-1990 underground storage tank (UST) system associated with Bethel Texaco service station (facility Site ID #2614) that formerly occupied the Site had impacted underlying soil and groundwater. Between 1999 and 2001, the Site was redeveloped with the existing Fred Meyer branded fuel station.

Release Identification number 2555 has been assigned to the Site by the Washington State Department of Ecology (Ecology). Previous investigations and remedial efforts conducted at the Site are documented in the Remedial Investigation Report (AMEC, 2010a). Cleanup action alternatives for treating residual petroleum-related contamination in subsurface soil and groundwater beneath the Site were evaluated and the most feasible cleanup action was identified in the Cleanup Action Plan (AMEC, 2010b). Continued operation of the existing air sparging (AS) and soil vapor extraction (SVE) system will continue until concentrations of contaminants of potential concern (COPCs) remaining in soil and groundwater beneath the Site are reduced to levels less than the Model Toxics Control Act (MTCA) Method A cleanup standards. An Agreed Order governing the site remediation (No. DE 9040) was signed on May 10, 2012 (State of Washington Department of Ecology, 2012).

**2.0 STATUS OF SUBSURFACE REMEDIATION SYSTEMS, ON-SITE ACTIVITIES, AND DEVIATIONS FROM CAP OR SCHEDULE**

AMEC has operated an air sparging/soil vapor extraction (AS/SVE) system at the site since March 2000. The current air sparging (AS) and vapor extraction (VE) points are shown on Figure 2. A description of the original system design, installation, and operations is presented in AMEC's



third quarter 2004 Quarterly Site Report dated January 20, 2005 (AMEC, 2005). Because of damage incurred during construction of the Fred Meyer branded fuel station and expansion of adjacent roadways from 1999 into the early 2000s, the AS groundwater treatment system was completely offline between August 2002 and February 21, 2009 and the SVE system operated at a limited capacity from July 2001 through June 2006. During June 2006, further damage to the SVE system's aboveground components resulted in the SVE component becoming inoperable.

AMEC conducted an assessment of the AS/SVE system during a Site visit on June 19, 2008, and began a series of system repairs and optimization steps as detailed in the Progress Report - First Quarter 2012 (AMEC, 2012a). During October 2008, four shallow groundwater monitoring wells (MW-108A, MW-109, MW-110, and MW-111) were installed in place of wells that had been inadvertently destroyed during construction activities in 1999 and 2000.

To increase flow in the sparging system, the AS manifold was modified to separate high-flow and low-flow sparge points in January 2012 (AMEC, 2012a). The high-flow sparge points (AS-1 and AS-10) were connected to low-pressure/high-volume rotary vane compressor #2 and the low-flow sparge points (AS-5, AS-6, and AS-7) were connected to a newly installed high-pressure/low-volume air compressor. Rotary vane compressor #1 and select sparge points were taken off-line to focus air flow and sparging near monitoring wells MW-103 and MW-110 (AMEC, 2012b).

## **2.1 ON-SITE ACTIVITIES DURING REPORTING PERIOD**

On the August 8 site visit, AMEC noted that the rotary vane compressor #2 had become inoperable due to damaged and jammed impellers. On October 9, 2012, AMEC repaired rotary vane compressor #2 and replaced the two operating high-pressure/low-flow air compressors with new units.

## **2.2 DEVIATIONS FROM CAP OR SCHEDULE**

During this reporting period, there were no deviations from the required tasks under the Agreed Order or from the Corrective Action Plan (CAP), and no deviations in schedule.

## **3.0 GROUNDWATER MONITORING**

Fourth quarter 2012 groundwater quality monitoring was conducted on November 14, 2012. Construction details for the Site's groundwater monitoring and remediation wells are summarized in Table 1. Field logs are provided in Appendix A. Sampling methodology and monitoring results are discussed below.

### 3.1 SITE HYDROGEOLOGY

Depth-to-water measurements were recorded in monitoring wells MW-103, MW-105, MW-108A, MW-109, MW-110, and MW-111 to the nearest 0.01-foot from the top of the well casing (TOC) using an electronic water level indicator. The measurements were converted to elevations relative to mean sea level (msl) using surveyed TOC elevations. Groundwater elevation data for measured wells are presented in Table 2 and approximate groundwater elevation contours are depicted on Figure 2.

The calculated groundwater elevations suggest that the direction of shallow groundwater flow at the Site was directed to the west-southwest. AMEC calculated a shallow groundwater gradient of approximately 0.07 vertical feet per lateral foot (ft/ft) between monitoring wells MW-109 and MW-111 for the monitoring event. The average groundwater elevation beneath the site was lower than generally observed for this time of year.

### 3.2 GROUNDWATER SAMPLING

On November 14, 2012 groundwater samples were collected from monitoring wells MW-103, MW-105, MW-108A, MW-109, MW-110, and MW-111 using low-flow techniques. Prior to sampling, groundwater was purged from each monitoring well using a direct-current electric submersible pump equipped with a check-valve and an attached disposable sample bailer. Water quality indicator parameters including temperature, hydrogen ion concentration (pH), dissolved oxygen, specific conductivity, and oxidation-reduction potential were measured using field instrumentation and recorded on groundwater sampling logs (Appendix A). Purging continued until values of the indicator parameters stabilized, indicating that formation water was entering the well casing and sampling intake. Samples were transferred from the bailer to laboratory-supplied containers, labeled, stored with ice in an insulated container, and transported under chain-of-custody protocol to Apex Labs, Inc. in Tigard, Oregon. Non-disposable sampling equipment was decontaminated between uses by scrubbing in an Alconox detergent solution, followed by two successive deionized water rinses.

#### 3.2.1 Analytical Program

The groundwater samples were analyzed for gasoline-range organics (GRO) by Northwest Method Total Petroleum Hydrocarbon-Gasoline (NWTPH-Gx) and for selected volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method 8260B. Photocopies of the analytical report and the chain-of-custody documents are provided in Appendix B. The analytical data for the August 8, 2012 sample event will be entered into Ecology's Environmental Information Management System (EIM), as required by Agreed Order No. 9040 (Ecology, 2012). A historical

summary of COPCs detected in groundwater from May 1991 through November 2012 is presented in Appendix C.

Concentrations of constituents measured in the groundwater samples were compared to screening criteria developed on the basis of Ecology's MTCA regulations. MTCA Method A screening criteria were used when available for detected constituents. These MTCA methods provide conservative cleanup levels for use in routine cleanup actions and are used herein as screening tools.

### 3.2.2 Analytical Results and Cleanup Levels

The analytical results for groundwater samples collected on November 14, 2012, are summarized in Table 2 and depicted on Figure 3. GRO and two VOCs were only detected in one of the wells sampled at the Site (MW-103).

- GRO was reported in MW-103 at a concentration of 305 micrograms per liter ( $\mu\text{g/L}$ ), less than the MTCA Method A criteria of 800  $\mu\text{g/L}$ ; and
- Ethylbenzene and total xylenes were reported in MW-103 at concentrations below the respective MTCA Method A criteria.
- No other VOC compounds were detected above their respective laboratory method reporting limits (MRLs) in the groundwater samples tested

### 3.2.3 Non-Aqueous Phase Liquid - Not Present

Neither measurable non-aqueous phase liquid (NAPL) nor a petroleum-related sheen were observed in groundwater samples collected from monitoring wells MW-103, MW-105, MW-108A, MW-109, MW-110 and MW-111 during the fourth quarter 2012 (4Q12) event.

### 3.2.4 Data Trends

The patterns of GRO and VOCs observed in MW-103 and MW-110 exhibit seasonal variations, and appear to be inversely correlated with groundwater levels to some extent. The pattern of GRO and VOCs reported in MW-103 in November 2012 were similar to those observed during fourth-quarter sampling events in the past. However, detected concentrations of gasoline constituents in MW-103 were lower in 4Q12 compared to levels detected during the previous two fourth quarters.

In MW-110, compared to the August 2012 sampling event, GRO decreased from 1,630  $\mu\text{g/L}$ , ethylbenzene decreased from 3.21  $\mu\text{g/L}$ , total xylenes decreased from 8.45  $\mu\text{g/L}$ , and naphthalene decreased from 3.41  $\mu\text{g/L}$  to less than the respective MRLs in the November 2012 sampling event. Concentrations of other VOCs remained below their respective MRLs in MW-110.



The GRO and VOC concentrations in the remaining four wells (MW-105, MW-108A, MW-109 and MW-111) remained below MRLs. Neither GRO nor VOCs have been detected in MW-105 since the June 2008 monitoring event or in MW-108A since installation and initial sampling in January 2009.

### **3.2.5 Quality Assurance/Quality Control**

AMEC reviewed the laboratory's analytical reports (Appendix B) to assess overall data quality. The data has not been limited by qualifiers and is usable as reported for the purposes of this report.

## **4.0 AIR SPARGING/SOIL VAPOR EXTRACTION SYSTEM MONITORING**

AS/SVE system monitoring and maintenance visits were conducted on October 9, November 14, and December 20, 2012. The SVE system was operating at 100% on arrival at each maintenance visit. AMEC measured total VOC concentrations in return air, vacuum pressure, and flow velocity for each of the five SVE wells located at the Site and for the total system. Total VOC concentrations were measured using a photoionization detector (PID) calibrated to isobutylene. Total influent VOCs were measured as 0.0 parts per million (ppm). A vacuum gauge reading of 100 inches of water was observed for each of the SVE wells. A combined flow rate of 150 cubic feet per minute (cfm) was estimated from measured vacuum and the manufacturer's blower curve. Based on the VOC system influent concentrations and volumetric flow rates at the beginning and end of the monitoring period, the SVE remediation system removed approximately 0 pounds (lbs) of volatile constituents from the subsurface over the 98-day monitoring period (Table 3).

On the August 8, 2012 site visit, AMEC noted that the rotary vane compressor #2 had become inoperable due to damaged and jammed impellers. Because of this, sparge points AS-1 and AS-10 were temporarily off-line. On October 9, 2012, AMEC repaired rotary vane compressor #2 and replaced the two operating high-pressure/low-flow air compressors with new units. The two high-pressure/low-volume compressors continue to supply air flow to sparge points AS-5, AS-6, and AS-9.

AMEC measured air flow rates in each of the five active AS wells on September 14, 2012. Air flow in the AS conveyance lines ranged from 2 to 25 cubic feet per minute (cfm) with a mean value of 11 cfm. AMEC measured dissolved oxygen (DO) content in each of the six groundwater monitoring wells located at the Site on November 14, 2012. DO levels ranged from 0.37 milligrams per liter (mg/L) in monitoring well MW-108A to 3.85 mg/L in monitoring well MW-105.

DO levels measured in the groundwater monitoring wells since reactivation of the AS system during February 2009 are summarized in Table 4. A review of the data suggests that oxygen

concentrations in groundwater have increased markedly in several wells following recent system modifications, but dropped in the fourth quarter 2012 monitoring event. Since the December 7, 2011 monitoring event, oxygen concentrations have remained generally elevated in all wells, with the exception of downgradient MW-111. The higher oxygen concentrations observed in monitoring wells suggest that the system modifications have been successful and the air sparging system is typically delivering air into the groundwater as intended. An additional benefit from the air sparging operation is that increased oxygenation of the groundwater should spur increases in bioremediation of the gasoline constituents. The groundwater elevations observed during the fourth quarter 2012 monitoring event are the lowest groundwater levels observed in almost 20 years in MW-103, and the lowest levels observed in 1 to 4 years in the various other wells. It is likely that the unusually low groundwater elevations have temporarily dropped below the optimum design range for the sparging screens, limiting the amount of sparging activity and introduction of oxygen into the groundwater. It is anticipated that when groundwater elevations rise during the rainy season, the sparging screens will again be fully submerged and DO levels will rise accordingly.

## 5.0 SUMMARY

The results of the fourth quarter 2012 monitoring event are summarized as follows:

1. The shallow groundwater piezometric surface was evaluated using the compliance points installed in 2008. Similar to previous monitoring events, the gradient was directed to the west-southwest with an estimated magnitude of 0.07 ft/ft. The average groundwater elevation beneath the site is lower than generally observed at the time of year.
2. Neither measurable NAPL nor sheen was observed. NAPL and sheen have not been observed in the monitoring wells since 1999.
3. The AS system was inoperable on arrival October 9, repaired that day, and operational for the remainder of the quarter. The SVE system was 100 percent operational during the fourth quarter 2012 reporting period.
4. DO levels measured in the groundwater monitoring wells have increased markedly in several wells following AS system modifications to increase air flow and focus the air flow to the area near MW-103 and MW-110, but dropped in the fourth quarter 2012 monitoring event due to low groundwater elevations. It is anticipated that when groundwater elevations rise during the rainy season, the sparging screens will again be fully submerged and DO levels will rise accordingly.



5. On November 14, 2012, GRO was detected in MW-103 at a concentration of 305 µg/L, less than the MTCA Method A criteria of 800 µg/L. GRO was not detected above the laboratory method reporting limit in the remaining Site groundwater monitoring wells.
6. Ethylbenzene and total xylenes were reported in MW-103 at concentrations below the respective MTCA Method A criteria. VOCs were not detected above their respective laboratory method reporting limits in the remaining Site groundwater monitoring wells.

## 6.0 FUTURE PLANNED ACTIVITIES AND DELIVERABLES

During the next reporting period, AMEC will continue to conduct monthly maintenance checks on the AS and SVE systems to ensure they are operating properly in accordance with the requirements of Agreed Order No. 9040 (Ecology, 2012). AMEC will conduct the next quarterly groundwater and quality samples visit within the first quarter of 2013.

## 7.0 CLOSING

AMEC appreciates the opportunity to be of service to Fred Meyer on this project. If you have any questions, or if we can be of further assistance, please contact the undersigned at (503) 639-3400.

**AMEC Environment & Infrastructure, Inc.**

**Reviewed by:**

Handwritten signature of Dennis Sullivan in black ink.

Dennis Sullivan, PG  
Senior Geologist

Handwritten signature of Kurt Harrington in black ink.

Kurt Harrington, PE  
Project Manager

JE/DS/JKH/cw

## REFERENCES

AMEC Earth & Environmental, Inc., 2005. Quarterly Site Report - Third Quarter 2004, Fred Meyer Property, Port Orchard, Washington. January 20, 2005.

AMEC Earth & Environmental, Inc., 2010a, Remedial Investigation Report, Fred Meyer Stores, Inc. - Port Orchard Site, 1900 SE Sedgwick Road, Port Orchard, Washington, Ecology Site ID #96424236 (formerly J5E03), May 4, 2010.

AMEC Earth & Environmental, Inc., 2010b, Cleanup Action Plan, Fred Meyer Stores, Inc. - Port Orchard Site, 1900 SE Sedgwick Road, Port Orchard, Washington, Ecology Site ID #96424236 (formerly J5E03), May 4, 2010.

AMEC Environment & Infrastructure, Inc. 2012a. Progress Report - Fourth Quarter 2011 & First Quarter 2012, Fred Meyer Property (aka Bethel Texaco, Facility Site ID #2614), 1900 SE Sedgwick Road, Port Orchard, Washington. March 8, 2012.

AMEC Environment & Infrastructure, Inc. 2012b. Progress Report - Second Quarter 2012, Fred Meyer Property (aka Bethel Texaco, Facility Site ID #2614), 1900 SE Sedgwick Road, Port Orchard, Washington. July 2, 2012.

State of Washington Department of Ecology (Ecology), 2012. Agreed Order No. 9040 for Final Cleanup Action and Compliance Monitoring. May 10, 2012.



## LIMITATIONS

This report was prepared exclusively for Fred Meyer Stores, Inc. (Fred Meyer) and its agents by AMEC Environment & Infrastructure, Inc. (AMEC). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in AMEC services and are based on: i) information available at the time of preparation; ii) data supplied by outside sources; and iii) the assumptions, conditions and qualifications set forth in this report. This report is intended for use by Fred Meyer, for the Site at 1900 SE Sedgewick Road, Port Orchard, Washington only, subject to the terms and conditions of its contract with AMEC. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

The findings contained herein are relevant to the dates of the AMEC Site visits and should not be relied upon to represent conditions later. In the event that changes in the nature, usage, or layout of the property or nearby properties are made, the conclusions and recommendations contained in this report may not be valid. If additional information becomes available, it should be provided to AMEC so the original conclusions and recommendations can be modified as necessary.

**TABLES**

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**TABLE 1**  
**Well Construction Summary**  
**Fred Meyer Facility, Port Orchard, Washington**

Well ID	Install Date	Top of Casing Elevation (feet msl)	Boring Depth (feet bgs)	Casing Diameter (inches)	Screen Interval (feet bgs)
<b>Active Monitoring Wells</b>					
MW-103	5/6/91	311.70	32	4	12-32
MW-105	11/10/99	310.46	30	2	10-30
MW-108A	10/1/08	310.38	30	2	15-30
MW-109	10/02/08	310.48	32	2	15-30
MW-110	10/1/08	312.77	30	2	15-30
MW-111	10/1/08	310.62	40	2	25-40
<b>Vapor Extraction Wells</b>					
VE-1^	11/4/99	NA	15	0.75	~7.5-15
VE-2^	11/4/99	NA	15	0.75	~7.5-15
VE-3	11/3/99	NA	15	0.75	7.5-15
VE-4	11/3/99	NA	15	0.75	7.5-15
VE-5	11/3/99	NA	15	0.75	7.5-15
<b>Air-Sparging Wells</b>					
AS-1^	11/4/99	NA	~35	0.75	~30-35
AS-2^	11/4/99	NA	~35	0.75	~30-35
AS-3^	11/4/99	NA	~35	0.75	~30-35
AS-4^	11/4/99	NA	~35	0.75	~30-35
AS-5	11/3/99	NA	~35	0.75	30-35
AS-6	11/3/99	NA	~35	0.75	30-35
AS-7	11/3/99	NA	~35	0.75	30-35
AS-8^	11/3/99	NA	~35	0.75	~30-35
AS-9	11/3/99	NA	~35	0.75	30-35
AS-10	11/3/99	NA	~35	0.75	30-35
<b>Destroyed and Decommissioned Monitoring Wells</b>					
MW-1S	10/15/90	312.56	38.5	2	18.5-38.5
MW-1D	10/15/90	313.00	79.5	2	34.5-80
MW-2S	10/23/90	304.53	38	2	18-38
MW-2D	10/23/90	301.13	78	2	43-78
MW-101	5/13/91	not reported	79	2	60-79
MW-102	5/13/91	not reported	81	2	61-81
MW-104	5/6/91	not reported	not reported	2	not reported
MW-106*	11/10/99	311.73	30	2	10-30
MW-107*	11/9/99	310.59	30	2	10-30
MW-108*	11/9/99	309.94	30	2	10-30

Notes:

- msl: Mean sea level
- bgs: Below ground surface
- ^: Well at 45° angle
- \*: Well was destroyed during construction of the fueling station
- NA: not applicable
- ~: approximately

**TABLE 2**  
**Groundwater Elevations and Analytical Results**  
**Detected Constituents - Fourth Quarter 2012 Monitoring Event**  
**Fred Meyer Facility, Port Orchard, Washington**

Well No.	Date	Gasoline Range Organics	Volatile Organic Compounds								Groundwater Levels			Final Dissolved Oxygen
			Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	EDC	EDB	Naphthalene	Casing Elev.	Depth to Water	Water Elev.	
CAS RN		not applicable	71-43-2	108-88-3	100-41-4	1330-20-7	1634-04-4	107-06-2	106-93-4	91-20-3				
		(µg/L)	(µg/L)								(feet msl)	(feet toc)	(feet msl)	(mg/L)
<b>MTCA Method A</b>		<b>800</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>1,000</b>	<b>20</b>	<b>5</b>	<b>0.01</b>	<b>160</b>				
Well ID	Date													
MW-103	1/12/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	311.70	20.70	291.00	6.97
MW-103	5/10/2012	<b>108</b>	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	311.70	21.28	290.42	7.42
MW-103	8/8/2012	<b>2,490</b>	0.250 U	1.00 U	<b>4.30</b>	<b>27.0</b>	1.00 U	0.500 U	0.500 U	<b>3.04</b>	311.70	22.61	289.09	9.92
MW-103	11/14/2012	<b>305</b>	0.250 U	1.00 U	<b>0.650</b>	<b>1.51</b>	1.00 U	0.500 U	0.500 U	2.00 U	311.70	24.45	287.25	2.97
MW-105	1/12/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.46	18.34	292.12	3.80
MW-105	5/10/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.46	16.28	294.18	6.55
MW-105	8/8/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.46	19.72	290.74	8.00
MW-105	11/14/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.46	20.57	289.89	3.85
MW-108A	1/12/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.38	23.17	287.21	1.97
MW-108A	5/10/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.38	21.03	289.35	2.94
MW-108A	8/8/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.38	22.80	287.58	2.81
MW-108A	11/14/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.38	24.31	286.07	0.67
MW-109	1/12/2012	100 U	<b>4.81</b>	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.48	15.76	294.72	3.40
MW-109	5/10/2012	100 U	<b>0.510</b>	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.48	14.48	296.00	4.00
MW-109	8/8/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.48	17.91	292.57	4.96
MW-109	11/14/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.48	17.98	292.50	1.62
MW-110	1/12/2012	100 U	0.250 U	1.00 U	0.500 U	<b>2.63</b>	1.00 U	0.500 U	0.500 U	2.00 U	312.77	20.22	292.55	7.50
MW-110	5/10/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	312.77	20.63	292.14	9.44
MW-110	8/8/2012	<b>1,630</b>	0.250 U	1.00 U	<b>3.21</b>	<b>8.45</b>	1.00 U	0.500 U	0.500 U	<b>3.41</b>	312.77	21.50	291.27	11.46
MW-110	11/14/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	312.77	25.07	287.70	5.73
MW-111	1/12/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.62	30.97	279.65	8.95
MW-111	5/10/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.62	28.90	281.72	0.52
MW-111	8/8/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.62	29.90	280.72	0.64
MW-111	11/14/2012	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	2.00 U	310.62	31.21	279.41	0.49

Notes:

- CAS RN: Chemical Abstracts Service Registry Number
- MTCA Method A: Washington Department of Ecology Model Toxics Control Act Method A cleanup standards
- MTBE: methyl tert-butyl ether
- EDC: 1,2-dichloroethane
- EDB: 1,2-dibromoethane
- µg/L: micrograms per liter
- mg/L: milligrams per liter
- feet msl = feet above mean sea level
- feet toc = feet below top of well casing
- Bold** values indicate constituent detected at concentration greater than laboratory reporting limit
- Red** values indicate the concentration exceeds the MTCA Method A cleanup level
- U: The analyte was not detected above method reporting limit presented in table



**TABLE 3**  
**Soil Vapor Extraction System Monitoring Data**  
**Fred Meyer Facility, Port Orchard, Washington**

Date	Monitoring Days	Operational Days	% Operational	Total Influent VOC Level <sup>1</sup>	Vacuum <sup>2</sup>	Total Flow Velocity	Bleed Flow Velocity	Total Recovered Flow Rate <sup>3</sup>	Volatile Removal Rate at End of Period	Estimated VOCs Removed for Period	Estimated VOCs Removed to Date
				(ppmv)	(inches H2O)	(feet per minute)	(cfm)	(lbs./day)	(pounds)		
3/1/00	-	-	-	105.0	90	1,200	0	105	2.31	0	0
5/24/00	84	84	100%	160.9	> 100	1,000	0	87	2.95	221	221
8/17/00	85	85	100%	66.1	75	NA	0	220	3.05	255	476
10/19/00	63	63	100%	17.9	34	NA	0	320	1.20	134	610
12/13/00	55	55	100%	62.2	> 100	1,000	0	87	1.14	64	674
2/22/01	71	71	100%	4.0	71	NA	0	225	0.19	47	721
3/19/01	25	25	100%	28.3	90	NA	0	160	0.95	14	736
AMEC finds that select SVE wells were destroyed during expansion of the Bethel Road SE and SE Sedgewick Road right-of-ways adjacent to site.											
6/28/01	101	101	100%	11.2	80	NA	0	200	0.47	72	807
9/23/01	87	43	49%	4.2	100	NA	0	120	0.11	12	820
12/11/01	79	39	49%	0.0	100	NA	0	120	0.00	2.1	822
3/20/02	99	50	51%	1.4	100	NA	0	120	0.04	0.9	823
6/11/02	83	29	35%	0.0	90	NA	0	160	0.00	0.5	823
AS system is completely off-line as a result of damages incurred during site redevelopment											
9/25/02	106	106	56%	0.0	90	2,600	0	227	0.00	0	823
12/12/02	78	78	50%	2.7	90	2,500	0	218	0.12	4.8	828
4/1/03	110	110	100%	6.0	80	3,000	0	262	0.33	25	853
6/22/03	82	82	100%	0.0	100	NA	0	120	0.00	14	867
9/23/03	93	93	100%	0.0	60	4,100	0	358	0.00	0	867
12/17/03	85	85	100%	0.0	70	3,800	0	331	0.00	0	867
3/31/04	105	0	0%	0.0	0	0	0	0	0.00	0	867
6/29/04	90	90	100%	0.0	60	4,100	0	358	0.00	0	867
9/29/04	92	92	100%	0.0	60	4,100	0	358	0.00	0	867
11/9/04	41	41	100%	0.0	55	4,300	0	375	0.00	0	867
3/10/05	121	121	100%	0.0	50	4,500	0	393	0.00	0	867
6/21/05	103	103	100%	0.0	55	2,000	0	174	0.00	0	867
9/23/05	94	94	100%	0.0	100	NA	0	120	0.00	0	867
12/1/05	69	69	100%	0.0	100	NA	0	120	0.00	0	867
3/9/06*	98	unknown	unknown	0.0	0	0	0	0	0.00	0	867
SVE system is completely off-line as a result of damages to blower.											
6/8/06**	91	0	0%	0.0	0	0	0	0	0.00	0	867
9/22/06	106	0	0%	0.0	0	0	0	0	0.00	0	867
12/12/06	81	0	0%	0.0	0	0	0	0	0.00	0	867
3/28/07	106	0	0%	0.0	0	0	0	0	0.00	0	867
6/13/07	77	0	0%	0.0	0	0	0	0	0.00	0	867
8/28/07	76	0	0%	0.0	0	0	0	0	0.00	0	867
11/28/07	92	0	0%	0.0	0	0	0	0	0.00	0	867
4/15/08	139	0	0%	0.0	0	0	0	0	0.00	0	867
6/19/08	65	0	0%	0.0	0	0	0	0	0.00	0	867
9/16/08	89	0	0%	0.0	0	0	0	0	0.00	0	867
1/24/09	130	0	0%	0.0	0	0	0	0	0.00	0	867
AS/SVE System Repaired and Restarted on 02/20/09											
2/21/09	28	1	100%	28.3	90	6,000	1,200	175	0.00	0	867
3/28/09	35	35	100%	31.2	90	6,000	1,200	175	1.15	40	907
6/11/09***	75	70	93%	4.0	90	6,000	1,200	175	0.15	45	952
9/10/09	91	91	100%	0.5	100	6,000	1,200	150	0.02	7.4	959
1/22/10	134	134	100%	0.6	54	6,000	1,200	285	0.04	3.5	963
3/5/10	42	42	100%	0.5	100	6,000	1,200	150	0.02	1.1	964
6/10/10****	97	97	50%	0.2	100	6,000	1,000	150	0.01	1.1	965
9/9/10	91	91	100%	0.6	100	4,000	2,000	150	0.02	1.1	966
12/6/10	88	88	100%	0.4	100	4,300	1,700	150	0.01	1.4	968
3/29/11*****	113	113	100%	0.4	100	5,000	1,000	150	0.01	1.4	969
6/21/11***	84	42	50%	0.6	90	4,300	2,500	175	0.02	0.7	970
One AS blower and one blower connector replaced on 6/21/11											
9/27/11	98	98	100%	0.9	100	4,000	1,500	150	0.03	2.5	972
12/7/11	71	71	100%	0.0	90	6,000	1,500	175	0.00	1.0	973
1/12/12*****	36	0	0%	0.0	0	0	0	0	0.00	0.0	973
5/10/12	119	119	100%	0.0	60	6,000	1,500	260	0.00	0.0	973
8/8/12	90	90	100%	0.0	60	6,000	1,500	260	0.00	0.0	973
11/14/12	98	98	100%	0.0	100	4,000	1,500	150	0.00	0.0	973

Notes:

VOC: volatile organic compounds

1: Reflects VOC concentration of total system influent at monitoring event arrival time based on photoionization detector measurement.

2: Reflects vacuum measurements collected at total system influent intake at monitoring event arrival time

3: Volumetric flows through December 2005 are determined from total flow velocity if available or from measured vacuum and manufacturer's blower curves if vacuum not available. Volumetric flows from February 2009 are determined from measured vacuum and manufacturer's blower curves, not from velocity data due to uncertainty with field measurements.

NA: measurement not taken

PID: photoionization detector

ppmv: parts per million by volume

cfm: cubic feet per minute

\*: The knock out tank and all piping were full of water upon arrival for this monitoring day. Normal system readings could not be taken

\*\*: The system was off upon arrival and departure from the site. The SVE blowers did not work properly

\*\*\*: The VES blower was off upon arrival and turned on at departure.

\*\*\*\*: The discharge pipe was melted at arrival; damaged sometime between 1Q2010 event and 2Q2010 event.

\*\*\*\*\*: Air sparging blower #1 was off on arrival and departure due to failed connector.

\*\*\*\*\*: Air sparging blower #1 was off on arrival due tripped circuit breaker.

**TABLE 4**  
**Air Sparging System Performance Monitoring Data**  
**Fred Meyer Facility, Port Orchard, Washington**

Monitoring Well	Date	Groundwater Depth Below Top of Casing (Feet)	Groundwater Elevation (Feet)	Final Dissolved Oxygen (mg/L)	Gasoline-Range Organics (µg/L)
MW-103	<i>AS/SVE Systems Reactivated on 02/21/09</i>				
	3/28/2009	18.16	293.54	1.50	80 U
	6/11/2009	18.61	293.09	2.34	100 U
	9/10/2009	21.47	290.23	8.71	179
	1/22/2010	19.31	292.39	1.66	1,320
	3/5/2010	18.30	293.40	1.31	100 U
	6/10/2010	19.44	292.26	1.94	403
	9/9/2010	21.86	289.84	0.78	7,430
	12/6/2010	20.60	291.10	0.72	4,060
	3/29/2011	15.75	295.95	0.81	100 U
	6/21/2011	18.06	293.64	0.51	100 U
	9/27/2011	21.12	290.58	1.41	4,330
	12/7/2011	20.05	291.65	6.24	664
	1/12/2012	20.70	291.00	6.97	100 U
	5/10/2012	21.28	290.42	7.42	108
8/8/2012	22.61	289.09	9.92	2,490	
11/14/2012	24.45	287.25	2.97	305	
MW-105	<i>AS/SVE Systems Reactivated on 02/21/09</i>				
	3/28/2009	17.17	293.29	1.58	80 U
	6/11/2009	17.63	292.83	1.29	100 U
	9/10/2009	21.48	288.98	3.30	80 U
	1/22/2010	17.46	293.00	7.66	80 U
	3/5/2010	16.98	293.48	1.38	100 U
	6/10/2010	18.11	292.35	2.59	100 U
	9/9/2010	20.62	289.84	1.91	100 U
	12/6/2010	19.22	291.24	1.89	100 U
	3/29/2011	14.22	296.24	0.96	100 U
	6/21/2011	16.20	294.26	0.93	100 U
	9/27/2011	20.28	290.18	2.57	100 U
	12/7/2011	18.51	291.95	2.70	100 U
	1/12/2012	18.34	292.12	3.80	100 U
	5/10/2012	16.28	294.18	6.55	100 U
8/8/2012	19.72	290.74	8.00	100 U	
11/14/2012	20.57	289.89	3.85	100 U	
MW-108A	<i>AS/SVE Systems Reactivated on 02/21/09</i>				
	3/28/2009	22.70	287.76	1.21	80 U
	6/11/2009	23.42	287.04	1.07	100 U
	9/10/2009	25.52	284.86	0.75	80 U
	1/22/2010	22.69	287.69	2.57	80 U
	3/5/2010	21.13	289.25	1.21	100 U
	6/10/2010	21.48	288.90	0.36	100 U
	9/9/2010	23.50	286.88	1.02	100 U
	12/6/2010	23.15	287.23	1.20	100 U
	3/29/2011	17.62	292.76	0.85	100 U
	6/21/2011	19.89	290.49	0.84	100 U
	9/27/2011	22.95	287.43	0.46	100 U
	12/7/2011	23.05	287.33	0.62	100 U
	1/12/2012	23.17	287.21	1.97	100 U
	5/10/2012	21.03	289.35	2.94	100 U
8/8/2012	22.80	287.58	2.81	100 U	
11/14/2012	24.31	286.07	0.37	100 U	

**TABLE 4**  
**Air Sparging System Performance Monitoring Data**  
**Fred Meyer Facility, Port Orchard, Washington**

Monitoring Well	Date	Groundwater Depth Below Top of Casing (Feet)	Groundwater Elevation (Feet)	Final Dissolved Oxygen (mg/L)	Gasoline-Range Organics (µg/L)
MW-109	<i>AS/SVE Systems Reactivated on 02/21/09</i>				
	3/28/2009	16.13	294.33	0.99	80 U
	6/11/2009	16.27	294.19	0.74	100 U
	9/10/2009	19.77	290.71	1.95	80 U
	1/22/2010	15.25	295.23	6.44	80 U
	3/5/2010	15.23	295.25	0.85	100 U
	6/10/2010	16.20	294.28	1.86	100 U
	9/9/2010	18.92	291.56	0.97	100 U
	12/6/2010	16.71	293.77	0.79	100 U
	3/29/2011	13.30	297.18	0.67	100 U
	6/21/2011	14.70	295.78	0.65	100 U
	9/27/2011	18.86	291.62	0.60	100 U
	12/7/2011	15.99	294.49	2.57	<b>137</b>
	1/12/2012	15.76	294.72	3.40	100 U
	5/10/2012	14.48	296.00	4.00	100 U
8/8/2012	17.91	292.57	4.96	100 U	
11/14/2012	17.98	292.50	1.62	100 U	
MW-110	<i>AS/SVE Systems Reactivated on 02/21/09</i>				
	3/28/2009	16.44	294.02	1.10	<b>162</b>
	6/11/2009	--	--	6.31	100 U
	9/10/2009	22.60	290.17	9.68	80 U
	1/22/2010	19.76	293.01	6.19	<b>687</b>
	3/5/2010	18.56	294.21	2.16	100 U
	6/10/2010	19.94	292.83	1.13	100 U
	9/9/2010	22.30	290.47	3.55	<b>1,880</b>
	12/6/2010	20.63	292.14	3.85	<b>371</b>
	3/29/2011	17.33	295.44	1.53	<b>442</b>
	6/21/2011	19.52	293.25	1.07	100 U
	9/27/2011	21.86	290.91	4.45	<b>4,020</b>
	12/7/2011	20.23	2912.54	3.54	<b>1,230</b>
	1/12/2012	20.22	292.55	7.50	100 U
	5/10/2012	20.63	292.14	9.44	100 U
8/8/2012	21.50	291.27	11.46	<b>1,630</b>	
11/14/2012	25.07	287.70	5.73	100 U	
MW-111	<i>AS/SVE Systems Reactivated on 02/21/09</i>				
	3/28/2009	32.04	278.42	0.80	80 U
	6/11/2009	31.44	279.02	0.67	100 U
	9/10/2009	32.02	278.60	1.17	80 U
	1/22/2010	31.52	279.10	8.58	80 U
	3/5/2010	29.76	280.86	0.57	100 U
	6/10/2010	28.85	281.77	0.26	100 U
	9/9/2010	30.19	280.43	0.65	100 U
	12/6/2010	31.02	279.60	0.80	100 U
	3/29/2011	26.71	283.91	0.70	100 U
	6/21/2011	27.31	283.31	0.40	100 U
	9/27/2011	29.73	280.89	0.57	100 U
	12/7/2011	30.77	279.85	9.08	100 U
	1/12/2012	30.97	279.65	8.95	100 U
	5/10/2012	28.90	281.72	0.52	100 U
8/8/2012	29.90	280.72	0.64	100 U	
11/14/2012	31.21	279.41	0.49	100 U	
<b>MTCA Method A Cleanup Standard</b>					<b>800</b>

**Notes:**

MTCA Method A: Washington Department of Ecology Model Toxics Control Act Method A screening criteria

mg/L : milligrams per liter

µg/L : micrograms per liter

AS/SVE : air sparging and soil vapor extraction

**Bold** values indicate concentrations detected above laboratory reporting limit

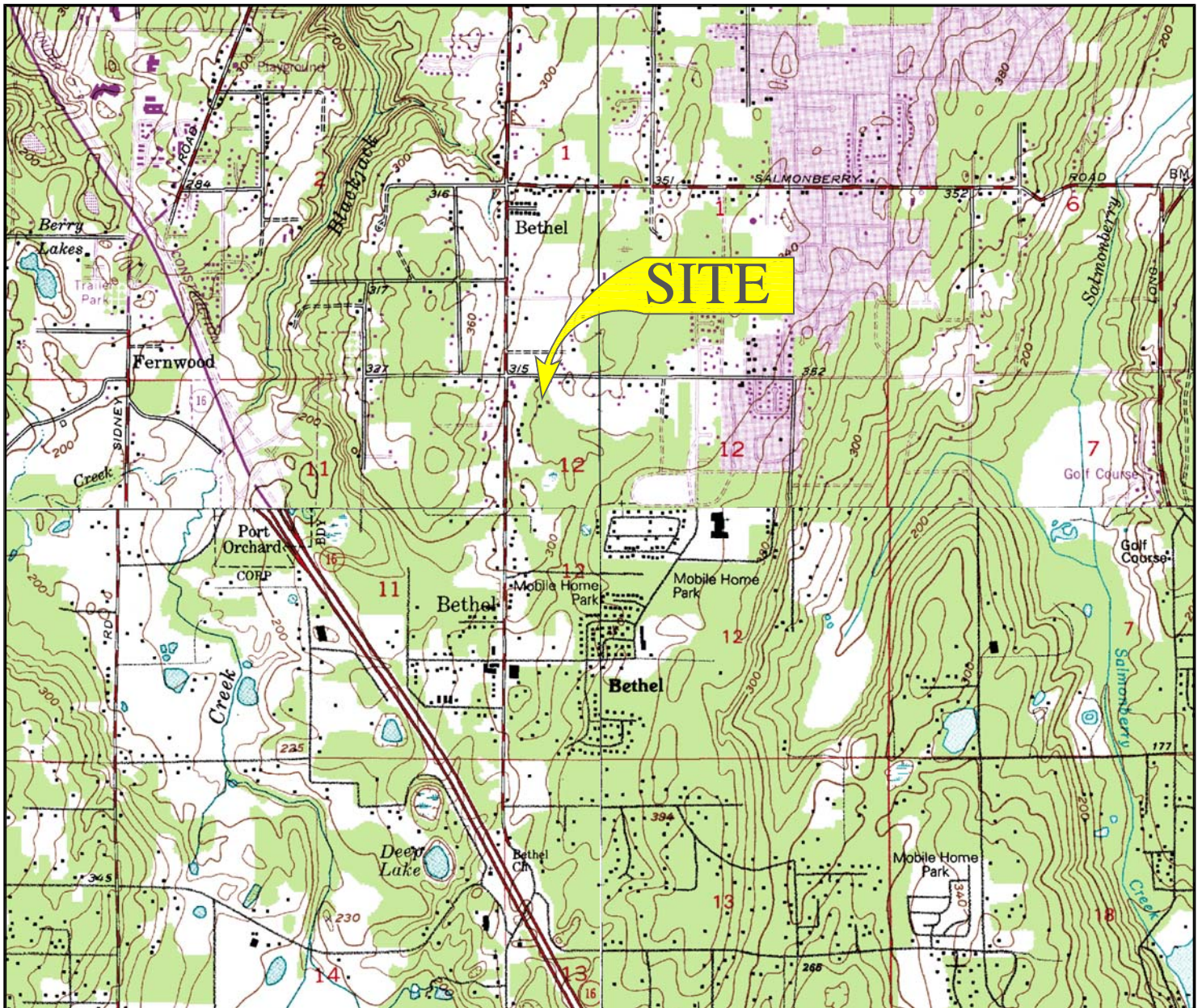
**Red** values indicate the concentration exceeds the MTCA Method A cleanup standard

U : The analyte was not detected above the laboratory method reporting limit presented

"--" : not measured

**FIGURES**

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- Heavy-duty
- Medium-duty
- Light-duty
- Unimproved dirt
- U.S. Route
- State Route
- Interstate Route

**BREMERTON WEST, WASH. BREMERTON EAST, WASH.**

47122-E6-TF-024 N4730-W12230/7.5  
 1953 1953  
 PHOTOREVISED 1981 PHOTOREVISED 1981  
 DMA 1479 II SERIES V891 DMA 1479 II SERIES V891

**BURLEY, WASH.**

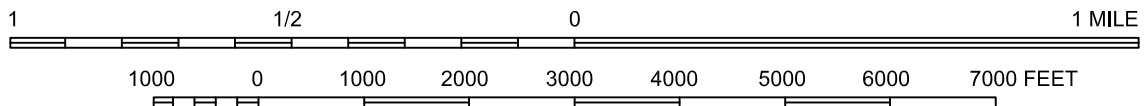
47122-D6-TF-024  
 1953  
 PHOTOREVISED 1994  
 DMA 1478 II NW-SERIES V891

**OLALLA, WASH.**

47122-D5-TF-024  
 1953  
 PHOTOREVISED 1981  
 DMA 1478 I NE SERIES V891

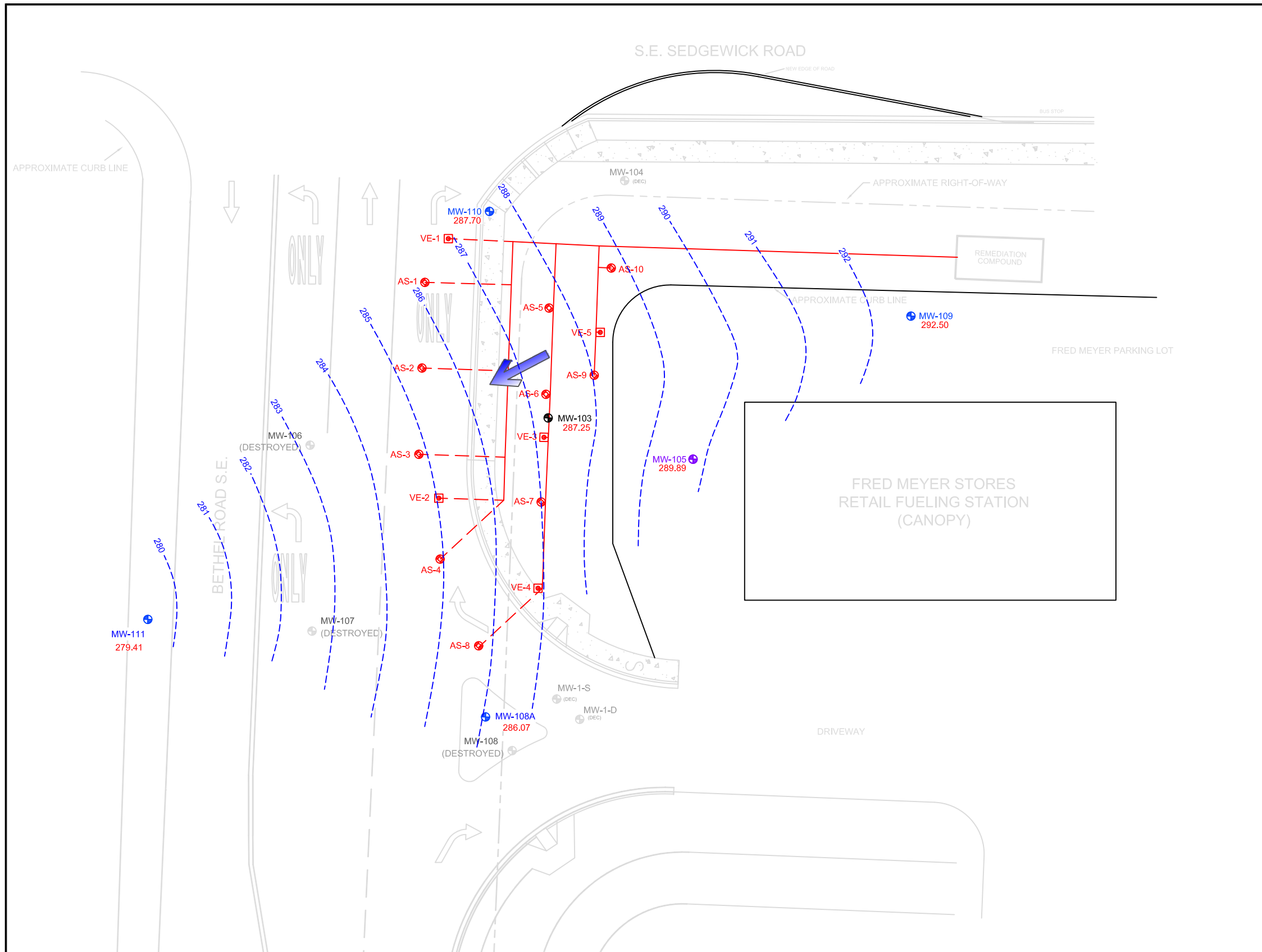


QUADRANGLE LOCATION



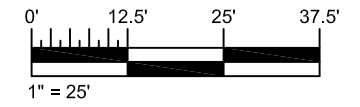
SOURCE: USGS QUAD SHEET: BREMERTON WEST, BREMERTON EAST, BURLEY AND OLALLA, WASH.

<p><b>AMEC</b>          7376 S.W. Durham Road          Portland OR. U.S.A. 97224</p>				<p>CLIENT: <b>FRED MEYER</b></p>	
<p>PROJECT: <b>FRED MEYER - PORT ORCHARD</b></p>		<p>DWN BY: PM/SD</p>	<p>DATUM: -</p>	<p>DATE: JANUARY 2013</p>	
<p>TITLE: <b>SITE LOCATION MAP</b></p>		<p>CHK'D BY: DS</p>	<p>REV. NO.: -</p>	<p>PROJECT NO.: 9-61M-10282-0</p>	
		<p>PROJECTION: -</p>	<p>SCALE: 1:24,000</p>	<p>FIGURE NO.: 1</p>	



**LEGEND**

- AS-10 AIR SPARGING WELL NUMBER AND APPROXIMATE LOCATION
- VE-5 VAPOR EXTRACTION WELL NUMBER AND APPROXIMATE LOCATION
- MW-103 ACTIVE 4" DIAMETER MONITORING WELL (ECOLOGY, 1991)
- MW-105 ACTIVE 2" DIAMETER MONITORING WELL (AGRA, 1999)
- MW-110 ACTIVE 2" DIAMETER MONITORING WELL (AMEC, 2008)
- MW-104 (DEC) MONITORING WELL DECOMMISSIONED
- MW-108 (DESTROYED) MONITORING WELL DESTROYED BY CONSTRUCTION ACTIVITIES
- 291.87 SPOT GROUNDWATER SURFACE ELEVATION IN FEET
- REMEDIATION SYSTEM TRENCH
- ANGLED WELL LOCATION
- APPROXIMATE GROUNDWATER ELEVATION CONTOUR IN FEET
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW



SOURCE: AHBL CIVIL AND STRUCTURAL ENGINEERS,  
FILE NAME: 98169-B.dwg.

CLIENT:

**FRED MEYER**

---

**AMEC**  
7376 S.W. Durham Road  
Portland, OR. U.S.A. 97224

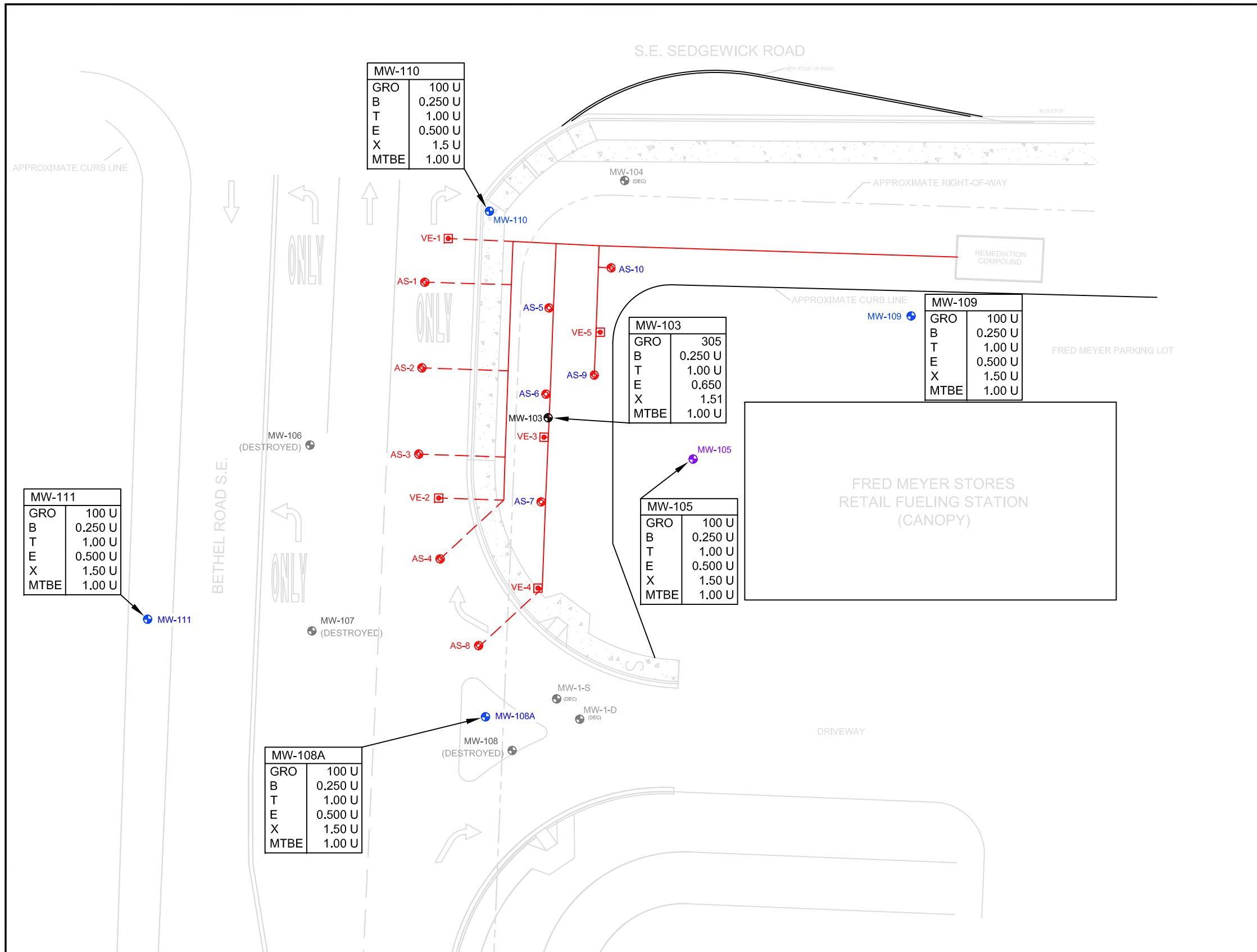
DWN BY: PM/SD  
CHK'D BY: JE  
DATUM: -  
PROJECTION: -  
SCALE: 1"=25'

PROJECT: **FRED MEYER - PORT ORCHARD**

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TITLE: **GROUNDWATER ELEVATIONS - NOVEMBER 14, 2012**

DATE: JANUARY 2013  
PROJECT NO.: 9-61M-10282-0  
REV. NO.: -  
FIGURE NO.: 2



MW-110	
GRO	100 U
B	0.250 U
T	1.00 U
E	0.500 U
X	1.5 U
MTBE	1.00 U

MW-103	
GRO	305
B	0.250 U
T	1.00 U
E	0.650
X	1.51
MTBE	1.00 U

MW-109	
GRO	100 U
B	0.250 U
T	1.00 U
E	0.500 U
X	1.50 U
MTBE	1.00 U

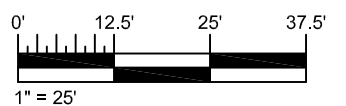
MW-105	
GRO	100 U
B	0.250 U
T	1.00 U
E	0.500 U
X	1.50 U
MTBE	1.00 U

MW-111	
GRO	100 U
B	0.250 U
T	1.00 U
E	0.500 U
X	1.50 U
MTBE	1.00 U

MW-108A	
GRO	100 U
B	0.250 U
T	1.00 U
E	0.500 U
X	1.50 U
MTBE	1.00 U

**LEGEND**

- AS-10 AIR SPARGING WELL NUMBER AND APPROXIMATE LOCATION
- VE-5 VAPOR EXTRACTION WELL NUMBER AND APPROXIMATE LOCATION
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- MW-110 ACTIVE 2" DIAMETER MONITORING WELL (AMEC, 2008)
- MW-104 MONITORING WELL DECOMMISSIONED
- MW-108 MONITORING WELL DESTROYED BY CONSTRUCTION ACTIVITIES
- REMEDIATION SYSTEM TRENCH
- ANGLED WELL LOCATION
- GRO - GASOLINE RANGE ORGANICS (µg/L)
- B - BENZENE (µg/L)
- T - TOLUENE (µg/L)
- E - ETHYLBENZENE (µg/L)
- X - TOTAL XYLENES (µg/L)
- MTBE - METHYL-TERT-BUTYL ETHER (µg/L)
- U - ANALYTE NOT DETECTED ABOVE METHOD REPORTING LIMIT PRESENTED IN TABLE.
- µg/L - micrograms per liter



SOURCE: AHBL CIVIL AND STRUCTURAL ENGINEERS, FILE NAME: 98169-B.dwg.	CLIENT: <b>FRED MEYER STORES</b>	DWN BY: PM/SD	PROJECT: <b>FRED MEYER - PORT ORCHARD</b>	DATE: JANUARY 2013
		CHK'D BY: JE		PROJECT NO.: 9-61M-10282-0
Original figure prepared using color.	<b>AMEC</b> 7376 S.W. Durham Road Portland, OR. U.S.A. 97224 	DATUM: -	TITLE: <b>GROUNDWATER ANALYTICAL RESULTS - NOVEMBER 14, 2012</b>	REV. NO.: 1
		PROJECTION: -		FIGURE NO.: 3
		SCALE: 1"=25'		



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**APPENDIX A**

Field Data Acquisition Forms



# QUARTERLY SYSTEM & GROUNDWATER MONITORING PROGRAM

Fred Meyer - Port Orchard

S.E. Intersection of SE Sedgewick Road & Bethel Road SE  
Port Orchard, Washington

Project #: 9-61M-10282-0  
Project Manager: Kurt Harrington  
DATE: 11/14/12  
Arrival Time:

TECHNICIAN: JG Revised: Jan. 20, 2009

Arrival Time:

## Groundwater Levels / Product Thickness / Groundwater/Product Pump Operation / 7.5-Gallon Influent Tanks

Monitoring Point	Depth to Water	Time sampled
MW-103	24.45	12:10
MW-105	20.57	13:00
MW-108	24.31	14:05
MW-109	17.98	11:20
MW-110	25.07	15:00
MW-111	31.21	10:30

Interface Corrected Factor: \_\_\_\_\_ feet

## Vapor Extraction System Monitoring

VES Line	Vapor Level (ppm)	Vacuum (inches of water)	Flow (fpm)	VES Lines (ON/OFF)	
				Arrival	Depart
Total System - Arrival	0.0	10.8"	4000	ON	
VES-1	0.0			ON	ON
VES-2	0.0			ON	ON
VES-3	0.0			ON	ON
VES-4	0.1			ON	ON
VES-5	0.0			ON	ON
Total System - Depart	0.0				ON

VES Blower Model: Gast R7100R-50  
Outlet pipe diameter: 2 outlets @ 2" each  
VES Blower Arrival (ON / OFF): on  
VES Blower Depart (ON / OFF): on

PID Type: RAR  
PID Number: 5  
PID Calibrated: YES  
Anemometer #: 1

Knockout Tank: Yes  
Full (YES / NO): no  
Emptied (YES / NO): no  
Quantity: 0 gallons

## Air Sparging System

Air Sparging Line	Flow (cfm)	AS Lines (ON / OFF)		Air Sparging Line	Flow (cfm)	AS Lines (ON / OFF)	
		Arrival	Departure			Arrival	Departure
AS-1	25	ON	ON	AS-6	2	ON	ON
AS-2	0			AS-7	0.5	OFF	OFF
AS-3	25			AS-8	0.5	OFF	OFF
AS-4	NA	OFF	OFF	AS-9	3	ON	ON
AS-5	NA	"	"	AS-10	2	ON	ON

Air Sparging System at Arrival (ON / OFF): ON  
Air Sparging System at Departure (ON / OFF): ON  
Air Sparging Blower 1# (top) at Arrival: DOWN  
Air Sparging Blower 1# (top) at Depart: DOWN  
Air Sparging Blower 2 (top) at Arrival (ON / OFF): ON  
Air Sparging Blower 2 (top) at Depart (ON / OFF): ON  
Total Air Sparging System Pressure for Rotory vane  
Air Sparging System Pressure for high pressure:

Notes:

Arrival Time:

Departure Time:

Budget: 6 hours (includes: prep, travel, field, and report)



AMEC Earth & Environmental, Inc.  
GROUNDWATER  
SAMPLING FIELD FORM

Fred Meyer Port Orchard  
Quarterly Groundwater Monitoring  
AMEC Job #: 9-61M-10282-0  
Date: 11/14/2012

Field Personnel: Jason Gardner

Monitoring Well ID: MW103

Start Time: 11:40

Weather Conditions: R, D

Approx. Air Temp (°F): ~50

INITIAL WELL DATA & WELL PURGING INFORMATION

Water Temperature (degree C)	Water pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	ORP (mV)	Water Level (feet bgs)	Time (0:00 - 23:59)	Volume Purged (gal or liters)
13.97	6.25	234	Clear	2.68	+284	24.45	11:40	0
13.82	6.19	240		2.83	+37.7	24.53	12:00	4L
13.80	6.19	240		2.89	+40.2	24.53	12:05	5L
13.80	6.21	240	9	2.97	+40.2	24.53	12:10	6L

Ferrous Iron (2+) using the field kit:

0.5 inch tubing: 0.020 gallons/linear foot      2" well casing: 0.17 gal/linear foot      Total Purged = 6L  
 Purge Pumping Rate (approx. L/m): .2 L/min  
 Approx. Pump/Intake Depth: Screen  
 Well Yield: High / Moderate / Low  
 Decontamination Method: NA

WELL CONDITION

Casing Size and Type: 2"  
 Casing Condition: OK / NA / Needs Repairs/Repaired      Lock Condition: OK / NA / Needs Repairs/Repaired  
 Cap Condition: OK / NA / Needs Repairs/Repaired      Monument Condition: OK / NA / Needs Repairs/Repaired

NOTES:

SAMPLING INFORMATION / DATA

QA/QC Sample (circle one): Duplicate      Lab QA/QC NONE  
 Sampling Method (circle one):      dedicated Dual Valve Pump      peristaltic pump

Analytical Parameters	Destination Laboratory	Preservative	Bottle size	Number of bottles	Sample ID	Time Sampled
NW TPH-Gx 8021	APEX	HCL & ice	40 ML	2	MW103-111412	17:10
8260 Suite	APEX	HCL & ice	40 ML	2	1	"

Method of Transportation of samples:  
 All samples were immediately placed into a cooler and packed with ice or "Blue Ice" YES / NO

Field Observations/Notes of Sampling Event:

Signature of Field Personnel:

Date: 11/14/12



AMEC Earth & Environmental, Inc.  
GROUNDWATER  
SAMPLING FIELD FORM

Fred Meyer Port Orchard  
Quarterly Groundwater Monitoring  
AMEC Job #: 9-61M-10282-0

Date: 11/14/2012

Field Personnel: Jason Gardner

Monitoring Well ID: MW 105

Start Time: 12:30

Weather Conditions: Partly

Approx. Air Temp (°F): 45

INITIAL WELL DATA & WELL PURGING INFORMATION

Water Temperature (degree C)	Water pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	ORP (mV)	Water Level (feet bgs)	Time (0:00 - 23:59)	Volume Purged (gal or liters)
14.10	6.43	179	Clear	4.26	+47.8	20.57	12:30	0
14.16	6.45	180		3.92	+62.1	20.64	12:50	4L
14.17	6.45	180		3.80	+60.8	20.64	12:55	5L
14.17	6.45	181		3.85	+60.3	20.64	1:00	6L

Ferrous Iron (2+) using the field kit:

0.5 inch tubing: 0.020 gallons/linear foot      2" well casing: 0.17 gal/linear foot      Total Purged = 6L  
 Purge Pumping Rate (approx. L/m): .2 L/min  
 Approx. Pump/Intake Depth: Screen  
 Well Yield: High / Moderate / Low  
 Decontamination Method: NA

WELL CONDITION

Casing Size and Type: 2"  
 Casing Condition:  OK /  NA / Needs Repairs/Repaired      Lock Condition:  OK /  NA / Needs Repairs/Repaired  
 Cap Condition:  OK /  NA / Needs Repairs/Repaired      Monument Condition:  OK /  NA / Needs Repairs/Repaired

NOTES:

SAMPLING INFORMATION / DATA

QA/QC Sample (circle one): Duplicate      Lab QA/QC  NONE  
 Sampling Method (circle one): dedicated Dual Valve Pump       peristaltic pump

Analytical Parameters	Destination Laboratory	Preservative	Bottle size	Number of bottles	Sample ID	Time Sampled
NW TPH-Gx 8021	APEX	HCL & ice	40 ML	2	MW105-111412	12:30
8260 Suite	APEX	HCL & ice	40 ML	2		

Method of Transportation of samples:  
 All samples were immediately placed into a cooler and packed with ice or "Blue Ice"  YES  NO

Field Observations/Notes of Sampling Event:

Signature of Field Personnel:

Date: 11/14/12



AMEC Earth & Environmental, Inc.  
**GROUNDWATER  
 SAMPLING FIELD FORM**

Fred Meyer Port Orchard  
 Quarterly Groundwater Monitoring  
 AMEC Job #: 9-61M-10282-0  
 Date: 11/14/2012

Field Personnel: Jason Gardner

Monitoring Well ID: MW110

Start Time: 14:30

Weather Conditions: 12.5 in

Approx. Air Temp (°F): 25.0

**INITIAL WELL DATA & WELL PURGING INFORMATION**

Water Temperature (degree C)	Water pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	ORP (mV)	Water Level (feet bgs)	Time (0:00 - 23:59)	Volume Purged (gal or liters)
13.65	6.00	211	Clear	5.62	+84.2	25.07	14:30	0
13.92	5.92	212	↓	5.69	+93.1	25.49	14:50	4L
13.96	5.94	211	↓	5.60	+93.9	25.50	14:55	5L
13.97	5.97	212	↓	5.73	+93.6	25.49	15:00	6L

**Ferrous Iron (2+) using the field kit:**

0.5 inch tubing: 0.020 gallons/linear foot      2" well casing: 0.17 gal/linear foot      Total Purged = 6L  
 Purge Pumping Rate (approx. L/m): .2 L/min  
 Approx. Pump/Intake Depth: Screen  
 Well Yield: High Moderate Low  
 Decontamination Method: NA

**WELL CONDITION**

Casing Size and Type: 2"  
 Casing Condition: OK / NA / Needs Repairs/Repaired      Lock Condition: OK / NA / Needs Repairs/Repaired  
 Cap Condition: OK / NA / Needs Repairs/Repaired      Monument Condition: OK / NA / Needs Repairs/Repaired

**NOTES:**

**SAMPLING INFORMATION / DATA**

QA/QC Sample (circle one): Duplicate Lab QA/QC NONE

Sampling Method (circle one): dedicated Dual Valve Pump      peristaltic pump

Analytical Parameters	Destination Laboratory	Preservative	Bottle size	Number of bottles	Sample ID	Time Sampled
NW TPH-Gx 8021	APEX	HCL & ice	40 ML	2	MW110-11/14/12	15:00
8260 Suite	APEX	HCL & ice	40 ML	2	"	"

**Method of Transportation of samples:**

All samples were immediately placed into a cooler and packed with ice or "Blue Ice" YES / NO

**Field Observations/Notes of Sampling Event:**

Signature of Field Personnel: 

Date: 11/14/12



AMEC Earth & Environmental, Inc.  
**GROUNDWATER  
 SAMPLING FIELD FORM**

Fred Meyer Port Orchard  
 Quarterly Groundwater Monitoring  
 AMEC Job #: 9-61M-10282-0

Date: 11/14/2012

Field Personnel: Jason Gardner

Monitoring Well ID: MW108

Start Time: 13:35

Weather Conditions: (2A)D

Approx. Air Temp (°F): ~50

**INITIAL WELL DATA & WELL PURGING INFORMATION**

Water Temperature (degree C)	Water pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	ORP (mV)	Water Level (feet bgs)	Time (0:00 - 23:59)	Volume Purged (gal or liters)
14.16	6.24	230	Clear	0.84	-16.8	24.31	13:35	0
14.09	6.21	253		0.62	-20.5	24.38	13:55	4L
14.10	6.21	259		0.64	-21.3	24.38	14:00	5L
14.12	6.21	253		0.67	-21.1	24.38	14:05	6L

**Ferrous Iron (2+) using the field kit:**

0.5 inch tubing: 0.020 gallons/linear foot      2" well casing: 0.17 gal/linear foot      Total Purged = 6L

Purge Pumping Rate (approx. L/m): .2 L/min

Approx. Pump/Intake Depth: Screen

Well Yield: High / Moderate / Low

Decontamination Method: NA

**WELL CONDITION**

Casing Size and Type: 2"

Casing Condition: (OK) NA / Needs Repairs/Repaired      Lock Condition: (OK) NA / Needs Repairs/Repaired

Cap Condition: (OK) NA / Needs Repairs/Repaired      Monument Condition: (OK) NA / Needs Repairs/Repaired

**NOTES:**

**SAMPLING INFORMATION / DATA**

QA/QC Sample (circle one): Duplicate      Lab QA/QC: (NONE)

Sampling Method (circle one): dedicated Dual Valve Pump      peristaltic pump

Analytical Parameters	Destination Laboratory	Preservative	Bottle size	Number of bottles	Sample ID	Time Sampled
NW TPH-Gx 8021	APEX	HCL & ice	40 ML	2	MW108-111412	14:05
8260 Suite	APEX	HCL & ice	40 ML	2	"	

Method of Transportation of samples:

All samples were immediately placed into a cooler and packed with ice or "Blue Ice" YES / NO

Field Observations/Notes of Sampling Event:

*(Handwritten signature)*

Signature of Field Personnel:

Date: 11/14/12



AMEC Earth & Environmental, Inc.  
**GROUNDWATER  
 SAMPLING FIELD FORM**

Fred Meyer Port Orchard  
 Quarterly Groundwater Monitoring  
 AMEC Job #: 9-61M-10282-0

Date: 11/14/2012

Field Personnel: Jason Gardner

Monitoring Well ID: MW109

Start Time: 10:50

Weather Conditions: Rain

Approx. Air Temp (°F): ~50

**INITIAL WELL DATA & WELL PURGING INFORMATION**

Water Temperature (degree C)	Water pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	ORP (mV)	Water Level (feet bgs)	Time (0:00 - 23:59)	Volume Purged (gal or liters)
14.07	6.24	148	Clear	0.31	+13.7	17.98	10:50	0
14.10	6.25	165		1.93	+19.8	18.04	11:10	4L
14.05	6.23	166		1.69	+20.4	18.04	11:15	5L
14.06	6.23	166	↓	1.62	+19.7	18.04	11:20	6L

**Ferrous Iron (2+) using the field kit:**

0.5 inch tubing: 0.020 gallons/linear foot      2" well casing: 0.17 gal/linear foot      Total Purged = 6L  
 Purge Pumping Rate (approx. L/m): .2 L/min  
 Approx. Pump/Intake Depth: Screen  
 Well Yield: High / Moderate / Low  
 Decontamination Method: NA

**WELL CONDITION**

Casing Size and Type: 2"  
 Casing Condition: OK / NA / Needs Repairs/Repaired      Lock Condition: OK / NA / Needs Repairs/Repaired  
 Cap Condition: OK / NA / Needs Repairs/Repaired      Monument Condition: OK / NA / Needs Repairs/Repaired

**NOTES:**

**SAMPLING INFORMATION / DATA**

QA/QC Sample (circle one): Duplicate      Lab QA/QC NONE  
 Sampling Method (circle one):      dedicated Dual Valve Pump      peristaltic pump

Analytical Parameters	Destination Laboratory	Preservative	Bottle size	Number of bottles	Sample ID	Time Sampled
NW TPH-Gx 8021	APEX	HCL & ice	40 ML	2	MW109-111412	11:20
8260 Suite	APEX	HCL & ice	40 ML	2	"	"

Method of Transportation of samples:  
 All samples were immediately placed into a cooler and packed with ice or "Blue Ice" (YES) NO

**Field Observations/Notes of Sampling Event:**

*(Handwritten signature)*

Signature of Field Personnel:

Date: 11/14/12



AMEC Earth & Environmental, Inc.  
**GROUNDWATER  
 SAMPLING FIELD FORM**

Fred Meyer Port Orchard  
 Quarterly Groundwater Monitoring  
 AMEC Job #: 9-61M-10282-0

Date: 11/14/2012

Field Personnel: Jason Gardner

Monitoring Well ID: MW 111

Start Time: 10:00

Weather Conditions: Rain

Approx. Air Temp (°F): ~50

**INITIAL WELL DATA & WELL PURGING INFORMATION**

Water Temperature (degree C)	Water pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	ORP (mV)	Water Level (feet bgs)	Time (0:00 - 23:59)	Volume Purged (gal or liters)
13.76	6.34	199	Clear	0.55	-64.8	31.21	10:00	0
13.72	6.36	203	↓	0.51	-72.3	31.34	10:10	4L
13.70	6.38	203	↓	0.49	-72.8	31.34	10:25	5L
13.70	6.38	203	↓	0.49	-72.7	31.34	10:30	6L

**Ferrous Iron (2+) using the field kit:**

0.5 inch tubing: 0.020 gallons/linear foot      2" well casing: 0.17 gal/linear foot      Total Purged = 6L  
 Purge Pumping Rate (approx. L/m): .2 L/min  
 Approx. Pump/Intake Depth: Screen  
 Well Yield: High / Moderate / Low  
 Decontamination Method: NA

**WELL CONDITION**

Casing Size and Type: 2"  
 Casing Condition: OK / NA / Needs Repairs/Repaired      Lock Condition: OK / NA / Needs Repairs/Repaired  
 Cap Condition: OK / NA / Needs Repairs/Repaired      Monument Condition: OK / NA / Needs Repairs/Repaired

**NOTES:**

**SAMPLING INFORMATION / DATA**

QA/QC Sample (circle one): Duplicate      Lab QA/QC: NONE      ~~DC & LC (w/ ice)~~  
 Sampling Method (circle one): dedicated Dual Valve Pump      ~~peristaltic pump~~      SG

Analytical Parameters	Destination Laboratory	Preservative	Bottle size	Number of bottles	Sample ID	Time Sampled
NW TPH-Gx 8021	APEX	HCL & ice	40 ML	2	MW 111-111412	10:30
8260 Suite	APEX	HCL & ice	40 ML	2	"	"

**Method of Transportation of samples:**

All samples were immediately placed into a cooler and packed with ice or "Blue Ice" YES / NO

**Field Observations/Notes of Sampling Event:**

*(Handwritten signature)*

Signature of Field Personnel:

Date: 11/14/12



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**APPENDIX B**

Laboratory Analytical Results and Chain-or-Custody Documents



# Apex Labs

12232 S.W. Garden Place  
Tigard, OR 97223  
503-718-2323 Phone  
503-718-0333 Fax

Monday, December 3, 2012

Kurt Harrington  
Amec Environment & Infrastructure, Inc  
7376 SW Durham Road  
Portland, OR 97224

RE: Fred Meyer (FMPO) Port Orchard / 961M10282-0

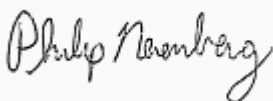
Enclosed are the results of analyses for work order A12K396, which was received by the laboratory on 11/16/2012 at 9:10:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: [pnerenberg@apex-labs.com](mailto:pnerenberg@apex-labs.com), or by phone at 503-718-2323.

---

Apex Laboratories



*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

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Philip Nerenberg, Lab Director

Amec Environment & Infrastructure, Inc  
7376 SW Durham Road  
Portland, OR 97224

Project: Fred Meyer (FMPO) Port Orchard  
Project Number: 961M10282-0  
Project Manager: Kurt Harrington

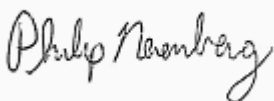
Reported:  
12/03/12 16:54

## ANALYTICAL REPORT FOR SAMPLES

### SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW103-111412	A12K396-01	Water	11/14/12 12:10	11/16/12 09:10
MW105-111412	A12K396-02	Water	11/14/12 13:00	11/16/12 09:10
MW108-111412	A12K396-03	Water	11/14/12 14:05	11/16/12 09:10
MW109-111412	A12K396-04	Water	11/14/12 11:20	11/16/12 09:10
MW110-111412	A12K396-05	Water	11/14/12 15:00	11/16/12 09:10
MW111-111412	A12K396-06	Water	11/14/12 10:30	11/16/12 09:10

Apex Laboratories



Philip Nerenberg, Lab Director

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Amec Environment & Infrastructure, Inc  
 7376 SW Durham Road  
 Portland, OR 97224

Project: Fred Meyer (FMPO) Port Orchard  
 Project Number: 961M10282-0  
 Project Manager: Kurt Harrington

Reported:  
 12/03/12 16:54

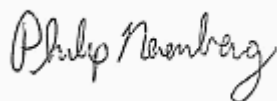
## ANALYTICAL SAMPLE RESULTS

### Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
<b>MW103-111412 (A12K396-01)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Gasoline Range Organics	0.305	---	0.100	mg/L	1	11/20/12 01:57	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 90 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			95 %	Limits: 50-150 %	"	"	"	
<b>MW105-111412 (A12K396-02)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/20/12 00:01	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 88 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			97 %	Limits: 50-150 %	"	"	"	
<b>MW108-111412 (A12K396-03)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/20/12 00:29	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 90 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			98 %	Limits: 50-150 %	"	"	"	
<b>MW109-111412 (A12K396-04)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/20/12 00:59	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 91 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			100 %	Limits: 50-150 %	"	"	"	
<b>MW110-111412 (A12K396-05)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/20/12 02:26	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 91 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			96 %	Limits: 50-150 %	"	"	"	
<b>MW111-111412 (A12K396-06)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Gasoline Range Organics	ND	---	0.100	mg/L	1	11/20/12 01:28	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			Recovery: 92 %	Limits: 50-150 %	"	"	"	
1,4-Difluorobenzene (Sur)			97 %	Limits: 50-150 %	"	"	"	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Philip Nerenberg, Lab Director

Amec Environment & Infrastructure, Inc  
 7376 SW Durham Road  
 Portland, OR 97224

Project: Fred Meyer (FMPO) Port Orchard  
 Project Number: 961M10282-0  
 Project Manager: Kurt Harrington

Reported:  
 12/03/12 16:54

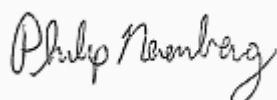
## ANALYTICAL SAMPLE RESULTS

### RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
<b>MW103-111412 (A12K396-01)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Benzene	ND	---	0.250	ug/L	1	11/20/12 01:57	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.650</b>	---	0.500	"	"	"	"	
<b>Xylenes, total</b>	<b>1.51</b>	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
<i>Surrogate: Dibromofluoromethane (Surr)</i>			<i>Recovery: 94 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>1,4-Difluorobenzene (Surr)</i>			<i>88 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>Toluene-d8 (Surr)</i>			<i>97 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>4-Bromofluorobenzene (Surr)</i>			<i>98 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<b>MW105-111412 (A12K396-02)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Benzene	ND	---	0.250	ug/L	1	11/20/12 00:01	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
<i>Surrogate: Dibromofluoromethane (Surr)</i>			<i>Recovery: 94 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>1,4-Difluorobenzene (Surr)</i>			<i>88 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>Toluene-d8 (Surr)</i>			<i>96 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>4-Bromofluorobenzene (Surr)</i>			<i>101 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<b>MW108-111412 (A12K396-03)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Benzene	ND	---	0.250	ug/L	1	11/20/12 00:29	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	

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 Project Number: 961M10282-0  
 Project Manager: Kurt Harrington

Reported:  
 12/03/12 16:54

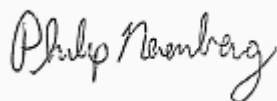
## ANALYTICAL SAMPLE RESULTS

### RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
<b>MW108-111412 (A12K396-03)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
<i>Surrogate: Dibromofluoromethane (Surr)</i>			<i>Recovery: 90 %</i>	<i>Limits: 80-120 %</i>	1	"	EPA 8260B	
<i>1,4-Difluorobenzene (Surr)</i>			89 %	Limits: 80-120 %	"	"	"	
<i>Toluene-d8 (Surr)</i>			98 %	Limits: 80-120 %	"	"	"	
<i>4-Bromofluorobenzene (Surr)</i>			101 %	Limits: 80-120 %	"	"	"	
<b>MW109-111412 (A12K396-04)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Benzene	ND	---	0.250	ug/L	1	11/20/12 00:59	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
<i>Surrogate: Dibromofluoromethane (Surr)</i>			<i>Recovery: 95 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>1,4-Difluorobenzene (Surr)</i>			93 %	Limits: 80-120 %	"	"	"	
<i>Toluene-d8 (Surr)</i>			97 %	Limits: 80-120 %	"	"	"	
<i>4-Bromofluorobenzene (Surr)</i>			96 %	Limits: 80-120 %	"	"	"	
<b>MW110-111412 (A12K396-05)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Benzene	ND	---	0.250	ug/L	1	11/20/12 02:26	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
<i>Surrogate: Dibromofluoromethane (Surr)</i>			<i>Recovery: 91 %</i>	<i>Limits: 80-120 %</i>	"	"	"	
<i>1,4-Difluorobenzene (Surr)</i>			88 %	Limits: 80-120 %	"	"	"	
<i>Toluene-d8 (Surr)</i>			101 %	Limits: 80-120 %	"	"	"	
<i>4-Bromofluorobenzene (Surr)</i>			98 %	Limits: 80-120 %	"	"	"	
<b>MW111-111412 (A12K396-06)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Benzene	ND	---	0.250	ug/L	1	11/20/12 01:28	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	

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Reported:  
 12/03/12 16:54

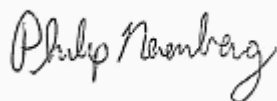
## ANALYTICAL SAMPLE RESULTS

### RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
<b>MW111-111412 (A12K396-06)</b>			<b>Matrix: Water</b>		<b>Batch: 1211502</b>			
Xylenes, total	ND	---	1.50	ug/L	1	"	EPA 8260B	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
<i>Surrogate: Dibromofluoromethane (Surr)</i>			<i>Recovery: 93 %</i>		<i>Limits: 80-120 %</i>	"	"	"
<i>1,4-Difluorobenzene (Surr)</i>			<i>90 %</i>		<i>Limits: 80-120 %</i>	"	"	"
<i>Toluene-d8 (Surr)</i>			<i>100 %</i>		<i>Limits: 80-120 %</i>	"	"	"
<i>4-Bromofluorobenzene (Surr)</i>			<i>97 %</i>		<i>Limits: 80-120 %</i>	"	"	"

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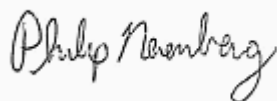
## QUALITY CONTROL (QC) SAMPLE RESULTS

### Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1211502 - EPA 5030B</b>						<b>Water</b>						
<b>Blank (1211502-BLK1)</b>						Prepared: 11/19/12 17:38 Analyzed: 11/19/12 19:06						
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>102 %</i>		<i>50-150 %</i>		<i>"</i>						
<b>LCS (1211502-BS2)</b>						Prepared: 11/19/12 17:38 Analyzed: 11/19/12 18:33						
NWTPH-Gx (MS)												
Gasoline Range Organics	0.444	---	0.100	mg/L	1	0.500	---	89	70-130%	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>"</i>						

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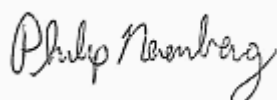
## QUALITY CONTROL (QC) SAMPLE RESULTS

### RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1211502 - EPA 5030B</b>						<b>Water</b>						
<b>Blank (1211502-BLK1)</b>						Prepared: 11/19/12 17:38 Analyzed: 11/19/12 19:06						
<b>EPA 8260B</b>												
Benzene	ND	---	0.250	ug/L	1	---	---	---	---	---	---	---
Toluene	ND	---	1.00	"	"	---	---	---	---	---	---	---
Ethylbenzene	ND	---	0.500	"	"	---	---	---	---	---	---	---
m,p-Xylene	ND	---	1.00	"	"	---	---	---	---	---	---	---
o-Xylene	ND	---	0.500	"	"	---	---	---	---	---	---	---
Xylenes, total	ND	---	1.50	"	"	---	---	---	---	---	---	---
Naphthalene	ND	---	2.00	"	"	---	---	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	---	---	---	---	---	---	---
Isopropylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	---
n-Propylbenzene	ND	---	0.500	"	"	---	---	---	---	---	---	---
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	---
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	---
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	---	---	---	---	---	---	---
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	---	---	---	---	---	---	---
<i>Surr: Dibromofluoromethane (Surr)</i>			<i>Recovery: 94 %</i>	<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Surr)</i>			<i>87 %</i>	<i>80-120 %</i>		<i>"</i>						
<i>Toluene-d8 (Surr)</i>			<i>100 %</i>	<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>			<i>96 %</i>	<i>80-120 %</i>		<i>"</i>						
<b>LCS (1211502-BS1)</b>						Prepared: 11/19/12 17:38 Analyzed: 11/19/12 18:04						
<b>EPA 8260B</b>												
Benzene	19.7	---	0.250	ug/L	1	20.0	---	98	70-130%	---	---	---
Toluene	22.1	---	1.00	"	"	"	---	110	"	---	---	---
Ethylbenzene	22.9	---	0.500	"	"	"	---	114	"	---	---	---
m,p-Xylene	46.8	---	1.00	"	"	40.0	---	117	"	---	---	---
o-Xylene	24.5	---	0.500	"	"	20.0	---	122	"	---	---	---
Xylenes, total	71.2	---	1.50	"	"	60.0	---	119	"	---	---	---
Naphthalene	21.8	---	2.00	"	"	20.0	---	109	"	---	---	---
Methyl tert-butyl ether (MTBE)	21.6	---	1.00	"	"	"	---	108	"	---	---	---
Isopropylbenzene	21.7	---	1.00	"	"	"	---	109	"	---	---	---
n-Propylbenzene	23.4	---	0.500	"	"	"	---	117	"	---	---	---
1,2,4-Trimethylbenzene	21.9	---	1.00	"	"	"	---	109	"	---	---	---
1,3,5-Trimethylbenzene	22.8	---	1.00	"	"	"	---	114	"	---	---	---
1,2-Dibromoethane (EDB)	23.6	---	0.500	"	"	"	---	118	"	---	---	---
1,2-Dichloroethane (EDC)	25.8	---	0.500	"	"	"	---	129	"	---	---	---

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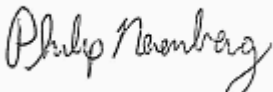
Reported:  
 12/03/12 16:54

## QUALITY CONTROL (QC) SAMPLE RESULTS

### RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1211502 - EPA 5030B</b>						<b>Water</b>						
<b>LCS (1211502-BS1)</b>						Prepared: 11/19/12 17:38 Analyzed: 11/19/12 18:04						
Surr: Dibromofluoromethane (Surr)			Recovery: 93 %	Limits: 80-120 %		Dilution: 1x						
1,4-Difluorobenzene (Surr)			92 %	80-120 %		"						
Toluene-d8 (Surr)			103 %	80-120 %		"						
4-Bromofluorobenzene (Surr)			104 %	80-120 %		"						

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 12/03/12 16:54

### SAMPLE PREPARATION INFORMATION

#### Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

**Prep: EPA 5030B**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<b>Batch: 1211502</b>							
A12K396-01	Water	NWTPH-Gx (MS)	11/14/12 12:10	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-02	Water	NWTPH-Gx (MS)	11/14/12 13:00	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-03	Water	NWTPH-Gx (MS)	11/14/12 14:05	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-04	Water	NWTPH-Gx (MS)	11/14/12 11:20	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-05	Water	NWTPH-Gx (MS)	11/14/12 15:00	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-06	Water	NWTPH-Gx (MS)	11/14/12 10:30	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00

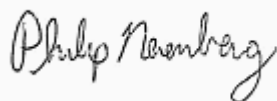
#### RBCA Compounds (BTEX+) by EPA 8260B

**Prep: EPA 5030B**

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<b>Batch: 1211502</b>							
A12K396-01	Water	EPA 8260B	11/14/12 12:10	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-02	Water	EPA 8260B	11/14/12 13:00	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-03	Water	EPA 8260B	11/14/12 14:05	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-04	Water	EPA 8260B	11/14/12 11:20	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-05	Water	EPA 8260B	11/14/12 15:00	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00
A12K396-06	Water	EPA 8260B	11/14/12 10:30	11/19/12 17:38	5mL/5mL	5mL/5mL	1.00

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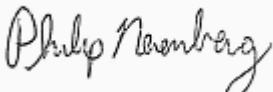
## Notes and Definitions

### Qualifiers:

### Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- \*\*\* Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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## CHAIN OF CUSTODY

**APEX LABS**

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: **AMEC** Project Mgr: **Kurt Harrington** Project Name: **Fred Meyer (FMPO) Port Orchard** Project # **961M10282-0**  
 Address: **7376 SW Durham Rd Port Orchard, WA** Phone: **572-5151** Fax: **602-7692** Email: **kurt.harrington@amec.com**  
 Sampled by: **Jesse Gardner**

Site Location: OR **(A)**  
 Other: \_\_\_\_\_

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	ANALYSIS REQUEST	
						YES	NO
MA105 - 111412		11/14/12	12:00	UU	3	X	
MA105 - 111412		12:00				X	
MA105 - 111412		14:05				X	
MA105 - 111412		11:20				X	
MA110 - 111412		15:00				X	
MA111 - 111412		17:00				X	

ANALYSIS REQUEST

8269 REEM VOC	
8269 VOC 4072	
8270 SVOC	
8270 SIM PAHs	
8082 PCBs	
600 TIO	
TC1P Metals (S)	
RCRA Metals (S)	
AT, SH, AK, BR, BR, CA, CR, CU, CO, NI, PB, SE, SI, SS, TE, TI, V, ZN	
TOTAL, HHS, TCLP	
1200-Z	

SPECIAL INSTRUCTIONS:

Normal Turn Around Time (TAT) = 7-10 Business Days

TAT Requested (circle): 1 Day 2 Day 3 Day 4 DAY 5 DAY Other: \_\_\_\_\_

RECEIVED BY: **[Signature]** Date: **11/14/12**  
 RECEIVED BY: **[Signature]** Date: **11/16/12**

PREPARED BY: **Jesse Gardner** Title: **QA** Date: **12/03/12**  
 PREPARED BY: **[Signature]** Title: **[Title]** Date: **[Date]**

Company: **AMEC**

Apex Laboratories  
**Philip Nerenberg**

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



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**APPENDIX C**

Summary of Historical Analytical Results

**Appendix C  
Groundwater Elevations and Analytical Results  
Fred Meyer Facility, Port Orchard, Washington**

Well No.	Date	Gasoline-Range Organics	Volatile Organic Compounds							Alkylbenzenes & Naphthalene									Groundwater Levels					
			Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDC	EDB	i-PB	n-PB	1,2,4-TMB	1,3,5-TMB	tertbutyl Benzene	sec-butyl Benzene	n-butyl Benzene	4-IP-Toluene	Naphthalene	Casing Elev.	Depth to Water	NAPL Thickness	Water Elev.		
			(µg/L)	(µg/L)							(µg/L)													
CAS RN		not applicable	71-43-2	108-88-3	100-41-4	1330-20-7	1634-04-4	107-06-2	106-93-4	98-82-8	103-65-1	95-63-6	108-67-8	98-06-6	135-98-8	104-51-8	99-87-6	91-20-3						
MTCA Method A		800	5	1,000	700	1,000	20	5	0.01	None	None	None	None	None	None	None	None	160						
<b>Active Wells</b>																								
MW-103	5/22/91	22,000	860	3,900	11	6,800	-	-	-	-	-	-	-	-	-	-	-	-	-	NM	NM	NM	NM	
MW-103	3/25/93	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	311.70	28.04	0.00	283.66
MW-103	5/28/97	42,000	12	1,100	56	9,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	311.70	17.20	0.00	294.50
MW-103	2/18/98	48,000	22	630	350	7,800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	NM	NM	NM	NM
MW-103	8/18/99	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	311.70	20.07	0.02	291.63
MW-103	11/2/99	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	311.70	20.90	0.03	290.80
MW-103	3/1/00	47,000	20 U	450	1,200	7,900	20 U	20 U	20 U	-	-	-	-	-	-	-	-	-	-	-	311.70	16.99	0.00	294.71
MW-103	5/24/00	3,900	1 U	18	33	594	1 U	1 U	1 U	-	-	-	-	-	-	-	-	-	-	-	311.70	18.13	0.00	293.57
MW-103	7/10/00	1,850	1 U	15	16	277	1 U	1 U	1 U	1 U	1 U	27.4	49	1 U	1 U	5.0 U	1 U	25 U	38	311.70	20.00	0.00	291.70	
MW-103	10/19/00	1,000	1 U	17	34	322	1 U	1 U	1 U	1	3.5	98.9	27.8	1 U	1 U	5.0 U	1 U	38	311.70	16.15	0.00	295.55		
MW-103	12/13/00	3,810	0.5 U	29	74	597	2	-	-	-	-	-	-	-	-	-	-	-	-	-	311.70	19.29	0.00	292.41
MW-103	3/19/01	16,600	10 U	218	528	3,750	10 U	10 U	10 U	21	58.5	1290	389	10 U	10 U	5 U	10 U	309	311.70	19.83	0.00	291.87		
MW-103	6/28/01	9,660	10 U	26	126	953	40 U	-	-	-	-	-	-	-	-	-	-	-	-	-	311.70	21.03	0.00	290.67
MW-103	9/23/01	23,200	10 U	109	628	3,560	40 U	-	-	-	-	-	-	-	-	-	-	-	-	-	311.70	21.24	0.00	290.46
MW-103	12/11/01	21,100	10 U	18	264	1,950	40 U	10 U	10 U	40 U	35.0	1130	441	20 U	20 U	100 U	40 U	137	311.70	18.79	0.00	292.91		
MW-103	3/20/02	10,700	2.5 U	10	97	1,130	10 U	2.5 U	2.5 U	10 U	19.1	948	389	5 U	5 U	25 U	10.1	83	311.70	16.32	0.00	295.38		
MW-103	6/11/02	2,020	2.5 U	3	32	250	10 U	2.5 U	2.5 U	10 U	6.1	141	51.8	5 U	5 U	25 U	10 U	25	311.70	18.05	0.00	293.65		
MW-103	9/25/02	5,190	1 U	2	51	65	2 U	1 U	1 U	5	12	53.8	7.43	1 U	1.7	6.2	-	152	311.70	20.43	0.00	291.27		
MW-103	12/12/02	15,200	1 U	7	473	2,021	2 U	1 U	1 U	34	115.0	1710	495	1 U	1 U	54.2	-	163	311.70	22.55	0.00	289.15		
MW-103	4/1/03	2,270	2.5 U	2.5 U	13	244	10 U	-	-	-	-	-	-	-	-	-	-	-	-	-	311.70	18.75	0.00	292.95
MW-103	6/22/03	15,400	5 U	5 U	252	1,060	20 U	-	-	20 U	78.4	1300	440	10 U	10 U	50 U	-	155	311.70	20.70	0.00	291.00		
MW-103	9/23/03	12,500	10 U	10 U	354	1,068	10 U	10 U	10 U	27	70.9	1060	323	10 U	10 U	14.8	1 U	80	311.70	22.17	0.00	289.53		
MW-103	12/17/03	4,180	10 U	10 U	152	455	20 U	10 U	10 U	10 U	20.40	288	87	10 U	10 U	10 U	10 U	28	311.70	19.56	0.00	292.14		
MW-103	3/31/04	623	0.2 U	0.5 U	16	53	2 U	0.5 U	0.5 U	3	7.6	58.2	10.4	1 U	1 U	5 U	1 U	24	311.70	18.42	0.00	293.28		
MW-103	6/29/04	17,300	3	2.5 U	243	1,133	2.5 U	2.5 U	2.5 U	25	69.4	1010	281	2.5 U	2.5 U	14.4	5.98	138	311.70	20.58	0.00	291.12		
MW-103	9/29/04	9,680	2 U	5 U	276	1,010	20 U	5 U	5 U	31	88.6	1260	391	10.0 U	10.0 U	50.0 U	10.0 U	95	311.70	21.08	0.00	290.62		
MW-103	11/9/04	-	2 U	5 U	310	1,020	20 U	5 U	5 U	45	123.0	1420	440	10.0 U	10.0 U	50.0 U	10.0 U	92	311.70	21.97	0.00	289.73		
MW-103	3/10/05	1,570	2 U	5 U	140	612	20 U	5 U	5 U	20	U	918	266	10.0 U	10.0 U	50.0 U	20.0 U	89	311.70	21.27	0.00	290.43		
MW-103*	6/21/05	6,660	1 U	2.5 U	114	484	10 U	2.5 U	2.5 U	12	31.8	474	128	5.00 U	5.00 U	25.0 U	10.0 U	58	311.70	20.74	0.00	290.96		
MW-103	9/23/05	13,700	0.2 U	0.5 U	26	99	2 U	0.5 U	0.5 U	4.08	12.6	173	57.8	1.00 U	1.00 U	8.00 U	2.00 U	9	311.70	22.12	0.00	289.58		
MW-103	12/1/05	3,310	1 U	2.5 U	105	694	10 U	2.5 U	2.5 U	13	23.5	780	289	10.0 U	10.0 U	10.0 U	10.0 U	25	311.70	21.72	0.00	289.98		
MW-103	3/9/06	80 U	0.2 U	0.5 U	0.75	1 U	2 U	0.5 U	0.5 U	2 U	1.31	1 U	0.78	1 U	1 U	50 U	2 U	2 U	311.70	16.44	0.00	295.26		
MW-103	6/8/06	584	0.2 U	0.5 U	8.32	22	2 U	0.5 U	0.5 U	3.64	12.5	81.3	29.0	2 U	2 U	5.78	2 U	13	311.70	17.62	0.00	294.08		
MW-103	9/22/06	3,850	2 U	5 U	152	710	20 U	5 U	5 U	28.30	93.1	1150	446.0	10 U	10 U	50 U	10 U	75.3	311.70	21.54	0.00	290.16		
MW-103	12/12/06	1,750	0.5 U	0.5 U	23.2	84.7	2 U	0.5 U	0.5 U	5.83	20.6	176	59.8	1 U	1 U	11 U	2.15	18.5	311.70	17.81	0.00	293.89		
MW-103	3/28/07	80 U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	2 U	2 U	311.70	16.58	0.00	295.12		
MW-103	6/13/07	2,500	0.400 U	1.00 U	17.5	53.3	4.00 U	1.0 U	1.0 U	6.88	25	137	46.5	2.00 U	2.00 U	10.0 U	4.0 U	16.0	311.70	18.90	0.00	292.80		
MW-103	8/28/07	264	84.1	0.500 U	0.500 U	6.6	2.00 U	0.50 U	0.50 U	2.00 U	0.50 U	1.47	0.50 U	1.00 U	1.00 U	5.00 U	2.00 U	2.00 U	311.70	19.91	0.00	291.79		
MW-103	11/28/07	7,130	0.200 U	0.500 U	32.2	141.0	2.00 U	0.500 U	0.500 U	2.00 U	69	743	287.0	1.00 U	1.00 U	5.00 U	10.80	39.3	311.70	20.93	0.00	290.77		
MW-103	4/15/08	4,020	0.500 U	2.00 U	51.8	251.9	0.500 U	0.500 U	1.00 U	11.4	33.3	453	63.5	0.500 U	1.00 U	5.00 U	0.500 U	27.5	311.70	19.09	0.00	292.61		
MW-103	6/19/08	10,600	0.250 U	1.00 U	91.1	371.0	2.00 U	0.500 U	0.500 U	20.9	81.1	783	272	0.500 U	6.76	1.00 U	26	41.3	311.70	20.51	0.00	291.19		
MW-103	9/16/08	2,527	0.500 U	2.00 U	24.8	207.0	2.00 U	1.00 U	1.00 U	3.3	8.9	282	96	5.00 U	10.0 U	10.10	10.0 U	22.3	311.70	20.11	0.00	291.59		
MW-103	1/24/09	202	0.250 U	1.00 U	0.620	4.36	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	8.11	3.24	-	10.0 U	1.00 U	1.00 U	5.00 U	311.70	19.20	0.00	292.50		
MW-103	3/28/09	80 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	311.70	18.16	0.00	293.54		
MW-103	6/11/09	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	2.00 U	311.70	18.61	0.00	293.09			
MW-103	9/10/09	179	0.250 U	0.500 U	0.700	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.940	3.12	2.36	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	311.70	21.47	0.00	290.23		
MW-103	1/22/10	1,320	0.250 U	0.500 U	7.350	20.86	1.00 U	0.500 U	0.500 U	1.73	4.27	75.6	10.6	0.500 U	1.00 U	4.51	2.72	5.00 U	311.70	19.31	0.00	292.39		
MW-103	3/5/10	100 U	0.250 U	0.500 U	0.500 U	3.00 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	2.00 U	1.00 U	2.00 U	1.00 U	1.00 U	5.00 U	311.70	18.30	0.00	293.40		

**Appendix C  
Groundwater Elevations and Analytical Results  
Fred Meyer Facility, Port Orchard, Washington**

Well No.	Date	Gasoline-Range Organics	Volatile Organic Compounds							Alkylbenzenes & Naphthalene									Groundwater Levels			
			Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDC	EDB	i-PB	n-PB	1,2,4-TMB	1,3,5-TMB	tertbutyl Benzene	sec-butyl Benzene	n-butyl Benzene	4-IP-Toluene	Naphthalene	Casing Elev.	Depth to Water	NAPL Thickness	Water Elev.
			(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)				
CAS RN		not applicable	71-43-2	108-88-3	100-41-4	1330-20-7	1634-04-4	107-06-2	106-93-4	98-82-8	103-65-1	95-63-6	108-67-8	98-06-6	135-98-8	104-51-8	99-87-6	91-20-3				
<b>MTCA Method A</b>		<b>800</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>1,000</b>	<b>20</b>	<b>5</b>	<b>0.01</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>160</b>				
MW-103	6/10/10	403	0.250 U	0.500 U	0.500 U	0.600	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	15.4	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	311.70	19.44	0.00	292.26
MW-103	9/9/10	7,430	0.250 U	1.00 U	69.0	236.6	1.00 U	0.500 U	0.500 U	16.7	56.3	532	231	1.00 U	6.11	36.5	24.2	20.0	311.70	21.86	0.00	289.84
MW-103	12/6/10	4,060	2.5 U	10.0 U	15.80	77.2	10.0 U	5.00 U	5.00 U	10.0 U	8.60	261	65.3	10.0 U	10.0 U	13.0 U	10.0 U	20.0 U	311.70	20.60	0.00	291.10
MW-103	3/29/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	311.70	15.75	0.00	295.95
MW-103	6/11/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	311.70	18.06	0.00	293.64
MW-103	9/27/11	4,330	0.250 U	1.00 U	16.1	50.0	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	7.71	311.70	21.12	0.00	290.58
MW-103	12/7/11	664	0.250 U	1.00 U	1.78	6.6	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	311.70	20.05	0.00	291.65
MW-103	1/12/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	311.70	20.70	0.00	291.00
MW-103	5/10/12	108	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	311.70	21.28	0.00	290.42
MW-103	8/8/12	2,490	0.250 U	1.00 U	4.30	27.0	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	3.04	311.70	22.61	0.00	289.09
MW-103	11/14/12	305	0.250 U	1.00 U	0.650	1.51	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	311.70	24.45	0.00	287.25
MW-105	11/2/99	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	311.99	21.07	0.00	290.92
MW-105	3/1/00	100U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	-	-	-	-	-	-	-	-	-	311.99	15.70	0.00	296.29
MW-105	5/24/00	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	311.99	17.76	0.00	294.23
MW-105	7/10/00	50U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	-	-	-	-	-	-	-	-	-	311.99	18.50	0.00	293.49
MW-105	10/19/00	50U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	25 U	311.99	20.60	0.00	291.39
MW-105	12/13/00	50U	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U	-	-	-	-	-	-	-	-	-	-	-	311.99	21.15	0.00	290.84
MW-105	3/19/01	50U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	25 U	311.99	20.40	0.00	291.59
MW-105	6/28/01	99.8	0.5 U	0.5 U	0.5 U	1 U	2 U	-	-	-	-	-	-	-	-	-	-	-	311.99	20.26	0.00	291.73
MW-105	9/23/01	135	0.5 U	0.5 U	0.5 U	1 U	2 U	-	-	-	-	-	-	-	-	-	-	-	311.99	20.62	0.00	291.37
MW-105	12/11/01	80U	0.5 U	0.5 U	0.5 U	1 U	2 U	5 U	5 U	2 U	0.5 U	1 U	1 U	1 U	1 U	5 U	2 U	2 U	311.99	18.37	0.00	293.62
MW-105	3/20/02	80U	0.5 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	3 U	1 U	1 U	1 U	5 U	2 U	2 U	311.99	15.81	0.00	296.18
MW-105	6/11/02	80U	0.5 U	0.5 U	0.5 U	2	2 U	0.5 U	0.5 U	2 U	2 U	1 U	1 U	1 U	1 U	5 U	2 U	2 U	311.99	17.64	0.00	294.35
MW-105	9/25/02	50U	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	311.99	20.65	0.00	291.34
MW-105	12/12/02	50U	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	311.99	21.49	0.00	290.50
MW-105	4/1/03	80U	0.5 U	0.5 U	0.5 U	1 U	2 U	-	-	-	-	-	-	-	-	-	-	-	311.99	17.93	0.00	294.06
MW-105	6/22/03	80U	0.5 U	0.5 U	0.5 U	1 U	2 U	-	-	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	-	2 U	311.99	19.80	0.00	292.19
MW-105	9/23/03	50U	1 U	1 U	1 U	3 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	311.99	21.61	0.00	290.38
MW-105	12/17/03	50U	0.2 U	0.2 U	0.2 U	0.3 U	1 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	10 U	0.5 U	311.99	19.67	0.00	292.32
MW-105	3/31/04	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	1 U	2 U	311.99	18.42	0.00	293.57
MW-105	6/29/04	50U	0.2 U	0.2 U	0.2 U	0.8 U	0.5 U	0.2 U	0.2 U	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.2 U	0.2 U	0.2 U	1	311.99	19.80	0.00	292.19
MW-105	9/29/04	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	1 U	2 U	311.99	20.47	0.00	291.52
MW-105	11/9/04	-	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	1 U	2 U	311.99	21.14	0.00	290.85
MW-105	3/10/05	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	2 U	1 U	0.5 U	1 U	1 U	5 U	2 U	2 U	311.99	20.35	0.00	291.64
MW-105*	6/21/05	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	2 U	2 U	311.99	20.06	0.00	291.93
MW-105	9/23/05	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	2 U	2	311.99	21.62	0.00	290.37
MW-105	12/1/05	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	2 U	2 U	2 U	2 U	2 U	311.99	20.99	0.00	291.00
MW-105	3/9/06	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	1 U	1 U	5 U	2 U	2 U	311.99	16.55	0.00	295.44
MW-105	6/8/06	80U	0.2 U	0.5 U	0.5 U	1 U	2 U	0.5 U	0.5 U	2 U	0.5 U	1 U	0.5 U	2 U	2 U	2 U	2 U	2 U	311.99	17.33	0.00	294.66
MW-105	9/22/06	2,340	329	412	6.55	151	10 U	2.5 U	2.5 U	10 U	2.5 U	5 U	6.15	5 U	5 U	25 U	5 U	10 U	311.99	20.84	0.00	291.15
MW-105	12/12/06	6,140	1,690	1,870	105	549	40 U	10 U	10 U	40 U	10 U	57.6	24.6	20 U	20 U	100 U	40 U	40 U	311.99	17.48	0.00	294.51
MW-105	3/28/07	702	161	20	1 U	35	4 U	1 U	1 U	4 U	1 U	2.48	2.48	2 U	2 U	10 U	4 U	4 U	311.99	15.55	0.00	296.44
MW-105	6/13/07	647	176	39.2	8.9	65.5	4.0 U	1.0 U	1.0 U	4.0 U	1.0 U	5.4	4.9	2.0 U	2.0 U	10.0 U	4.0 U	4.0 U	311.99	15.95	0.00	296.04
MW-105	8/28/07	4,300	1.00 U	2.50 U	44.1	159.0	10.0 U	2.50 U	2.50 U	17.2	62.9	383.0	109.0	5.00 U	5.00 U	25.0 U	10.0 U	31.9	311.99	18.74	0.00	293.25
MW-105	11/28/07	99.4	45.6	0.500 U	0.500 U	4.15	2.00 U	0.500 U	0.500 U	2.00 U	0.50 U	1.00 U	0.50 U	1.00 U	1.00 U	5.00 U	2.00 U	2.00 U	311.99	19.96	0.00	292.03
MW-105	4/15/08	80 U	2.89	2.00 U	0.500 U	1.50 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	5.00 U	0.500 U	5.00 U	311.99	18.14	0.00	293.85
MW-105	6/19/08	80 U	3.44	1.00 U	0.500 U	0.540	2.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	0.500 U	5.00 U	311.99	19.61	0.00	292.38
MW-105	9/16/08	80 U	0.205 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	311.99	19.71	0.00	292.28
MW-105	1/24/09	80 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	-	1.00 U	1.00 U	1.00 U	5.00 U	310.46	18.78	0.00	291.68
MW-105	3/28/09	80 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U										

**Appendix C  
Groundwater Elevations and Analytical Results  
Fred Meyer Facility, Port Orchard, Washington**

Well No.	Date	Gasoline-Range Organics	Volatile Organic Compounds							Alkylbenzenes & Naphthalene									Groundwater Levels			
			Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDC	EDB	i-PB	n-PB	1,2,4-TMB	1,3,5-TMB	tertbutyl Benzene	sec-butyl Benzene	n-butyl Benzene	4-IP-Toluene	Naphthalene	Casing Elev.	Depth to Water	NAPL Thickness	Water Elev.
			(µg/L)	(µg/L)							(µg/L)											
CAS RN		not applicable	71-43-2	108-88-3	100-41-4	1330-20-7	1634-04-4	107-06-2	106-93-4	98-82-8	103-65-1	95-63-6	108-67-8	98-06-6	135-98-8	104-51-8	99-87-6	91-20-3				
MTCA Method A		800	5	1,000	700	1,000	20	5	0.01	None	None	None	None	None	None	None	None	160				
MW-105	6/11/09	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	2.00 U	310.46	17.63	0.00	292.83
MW-105	9/10/09	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	5.00 U	310.46	21.48	0.00	288.98	
MW-105	1/22/10	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	5.00 U	310.46	17.46	0.00	293.00	
MW-105	3/5/10	100 U	0.250 U	0.500 U	0.500 U	3.00 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	2.00 U	1.00 U	2.00 U	1.00 U	5.00 U	310.46	16.98	0.00	293.48	
MW-105	6/10/10	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.46	18.11	0.00	292.35	
MW-105	9/9/10	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.46	20.62	0.00	289.84	
MW-105	12/6/10	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.46	19.22	0.00	291.24	
MW-105	3/29/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	14.22	0.00	296.24	
MW-105	6/21/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	16.20	0.00	294.26	
MW-105	9/27/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	20.28	0.00	290.18	
MW-105	12/7/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	18.51	0.00	291.95	
MW-105	1/12/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	18.34	0.00	292.12	
MW-105	5/10/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	16.28	0.00	294.18	
MW-105	8/8/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	19.72	0.00	290.74	
MW-105	11/14/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.46	20.57	0.00	289.89	
MW-108A	1/24/09	80 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	-	10.0 U	1.00 U	5.00 U	310.38	23.51	0.00	286.87	
MW-108A	3/28/09	80 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	0.500 U	1.00 U	5.00 U	310.38	22.70	0.00	287.68
MW-108A	6/11/09	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	2.00 U	310.38	23.42	0.00	286.96	
MW-108A	9/10/09	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	5.00 U	310.38	25.52	0.00	284.86	
MW-108A	1/22/10	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	5.00 U	310.38	22.69	0.00	287.69	
MW-108A	3/5/10	100 U	0.250 U	0.500 U	0.500 U	3.00 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	2.00 U	1.00 U	2.00 U	1.00 U	5.00 U	310.38	21.13	0.00	289.25	
MW-108A	6/10/10	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.38	21.48	0.00	288.90	
MW-108A	9/9/10	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.38	23.50	0.00	286.88	
MW-108A	12/6/10	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.38	23.15	0.00	287.23	
MW-108A	3/29/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	17.62	0.00	292.76	
MW-108A	6/21/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	19.89	0.00	290.49	
MW-108A	9/27/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	22.95	0.00	287.43	
MW-108A	12/7/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	23.05	0.00	287.33	
MW-108A	1/12/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	23.17	0.00	287.21	
MW-108A	5/10/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	21.03	0.00	289.35	
MW-108A	8/8/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	22.80	0.00	287.58	
MW-108A	11/14/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.38	24.31	0.00	286.07	
MW-109	1/24/09	80 U	1.51	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	-	1.00 U	1.00 U	5.00 U	310.48	16.27	0.00	294.21	
MW-109	3/28/09	80 U	2.02	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	0.500 U	1.00 U	5.00 U	310.48	16.13	0.00	294.35
MW-109	6/11/09	100 U	27.4	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	2.00 U	310.48	16.27	0.00	294.21	
MW-109	9/10/09	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	5.00 U	310.48	19.77	0.00	290.71	
MW-109	1/22/10	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	5.00 U	310.48	15.25	0.00	295.23	
MW-109	3/5/10	100 U	0.250 U	0.500 U	0.500 U	3.00 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	2.00 U	1.00 U	2.00 U	1.00 U	5.00 U	310.48	15.23	0.00	295.25	
MW-109	6/10/10	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.48	16.20	0.00	294.28	
MW-109	9/9/10	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.48	18.92	0.00	291.56	
MW-109	12/6/10	100 U	1.08	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.48	16.71	0.00	293.77	
MW-109	3/29/11	100 U	2.23	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	13.30	0.00	297.18	
MW-109	6/21/11	100 U	22.4	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	14.70	0.00	295.78	
MW-109	9/27/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	18.86	0.00	291.62	
MW-109	12/7/11	137	46.90	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	15.99	0.00	294.49	
MW-109	1/12/12	100 U	4.81	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	15.76	0.00	294.72	
MW-109	5/10/12	100 U	0.510	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	14.48	0.00	296.00	
MW-109	8/8/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	17.91	0.00	292.57	
MW-109	11/14/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	310.48	17.98	0.00	292.50	
MW-110	1/24/09	10,900	2.50 U	10.0 U	251	938	10.0 U	5.00 U	5.00 U	22.4	84.1	246	193	-	1.00 U	26.1	17.7	50.0 U	312.77	19.53	0.00	293.24



**Appendix C  
Groundwater Elevations and Analytical Results  
Fred Meyer Facility, Port Orchard, Washington**

Well No.	Date	Gasoline-Range Organics	Volatile Organic Compounds							Alkylbenzenes & Naphthalene									Groundwater Levels					
			Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDC	EDB	i-PB	n-PB	1,2,4-TMB	1,3,5-TMB	tertbutyl Benzene	sec-butyl Benzene	n-butyl Benzene	4-IP-Toluene	Naphthalene	Casing Elev.	Depth to Water	NAPL Thickness	Water Elev.		
			(µg/L)	(µg/L)							(µg/L)													
CAS RN		not applicable	71-43-2	108-88-3	100-41-4	1330-20-7	1634-04-4	107-06-2	106-93-4	98-82-8	103-65-1	95-63-6	108-67-8	98-06-6	135-98-8	104-51-8	99-87-6	91-20-3						
<b>MTCA Method A</b>		<b>800</b>	<b>5</b>	<b>1,000</b>	<b>700</b>	<b>1,000</b>	<b>20</b>	<b>5</b>	<b>0.01</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>None</b>	<b>160</b>						
MW-110	3/28/09	162	0.250 U	1.00 U	1.26	4.57	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.25	1.21	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	312.77	16.44	0.00	296.33		
MW-110	6/11/09	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	2.00 U	312.77	NA	0.00	NA		
MW-110	9/10/09	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	312.77	22.60	0.00	290.17		
MW-110	1/22/10	687	0.250 U	0.500 U	1.04	2.34	1.00 U	0.500 U	0.500 U	0.500 U	0.950	4.79	6.59	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	312.77	19.76	0.00	293.01		
MW-110	3/5/10	100 U	0.250 U	0.500 U	0.500 U	3.00 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.13	2.00 U	1.00 U	2.00 U	1.00 U	1.00 U	5.00 U	312.77	18.56	0.00	294.21		
MW-110	6/10/10	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	312.77	19.94	0.00	292.83			
MW-110	9/9/10	1,880	0.250 U	1.00 U	30.3	32.7	1.00 U	0.500 U	0.500 U	6.39	19.9	57.0	37.3	1.00 U	3.20	9.07	4.69	7.40	312.77	22.30	0.00	290.47		
MW-110	12/6/10	371	0.250 U	1.00 U	2.36	7.72	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	5.00	3.50	1.00 U	1.00 U	1.00 U	2.00 U	312.77	20.63	0.00	292.14			
MW-110	3/29/11	442	0.250 U	1.00 U	2.14	4.82	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	312.77	17.33	0.00	295.44		
MW-110	6/21/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	312.77	19.52	0.00	293.25		
MW-110	9/27/11	4,020	0.250 U	1.00 U	30.6	103	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	8.17	312.77	21.86	0.00	290.91		
MW-110	12/7/11	1,230	0.250 U	1.00 U	40.0	40.3	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	7.28	312.77	20.23	0.00	292.54		
MW-110	1/12/12	100 U	0.250 U	1.00 U	0.500 U	2.6	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	312.77	20.22	0.00	292.55		
MW-110	5/10/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	312.77	20.63	0.00	292.14		
MW-110	8/8/12	1,630	0.250 U	1.00 U	3.21	8.45	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	3.41	312.77	21.50	0.00	291.27		
MW-110	11/14/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	312.77	25.07	0.00	287.70		
MW-111	1/24/09	80 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	-	1.00 U	1.00 U	1.00 U	5.00 U	310.62	32.25	0.00	278.37		
MW-111	3/28/09	80 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	0.500 U	1.00 U	5.00 U	310.62	32.04	0.00	278.58		
MW-111	6/11/09	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	2.00 U	310.62	31.44	0.00	279.18		
MW-111	9/10/09	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	310.62	32.02	0.00	278.60		
MW-111	1/22/10	80 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	5.00 U	310.62	31.52	0.00	279.10		
MW-111	3/5/10	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	2.00 U	1.00 U	2.00 U	1.00 U	1.00 U	5.00 U	310.62	29.76	0.00	280.86		
MW-111	6/10/10	100 U	0.250 U	0.500 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.62	28.85	0.00	281.77			
MW-111	9/9/10	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.62	30.19	0.00	280.43			
MW-111	12/6/10	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	1.00 U	0.500 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.00 U	310.62	31.02	0.00	279.60			
MW-111	3/29/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	26.71	0.00	283.91		
MW-111	6/21/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	27.31	0.00	283.31		
MW-111	9/27/11	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	29.73	0.00	280.89		
MW-111	12/7/11	100 U	0.340	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	30.77	0.00	279.85		
MW-111	1/12/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	30.97	0.00	279.65		
MW-111	5/10/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	28.90	0.00	281.72		
MW-111	5/10/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	29.90	0.00	280.72		
MW-111	11/14/12	100 U	0.250 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	-	-	-	-	-	-	-	-	2.00 U	310.62	31.21	0.00	279.41		
<b>Air Sparging Wells</b>																								
AS-5	9/16/08	80 U	0.205 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	10.0 U	1.00 U	1.00 U	5.00 U	NA	20.25	0.00	NA		
AS-9	9/16/08	80 U	0.205 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	10.0 U	1.00 U	1.00 U	5.00 U	NA	24.77	0.00	NA		
AS-10	9/16/08	0.0800 U	0.205 U	1.00 U	0.500 U	1.50 U	1.00 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	0.500 U	10.0 U	1.00 U	1.00 U	5.00 U	NA	23.46	0.00	NA		
<b>Destroyed Wells</b>																								
MW-104	05/22/91	1,000	1.0 U	20 U	1.0 U	1.0 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
MW-104	03/25/93	250 U	5.0 U	5.0 U	5.0 U	15 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
MW-104	05/28/97	250 U	1.0 U	1.0 U	1.0 U	3.0 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
MW-104	02/18/98	120	2.6	1.0	0.88	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
MW-104	8/1999	Abandoned August 1999																						
MW-106	11/2/99	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^		
MW-106	3/1/00	100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	-	-	-	-	-	-	-	-	-	-	311.73	24.95	0.00	286.78	
MW-106	5/24/00	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	311.73	25.93	0.00	285.80
MW-106	7/10/00	50 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	-	-	-	-	-	-	-	-	-	-	311.73	27.00	0.00	284.73	

**Appendix C**  
**Groundwater Elevations and Analytical Results**  
**Fred Meyer Facility, Port Orchard, Washington**

Well No.	Date	Gasoline-Range Organics	Volatile Organic Compounds							Alkylbenzenes & Naphthalene									Groundwater Levels			
			Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	EDC	EDB	i-PB	n-PB	1,2,4-TMB	1,3,5-TMB	tertbutyl Benzene	sec-butyl Benzene	n-butyl Benzene	4-IP-Toluene	Naphthalene	Casing Elev.	Depth to Water	NAPL Thickness	Water Elev.
			(µg/L)	5	1,000	700	1,000	20	5	0.01	None	None	None	None	None	None	None	None				
CAS RN		not applicable	71-43-2	108-88-3	100-41-4	1330-20-7	1634-04-4	107-06-2	106-93-4	98-82-8	103-65-1	95-63-6	108-67-8	98-06-6	135-98-8	104-51-8	99-87-6	91-20-3				
MTCA Method A		800	5	1,000	700	1,000	20	5	0.01	None	None	None	None	None	None	None	160					
MW-106	10/19/00	50 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	25 U	311.73	25.63	0.00	286.10
MW-106	12/13/00	50 U	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U	-	-	-	-	-	-	-	-	-	-	-	311.73	26.30	0.00	285.43
MW-106	3/19/01	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	311.73	Dry	Dry	Dry
MW-106	6/28/01	Well destroyed during roadway paving activities																				
MW-107	11/2/99	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	310.59	23.61	0.00	286.98
MW-107	3/1/00	100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	-	-	-	-	-	-	-	-	-	310.59	19.46	0.00	291.13
MW-107	5/24/00	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	310.59	23.54	0.00	287.05
MW-107	7/10/00	50 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	-	-	-	-	-	-	-	-	-	310.59	24.79	0.00	285.80
MW-107	10/19/00	50 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	25 U	310.59	23.87	0.00	286.72
MW-107	12/13/00	50 U	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U	-	-	-	-	-	-	-	-	-	-	-	310.59	24.50	0.00	286.09
MW-107	3/19/01	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	310.59	26.67	0.00	283.92
MW-107	6/28/01	Well destroyed during roadway paving activities																				
MW-108	11/2/99	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	309.94	22.96	0.00	286.98
MW-108	3/1/00	100 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	-	-	-	-	-	-	-	-	-	309.94	18.55	0.00	291.39
MW-108	5/24/00	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	^	309.94	22.72	0.00	287.22
MW-108	7/10/00	50 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	-	-	-	-	-	-	-	-	-	309.94	24.48	0.00	285.46
MW-108	10/19/00	50 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	25 U	309.94	20.46	0.00	289.48
MW-108	12/13/00	50 U	0.5 U	0.5 U	0.5 U	1.5 U	0.5 U	-	-	-	-	-	-	-	-	-	-	-	309.94	23.47	0.00	286.47
MW-108	3/19/01	50 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	25 U	309.94	25.43	0.00	284.51
MW-108	6/28/01	Well destroyed during roadway paving activities																				

Notes:

- MTCA Method A : Washington Department of Ecology Model Toxics Control Act Method A screening criteria
- NAPL: non-aqueous phase liquid
- MTBE: methyl tert-butyl ether
- EDC: 1,2-dichloroethane
- EDB: 1,2-dibromoethane
- i-PB: isopropylbenzene
- n-PB: n-propylbenzene
- TMB: trimethylbenzene
- \* Corrected field label error for switched MW-103 and MW-105 samples
- 4-IP-Toluene: 4-isopropyltoluene
- µg/L: micrograms per liter
- Bold** values indicate concentrations detected >laboratory reporting limit
- NM: not measured
- : The analyte was not tested for by this method
- ^: not sampled
- U: The analyte was not detected above method detection limit presented in table.
- Red** values indicate the concentration exceeds the MTCA Method A cleanup level
- MW-105 resurveyed on January 24, 2009 following repairs. Top of casing elevation previously 311.99 feet, now 310.46 feet.